

# Heat Illness Prevention for Leaders

Presented By BHHC Loss Control

May 2026



# Dawn Heideman

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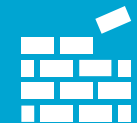
Loss Control Specialist



Bachelor of Science in Occupational Safety



BHHC for 3 Years



OSHA Authorized General Industry Trainer

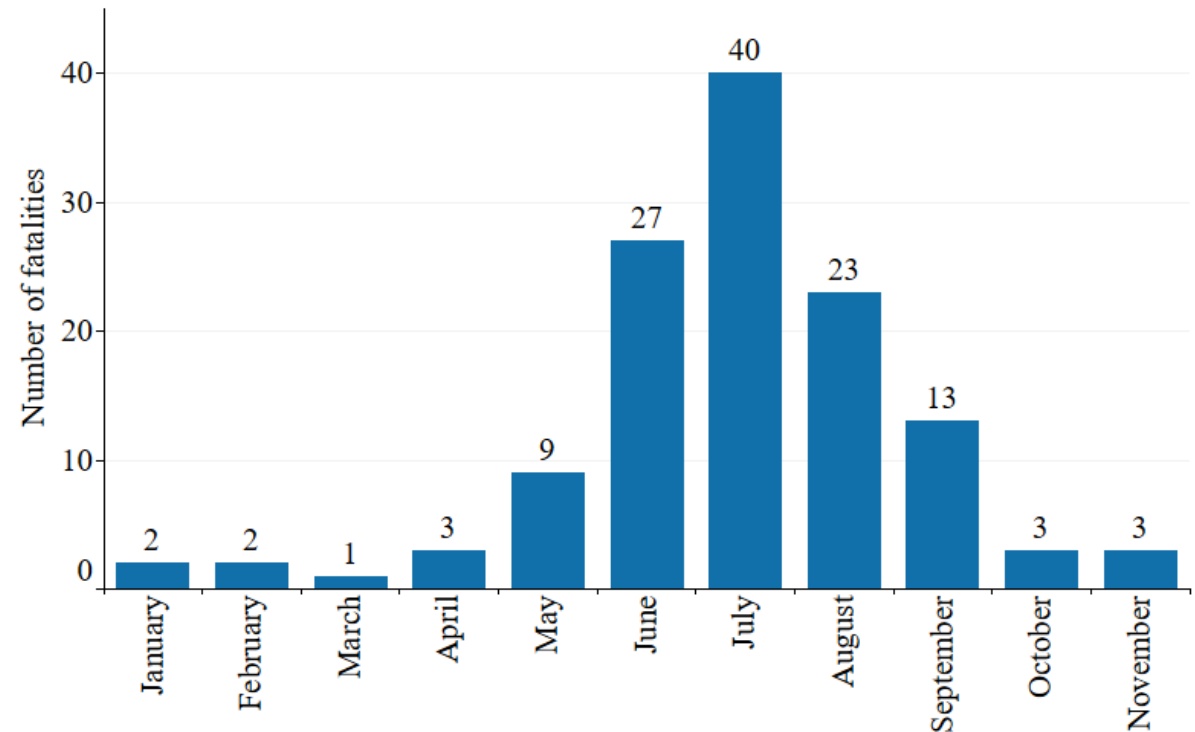
*"Although illness from exposure to heat is preventable, every year, thousands become sick from occupational heat exposure, and some cases are fatal. Hazardous heat exposure can occur indoors or outdoors and can occur during any season if the conditions are right, not only during heat waves."*

*Jim Frederick , Acting Assistant Secretary of Labor for Occupational Safety and Health*

# Fatality Risk

- Construction accounts for most heat related fatalities for US Workers
- Industries with heat illness
  - Service Workers such as landscapers and groundskeepers
  - Natural resource workers (Loggers, Oil Workers)
  - Agricultural Workers
  - Public Administration
  - Other – Includes kitchens, manufacturing and warehouses

3. Heat-related fatalities in construction, by month\* (2011-2023)



Source: CPWR, 2011-2023 Fatality Map. Calculations by CPWR's Data Center.

\*December is not shown due to no observed fatalities.

April 2026

After completing this training, you will:

1. Understand what heat illness is and why it is important to address
2. Understand different methods of assessing heat exposure
3. Identify approaches to reduce risk by improving hydration, shade and rest
4. Understand steps necessary to develop a Formal Heat Illness Prevention Training Program

# We will focus on Best Practices....

...with a hint of compliance. Why?

- The goal of a formal Heat Illness/Injury Program is to prevent injuries.
- Regulatory standards are *minimum* requirements. Best in class employers go above and beyond.
- Remember that every workplace is different. Find the risk potential and address it proactively.

C.H. Reed Manufacturing



# Industries at Risk of Heat Illness

## Outdoors

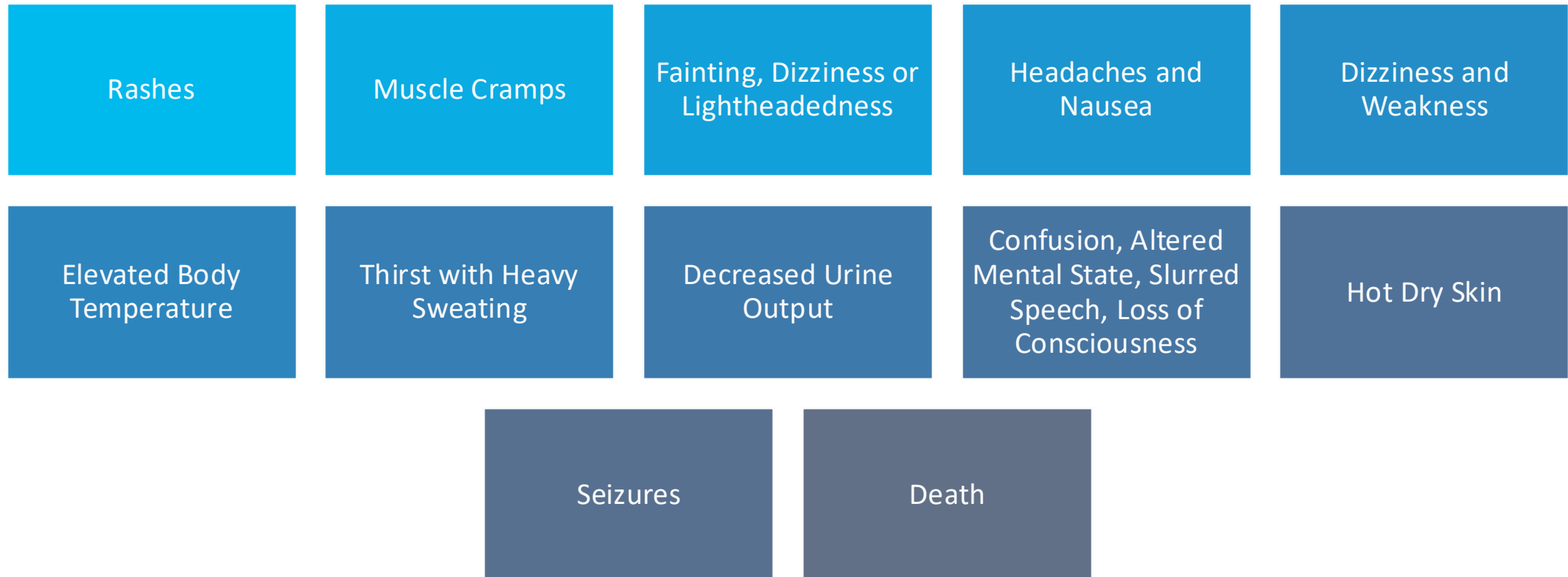
- Agriculture
- Construction – Road workers, Framers
- Construction – Roofers, Masonry workers
- Landscaping
- Mail and package delivery
- Oil and gas well operations

## Indoors

- Bakeries, Kitchens, Laundries (sources with indoor heat-generating appliances)
- Electrical Utilities (particularly boiler rooms)
- Fire Service
- Iron/Steel Mills and Foundries
- Manufacturing with hot local heat sources, like furnaces (e.g., paper products or concrete)
- Warehousing

# Affects of Heat on Our Bodies

Source – National Weather Service, CDC



# How do we treat it?

	Signs and Symptoms	What to Do
Less Severe	<p><b>Heat Rash/Prickly Heat</b></p> <ul style="list-style-type: none"> <li>• Red cluster of pimples or small blisters, usually on neck, upper chest, groin, under breasts, and in elbow creases</li> <li>• Extensive areas of skin that do not sweat on heat exposure, but present gooseflesh appearance that subsides with cool environments</li> </ul>	<ul style="list-style-type: none"> <li>• When possible, a cooler, less humid work environment is the best treatment</li> <li>• Keep rash area dry</li> <li>• Powder can be applied to increase comfort</li> <li>• Do not use ointments or creams, as they may impair cooling—warm, moist skin can make the rash worse</li> </ul>
	<p><b>Heat Cramps</b></p> <ul style="list-style-type: none"> <li>• Muscle cramps, pain, or spasms in the abdomen, arms, or legs</li> </ul>	<ul style="list-style-type: none"> <li>• Drink fluids every 15 to 20 minutes and eat a snack or sports drink</li> <li>• Avoid salt tablets</li> <li>• Get medical help if the worker has heart problems, is on a low sodium diet, or if cramps do not subside within 1 hour</li> </ul>
Severe	<p><b>Heat Syncope (Fainting)</b></p> <ul style="list-style-type: none"> <li>• Fainting, dizziness, or light-headedness after standing or suddenly rising from a sitting/lying position</li> </ul>	<ul style="list-style-type: none"> <li>• Sit or lie down in a cool place when beginning to feel faint or dizzy</li> <li>• Slowly drink water or clear juice</li> </ul>
	<p><b>Heat Exhaustion</b></p> <ul style="list-style-type: none"> <li>• Headache</li> <li>• Nausea</li> <li>• Dizziness, weakness</li> <li>• Irritability</li> <li>• Thirst, heavy sweating</li> <li>• Elevated body temperature</li> <li>• Decreased urine output</li> </ul>	<ul style="list-style-type: none"> <li>• Call for medical help or take worker to a health facility for evaluation and treatment</li> <li>• Stay with worker until help arrives</li> <li>• Remove worker from hot area and give liquids to drink</li> <li>• Remove unnecessary clothing, including shoes and socks</li> <li>• Cool worker with water, cold compresses, an ice bath, or fans</li> <li>• Encourage frequent sips of cool water</li> </ul>
OFTEN FATAL	<p><b>Heat Stroke</b></p> <ul style="list-style-type: none"> <li>• Confusion, altered mental state, slurred speech, loss of consciousness</li> <li>• Hot, dry skin or profuse sweating</li> <li>• Seizures</li> <li>• Very high body temperatures</li> <li>• Fatal if treatment delayed</li> </ul>	<ul style="list-style-type: none"> <li>• This is an emergency! Call for emergency care immediately!</li> <li>• Move worker to a cool area and remove outer clothing</li> <li>• Cool worker with water, cold compresses, an ice bath, or fans</li> <li>• Circulate air around worker to speed cooling</li> <li>• Place cold, wet cloths or ice on head, neck, armpits, and groin</li> <li>• Stay with worker until emergency medical services arrive</li> </ul>

- REMOVE THEM FROM THE HEAT!
- Drink Fluids every 15 to 20 minutes – slower the more severe the illness
- Sit or Lay down if feeling dizzy
- SEVERE CASES (Exhaustion and Stroke)
- Remove unnecessary clothing including shoes and socks
- Cool worker with water, cold compresses, an ice bath or fans
- Circulate air around worker to speed cooling
- CALL FOR EMERGENCY SERVICES or get the employee to a Medical Facility

# Assessing the Heat

- Employers must develop a process to monitor the weather and procedures for notifying employees about heat waves.
- Supervisors must understand methods of reducing the risk of injury including:
  - Modifying work schedules
  - Increasing water breaks
  - Reducing work daily work hours
  - Ceasing operations altogether.

**NATIONAL WEATHER SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, ST" or ZIP code  
Enter location ... Go  
Location Help

**News Headlines**

- [Spring Weather Safety Information](#)
- [Spring 2023 SKYWARN Training Schedule](#)
- [See what we are talking about in the Weather Story](#)

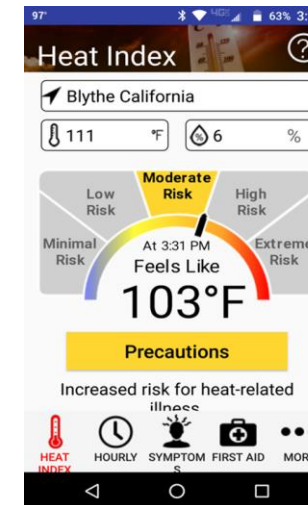
**Heat**  
Weather.gov > Binghamton, NY > Heat

Binghamton, NY  
Weather Forecast Office

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs

**The following criteria are for central New York and northeast Pennsylvania.**

<b>Heat Advisories</b>	Criteria for a Heat Advisory in Pennsylvania is a heat index of 100-104 °F and in New York 95-104 °F. The heat index has to remain at or above criteria for a minimum of 2 hours, only in New York. Pennsylvania does not have time requirement starting after June 12, 2023. Heat advisories are issued by county when any location within that county is expected to reach criteria. For example: If you expected the heat index to reach 95 °F in the city of Elmira, a heat advisory would be issued for that county.  A heat advisory means that people can be affected by heat if precautions are not taken. A quick study in the Corning area from the 2005 summer showed that early in the summer, emergency room visits increased when the heat index surpassed 95°F. The issuance of a heat advisory is important to raise public awareness that these precautions need to be taken. Heat advisories are also used to trigger other actions and regulations such as no evictions, no turning off of power, changing outdoor work requirements, etc.
<b>Excessive Heat Warnings</b>	Criteria for an Excessive Heat Warning is a heat index of 105 °F or greater (lasting for 2 hours or more in New York; no duration requirement in Pennsylvania zones). Excessive Heat Warnings are issued by county when any location within that county is expected to reach criteria. For example: If you expected the heat index to reach 105°F in the city of Elmira, an Excessive Heat Warning would be issued for that zone.  A heat warning means that some people can be seriously affected by heat if precautions are not taken. Studies in Canada, Europe, and the U.S. have indicated that mortality begins to increase exponentially as the heat increases or stays above a heat index of 104°F. Note: This threshold will be a rare event in our CWA. Even the warm summer of 2005, would not have produced a heat warning.  In addition to raising public awareness, the issuance of a heat warning will alert hospitals and officials to take certain actions to prepare and respond to an increase in emergency calls, and activate programs to check on elderly and the home-bound. In some cases cooling centers can be open or designated and donation programs activated for fans and air conditioners. As in the case of an advisory, certain regulations may change such as turning off people's electricity, evictions, and outside work requirements.
<b>Excessive Heat Watches</b>	Issued when Heat Warning criteria is possible (50-79%) 1 to 2 days in advance.



<https://www.weather.gov/bgm/heat>

# Assessing the Heat

## Methods

- Heat Index – Basically temperature and humidity at nearest measuring station
- Heat Index Local – Using locally collected Temperature and Humidity using Heat Index Grid
- Wet Bulb Globe Thermometer – Best in Class measure temperature, radiant heating and evaporative cooling into a WBGT Temperature



# Assessing the Heat

- **Wet bulb Globe Thermometer**
  - **Measures Multiple Environmental Factors:** WBGT takes into account temperature, humidity, wind speed, and radiant heating
  - **Radiant Heating Impact:** Unlike the heat index, WBGT measures the effects of direct sunlight and other radiant sources
  - **Guides Work-Rest Cycles:** Use WBGT readings to schedule work and rest periods
  - **Informs Hydration Strategies:** Higher WBGT values indicate the need for increased hydration to prevent heat-related illnesses<sup>1</sup>
  - **Helps Plan Safe Work Schedules:** Adjust work schedules based on WBGT levels, performing strenuous tasks during cooler parts of the day

Unacclimated and Acclimated Work/Rest and Water Intake Chart

Heat Risk Category	Wet Bulb Globe Temp	Light Work		Moderate Work		Heavy Work		
		Work/Rest	Water Intake (quart/hr)	Work/Rest	Water Intake (quart/hr)	Work/Rest	Water Intake (quart/hr)	
No Risk	Unacclimated	78 – 79.9	50/10 min	1/2	40/20 min	3/4	30/30 min	3/4
	Acclimated	78 – 79.9	continuous	1/2	continuous	3/4	50/10 min	3/4
Low	Unacclimated	80 – 84.9	40/20 min	1/2	30/30 min	3/4	20/40 min	1
	Acclimated	80 – 84.9	continuous	1/2	50/10 min	3/4	40/20 min	1
Moderate	Unacclimated	85 – 87.9	30/30 min	3/4	20/40 min	3/4	10/50 min	1
	Acclimated	85 – 87.9	continuous	3/4	40/20 min	3/4	30/30 min	1
High	Unacclimated	88 – 90	20/40 min	3/4	10/50 min	3/4	avoid	1
	Acclimated	88 – 90	continuous	3/4	30/30 min	3/4	20/40 min	1
Extreme	Unacclimated	> 90	10/50 min	1	avoid	1	avoid	1
	Acclimated	> 90	50/10 min	1	20/40 min	1	10/50 min	1



Example of WBGT Equipment

National Weather Service

# Applicable Regulations

Requirements	California	Minnesota	Oregon	Washington <i>(emergency in Italics)</i>
Worksite coverage	Outdoor, year-round	Indoor, year-round	Indoor and outdoor, emergency rule	Outdoor, May 1-Sept. 30.
Thresholds triggering protection requirements	80 °F (ambient temp.)	Between 77 °F-86 °F (WBGT) based on workload	80 °F (NOAA NWS Heat Index)	89 °F (ambient temp.); lower if wearing heavy clothing/PPE.
Add'l high heat protections	At 95 °F (certain industries only)	No	At 90 °F	<i>At 100 °F.</i>
Water/Hydration	1 qt./hr./worker	No	1 qt./hr./worker, cool or cold	1 qt./hr./worker <i>Suitably cool.</i>
Shade	Yes	N/A	Yes	<i>Yes.</i>
Training	Yes (new hire)	Yes (new hire and annual)	Yes	Yes (new hire and annual).
Breaks	Yes (Encouraged, mandatory if symptoms)	Yes (After two hours at threshold)	Yes (Mandatory if symptoms at any temp. every 2 hours for all at 90 °F)	<i>Yes. ( Encouraged preventative and must be paid; Mandatory if symptoms; Mandatory at 100 °F).</i>
Acclimatization Plan	Yes	No	Yes (in practice at 90 °F)	No (only included in training).
Heat Illness Prevention Plan	Yes	No	No	Yes (as part of accident prevention plan).
Emergency Medical Response Plan	Yes	No	Yes	<i>Yes.</i>
Medical Monitoring	Reactive, Proactive when above 95 °F	Reactive	Reactive	Reactive.
Record-keeping requirements	Yes	Yes	No	<i>Yes.</i>

# Applicable Regulations (Cal/OSHA in California)

California Code of Regulations (CCR), Title 8, General Industry Safety Orders Section 3395

- Applies to all outdoor places of employment regardless of industry
- High Hazard Regulations:
  - High Hazard sections apply specifically to Agriculture, Construction, Landscaping, Oil and Gas Extraction, ...

# Indoor Heat Regulations (Cal/OSHA)

On June 20, 2024, approved California Code of Regulations, Title 8, section 3396, "Heat Illness Prevention in Indoor Places of Employment"

This standard applies to most indoor workplaces where the temperature reaches 82°F or higher

Rule	2024 Cal/OSHA Indoor Heat Safety Regulations
<b>Monitor Indoor Temperature</b>	<ul style="list-style-type: none"><li>• Employers must closely monitor the indoor temperature conditions and identify any heat hazards.</li><li>• Employers must keep accurate temperature and heat index records and monitor environmental risk factors for heat illness.</li></ul>
<b>Mandatory Heat Illness Prevention Plans (HIPP)</b>	<ul style="list-style-type: none"><li>• Employers must maintain a detailed Heat Illness Prevention Plan, and take steps to protect workers.</li><li>• Provide access to potable drinking water that is fresh, pure, cool, and at no cost to employees.</li></ul>
<b>Implement Engineering Control Measures</b>	<ul style="list-style-type: none"><li>• Employers must implement engineering control measures to cool down the work area, such as ventilation, air conditioning, or cooling fans.</li><li>• If engineering controls are not feasible, administrative controls such as rotating employees, rescheduling work, and reducing work intensity must be implemented.</li></ul>
<b>Medical Monitoring and Emergency Response</b>	<ul style="list-style-type: none"><li>• Train supervisors on recognizing signs and symptoms of heat stress, implementing the HIPP, and providing first aid.</li><li>• Educate workers on the dangers of heat stress, proper hydration techniques, and how to stay cool on the job.</li></ul>
<b>Maintain Heat Monitoring Data</b>	Employers will be required to have protocols in place for monitoring workers for signs of heat stress and ensuring access to medical care in case of emergencies.

# Applicable Regulations (Fed/OSHA)

- Applicable Code of Federal Regulations
  - General Duty Clause
  - 1926.23 Access to first aid and medical care on jobsites
  - 1926.51 (a)(1) Adequate supplies of potable water in all places of employment
  - 1926.51 (a)(2) Containers tightly closed and equipped with a tap
  - 1926.51 (a)(3) Any container used for drinking water must be clearly marked as to its contents
  - 1926.51 (a) (4-5) Common cups are prohibited, and single service cups must be kept in a sanitary condition



A man with a beard and glasses, wearing a grey polo shirt, is shown in profile, looking down at a tablet computer he is holding in his left hand. In his right hand, he holds a black handheld device, likely a barcode scanner or a ruggedized PDA. The background is a blurred warehouse or industrial setting with shelves and equipment. The entire image has a dark blue overlay.

# Best In Class Heat Illness Controls

# Elements of a formal Heat Illness Prevention Plan

- A formal program is required in some states (CA, OR, MN, WA) and suggested at all employers with exposure to excessive heat
- The plan should be in writing and in both English and the language understood by most of the employees
- The Plan should be available at the worksite:
  - Procedures for assessing Heat
  - Procedures to access to water and shade
  - High heat procedures
  - Emergency Response
  - Acclimatization methods and procedures

# Access to Water

- **Employees shall have access to potable water**
  - Must be fresh and suitably cool (?)
  - Maintained in a sanitary manner
  - **Supplied to employees free of charge**
  - **Located as close as practicable**
  - In sufficient quantities for the workday (i.e., enough to provide one quart per hour for the entire shift)

# Keeping Water Accessible

- All employers must have an effective process for replenishing water supplies
- Designate supervisors, foremen or managers to ensure the process is implemented and monitor supplies throughout the day
- Remember:
  - Water coolers are portable. Keep them as close as practicable.
  - Move them with the workers!
  - Encourage frequent drinking of water.



# Access to Shade - Outdoors

- ***Under 80°:***
  - Shade shall be available, or
  - Provided in a timely manner upon request
  - Best Practices for any employer include considerations for shade regardless of temperature
- ***Over 80° but under 95°:***
  - Shade shall be present
  - Shall maintain one or more areas that can accommodate the number of employees on recovery periods, lunch, breaks
  - Located as close to employees as practicable

# Access to Cooling - Indoors

- **Over 82°:**
  - **Temperature Control:** Cooldown areas must be kept at a temperature below 82°F and shielded from other high-radiant heat sources.
  - **Accessibility:** These areas should be easily accessible and located as close as possible to the work areas.
  - **Capacity:** Cooldown areas must be large enough to accommodate the number of workers on rest breaks so they can sit comfortably without touching each other.
  - **Encouragement and Monitoring:** Workers should be encouraged to take preventative cooldown rest periods and must be monitored for symptoms of heat-related illness during these breaks.



# Shade & Cooling-Best Practices



- ***Foremen/Supervisors/Managers MUST:***
  - Encourage preventative cool-down rest in the shade or cool down areas
  - Monitor employees on cool down rest periods
  - Ask employees if they are experiencing symptoms of heat illness
    - DO NOT order the employee back to work until symptoms abate, allow at least a five-minute rest
    - Provide appropriate first aid or emergency response if necessary

# What is Shade or Cooling?

- Direct blockage of sunlight outdoors
- Maintained below 82 Degrees Indoors
- Objects should not cast a shadow in the shade.
- Shade is *not* adequate when heat in the area defeats the purpose of the shade.
- Cooling can be accomplished with air movement
- Shade can be provided by natural or artificial means.



# When Infeasible or Unsafe...

- Alternative measures for cooling are allowed if it can be shown that a shade structure, cooling room or its equivalent is not feasible.
- Except for agriculture, cooling measures other than shade (e.g. misting machines) may be provided if it can be demonstrated that they are at least as effective.
- What is NOT allowed (in any state)?
- Shade under tractors, trucks, heavy equipment
- Rest areas where an employee can't find protection from high heat

### NIOSH Acclimatization Recommendations for *New Workers*

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



### NIOSH Acclimatization Recommendations for *Workers 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

*\*Workers returning from an absence*

# Acclimatization

- The temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it.
- Acclimatization peaks within four to fourteen days of regular work for at least two hours per day in the heat.”
- Supervisors/Managers must plan ahead for heat waves and heat “events” to allow employees to become acclimated.

# High Heat Procedures in California - 3395, (e)

## ***Industries covered by this subsection:***

- Agriculture
- Construction
- Landscaping
- Oil and Gas Extraction
- Transportation or delivery of agricultural, construction materials or other heavy materials

# High Heat Procedures

- Ensure **effective** communication with all employees (by voice, observation, or electronic means)
- Observe Employees for alertness and signs/symptoms of heat illness
  - Supervisors or designee observation of 20 or fewer employees, or
  - Mandatory buddy system, or
  - Regular communication, or
  - Other effective means of observation.



OSHA Academy

# High Heat Procedure

- One or more employee must be designated to call for EMS and allow other employees to call when no designated employee is available.
- Give more frequent reminders to drink plenty of water.
- Hold pre-shift meetings on prevention:
  - Review high heat procedures
  - Encourage drinking of water
  - Remind employees to take cool-down rest periods if necessary



# High Heat Procedures

- For Agricultural employers
  - Temps 95° and above, ensure employees take a minimum ten-minute preventative cool-down rest every two hours
  - Additional ten-minute cool-down rests are required by regulations at the end of the 8<sup>th</sup> and 10<sup>th</sup> hours of work



# Emergency Response Procedures

Employers are obligated to provide for adequate emergency response procedures. Heat Illness is treatable, but time is a factor.

- Respond to signs/symptoms of possible heat illness.
- Supervisors/Foremen/Designated First Aid onsite must take immediate action
- If situation is serious, implement emergency response procedures. Do not wait!
- Any employee with signs or reporting symptoms of heat stress must be monitored and not left alone.
- Employees must not return to work until and unless symptoms abate, or emergency medical response requires transportation of the employee.
- Contact EMS and provide clear directions to the site.

# Training-Employees

- Train employees to:
  - Recognize the symptoms of heat stress.
  - Understand acclimatization and the company policy toward it.
  - Understand the policy of “water”, shade and rest.
  - Speak with employees every day about risk factors.
  - Complete pre-shift awareness meetings during heat events.



# First Aid and Response

1. Take the affected worker to a cooler area (e.g., shade or air conditioning).
2. Cool the worker immediately. Use active cooling techniques such as:
  - Immerse the worker in cold water or an ice bath. Create the ice bath by placing all of the available ice into a large container with water, standard practice in sports. **This is the best method to cool workers rapidly in an emergency.**
  - Remove outer layers of clothing, especially heavy protective clothing.
  - Place ice or cold wet towels on the head, neck, trunk, armpits, and groin.
  - Use fans to circulate air around the worker.

# First Aid and Response

3. If the person is conscious and not suffering from heat stroke, offer chilled water, a sports drink containing electrolytes or other nonalcoholic beverage without caffeine.
4. Never leave a worker with heat-related illness alone. The illness can rapidly become worse. Stay with the worker.
5. When in doubt, call 911! - Confusion, slurred speech, or unconsciousness are signs of heat stroke. **When these types of symptoms are present, call 911 immediately and cool the worker with ice or cold water until help arrives.**
6. **During a worker's first few days, absolutely all symptoms should be taken seriously. Workers who develop symptoms should be allowed to stop working. They should receive evaluation for possible heat-related illness.**





# Training- Supervisors

- Train supervisors to:
  - Recognize the signs/symptoms of heat stress.
  - Commit to the company policies to ensure adequate reminders about drinking water, providing shade, and proper rest periods.
  - Commit to monitoring employees who show symptoms of heat stress.
  - Understand the need to monitor the weather and to communicate to every employee, every day!

# Training Opportunity-Risk Factors

## Environmental and Personal Risk Factors



Photo by [Klara Kulikova](#) on [Unsplash](#)



Photo by [Provincial Archives of Alberta](#) on [unsplash](#)



Photo by [Samuel Ramos](#) on [Unsplash](#)



# Written Heat Illness Prevention Program

- If it isn't documented, it didn't happen!
- Written Programs are the roadmap for implementation and provide training guidance.
- Compliance is important but daily activities save lives!

# Additional Resources

- <https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf>
- <https://www.osha.gov/SLTC/heatstress/>
- <https://www.dir.ca.gov/dosh/heatillnessinfo.html>
- Texas Department of Insurance-TDI, Arizona Division of Occupational Safety and Health-ADOSH, Nevada Safety Consultation and Training Section-SCATS, and many others....

April 2026

After completing this training, you will:

1. Understand what heat illness is and why it is important to address
2. Understand different methods of assessing heat exposure
3. Identify approaches to reduce risk by improving hydration, shade and rest
4. Understand steps necessary to develop a Formal Heat Illness Prevention Training Program

# Questions?

Please email additional questions to [losscontrol@bhhc.com](mailto:losscontrol@bhhc.com)