


<b>Heat Stress Prevention</b>		<b>Wayne State University</b> Office of Environmental Health and Safety 5425 Woodward, Suite 300 Detroit Michigan 48202 (313) 577-1200, FAX (313) 993-4079 <a href="http://www.research.wayne.edu/oehs">http://www.research.wayne.edu/oehs</a>	
<b>Effective:</b> December 2022	<b>Revision:</b> June 2024		

## PURPOSE

This program describes how job-specific environmental conditions (temperature, humidity, and air movement), workloads, and PPE may expose workers to hazards resulting in illness or injury related to occupational heat exposure.

## RESPONSIBILITIES

### PROGRAM ADMINISTRATOR

- The Office of Environmental Health and Safety (OEHS) will serve as Program Administrator.
- The Program Administrator will have the technical qualifications (training and experience) and administrative authority to develop, implement, and update (as necessary) the program.
- Develop written detailed instructions covering each of the basic elements in this program and are responsible for amending these instructions.
- Evaluating the program and its effectiveness on an annual basis.
- Reviewing and updating the written program elements as needed.

### MANAGERS / SUPERVISORS / AREA LEADERS

- Ensure that employees under their supervision (including new hires) have received appropriate training.
- Implement proper work practices when necessary.
- Continually monitoring work areas and operations to identify heat-related hazards.
- Coordinate with the Program Administrator on how to address heat hazards or other concerns regarding the Program.

### EMPLOYEE


- Attend all required training courses as determined by Wayne State University.
- Inform their supervisor of any heat-related hazards and any other concerns that they have regarding the program.
- Follow all policies and procedures related to or outlined in this program.

## IMPLEMENTATION CRITERIA

The Heat Stress Prevention Program is implemented when the work area temperature rises above 80°F Heat Index Adjusted Temperature. Before each work shift, forecasted outdoor air temperatures for the work area are obtained from internet sources, and the adjusted temperature is calculated (if necessary).

To ensure proactive heat stress protection, the program will utilize Wet Bulb Globe Temperature (WBGT) measurements. On days with an elevated heat index, OEHS will conduct WBGT monitoring at designated work locations. Based on the WBGT readings and established guidelines, OEHS will then communicate additional recommended safety actions to area supervisors.

Supervisors will be responsible for relaying this additional critical information to their employees, ensuring everyone understands the heat stress risks and appropriate actions to stay safe.

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## WORKER WORK/REST INTERVALS

Work/rest intervals are based on PPE, workloads, environmental conditions (temperature, humidity, air movement), and monitoring results. Work/rest intervals are determined by each supervisor. Work/rest intervals are adjusted throughout the work shift as needed and communicated to each worker at the conclusion of an applicable rest period, prior to reentry into the work zone.

Recommended guidelines for work/rest schedules for this site based on moderate work are provided in the table below.

<b>Recommended Heat Stress Work/Rest Schedules</b>			
<b>Heat Index Adjusted Temperature Range (°F)</b>	<b>PPE Level</b>	<b>Work Period</b>	<b>Rest Period</b>
80 to 89	Level D	50 minutes	10 minutes
90 to 106	Level D	40 minutes	20 minutes
107 to 125	Level D	30 minutes	30 minutes
126 to 135	Level D	20 minutes	10 minutes

OSHA 29 CFR 1910.120 Appendix B. Level D Personal Protective Equipment (PPE) - A work uniform affording minimal protection, used for nuisance contamination only.

The following constitute Level D equipment; it may be used as appropriate:


1. Coveralls.
2. Gloves.<sup>1</sup>
3. Boots/shoes, chemical-resistant steel toe and shank.
4. Boots, outer, chemical-resistant (disposable).<sup>1</sup>
5. Safety glasses or chemical splash goggles.
6. Hard hat.<sup>1</sup>
7. Escape mask.<sup>1</sup>
8. Face shield.

<sup>1</sup> Optional, as applicable.

## BEHAVIOR MONITORING

Supervisors and Workers monitor each other's actions, speech, and appearance for signs and symptoms of heat-related illnesses including heat exhaustion and heat stroke.

<b>Heat-Related Illness</b>	<b>Symptoms and Signs</b>
Heat Stroke	Chills; restlessness; irritability; mental confusion; euphoria; red face; disorientation; hot, dry skin; sweating stops; erratic behavior; collapse; shivering; unconsciousness; convulsions; and/or very high body temperature.

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Heat Exhaustion	Fatigue; weakness; blurred vision; dizziness; high pulse rate; profuse sweating; low blood pressure; pale face; clammy skin; collapse; nausea and vomiting; headaches; and/or slightly increased body temperature.
Heat Cramps	Muscle spasms/pain (usually in legs, arms, or trunk),
Heat Syncope	Fainting, and/or dizziness
Heat Rash	Clusters of red bumps on skin. Often appears on neck, upper chest, and skin folds

Workers should be aware of the key differences between the signs and symptoms of heat stroke and those of heat exhaustion, such as the lack of sweating, the color of the skin (red), and the rise in body temperature. Heat stroke is a medical emergency that requires immediate medical attention.

Physical signs and symptoms of heat stress are discussed with workers before each shift when the Heat Stress Prevention Plan is implemented.

## REST AREAS

Rest areas that are shaded and protected from radiant heat will be provided at each work location. These areas should be readily accessible to all workers and offer a cool environment for recovery.


Ideally, rest areas should be air-conditioned or well-ventilated with fans and provide comfortable seating. Cool water should also be readily available in these areas to encourage proper hydration.

## RECOMMENDED LIQUID REPLACEMENT

Since dehydration is a primary cause of heat illness, the following table outlines the recommended liquid intake to help reduce heat stress-related issues.

<b>Recommendation Heat Stress Liquid Replacement</b>			
<b>Heat Index Adjusted Temperature Range (°F)</b>	<b>Work Period between Drinks</b>	<b>Recommended Minimum Quantity (Ounces)</b>	<b>Liquid Type</b>
70 to 89	60 minutes	2 cups (16 oz.)	Water
90 to 106	30 minutes	1.5 cups (12 oz.)	Water
107 to 125	30 minutes	1.5 cups (12 oz.)	Water
126 to 135	20 minutes	1.5 cups (12 oz.)	Water

Note, that fluids high in caffeine are not recommended because caffeine increases urine output and therefore risk of dehydration.

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## FIRST AID

**In the event of an emergency call Wayne State Police at 313-577-2222 immediately**

- Take the affected person to a cooler area (e.g., shade or air conditioning).
- Remove unnecessary clothing, including shoes and socks.
- Cool worker with water, cold compresses, an ice bath, or fans.
- If possible, encourage frequent sips of cool water.
- Never leave a worker with heat-related illness alone. The illness can rapidly become worse.
- Stay with the worker and wait for emergency medical services.

## TRAINING

The Program Administrator, with assistance from area supervisors, must certify that the required training has been accomplished. To ensure workers are prepared to work safely under hot conditions, all employees and area supervisors who may be exposed to heat stress will receive training on the following:

- Hazard Assessment, Prevention Strategies, Emergency Preparedness, Control Measures
- Risk Factors (environmental, work-related, physical exertion, clothing, and personal factors)
- Heat-related illnesses, how the body handles heat stress, and First Aid.

## RESOURCES

FP&M Safety Talk Guide - HEAT STRESS

## VERSION CONTROL

Version	Date	Notes
Initial	December 2022	Internal Review
1.0	June 2024	Split Thermal Program into Heat Stress and Cold Stress programs.