Outdoor/Indoor Heat Illness Prevention and Management Plan

The Heat Illness Prevention Plan aims to help prevent heat-related illnesses and injuries following the MC Heat Safety Program, which includes parameters identified by the Occupational Safety and Health Administration (OSHA) and the Maryland Occupational Safety and Health (MOSH) agency. MC departments with personnel who work in areas where conditions equal or exceed a heat index of 80 degrees Fahrenheit (80°F) for more than 15 consecutive minutes during any 60 minutes are required to complete this template to customize the plan to meet the requirements of the Maryland Heat Stress Standard [COMAR 09.12.32]. Supervisors must complete this plan and review it with personnel initially, annually, and when updates are needed.

ROLES AND RESPONSIBILITIES

Departments

- Ensure that personnel who work outdoors and their supervisors complete the online training in Workday:
  - For Staff: Heat Stress Recognition and Prevention
  - For Supervisors: Heat Illness Prevention for Supervisors
- Complete this template to develop and implement a Heat Illness Prevention Plan. Review it with staff initially and annually.
- Inform personnel that they are protected from retaliation for reporting signs or symptoms of heat-related illness, or for seeking medical care for heat-related illness resulting from outdoor work. Personnel are also protected from retaliation for taking a cool-down rest period when they feel the need to prevent heat-related illness.

Staff

- Complete online training on "Heat Stress Recognition and Prevention" on Workday initially and annually.
- Follow the MC Heat Safety in the Workplace program guidelines for preventing heat-related illness.
- Drink adequate amounts of suitably cool water (up to one quart/hour).
- Request breaks when needed.
- When temperatures are at or above 90°F, take preventive cool-down rest breaks of at least 10 minutes every 2 hours.
- When temperatures are at or above 100°F, take preventive cool-down rest breaks of at least 15 minutes every hour.
- Recognize and monitor yourself for symptoms of heat-related illness and know your risk factors for heat-related illness.

Basics of Heat Illness

HEAT ILLNESS SIGNS/SYMPTOMS

Recognizing symptoms of heat stress early is vital in preventing more severe illness. Having the knowledge will enable a supervisor to take the proper emergency response steps. Some are listed below:

a) Early signs/symptoms of heat illness include:

- Dehydration
- Muscle cramps
- Headache
- Unusual fatigue

b) Progression to serious illness, such as heat exhaustion and heat stroke, can be fast and is indicated by symptoms including:

- Cool, moist skin
- Dizziness, lightheadedness
- Nausea or vomiting
- Fast Heartbeat
- Confusion or unusual behavior
- Excessive sweating OR red, hot, dry skin/face
- Convulsions or seizures
- Fainting

IMPORTANT: For signs/symptoms of heat illness, immediately give first aid or emergency response described below. Anyone with symptoms must never be sent home or left unattended without medical evaluation.

WORKPLACE EMERGENCY PROCEDURES

If any symptoms of serious illness are present, and first aid-trained personnel are not immediately available to make an assessment, immediately call 911. While waiting for emergency help:

- Get the victim to a cool environment
- Loosen or remove excess clothing (shoes and socks)
- Provide cool drinking water if a person is conscious and not nauseous
- Fan and mist the person with water
- Apply a water-soaked towel (or ice pack wrapped in a towel) to the head and ice packs to the armpits.

FOLLOW-UP: Any employee who is evaluated for heat illness in the emergency room must follow up with HR Risk Management on the next business day and be medically cleared before returning to work.

RISK FACTORS

1. Personal Risk Factors
   - Age
   - Medical conditions
   - Alcohol/Caffeine consumption
   - Water consumption
   - Degree of acclimatization
2. Environmental Risk Factors

- Air temperature
- Relative humidity
- Air movement
- Radiant/Conductive heat
- Work intensity
- Clothing

General Requirements

PROVISION OF DRINKING WATER

A sufficient quantity of fresh and suitably cool drinking water shall be readily accessible to allow every working person to drink at least four cups per hour. Personnel shall be encouraged to maintain regular fluid intake.

WORK PLANNING AND SUPERVISION

1. Assess conditions: Prior to assigning outdoor work during warm periods, check weather forecasts (http://www.weather.gov/) and the current weather. You can use tools such as the NIOSH Heat Safety Tool App or the National Weather Service Heat Risk to determine heat index and forecast data.
   For warmer periods and especially during worker acclimatization, it is recommended to:
   - Schedule outdoor work during cooler parts of the day
   - Plan staff rotation for strenuous work tasks
   - Advise staff to wear lighter, loose-fitting clothing and wide-brimmed hats
2. Worker Acclimatization: The body needs a certain period to adjust to working in heat and humidity, especially when heavy physical exertion is required. Typically, people can adapt to significant increases in heat within 4-14 days of a progressively increasing workload. *Note: Acclimatization is essential for new employees, those returning to work after a prolonged absence or recent illness, or those recently moving from a cooler temperature.*
3. For outdoor temperatures of 80°F or warmer, supervisors shall ensure:
   a) Adequate shade is present for employees to take their rest/meal breaks at or near their work area
   b) To encourage employees to take preventative cool-down rest in the shade when they feel it is needed to prevent overheating. Workers taking a cool-down rest shall:
      - Be monitored and asked if they are feeling heat illness symptoms,
      - Take at least 5 minutes to rest in the shade, AND
      - Not to be ordered back to work until any signs/symptoms of heat illness are gone
   c) Provision of effective means for personnel to contact supervisor and emergency services (i.e., cell phones, walkie-talkies)
4. For outdoor temperatures of 95°F or warmer, supervisors shall ensure all of the above plus the following:
   a) Regularly monitor employees for alertness and signs/symptoms of heat illness (either direct supervision, buddy system, phone/radio communication, and/or other means of observation).
   b) Reminders to employees to drink plenty of water throughout the workday
   c) Pre-shift meetings before the start of daily work to remind workers of the required monitoring described above, encouragement to drink plenty of water, and the right to take cool-down rest breaks as needed

Outdoor/Indoor Heat Illness Prevention Plan

Directions: Per the MOSH Heat Stress Standards [COMAR 09.12.32] requirement, MC departments shall provide written department procedures for preventing workplace heat illness. Use the template below to document these procedures.

1. Carefully review the standard procedures (in italics) and include further detail on how these safety measures will be implemented.
2. Ensure employees are trained on procedures (in addition to the general heat illness guidance above).
3. Keep these written procedures accessible for employee review.

Campus		**Date**	
Department		**Prepared by**	
Supervisor		**Title**	

HEAT ILLNESS PREVENTION PROCEDURES

1. Have all supervisors and employees completed the MC **Heat Stress Recognition and Prevention** training in workday?

   Yes No

   - *Supervisors and employees are to be provided heat illness prevention training before assigning or beginning outside work in warmer weather.* NOTE: For any personnel identified as not having completed the online training, enroll them in the training via Workday. The training frequency is initially, annually, and immediately following an incident at the worksite involving a suspected or confirmed heat-related illness. [You may want to pair an experienced worker with a new employee to monitor each other and ensure they can put the training into practice.]

2. Are all procedures included in this plan communicated such that all employees fully understand?

   Yes No

3. Have the employees expressed understanding of recognized heat-related illnesses, including heat exhaustion and heat stroke, for themselves and others?

   Yes No

   - Have employees identified their own personal risk factors

     Yes No

4. How have you made employees aware of emergency procedures (e.g., contacting responders) in accordance with Heat Stress training? Move individual(s) experiencing symptoms away from the hot area into a cool, shaded area. List other practices adopted to reduce heat and help cool affected individuals, such as removing PPE. List available supplies, such as ice packs and other first aid supplies.

5. What are the emergency procedures for employees working alone? [Never leave an individual who is experiencing heat-related symptoms alone, as their condition may worsen. Specify the supervisor or designee staying on the line to monitor their recovery and the need to contact emergency services. Will the employees have radios, or use the buddy system].

6. What are the emergency procedures if the individual is in a remote or non-developed area with unidentified roads? [Create procedures for moving or transporting them to a place where they can be reached by emergency medical services. For example, you may need to have the supervisor or another employee meet emergency services at the closest point to guide them to the ill employee's location].

DAYS WHEN THE HEAT INDEX IS ABOVE 80ºF

7. How will sufficient amounts of suitably cool, potable water in work areas be provided? *Supervisor must ensure fresh and suitably cool water is provided and readily accessible to employees while working—at least 2 quarts per employee at the start of every shift, OR employees' access to water coolers/drinking fountains. Water containers are monitored and, as needed, the water supply is replenished.* [Determine how much water will be needed for each employee or team, and how to make it accessible and keep it cool. Identify who is in charge of setting up and carrying supplies, who checks the water level, and who replenishes supplies (i.e., disposable cups, etc). Emphasize not sharing cups/bottles, not dipping cups in water, and not drinking from non-potable sources of water.]

8. How will employees be provided with frequent opportunities and encouragement to stay hydrated by drinking water? *Supervisors must ensure employees are regularly reminded (e.g., at morning meetings) to drink water frequently.*

9. How will the employees be provided enough sufficient space to rest in a shaded or cool climate-controlled area where heat-affected employees may cool off and recover when signs and symptoms of heat-related illness are recognized? *Adequate shade is provided for all employees during their rest/lunch periods. Shade consists of portable shade structures, buildings with/ mechanical cooling, air-conditioned vehicles, and sufficient shadows from trees/buildings. NOTE: where it is not safe or feasible to provide shade at or near the worksite continuously, the supervisor shall document why shade cannot be provided and what alternative steps will be taken to provide other cooling measures(e.g., cooling vests, misting machines, etc. Retain records for a year.* [Describe how to utilize shade in work and/or break areas to reduce the heat. Include details to accomplish the task. For example, the supervisor will assess shade options for each job site before work begins. Use shade such as trees, walls, and/or set up shade structures like a portable canopy when no other option is available. The supervisor is responsible for ensuring that equipment is available, functional, transported, and set up properly].

10. How are work/rest schedules communicated and implemented? Note: add 5ºF to the heat index when wearing PPE. *Cool-down rests in the shade are allowed and encouraged when they feel it is needed to prevent overheating. Employees taking a cool-down rest are monitored and asked if they feel any symptoms of heat illness, provided first aid and emergency response if heat illness symptoms are indicated, encouraged to rest in the shade, and not ordered back to work until any signs/symptoms of heat illness are gone. The employee shall remain resting for at least 5 minutes and is not to return to work tasks until any signs/symptoms of heat illness are gone.*

11. Are acclimatization procedures in place to include:
    - Observing employees for symptoms of heat-related illnesses for 14 days when the heat index in the work area is 80ºF: *OSHA and NIOSH recommend the "Rule of 20 percent" for building heat tolerance in hot environments. Starting new employees at full intensity is not safe. A buddy system may be arranged during worker acclimatization, instead of direct supervisor observation, where employees monitor and immediately report any observed signs of possible heat illness.*
        - When employees are newly assigned to work?

Yes No

NIOSH Acclimatization Recommendations for *New Employees*	
1st Day	20% usual work duration
2nd Day	40% usual work duration
3rd Day	60% usual work duration
4th Day	80% usual work duration
5th Day	100% usual work duration

- When employees return to work after 7 or more consecutive days of absence?

  Yes No

NIOSH Acclimatization Recommendations for Employees with Previous Experience with the Same Job	
1st Day	50% usual work duration
2nd Day	60% usual work duration
3rd Day	80% usual work duration
4th Day	100% usual work duration

- When a "heat wave" occurs at the geographical location of the worksite?

  Yes No

- Understanding the effects of clothing and personal protective equipment, adding to the heat burden?

  Yes No

- What are the personal and environmental risk factors that put employees at a higher risk of heat-related illness?

  Yes No

- The use and maintenance of cooling systems (e.g., water-cooled or air-cooled garments, cooling vests)?

  Yes No

"Heat Wave" means a period of time when the predicted high heat index temperature is at least 80 degrees and it is at least 10 degrees higher than the average high temperature in the preceding 5 days.

12. How are acclimatization procedures communicated to employees in your unit?

13. How are emergency procedures communicated to employees in your unit?

ADDITIONAL PROVISIONS FOR DAYS WHEN HEAT INDEX IS AT OR ABOVE 90ºF

14. **ALL PREVENTION PROCEDURES LISTED ABOVE MUST BE IMPLEMENTED**
15. How are work/rest arrangements made when conditions are anticipated to include a heat index above 90ºF?

Heat Index	Rest Period
Above 90ºF and below 100ºF	Minimum of 10 minutes every 2 hours
Above 100ºF	Minimum of 15 minutes every hour

16. Procedures in place to monitor exposed employees for signs of heat-related illnesses with regular communication via:

Phone

Radio

Buddy System

Other means of observation (specify below)

_____

17. Employees are regularly monitored for alertness and signs/symptoms of heat illness (via direct observation, mandatory buddy system, regular phone/radio communications, and/or other means of observation).

REFERENCES

Examples of Light Work, Moderate Work, and Heavy Work

Light Work	Moderate Work	Heavy Work
Travel by conveyances	Landscaping	Climbing
Inspection Work	Using hand tools (e.g. sawing, drilling, shoveling)	Using hand tools for extended periods
Walking on flat, level ground	Carrying equipment/supplies weighing 20-40 pounds	Carrying equipment/supplies weighing 40 pounds or more

Work/Rest/Fluid Intake Guidance

The guidance provided here is for a fit, acclimated employee. If it is determined that the employee does not fit that category, longer rest times and increased hydration may be necessary. Rest means minimal physical activity (sitting or standing) in the shade if possible. When adding PPE (e.g. Tyvek suit, respirator), add at least 5ºF to the heat index.

Heat Category	Heat Index (ºF)	Light Work		Moderate Work		Heavy Work	
		Work/Rest (minutes)	Fluid Intake (quarts/hr)	Work/Rest (minutes)	Fluid Intake (quarts/hr)	Work/Rest (minutes)	Fluid Intake (quarts/hr)
1	80-84.9ºF	No limit	½	No limit	¾	50/10	¾
2	85-89.9ºF	No limit	½	No limit	¾	50/10	1
3	90-100ºF	No limit	½	50/10	¾	40/20	1
4	>100ºF	No limit	¾	40/20	1	35/25	1 ½

Adapted from: 1. USGS Survey Manual, Management of Occupational Heat Stress, chapter 45, Appendix A. 2. Manual of Naval Preventive Medicine, Chapter 3: Prevention of Heat and Cold Stress Injuries. 3. OSHA Technical Manual Section III: Chapter 4 Heat Stress.