



## Working Environments Action Plan

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## REVISION HISTORY

Revision Number	Revision Date	Revised By	Description of Change
00	2/20/20	Selvin McLean	Initial plan creation and implementation.
01	8/23/2021	Selvin McLean	Typo and grammar usage corrections
02	9/21/2021	Selvin McLean	OSHA initiatives-news release 9/20/2021
03	1/24/2023	Selvin McLean	Document updates.
04	8/16/2024	Selvin McLean	OSHA propose rule making process: <i>Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings</i> . Florida Tech is monitoring the process. Document updates.

## A. PURPOSE

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Under federal and state laws, employers must provide a safe workplace. If unsafe working conditions are present, a worker may report the violation to the employer, to the federal and/or state Occupational Safety and Health Administration (OSHA), and in some cases, the worker may refuse to work. The following is a summary of OSHA's protection and guidelines for dealing with dangerous conditions in the workplace/site.

To protect workers from unsafe working conditions, employers must abide by workplace safety standards (OSHA General Duty Clause). Employers must:

- Provide a workplace free of health and safety hazards that can cause death or serious injury.
- Post an OSHA job safety notice in the workplace.
- Keep a record of injuries, deaths, and exposure to hazardous material; and
- Provide safety training, if necessary.

Safety standards set by OSHA include provisions for the storage of hazardous chemicals, equipment maintenance, fire protection, and personal protective clothing.

**Issues:** The concept behind this document is working in extreme/hazardous environments such as areas where the temperature may be at a high heat index or low, or severe weather (lightning, hurricanes, tornadoes, earthquakes, floods, etc.), or laboratory conditions that involve increased risk of occupational exposure that may cause life threatening injury or death to personnel. The described environments may not be typical and could change at a moment's notices.

**Note:** Florida Tech employees work in the following states in multiple locations: Alabama, Florida, Maryland, New Jersey, and Virginia. Some personnel, when conducting research activities associated with Florida Tech, may find themselves outside of these states or outside of the United States in unfavorable environments.

## B. RESPONSIBILITIES

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### Departments

Monitor the weather for that day for conditions that may affect outdoor work or events; local or out of the area conditions also apply. Monitor events that may affect your work area such as protests or other activities that may cause a problem with your planned activity. Ensure that lines of communications are open and free flowing with personnel. Provide the necessary work environment that allows for working without harm to personnel. If environmental conditions are man-made such as in a wind tunnel or environmental control rooms, for example, ensure personnel have adequate training and understanding of the potential hazards; and the necessary safety equipment to use for safeguarding life.

If assistance is needed, please communicate with other offices and departments to attain the necessary information to better assess any risk that may be undertaken on an activity, event and/or project.

If work lays in a foreign country, ensure official channels such as consulates (U.S. State Department website can be used) are contacted, and a proper check-in/out procedure is reviewed and established for safety concerns with the personnel that you are traveling with or with the local U.S. Embassy if traveling alone.

### Supervisors.

Ensure that employees have full access to the necessary safety materials (applicable engineering controls and personal protective equipment) to conduct their jobs safely. Monitor work sites whether they're exterior or interior areas to ensure employees are safe and out of harm's way. Ensure that the employee has a means to contact and communicate with you, and vice versa. Limit personnel working alone or during unconventional hours. Set a time aside that will allow for checks with staff to ensure that personnel are working safely. Ensure that alternate plans have been confirmed and vetted in instances where weather may change drastically, or external activities may impede on your activity and potentially deem the working environment unsafe.

Communicate with Florida Tech's Office of Compliance and Risk Management before undergoing any activity where the risk factors may be unfavorable.

### Employees.

Report any unsafe conditions at the worksite to your supervisor or the next person in line. Be attentive to co-workers and others in the immediate area. Advise personnel if a hazardous condition exist to keep personnel safe and out of the line of danger. Secure unsafe areas so a proper safety review can be completed. Wear the personal protective equipment (PPE) that has been given to you and report any malfunction or damaged PPE immediately (NOTE: never use compromised PPE).

### Environmental Health & Safety (EHS).

Will aid personnel by trying to attain the most up-to-date environmental health/occupational health information for the area that a department and/or staff member will be working at as it relates to safety conditions. This will require open lines of communication with the department providing information to EHS as well as full disclosure of all hazards (or potential) in which personnel may be exposed.

## C. WHAT TO KNOW

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### Hot weather environments.

Hot weather is one of greatest weather-related cause of death. According to the Centers for Disease Control and Prevention, *"Extreme heat is defined as summertime temperatures that are much hotter and/or humid than average. Because some places are hotter than others, this depends on what's considered average for a particular location at that time of year. Humid and muggy conditions can make it seem hotter than it really is."* And *"Heat-related illnesses, like heat exhaustion or heat stroke, happen when the body is not able to properly cool itself. While the body normally cools itself by sweating, during*

*extreme heat, this might not be enough. In these cases, a person's body temperature rises faster than it can cool itself down. This can cause damage to the brain and other vital organs. "*

Also, enclosed areas that are man-made environments pose a risk to individuals. Air quality can be a factor, such as low oxygen or area that are not properly ventilated or cool in a hot environment.

## Day-to-Day Supervision

Heat conditions can change rapidly and management commitment to adjusting heat stress controls is critical to prevent heat illness. An individual at the worksite should be responsible for monitoring conditions and implementing the employer's heat plan throughout the workday. This individual can be a foreman, jobsite supervisor, plant manager, safety director, or anyone else with the proper training. Proper training includes knowing how to:

- Identify and control heat hazards.
- Recognize early symptoms of heat stress.
- Administer first aid for heat-related illnesses; and
- Activate emergency medical services quickly when needed.

Ideally, the individual who is responsible for the heat plan should be on-site, where the workers are. On-site monitoring allows accurate determination of heat stress. In some industries with a widely distributed workforce, such as mail and package delivery, on-site monitoring might not be feasible. In those cases, the responsible individual at the site should be fully trained on the means and methods to contact and report to the employer any adverse heat related conditions that may develop on the site as well as any signs and symptoms of heat related illness experienced by any of the workers. The responsible individual in a central location should estimate heat stress using the best available methods for [remote estimation](#).

In a warm environment, especially when physically active, the human body relies on its ability to get rid of excess heat (i.e., heat dissipation) to maintain a healthy internal body temperature. Heat dissipation happens naturally through sweating and increased blood flow to the skin. Workers cool down more rapidly if the external (environmental) heat and physical activity (metabolic heat) are reduced.

If heat dissipation does not happen quickly enough, the internal body temperature keeps rising and the worker may experience symptoms that include thirst, irritability, a rash, cramping, heat exhaustion, or heat stroke.

Heat stroke is the most severe heat-related illness. Workers suffering from heat stroke experience mental dysfunction such as unconsciousness, confusion, disorientation, or slurred speech. Cool these workers immediately and call 911!

How to identify potential medical emergencies (or potential leading factors) with personnel:

### Heat Stroke-

- High body temperature (103°F or higher)
- Hot, red, dry, or damp skin

- Fast, strong pulse
- Headache
- Dizziness
- Nausea
- Confusion
- Losing consciousness (passing out)

#### Heat Exhaustion-

- Heavy sweating
- Cold, pale, and clammy skin
- Fast, weak pulse
- Nausea or vomiting
- Muscle cramps
- Tiredness or weakness
- Dizziness
- Headache
- Fainting (passing out)

#### Heat Cramp-

- Heavy sweating during intense exercise
- Muscle pain or spasms

#### Sunburn-

- Painful, red, and warm skin
- Blisters on the skin

#### Heat Rash-

- Red clusters of small blisters that look like pimples on the skin (usually on the neck, chest, groin, or in elbow creases)

#### Precautions.

Heat-related illness is preventable, especially with management commitment to providing the most effective controls. An effective heat-related illness prevention program is incorporated in a broader safety and health program and aligns with OSHA's Recommended Practices for Safety and Health Programs core elements.

Workers who have not spent time recently in warm or hot environments and/or being physically active will need time to build tolerance (acclimatize or less frequently used, acclimate) to the heat. During their first few days in warm or hot environments, employers should encourage workers to:

- DRINK WATER: Drink enough water to replace your sweat loss.
- Don't wait to feel thirsty.

- Remind your Co-worker(s) to drink water.
- Refill your water source at every opportunity.
- Check your urine, if it is dark, DRINK MORE WATER. If you have not Urinated, DRINK MORE WATER.
- Wear comfortable clothing that is not binding that could cut off circulation.
- Use the shade as much as possible; if in areas where shade is not available wear head gear that keeps direct sunlight off you.
- Eat full meals to replace natural salts to reduce the possibilities of cramping.
- Do not follow low calorie diets when training or in a hot environment.
- Do not take Weight loss Dietary Supplements; they may have a negative effect on your body.
- If on Medication, follow your doctor's usage advice / ensure water consumption;
- Eat a balanced diet consisting of appropriate calories to maintain weight and reduce water loss.
- Seek medical attention if needed.

Engineering controls such as air conditioning, with cooled air, and increased air flow, leading to increased evaporative cooling, can make the workplace safer. Other options for keeping body temperatures down in warm environments include making changes to workload and schedules. For example, empower supervisors and workers to slow down physical activity like reducing manual handling speeds or scheduling work for the morning or shorter shifts with frequent rest breaks in the shade or at least away from heat sources. Supervisors can encourage workers in warm environments to drink hydrating fluids. At a minimum, all supervisors and workers should receive training about heat-related symptoms and first aid.

Heat-related illnesses can have a substantial cost to workers and employers. Heat stress can cause fine motor performance (like rebar tying or keyboarding) to deteriorate even in acclimatized individuals. Heat illness can contribute to decreased performance, lost productivity due to illness and hospitalization, and possibly death. OSHA encourages water, rest, and shade as prevention as well as treatment for heat-related illness.

Note: *Personal Risk factors* - Some workers are more susceptible to heat-related illness. Personal risk factors include medical conditions, lack of physical fitness, previous episodes of heat-related illness, alcohol consumption, drugs, and use of certain medication. Management should commit to preventing heat-related illness for all employees regardless of their heat tolerance levels. Measurement of heart rate, body weight, or body temperature (physiologic monitoring) can provide individualized data to aid decisions about heat controls.

## Cold weather environments.

Winter is during the months of 'December to March' in the United States (Northern Hemisphere); and 'June to September' in the Southern Hemisphere. Things to know and remember:

Precautions.

- Remember the acronym **C-O-L-D** when wearing clothing in cold weather (**C**: Keep it clean, **O**: avoid Overheating, **L**: wear clothing in Loose Layers, **D**: keep clothing Dry).
- Change into dry clothing whenever clothing becomes wet.
- Wear clean dry socks and gloves or mittens



- Use sunglasses in snow covered areas.
- Keep your skin clean, covered and dry.
- Use gloves to handle equipment or tools.
- Avoid cotton clothing—it holds moisture.
- Wear breathable material.
- Watch out for your co-worker(s), and others.
- Watch each other when outdoor for warning signs of cold injuries:
  - Skin that is red or swollen, painful or tender to touch
  - Numb body parts
  - Uncontrolled shivering, drowsiness, mental slowness, lack of coordination
  - Dizziness, weakness, apathy
  - Eyes that are red, watery, blurred vision
  - Headache, confusion, dizziness, excessive yawning.

## Tornadoes.

*Special Note:* If you are located on a Florida Tech Campus or at another partnering university, please follow the Emergency Action Plan for that location. This section gives a brief view and precautions.

The most active months for tornadoes are June through August in the United States. Tornadoes can last from a few seconds to more than an hour. The path can be from a few dozen yards to a few hundred yards.

### Tornado Watch/Warning.

- Issued by the National Weather Service when conditions are present or developing.
- A watch means that tornados are possible in the area; remain alert.
- A warning means a tornado has been sighted or indicated on radar; seek shelter immediately.

### Precautions.

If indoors (classroom, office, etc.): Go to the lowest building level (if there is time to do so) to the center of an interior room (closet, interior hallway) away from corners, windows, doors, and outside walls. Put as many walls as possible between you and the outside. Get under a sturdy table and use your arms to protect your head and neck. Do not open windows. Never exit a building during extreme weather conditions.

If in a vehicle, or modular building: Get out immediately and go to the lowest floor of a sturdy, nearby building. Modular buildings, even if tied down, offer little protection from tornadoes. If you cannot get out or no other building is nearby, lay flat and cover your head to protect yourself from flying debris. Never try to outrun a tornado in your vehicle. Instead, leave the vehicle for safer shelter. Do not get under an overpass or bridge.

If outdoors: Lay flat in a nearby ditch or depression and cover your head with your arms. Be aware of the potential for flooding. Avoid places with wide- span roofs such as auditoriums, cafeterias, and large hallways. You are safer in a low, flat location. Watch out for flying debris. Flying debris from tornadoes causes most fatalities and injuries. Lightning strikes are highly likely during these events.

## Lightning.

Florida is considered the lightning capitol of the United States; lightning is the leading cause of weather-related deaths. Lightning seeks the path of least resistance, and the human body is a very good conductor because of its large water content.

### Precautions.

- Avoid high open ground and isolated large trees.
- Avoid water (pools, lakes, and rivers), beaches, and boats.
- Seek shelter inside a building or vehicle (not convertibles or golf carts).
- Stay away from doors, windows, or metal objects.
- Stay off the telephone and away from electrical devices.

## Flooding.

Flooding occurs as a result of extended rain periods saturating the soil to where additional rain causes surface ponding or overflows storm drains, canals, and ponds. Flash flooding occurs when intense rainfall in a brief period dumps more water than the ground can absorb, or drainage can handle. Other issue that may occur are mud slides and possible sink holes opening up.

### When a Flood Watch is issued:

- Listen to local radio, TV or other communication devices for information and advisories.
- Bring outdoor items indoors.
- Move files, furniture, and valuables to higher floors or elevate them.
- Top off vehicle gas tank in the event that an evacuation is given.

### When a Flood Warning is issued:

- Continue to monitor local radio or TV for information and advisories.
- Be alert to signs of flooding and be ready to evacuate at a moment's notice.
- Listen for evacuation instructions; follow recommended evacuation routes.
- Do not drive over flooded roads.

## Hurricanes.

Hurricane season runs from June 1 through November 30 in the Atlantic Coast Area; May 15 to November 30 in the Pacific Coast Area, however, severe weather can occur at any time of the year in the form of tornados, floods, lightning, hail, snowstorms and high winds. When a hurricane warning is issued by the National Weather Service, the President of the University or a designee may authorize one or more protective actions. These actions will be announced via email/phone call/texts and/or posted to the Florida Tech website. Florida Tech's Emergency Operations Plan can be located on the Florida Tech Security webpage: <https://www.fit.edu/security/disaster-emergency--evacuation-plan/>.

## Fires.

### Precautions.

- Contact 911, your local fire department, or the park service if you notice an unattended or out-of-control fire, or emergency responders in the area of your activity.
- Never leave a fire unattended. Completely extinguish the fire—by dousing it with water and stirring the ashes until cold—before sleeping or leaving the campsite if you are camping or conducting research in an area where a campsite is located.
- Always take care when using and fueling lanterns, stoves, and heaters. Make sure lighting and heating devices are cool before refueling. Avoid spilling flammable liquids and store fuel away from appliances.
- Do not discard cigarettes, matches, and smoking materials from moving vehicles, or anywhere on Florida Tech grounds. Be certain to completely extinguish cigarettes before disposing of them.
- Follow local ordinances/directives when burning yard waste and/or debris. Avoid backyard burning in windy conditions, and keep a shovel, water, and fire retardant nearby to keep fires in check. If a fire extinguisher is available keep it close by or know where it is located. Remove all flammables from the area when burning.

#### Evacuation tips:

- If advised to evacuate, do so immediately.
- Know your evacuation route ahead of time and prepare an evacuation checklist and emergency supplies.
- Wear protective clothing and footwear to reduce harm from flying sparks and ashes.

## Earthquakes.

An earthquake is a sudden and rapid shaking of the ground caused by the shifting of rocks deep underneath the earth's surface. Earthquakes can happen without warning and result in injuries and damage to property and roads. Earthquakes can cause fires, tsunamis, landslides, or avalanches. While they can happen anywhere, areas at higher risk for earthquakes include California, Oregon, Washington, Alaska, Hawaii, Puerto Rico, and the Mississippi Valley.

If an earthquake happens, protect yourself right away.

- If you are in a vehicle, pull over and stop. Set your parking brake.
- If you are in bed, turn face down and cover your head and neck with a pillow.
- If you are outdoors, stay outdoors away from buildings.
- Do not get in a doorway.
- Do not run outside.

## Volcanoes.

A volcano is an opening in the Earth's crust that allows molten rock, gases, and debris to escape to the surface. Alaska, Hawaii, California, and Oregon have the most active volcanoes, but other states and territories have active volcanoes, too. A volcanic eruption may involve lava and other debris that can

flow up to 100 mph, destroying everything in their path. Volcanic ash can travel 100s of miles and cause severe health problems. A volcanic eruption can:

- Contaminate water supplies.
- Damage machinery.
- Reduce visibility through smog and harmful gases that may threaten low-lying areas.
- Make it hard to breathe and irritate the skin, eyes, nose, and throat.

IF YOU ARE UNDER A VOLCANO WARNING:

- Listen for emergency information and alerts.
- Follow evacuation or shelter orders. If advised to evacuate, then do so early.
- Avoid areas downstream of the eruption.
- Protect yourself from falling ash.
- Do not drive in heavy ash fall.

## **D. INTERNATIONAL TRAVEL.**

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Please check with Florida Tech's Office of Compliance and Risk Management before traveling.

Information about foreign travel.

Please check with the U.S. State Department's website regarding 'Travel advisories':

<https://travel.state.gov/content/travel/en/traveladvisories/traveladvisories.html/>

Safety and Security:

<https://travel.state.gov/content/travel/en/international-travel/before-you-go/about-our-new-products.html>

Driving and Road Safety Abroad:

<https://travel.state.gov/content/travel/en/international-travel/before-you-go/driving-and-road-safety.html>

## **E. TRAINING/FIRST AID**

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Training will depend upon the activity that the individual will be undertaking. Please ensure Departments, Supervisors, and Employees are well versed in their assigned task. This should be continual part of a departments mission.

First Aid.

Please ensure personnel are trained in first aid and or there is a means to contact first responders at the location that the event or project is being conducted.

EHS has a vendor that can aid in providing training. Please submit an inquiry at [ehs@fit.edu](mailto:ehs@fit.edu).

## F. REFERENCES

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- A. Federal Emergency Management Agency (FEMA)
- B. Department of Homeland Security
- C. U.S. State Department