

Town of Tiburon

Heat Illness Prevention Program

September 2020

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Purpose

This program is in place to protect employees from heat hazards posed by working in the outdoor environment, as required by the heat illness prevention regulation (Title 8 CCR 3395). This program is in effect when the temperatures meet or exceed 80° F.

The Town of Tiburon is committed to preventing heat-related illnesses that can occur to employees working outdoors by implementing the following key steps:

- Identifying outdoor work environments and conditions;
- Monitoring weather conditions;
- Monitoring employee acclimatization for working outdoors in heat;
- Providing clean drinking water;
- Providing adequate shade;
- Addressing high-heat procedures;
- Handling an ill employee and initiating emergency procedures; and
- Providing supervisor and employee training.

Responsibilities:

Program Administrator

The Town Manager has the authority and responsibility for implementing and maintaining the Heat Illness Prevention Program. The duties include, but are not limited to:

- Establishing and updating the program as needed; and
- Ensuring department heads/supervisors have the training and resources to implement the program.

Department Heads/Supervisors

Department heads will have the authority and responsibility for implementing the provisions of this program at the affected worksites. The duties include, but are not limited to:

- Implementing the program;
- Notifying the Town Manager when job duties or assignments change;
- Following all safety policies and procedures as outlined in the program;
- Attending required training; and
- Training affected employees under their direction.

Employees

Employee responsibilities include, but are not limited to:

- Following all safety policies and procedures as outlined in the program; and
- Attending required training.

Affected Positions

See Appendix A for a list of positions that have been identified as working in outdoor environments that could potentially expose employees to illnesses associated with high heat.

Weather Forecast and Conditions Monitoring

When environmental risk factors create the possibility for heat illness, the supervisor/lead person will monitor the two-week forecast for the work area. Supervisors will review the forecasted temperature and humidity for the worksite and compare it against the National Weather Service Heat Index to evaluate the risk level for heat illness. It is important to keep in mind the temperature at which these warnings occur must be lowered as much as 15 degrees if the workers under consideration are in direct sunlight.

Weather information will be obtained by accessing the National Weather Service at www.weather.gov, monitoring local media outlets, utilizing weather application software ([OSHA/NIOSH Heat Index](#)), and by monitoring the weather station installed at the Public Works Corporation Yard. Work schedules will be planned in advance, based upon the forecast. Modifications to the work schedules may be made accordingly, especially if a heat wave is expected. This monitoring will take place high-heat conditions.

Prior to each workday, supervisors will be responsible for monitoring the weather or with the aid of a thermometer at the worksite. This weather information will be taken into consideration to determine when it will be necessary to make modifications to the work schedule (such as stopping work early, rescheduling the job, working at night or during the cooler hours of the day, increasing the number of water and rest breaks).

If schedule modifications are not possible and workers have to work during a high heat condition, supervisors will provide a tailgate meeting to reinforce heat illness prevention with emergency response procedures and review the weather forecast with the workers. In addition, supervisors will provide workers with an increased number of water and rest breaks. Supervisors will ensure workers stop and take these breaks and closely observe all workers for signs of heat illness. Supervisors will also assign each employee a buddy to watch for signs of heat illness and ensure emergency procedures are initiated when someone displays signs of heat illness.

Supervisors will be responsible for periodically checking the temperature to monitor for sudden increases. Once the temperature exceeds 80°F, access to shade or a cooling location will be made available to employees. Once the temperature equals or exceeds 95°F, additional preventive measures such as the high-heat procedures will be implemented. See Access to Shade and High Heat Procedures for additional information.

Employee Acclimatization

Acclimatization is the temporary and gradual physiological change in the body that occurs when the environmentally induced heat load to which the body is accustomed is significantly and suddenly exceeded by sudden environmental changes. In more common terms, the body needs time to adapt when temperatures rise suddenly, and an employee risks heat illness by not taking it easy when a heat wave strikes or when starting a new job that exposes the employee to heat to which the employee's body hasn't yet adjusted.

Inadequate acclimatization can be significantly more perilous in conditions of high heat and physical stress. The following procedures will be utilized when conditions result in sudden exposure to heat to which employees are not used to:

- Supervisors will be on the lookout for sudden heat wave(s), or increases in temperatures to which employees haven't been exposed to for several weeks or longer;
- New employees, or those employees who have been newly assigned to a high heat area, will be closely observed by the supervisor/lead person for the first 14 days. The intensity of the work will be lessened during a two-week break-in period [such as scheduling slower paced, less physically demanding work during the hot parts of the day and the heaviest work activities during the cooler parts of the day (early-morning or evening), or increasing the frequency of rest periods]. Steps taken to lessen the intensity of the workload for new employees will be documented;
- Supervisors will be extra vigilant with new employees and stay alert to the presence of heat-related symptoms;
- New employees will be assigned a "buddy" or experienced co-worker to watch them closely for discomfort or symptoms of heat illness; and
- Employees and supervisors will be trained on the importance of acclimatization, how it is developed and how these procedures address it.

Provisions for Water

Where drinking water is not plumbed or otherwise continuously supplied, drinking water containers will be brought to the worksite so at least one quart per employee is available at the start of the shift. All workers whether working individually or in smaller crews, will have access to drinking water.

The water level of all containers will be checked periodically and more frequently when the temperature rises. Water containers will be refilled with cool water, when the water level within a container drops below 50 percent. Additional water containers will be carried to replace water as needed.

Water will be fresh, pure, and suitably cool and provided to employees free of charge. During hot weather, the water must be cooler than the ambient temperature but not so cool as to cause discomfort.

Water containers will be located as close as practicable to the areas where employees are working, given the working conditions and layout of the worksite, to encourage the frequent drinking of

water. If field terrain prevents the water from being placed as close as possible to the workers, bottled water or personal water containers will be made available, so workers can have drinking water readily accessible.

Since water containers are smaller than shade structures, they can be placed closer to employees than shade structures. Placing water only in designated shade areas or where toilet facilities are located is not sufficient. If employees are working across large areas, water will be placed in multiple locations so it is easily accessible.

All water containers will be kept in sanitary condition. Water from non-approved or non-tested water sources (e.g., untested wells) is not permitted. If hoses or connections are used, they must be governmentally approved for potable drinking water systems as shown on the manufacturer's label.

Workers will be reminded daily of the location of the water coolers and of the importance of drinking water frequently. When the temperature exceeds or is expected to exceed 80°F, brief 'tailgate' meetings will be held each morning to review with employees the importance of drinking water, the number and schedule of water and rest breaks, and the signs and symptoms of heat illness.

Paper cone rims or bags of disposable cups and the necessary cup dispensers will be made available to workers and will be kept clean until used.

Audible devices, such as whistles or air horns, may be used to remind employees to drink water.

When the temperature is expected to equal or exceed 95°F or during a heat wave, pre-shift meetings will be conducted to encourage employees to drink plenty of water and remind employees of their right to take a cool-down rest period when necessary. Additionally, the number of water breaks will be increased. Supervisors will lead by example, and workers will be reminded throughout the work shift to drink water.

Individual water containers or bottled water provided to workers will be adequately identified to eliminate the possibility of drinking from a co-worker's container or bottle.

Electrolyte replacement drinks may be used to supplement the water supply, but it cannot be used to replace the total amount of water that is required.

Access to Shade

Shade will be provided and maintained at one or more areas when the outdoor temperature in the work area exceeds 80°F. These areas will either be open to the air or provided with ventilation or cooling. Shade will also be provided promptly when an employee specifically requests it, even when the temperature does not exceed 80°F.

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 will be permitted at all times. An individual employee who takes a preventative cool-down rest will be monitored and asked if he or she is experiencing symptoms of heat illness, will be encouraged to remain in the shade, and will not be ordered back to work until any signs or symptoms of heat

illness have abated but in no event less than 10 minutes in addition to the time needed to access the shade.

Depending on the worksite, shade may be provided by trees or buildings. When natural shade is not available, other acceptable means of shade such as umbrellas, tents, canopies, etc. to block the sunlight will be provided. In these instances, chairs, benches, sheets, towels, or any other items will be provided to allow employees to sit and rest without contacting the bare ground. Shade structures will be relocated as the work environment or location changes.

The interior of a vehicle may only be used to provide shade when the vehicle is air-conditioned, and the air conditioner has been turned on so it is sufficiently cool prior to the employee entering the vehicle.

The amount of shade present for recovery, rest, and meal periods will be enough to accommodate all employees who are on such a break at any point in time. There will be enough room so employees can sit in a normal posture, fully in the shade without having to be in physical contact with each other. The shaded area will be located as close as practicable to the areas where employees are working. Water will also be available in the rest area so employees are encouraged to drink more water.

In instances where natural shade is not available, supervisors will:

- Bring sufficient shade structures to the site;
- Ensure sufficient shade structures are opened and placed as close as practical to the workers when the temperature equals or exceeds 80°F;
- Point out the daily location of the shade structures to the workers, as well as allow and encourage employees to take a minimum five minute cool-down rest in the shade when they feel the need to do so to protect themselves from overheating; and
- Ensure the shade structures are relocated to follow along with the crew when necessary and double-check they are as close as practical to the employees so access to shade is provided at all times.

If it is infeasible or unsafe to have shade structures or to have shade present on a continuous basis, alternative procedures with equivalent protection will be provided.

In instances where natural shade such as a tree is available, supervisors will evaluate the thickness and shape of the shaded area in orchards or other areas of vegetation (given the changing angles of the sun during the entire shift), before assuming that sufficient shadow is being cast to protect employees.

In situations where it is not safe to provide shade (e.g. during high winds), supervisors will document how the determination was made and identify what steps will be taken if someone requests shade, or the supervisors will identify other cooling measures with equivalent protection. Cooling measures other than shade may be used if they are as effective as shade in allowing employees to cool.

Employees may opt to take a “preventive cool-down rest” in the shade to help the body relieve excess heat. The employee will be monitored during this rest and asked if he or she is experiencing any symptoms of heat illness. If any signs or symptoms of heat illness are observed or reported, the employee will not be ordered back to work and will be continuously observed until the signs or symptoms have abated but in no event less than 5 minutes in addition to the time needed to access the shade.

If employees work in small groups the supervisor/lead person will establish a buddy system for monitoring. If an employee works alone, the supervisor will establish a communication system so the employee can make immediate contact when needed and to facilitate supervisor monitoring of their condition.

The importance of prevention is critical. Employees who wait until symptoms appear before seeking shade and recovery are at significant risk of developing heat illness.

Heat Wave Procedures

For purposes of this section only, “heat wave” means any day in which the predicted high temperature for the day will be at least 80°F *and* at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

During a heat wave, workloads may be reduced, rest periods added, or the workday cut short or rescheduled (example conducted at night or during cooler hours).

During a heat wave and before starting work, tailgate meetings will be held to review the heat illness prevention procedures, the weather forecast, and emergency response. In addition, if schedule modifications are not possible, workers will be provided with an increased number of water and rest breaks and will be observed closely for signs and symptoms of heat illness.

Each employee will be assigned a “buddy” to be on the lookout for signs and symptoms of heat illness and to ensure emergency procedures are initiated when someone displays possible signs or symptoms of heat illness.

High-Heat Procedures (95° F)

High heat procedures are additional preventive measures that are implemented when the temperature equals or exceeds 95°F.

Effective communication by voice, direct observation, mandatory buddy system, or electronic means will be maintained, so employees at the worksite can contact a supervisor/lead person when necessary. If the supervisor/lead person is unable to be near the workers to observe them or communicate with them, an electronic device, such as a cell phone or two-way radio, will be used for this purpose if reception in the area is reliable.

Frequent communication will be maintained with employees working by themselves or in smaller groups via phone or two-way radio to be on the lookout for possible symptoms of heat illness. The

employee(s) will be contacted regularly and as frequently as possible throughout the day, since an employee in distress may not be able to summon help on his or her own.

Effective communication and direct observation for alertness and/or signs and symptoms of heat illness will be conducted frequently. When the supervisor/lead person is not available, a designated alternate responsible person will be assigned to look for signs and symptoms of heat illness. If a supervisor/lead person, designated observer, or any employee reports any signs or symptoms of heat illness in any employee, the supervisor/lead person or designated person will take immediate action commensurate with the severity of the illness (see Emergency Response Procedures).

Employees will be reminded constantly throughout the work shift to drink plenty of water and take preventative cool-down rest break when needed.

Emergency Response Procedures

When an employee displays possible signs of heat illness (refer to Appendix C for a list of signs of heat illness) a supervisor/lead person will take immediate action commensurate with the severity of the illness that includes, but is not limited to:

- Moving the employee to a cooler/shaded area;
- Removing excess layers of clothing;
- Fanning and misting the worker with water;
- Applying ice (ice bags or ice towels);
- Providing cool drinking water, if able to drink; and
- Calling for emergency medical services.

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 supervisor/lead person must implement emergency response procedures.

When emergency medical services are called, a supervisor will remain with the sick employee until emergency help arrives. If the area is remote, the supervisor must be able to provide clear and precise directions (such as streets or road names, distinguishing features, and distances to major roads) of the site to clearly communicate the location to emergency medical services. If needed, the supervisor/lead person will designate someone to physically go to the nearest road or highway where emergency responders can see them. If necessary, employees will be transported to a place where they can be reached by emergency medical services.

An employee exhibiting signs or symptoms of heat illness will be monitored and will not be left alone or sent home without being offered onsite first aid and/or being provided with emergency medical services.

Prior to assigning a crew to a particular worksite, the supervisor will:

- Provide workers and the foreman with clear and precise directions (such as streets or road names, distinguishing features, and distances to major roads) of the site to avoid a delay of emergency medical services;
- Ensure a qualified, appropriately trained, and equipped person will be available at the site to render first aid if necessary;
- Ensure responsibility for calling emergency medical service is assigned to an English-speaking worker at the site;
- Verify all supervisors carry cell phones, two-way radios, or other means of communication to ensure emergency medical services can be called; and
- Ensure all communication devices are functional at the worksite prior to each shift.

Employee and Supervisor Training

Employees

All employees are required to attend a safety training session prior to beginning work that should be reasonably anticipated to result in exposure to the risk of heat illness. The following information will be provided:

- 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
- Procedures for complying with the requirements of the heat illness prevention regulation
- The importance of frequent consumption of small quantities of water
- The concept, importance, and methods of acclimatization
- The different types of heat illness and the common signs and symptoms of heat illness
- The 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 signs and symptoms to serious and life threatening illness
- The importance of employees immediately reporting symptoms or signs of heat illness for themselves and co-workers
- Procedures for responding to possible heat illness, including how emergency medical services will be provided should they become necessary
- Specific 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
- Procedures for designating a person to be available to ensure emergency procedures are invoked when appropriate
- Specific procedures for ensuring clear and precise directions to the work site will be provided as needed to emergency responders

Supervisors

In addition to obtaining the training required for employees listed above, supervisors will be trained before performing work that could be reasonably anticipated to result in exposure to heat illness. Training will include:

- All information provided during employee training
- Procedures for preventing heat illness, including monitoring weather reports and how to respond to hot weather advisories
- Information about how to identify heat illness
- Steps to take for emergency response to heat illness

Appendix A

Affected Positions

Department	Position
Department of Public Works	Director of Public Works/Town Engineer
Department of Public Works	Superintendent of Public Works
Department of Public Works	Associate Engineer
Department of Public Works	Senior Maintenance Worker
Department of Public Works	Maintenance Worker

Appendix B

Heat Illness Employee Training Handout

This training program was developed to increase employee awareness of the occurrence of exposures to heat illnesses when working outdoors and to motivate employees to protect themselves.

Overview of Heat Illness Prevention Regulation

The heat illness prevention regulation is intended to ensure both the employer and its employees understand the dangers associated with working in heat in outdoor workplaces. The following information is a review of the specific requirements of a heat illness prevention program, including water, shade, acclimatization, high-heat procedures, emergency procedures, and training.

Written Heat Illness Prevention Program

The written program provides information on and control of exposures that can result in heat illness while performing outdoor work in the heat. This program is available to you during our training or during your work shift from your supervisor.

Work Environment and Conditions in Our Workplace

The written program includes the identification of work that is performed outdoors when the weather is hot. This list is not all inclusive and when other types of work or conditions are identified, we will update the program and training. The most important element is to realize that when it is hot outside and you are working, take precautions to protect yourself.

Water

Enough fresh drinking water will be provided so that employees have access to at least one quart of water per hour and are actively encouraged to drink it. Refrain from alcoholic beverages or beverages that contain caffeine, such as soft drinks, coffee, and tea.

Shade

The goal is to provide shade so everyone who needs it has access to it to cool off when the weather is hot. If infeasible or unsafe to provide shade, other means to help keep you cool will be provided.

High-Heat Procedures

When the outside temperature reaches or exceeds 95°F, additional precautions, to the extent they are feasible, will be taken to ensure your safety and health. This includes good communication, close supervision if you have not recently worked outdoors in the heat for four or more hours per day, additional rest and recovery periods, observing you, and reminding you to drink plenty of water.

Training

All employees and supervisors who have potential heat exposures receive the same training so everyone understands our policy and procedures for keeping everyone safe when working outdoors. Training addresses how to acclimate to the heat, how much water to drink, the signs and

symptoms of heat illness, the importance of reporting symptoms to your supervisor, and how to get help in an emergency.

Additional training resources are available at <http://www.dir.ca.gov/DOSH/HeatIllnessInfo.html>.

Appendix C

Types of Heat Illnesses

Heat Illness	Definition/Description	Signs/Symptoms	What to Do
Heat Rash (Prickly Heat)	<ul style="list-style-type: none"> Is a skin irritation caused by sweat that does not evaporate from the skin 	<ul style="list-style-type: none"> Clusters of red bumps on skin Often appears on neck, upper chest, folds of skin 	<ul style="list-style-type: none"> Try to work in a cooler, less humid environment Keep the affected areas dry
Muscle (Heat) Cramps	<ul style="list-style-type: none"> Occurs during or after intense physical activity Victim will experience acute, painful, involuntary muscle contractions typically in the arms, legs, or abdomen. 	<ul style="list-style-type: none"> Dehydration Thirst Fatigue Sweating Muscle spasms Pain 	<ul style="list-style-type: none"> Stop all activity and sit quietly in a cool place. Drink clear water or a sports drink. Do not engage in exercise/strenuous activity for a few hours after cramps subside, as this may lead to heat exhaustion or heat stroke. Seek medical attention if heat cramps do not subside in 1 hour.
Heat Syncope	<ul style="list-style-type: none"> Occurs as result of exposure to high temperatures Typically occurs during the first 5 days of acclimation to physical activity in the heat May also occur after a long period of standing after physical activity 	<ul style="list-style-type: none"> Faintness Dizziness Headache Increased pulse rate Restlessness Nausea Vomiting Brief loss of consciousness 	<ul style="list-style-type: none"> Lie down in a cool place. Elevate the feet. Drink clear water or a sports drink. Refrain from vigorous activity.

Heat Illness	Definition/Description	Signs/Symptoms	What to Do
<p align="center">Heat (Exercise) Exhaustion</p>	<ul style="list-style-type: none"> • The inability to continue exercising that is associated with heavy sweating, dehydration, energy depletion, and sodium loss • Frequently occurs in hot, humid conditions 	<ul style="list-style-type: none"> • Cool, moist skin with goose bumps when in the heat • Heavy sweating • Faintness • Dizziness • Fatigue • Weak, rapid pulse • Low blood pressure upon standing • Muscle cramps • Nausea • Headache 	<ul style="list-style-type: none"> • Seek medical attention immediately if symptoms are severe, the victim has existing heart problems or high blood pressure. • You may attempt to cool the victim by giving cool, non-alcoholic beverages (as directed by physician), rest, cool shower/bath/sponge bath, moving to an air conditioned environment, and wearing lightweight clothing.

Heat Illness	Definition/Description	Signs/Symptoms	What to Do
Heat Stroke	<ul style="list-style-type: none"> • Life-threatening unless promptly recognized and treated • Occurs as a result of prolonged heat exposure while engaging in physical activity • Symptoms are a result of the body shutting down when it is no longer able to regulate temperature naturally 	<ul style="list-style-type: none"> • Throbbing headache • Dizziness and light-headedness • Lack of sweating despite the heat • Red, hot, and dry skin • Muscle weakness or cramps • Nausea and vomiting • Rapid heartbeat, which may be either strong or weak • Rapid, shallow breathing • Behavioral changes such as confusion, disorientation, or staggering • Seizures • Unconsciousness 	<ul style="list-style-type: none"> • If any symptoms are evident- CALL 9-1-1 • Move victim to shady area. • Remove excess clothing. • Cool victim rapidly using whatever methods are available, i.e. ice packs placed at pulse points at the neck, arms, groin, knees and ankles; spray the victim with cool water and then fan the victim. • Monitor the victim's body temperature and continue to cool until the temperature drops to less than 101°F • Continue first aid until medical professionals arrive and take over. • If emergency response is delayed, call the emergency room for instructions.

Appendix D

Definitions

Acclimatization

The body's temporary adaptation to hot environments occurs gradually when a person is exposed to such an environment. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.

Affected Employees

Employees who perform, or may perform, work activities that have, or may have, environmental heat illness risk factors.

Heat Illness

Refers to 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.

High Heat Conditions

When outdoor temperatures equal or exceed 95°F.

Preventative Recovery Period

A period of time to recover from the heat in order to prevent heat illness

Environmental Risk Factors for Heat Illness

Working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, and 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.

Personal Risk Factors for Heat Illness

Risk 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.

Shade

Blockage of direct sunlight. 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 discourage access.

Temperature

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.

Potentially Impacted Employees

Employees whose job tasks expose them to environmental risk factors for heat illness.

Preventative Recovery Period

A period of time to recover from the heat in order to prevent heat illness.