

Ferris State University

Heat Illness Prevention Plan

July 2023

Note: This program was developed in part based upon the State of California OSHA *Employer Sample Procedures for Heat Illness Prevention* Rev. May 2019. This document is provided as an informational service under the authority of Public Act 154 of 1974. Its purpose is to aid in the development of written programs related to heat illness. This program is designed to be adapted to each individual employer's need; **this example program should be shortened, expanded, or edited as needed.**



Ferris State University written Heat Illness Prevention Plan is designed to prevent health effects from work environments where there is a higher risk for heat illness. This plan follows the recommendations of the National Institute for Occupational Safety and Health (NIOSH) Criteria for a Recommended Standard — *Occupational Exposure to Heat and Hot Environments*. Ferris State University employees may be involved in activities that involve exposure to occupational heat.

Ferris State University will evaluate and consider the specific conditions present at our site, such as:

1. The size of the crew
2. The length of the work-shift
3. The ambient temperature and heat index
4. Additional sources of heat or the use of personal protective equipment that may increase the body's heat burden
5. These procedures might not include every workplace scenario, so it is crucial to take into account and evaluate conditions found in your individual workplace that are likely to cause a heat illness

Our written procedures will:

1. Identify the person(s) responsible for the particular task(s) (e.g., supervisor, foreman, safety coordinator, crew leader).
2. Describe, in detail, the steps required to carry out the task and ensure that the task is accomplished successfully, including procedures which allow employees time to adapt to the environment, availability of potable drinking water, work/rest regimen, controlled temperature environments for cooling, and consideration of outdoor environments where employees perform tasks outdoors: including the number and size of water containers and shade structures; distance to their placement; and frequency of water replenishment, water breaks/reminders, weather-tracking, etc.
3. We will communicate these procedures to our employees, particularly the person(s) assigned to be responsible for them, and how we will verify that the procedures and instructions are being followed.

The following designated person(s) the authority and responsibility for implementing the provisions of this program at this worksite.

Name/Title/Phone Number

1. Managers and Directors
2. Assistant Managers and Assistant Directors
3. Supervisors
4. Athletics Staff, Trainers, and/or Coach
5. Others with employees working outdoors

Instructions: Choose the items below that are applicable to your work operations for water and shade provision, high heat procedures, acclimatization methods, and emergency procedures.

Procedures for Monitoring Heat Index:

The National Weather Service (NWS) uses a **heat index** (HI) to classify environmental heat into four categories: Caution (80°F – 90°F HI), Extreme Caution (91°F – 103°F HI), Danger (103°F – 124°F HI), and Extreme Danger (126°F or higher HI), issued by the U.S. Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS). See the [NWS webpage](https://www.weather.gov/grr/). When the Heat Index is 80°F or higher, serious occupational heat-related illnesses and injuries become more frequent, especially in workplaces where unacclimatized workers are performing strenuous work (e.g., intense arm and back/lifting work, carrying, shoveling, manual sawing, pushing and pulling heavy loads, and walking at a fast pace), without easy access to cool water, or cool/shaded areas, when working in direct sunlight or areas where other radiant heat sources are present.

☐ The supervisor are instructed to check, in advance, the extended weather forecast. Weather forecasts can be checked with the aid of the OSHA – NIOSH Heat Safety Tool (<https://www.osha.gov/heat/heat-app>) or by visiting the National Weather Service <https://www.weather.gov/grr/>. The work schedule will be planned in advance, taking into consideration whether high temperatures are expected. This type of advanced planning should take place whenever the temperature is expected to reach 80 degrees Fahrenheit or higher.

☐ Prior to each workday, the forecasted temperature and humidity for the worksite will be reviewed and will be compared against the National Weather Service **Heat Index** (Appendix A) to evaluate the risk level for heat illness. Determination will be made of whether or not employees will be exposed to a temperature and humidity characterized as either “extreme caution” or “extreme danger” for heat illnesses. Additional steps, such as those listed below, will be taken to address these hazards.

- ☐ Prior to each workday, the supervisor will monitor the weather (using the OSHA-NIOSH Heat Safety Tool App, by <https://www.weather.gov/grr/> or using a simple thermometer) at the worksite. This critical weather information will be taken into consideration to determine when it will be necessary to make modifications to the work schedule (e.g., 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).
- ☐ A thermometer may be used at the job site to monitor for a sudden increase in temperature and to ensure that once the temperature exceeds a Heat Index of 80 degrees Fahrenheit, cooling areas or shade structures will be opened and made available to the employees. In addition, **when the heat index equals or exceeds 90 degrees**, additional preventive measures, such as high-heat procedures, will be implemented.

In addition to the procedures above, our company will ensure the weather is monitored using the following procedures:

- 1.
- 2.
- 3.
- 4.

Procedures for the Provision of Water:

- ☐ Drinking water will be available on site so that at least two quarts per employee are available at the start of the shift. All employees will have access to drinking water. If containers are used, the water level in the containers will be checked periodically and refilled if below 50% water level.
- ☐ Paper cones or bags of disposable cups and the necessary cup dispensers will be made available to employees and will be kept clean until used.
- ☐ Water will be fresh, pure, suitably cool, and provided to employees free of charge. Supervisors will visually examine the water and ensure that the water is suitably cool.
- ☐ Water containers will be located as close as practicable to the areas where employees are working (depending on the working conditions and layout of the worksite) to encourage the frequent drinking of water. If worksite factors prevent the water from being placed within a reasonable distance from the employees, bottled water or personal water containers will be made available so that employees can have drinking water readily accessible near their workstation.
- ☐ All water containers will be kept in a sanitary condition. Water from non-approved or non-tested water sources (e.g., untested wells) is not acceptable. If hoses or connections are used, they must be approved for potable drinking water systems, as shown on the manufacturer's label.
- ☐ If working outdoors, employees will be informed of the location of the water and of the importance of drinking water frequently.

☐ When the heat index exceeds, or is expected to exceed, 80 degrees Fahrenheit, brief “tailgate” meetings will be held with employees each morning to review the importance of drinking water, the number and schedule of water and rest breaks, and the signs and symptoms of heat illness.

☐ When the heat index equals or exceeds 90 degrees Fahrenheit, pre-shift meetings will be conducted before the commencement of work, to both encourage employees to drink plenty of water and to remind employees of their right to take a cool-down rest when necessary. Additionally, the number of water breaks will be increased. Supervisors/foremen will lead by example and remind employees throughout the work shift to drink water.

☐ When the heat index equals or exceeds 80 degrees Fahrenheit we will provide, when available, electrolyte enhanced drinks.

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

In addition to the procedures above, the employer will ensure the provision of water using the following procedures:

- 1.
- 2.
- 3.
- 4.

Procedures for Access to Cooling Areas or Shade:

☐ Cooling areas or shade structures will be opened and placed as close as practicable to the employees when the heat index equals or exceeds 80 degrees Fahrenheit. When the heat index is below 80 degrees Fahrenheit, access to shade will be provided promptly, when requested by an employee.

Note: The interior of a vehicle may not be used to provide cooling areas or shade unless the vehicle is air-conditioned, and the air conditioner is on.

☐ Enough cooling areas or shade structures will be available at the site to accommodate all of the employees who are on a break or rest period at any point in time. During meal periods, there will be enough cooling areas or shade for all employees who choose to remain in the general area of work or in areas designated for recovery and rest periods. (Employers may rotate employees in and out of meal periods, as with recovery and rest periods.)

☐ Employees will be informed of the location of the cooling areas or shade structures and will be encouraged to take a five-minute cool-down rest as needed. An employee who takes a preventative cool-down rest break will be monitored and asked if they are experiencing symptoms of heat illness. In no case will the employee be ordered back to work until signs or symptoms of heat illness have abated (see the section on Emergency Response for additional information).

- ☐ As outdoor crews move, shade structures will be relocated to be placed as close as practicable to the employees so that access to shade is always provided. All employees on a recovery or rest break or a meal period will have full access to shade so they can sit in a normal posture without having to be in physical contact with each other.

In addition to the procedures above, the employer will ensure access to cooling areas or shade using the following procedures:

1. Indoor areas are available for cooling areas as needed.
- 2.
- 3.

High Heat Procedures:

High Heat Procedures are additional preventive measures that this company will use when the heat index equals or exceeds 90 degrees Fahrenheit.

- ☐ Effective communication by voice, direct observation, mandatory buddy system, or electronic means will be maintained so that employees at the worksite can contact a supervisor when necessary.
- ☐ 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 their own.
- ☐ Effective communication and direct observation for alertness and signs and symptoms of heat illness will be conducted frequently. When the supervisor is not available, a designated alternate responsible person must be assigned to look for signs and symptoms of heat illness. If a supervisor, designated observer, or any employee reports any signs or symptoms of heat illness in any employee, the supervisor 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 breaks when needed.
- ☐ Pre-shift meetings will be held 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.

In addition to the procedures above, the employer will ensure high heat is addressed with the following procedures. **Examples might include increasing ventilation, bringing in cooler outside air, reducing the hot temperature of a radiant heat source, shielding the worker, and using air conditioning equipment:**

1. **Electrolyte replacement fluids**
2. **Cooling vests, bandanas**
3. **Personal Cooling (air, liquid, ice) - for example additional man coolers (fans)**
4. **Reduce process heat and water vapor release (for example local exhaust ventilation)**
5. **Administrative Controls that set acceptable exposure times and allow for sufficient recovery (work / rest schedule changes). During a heat wave or heat spike, the workday will be cut short (e.g., 12:00 p.m.), be rescheduled (e.g., conducted at night or during cooler hours), or if at all possible, cease for the day.**
6. **Physiological monitoring (observing heat illness symptoms and potentially core temperature monitoring)**

Procedures for Acclimatization:

Acclimatization is the temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. 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 or heat spike 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. Employers are responsible for the working conditions of their employees, and they must implement additional protective measures when conditions result in sudden exposure to heat their employees are not accustomed to.

- ☐ The heat index will be monitored daily. The supervisor will be on the lookout for heat waves, heat spikes, or temperatures to which employees haven't been exposed for several weeks or longer.
- ☐ New employees and those who have been newly assigned to a high heat area will be closely observed by the supervisor or designee **for the first 14 days**. The intensity of the work will be lessened during a two-week break-in period by using procedures 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). Steps taken to lessen the intensity of the workload for new employees should be documented.
- ☐ The supervisor or the designee 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 coworker, so they can watch each other closely for discomfort or symptoms of heat illness.

- ☐ All employees will be observed closely (or maintain frequent communication via phone or radio) for possible symptoms of heat illness.
- ☐ Employees and supervisors will be trained on the importance of acclimatization, how it is developed, and how these company procedures address it.

In addition to the procedures above, the employer will ensure employee acclimatization is accomplished with the following procedures:

1. For example, adding approximately 10% to the employee's workload each day from initial assignment (10% load on day 1, 20% load on day 2 etc.)
- 2.
- 3.
- 4.

Procedures for Emergency Response:

- ☐ When employees are working outdoors or at a location other than their primary work address, the employees will be provided a map of the site that will allow them to give clear and precise directions to the worksite (e.g., street or road names, distinguishing features and distances to major roads) to avoid a delay of emergency medical services.
- ☐ Prior to assigning a crew to a worksite without an infirmary, clinic, or hospital nearby, the employer will ensure that an appropriately trained and equipped person is available at the site to render first aid, if necessary.
- ☐ All foremen and supervisors will carry cell phones or other means of communication to ensure that emergency medical services can be called. Checks will be made to ensure that these electronic devices are functional prior to each shift.
- ☐ When an employee shows symptom(s) of possible heat illness, emergency medical services will be called, and steps will immediately be taken to keep the stricken employee cool and comfortable to prevent the progression to more serious illness. Under no circumstances will the affected employee be left unattended.
- ☐ At remote locations, the supervisor will designate a competent person to implement this plan and summon emergency services.
- ☐ During a heat wave, heat spike, or hot temperatures, employees will be reminded and encouraged to immediately report to their supervisor any signs or symptoms they are experiencing.
- ☐ Employees and supervisors will be trained on every detail of these written Procedures for Emergency Response.

In addition to the procedures above, the employer will ensure emergency response with the following procedures:

- 1.
- 2.
- 3.
- 4.

Procedures for Handling a Sick Employee:

- ☐ When an employee displays possible signs or symptoms of heat illness, a trained first aid employee or supervisor will evaluate the sick employee and determine whether resting in the shade and drinking cool water will suffice or if emergency service providers will need to be called. A sick employee will not be left alone in the shade, as they could take a turn for the worse!
- ☐ When an employee displays possible signs or symptoms of heat illness and no trained first aid employee or supervisor is available at the site, emergency service providers will be called.
- ☐ Emergency service providers will be called immediately if an employee displays signs or symptoms of severe heat illness (e.g., decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior, incoherent speech, convulsions, red and hot face), does not look okay, or does not get better after drinking cool water and resting in the shade. While the ambulance is in route, first aid will be initiated (i.e., cool the employee by placing the employee in the shade, removing excess layers of clothing, placing ice packs in the armpits and groin area, and fan the victim). **Do not let a sick employee leave the site, as they can get lost or die before reaching a hospital.**

In addition to the procedures above, the employer will ensure sick employees are attended to with the following procedures:

1. Direct sick employees to the Health Center or Occupational Wellness
2. Call 911 for emergencies
- 3.

Procedures for Employee and Supervisor Training:

To be effective, training must be understood by employees. Therefore, it must be given in a language and vocabulary the employees understand. Training records will be maintained and will include the date of the training, who performed the training, who attended the training, and the subject(s) covered.

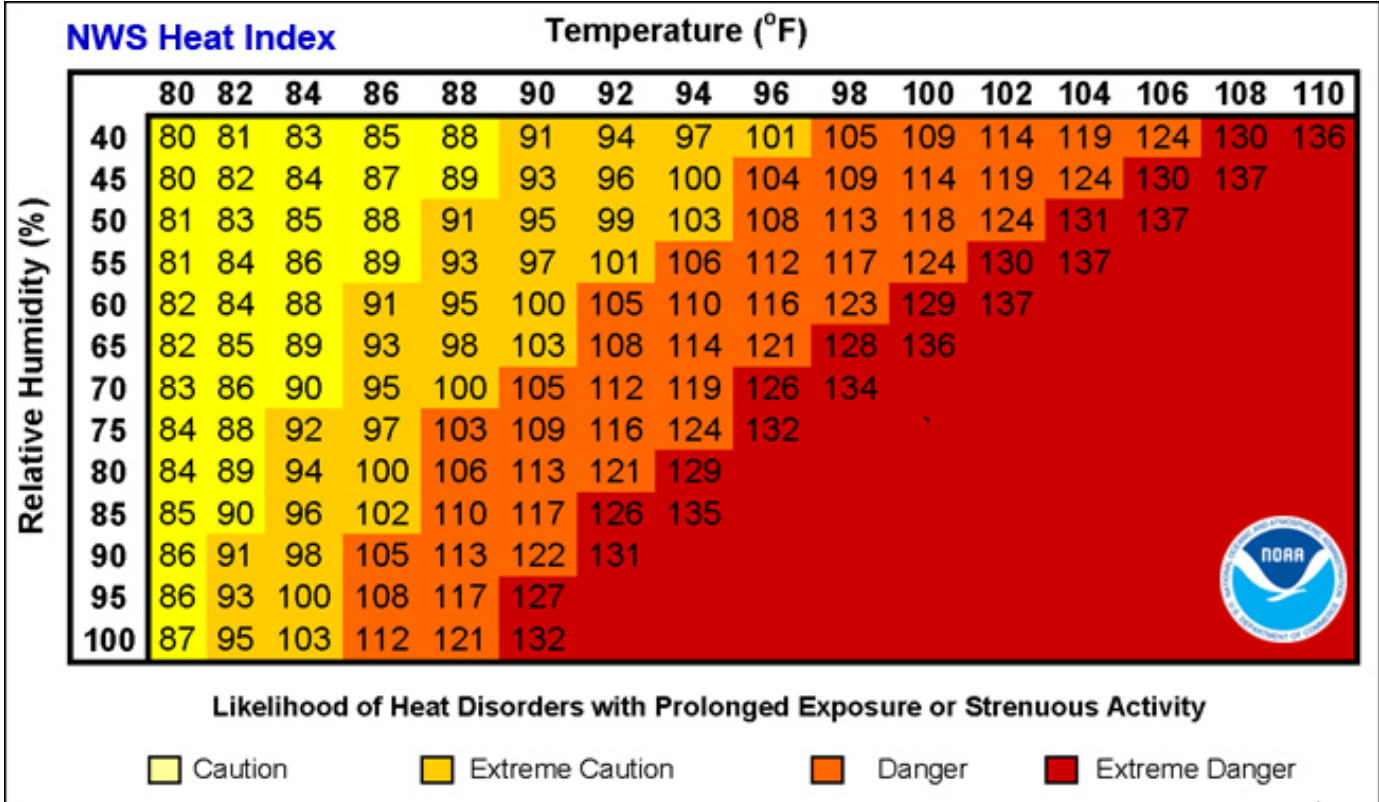
- ☐ Supervisors will be trained prior to being assigned to supervise other employees. Training will include this company's written procedures and the steps supervisors will follow when employees exhibit symptoms consistent with heat illness. GCN Training – Heat Related Illness (<https://site.gcntraining.com/>)

- ☐ Supervisors will be trained on their responsibility to provide water, cool areas or shade, cool-down rests, and access to first aid, as well as the employees' right to exercise their rights under this standard without retaliation.
- ☐ Supervisors will be trained in appropriate first aid and/or emergency response to different types of heat illness and made aware that heat illness may progress quickly from mild signs and symptoms to a serious, life-threatening illness.
- ☐ Supervisors will be trained on how to track the weather at the job site (by monitoring predicted temperature highs and periodically using a thermometer). Supervisors will be instructed on how weather information will be used to modify work schedules, increase the number of water and rest breaks, or cease work early if necessary.
- ☐ All employees and supervisors will be trained prior to working outside. Training will include all aspects of implementing an effective Heat Illness Prevention Plan, including providing sufficient water, providing access to shade, high-heat procedures, emergency response procedures, and acclimatization procedures contained in the company's written plan. Employees and supervisors will also be trained on the environmental and personal risk factors of heat illness and the importance of immediately reporting signs and symptoms of heat illness. GCN Training – Heat Related Illness (<https://site.gcntraining.com/>)
- ☐ In addition to initial training, employees will be retrained annually.
- ☐ Employees will be trained on the steps for contacting emergency medical services, including how they are to proceed when there are non-English speaking employees, how clear and precise directions to the site will be provided, and the importance of making visual contact with emergency responders at the nearest road or landmark to direct them to their worksite.
- ☐ When the temperature is expected to exceed 80 degrees Fahrenheit, short "tailgate" meetings will be held to review the weather report, reinforce heat illness prevention with all employees, provide reminders to drink water frequently, inform them that shade will be available, and remind them to be on the lookout for signs and symptoms of heat illness.
- ☐ New employees will be assigned a "buddy," or experienced co-worker, to ensure that they understand the training and follow company procedures.

In addition to the procedures above, the employer will ensure proper training of employees and supervisors with the following procedures:

- 1.
- 2.
- 3.

Appendix A – Heat Index Chart



Appendix B — Description of Serious Heat-related Illnesses and Common Symptoms

The table below describes serious heat-related illnesses and common signs and symptoms. Please note that this list is not exhaustive.

Illness Type	Symptoms and Signs
Heat stroke	<ul style="list-style-type: none">• Confusion• Slurred speech• Unconsciousness• Seizures• Heavy sweating or hot, dry skin• Very high body temperature• Rapid heart rate
Heat exhaustion	<ul style="list-style-type: none">• Fatigue• Irritability• Thirst• Nausea or vomiting• Dizziness or lightheadedness• Heavy sweating• Elevated body temperature or fast heart rate
Heat cramps	<ul style="list-style-type: none">• Muscle spasms or pain• Usually in legs, arms, or trunk
Heat syncope	<ul style="list-style-type: none">• Fainting• Dizziness
Heat rash	<ul style="list-style-type: none">• Clusters of red bumps on skin• Often appears on neck, upper chest, and skin folds
Rhabdomyolysis (muscle breakdown)	<ul style="list-style-type: none">• Muscle pain• Dark urine or reduced urine output• Weakness
Acute kidney injury (AKI)	<ul style="list-style-type: none">• Kidneys become damaged due to inadequate blood flow or a second mechanism is rhabdomyolysis of kidney muscle tissue.• Diagnosed by elevated blood creatinine levels. Urine output is also reduced.• May lead to kidney failure

Appendix C – References and Heat Resources

GCN Training – Heat Related Illness - <https://site.gcntraining.com/>

National Weather Service in Grand Rapids - <https://www.weather.gov/grr/>

California Department of Industrial Relations Cal/OSHA. Heat Illness Prevention *Employer Sample Procedures for Heat Illness Prevention*, May 2019. https://www.dir.ca.gov/dosh/dosh_publications/HIP-Sample-Procedures.pdf

U.S. Department of Labor (DOL), Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH). *Heat Safety Tool*. <https://www.osha.gov/heat/heat-app>

U.S. Department of Labor (DOL), Occupational Safety and Health Administration (OSHA). *Heat* <https://www.osha.gov/heat-exposure>

U.S. Department of Labor (DOL), Occupational Safety and Health Administration (OSHA). *National Emphasis Program – Outdoor and Indoor Heat-Related Hazards*. April 8, 2022. https://www.osha.gov/sites/default/files/enforcement/directives/CPL_03-00-024.pdf

The National Institute for Occupational Safety and Health (NIOSH). *Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments*. <https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf?id=10.26616/NIOSH PUB2016106>

American Conference of Governmental Industrial Hygienists. *Heat Stress and Strain*. <https://www.acgih.org/heat-stress-and-strain-2/>

National Weather Service. *Heat Forecast Tools* <https://www.weather.gov/safety/heat-index>

National Weather Service. *Heat Index Calculator* <http://www.wpc.ncep.noaa.gov/html/heatindex.shtml>

The Center for Construction Research and Training. *Working in Hot Weather* <https://www.cpwr.com/wp-content/uploads/2020/06/Hot-Weather-Hazard-Alert.pdf>

