

 <b>Portland Community College</b> <b>Health &amp; Safety Manual</b>	Dept: <b>Environmental Health and Safety (EH&amp;S)</b>	
	Function: <b>Facilities Management Services</b>	
	Topic: <b>Chapter 24: Heat Illness Prevention Plan</b>	
	Board Policy: B507 Effective Date: <b>September 2021</b>	Revision Date: N/A

<b>Authority</b>	<b>PCC Board Policy—B507</b>
<b>Portland Community College is committed to providing a safe and healthy work and educational environment for our employees, students and visitors.</b>	

<b>Summary</b>	This Heat Illness Prevention Plan establishes safe work practices that will prevent heat-related illnesses among employees at Portland Community College (PCC) whenever they perform work activities and the heat index equals or exceeds 80° F. The Plan does not apply to short exposures to the heat for 15 minutes or less in any sixty-minute period, nor does it apply to the transportation of employees inside vehicles when they are not otherwise performing work. This Plan is intended to allow PCC to maintain compliance with Oregon OSHA's Heat Illness Prevention Standard. The Plan applies to all work, both indoors and outdoors, unless excepted by Section IV. A.
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## **I. PURPOSE**

The purpose of this Heat Illness Prevention Plan (the Plan) is to establish procedures that protect Portland Community College (PCC) employees required to work in conditions under elevated temperatures and prevent heat related illnesses. The Plan applies to all operations performed by PCC employees or contractors which expose them to apparent temperatures above 80°F unless excepted by Section IV.A.

## **II. AUTHORITY**

PCC Board Policy B507  
OR OSHA 437-002-0155 Heat Illness Prevention

## **III. RESPONSIBILITY**

### **A. Affected Department Managers:**

- Remain aware of local weather conditions (temperature, humidity, advisories, warnings, etc.) and heat advisories
- Download and use the NOAA National Weather Service Heat Safety App to determine the localized heat index (see Section IV. B.)
- Purchase equipment to prevent and/or respond to heat illnesses
- Supply drinking water and the means to cool, store, and convey it to employees
- Implement engineering and administrative controls to control heat exposure
- Implement the required components of this Plan when apparent temperatures reach or exceed 80°F (see Section IV. C.)
- Implement the required components of this Plan when apparent temperatures reach or exceed 91°F (see Section IV. D.)
- Track the acclimatization of employees for work at exertion levels
- Ensure employees and supervisors receive district-level training on heat illness prevention topics
- Develop and implement department level training on heat-related topics and procedures
- Implement heat illness prevention requirements indoors during temporary power or ventilation disruptions

### **B. Affected Employees:**

- Receive training on heat illness prevention both at the district and department level
- Adhere to requirements of the Plan
- Maintain personal hydration levels and encourage coworkers to remain hydrated
- Be aware of, control and/or minimize personal risk factors for heat-related illnesses
- Dress appropriately for work in hot environments
- Be alert to signs and symptoms of heat illness and monitoring behavior of themselves and their coworkers

## **C. District Emergency Operations Committee**

- Receive notifications from FMS Director and determine the effect of temperature and potential effects to PCC's operations
- Advise the Vice President of Finance and Operations about PCC's continued ability to optimize the overall health of employees due to extreme heat, wildfire smoke or other competing risks

## **D. Environmental Health & Safety (EH&S):**

- Provide subject matter expertise regarding heat illness prevention at PCC
- Maintain and modify the Plan to reflect current regulatory requirements, industry standards and best management practices
- Develop district-level training for complying with the OR OSHA Heat Illness Prevention standard and adhering to the requirements of this Plan

## **E. Facilities Management Services (FMS):**

- Maintain the ability to monitor internal temperatures at PCC campuses and centers
- Assess extent of power or ventilation disruptions on indoor environments
- Coordinate with applicable and/or affected departments to convey temporary working conditions for indoor environments
- Ground Department Manager to monitor local weather/heat forecasts daily and notify FMS Director of the possibility of apparent temperatures of 104°F or higher within a one-week period and the estimated duration of such temperatures no later than noon each work day
- FMS Director to notify District Emergency Operations Committee of forecasted extreme temperatures, estimated duration and any power or ventilation disruptions to PCC buildings

## **F. Project Managers**

- Communicate the requirements of the Plan with contractors
- Monitor contractor operations to ensure that the Plan requirements are being implemented

## **G. Public Relations**

- Provide communications to PCC staff and students regarding heat-related closures

## **H. Public Safety**

- Maintain a link to the National Weather Service website on the Public Safety webpage
- Maintain and modifying PCC's Emergency Medical Plan to ensure compliance with applicable OR OSHA regulations
- Respond to calls regarding heat illness and dispatching Public Safety Officers to assess victims and apply first aid
- Notify the applicable emergency services of emergency conditions

- Provide responding emergency services units with the location of (a) heat illness victim(s)
- Transport victims of heat illness to accessible locations when directed by emergency services

## **I. Vice President of Finance and Administration**

- Make decisions regarding PCC's continued ability to optimize the overall health of employees due to extreme heat, wildfire smoke or other competing risks based on input received from the District Emergency Operations Committee
- Communicate decisions to Public Relations

## **IV. PROCEDURES**

**A. Applicability & Exceptions** – This Heat Illness Prevention Plan is applicable to all PCC work locations, both indoors and outdoors. It does not apply to incidental exposures that exist when an employee is not required to perform covered work activity for more than 15 minutes in any 60-minute period, nor does it apply to the transportation of employees inside vehicles when they are not otherwise performing work.

**Exception:** Exposure to heat that is generated solely from the work process, e.g., kiln areas, commercial or instructional kitchens, etc. These areas are not covered by this Plan.

**B. Background Information** - Heat-related illness can occur when workplace activities in a hot environment overwhelm the body's ability to cool itself. There are a number of environmental and personal risk factors that can contribute to an employee falling victim to a heat-related illness. Environmental risk factors include:

- Air temperatures above 90°F
- Relative humidity above 40 percent
- Radiant heat from the sun and other sources\*
- Conductive heat sources from dark colored work surfaces
- Lack of air movement
- Physical effort required for the work at hand
- Use of nonbreathable protective clothing and other personal protective equipment

Personal risk factors include:

- Lack of acclimatization to warmer weather – this reduces an individual's heat tolerance. Individuals that don't work at high temperatures regularly are more likely to experience heat illnesses.
- Poor physical fitness and obesity – Physically fit individuals can generally cope with heat more easily than those who are not. Regular aerobic activity can help improve an individual's tolerance to heat. Additionally, excess fat leads to increased insulation causing overweight individuals to retain and generate more heat.

- Age – Individuals over the age of 40 are generally more susceptible to the effects of heat due to decreases in heart function and perspiration.
- Pre-existing medical conditions or treatments – Common medical conditions can affect an individual's ability to handle heat. Specifically, heart problems and the low-salt diets used to treat them can weaken the body's ability to expel heat efficiently. Other conditions that can affect an individual's ability to deal with heat include diabetes, kidney problems, pregnancy, cystic fibrosis and hyperthyroidism.
- Short-term disorders and minor illnesses – Fevers, diarrhea and vomiting lead to loss of fluids, which can greatly impact how an individual copes with heat. Sleep deprivation has also been known to increase the risk of heat illness.
- Chronic skin disorders – Rashes, dermatitis, healed burns and other conditions that impact large areas of the skin can reduce the body's ability to sweat.
- Use of medication – Certain medications impact the body's ability to sweat, e.g., anticholinergic drugs, antihistamines, antipsychotic phenothiazines, beta blockers, calcium channel blockers, diuretics, and lithium
- Alcohol or drugs – Alcohol is known to contribute to water loss and can cause dehydration in some cases. Additionally, certain street drugs increase the body's internal temperature and its ability to expel heat.
- Caffeine consumption – Caffeine is a known diuretic and contributes to dehydration.
- Previous heatstroke – Once a worker has experienced heat stroke, they are more likely to suffer from another one.

Air temperature and humidity can both fluctuate based on climate, weather, and the time of day in a given region. Increases in temperature affect the heart rate and subsequently the body's ability to dissipate heat through the skin through the process of perspiration. Increases in humidity affect the rate at which perspiration is evaporated away from the skin creating a cooling effect. Other environmental risk factors affect the heart rate, the body's ability to perspire, and/or the rate of perspiration. A list of workplace controls to prevent heat-related illnesses can be found in Appendix D: *Preventing Heat-Related Illnesses*.

For purposes of this Plan, the term apparent temperature will be used. Apparent temperature, also known as the heat index, is what a given temperature feels like to the human body when relative humidity is combined with air temperature. The definitions of other terms used in this Plan can be found in Appendix A: *Definitions*.

Apparent temperature can be determined, or calculated, via the following methods:

- Using the OSHA-NIOSH Heat Safety Tool App (**preferred method**): <https://www.cdc.gov/niosh/topics/heatstress/heatapp.html> or
- Using equations published by the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service or
- Using the National Weather Service's online calculator: (<https://www.wpc.ncep.noaa.gov/html/heatindex.shtml>)

A link to the NOAA National Weather Service website can be found on Public Safety's webpage (<https://www.pcc.edu/public-safety/>). This website can be used to obtain heat-related warnings and advisories for the local region.

Managers of affected departments will download and use the OSHA-NIOSH Heat Safety app.

The apparent temperature for any PCC location can be determined by inputting the applicable zip code into the app. Appendix B: *PCC Locations* contains a current list of facilities and zip codes. Appendix C: *Apparent Temperature Chart* graphically shows the effect of humidity on air temperature to produce apparent temperature. Appendix C can be used should as a backup to the app.

Indoor temperatures at PCC are maintained within a state mandated range of temperatures. Should power to a particular area be disrupted or ventilation fails, employees should report elevated temperatures to Facilities Management Services (FMS) through the following means:

- ReADY: <https://www.pcc.edu/facilities-management/requests/> (preferred)
- Service Request Center (SRC): [src@pcc.edu](mailto:src@pcc.edu) or (971) 722-4800

FMS personnel maintain the ability to verify whether interior temperatures exceed either of the action threshold temperatures described in this Plan. Should these conditions exist, FMS will assess the scope of the problem and work with the applicable departments to communicate temporary working conditions. Affected department management will then implement the applicable heat illness prevention requirements of this Plan.

**C. Requirements When Apparent Temperatures Equal or Exceed 80° F – Managers of affected employees are required to implement the following three requirements when the apparent temperature reaches or exceeds 80°F.**

1. Access to shade – Managers of employees covered under this Plan must establish and maintain one or more shade areas. Shade may be provided by any natural or artificial means that does not expose employees to unsafe or unhealthy conditions and that does not deter or discourage use (e.g., dilapidated structure, broken tree limbs, presence of a wasp or bee colony, or other hazards).

A shade area must meet the following criteria:

- It must be either open to the air or provide mechanical ventilation for cooling
- It must be located as close as practical to the areas where employees are working
- The amount of shade present must be at least enough to accommodate the number of employees on recovery or rest periods, so that they can sit in a normal posture fully in the shade
- The amount of shade present must be large enough to accommodate the number of employees remaining onsite during a meal period

A good indicator of the sufficiency of shade is when objects do not cast a shadow in the area of blocked sunlight. Shade is not sufficient when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool itself. For example, a car sitting in direct sunlight does not provide acceptable shade to a person inside it, unless the car is running with working air conditioning.

2. Drinking water - Managers of employees covered under this Plan must ensure that an adequate supply of drinking water is readily accessible to employees at all times and at no cost.

Water intended for drinking must be potable and either cool (66°F-77°F) or cold (35°F-65°F).

Note: Drinking water packaged as a consumer product and electrolyte-replenishing beverages that do not contain caffeine (e.g., sports drinks) are acceptable substitutes, but should not completely replace the required water.

Managers must supply each employee with enough drinking water to allow them to consume 32 ounces per hour. Managers are not required to supply the entire quantity of drinking water needed to be supplied for all employees on a full shift at the beginning of the shift. Managers may begin the shift with smaller quantities of drinking water if effective procedures are established to replenish the water consumed during the shift.

Managers must ensure that employees have ample opportunity to consume water. Managers should encourage employees to consume 1 cup (8 oz) of water every 15 minutes.

Employees may drink from reusable bottles or vessels. If these are not available, employee should drink from individual, not communal, drinking cups.

3. Training – Managers of employees covered under this Plan must ensure that they and their employees are trained in all of the topics required under 437-002-0155, OR OSHA's temporary Heat Illness Prevention Standard. These are listed in section V. Training.

Training should be in a language readily understood, before employees begin work that can reasonably be anticipated to expose employees to an apparent temperature equal to or in excess of 80°F.

**D. Requirements When Apparent Temperatures Equal or Exceed 91°F** – Managers of affected employees are required to implement the following high heat requirements when apparent temperatures reach or exceed 91°F:

1. Effective communication must be maintained so that employees at the work site can contact a manager when necessary. Communication may be by:

- Voice
  - Observation
  - Electronic means, such as a cell phone or text messaging device, only when reception in the area is reliable
2. Employees must be observed for alertness and signs and symptoms of heat illness and monitored to determine whether medical attention is necessary by implementing one or more of the following:
    - Regular communication with employees working alone, such as by radio, cellular phone, or other alternative means, or
    - Create a mandatory buddy system, or
    - Implement other equally effective means of observation or communication
  3. One or more employees must be designated and equipped on each worksite as authorized to call for emergency medical services; Other employees must be allowed to call for emergency services when the designated employees are not immediately available.
  4. Managers must ensure that each employee takes a minimum ten-minute preventative cool-down rest period in the shade at least every two hours, regardless of the overall length of the shift.

**Note:** The required preventative cool-down rest period may be provided concurrently with any other meal or rest period required by policy, rule or law if the timing of the preventative cool-down rest period coincides with the otherwise required meal or rest period. Except when such a rest period coincides with the existing unpaid meal break, the preventative cool-down rest period is a work assignment and must be compensated accordingly.

5. Effective acclimatization practices must be developed and implemented which will allow workers to slowly adapt to work under conditions of the elevated temperatures to which they are exposed. Acclimatization peaks in most people within 4-14 days of regular work for at least two hours per day in the heat. Managers should gradually increase the time that an employee works in the heat over 7 to 14 days. Starting new employees at full intensity is not safe. Guidance on this topic can be found in Appendix F: *Acclimatization Practices*.

Managers must closely supervise new employees for the first 14 days of regular work or until they are fully acclimatized. Most workers should be able to safely handle a full workload after 4 days of gradual increase, even though they will usually not be fully acclimated yet. Most employees will continue to see beneficial improvements in heat tolerance for up to 2 weeks after exposure starts.

Note: Non-physically fit employees require more time to fully acclimate.

6. An effective emergency medical plan must be developed and implemented which includes procedures that address the following:
- Responding to signs and symptoms of possible heat illness, including but not limited to first aid measures and how emergency medical services will be provided if a supervisor observes, or any employee reports, any signs or symptoms of heat illness in any employee. A list of heat-related illnesses, their signs and symptoms, and the applicable responses can be found in Appendix E: *Heat Illness Signs, Symptoms and Response*. The supervisor must take immediate action appropriate to the severity of the illness.
    - If a supervisor observes signs or an employee reports symptoms of heat illness, the employee must be relieved from duty and provided with a sufficient means to reduce body temperature. Examples include, but are not limited to: cooling blankets, cooling vests, and fans.
    - 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), immediately implement the emergency response procedures.
    - An employee exhibiting signs or symptoms of heat illness must be monitored and must not be left alone or sent home without being offered onsite first aid and/or being provided with emergency medical services in accordance with PCC's procedures.
  - Contacting emergency medical services, and, if necessary and instructed to do so by the medical professionals, transporting employees to a place where they can be reached by an emergency medical provider.
  - Ensuring that, in the event of an emergency, clear and precise directions to the work site are provided for first responders to quickly navigate to the location of the affected worker.

## V. TRAINING

Employees and supervisors in affected departments will receive training on the topics covered in this Plan. Heat illness prevention will be a topic in New Employee Safety Orientation. Additionally, district-level training is available and required of all employees working under the elevated temperature requirements covered in this Plan as well as their supervisors. Employees must also complete department level training developed and conducted by their management.

At a minimum, training must consist of the following topics:

- 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
- The procedures for complying with the requirements of the OR OSHA Heat Illness Prevention standard, including, but not limited to, PCC's responsibility to provide water, provide daily heat index information, shade, cool-down rests, how to report symptoms of

heat-related illness, and access to first aid as well as the employees' right to exercise their rights under the standard without fear of retaliation

- The concept, importance, and methods of acclimatization
- The importance of employees immediately reporting signs or symptoms of heat illness in themselves, or in co-workers
- The effects of nonoccupational factors (medications, alcohol, obesity, etc.) on tolerance to occupational heat stress
- The different types of heat-related illness, the common signs and symptoms of heat-related illness.

## **VI. RECORDKEEPING**

### **A. Training Records**

Departments operating under the elevated temperature conditions described in this Plan will maintain training records for each employee trained to the department's procedures.

District-level training records will be maintained in Cornerstone, PCC's Learning Management System, located at MyCareer@PCC.

### **B. Department Work Plans**

Departments are required to maintain completed work plan documents in accordance with the current state required recordkeeping requirements.