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## **PURPOSE**

The University of Illinois Urbana-Champaign (U. Of I.), through the Division of Safety & Compliance (S&C), Occupational Safety and Health (OSH) has established this Heat Illness Prevention Program to protect the health of university students, faculty, and staff and to promote compliance with the current Occupational Safety and Health Administration (OSHA) National Emphasis Program (NEP) initiated on April 10, 2026.

The university is committed to providing a safe and healthful environment to learn, discover, and work. The purpose of this document is to improve worker safety and health by providing guidance on the prevention of heat exposure-related illnesses. This guidance document applies to all faculty, staff, and student workers who are or may be exposed to working environments where the air temperatures or heat indices reach or exceed 80 degrees Fahrenheit/26 degrees Celsius inside or outside facilities.

## **POLICY**

It is the policy of the university to protect its students, faculty and staff from indoor and outdoor heat or heat related hazards. This shall be accomplished as far as feasible with effective engineering controls, employee training, and administrative controls.

This Heat Illness Prevention Program impacts all students, faculty and staff who are or may reasonably expect to be exposed to indoor or outdoor temperatures or heat indices at or above 80 degrees Fahrenheit/26 degrees Celsius inside or outside facilities as part of their employment.

## **REGULATORY RESPONSIBILITIES**

### **Occupational Safety and Health (OSH)**

OSH shall be responsible for the creation and maintenance of the base program document and associated appendices. OSH shall create and maintain general training which meets or exceeds both state and federal OSHA mandates. OSH shall designate a program coordinator to provide guidance, regulatory interpretation and general assistance for this program and at minimum review and update this and all other associated program and training documents annually and/or when regulatory updates occur.

### **Deans, Department Heads, and Directors (Campus Units)**

Campus units which have employees who are or may be exposed to temperatures or heat indices at or above 80 degrees Fahrenheit/ 26 degrees Celsius shall designate a **Responsible Person** at each work location. This

person shall be charged with implementing this Program and its requirements, including but not limited to creation or modification of unit-specific standard operating procedures (SOPs), Job hazard assessments/analyses (JHAs), training and program additions, and enforcement/discipline necessary to meet unit-specific operations and needs.

## **Designated Responsible Person**

The Designated Responsible Person shall identify personnel that may be affected by the OSHA NEP and shall inform unit-specific management of existing and new potential hazards entering the work environment for new and existing employees. This person(s) shall be charged with assuring all required SOPs, and JHAs have been created, and appropriate mitigation measures have been implemented for each task or situation where employees are knowingly exposed to temperatures or heat indexes or conditions at or above 80 degrees Fahrenheit/ 26 degrees Celsius. This individual(s) shall also ensure all employees affected by any and all applicable provisions of this document, training, and associated appendices, receive training and assistance assuring their roles and responsibilities are understood and implemented appropriately. Additionally, this individual shall be responsible for the documentation and reporting of corrective actions, and programmatic updates, due to heat illnesses; or when employees are determined to be deficient in their actions or understanding of their responsibilities as previously trained or directed. This information shall be communicated to supervisors, and campus unit leadership/management, as necessary, following unit-specific reporting procedures.

## **Supervision**

Managers, supervisors and/or Principal Investigators (PIs) are responsible for understanding, assisting, implementing, and enforcing all aspects of this program and any additional location or task-specific requirements, as determined by the Designated Responsible Person, for the workers under their direction. This includes but is not limited to, creation and implementation SOPs, JHAs, annual general and unit-specific training of all affected employees and assuring that the Performance Partnership Program (PPP) or unit-specific enforcement or discipline processes are adhered to when necessary.

## **Faculty, Staff, and Student Workers**

Affected faculty, staff and student workers shall follow the requirements of this program, unit-specific SOPs, and training. These individuals shall not perform work in locations where the temperature or heat index is at or above 80 degrees Fahrenheit or 26 degrees Celsius until training and implementation of location-/task-specific controls have occurred, and a heat illness prevention plan is available for review.

## **HEAT ILLNESS PREVENTION PLAN**

The procedures for this program are based on information from multiple sources including the most current version of the OSHA NEP published on April 10, 2026. The current NEP only requires that heat priority tasks/areas are identified and evaluated if the temperature or heat index meets or exceeds 80 F/26 C and does not require further categorization, however, additional classification as described in the following section, Heat Priority Area Procedures, is recommended.

To properly create a Heat Illness Prevention Plan (HIPP) the following steps must be taken prior to any work occurring in a heat priority area. A HIPP template is included in Appendix A.

First, an evaluation of the location(s) and tasks that are to be performed must occur. This evaluation should include the review or creation of the SOP, JHA, and if applicable Lockout/Tagout (LOTO) instructions. If any additions or modifications are found, updates to the written documents shall occur. It is recommended that all modifications be tracked to provide evidence that reviews and updates are occurring and, at minimum, are completed prior to work being performed.

Second, an evaluation of the space and task as they pertain specifically to heat exposure shall occur and be documented.

These documents shall include the following for indoor locations: current and expected temperatures, humidity, and the presence of heat generating equipment. If heat generating equipment exists, the effect the equipment has on the ambient temperature of the space shall be documented. Additionally, the anticipated duration of exposure, locations where cool potable water may be obtained, locations of approved cool-down areas are located, and reporting instructions for routine and emergency situations, including heat illness emergencies.

When evaluating outdoor locations, in addition to the information stated in the indoor section the following information shall be collected for outdoor locations: forecast data for the duration of the task that includes air temperature, humidity, heat index, and expected cloud coverage. If the task has a duration longer than the available weather forecast, it shall be updated at regular intervals and always prior to the last date shown on the forecast.

## **HEAT PRIORITY AREA PROCEDURES**

Working in heat priority areas is defined as working in a location where the temperature or heat index meets or exceeds 80 degrees Fahrenheit / 26 degrees Celsius. All employees shall be protected from the hazards pertaining to heat exposure. These locations and tasks shall be evaluated through the combined efforts of the

Designated Responsible Person, supervision, and/or campus unit embedded safety professional. If your campus unit does not have an embedded safety professional, please contact OSH with any questions.

## Task-Specific Classifications

Each work task that is to occur in an environment with a temperature or heat index that meets or exceeds 80F/26C shall be classified by the Designated Responsible Person and/or supervision. These tasks shall be classified into one of five classifications.

1. **Classification One Rest** - Tasks that could be categorized as rest include sitting while not performing work related tasks, hydrating, or talking on the phone
2. **Classification Two Light Work** – Tasks that require minimal physical activity, examples include writing or drawing, driving a vehicle, occasional or leisurely walking, stooping, crouching or kneeling, standing watch.
3. **Classification Three Moderate Work** – These are tasks that likely require consistent energy inputs and are repetitive in nature. Examples may include site preparations, sweeping, stacking light to medium weight materials, weed eating or push-mowing, painting, normal walking.
4. **Classification Four Heavy Work** – Examples may include carrying, shoveling, manual sawing, pushing/pulling heavy loads, rope access, fast paced walking or jogging.
5. **Classification Five Very Heavy Work** – These are tasks that are very labor intensive, examples include, running, breaking concrete with a sledge/jackhammer, manual material movement, long distance hiking carrying equipment.

Note: Wearing heavy clothing or required protective clothing or equipment may inhibit the body's ability to dissipate heat which may result in the body experiencing the work at a higher classification. These considerations should be evaluated and accounted for in the task-specific classifications.

Once each task has been classified this information will be paired with the SOP, JHA, and other supporting documents to form a HIPP.

## Non-Mandatory Temperature/Heat Index Classifications

It is recommended that the following temperature/heat index classifications be used in addition to the Task-Specific Classifications. The temperature/heat index classifications exist in the proposed OSHA *Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings* regulation and proposed Illinois *Workplace Extreme Temperature Safety Act* (HB3762) are recommendations from the National Institute for Occupational Safety and Health (NIOSH), the American Conference of Governmental Industrial Hygienists (ACGIH), as well as the American National Standards Institute (ANSI).

1. **Low Caution** – Temperature or heat index of less than **91F/33C** shall be classified as Low Caution. These locations or tasks require basic heat safety plans.
2. **Moderate Caution** – Temperature or heat index of **91F/33C** to **103F/39C** shall be classified as Moderate Caution. These locations require a basic heat safety plan which will include additional precautions and messaging for employees from supervision.
3. **High Heat Warning** – Temperatures or heat index of **103F/39C** to **115F/46C** shall be classified as High Heat Warning. These locations and tasks require a heat safety plan and an evaluation be performed by the Designated Responsible Person.
4. **Very High/Extreme** – Temperatures or heat index greater than **115F/46C** shall be classified as Very High/Extreme and require significant planning to accommodate additional cooling and rest/recovery needs.

## HEAT ILLNESS PREVENTION

### Task-/Location-Specific Monitoring

Each Designated Responsible Person will pre-emptively track weather conditions to determine where and when temperatures or heat indices will reach or exceed 80 degrees Fahrenheit/ 26 degrees Celsius. This individual will also track heat warnings ahead of scheduled workdays and communicate this information to supervision to enable effective work planning and implementation of controls. As this information will likely differ based on location-specific conditions, it is required that it be collected and recorded at each new location and at a minimum at each scheduled break or mealtime throughout the day. These location-specific records shall be kept for no less than 90 days and shall be made available immediately upon request.

For on-site monitoring of temperature and heat index of outdoor locations where minimal or no influence from artificial surfaces (asphalt, roofing materials, solar panels, etc.) or heat generating equipment is expected; the use of the OSHA/NIOSH Heat Safety Tool application is recommended to be used as the primary source of information pertaining to temperature and humidity. This application has been developed by OSHA and NIOSH for this purpose while also acting as a secondary source of information on the effects of heat illness and associated prevention methods. If this application is not available, any weather application may be used so long as it provides the current locations heat index or the current temperature, humidity, and cloud cover.

### Hierarchy of Controls

When attempting to resolve or mitigate known hazards the hierarchy of controls is used. This is a method of identifying and ranking safeguards to protect workers from hazards. They are arranged from the most to least effective and include: elimination, substitution, engineering controls, administrative controls, and PPE. OSHA



considers elimination to be the most effective method of hazard mitigation as it addresses and removes all risks of the identified hazard. In this case elimination and substitution are not feasible controls.

**Engineering Controls**

- Use of air conditioning
- Provide local ventilation (e.g., cooling fans)
- Use of reflective shields to block radiant heat
- Use of insulation on hot surfaces (e.g., boilers and pipes)
- Provide shade for employees working outdoors

**Administrative Controls**

- Scheduling tasks during the cooler part of the workday
- Schedule routine maintenance/repair work during cooler part of year when feasible
- Relief workers
- Work/rest schedules
- Work in pairs (buddy system) and monitor each other for signs and symptoms of heat stress or illness.
- Communication buddy, even when not working in the same location, setting check-in times with a co-worker can be used as an extra point of contact.

**Personal Protective Equipment**

- Reflective clothing
- Insulated suits
- Face shields
- Cooling neck wraps\*
- Cooling vests or jackets\*

\*Be advised that cooling vests and jackets may become an insulator upon reaching the body's temperature.

**Acclimatization**

The purpose of acclimatization periods is to provide sufficient time for unconditioned new or returning employees bodies to physiologically adjust to working in environments they are not typically accustomed or exposed to. As required by the NEP, employers must have an acclimatization program for all new and returning employees that are or may be exposed to environments where elevated temperatures are or may be present.

**New Employees**

Employees new to working in environments with elevated temperatures need time to acclimatize to the combination of the work they are to perform and the heat. **This process is extremely important as nearly half of all heat-related worker fatalities occur on a worker's first day and over seventy (70) percent occur within the first week.**

This process can generally be accomplished by allowing employees to gradually increase the amount and intensity of work they are allowed to perform in the heat each day until they feel/show signs they are able to adequately endure the work and conditions. Acclimatization periods typically last between seven (7) and fourteen (14) days depending on the individual and their needs. This period is based on gradually increasing the individual's work intensity and duration by between ten and 20 percent each day.

**New employees require additional monitoring** to help ensure they are taking the necessary breaks and maintaining hydration. It is recommended that these plans be recorded for each individual and that any additional time or modifications that take place are recorded. Additionally, it is important when working with employees during this period that they are encouraged to provide updates about how they are feeling.

If after the employee has completed the standard acclimatization period and they, their immediate supervisor, or Designated Responsible Person, are either still concerned with the employees' level of acclimatization it may be prudent to recommend that they speak with their primary health care provider and potentially the Office of Access and Equity (OAE) should their health care provider recommend accommodations.

If it is recommended that the employee speaks with either their physician or OAE and does so, supervision is not permitted to ask specifics as they pertain to the individuals' personal medical issues or history. If they have any questions or concerns all questions should be directed through the units Human Relations (HR) department or directly to OAE.

### **Returning Employees**

Employees who have not been exposed to similar tasks, work intensity, or environmental factors such as heat for seven (7) consecutive days or more shall also require time to reacclimatize to their normal heat tolerance and work intensity.

The recommended acclimatization schedule is;

**No more than 50%** of the usual duration and intensity on the first day.

**No more than 60%** on the second day.

**No more than 80%** on the third day.

And **up to 100%** on the fourth day.

## **Hydration and Replenishing of Electrolytes**

It is required that all individuals working in environments where temperatures or heat indices reach or exceed 80 degrees Fahrenheit / 26 degrees Celsius be provided access to adequate cool potable water. Adequate water is eight ounces every 15 to 20 minutes which equates to two or more gallons of water per person per day. For individuals working within the main campus, have access to water fountains/fill stations or sinks. For individuals on farms or outside of the contiguous campus water will need to be brought to the location in coolers, ice chests, or other means and be readily available. Please be aware if you plan to use reusable jugs, or cooler like devices that additional OSHA requirements exist in 1910.141(b), 1926.51(a) to ensure sanitary conditions.

Electrolyte drinks are not currently required per the NEP; however, it is recommended that electrolyte replacement options be provided. It has been proven that electrolyte replacement can aid in preventing heat related illnesses. Employees should be instructed to supplement their water intake with electrolyte replacement drinks occasionally but not frequently. When electrolytes are overconsumed, they can have side effects that can lead to dehydration or electrolyte imbalances.

Additional site-specific education concerning the use of caffeinated beverages, energy drinks, and alcohol before, during, or after hours is recommended.

## **Employee Training**

Training shall be provided to all employees with known or potential exposure to heat stress prior to working in heat stress environments.

- Topics shall include, but not be limited to:
- Hazards of heat-related illnesses
- Recognition of the signs and symptoms of heat-related illnesses
- First-aid response procedures
- How to avoid heat-related illnesses by recognizing and avoiding situations that can lead to heat-related illnesses

General training covering these topics is available on the OVCRI training portal. Unit-, location-, and task-specific training is the responsibility of the unit leadership, management, supervision, and Designated Responsible Persons.

## **REVISION HISTORY**

**APPENDIX A – HEAT ILLNESS PREVENTION PLAN****General Information**

Campus Unit: \_\_\_\_\_

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

Task: \_\_\_\_\_

Location: \_\_\_\_\_

Task/Location Designated Responsible Person: \_\_\_\_\_

Estimated Start Date: \_\_\_\_\_ Estimated End Date: \_\_\_\_\_

Location(s) of Cool Potable Water: \_\_\_\_\_

Cool Potable Water Provided Via (circle all that apply): Drinking Fountain    Water Cooler

Individual Bottles    Other: Describe: \_\_\_\_\_

Location and Nature of Cool-Down Area(s): \_\_\_\_\_

Minimum Frequency of Scheduled Breaks: \_\_\_\_\_

**Emergency Procedures**

Emergency Contact Method: \_\_\_\_\_

**Heat Stroke**

Signs & Symptoms: Confusion; slurred speech; loss of consciousness; hot, dry skin or profuse sweating; seizures; very high body temperature

First Aid: **Call 911 Immediately**; move to nearby cool-down area; loosen clothing and remove extra layers; cool with ice and water

**Heat Exhaustion**

Signs & Symptoms: dizziness headache; rapid heart rate; pale, cool, clammy, or flushed skin; nausea and/or vomiting; fatigue; thirst; muscle cramps

First Aid: Take employee to clinic or emergency room or call 911; move to nearby cool-down area; **DO NOT** leave employee unattended; remove unnecessary clothing such as socks and shoes; encourage frequent sips of cold water; place cold compresses on the worker; encourage worker to wash head, face, and neck with cold water

**Heat Cramps**

Signs & Symptoms: Muscle cramps, pain, or spasms in the abdomen, arms, or legs

First Aid: Hydrate and have a snack every 15 minutes; avoid salt tablets and over consumption of sports drinks; Take employee to clinic or emergency room or call 911 if employee has heart problems, is on a low sodium diet, or if cramps do not subside within 1 hour.

**Heat Rash**

Signs & Symptoms: red clusters of small blisters usually on the neck, chest, groin, elbows, and body creases

First Aid: Move to cooler, less humid area; keep rash area dry; do not use ointments or creams

Management/Supervision Contact(s) for Emergency & Non-Emergency Situations:

|             |              |
|-------------|--------------|
| Name: _____ | Phone: _____ |
| Name: _____ | Phone: _____ |
| Name: _____ | Phone: _____ |
| Name: _____ | Phone: _____ |

**Task-Specific Classification**

Circle the classification that best describes the work.

**Classification One Rest** - Tasks that could be categorized as rest include sitting while not performing work related tasks, hydrating, or talking on the phone.

**Classification Two Light Work** – Tasks that require minimal physical activity, examples include writing or drawing, driving a vehicle, occasional or leisurely walking, stooping, crouching or kneeling, standing watch.

**Classification Three Moderate Work** – These are tasks that likely require consistent energy inputs and are repetitive in nature. Examples may include site preparations, sweeping, stacking light to medium weight materials, weed eating or push-mowing, painting, normal walking.

**Classification Four Heavy Work** – Examples may include carrying, shoveling, manual sawing, pushing/pulling heavy loads, rope access, fast paced walking or jogging.

**Classification Five Very Heavy Work** – These are tasks that are very labor intensive, examples include, running, breaking concrete with a sledge/jackhammer, manual material movement, long distance hiking carrying equipment.

Note: Wearing heavy clothing or required protective clothing or equipment may inhibit the body's ability to dissipate heat which may result in the body experiencing the work at a higher classification. These considerations should be evaluated and accounted for in the task-specific classifications.

## Non-Mandatory Temperature/Heat Index Classifications

Circle the classification that best describes the temperature/heat index during the duration of this task.

**Low Caution** - Temperature or heat index of less than **91F/33C** shall be classified as Low Caution. These locations or tasks require basic heat safety plans.

**Moderate Caution** – Temperature or heat index of **91F/33C** to **103F/39C** shall be classified as Moderate Caution. These locations require a basic heat safety plan which will include additional precautions and messaging for employees from supervision.

**High Heat Warning** – Temperatures or heat index of **103F/39C** to **115F/46C** shall be classified as High Heat Warning. These locations and tasks require a heat safety plan and an evaluation be performed by the Designated Responsible Person.

**Very High/Extreme** – Temperatures or heat index greater than **115F/46C** shall be classified as Very High/Extreme and require significant planning to accommodate additional cooling and rest/recovery needs.

## Controls

Circle controls to be used when temperature/heat index exceeds 80 degrees F.

### Engineering Controls

- Shaded cool-down area
- Air conditioning
- Local ventilation (e.g., cooling fans)
- Reflective shields to block radiant heat
- Insulation on hot surfaces (e.g., boilers and pipes)
- Other: List\_\_\_\_\_

### Administrative Controls

- Scheduling tasks during the cooler part of the workday (list start and stop times:\_\_\_\_\_)
- Schedule routine maintenance/repair work during cooler part of year when feasible
- Relief workers (list work handoff times:\_\_\_\_\_)

- Work/rest schedules (list if frequency is greater than minimum break frequency:\_\_\_\_\_)
- Work in pairs (buddy system) and monitor each other for signs and symptoms of heat stress or illness
- Communication buddy, even when not working in the same location, setting check-in times with a co-worker can be used as an extra point of contact
- Other: List\_\_\_\_\_

If using buddy system, list buddies, communication method, and contact frequency.

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### Personal Protective Equipment

- Reflective clothing
- Insulated suits
- Face shields
- Cooling neck wraps\*
- Cooling vests or jackets\*
- Other: List\_\_\_\_\_

### Acclimatization

**New Employees** (20 percent on day 1 then increase 10-20 percent each day)

Name: \_\_\_\_\_

Start Date:\_\_\_\_\_ Percent Working Day 1: 20 Day2:\_\_\_\_\_

Day 3:\_\_\_\_\_ Day4:\_\_\_\_\_ Day 5:\_\_\_\_\_ Day 6:\_\_\_\_\_ Day 7:\_\_\_\_\_

Day 8:\_\_\_\_\_ Day 9:\_\_\_\_\_ Day 10:\_\_\_\_\_

Name: \_\_\_\_\_

Start Date:\_\_\_\_\_ Percent Working Day 1: 20 Day2:\_\_\_\_\_

Day 3:\_\_\_\_\_ Day4:\_\_\_\_\_ Day 5:\_\_\_\_\_ Day 6:\_\_\_\_\_ Day 7:\_\_\_\_\_

Day 8:\_\_\_\_\_ Day 9:\_\_\_\_\_ Day 10:\_\_\_\_\_

Name: \_\_\_\_\_

Start Date:\_\_\_\_\_ Percent Working Day 1: 20 Day2:\_\_\_\_\_

Day 3:\_\_\_\_\_ Day4:\_\_\_\_\_ Day 5:\_\_\_\_\_ Day 6:\_\_\_\_\_ Day 7:\_\_\_\_\_

Day 8:\_\_\_\_\_ Day 9:\_\_\_\_\_ Day 10:\_\_\_\_\_

**Returning Employees** (no more than 50 percent day 1, 60 percent day 2, 80 percent day 3, and 100 percent day 4)

Name: \_\_\_\_\_

Start Date: \_\_\_\_\_ Percent Working Day 1: \_\_\_\_\_ Day2: \_\_\_\_\_

Day 3: \_\_\_\_\_ Day4: \_\_\_\_\_ Day 5: \_\_\_\_\_

Name: \_\_\_\_\_

Start Date: \_\_\_\_\_ Percent Working Day 1: \_\_\_\_\_ Day2: \_\_\_\_\_

Day 3: \_\_\_\_\_ Day4: \_\_\_\_\_ Day 5: \_\_\_\_\_

Name: \_\_\_\_\_

Start Date: \_\_\_\_\_ Percent Working Day 1: \_\_\_\_\_ Day2: \_\_\_\_\_

Day 3: \_\_\_\_\_ Day4: \_\_\_\_\_ Day 5: \_\_\_\_\_



Expected Temperature: \_\_\_\_\_ Expected Humidity: \_\_\_\_\_

Heat Generating Equipment: \_\_\_\_\_ Effect on Temperature: \_\_\_\_\_

Heat Generating Equipment: \_\_\_\_\_ Effect on Temperature: \_\_\_\_\_

Heat Generating Equipment: \_\_\_\_\_ Effect on Temperature: \_\_\_\_\_

Heat Generating Equipment: \_\_\_\_\_ Effect on Temperature: \_\_\_\_\_

[illegible]

Source of Weather Forecast:\_\_\_\_\_

Source of Current Weather:\_\_\_\_\_

[illegible]

## APPENDIX B – DEFINITIONS

### Acclimatization

The physiological changes that occur in response to a succession of days of exposure to environmental heat stress and reduce the strain caused by the heat stress of the environment; and enable a person to work with greater effectiveness and with less chance of heat illness.

### Body Heat Balance

Steady-state equilibrium between body heat production and heat loss to the environment

Body Heat Balance: Steady-state equilibrium between body heat production and heat loss to the environment.

### Body Heat Balance Equation

Mathematical expression of relation between heat gain and heat loss, expressed as  $S = (M - W) \pm C \pm R \pm K - E$

### Body Heat Storage

(S): The change in heat content (either + or -) of the body.

### clo:

A unit expression of the insulation value of clothing,  $1 \text{ clo} = 5.55 \text{ kcal} \cdot \text{m}^2 \cdot \text{h}^{-1} \cdot ^\circ\text{C}^{-1}$ . A clo of 1 is equal to the insulation required to keep a sedentary person comfortable at  $21^\circ\text{C}$  ( $\sim 70^\circ\text{F}$ ). It is also sometimes expressed as  $1 \text{ clo} = 0.155 \text{ m}^2 \cdot ^\circ\text{C} \cdot \text{W}^{-1}$ .

### Conductive Heat Transfer (K)

The net heat exchange involving the direct transfer of heat via direct contact between two mediums (solid, liquid, or gas) that have a temperature differential.

### Convective Heat Transfer (C)

The net heat exchange by convection between an individual and the environment.

### Controls, Administrative

Changes in work procedures to reduce the duration, frequency and severity of exposures to hazardous chemicals or situations.

### Controls, Engineering

Are controls that reduce or prevent hazards from coming into contact with employees. Examples include protective barriers, ventilation, blocks, or blinds.

**Cool-down Areas**

Means an indoor or outdoor area that is blocked from direct sunlight and shielded from other high radiant heat sources to the extent feasible and is either open to the air or provided with ventilation or cooling.

**Evaporative Cooling (Sweating)**

A primary physiological process where the conversion of liquid sweat on the skin into water vapor absorbs and removes core body heat. This process is only effective with a relative humidity at or below 60%.

**Evaporative Heat Transfer (E)**

Rate of heat loss by evaporation of water from the skin or gain from condensation of water on the skin, expressed as  $\text{kcal}\cdot\text{h}^{-1}$ ,  $\text{W}\cdot\text{m}^{-2}$ , or W.

**Excessive Heat Warning**

Issued by the National Weather Service within twelve hours of the onset of the following: heat index of at least 105 degrees Fahrenheit or 41 Degrees Celsius for more than three hours per day for two consecutive days, or a heat index more than 115 degrees Fahrenheit, 46 degrees Celsius for any period of time.

**Excessive Heat Watch**

Issued by the National Weather Service when heat indices in excess of 105 degrees Fahrenheit or 41 degrees Celsius during the day combined with nighttime low temperatures of 80 degrees Fahrenheit or 21 degrees Celsius or higher, are forecast to occur for two consecutive days.

**H to N****Heat Advisory**

Is issued by the National Weather Service within 12 hours of the onset of the following conditions: heat index of at least 105 degrees Fahrenheit or 41 degrees Celsius but less than 115 degrees Fahrenheit or 46 degrees Celsius for less than three hours per day, or nighttime lows above 80 degrees Fahrenheit or 26 degrees Celsius for two consecutive days.

**Heat Cramp**

A heat-related illness characterized by spastic contractions of the voluntary muscles (mainly arms, hands, legs, and feet), usually associated with restricted salt intake and profuse sweating without significant body dehydration.

**Heat Exhaustion**

A heat-related illness characterized by elevation of core body temperature above 38°C (100.4°F) and abnormal performance of one or more organ systems, without injury to the central nervous system. Heat exhaustion may signal impending heat stroke.

**Heat Index**

The heat index is an apparent temperature, or a measure of how hot it feels when temperature and humidity are combined. This is measured in the shade

**Heat Illness Prevention Plan (HIPP)**

A site-specific written strategy employers use to evaluate and control occupational heat hazards in both indoor and outdoor work settings.

**Heat Strain**

The physiological response to the heat load (external or internal) experienced by a person, in which the body attempts to increase heat loss to the environment in order to maintain a stable body temperature.

**Heat Stress**

The net heat load to which a worker is exposed from the combined contributions of metabolic heat, environmental factors, and clothing worn which results in an increase in heat storage in the body.

**Heat Stroke**

An acute medical emergency caused by exposure to heat from an excessive rise in body temperature [above 41.1°C (106°F)] and failure of the temperature-regulating mechanism. Injury occurs to the central nervous system characterized by a sudden and sustained loss of consciousness preceded by vertigo, nausea, headache, cerebral dysfunction, bizarre behavior, and excessive body temperature.

**Heat Syncope**

Collapse and/or loss of consciousness during heat exposure without an increase in body temperature or cessation of sweating, similar to vasovagal fainting except that it is heat induced.

**Heat Tolerance**

The physiological ability to endure heat and regulate body temperature at an average or better rate than others, often affected by the individual's level of acclimatization and physical conditioning.

**Hierarchy of Controls**

A system used by OSHA and NIOSH that ranks methods of controlling hazards from most to least effective.

**Humidity, Relative (RH)**

The ratio of the water vapor present in the ambient air to the water vapor present in saturated air at the same temperature and pressure.

**Hyperpyrexia**

A body core temperature exceeding 40°C (104°F).

**Hyperthermia**

A condition where the core temperature of an individual is higher than 37.2°C (99°F). Hyperthermia can be classified as mild (37.2–38.5°C; 99–101.3°F), moderate (i.e., heat exhaustion [38.5–39.5°C; 101.3–103.1°F]), profound (>39.5°C; 103.1°F), or profound clinical hyperthermia (i.e., heat stroke [>40.5°C; 104.9°F]), and death can occur without treatment (>45°C; 113°F).

**Job Hazard Analysis (JHA)**

A proactive tool/technique used to review job tasks, identify potential hazards, and determine the safest way to perform the job to prevent worker injury.

**Medication, Amphetamine**

A class of medications that are stimulants used to treat a variety of conditions such as attention deficit disorder, narcolepsy. These medications work by increasing alertness, energy, and focus but can also affect an individual's ability to tolerate heat.

**Medication, Antibiotics**

A class of medications that fight bacterial infections by either killing bacteria or inhibiting reproduction. Side effects can include increased sun sensitivity, diarrhea, dehydration, and fatigue.

**Medication, Anticholinergics**

A class of medications that block the action of acetylcholine, used to calm certain aspects of the parasympathetic nervous system. Used to treat conditions like overactive bladder, asthma, irritable bowel

syndrome, motion sickness, allergies, and Parkinson's disease. Side effects can include reduced sweat and saliva production.

**Medication, Antihistamines**

A class of medications that block the effects of histamine, a chemical released by the immune system during an allergic reaction. Side effects from these medications include reduced sweating, increased thirst, and elevated heart rate.

**Medication, Antihypertensives**

A class of medications primarily used to treat hypertension (high blood pressure). Side effects from these medications may include decreased sweating, dehydration, low heart rate (bradycardia), electrolyte imbalances, fatigue, and reduced heat tolerance.

**Medication, Diuretic**

A class of medications used to help the body eliminate excess water and salt. Side effects of these drugs may include, electrolyte imbalances, dehydration, decreased sweating, and elevated heart rate.

**Metabolism (M)**

Transformation of chemical energy into free energy that is used to perform work and produce heat.

**O to S****Personal Protective Equipment (PPE)**

Specialized clothing or equipment worn by an employee to minimize exposures to hazards that cause serious workplace injuries and illnesses.

**Pressure, Atmospheric (Pa)**

Pressure exerted by the weight of the air, which averages 760 mmHg at sea level and decreases with altitude.

**Pressure, Water Vapor (Pa)**

The pressure exerted by the water vapor in the air.

**Qualified Health Care Professional**

An individual qualified by education, training, and licensure/regulation and/or facility privileges (when applicable) who performs a professional service within his or her scope of practice in an allied health care discipline and independently reports that professional service.

**Radiant Heat Exchange (R)**

The net rate of heat exchange by radiation between two radiant surfaces of different temperatures.

**Recommended Alert Limit (RAL)**

The NIOSH recommended heat stress alert limits for unacclimatized workers.

**Recommended Exposure Limit (REL)**

The NIOSH recommended heat stress exposure limits for acclimatized workers.

**Rhabdomyolysis**

A medical condition associated with heat stress and prolonged physical exertion, resulting in the rapid breakdown of muscle and the rupture and necrosis of the affected muscles.

**Standard Operating Procedure (SOP)**

An established or prescribed method to be followed routinely for the performance of designated operations or tasks.

**Sweating**

Thermal response of the sweat glands due to elevated body temperature.

**T to Z****Temperature, Ambient ( $t_a$ )**

The temperature of the air surrounding a body. Also called air temperature or dry bulb temperature.

**Temperature, Core Body ( $t_{cr}$ )**

Temperature of the tissues and organs of the body. Also called Core Temperature.

**Temperature, Dew-point ( $t_{dp}$ )**

The temperature at which the water vapor in the air first starts to condense.

**Temperature, Globe ( $t_g$ )**

The temperature inside a blackened, hollow, thin copper globe measured by a thermometer whose sensing element is in the center of the sphere.



**Temperature, Natural Wet Bulb ( $t_{nwb}$ )**

The wet bulb temperature under conditions of the prevailing air movement.

**Temperature, Oral ( $t_{or}$ )**

Temperature measured by placing the sensing element under the tongue for 3 to 5 minutes.

**Temperature, Psychrometric Wet Bulb ( $t_{wb}$ )**

The lowest temperature to which the ambient air can be cooled by evaporation of water from the wet temperature-sensing element with forced air movement.

**Temperature, Rectal ( $t_{re}$ )**

Temperature measured 10 centimeters (cm) into the rectal canal.

**Temperature, Skin ( $t_{sk}$ )**

Temperature measured by placing the sensing element on the skin.

**Temperature, Tympanic ( $t_{ty}$ )**

True tympanic temperature is measured by placing the sensing element directly onto the tympanic membrane and recording the temperature. Estimates of tympanic temperature are usually obtained by placing a device into the ear canal close to the tympanic membrane.

**Temperature Regulation**

The maintenance of body temperature within a restricted range under conditions of positive heat loads (environmental and metabolic) by physiologic and behavioral mechanisms.

**Thermal Insulation, Clothing**

The insulation value of a clothing ensemble.

**Toolbox Talk**

A short, informal safety meeting held at the worksite before a shift or new task begins.

**Wet Bulb Globe Thermometer**

A device used to collect the locations air temperature, humidity, wind speed, and solar radiation to provide a calculation called the wet bulb globe temperature

**Wet Bulb Globe Temperature (WBGT)**

This is an environmental temperature arrived at by measuring dry air temperature, humidity, and radiant energy (i.e., usually direct sunlight being absorbed by clothing), used to calculate a thermal load on the person.

**Work**

Physical efforts performed using energy from the metabolic rate of the body.

**Net Heat Load**

The calculation used to determine the body's total heat load when accounting for normal metabolic heat generation in combination with additional factors such as work intensity, environmental influences, personal protective equipment, and duration.

**Work Intensity**

The physical metabolic demand or exertion level required to perform a job or task by an individual typically classified into three (3) categories high, medium, and low. This is directly affected by the individuals' state of acclimatization, level of physical fitness, medical conditions known or unknown, over the counter (OTC), prescription medications. Etc.