Policies

Metro
600 NE Grand Ave.
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Subject	Heat illness prevention
Section	Safety and Risk Management, Finance and Regulatory Services
Approved by	Marissa Madrigal, Chief Operating Officer
Approved on	June 25, 2024
Replaces	Heat illness prevention policy, approved June. 24, 2022

POLICY PURPOSE

This policy provides standards and guidance for protecting employee safety and health when the indoor or outdoor heat index equals or exceeds 80 degrees F. This policy meets or exceeds requirements outlined in OAR 437-002-0156, Heat Illness Prevention.

APPLICABLE TO

All Metro employees, volunteers and interns working indoors or outdoors at a Metro facility or site. Where the provisions of an applicable collective bargaining agreement directly conflict with this policy, the provisions of that agreement will prevail.

Exemptions

- 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 from the work process – such as what occurs in bakeries - are not subject to this policy.
- Emergency operations that are directly involved in the protection of life or property, or the restoration of essential services when individuals are engaged in those operations.
- Buildings and structures that have mechanical ventilation systems that keep the heat index below 80 degrees F.

Partial exemptions

- Employees who work from home are subject only to the training requirements of this policy.

DEFINITIONS

Acclimatization: short-term, temporary adaptation or adjustment of the body in response to a change in its working environment, including changes in temperature such as heat or cold.

Drinking water: Potable water that is suitable to drink and that is cool (66ºF - 77ºF) or cold (35ºF - 65ºF).

Heat illnesses: medical conditions resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.

Heat index (or apparent temperature): what the temperature feels like to the human body when relative humidity is combined with the air temperature. The heat index is calculated using equations published by the National Oceanic and Atmospheric Administration's National Weather Service.

Heat wave: a prolonged period of abnormally hot weather.

Relative humidity: the amount of water vapor present in air expressed as a percentage of the amount needed for saturation at the same temperature.

Shade: blockage of direct sunlight is shade. One indicator that blockage is sufficient 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. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with working air conditioning.

Workload during extreme heat is defined as:

- Light workload: regularly sitting or standing, very little lifting or physical labor.
- Medium workload: regular walking, light lifting or other physical labor.
- Heavy workload: Fast paced walking, heavy lifting and other physical labor.

PROCEDURES

Metro facility and venue supervisors and managers must ensure the implementation of the following procedures at their worksite(s):

1. Monitoring the weather

Each day Supervisors will review weather forecasts for the following workday to allow for adjustments to schedules and assure the ability to implement the requirements of this policy if needed.

Prior to the start of each shift/regularly scheduled workday, forecasted temperatures and humidity should be compared to the Heat Index and precautions adjusted accordingly.

During each work shift, supervisors must designate personnel to monitor the temperature and humidity for changes that may require work adjustments. Personnel can utilize the OSHA-NIOSH Heat Safety Tool App to obtain conditions for their geographical area (See Appendix A).

Personnel designated to monitor heat and humidity must report to the Director any significant changes in temperature or humidity that would impact employees working in the heat.

When employees work in buildings and structures that do not have an adequately functioning mechanical ventilations system, personnel designated to monitor heat and humidity must directly measure the temperature and humidity inside the structure to determine the current indoor heat index and must follow all thresholds in this policy accordingly.

2. Emergency medical plan

Metro locations are required to develop an emergency medical plan to ensure the rapid provision of medical services to employees with major illnesses and injuries, and ensure services will be available in an emergency. Personnel working at locations with an existing emergency plan should follow the emergency notification guidelines established for that site.

Emergency medical services

If it is determined that medical services are required, locations with designated 911 services and access to emergency response services with Emergency Medical Technicians (EMT) or physicians, should use those 911 services. Sites outside of 911 service areas must post the telephone number for the specific ambulance service at the work location.

If the work location is not in proximity to emergency medical services, or if site personnel will respond to workplace emergencies, the emergency medical plan shall consist of arrangements for:

a. Communication: Two-way radio, telephone, or provision for emergency communication to contact the emergency medical services.

b. Transportation: Availability of transportation to a point where an ambulance can be met or to the nearest suitable medical facility. Vehicles provided for this purpose must be available at all times, must have right-of-way over all Metro vehicles or equipment, and must be equipped so that due consideration can be given to the proper care and comfort of the injured employee.

c. Qualified medical personnel at destination.

d. All employees must be knowledgeable concerning the qualified first aid person(s), the first aid requirements, and emergency medical plan.

Heat emergency response actions

Supervisors 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.

Severe heat illness symptoms and response

The supervisor must immediately implement emergency response procedures if the signs or symptoms are indicators of severe heat illness, such as:

- decreased level of consciousness;
- staggering;
- vomiting;
- disorientation; and
- irrational behavior or convulsions.

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 the emergency response plan.

3. Heat preparedness

During a hot weather event, heat wave or heat spike, Supervisors should consider implementing the following corrective options including:

- Rescheduling heavy work to time of day or night with cooler temperatures;
- Providing extra breaks;
- Providing shade near where work is being performed;
- Providing drinking water; and
- Stopping work for the day where feasible.

Acclimatization: Adjust work tasks and/or workload

The body needs time to adapt when temperatures rise suddenly, and an employee risks heat illness by not taking it easy when a heat wave strikes or when starting a new job that exposes the employee to heat to which the employee's body has not yet adjusted. See Appendix E.

Note: Acclimatization peaks in most people within seven to fourteen days of regular work for at least two hours per day in the heat. This time frame applies to fit individuals with no underlying medical conditions.

4. Required Actions

a. Regardless of temperature, employees must have access to shade on request to prevent overheating.

b. Metro facilities should utilize available mechanical ventilation and air filtration systems.

c. Metro will take the following actions at its facilities when ambient temperatures meet or exceed Heat Index 80 degrees F for four (4) hours or more.

d. Heat Index will be determined by the National Oceanic and Atmospheric Administration (NOAA) National Weather Service published Heat Index and communicated to facilities by emergency management. Heat Index will be determined by the closest government sensor to the Metro facility as measured by NOAA Heat Risk.

    1) In addition to determining the Heat Index, Metro facilities will take into consideration the amount of sun employees are exposed to.

    2) If employees working outside are exposed to full sun, 13 degrees shall be added to the heat index to get the most accurate exposure reading.

    3) If employees working outside are exposed to partial sun/ partial cloud cover, 7 degrees shall be added to the heat index.

    4) Break schedules determined by heat index shall be presented to employees in writing.

    5) If employees are wearing chemical resistant suits, the table in Appendix D shall supersede required actions by Heat Index thresholds.

e. Metro facilities shall develop and maintain an employee acclimatization plan as part of their Department closure procedures. This plan shall include the following considerations:

    1) How facilities will gradually increase exposure time in hot environments over a period of 7-14 days.

        i. For new workers, the schedule should be no more than 20% of the usual duration of work in the hot environment on day 1 and no more than a 20% increase on each additional day.

        ii. For workers who have had previous experience with the job, the acclimatization should be no more than 50% of the usual duration of work in the hot environment on day 1, 60% on day 2, 80% on day 3, and 100% on day 4.

        iii. Acclimatization plans should take into account that the time required for non-physically fit individuals to develop acclimatization is about 50% greater than for the physically fit.

    2) Maintenance of acclimatization:

        i. Absence from work in the heat for a week or more results in a significant loss in the beneficial adaptations leading to an increased likelihood of acute dehydration, illness, or fatigue.

        ii. Can be regained in 2 to 3 days upon return to work in a hot environment.

Heat Index 80 – 84 degrees

The following measures must be implemented at each worksite:

a. Basic heat safety and planning are implemented, but operations may proceed as normal.
b. Shade areas must be provided for workers regardless of workload. Shade must meet the following requirements:
    - Consist of natural (trees) or artificial (structures such as tents/ umbrellas)
    - Not expose individuals to unsafe or unhealthy conditions
    - Does not deter or discourage access or use
        - Open air or have mechanical ventilation for cooling
        - Large enough to accommodate the number of employees on recovery or meal and rest periods
        - Located as close as practical to the work area
        - If available, indoor, air-conditioned spaces should be used instead of shaded areas for breaks and meals.
c. Employees are encouraged to take at least 5-minute cool down breaks as they need them and at least once every 2 hours.
d. Supervisors must ensure employees are provided an adequate supply of drinking water (32oz per employee/per hour).
    - The supervisors or their designees will act as Water Monitor.
    - During a heat event, the Water Monitor will assess once an hour to see that all workers have access to drinking water.
    - Note: Drinking water packaged as a consumer product and electrolyte-replenishing beverages that do not contain caffeine (for example, sports drinks) are acceptable substitutes, but should not completely replace the required water supplies.

Heat Index 85 – 89 degrees

All the above precautions will be implemented, plus the following:

a. Workers may take rest breaks in the shade or cooling areas as needed to avoid overheating in addition to the workload adjustments below.
    - Heavy workloads: 15 minutes of rest every hour.
b. Supervisors must ensure that all employees take a minimum of 10-minute rest breaks in the shade or other air-conditioned space every 2 hours regardless of workload.
c. Other cooling products such as misters, cooling scarves, ice packs, etc. should be available by worksite.
d. Supervisors will review signs and symptoms of heat related illness and be prepared to act.

e. Communication methods for reporting and monitoring signs and symptoms of heat illness will be activated. Monitoring and communication methods for employees can include:
    - Radio or cell phone
    - Implementation of a mandatory buddy system
    - Other equally effective means of observation or communication
f. Equip and designate one or more personnel to call for emergency services as part of their normal duties and will service this function during a heat event. See Heat Emergency Response Actions and Severe Heat Illness Symptoms above.

Heat Index 90 – 99 degrees

All the above precautions will be implemented, plus the following:

a. Workloads will be adjusted as follows:
    - Light workload: 10 minutes of rest every two hours
    - Medium workload: 15 minutes of rest every hour
    - High workload: 30 minutes of rest every hour
b. 32 ounces of cool or cold water will be available to all workers regardless of workload at minimum of once per hour.
c. Employees will be monitored cautiously by a supervisor or their designee for any signs or symptoms of heat related illness.
d. Employees must be notified in writing of the heat index and precautions being taken at their worksite.

Heat Index 100 – 105 degrees

All the above precautions will be implemented, plus the following:

- Workloads will be adjusted as follows: Light workload: 15 minutes of rest every hour
- Medium workload: 30 minutes of rest every hour
- High workload: 45 minutes of rest every hour

a. Electrolyte drinks or foods containing salt will be available on request throughout the shift.
b. All employees should review signs and symptoms of heat related illness and be prepared to act. Employees should monitor each other closely, using the buddy system, for signs or symptoms of heat related illness and act as appropriate.

Heat Index 106 – 110

All the above precautions will be implemented, plus the following workload adjustments:

- Light workload: 45 minutes of rest every hour
- Medium workload: modified or cancelled
- High workload: modified or cancelled

Heat Index 111 and up

All the above precautions will be implemented, plus the following workload adjustments:

- Light workload: 45 minutes of rest every hour

5. Heat illness prevention training

All employees and supervisors will receive heat illness prevention training at least annually before reasonably anticipated work in conditions with Heat Index temperature equal or in excess of 80 degrees F. Training topics include:

- Risk factors for heat illness;
- Provisions of this Heat Illness Prevention Plan;
- Concept, importance, and methods of acclimatization;
- Importance of and how to report signs and symptoms of heat illness;
- Effects of non-occupational factors (medications, alcohol, etc.);
- Common signs and symptoms of the different types of heat-related illness;
- The employee's right to exercise their rights under this standard without fear of retaliation.

RESPONSIBILITIES

Employees

- 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.
- Employees are required to participate in training as outlined in this policy.

Supervisors

- Ensure there is an emergency plan specific to the work location
- Ensure the implementation of this policy in the workplace

Department directors

- Ensure resources are available to implement this policy.

Emergency Management, Capital Asset Management

- Provide Notification of high heat events
- Develop training

Risk and Safety, Finance and Regulatory Services

- Develop and maintain this policy
- Ensure personnel are trained in accordance with this policy
- Audit Metro worksite adherence to this policy

REFERENCES

OAR 437-002-0156 –Heat Illness Prevention
OAR 437-002-0161 – Medical Services and First Aid

APPENDICES

Appendix A
OSHA-NIOSH Heat Safety Tool
NOAA's National Weather Service Heat Index

Appendix B
Potential best practices: Heat related illness

Appendix C
Work to rest chart for Metro workers wearing normal work clothing

Appendix D
Work/ rest schedules for those wearing chemical resistant suits

Appendix E
Acclimatization for Metro Employees

Appendix F
Physical Activity Workload Examples

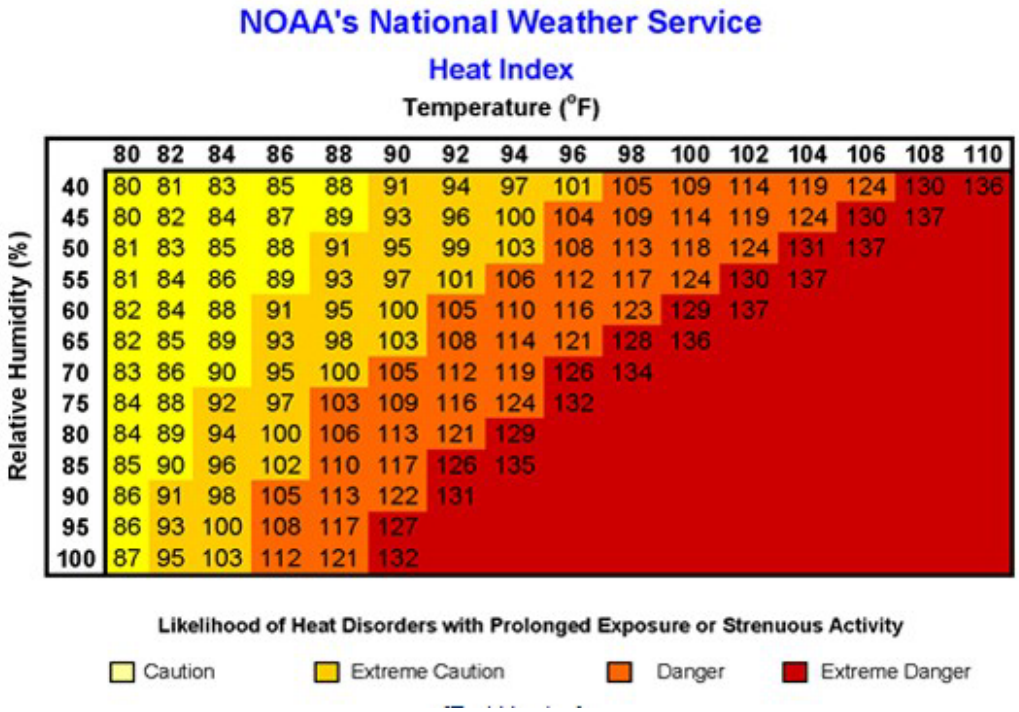
APPENDIX A

OSHA-NIOSH Heat Safety Tool

Smartphone app available for iOS and Android devices. View tool guidance and download applications from the CDC: https://www.cdc.gov/niosh/topics/heatstress/heatapp.html

NOAA's National Weather Service Heat Index

Available at https://www.weather.gov/safety/heat-index



APPENDIX B

Best practices: Preventing heat related illness

1. Containers that hold ice or otherwise keep drinking water and other beverages cold.
2. Chilled beverages such as electrolyte type sports drinks (discourage caffeine consumption).
3. Cold treats at break time such as popsicles, ice cream, or fruit with high water content (watermelon, grapes, oranges).
4. A cooling trailer with conditioned air and cold water to consume.
5. Cooling tents with mist, fan, and cold water to consume.
6. Heat-reflective work clothing such as light-colored, breathable uniforms.
7. Evaporative accessories (cooling neck wraps, head bands).
8. Cooling vests designed to safely use ice packs.
9. Ventilated PPE (high-visibility garments or powered air purifying respirators, if appropriate).
10. Cell phone text orders from supervisor to stop and rest in shade and drink.

Source: Heat Illness Prevention Plan, Appendix A. Oregon OSHA https://osha.oregon.gov/OSHAPubs/pubform/heat-sample-program.

APPENDIX C

Work to rest chart for Metro workers wearing normal work clothing[1]

Heat Index (°F)[2]	Light Work (Minutes work / rest)	Medium Work (Minutes work / rest)	Heavy Work (Minutes work / rest)
80°	Normal	Normal	Normal
81°	Normal	Normal	Normal
82°	Normal	Normal	Normal
83°	Normal	Normal	Normal
84°	Normal	Normal	Normal
85°[3]	Normal	Normal	45/15
86°	Normal	Normal	45/15
87°	Normal	Normal	45/15
88°	Normal	Normal	45/15
89°	Normal	Normal	45/15
90°	Normal	45/15	30/30
91°	Normal	45/15	30/30
92°	Normal	45/15	30/30
93°	Normal	45/15	30/30
94°	Normal	45/15	30/30
95°[4]	Normal	45/15	30/30
96°	Normal	45/15	30/30
97°	Normal	45/15	30/30
98°	Normal	45/15	30/30
99°	Normal	45/15	30/30
100°	45/15	30/30	15/45
101°	45/15	30/30	15/45
102°	45/15	30/30	15/45
103°	45/15	30/30	15/45
104°	45/15	30/30	15/45
105°	45/15	30/30	15/45
106°	15/45	Modified / Cancelled	Modified / Cancelled
107°	15/45	Modified / Cancelled	Modified / Cancelled
108°	15/45	Modified / Cancelled	Modified / Cancelled
109°	15/45	Modified / Cancelled	Modified / Cancelled
110°	15/45	Modified / Cancelled	Modified / Cancelled
111°+	Modified / Cancelled	Modified / Cancelled	Modified / Cancelled

[1] With the assumption that workers are physically fit, well-rested, fully hydrated, under age 40, and have adequate water intake and that there is 30% RH [relative humidity] and natural ventilation with perceptible air movement.

[2] Adjust the temperature reading as follows before going into the temperature column in the table:
- Full sun (no clouds): Add 13**°**
- Partly cloudy/ overcast: Add 7**°**
- No shadows visible/ work is in the shade or at night: No adjustment.

[3] 80-95 degrees should include a minimum of 5 minutes in a cool/ air-conditioned space every 2 hours regardless of workload.

[4] 95 degrees or greater should include a minimum of 10 minutes in a cool/ air-conditioned space every 2 hours regardless of workload.

APPENDIX D

Work/ rest schedules for those wearing chemical resistant suits

		Heat Index (*F) Work/ Rest Schedule					
		75	**80**	**85**	**90**	**95**	**100**
Light work	Full sun	Normal	30/30	15/45	Stop work	Stop work	Stop work
	Partly cloudy	Normal	Normal	40/20	15/45	Stop work	Stop work
	No sun	Normal	Normal	Normal	40/20	15/45	Stop work
Moderate work	Full sun	Normal	20/40	10/50	Stop work	Stop work	Stop work
	Partly cloudy	Normal	Normal	25/35	Stop work	Stop work	Stop work
	No sun	Normal	Normal	Normal	25/35	Stop work	Stop work
Heavy work	Full sun	35/25	10/50	Stop work	Stop work	Stop work	Stop work
	Partly cloudy	Normal	40/20	15/45	Stop work	Stop work	Stop work
	No sun	Normal	Normal	40/20	15/45	Stop work	Stop work

APPENDIX E

Acclimatization for Metro Employees

Acclimatization plan for new employees	
Day of work	**Percent of time working in the heat** (Based upon an 8-hr workday)
1st	20%
2nd	40%
3rd	60%
4th	80%
5th	100%

Acclimatization Plan for employees with previous experience with the job (have worked the past seven days or returning from an absence of three days or less)	
Day of work	**Percent of time working in the heat** (Based upon an 8-hr workday)
1st	50%
2nd	60%
3rd	80%
4th	100%

APPENDIX F

Physical Activity Workload Examples

Level of Workload / Physical Activity[1]	Examples	Metabolic Rate in Watts[2]
Rest	• Sitting • Thinking	115
Light	• Sitting with minimal hand and arm work • Sewing • Writing or drawing • Driving a car • Occasional or slow walking • Stooping, crouching, or kneeling • Standing watch	180
Moderate	• Pushing and pulling light carts • Hammering nails • Picking fruit or vegetables • Continuous normal walking • Driving or operating mobile equipment • Raking • Mopping or vacuuming floors • Scraping, painting, or plastering • Laundry/dry cleaning • Tapping and drilling • Machining • Molding • Packaging • Laboratory work • Cooking • General carpentry • Using hand tools • Light pushing/pulling or normal walking	300

Heavy	• Intense arm and trunk work • Carrying loads • Shoveling • Sawing or heavy carpentry • Roofing • Pushing and pulling heavy carts or wheelbarrows • Fast walking (> 4 mph) • Landscaping • Casting • Manual raising and lowering loads • Stacking lumber • Truck and automobile repair • Waxing and buffing by hand • Welding • Heavy item assembly • Grinding and cutting • Drilling rock or concrete • Mixing cement • Felling trees	415
Very heavy	• Any activity done at near maximum pace • Climbing stairs, ladder, or ramp • Using an axe • Intense shoveling or digging • Sledgehammer use • Stacking concrete • Brick or stone masonry	520

[1] Workers who are overweight or obese might produce more metabolic heat than other workers who perform the same tasks. The above table assumes a 70-kg (154-pound) worker.

[2] "typical" recognizing that different ways of doing the same task may lead to dramatically different wattage.