

 Portland Community College Health & Safety Manual	Dept: Environmental Health and Safety (EH&S)	
	Function: Facilities Management Services	
	Topic: Chapter 24: Heat Illness Prevention Plan	
	Board Policy: B507	Revision Date: June 2022

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

Summary	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. 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 exempted by Section IV. A. Managers whose employees are required to work under the conditions described in this Plan must develop and implement specific department procedures in order to comply with this Plan and the OR OSHA standard.
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Form	1. Department Heat Illness Prevention Plan

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 437-002-0156 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 OSHA-NIOSH Heat Safety Tool 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 90°F (see Section IV. D.)
- Develop department acclimatization plans and rest break schedules
- Ensure employees and supervisors receive both department and 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. 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

D. 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
- FMS Director to monitor local weather/heat forecasts and notify District Emergency Operations Committee of apparent temperatures of 90°F or higher no later than 9:00am Monday through Friday, excluding holidays
- FMS Director to notify Public Safety leadership of forecasted extreme temperatures, estimated duration and any power or ventilation disruptions to PCC buildings

E. Project Managers

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

F. Public Relations

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

G. Public Safety

- 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
- Maintain and modify 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

H. 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 Public Safety leadership
- Communicate decisions to Public Relations

IV. PROCEDURES

A. Applicability & Exemptions – This Heat Illness Prevention Plan applies whenever an employee performs work activities, whether in indoor or outdoor environments, where the heat index (apparent temperature) equals or exceeds 80 degrees Fahrenheit

Exemptions: The following workplaces and operations are exempt from this Plan.

- Incidental heat exposures where an employee is not required to perform work activities for more than 15 minutes in any sixty-minute period.
- Exposures to heat generated solely the work process – e.g., kiln areas, commercial or instructional kitchens, etc.
- All emergency operations that are directly involved in the protection of life or property, or the restoration of essential services, such as evacuation, rescue, medical, structural firefighting, law enforcement, utilities, and communications, when employees are engaged in those operations.
- Buildings and structures that have a mechanical ventilation system that keeps the heat index below 80 degrees Fahrenheit.

The following workplaces and operations are partially exempt from certain requirements of this Plan:

- Departments whose employees perform either “rest” or “light” workloads, as described in Section IV.B. *Background Information* are exempt from the requirements of Sections IV.C. through IV.G. only when the heat index is less than 90 degrees.
- Employees who work from home are subject only to the training requirements in sections V. *Training* and VI. *Recordkeeping*.

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.

1. Environmental risk factors for heat-related illnesses 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

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*.

2. Personal risk factors for heat-related illnesses 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.

3. Workloads can be classified as rest, light, moderate, heavy, or very heavy. A description of what these workloads involve as well as examples are shown below.

- Rest – examples include: sitting and thinking.
- Light work - typically involves sitting or standing with minimal arm and leg work. Examples include: sewing, writing or drawing, driving a car, occasional or slow walking, stooping/crouching/kneeling, standing watch.
- Moderate work - typically involves continuous modest intensity, such as light pushing/pulling or normal walking. Examples included: pushing or pulling light carts, hammering nails, picking fruit or vegetables, continuous normal walking, driving or operating mobile equipment, raking, mopping/vacuuming floors, scraping/painting/plastering, laundry/dry cleaning, tapping/drilling, machining, molding, packaging, laboratory work, cooking, general carpentry, using hand tools, light pushing/pulling or normal walking.

- Heavy work – typically involves intense upper body work such as carrying loads or sawing. Examples include: intense arm/ & trunk work, carrying loads, shoveling, sawing or heavy carpentry, roofing, pushing/pulling heavy carts/wheelbarrows, fast walking (>4 mph), landscaping, casting, manually raising/lowering loads, stacking lumber, truck and automobile repair, hand waxing/buffing, welding, heavy item assembly, grinding and cutting, drilling rock/concrete, mixing cement, felling trees.
- Very heavy work – typically involves intense activity at an almost maximum pace. Examples include: any activity done at near maximum pace, climbing stairs/ladders/ramps, using an axe, intense shoveling or digging, sledgehammer use, stacking concrete, brick or stone masonry.

4. 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. For purposes of this Plan, the term apparent temperature will be used interchangeably with heat index. This and other definitions of 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>)

Managers of affected departments will download and use the OSHA-NIOSH Heat Safety app. This app can be used to obtain the apparent temperature for any PCC location by inputting the applicable zip code into the app. *Appendix B: PCC Locations* contains a current list of facilities and zip codes. *Appendix C: Heat Index Chart* graphically shows the effect of humidity on air temperature to produce apparent temperature. Appendix C can be used 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 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 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 that are immediately and readily available to exposed employees that are outdoors. 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).

Shade areas must meet the following criteria:

- They must either be open to the outside air (at least three open sides) or provide mechanical ventilation for cooling.
- The amount of shade present must be at least enough to accommodate the number of employees on recovery or rest period, so that they can sit in a normal posture fully in the shade. Employees must remove any PPE that retains heat, such as chemical resistant suits, during recovery and rest periods.
- They must be located as close as practical to the areas where employees are working.
- Shade present during meal periods must be large enough to accommodate the number of employees remaining onsite during a meal period on the meal period that remain onsite.
- If trees or other vegetation are used to provide shade, the thickness and shape of the shaded area must provide sufficient shadow to protect employees.

Exception: When it can be demonstrated that providing access to shade is not safe or it interferes with the ability to complete work in a particular situation, e.g., during high winds, managers of affected employees must identify and implement alternative cooling measures that provide equivalent protection, such as providing cooling vests (either with fans or ice packs), water-dampened cotton clothing, or similar effective measures. If applicable, these will be documented on *Form 1: Department Work Plan*.

2. Drinking Water - Managers of employees covered under this Plan must ensure that a sufficient supply of drinking water is immediately and readily available to exposed employees at all times and at no cost.

Supplied drinking water must be either cool (66-77°F) or cold (35-65°F).

Managers must supply each employee with enough drinking water to enable them to consume up to 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 when effective procedures are established to replenish the water consumed during the shift.

Employees must have ample opportunity to drink water.

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 required water supplies.

D. Requirements When Apparent Temperatures Equal or Exceed 90°F – When engineering controls (such as fans or air conditioning) and administrative controls (such

as scheduling work during the cooler part of the day or limiting an employee's exposure) do not reduce an employee's exposure to a heat index of less than 90 degrees Fahrenheit, managers of affected employees must implement and maintain the following high heat practices and procedures:

1. Communication must be in a language and vocabulary readily understood by all employees so that employees at the worksite can contact their supervisor at any time, when necessary. Communication may be by:
 - Voice
 - An electronic device such as a cell phone only if reception in the area is constant and reliable
 - Other equally effective means
2. Implement one or more of the following to promptly identify and employee suspected of experiencing heat-related illness:
 - 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. Designate and equip one or more employees as authorized at each worksite to call for emergency medical services, and allow other employees to call for emergency services when designated employees are not immediately available.
4. When employees work in buildings and structures that do not have a mechanical ventilation system, managers must:
 - Directly measure the temperature and humidity in these places at the same time and location when occupied by employees to determine the current indoor heat index; or
 - Use the OSHA-NIOSH Heat Safety Tool app to determine the heat index outside of the building or structure and assume that it is the same inside; or
 - If the structure is designed or otherwise known to be affected by outdoor humidity, e.g., a greenhouse, the manager must measure and use the actual humidity inside the structure.
5. Develop and implement a written heat illness prevention rest break schedule that protects employees by allowing them to cool down and recover from working under high heat conditions.

Managers must choose and implement only one of three options shown below:

- a. Manager-designated Heat Illness Prevention Rest Break Schedule: This option allows the department manager to implement a self-designed schedule by building on a minimum rest break schedule using four specified elements.

- b. NIOSH Work/rest Schedule: This option allows the department manager to implement a schedule by using an example heat illness prevention plan designed by NIOSH.
- c. Simplified Heat Illness Prevention Rest Break Schedule: This option allows a manager to implement a schedule by using a simplified schedule designed by OR OSHA and based on a high-heat scenario in the NIOSH plan.

The details for each of the three available options can be found in *Appendix G: Work/Rest Schedule Options*

The heat illness prevention rest breaks required by this Plan are only required during the specified heat index, and may be provided concurrently with any other meal or rest period required by policy, rule or law – if the timing of the preventative rest break coincides with the otherwise required meal or rest period. However, the heat illness prevention rest break must be calculated using only the time spent in the shade and when employees are not performing work other than “rest” or “light” work. The require for heat illness prevention rest breaks does not prohibit “rest” or “light” work-related activities conducted in a temperature-controlled environment, such as paperwork, at the discretion of the employee.

Except when the heat illness prevention rest breaks coincide with the existing unpaid meal break, the heat illness prevention rest break is a work assignment. Heat illness prevention rest breaks are only required during the time of shift that the heat index equals or exceeds 90 degrees Fahrenheit.

E. Emergency Medical Plan – PCC’s emergency medical plan addresses employee exposure to excessive heat. The following elements are in place:

1. 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.
 - a. 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.
 - b. 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.
 - c. 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.

2. 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.
3. 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.

F. Acclimatization Plan – Department managers must develop and implement a written acclimatization plan and procedures that describes how, and allows, their employees to slowly adapt to work under conditions of the elevated temperatures to which they are exposed. Department managers must choose between two options, both of which are shown in *Appendix F: Acclimatization Plan*.

When developing and implementing their acclimatization plan, managers should take into consideration the following:

- Acclimatization can be maintained for a few days of non-heat exposure.
- Loss of acclimatization begins after about 1 week of not working in the heat.
- After 1 month away from work in the heat, most people’s heat tolerance will have returned to baseline.
- Working 1-2 days in cooler conditions or taking breaks in air conditioning will not hurt acclimatization.
- Sudden shifts in work intensity or sudden increases in work environmental temperature can increase the risk for heat illness even for acclimatized workers.
- The body will acclimate to the level of work demanded of it. Simply being in a hot environment is not sufficient. Doing light or brief physical work in the heat will acclimatize you only to light, brief work. More strenuous or longer tasks require more acclimatization (see section IV.B.3. for more information)
- Non-physically fit employees require more time to fully acclimate

G. Department Heat Illness Prevention Plan – The entirety of this Plan and its associated appendices and forms constitutes the District Heat Illness Prevention Plan (HIPP). Managers of affected employees must develop their own HIPP that contains the following elements:

- How sufficient amounts of cool, potable water in work areas will be provided;
- How employees will be provided frequent opportunities and encouragement to stay hydrated by drinking water;
- How employees will be provided sufficient space to rest in a shaded area or cool climate-controlled area, and where heat-affected employees may cool off and recover when signs and symptoms of heat-related illnesses are recognized;
- How the department will implement the heat illness prevention rest break schedule when necessary to keep employees safe; and
- How the department will implement heat acclimation procedures for new employees or employees returning to work from extended absences of seven or more days.

The required elements of this plan can be documented on *Form 1: Department Heat Illness Prevention Plan*.

V. TRAINING

Employees and supervisors in affected departments will receive training on the topics covered in this Plan. Heat illness prevention is an awareness level topic in PCC's 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 be provided annually and consist of the following topics:

- The environmental and personal risk factors (e.g., chronic obstructive pulmonary disease, asthma kidney disease, obesity, etc.) for heat illness that may limit an individual's tolerance to excessive heat, as well as the added burden of heat load on the body caused by exertion, clothing, and personal protective equipment;
- The department procedures for complying with the requirements of the OR OSHA Heat Illness Prevention standard, including, but not limited to, the responsibility to provide water, heat index information (including the risks to experiencing a heat-related illness), shade, preventative rest breaks, and access to first aid, as well as how employees can exercise their rights under the standard without fear of retaliation;
- The importance of frequent consumption of small quantities of water, up to 32 ounces per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties;
- The concept, importance, and methods of the department acclimatization plan;
- The different types of heat illness, the common signs and symptoms of heat illness, and the appropriate first aid and emergency response to the different types of heat illness, including how heat illness may progress quickly from mild signs and symptoms to a serious and life-threatening condition;
- The importance for employees to immediately report to PCC, directly or through the employee's supervisor, signs or symptoms of heat illness in themselves, or in others; and
- The effects of nonoccupational factors (drugs, alcohol, obesity, etc.) on tolerance to occupational heat stress.

VI. RECORDKEEPING

A. District Training Records – Training records must contain the name or identification of each employee trained, the date(s) of the training, and the name of the person who conducted the training. District-level training records will be maintained in Cornerstone, PCC's Learning Management System, located at MyCareer@PCC.

B. Department Work Plans and Training:

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