PPS Heat Illness Prevention Plan

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Purpose

The purpose of this plan is to protect Portland Public School District (PPS) employees from the hazards of indoor and outdoor hot working environments, and to comply with Oregon OSHA's Heat Illness Prevention rule OAR 437-002-0156 which became effective on June 15, 2022. This standard applies whenever an employee performs indoor or outdoor work activities where the heat index equals or exceeds 80°F.

In work environments where there is a higher risk for heat illness (such as during a heat wave or other severe working or environmental conditions), we must exercise greater caution and employ greater protective measures as needed to protect our employees.

Employees can exercise their rights under this standard without fear of retaliation.

A copy of this plan shall be made publicly available to all employees on the PPS website.

Scope

This plan implements efficient and safe work practices that will prevent heat-related illnesses among employees in the workplace. It will be used for training new employees and in the recurring annual training of employees. All employees potentially exposed to hot working environments are subject to this plan.

PPS work activities that could potentially expose our employees to these hazards include:

- Outdoor maintenance work
- Outdoor groundskeeping work
- Transportation services work
- Uncooled PPS sites (Excluding air conditioned buildings: Prophet Center, Clarendon, Columbia, Faubion, Franklin, Grant, Kellogg, McDaniel, Roosevelt, Rosa Parks, Tubman, Lincoln)

Heat Index Measuring

The Heat Index is a measure of how hot it feels when relative humidity is taken into account along with the actual air temperature. PPS will check the heat index daily, and monitor throughout the work day.

All employees should download The National Institute for Occupational Safety and Health (NIOSH) *Mobile Heat Stress App*. This app is a real-time outdoor heat index that provides information specific to the user's location, actions to take at threshold temperatures, first aid measures, and is a useful resource for planning activities safely.

PPS uses the Extech RH25 Heat Index Psychrometer, or similar instrument approved by Risk Management, to manually measure the indoor heat index at sites. This device takes measurements of the heat index by capturing the combined humidity, temperature, air movement, and radiant heat of a specific area. Risk Management procures and distributes indoor heat index measuring instruments to be used by principals, custodians, or other approved staff on site.

Mandatory Training

PPS's Heat Illness Prevention (437-002-0155 and 437-004-1130) compliant Heat Stress & Related Illnesses training can be found on PPS's internal training system, PepperPD. Staff training compliance is tracked through PepperPD.

Heat Illness Prevention

PPS takes many measures to ensure that workplaces are safe as temperatures rise towards or over 80°F-90°F. PPS monitors weather reports daily and reschedules jobs with high heat exposure to cooler times of the day, if possible. Extra vigilance is taken on high heat days, as air temperatures may rise quickly.

On high heat days PPS implements:

Building/Classroom Pre-Cooling

Custodial and maintenance staff will employ the following strategies to assist in the productive airflow in buildings:

- Upon arrival at 6:00am, ensure building circulation fans are operating and pulling in cooler outside air. Follow up to ensure they shut off before the temperature rises and the fans begin to pull in warm air.
- Open as many windows in classrooms as possible to allow cooler fresh air into the building.
- As temperatures begin to rise (each building will be different based on geography, trees, etc.) close all windows, blinds and shades to minimize sunlight and heat into the classrooms, office, etc.
- Use floor and box fans to help circulate the cooler air pulled in during the morning hours throughout the day.

Outside School Activities

- During periods of excessive heat, outside activities will be limited, relocated or canceled.

Transportation Services

- While most district buses are not air-conditioned, buses will be cooled by opening windows for airflow.
- Passengers will also be encouraged to hydrate with water prior to boarding the bus, and will be held inside the school until buses arrive and it is time to board.

Maintenance and Grounds Services

- When possible, reschedule routine maintenance and repair projects for the cooler parts of the year.
- Early release- work is completed before the hottest part of the day (usually 2pm).
- Prioritize indoor over outdoor work to be conducted.
- Schedule frequent rest periods with water breaks in shaded or air-conditioned recovery areas.

Water

PPS has a responsibility to provide water to employees when the heat index is equal to or exceeds 80°F. Hydration is the most important factor in preventing heat illnesses.

- Employees must consume 32 ounces of water per hour when the heat index is equal to or greater than 80°F. When the work environment is hot, employees likely will be sweating more than usual.
- Employees must be encouraged to frequently drink small amounts of water before they become thirsty to stay hydrated. During moderate activity, in moderately hot conditions, employees should drink about 8 ounces of liquid every 15 to 20 minutes.
- Employees must be made aware that drinking extreme amounts of water can also be harmful (more than 12 quarts in a 24-hour period).

Water Quality:

- Water must be kept cool (66 °F – 77°F) or cold (35 °F – 65 °F).
- Electrolytes (such as sports drinks) may be provided, but cannot replace water.

Implementation:

Sites:

- Water sources are located inside every site.

Mobile and Outdoor:

- Crews must bring water from admin offices, and refill water at their work sites regularly.
- Ground and Maintenance departments are outfitted with ice machines and access to water and electrolyte beverages.

Shade

PPS has a responsibility to provide shade to employees outdoors when the heat index is equal to or exceeds 80°F.

- Shade areas will be immediately and readily available at all work sites.
- If a shaded area (with at least three sides open to the air) is unavailable then a cooling area with conditioned air (AC, mist, fan, etc.) must be made available.
- The amount of shade must comfortably and safely accommodate all employees on break.
- Rest/lunch break does not begin until the employee is in the shade.

Implementation

School Sites:

- School sites are indoor spaces.
- Outdoor activities are canceled in high heat >90°F.

Mobile and Outdoor:

- Staff must identify suitable shaded rest areas when working outdoors.
- Wear breathable lightweight clothing. Assess the potential use of auxiliary cooling systems such as water cooled garments, air-cooled garments, cooling vests, or wetted overgarments.

Acclimatization

PPS requires employees who will be working outdoors in extreme heat conditions to be properly acclimatized when beginning or returning to work.

Acclimatization is the beneficial physiological adaptations that occur during repeated exposure to a hot environment. These physiological adaptations include:

- Increased sweating efficiency.
- Stabilization of the circulation.
- The ability to perform work with lower core temperature and heart rate.
- Increased skin blood flow at a given core temperature.
- Heat exposure causes less strain to the heart and other vital organs.
- Increased comfort in the heat.

Gradually increasing workloads and allowing for more frequent breaks during the first week of outdoor work allows employees to become acclimated to higher temperatures; especially those who are new to working outdoors in the heat or have been away from outdoor work for a week or more. Workers reach a level of acclimatization relative to the initial level of physical fitness and the total heat stress experienced by the individual.

Initial Acclimatization:
To acclimatize to an outdoor workplace prior to or during high heat periods, outdoor employees must follow the schedule below:

- For new workers, the schedule should be no more than a 20% exposure on day 1 and an increase of no more than 20% on each additional day.
- For workers who have been away from work for a week or more, the acclimatization regimen should be no more than a 50% exposure on day 1, 60% on day 2, 80% on day 3, and 100% on day 4.

Maintaining Acclimatization:
Outdoor workers can maintain their acclimatization even if they are away from the job for a few days, such as when they go home for the weekend. However, if they are absent for a week or more then there may be a significant loss in the beneficial adaptations leading to an increased likelihood of heat-related illness and a need to gradually reacclimate to the hot environment.

Additional CDC information on maintaining acclimatization:

- It can often be regained in 2 to 3 days upon returning to a hot job.
- It appears to be better maintained by those who are physically fit.
- Seasonal shifts in temperatures may result in difficulties.
- Working in hot, humid environments provides adaptive benefits which also apply in hot, desert environments, and vice versa.
- Air conditioning will not affect acclimatization.

Rest Breaks

Heat illness prevention rest breaks allow the body to cool down and recover from working when the heat index equals or is greater than 90°F. PPS requires staff to take the necessary breaks required, which may be provided concurrently with any other meal or rest period required by policy, rule or law.

Most heat-related illnesses affect workers who do strenuous physical activity. When workers engage in intense work, their bodies create heat. To prevent a hazardous combination of environmental and metabolic heat, heat illness prevention rest breaks should be taken in accordance with how much moving the employee does. Workload can be classified as rest, light, moderate, or heavy.

Light work- Sitting or standing with minimal arm and leg work.

Heat index (°F)	**Rest break durations and intervals**
90°F - 106°F	Normal break structure
106°F or greater	15 minutes every hour

Moderate work- Continuous modest intensity, such as light pushing/pulling or normal walking.

Heat index (°F)	**Rest break durations and intervals**
90°F - 100°F	Normal break structure
100°F or greater	15 minutes every hour

Heavy work- Intense upper body work such as carrying loads or sawing.

Heat index (°F)	**Rest break durations and intervals**
90°F - 95°F	Normal break structure
95°F - 100°F	15-25 minutes every hour (increase with rising temp)
100°F or greater	30 minutes for every 30 minutes

OAR 437-002-0156 Appendix A

Site Closures

PPS has set parameters for when extreme weather risks the health and safety of staff and students.

No school closure:

- Schools with mechanical cooling systems do not have to close
- Heat index is not expected to be >80°F after 10 a.m.
- Pre-cooling of school buildings remains in effect per the OSHA heat illness prevention rule

Early release:

- Heat index is expected to be ≥95°F after 10 a.m., or
- Heat index is expected to be ≥100°F before school day ends
- Pre-cooling of school buildings remains in effect per the OSHA heat illness prevention rule

School closure considerations:

- Heat index of at least 105 °F for more than three hours per day for two consecutive days, or
- Heat index of between 91-103°F for three consecutive days or more.

Extended parameters can be found in the PPS School Closure Plan.

Alternative Cooling Methods

If an administrator measures the indoor heat index at a site, such as an upper floor classroom, and deems an area too hot for safe occupancy, staff may be moved to a pre-designated cooling area, such as a lower level room without direct sunlight. Pre-designated cooling areas are identified by custodial and admin staff prior to a high heat weather episode and may be a well ventilated space that is fan or force-air cooled.

Communications

PPS encourages supervisors and employees to be in communication with one another during forecasted high heat days. Weather conditions and health conditions may change rapidly, and it is critical to be able to respond quickly when they do.

<u>Supervisor Communication:</u>

- **Supervisors should be informed immediately if an employee is suspected to be experiencing heat illness symptoms.**
- Employees can contact a supervisor at any time, when necessary. Preferably in-person, or by cell phone if reception in the area is constant and reliable.
- Supervisors must be in regular communication with employees, especially if said employee is working alone.
- Supervisors should communicate frequent reminders to employees to rest in shade and drink water.

<u>Working Alone:</u>

- Whenever possible during high heat weather, staff should use the buddy system to encourage each other to drink water, use shade to stay cool, and to watch each other for symptoms of heat-related illness.
- If unavoidable, the lone employee must be able to reliably check in with their supervisor via cell phone or other predetermined communication method.

<u>Emergency</u>

- A two-way radio, telephone, cell phone, or other provision must be easily accessible at work sites to contact emergency medical services.

Risk Factors

When temperatures rise, environmental and personal risk factors impact the employee's health. Employees are responsible for knowing and educating themselves about their own comorbidities and personal risk factors that may increase their chance for suffering heat-related illnesses.

The following are **environmental risk factors** for heat illness:

- Air temperature above 90°F (32.2°C)
- Relative humidity above 40 percent
- Radiant heat from the sun and other sources
- Conductive heat sources such as dark-colored work surfaces
- Lack of air movement
- Physical effort needed for the work
- Use of non-breathable protective clothing and other personal protective equipment (PPE)

The following are **personal risk factors** for heat illness:

- Lack of acclimation to warmer temperatures
- Poor general health (Chronic disease, illness, obesity, etc.)
- Dehydration
- Alcohol, drug, or caffeine consumption
- Previous heat-related illness
- Use of prescription medications that affect the body's water retention or other physiological responses to heat such as beta blockers, diuretics, antihistamines, tranquilizers, and antipsychotics

Heat Related Illnesses

Heat related illness can be subtle and become life threatening quickly. Employees must learn the common signs and symptoms of heat related illness and report them immediately if they or their co-workers show symptoms.

Common symptoms of heat related illnesses:

- Excessive sweating
- Cramps
- Rapid pulse
- Headache
- Nausea
- Vomiting
- Fatigue
- Red hot skin
- Dark urine
- High body temperature
- Disoriented
- Confusion
- Fainting
- Convulsions & Seizures

Signs and symptoms for some of the most common heat related illnesses to be aware of:

<u>Heat Rash</u>

Heat rash is the most common health problem in hot work environments. It is caused by sweating and looks like a red cluster of pimples or small blisters. Heat rash usually appears on parts of the body that overlap or rub other parts of the body, such as in the groin area, under the arms or breasts, and in knee or elbow creases.

If an employee has symptoms of heat rash, provide a cooler, less humid work environment, if possible. Advise the employee to keep the area dry and not to use ointments and creams that make the skin warm or moist, which can make the rash worse.

<u>Heat Cramps</u>

Heat cramps usually affect workers who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Heat Exhaustion

Heat exhaustion can best be prevented by being aware of one's physical limits in hazardous environments on hot, humid days. The most important factor is to drink enough clear fluids (especially water, not alcohol or caffeine) to replace those lost to perspiration. Signs and symptoms of heat exhaustion typically include:

- Profuse sweating
- Weakness and fatigue
- Nausea and vomiting
- Muscle cramps (associated with dehydration)
- Headache
- Light-headedness or fainting; fainting or loss of consciousness is potentially serious and should be treated as a medical emergency.

If heat exhaustion symptoms are observed in an employee, stop the activity, and move the employee to a cooler environment. Cool the employee off and rehydrate with water and/or electrolytes. If the employee resumes work before their core temperature returns to normal levels, symptoms may quickly return.

If there is no intervention and the body's temperature regulation fails, heat exhaustion can rapidly progress to heat stroke, a life-threatening condition.

Heat Stroke

Heat stroke requires an immediate emergency medical response. The person may stop sweating, become confused or lethargic, and may even have a seizure. The internal body temperature may exceed 106°F. Signs and symptoms of heat stroke typically include:

- Absence of sweating
- Dry skin
- Agitation or strange behavior
- Dizziness, disorientation, or lethargy
- Seizures or signs that mimic those of a heart attack

Heat stroke requires immediate medical attention to prevent permanent damage to the brain and other vital organs that can result in death. Emergency responders must be summoned immediately if heat stroke is suspected.

While waiting for emergency responders to arrive, do not leave the employee unattended. Cool the employee by moving the employee to an air conditioned environment or a cool, shady area; and help the employee remove any unnecessary clothing.

Rhabdomyolysis

Rhabdomyolysis is a medical condition associated with heat stress and prolonged physical exertion, resulting in the rapid breakdown, rupture, and death of muscle. When muscle tissue dies, electrolytes and large proteins are released into the bloodstream that can cause irregular heart rhythms and seizures, and damage the kidneys. Signs and symptoms of rhabdomyolysis include:

- Muscle cramps/pain
- Abnormally dark urine
- Weakness
- Exercise intolerance
- Asymptomatic

Heat Syncope

Heat syncope is a fainting episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization. Signs and symptoms of heat syncope include:

- Fainting (short duration)
- Dizziness
- Light-headedness during prolonged standing or suddenly rising from a sitting or lying position

Temperature risk levels for suffering a heat-related illness:
Note: heat-related illnesses can occur at a heat index of less than 91°F.

Heat index	Risk level	Protective measures
Less than 91 °F (33 °C)	Lower (caution)	Basic health and safety planning
91 0F to 104 °F (33 °C to 39 °C)	Moderate	Implement precautions and heighten awareness
103 °F to 115 0F (39 °C to 46 °C)	High	Additional precautions to protect workers
Greater than 115 °F (46 °C)	Very high to extreme	Even more aggressive protective measures

Adapted from Criteria for a Recommended Standard Occupational Exposure to Heat and Hot Environments Revised Criteria 2016 DEPARTMENT OF HEALTH AND HUMAN SERVICES Centers for Disease Control and Prevention National Institute for Occupational Safety and Health

Emergency Medical Plan

Employees must immediately report signs and symptoms of heat illness in themselves or in others to their supervisor.

Implementation
School Sites:

- Administrators are trained in emergency preparedness annually.
- Emergency phone numbers are posted in each staff room and classroom at school sites.
- Access to first aid kits and/or nurses offices in all main building school sites.

Mobile and Outdoor:

- Emergency numbers and first aid kits exist in all vehicles
- Always carry a cell phone, radio, or other method of contacting emergency services or a supervisor.
- Ensure roadways are not blocked on site to allow emergency vehicles access to employee's location, or;
- Ensure a vehicle is always available to carry an affected person to the nearest medical facility.

In case of an emergency:

- **Call emergency services (911)-** Do not leave the affected person alone.
- Do your best to cool and hydrate the affected person.
- Ensure that emergency vehicles are able to locate and get to the affected person's location.

Responsibilities

All employees are responsible for protecting themselves from heat illnesses by following these guidelines for prevention and immediately reporting any signs or symptoms to their supervisor.

Resources

OSHA Heat Illness Rule
OSHA Heat Illness Website
OSHA Heat Illness Training Video

NIOSH Acclimatization Resources:
https://www.cdc.gov/niosh/mining/userfiles/works/pdfs/2017-124.pdf
https://www.cdc.gov/niosh/topics/heatstress/acclima.html#print