Facilities Management

Environmental Health and Safety

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Heat Stress Prevention

Safety Program

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# **Introduction**

Employees who are exposed to excessive heat or who work in hot environments may be at risk of heat stress. Various factors can contribute to heat stress such as air temperature, physical activity, individual susceptibility, radiant heat, humidity, air flow, and clothing type. Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. Fayetteville State University’s Environmental Health and Safety office (EHS) has developed this program to protect employees from heat-related illnesses while at work.

# **Scope**

This program applies to all university employees who are exposed to or may become exposed to excessive heat during the course of their job duties.

# **Responsibility**

**Environmental Health & Safety (EHS):**

* assisting departments in implementing the provisions of this program;
* revising and updating the program as necessary;
* validating program implementation;
* providing training and education resources regarding heat stress and illnesses; and
* performing heat stress exposure assessments for employees when necessary.

**Facilities Operations (FO):**

* determining and reporting indoor heat index values to affected departments as specified in this program; and
* providing fans for air movement when applicable.

**Departments and Supervisors:**

* ensuring employees are trained in identifying the signs and symptoms of heat-related illnesses;
* providing provisions for rest areas and accessible drinking water to employees;
* providing fans for air movement when applicable;
* monitoring the heat index and pursuing, implementing, and enforcing the proper protective measures for employees as specified in this program;
* notifying EHS of specialized job tasks or environments as defined in this program that require a heat exposure assessment;
* reporting the results of all heat stress monitoring to employees; and
* following their respective campus procedure for reporting occupational injuries and illnesses.

**Employees:**

* working in accordance with the provisions of this program;
* understanding the signs and symptoms of heat-related illnesses;
* notifying the supervisor if conditions exist that may lead to heat-related illness; and
* notifying the supervisor if they begin to experience symptoms of heat-related illnesses.

# **Program Elements**

**Protecting Employees**

EHS has developed protective criteria for employees based upon the heat index and other measures of heat stress exposure. The heat index combines both air temperature and relative humidity into a single index. The higher the heat index, the hotter the environment will feel, and the greater the risk that employees will experience heat-related illness. Individual susceptibility to heat-related illness can vary widely between employees. Employees gradually acclimatize when exposed to hot conditions for several weeks. When the heat index is high, special precautions are needed to protect un-acclimatized employees while they adjust to the heat, particularly on the first few days they are exposed to hot conditions. Supervisors should monitor employees closely for signs of heat stress during this period and they should adopt appropriate work-rest schedules for these employees, starting with longer rest periods that are reduced over a two week period. Re-acclimatization may also be necessary when employees are away from hot conditions for a few days.

**Outdoor environments**

Outdoor temperatures become elevated during the summer months. EHS has divided heat index levels into four bands or risk levels that require specific protective measures when working outdoors. Additional protective measures are necessary when one of the following risk factors are present: employees must wear heavy or non-breathable protective clothing (e.g. vapor barrier coveralls), employees work in direct sunlight, employees perform tasks that generate radiant heat (e.g. welding), or when employees perform prolonged strenuous activity. However, when a combination of these risk factors occur simultaneously.

**Office, laboratory, and housing environments**

The temperature in offices, laboratories, and housing may become elevated when equipment malfunctions and outdoor temperatures are high. When temperatures exceed 83 degrees Fahrenheit in office, laboratory, or housing environments, employees should contact FO immediately. The heat index (i.e. calculated from temperature and humidity measurements) should be monitored by FO closely during these conditions. Additional protective measures are necessary when one of the following risk factors are present: employees must wear heavy or non-breathable protective clothing (e.g. vapor barrier coveralls), employees perform tasks that generate radiant heat (e.g. welding), and when employees perform prolonged strenuous activity. However, when a combination of these risk factors occur simultaneously.

**Other Environments and Job Tasks**

Fayetteville State University has a very diverse set of work environments and job tasks. If the work environment or work condition is not specifically addressed in Outdoor environments or Office, laboratory, and housing environments, or if an employee reports and/or experiences heat-related symptoms in a particular environment or during a specific job task, a [Wet-Bulb Globe Temperature](https://learn.weatherstem.com/modules/learn/lessons/86/10.html) (WBGT) based heat exposure assessment may be necessary to ensure safe work conditions or to identify appropriate protective measures. If heat stress is identified as a concern by an employee or by EHS for a particular work environment or job task that is not addressed in Outdoor environments or Office, laboratory, and housing environments, EHS will perform a heat exposure assessment for that specific work environment or job task. Utilizing the results of the heat exposure assessment and the most recent guidelines specified by the [American Conference of Governmental Industrial Hygienists](https://www.acgih.org/) (ACGIH), EHS will provide specific recommendations and precautions for the specialized job task and/or environment.

**Heat-related illnesses and emergencies**

If employees report or supervisors observe signs or symptoms of heat-related illness, stop all activity immediately. Heat stroke is a medical emergency. Call 911 immediately if an employee shows any signs of heat stroke. If an employee is believed to be experiencing heat-related symptoms. These recommended actions should only be used as a guide to respond appropriately to known or reported symptoms. EHS should then be contacted prior to the continuation of work by other employees.

# **Training**

﻿Contact EHS at safety@uncfsu.edu for heat stress prevention training.

# **References**

* [OSHA, Using the Heat Index to Protect Workers](https://www.osha.gov/SLTC/heatillness/heat_index/using_heat_protect_workers.html)
* [OSHA, Acclimatizing Workers](https://www.osha.gov/SLTC/heatillness/heat_index/acclimatizing_workers.html)
* [OSHA, Protective Measures to Take at Each Risk Level](https://www.osha.gov/SLTC/heatillness/heat_index/protective_measures.html)
* [OSHA, Preparing for and Responding to Heat-Related Emergencies](https://www.osha.gov/SLTC/heatillness/heat_index/heat_emergencies.html)
* [National Weather Service (NWS) Weather Prediction Center](http://www.wpc.ncep.noaa.gov/)
* [American Conference of Governmental Industrial Hygienists (ACGIH), TLVs and BEIs (2013)](https://www.acgih.org/)