HEAT SAFETY TOOLKIT

Evidence-Based Guidelines and Resources for Workplace Heat Safety

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Acknowledgments

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I. Introduction & Importance of Heat Safety

Exposure to excessive heat poses a serious risk to workers' health and safety by significantly increasing the likelihood of heat-related illnesses, including heat stroke, heat exhaustion, heat cramps, and heat rash. Beyond immediate impacts, prolonged heat exposure can lead to chronic health complications, workplace injuries, and adverse health outcomes. Establishing a comprehensive heat safety plan is crucial not only for protecting the health of employees but also for maintaining productivity and reducing costly liabilities. The Heat Safety Toolkit supports Miami-Dade County departments by providing clear guidelines and resources to proactively prevent heat-related incidents, promote regulatory compliance, and foster a safer work environment.

II. Policy & Compliance Overview

Administrative Responsibilities

Department Directors

- Ensure heat stress management within their units meets the requirements of this heat illness prevention Standard Operating Procedure and complies with AO 7-48 Heat Illness Prevention Policy.
- Provide fiscal, professional, and administrative resources for the implementation of their unit-specific heat stress management procedures. Ensure that all personnel within their departments potentially affected by heat risks receive proper training and, where necessary, proper controls to avoid heat-related illness incidents.

Department Safety Officers:

- Attend Risk Management's Office of Safety's Training course or equivalent course on heat stress assessments.
- Implement & oversee the department's Heat Safety Plan & Standard Operating Procedures (SOP).
- Provide heat safety training to supervisors and employees. Ensure employees and supervisors fill out the Heat Policy Affidavit after completing training.
- Conduct regular hazard assessments to identify job-specific heat risks and exposure levels. Heat stress screening assessments should be performed during both the annual average highest (August) and lowest (January) temperature months to ensure accurate evaluation of actual exposure risks.
- Monitor daily heat conditions and communicate exposure risks clearly to supervisors and employees.
- Maintain comprehensive documentation, including employee training records, daily monitoring logs, and incident reports.
- Follow risk management procedures for submitting incident report forms.

- Conduct a post-incident review to determine the root cause(s) and recommend preventive measures.
- Facilitate annual reviews and updates of departmental heat safety plans to ensure ongoing effectiveness and compliance.

Supervisors:

- Attend training on the requirements of the department-specific heat illness prevention procedure(s).
- Ensure employees understand and follow established heat safety procedures.
- Periodically remind employees of heat safety guidelines during meetings or huddles.
- Ensure personnel who require heat-stress training have received the proper training and PPE before allowing work to commence in a heat-stress environment.
- Monitor employee compliance with preventive measures, including hydration, rest schedules, and proper use of PPE.
- Adjust work schedules and tasks based on current heat exposure risks, ensuring adherence to departmental guidelines.
- Immediately address unsafe conditions or practices, reporting incidents promptly to the department safety officer.
- Provide on-the-spot guidance and enforce adherence to preventive measures, ensuring employees recognize symptoms of heat-related illnesses.
- Report and document any heat-related illness or injury and seek treatment promptly, per departmental guidelines.

Employees:

- Participate in mandatory heat safety training and understand the department's heat safety policies and procedures.
- Understand and follow requirements of department/division-specific heat stress management procedures, developed to comply with AO 7-48 & County SOP No. 715.
- Search the OSHA-NIOSH Heat Safety Tool app daily and as needed thereafter (especially during peak heat days and at the beginning of your work shift) and follow any indicated precautions. *NOTE: You may enter the zip code or city of your field site for planning purposes.*
- Follow established preventive measures, including hydration practices, rest schedules, and PPE guidelines.
- Monitor physical condition and immediately report any symptoms of heat illness or discomfort to the supervisor.
- Promptly notify supervisors if observing co-workers who are exhibiting signs of heat stress or illness.
- Cooperate fully with safety monitoring efforts, including using provided monitoring tools.
- Report any heat-related illness or injury and seek treatment promptly, per departmental guidelines.
- Report hazardous conditions and dangers to the supervisor.

- Notify the supervisor and department safety officer of any medical condition, or if you are taking over-the-counter medication that might put you at special risk for heat-related illness or injury (consult your doctor as necessary). Alternate means of protection from heat stress should be devised that accommodate the employee's reported concerns.

Best Practices for Risk Management

Effective Practices for Mitigating Heat Risks

- ➢ Worksite Heat Management & Prevention Measures
  - Implement a heat safety plan, conduct regular heat risk assessments, provide adequate water/electrolyte drinks, and ensure access to shaded or cooled areas.
- ➢ Work Scheduling & Adjustments
  - Modify work hours during extreme heat, use work-rest cycles, and implement job rotation strategies if necessary.
- ➢ Training & Education
  - Conduct annual heat safety training, use the buddy system, and encourage self-monitoring.
- ➢ Personal Protective Equipment (PPE)
  - Use cooling gear, ensure proper PPE, and incorporate heat-stress wearables.
- ➢ Monitoring & Response
  - Use environmental sensors, establish emergency response protocols, and enforce incident reporting and post-evaluation.
- ➢ Continuous Improvement & Compliance
  - Conduct heat safety audits, adjust policies based on climate trends, and engage leadership & employees in heat safety culture. Promote a culture that allows employees to report unsafe conditions without fear of retaliation.
- ➢ Collaboration & Communication
  - Foster a culture of active communication by prioritizing open and transparent dialogue, encouraging active listening and feedback, and establishing clear communication channels.
  - Supervisors should serve as role models by reflecting on their own communication habits, fostering a culture of active communication, providing a safe communication environment, and prioritizing accessibility. Initiate regular check-ins with employees to maintain open dialogue and ask for feedback often to improve the culture of communication within the team.

Relevant Regulations

Federal Regulations:

OSHA General Duty Clause (Section 5(a)(1) of OSH Act):

Each employer shall furnish to each of his employees employment and a place of employment that are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.

State & Local Regulations:

Administrative Order No. 7-48:

In December 2023, Mayor Daniella Levine Cava established Administrative Order No. 7-48, Heat Illness Prevention Policy. It mandates that each department implement and uphold effective heat illness prevention measures consistent with County Procedure No. 715. Department directors are responsible for assessing heat exposure risks, developing tailored procedures to mitigate these risks, and ensuring employee training and awareness. This Administrative Order emphasizes the county's proactive stance in safeguarding employee health through structured policies aimed at preventing heat-related health risks.

County Procedure No. 715:

In December 2022, Mayor Daniella Levine Cava established County Procedure No. 715, Ordering Electrolyte-Containing Beverages. This procedure emphasizes providing electrolyte-containing beverages to employees working in heat-hazardous conditions. Departments are encouraged to procure and manage the quick-mixture electrolyte powder and ensure access to fresh, cool drinking water.

Key Compliance Requirements

Heat Safety Plan Implementation: Develop, maintain, and implement a written Heat Safety Plan tailored to department-specific job roles, known exposures, and operational requirements.

Hazard Assessments: Conduct regular and thorough assessments of job tasks and workplace environments to determine potential heat exposure risks.

Monitoring of Heat Exposure: Routinely measure and document environmental heat exposure levels using methods such as heat index or wet bulb globe temperature monitoring, ensuring these measurements guide decision-making and employee protection strategies.

Training & Employee Awareness: Provide annual heat safety training and ongoing education for all employees, including recognizing symptoms, preventive practices, emergency responses, and reporting procedures.

Resource Provisions: Ensure adequate resources such as potable water, electrolyte beverages, shaded rest areas, and cooling stations are consistently available and easily accessible to employees.

Preventive Measures and Scheduling: Apply preventive measures, including scheduled rest breaks, hydration protocols, job rotations, and adjustments to work schedules based on heat index or WBGT monitoring to manage risk without excessively reducing productivity.

Incident Reporting and Documentation: Maintain clear records of heat-related incidents, interventions, and follow-up actions. Ensure timely reporting, investigation, and documentation in compliance with established protocols.

Annual Compliance Review: Conduct annual reviews to verify the effectiveness of heat safety procedures and adjust plans as needed based on employee feedback, incident data, validation exercises, or regulatory changes.

Compliance Checklist

- ☐ Heat Safety Plan Developed & Approved
- ☐ Roles & Responsibilities Assigned
- ☐ Heat Hazard Assessment Conducted
- ☐ Heat Exposure Levels Documented
- ☐ Employee Training Completed
- ☐ Workplace Adjustments Available
- ☐ Related Incidents Documented
- ☐ Annual Compliance Review Completed

III. Heat Safety Plan & SOP Template

Developing a department-specific Heat Safety Plan is essential for protecting employees from heat-related illness and injury, as well as ensuring compliance with safety regulations. Each department faces unique heat exposure risks based on job tasks, environmental conditions, and work schedules. This section provides a step-by-step guide to help departments create a customized Heat Safety Plan that outlines monitoring protocols, preventive measures, emergency response procedures, and training requirements. By following this framework, departments can proactively reduce heat-related risks, improve employee safety, and enhance operational efficiency in high-temperature environments.

Step I: Define Roles & Responsibilities

Assign key personnel responsible for implementing and maintaining the heat safety program. These may include department safety officers, supervisors, and employees.

Step II: Conduct a Heat Hazard Assessment

Evaluate work environments and tasks to identify health risks. Assess job roles, environmental risk factors, administrative/engineering controls, and other required information in the *Heat Stress Assessment Record Template*.

Step III: Establish Heat Monitoring Procedures

Departments should implement a consistent system for monitoring heat conditions. Be sure to define measurement methods (e.g., heat index, WBGT, etc.), set up heat thresholds and risk-based action levels, and assign monitoring personnel who track heat conditions daily.

Step IV: Implement Preventive Measures

Ensure proactive heat safety intervention to reduce employee risk by establishing adequate hydration policies, work-rest cycles, and cooling access. Be sure to define specific preventive actions for different heat index levels.

Step V: Develop an Emergency Response Plan

Outline what to do when an employee shows signs of a heat-related illness or injury. This may consist of a symptom guide, emergency contact procedure, and incident reporting protocols.

Step VI: Establish Training & Awareness Programs

Departments must train employees and supervisors on heat safety best practices. Heat safety training should be mandatory for all new employees. Annual training to regularly reinforce heat safety protocols is recommended. Maintain a training log to track the completion and effectiveness of training sessions.

Step VII: Implement Incident Reporting & Post-Incident Evaluations

Departments should use a standardized reporting method (see *Incident Report Form*). Determine post-incident review procedures that evaluate root causes and provide policy updates as needed.

Step VIII: Review & Update the Heat Safety Plan Annually

Use heat-related incident reports and employee feedback to evaluate program effectiveness. Revise intervention strategies and policies as needed. Monitor trends to assess whether preventive measures are working.

Final Deliverable: Department Heat Safety Plan Document

- ☐ Policy, Purpose, & Scope
- ☐ Roles & Responsibilities
- ☐ Heat Illness Prevention Procedure
- ☐ Employee Training
- ☐ Emergency Response Procedures
- ☐ Monitoring & Compliance
- ☐ Annual Review Process

The Heat Safety Department SOP Template is available in the MDC Heat Safety Toolkit Folder.

Hazard Assessment Process

The hazard assessment process is a structured approach for evaluating heat-related risks in the workplace. It ensures that departments identify potential hazards, assess worker exposure levels, and implement necessary controls to minimize heat-related illness & injury.

1. Assess work locations and identify jobs with high heat exposure. Determine different intensity levels based on job role classifications. (*See infographic below*)
2. Measure environmental heat exposure by using temperature & humidity sensors, WBGT meters, and/or other available mobile apps.
3. Assess employee-specific risk factors that increase susceptibility to heat stress, such as individual risk factors and physical workload intensity.
4. Identify & implement control measures, such as engineering and administrative controls. Make PPE adjustments as necessary.
5. Establish ongoing monitoring and reassessment procedures by conducting regular environmental monitoring, annual assessment protocols, and reviewing prior incidents.

Examples of Work at Different Intensity Levels

Light work

- Operating equipment
- Inspection work
- Walking on flat, level ground
- Using light hand tools (wrench, pliers, etc.). However, this may be moderate work depending on the task
- Travel by conveyance

Moderate work

- Jack-leg drilling
- Installing ground support
- Loading explosives
- Carrying equipment/supplies weighing 20–40 pounds
- Using hand tools (shovel, fin-hoe, scaling bar) for short periods

Heavy work

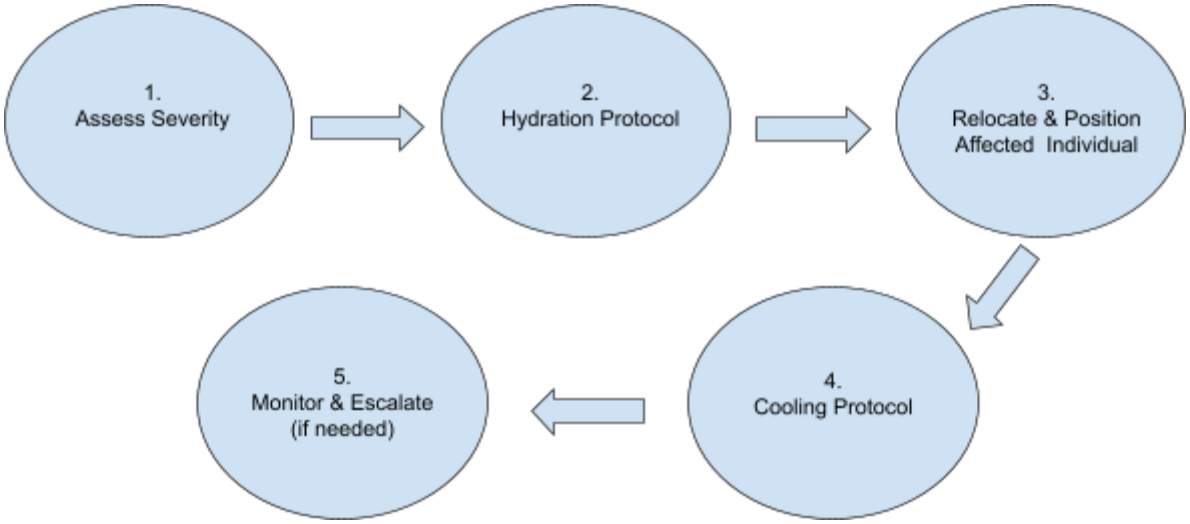
- Climbing
- Carrying equipment/supplies weighing 40 pounds or more
- Installing utilities
- Using hand tools (shovel, fin-hoe, scaling bar) for extended periods

Examples of Preventive Measures & Control Strategies	
Engineering Controls	● Shaded Work Areas ● Cooling Stations ● Hydration Stations ● Ventilation & Airflow Improvements ● Heat-Reflective Barriers ● Evaporative & Misting Systems
Administrative Controls	● Modified Work Hours ● Increased Rest Breaks

Examples of Preventive Measures & Control Strategies	
	● Limiting Consecutive Days of Exposure ● Acclimatization Procedure ● Hydration Policy
Personal Protective Equipment (PPE)	● Personal Cooling Devices (e.g., wearable fans, cooling vests) ● Breathable Clothing ● PPE Modifications (e.g,. ventilated helmets, cooling inserts) ● Heat Stress Monitors
Training & Awareness	● Annual Heat Safety Training ● New Employee Onboarding
Environmental Monitoring	● Heat Index Tracking ● WBGT Tracking ● Weather Alerts

Emergency Response Procedures

A rapid and effective response is critical to preventing severe negative health outcomes. Supervisors and employees should be trained to recognize symptoms of heat stress conditions. If an employees exhibit signs of a heat-related illness, the following steps should be taken:



1. **Assess the severity of symptoms.** *If a heat stroke is suspected, call 911 immediately.*
2. **Provide water and/or electrolyte drinks.** Do not force liquids if the individual is confused, vomiting, or unconscious.
3. **Move the affected individual to a cooler location.** Have the individual lie down with legs slightly elevated if the person is conscious. If the individual is unconscious, place them in a side-recovery position to prevent choking.
4. **Apply cooling devices such as wet towels or ice packs to help lower the individual's body temperature.** If fans are available, position them so the cooled air assists with lowering the individual's body temperature.
5. **Continue to monitor the condition of the affected individual.** *If symptoms persist or worsen, seek medical attention by calling 911.*

Report heat-related incidents to a supervisor immediately and complete an Incident Report Form**.** Department safety officers should conduct a post-incident review to determine the root cause and recommend preventive measures.

IV. Additional Forms

Forms & templates are available in the MDC Heat Safety Toolkit Folder.

Employee Training Record/Affidavit:

[Department Name]

Affidavit on Heat Illness Assessment/Prevention Policy

Employee Name	
Employee ID No.	
Employee Title	
Division/Section	

As an employee of the [Department Name], you are receiving the (Department Name) Heat Illness Prevention Training and understand the protocols and procedures established to proactively prevent heat related illnesses and injuries and comply with Miami-Dade County's Administrative Order (AO) No. 7-48, Heat Illness Prevention Policy. This AO applies to all Miami-Dade County employees under the Mayor's purview and is a critical step in offering potential life-saving protections for those working in high-heat conditions.

This Policy is tailored to the workers' exposure, exertion levels, and Personal Protective Equipment (PPE) needs. The department will be responsible for maintaining and administering their safety programs under AO 7-14, Loss Prevention and Safety, as well as the County's Safety Manual within their respective departments, trusts, and agencies, with oversight from Risk Management. Any employee with a concern or question related to heat-related stress, please contact [Heat Safety Officer Name and Title] at [Email] or [Phone Number].

I hereby certify that I have carefully and thoroughly reviewed this [Department Name or Abbreviation] Heat-Related Issues Training Presentation. I have also addressed any questions or concerns with my immediate supervisor and/or Safety and Training Manager.

Date:	
Print Employee Name:	
Signature of Employee:	

Heat Stress Assessment Record:

Heat Stress Assessment Record:

Unit/Area	Job Classification	Assessment Heat Index / WBGT (Incl. Date)	Workload (L) (M) (H)	Mitigation Plan/Code 1*	Engineering Controls	Administrative Controls	PPE Type/ Specifications

Prepared by (Print name): _____ Title: _____

1* Create a legend for mitigating plans/codes and administrative/engineering controls.

Heat Stress Program - Affected Employee Training Record:

Heat Stress Program: Affected Employee Training Record

_____ Department _____ Division. _____ Date

Employee Name	Section/Unit/ Work Area	Job Activity/Task	Potential HS Hazard(s)	Training Date	Refresher Date

Incident Reporting Form:

SUPERVISOR'S INVESTIGATION REPORT

OF EMPLOYEE ON-THE-JOB INJURY OR ILLNESS

Teleclaim 1-877-MDC-RISK (1-877-632-7475)

Is Employee ☐ Permanent ☐ Probationary ☐ Other_____ Teleclaim #: _____

1. Employee Name:_____ Title: _____ ID #:_____
2. Dept. #:_____ Div. #:_____ Location #:_____ Date of Incident:_____ Time: _____ ☐ AM ☐ PM
3. Address and location of incident:_____ City:_____ Zip:_____
4. *Employee's Description of Incident (Use attachment if necessary. Number of pages of employee attachment* _____)

   _____

   _____

   _____

   _____

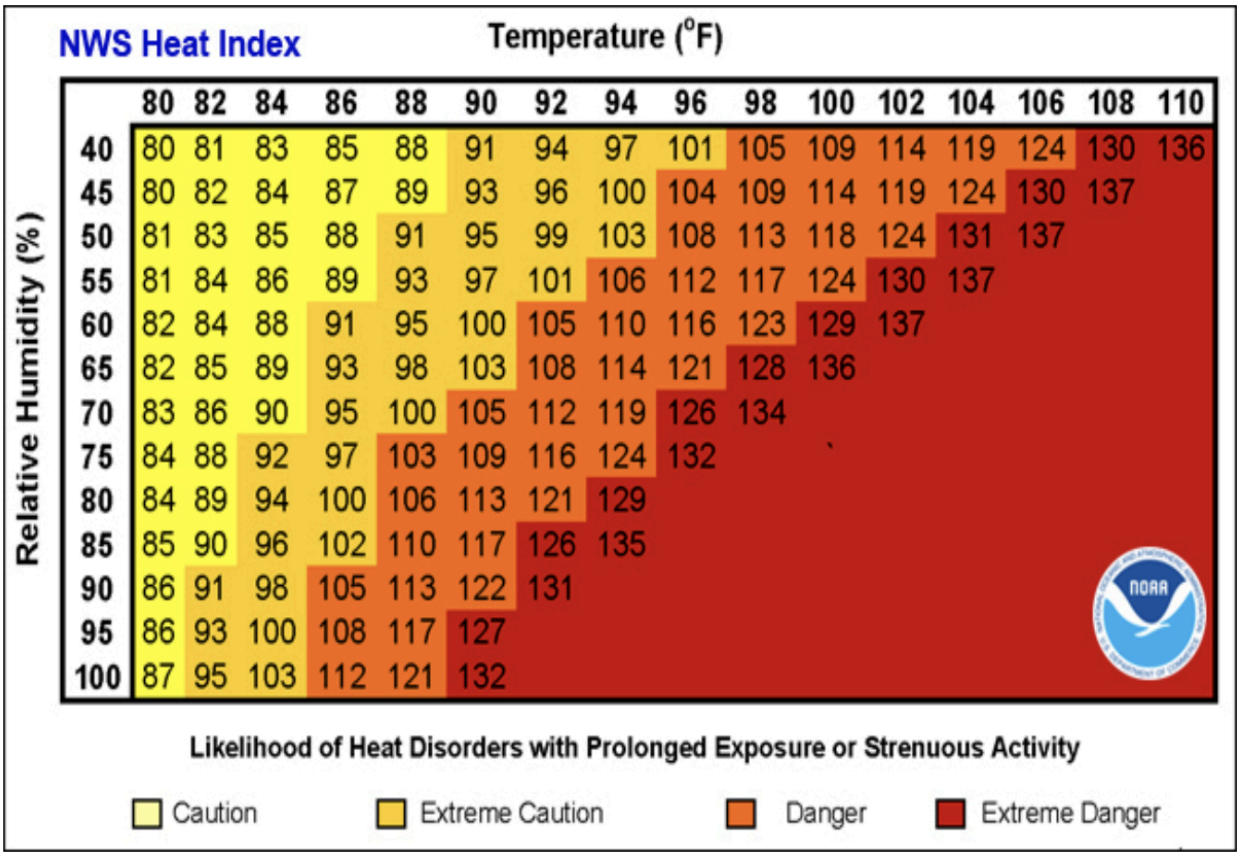
   Employee Signature (if available):_____ Date:_____
5. Who was the first reported to? (print): _____ (signature):_____

   Date:_____ Time: _____ ☐ am ☐ pm Phone(s):_____
6. Was this first reported as a minor injury on the Minor Injury Log? ☐ Yes ☐ No Date:_____ Time: _____ ☐ AM ☐ PM
7. Who completed the Minor Injury Log? Name:_____ Title:_____
8. Did employee go to: ☐ clinic ☐ doctor ☐ hospital? If known, Name of clinic, doctor or hospital:_____
9. Was this a chemical or biological exposure? ☐ Yes ☐ No *If yes, complete Exposure Report form.*
10. Did the injured employee do something to cause or contribute to the incident? ☐ Yes ☐ No *If yes, check reason item below:*
    ☐ Improper planning ☐ Departure from standard procedure ☐ Failed to follow instructions ☐ Reckless Behavior
    ☐ Lack of proper skills ☐ Chose to use defective or improper equipment ☐ Inattention ☐ Other _____
11. Did another factor contribute to the accident/injury or illness? ☐ Yes ☐ No *If yes, check the reason item below:* ☐ Action(s) of another person ☐ Departure from standard procedure ☐ Inadequate/Improper training or skill ☐ Improper planning ☐ Defective or improper equipment ☐ Inattention
    ☐ Insect/Animal ☐ Chemical/Biological exposure ☐ Weather ☐ Other _____
12. What have you and/or your department done to help prevent a re-occurrence? Be specific (attach additional information if applicable):

    _____
13. Witness Name: _____ Title: _____ Phone:_____

    Witness Name: _____ Title: _____ Phone:_____
14. Attach supporting documents to this report such as photos, diagrams, witness statements or other documents. Total number of pages attached_____
15. Supervisor (print):_____ (signature):_____ Phone:_____

V. Intervention Strategies



Classification	Heat Index	Effect on the body
Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely

Recommended Actions

Heat Index / WBGT	Risk Level	Required Actions
80-90°F HI (<77°F WBGT)	Caution	Encourage hydration, provide access to shade, and monitor workers.
91–103°F HI (WBGT 77–82°F)	Moderate	Encourage work-rest cycles, increase breaks in shaded

		areas, and monitor vulnerable workers.
104–125°F HI (WBGT 82–87°F)	High	Implement mandatory rest breaks, reduce strenuous work, and provide hydration & cooling stations.
126°F+ HI (WBGT 88°F+)	Extreme	Suspend or reschedule work, use emergency cooling techniques, and increase health monitoring.

Departmental Communication Procedures for Heat Alerts

Establish a standardized alert system similar to the existing weather-alert procedure, using email, text messaging, or internal notifications. Alerts should clearly state heat risk levels, expected duration, and recommended actions. Regularly test and update the alert system to ensure reliability. Coordinate with departments responsible for your current weather-alert system to align protocols and maintain consistency.

Job Rotation & Scheduling Adjustments

Assign employees to alternating tasks between shaded or easier tasks and unshaded or harder tasks. Modify work hours to early mornings or late afternoons, limit consecutive days of exposure during heat waves, and adjust break frequency. Allow self-paced work when possible and implement a cool-down period at the end of shifts to prevent delayed heat stress symptoms. Follow acclimatization guidelines for new or returning employees.

Recommended Break Frequency

According to OSHA, when employees are exposed to heat at or above the high heat trigger, rest breaks should occur every 2 hours minimum. A meal break may count as a rest break, but periods where employers are donning/doffing PPE or walking to a designated break area should not be included in the rest time.

Due to the extreme heat and humidity faced by employees in Miami-Dade County, particularly during the summer months, it is recommended that employees be given a minimum 10-minute rest break every 2 hours. This should be in a cool/shaded location. The designated high heat trigger for MDC is a heat index of 90℉. Once this threshold is met, minimum rest breaks should occur every 2 hours (or as needed based on employee workload and health condition). At heat index levels of 104℉ and above, adjustments to work schedules should be considered.

Acclimatization Schedule

National Institute for Occupational Safety and Health(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
National Institute for Occupational Safety and Health(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

*Employees returning from an absence

For new and returning employees, maintain frequent hydration and rest breaks during the acclimatization period.

Hydration & Cooling Strategies

Provide potable, cool drinking water within 50 feet of work areas.

Provide electrolyte beverages in heavy sweating environments.

Limit the intake of caffeine and sugary drinks, as these can accelerate dehydration.

Require workers to drink 8 oz of water every 15-20 minutes, even if they don't feel thirsty.

Encourage workers to hydrate before beginning their shift.

Provide shaded or cooled break areas, as well as cooling PPE and equipment (e.g., cold compresses, fans, and misting stations).

Ensure potable, cool drinking water is easily accessible within 50 feet of work areas. Require workers to drink 8 oz of water every 15-20 minutes, even if they don't feel thirsty. Provide electrolyte beverages to replenish lost minerals in heavy-sweating environments. Encourage pre-shift hydration of 16-20 oz before beginning the shift. Limit caffeine and sugary drinks, which may accelerate dehydration.

Provide shaded or air-conditioned break areas, utilize cooling PPE or fans, encourage wetting clothes or applying cold compresses during breaks, and consider misting stations in extreme heat environments.

VI. Monitoring & Evaluation

Methods

To assess the effectiveness of the heat safety program, departments should:

1. Analyze incident reports
2. Assess compliance with safety measures
3. Monitor worker health trends
4. Use environmental monitoring data

Key Metrics:

- Heat-Related Illness & Injury Cases
- Training Participation Rates
- Adherence to Safety Measures

Validation Exercise

To refine the SOPs and ensure practical implementation, validation exercises should be completed annually in August. Gather employee feedback regarding ease of compliance, effectiveness of interventions, and suggestions for improvement. Compare pre-and-post-data on heat-related incident rates, rest breaks, hydration levels, and other key indicators.

Tracking Heat Safety Incidents & Improvements

In order to identify patterns and improve safety protocols, departments should maintain a centralized incident database, identify high-risk conditions and job roles, set benchmarks for improvement, and evaluate trends over time.

Feedback Mechanisms

To ensure long-term effectiveness, departments should conduct employee surveys, review supervisor reports, implement an anonymous reporting system, and use data to update policies.

Reporting Procedures

Incident Report Form

All heat-related incidents, including suspected heat illnesses, near misses, and confirmed medical cases, must be documented using the department's incident report form (Supervisor Investigation Report). Employees who experience symptoms of heat illness or witness a coworker exhibiting signs should immediately notify their supervisor. The supervisor is responsible for ensuring appropriate medical care is provided and completing an incident report form as soon as possible. This form should include details such as the date, time, location, environmental conditions (e.g., heat index or WBGT reading), symptoms observed, actions taken, and any medical intervention required.

Completed reports must be submitted to the department safety officer and retained as part of the department's safety records. In cases of severe incidents, such as those requiring hospitalization or emergency medical response, risk management must also be notified. In addition, the department safety officer is required to contact Teleclaim. Incident reports play a

critical role in tracking heat-related incidents, identifying workplace risks, and improving preventive measures to enhance worker safety. Regular reviews of these reports should inform updates to the department's heat safety plan to reduce future risks.

Post-Incident Evaluation

Following any heat-related incident, a post-incident evaluation should be conducted to assess the contributing factors and determine corrective actions to prevent future occurrences. This evaluation should be led by the department safety officer, with input from the affected employee, their supervisor, and any relevant safety personnel.

The evaluation process should include:

1. **Incident Review:** Analyze the details of the event, including environmental conditions (heat index or WBGT readings), work activities performed, and adherence to heat safety protocols.
2. **Root Cause Analysis:** Identify potential contributing factors such as inadequate hydration, lack of rest breaks, improper PPE use, or failure to recognize early symptoms.
3. **Corrective Actions:** Determine necessary changes, such as modifying work schedules, improving training effectiveness, adjusting hydration policies, or enhancing cooling measures.
4. **Policy or SOP Adjustments:** Update the department's Heat Safety Plan if gaps are identified, ensuring that policies align with best practices and regulatory expectations.
5. **Follow-Up with the Affected Employee:** Check on their recovery, reinforce training on heat illness prevention, and ensure they are fit to return to work under safe conditions.
6. **Documentation and Reporting:** Maintain a record of the post-incident evaluation, corrective actions taken, and any procedural updates implemented as a result.

Enforcement Procedures:

Clearly defined enforcement procedures help ensure compliance with heat safety practices and promote accountability. When heat safety protocols are not followed, corrective measures may be essential to protect employees and prevent heat-related incidents. Below are some examples of recommended enforcement steps to support departmental accountability. Department safety officers should collaborate with Department Directors and Human Resources to establish policies.

Examples:

- Verbal or Written Warnings
- Corrective Action Plans
- Mandatory Retraining
- Supervisor Accountability
- Escalation for Repeated Noncompliance
- Documentation of Noncompliance Incidents

VII. Training and Education Resources

The most important component of the department's heat stress prevention program is employee training. At risk employees and their supervisory personnel shall be trained regarding the risks of heat stress and how it is reduced, as well as how to recognize heat illnesses and treat them. Specific components of the training should include:

- The hazards of heat stress.
- Acclimatization schedules.
- Precautions that can be taken to reduce heat stress (e.g., shading, access to water, electrolytes, and break schedules)
- Predisposing factors for, danger signs of, and symptoms of heat stress conditions and illnesses
- Dangers of using medicines, alcohol, and drugs in hot work environments,
- Awareness of first-aid procedures for, and the potential health effects of, heat stroke in themselves and others.
- Personal responsibilities in avoiding heat stress,
- Typical engineering and administrative controls that are utilized to reduce heat stress
- Use of personal protective equipment

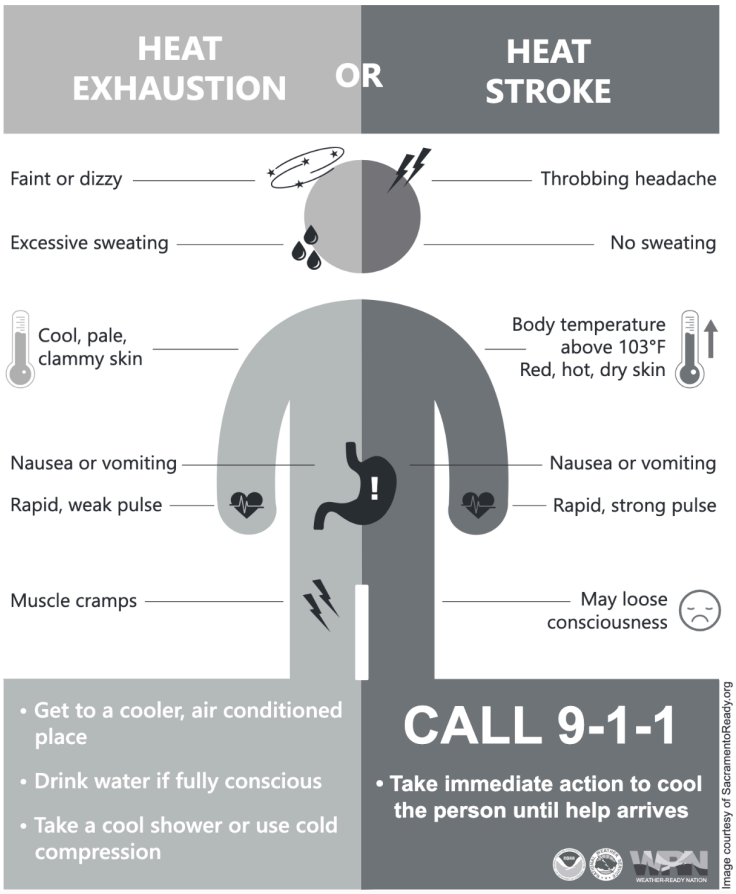
Heat Illness	Symptoms	Immediate Actions
Heat Cramps	Muscle cramps, heavy sweating, fatigue, thirst	Move to a cool area, hydrate with water/electrolyte drinks, and stretch affected muscles.
Heat Exhaustion	Heavy sweating, weakness, dizziness, nausea/vomiting, fast heartbeat, muscle cramps, cool/clammy skin	Move to a cooler area, hydrate with water/electrolyte drinks, remove unnecessary clothing, use cool compresses, and monitor closely.
Heat Stroke (Medical Emergency)	Hot skin, seizures, loss of consciousness, throbbing headache, nausea/vomiting, fast heartbeat, high body temperature (103℉ or above)	**Call 911 immediately**, move to a cooler area, remove outer clothing, use ice packs or cool water to reduce body temperature, and keep the airway clear.

Excessive Heat

WHO IS AT RISK

PREVENTION

Too much heat? What does it look like?



Personal Risk Factors - Heat Illness/Injury

Certain individuals are more vulnerable to heat-related illness or injury. When developing a departmental heat safety plan, consider the following personal risk factors that could affect your employees. Ensure that these factors are clearly communicated to the team and encourage those at greater risk to take any additional precautions necessary.

- Older Adults (65+) & Children
- Outdoor Workers
- Certain Chronic Medical Conditions
    - Cardiovascular Disease (e.g., Heart Disease, Hypertension)
    - Respiratory Disorders (e.g., COPD, Asthma)
    - Neurological Disorders (e.g., Parkinson's, Multiple Sclerosis)
    - Diabetes
    - Kidney Disease
    - Obesity
- Individuals Taking Certain Medications/Substances:
    - Diuretics
    - Beta-blockers
    - Antihistamines
    - Antidepressants
    - Antipsychotics
    - Stimulants
    - Alcohol and Recreational Drugs
- History of Prior Heat Illness
- Athletes
- Pregnant Women
- Homeless Individuals
- Socially Isolated Individuals
- Economically Disadvantaged Individuals

Employee Self-Monitoring Guidelines

- ➢ **Hydration Tracking:** Drink water every 15-20 minutes, even if not feeling thirsty. Monitor urine color - light yellow is ideal, while dark urine may indicate dehydration. Use electrolyte beverages to replace lost minerals during periods of excessive sweating.
- ➢ **Personal Symptom Awareness:** Regularly check for early signs of heat stress, such as dizziness, nausea, excessive sweating, or headache. Use the buddy system and report any persistent discomfort to a supervisor.
- ➢ **Acclimatization Monitoring:** New or returning employees should gradually increase work intensity over 7 - 14 days. Take additional breaks as needed.
- ➢ **Clothing & PPE Adjustments:** Wear lightweight, breathable clothing and adjust PPE as needed to maintain airflow. Use cooling towels, vests, or sweat-wicking fabrics when available.

- ➢ **Work-Rest Cycle Compliance:** Follow designated rest breaks in shaded or cooled areas. Avoid heavy exertion during peak heat hours if possible.
- ➢ **Heart Rate & Fatigue Check:** If performing high-exertion or heavy workloads, check your heart rate after a task. If the heart rate remains elevated for several minutes, this may indicate overexertion. Take an immediate break and report symptoms to a supervisor if feeling weak, disoriented, or struggling to concentrate.

Online Training/Education Resource Links

Some of the below resources may be available in other languages. For those, please see the QR Codes - Language Resource Doc in the MDC Heat Safety Toolkit folder. The QR codes can be printed and distributed to employees if needed.

American Red Cross

- Extreme Heat Safety

CDC – Centers for Disease Control and Prevention

- About Heat and Your Health
- Heat Stress and Workers

EPA – Environmental Protection Agency

- Heat Islands Effect

National Weather Service (NWS)

- Heat Safety Tips and Resources

OSHA – Occupational Safety & Health Administration

- Heat Illness Prevention
- Water. Rest. Shade. Campaign

VIII. Additional Resources

Monitoring Methods

Weather Applications & Heat Index Tools

- OSHA Heat Safety Tool (Android/iOS)
  - Heat Index
  - OSHA Risk & Recommendation Guidelines
  - Alerts

- AIHA Heat Stress App (Android/iOS)
    - Adjusted WBGT
- The Weather Channel App (Android/iOS)
    - Hourly and Daily Forecasts
    - UV Index
    - Humidity Level
- Accuweather (Android/iOS)
    - Alerts & Forecasts
    - UV Index
    - Humidity Level
    - RealFeel® Temperature
- Heat Stress WBGT App (Android)
    - Wet Bulb Globe Temperature
- NIHHIS Heat Alerts (Website)
    - Heat Advisories

Environmental Sensors

- Heat Index & Wet Bulb Globe Temperature Meters
    - Kestrel 5400 Heat Stress Tracker
    - Extech HT30 WBGT Meter
    - REED Instruments R6200
- Weather Monitoring Stations
    - Davis Vantage Vue
    - Kestrel Met 6000 Series

Wearable Heat Stress Monitors

- Core Body Temperature Sensors
    - Kenzen Smart PPE Monitor
    - GreenTEG Core Body Temperature Sensor
- Heart Rate & Sweat Monitoring Devices
    - Garmin HRM-Pro Plus

Personal Protective Equipment (PPE)

Standard PPE for Heat Safety

- Ergodyne Sun Hats
- Ergodyne Baseball Hats
- Condor, Milwaukee, or Ergodyne Hard Hat Visors with Neck Shades
- SunX, Ergodyne, or Cortex Sunscreen
- Condor Cooling Neck Wraps
- Techniche High-Visibility Evaporative-Cooling Vests

Other Wearable Tech

- Smart Cooling Devices
    - RPB C40 Climate Control Device
- Innovative Cooling Fabrics & Designs
    - Ergodyne Cooling Arm Sleeves (UPF 50+)
    - Mission HydroActive Cooling Bandana & Hat
    - Inuteq Bodycool Smart-X Evaporative Cooling Vest

Heat Stress Response

- Instant Cool Packs
- Oral Thermometer
- Sqwincher Powder Concentrates (Qwik Stik Electrolyte Packs) or Hydration Freeze Pops

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Appendices

Appendix A: Acronym & Abbreviation List

CDC: Centers for Disease Control and Prevention

EPA: Environmental Protection Agency

NIOSH: National Institute for Occupational Safety and Health

NOAA: National Oceanic and Atmospheric Administration

NWS: National Weather Service

OSHA: Occupational Safety and Health Administration

PPE: Personal Protective Equipment

SOP: Standard Operating Procedure

WBGT: Wet Bulb Globe Temperature

Appendix B: Glossary of Terms

Administrative Controls: Strategies implemented to reduce heat exposure through changes in scheduling, task management, and training rather than physical workplace changes.

Engineering Controls: Physical modifications to the workplace designed to reduce heat exposure, such as shade structures, fans, or cooling stations.

Exposure Level: The extent of a worker's exposure to heat-related hazards, usually assessed using indicators like Heat Index or WBGT.
Hazard Assessment: A systematic evaluation of the workplace to identify potential heat-related hazards specific to job roles and tasks.

Heat Cramps: Muscle spasms or pains typically occurring in the abdomen, arms, or legs due to excessive sweating and electrolyte loss.

Heat Exhaustion: A heat-related illness characterized by heavy sweating, rapid heartbeat, dizziness, fatigue, nausea, or muscle cramps, caused by prolonged heat exposure and inadequate fluid intake.

Heat Index: A measure combining air temperature and relative humidity to estimate how hot conditions feel to the human body.

Heat Rash: Skin irritation caused by excessive sweating, characterized by clusters of red pimples or blisters, typically occurring where sweat is trapped against the skin.

Heat Stroke: A severe heat-related illness characterized by body temperature exceeding 103°F, confusion, loss of consciousness, and potential organ failure. Requires immediate medical attention.

Heat-Related Illnesses: Health conditions resulting from exposure to high temperatures and humidity, including heat stroke, heat exhaustion, heat cramps, and heat rash.

Preventive Measures: Actions taken proactively to minimize the risk of heat-related illnesses, including hydration protocols, acclimatization schedules, and protective clothing guidelines.

Wet Bulb Globe Temperature (WBGT): A composite temperature metric used to estimate the impact of temperature, humidity, wind speed, and sunlight on humans, often utilized to determine appropriate work-rest schedules.

Appendix C: PPE Vendors

- Safety Smart Gear
- Ergodyne Work Gear
- Northern Safety & Industrial
- ColdVest
- My Cooling Store

Appendix D: Additional Links

- CDC-NIOSH Workplace Recommendations
- NIOSH Heat Stress and Workers
- OSHA Heat Standards
- OSHA Personal Risk Factors
- OSHA Heat Planning & Supervision
- OSHA Technical Manual Section III: Chapter 4 - Heat Stress
- Mayo Clinic Heat Exhaustion - First Aid
- NWS Heat Risk Tool
- OSHA-NIOSH Heat Safety Tool Application
- NWS National Geographical Forecast Tool - WBGT
- NWS Heat Forecast Tools

Appendix E: Other Resources

Emergency Contact Card:
A printable version is available in the MDC Heat Safety Toolkit Folder.