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# MIOSHA

Michigan Occupational Safety and Health Administration (MIOSHA)  
Department of Labor and Economic Opportunity (LEO)

# AGENCY INSTRUCTION

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DOCUMENT IDENTIFIER:

MIOSHA-COM-22-1R1

DATE:

July 27, 2023

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**SUBJECT: Heat-Related Illness – State Emphasis Program (SEP)**

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- I. Purpose. This instruction establishes a state emphasis program (SEP) to prevent heat-related illnesses and fatalities.
- II. Scope. This instruction applies to the Construction Safety and Health Division (CSHD), Consultation Education and Training Division (CETD), General Industry Safety and Health Division (GISHD), and Technical Services Division (TSD).
- III. References.
  - A. Agency Instruction MIOSHA-COM-05-2, [Abatement Assurance and Follow-up Inspection Procedures](#), as amended.
  - B. Agency Instruction MIOSHA-COM-13-1, Dual, One-MIOSHA, Intra-Office Assistance, and Transfer of Inspections/Investigations, as amended.
  - C. Agency Instruction MIOSHA-COM-17-1, [Complaint Processing](#), as amended.
  - D. Agency Instruction MIOSHA-COM-20-1, Companion and Expanded Inspections, as amended.
  - E. Agricultural Standard [Part 55, Agricultural Operations](#).
  - F. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLV) for Chemical Substances and Physical Agents & Biological Exposure Indices, 2023, Heat Stress and Strain, pp. 239-247.
  - G. Construction Standard [Part 1, General Rules](#).
  - H. Construction Standard [Part 6, Personal Protective Equipment](#) (Part 6).
  - I. Division Instruction CSHD-COM-09-1, [Construction Inspection Targeting](#), as amended.
  - J. General Industry Standard [Part 33, Personal Protective Equipment](#) (Part 33).
  - K. General Industry Standard [Part 433, Personal Protective Equipment](#) (Part 433).
  - L. General Industry Standard [Part 472, Medical Services and First Aid](#).
  - M. General Industry Standard [Part 474, Sanitation](#).
  - N. Michigan Occupational Safety and Health Act, [P.A. 154 of 1974](#), as amended.
  - O. MIOSHA Administrative Standard [Part 11, Recording and Reporting of Occupational Injuries and Illnesses](#).
  - P. MIOSHA Administrative Standard [Part 13, Inspections and Investigations, Citations and Proposed Penalties](#).

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- Q. MIOSHA [Field Operations Manual \(FOM\)](#), as amended.
- R. MIOSHA, PowerPoint, [Workplace Heat Illness Prevention](#), July 22, 2022.
- S. MIOSHA, Consultation Education and Training Division, publication 0157, [Employer Sample Program for Heat Prevention](#), July 5, 2022.
- T. MIOSHA, webpage, [Heat](#).
- U. National Institute for Occupational Safety and Health (NIOSH) Publication 2016-106, [NIOSH Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments](#).
- V. NIOSH, webpage, [Workplace Safety and Health Topics: Heat Stress](#).
- W. National Oceanic and Atmospheric Administration (NOAA), National Centers for Environmental Information, [Local Climatological Data](#), webpage.
- X. NOAA, [National Weather Service](#) (NWS), website.
- Y. NOAA, NWS, [Heat Index](#), webpage.
- Z. Occupational Safety and Health Administration (OSHA), Fact Sheet, [Protecting Workers from the Effects of Heat](#), August 2014.
- AA. OSHA, Instruction CPL 03-00-024, [National Emphasis Program – Outdoor and Indoor Heat-Related Hazards](#), April 8, 2022.
- BB. OSHA-National Institute for Occupational Safety and Health (NIOSH), [Heat Safety Tool](#), smartphone application.
- CC. OSHA Technical Manual, Section III, Health Hazards, [Chapter 4, Heat Stress](#).
- DD. OSHA, webpage, [Heat Illness Prevention Campaign](#).
- EE. OSHA, webpage, [Safety and Health Topics: Heat](#).
- IV. Distribution. MIOSHA Staff; Federal OSHA; S-drive Accessible; MIOSHA Messenger; and Internet Accessible.
- V. Cancellations. This instruction cancels MIOSHA-COM-16-8, Heat-Related Illness Inspections, as amended.
- VI. Next Review Date. This instruction will be reviewed on January 15, 2025.
- VII. History. History of previous versions includes:  
MIOSHA-COM-22-1, July 5, 2022
- VIII. Contact. [Lawrence Hidalgo](#), CSHD Director, [Tarah M. Kile](#), CETD Director, [Adrian Z. Rocskay](#), GISHD Director, and [Ron Ray](#), TSD Director.
- IX. Originator. Barton G. Pickelman, Director
- X. Background. The U.S. Department of Labor’s Bureau of Labor Statistics (BLS) reported that between 2015 and 2019, environmental heat resulted in an average of 35 worker fatalities per year nationwide and 2,700 cases with days away from work. However, the actual number of heat-related fatalities may be higher due to underreporting and improper

diagnosis. The cause of death is often listed as a heart attack when the actual cause or aggravating cause may have been exposure to heat. Heat-related illnesses range, in increasing severity, from heat rashes to heat cramps (prickly heat), heat syncope (fainting), heat exhaustion, rhabdomyolysis, and heat stroke, which can lead to death. Heat stress can also increase the likelihood of errors in judgment, which can lead to accidents and injuries.

In response to these cases and the rising incidence of temperature extremes due to global warming, OSHA issued a National Emphasis Program (NEP) for Outdoor and Indoor Heat-Related Hazards in April 2022 to prioritize the prevention of heat-related illness. This MIOSHA instruction adopts the OSHA NEP as an SEP, with modifications to the NEP described below. First, for efficiency and increased response time, the targeting system focuses on expansion of pre-existing inspections (at outdoor worksites and indoor industrial worksites without air-conditioning) on excessive heat warning days and heat advisory days rather than the initiation of inspections at new worksites. Second, the programmed inspections have been adapted to the types of industries that are associated with heat exposure in Michigan. Third, when the NEP references the OSHA Field Operations Manual and federal directives, the corresponding sections of the MIOSHA FOM and MIOSHA instructions will be followed.

With its catchphrase, “Water. Rest. Shade,” the OSHA NEP focuses primarily although not exclusively on heat hazards in outdoor work rather than indoor work, as does the MIOSHA SEP. Nonetheless, both the NEP and SEP do cover heat hazards for indoor work, where the heat hazard has been historically addressed. To illustrate the hazard, two of the heat-related fatalities in Michigan were restaurant kitchen workers. In one case, the employee was exposed to high air temperatures and humidity in the kitchen, engaged in moderate physical activity on the job, began experiencing symptoms of heat-related illness at work, and rather than being sent to the emergency room, bicycled home in the outdoor heat before dying of hyperthermia.

#### XI. Significant Changes.

- A. Added the contents of Agency Instruction MIOSHA-COM-16-8R1, Heat-Related Illness Inspections, which contained the industrial hygiene technical information for conducting heat-related illness inspections, so the information for how to conduct a heat-related inspection is now in a single location.
- B. Added rhabdomyolysis to list of heat-related illnesses.
- C. Changed the timeframe for the goal for number of inspections to fiscal year. Previously, the timeframe for the goal would have been one year starting with the revision date of the instruction.
- D. Clarified how complaints and referrals should be processed. Added requirement for the processing to follow Agency Instruction MIOSHA-COM-17-1, Complaint Processing. Encouraged the use of accelerated response methods to deal with the transient nature of heat extremes and need for quick action.
- E. Allowed Safety Officers (SOs) to conduct heat inspections. Previously, only Industrial Hygienists (IHs) were permitted to conduct heat inspections.

Inspections of heat-related fatalities, inspections that require heat monitoring, and inspections that result in a general duty clause citation for heat will still be reserved for IHs.

- F. For both construction and general industry, modified the targeting system so that it focuses on expanding the scope of pre-existing inspections on excessive heat warning days and heat advisory days rather than compliance officers traveling to new worksites to open inspections.
- G. Added provision for the agency to designate one staff member to monitor the NWS website for heat advisories and excessive heat warnings. That person will email field staff when counties are under an excessive heat warning or heat advisory.
- H. Added definitions of heat advisory and excessive heat warning.
- I. Added goal of conducting six programmed inspections in the construction industry.
- J. Eliminated former Appendix A, Targeted Industries in General Industry.
- K. Added goal of conducting six programmed inspections in the landscaping services industry.
- L. Added that the accident prevention program (APP) required by Construction Standard Part 1, General Rules, covers the hazard of heat. Thus, the APP must provide for inspections of the construction site to assure that unsafe conditions (like excessive heat) which could create a hazard are eliminated, and the APP must provide instruction to each employee in the recognition and avoidance of hazards (like excessive heat).
- M. Added description of when and how heat monitoring with instrumentation would be conducted.
- N. Added detail on information that the SO/IH would collect to determine employee heat exposure.
- O. Added requirement for IH to compare heat exposure monitoring results with ACGIH action level and TLV for heat stress exposure.
- P. Added revised NIOSH criteria document to the list of SO/IH resources as it is one of the most comprehensive references on heat stress and heat-illness prevention programs freely available on the Internet.
- Q. Added ACGIH TLV booklet section on heat stress and strain to the list of SO/IH resources. The ACGIH TLV booklet has an action level and TLV for heat stress exposure.
- R. Revised the template for the Safety/Health Recommendation form for heat-related illness.

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- S. Modified the questions on the employer questionnaire and employee questionnaire. Updated the employer and employee questionnaires to account for SOs also administering the questionnaires.
  - T. Revised the language in [Appendix B](#).
  - U. In [Appendix G](#), added the definition of heat index. Added information about the limitations of the warning levels and danger levels on the heat index chart, namely that the levels assume a shaded work area, low winds, and light clothing. Work in direct sunlight, strong winds (above 95°F), and impermeable clothing or PPE create risk of heat-related illness at heat indices much lower than those designated as caution or danger on the chart.
- XII. SEP Goal. MIOSHA will conduct 24 inspections under this SEP each fiscal year. This goal is based on the requirement in the OSHA NEP that each of its regions have a fiscal year goal of increasing the annual number of heat inspections by 100% above the baseline of the average of fiscal years 2017 through 2021. The corresponding 100% increase for MIOSHA would result in 7 inspections for CSHD and 17 inspections for GISHD per year. This goal will be reached through a combination of unprogrammed activities (complaints, referrals, fatalities) and programmed inspections.
- XIII. Inclusion of Inspections in SEP. Inspections will be included in the SEP and be coded as such per Section XXII of this instruction if their scope involves evaluating the employer's heat-illness prevention program. The inspections include:
- A. Programmed inspection assignments issued or performed under this SEP.
  - B. Complaint inspections, referral inspections, and fatality inspections for heat.
  - C. Any inspection where the employer has had a significant heat-related illness in the past year.
  - D. Follow-up inspections for heat.
  - E. Any inspection that results in a Safety/Health Recommendation or citation to prevent heat illness.
  - F. Any inspection in which an IH conducts monitoring for heat.
- XIV. Processing of Complaints and Referrals.
- A. Complaints and referrals alleging heat syncope, heat exhaustion, rhabdomyolysis, or heat stroke will typically be assigned for on-site inspection. Complaints and referrals alleging only hot work environments, thermal discomfort, heat rashes and heat cramps, or other scenarios without more serious heat-related illness shall typically be handled with an off-site complaint inspection (D letter), telephone inspection, recommendation letter, indoor air quality letter, or no action. Processing of complaints and referrals will be in line with the procedures in the MIOSHA FOM and Agency Instruction MIOSHA-COM-17-1, Complaint Processing.

- B. For complaints in low-hazard industries (i.e., offices, schools, hospitals, retail establishments, and other climate-controlled settings), or for complaints indicating the air conditioning is not working, the manager/supervisor may consider issuing a letter for indoor heat as found in [Appendix A](#) as an alternative to conducting an off-site complaint inspection (D letter) or on-site inspection. The letter for indoor heat is primarily intended for situations where the chief complaint is thermal discomfort rather than recordable heat-related illness.
- C. Due to the transient nature of heat extremes and the need for quick action, the manager/supervisor shall consider accelerated methods of response. For example, for on-site inspections, if the complaint alleges a case of heat syncope or heat exhaustion, and the county is currently under a heat advisory, the manager or supervisor may want to assign the on-site inspection to be opened the next day rather than allowing the SO/IH the full 10 working days from the date of MIOSHA receipt to open the inspection.

Likewise, for a D letter, if the situation is urgent (for example, the complaint alleges no water, no rest breaks, outdoor work, and the county is under a heat advisory), the manager or supervisor may want to instruct the SO/IH to contact the employer by phone that day, obtain the status of the employer's heat-illness prevention program within the hour, and if there are significant deficiencies, request correction immediately, with a confirmatory email or fax from the employer by close of business, in addition to mailing the employer the D letter and following standard D letter protocols.

XV. Role of Safety Officer (SO) Versus Industrial Hygienist (IH).

- A. Inspections under this SEP can be conducted by an SO or an IH. Both IHs and SOs can issue safety/health recommendations for a heat-illness prevention program. If the inspection is a heat-related fatality, if it involves monitoring for heat, or if it will result in a general duty clause citation for heat, it will be conducted by an IH.
- B. If an SO discovers a heat-related fatality, a recent case of heat syncope, heat exhaustion, rhabdomyolysis, or heat stroke that could require heat monitoring, or evidence that the four elements of a general duty clause citation can be established (see [Appendix B](#) for examples of that evidence), the SO will contact the health supervisor for the geographic area to discuss the possibility of an interoffice assistance (IOA) request for heat in accordance with MIOSHA-COM-13-1, Dual, One-MIOSHA, Intra-Office Assistance, and Transfer of Inspections/Investigations.

XVI. Targeting.

- A. CSHD and GISHD. On heat advisory days and excessive heat warning days, the SO/IH will expand the scope of their on-site inspections to include an evaluation of the employer's heat-illness prevention program. This requirement applies only to worksites where the workers have exposure to the heat, such as work outdoors or work indoors in a location without air-conditioning. The requirement applies

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only to those inspections where the SO/IH is at the worksite on the heat advisory or excessive heat warning day.

Heat advisories and excessive heat warnings are issued by the NWS within 12 hours of the onset of extremely dangerous heat conditions. Typically, an excessive heat warning is issued when the maximum heat index is expected to be 105°F or higher for at least 2 days and nighttime air temperatures will not drop below 75°. A heat advisory is issued when the maximum heat index is expected to be 100° or higher for at least 2 days, and nighttime air temperatures will not drop below 75°. However, these criteria vary across the country, especially for areas that are not used to dangerous heat conditions.

The agency will designate one staff member to monitor the NWS website for heat advisories and excessive heat warnings. That person will email field staff when counties are under a heat advisory or an excessive heat warning.

- B. CSHD. During the summer, CSHD will conduct six programmed inspections of construction sites to evaluate their heat illness prevention program. CSHD will select outdoor sites in direct sunlight with hot work processes (for example, roof tarring, asphalt paving). CSHD will target worksites using the list of active construction projects downloaded monthly from the Dodge database (see CSHD-COM-09-1, Construction Inspection Targeting) and will incorporate SO/IH observations of construction sites (i.e., viewed by SO/IH from the roadway).
  - C. GISHD. During the summer, GISHD will conduct six programmed inspections of establishments in the landscaping services industry to evaluate their heat illness prevention program. GISHD will select employers whose employees perform work outdoors in direct sunlight for most of the shift (for example, lawn care, groundskeeping, planting of landscaping).
- XVII. Inclusion of Heat in Scope of Inspection. The SO/IH shall evaluate the employer's heat-illness prevention program on all programmed inspections performed under this SEP and on all unprogrammed activities (complaints, referrals, fatalities) alleging heat hazards.

In addition, if an SO/IH discovers significant uncontrolled exposure to heat during any inspection not originally assigned to examine heat, the SO/IH shall expand the investigation to address the heat hazards using the procedures in MIOSHA-COM-20-1, Companion and Expanded Inspections. Per the MIOSHA FOM, if the inspection scope is partial, the SO/IH must expand the scope to address any potentially serious hazard in plain view or discovered during the inspection process, including the heat hazards. The SO/IH will be observant for and understand the sources of heat hazards when encountering the industries and work processes.

XVIII. Inspection Procedures.

- A. The SO/IH will follow the inspection procedures in XII. Program Procedures. D. Inspection Procedures and Case File Documentation, of OSHA Instruction CPL 03-00-024.

- B. **Monitoring for Heat.** In most cases, the SO/IH will not have to conduct monitoring for heat exposure using the wet bulb globe temperature (WBGT) meter (an area monitor). If the work is outdoors (or in an indoor location where environmental conditions reflect the outdoors because of open doors and windows and lack of air conditioning), employee exposures to heat can usually be ascertained and even quantified through data from the NWS (outdoor air temperature, humidity, and heat index), visual observation, and interviews with management and employees. The SO/IH will visually observe the time spent by employees on work versus rest, the time in direct sunlight, the extent of cloud coverage, the time spent in shaded areas, and level of worker physical activity. The SO/IH will note factors that will cause employee exposure to deviate from the NWS data such as time spent in air-conditioned areas and worker proximity to hot work processes (for example, vehicle exhaust, roof tarring, asphalt paving, welding, torch cutting, furnaces, molten metal, heated metal).

Monitoring for heat exposure would typically be done where a general duty clause citation is proposed; if there was a fatality; a case of heat syncope, heat exhaustion, rhabdomyolysis, or heat stroke; where outdoor environmental data from the NWS may not accurately reflect employee exposures (for example, due to hot work processes); or some other situation where exposure needs to be more directly quantified. Monitoring for heat exposure using instrumentation will be performed by an IH. The results of the monitoring with the WBGT meter will be compared to the ACGIH action level and TLV for heat stress exposure.

The WBGT can also be calculated using data from the NWS and NOAA. This method can be used to reconstruct the WBGT and heat exposures on days prior to the opening conference. For example, a historical reconstruction of heat would be necessary if an IH was assigned to investigate a heat-related fatality or case of heat syncope that occurred before the opening conference date.

- C. The SO/IH will administer the employer questionnaire in [Appendix C](#) and employee questionnaire in [Appendix D](#). The SO/IH can modify and rephrase the questions to tailor them to the worksite. For example, some of the examples are for indoor work environments, and some are for outdoor environments. The answers to certain questions may be obvious, so the questions may not have to be asked, or they can be phrased in a confirmatory fashion (for example, it would be unnecessary to ask workers if they work outdoors in direct sunlight when the SO/IH can see that all the workers are all hand-picking produce in an open agricultural field). Also, the questions overlap, so one answer may satisfy multiple questions.

The employer questions can be cut and pasted into the Field Narrative and serve as a template for the field notes of the SO/IH, or Appendix C of this instruction can be included in the case file as an exhibit and referenced in the narrative. On this template, the SO/IH can record their visual observations, their comments from the records review, and overall assessment of the program.



D. **Applicable Standards.** MIOSHA has no specific standard for heat stress, so the evaluation by the SO/IH will be mainly to determine the employer’s compliance with the general duty clause of the Michigan Occupational Safety and Health Act and the MIOSHA standards available to cover some of the components of a heat-illness prevention program. Deficiencies in the program will be addressed with citations for violations of the MIOSHA standards, a safety and health recommendation, and/or a general duty clause citation. The SO/IH will evaluate the employee’s compliance with these MIOSHA standards:

1. Provision of Potable Water. Construction Standard Part 1, General Rules, Rule 128(a); General Industry Standard Part 474, Sanitation, Rule 1910.141(b); and Agricultural Standard Part 55, Agricultural Operations, 29 CFR 1928.110, Field Sanitation, paragraph (c)(1) require employers to provide potable water.
2. Recording and Reporting of Heat-Related Illnesses. MIOSHA Administrative Standard Part 11, Recording and Reporting of Occupational Injuries and Illnesses, requires that employers record certain work-related illnesses. If a worker requires medical treatment beyond first aid for heat illness, the worker's illness must be recorded. If the employer has a case of an in-patient hospitalization due to heat-related illness, it must report the case to MIOSHA within 24 hours. If the employer has a heat-related fatality, it must report the fatality to MIOSHA within 8 hours.
3. Accident Prevention Program. Construction Standard Part 1, General Rules, Rule 114(2)(c) requires an employer to develop and maintain an accident prevention program (APP). The APP shall provide for inspections of the construction site to assure that unsafe conditions (like excessive heat) which could create a hazard are eliminated, and the APP shall provide instruction to each employee in the recognition and avoidance of hazards (like excessive heat).
4. Personal Protective Equipment (PPE). General Industry Standard Part 433, Personal Protective Equipment, Rule 1910.132(d), and General Industry Standard Part 33, Personal Protective Equipment, Rule 3308(1), require an employer to assess the workplace to determine if hazards are present, or likely to be present, that necessitate the use of PPE. Construction Safety Standard Part 6, Personal Protective Equipment, requires an employer to provide PPE.

Parts 6, 33, and 433 can be used to require PPE against heat from industrial processes (for example, steel mills, foundries, welding, torch cutting) but typically only to prevent thermal burns. The standards cannot be used to require PPE against hot weather.

If a general duty clause is being cited for the lack of an effective heat-illness prevention program, PPE can be listed among the feasible methods to abate the citation. This PPE could include cooling neck wraps, cooling

jackets, or cooling vests with reusable ice packs or phase-change cooling packs in the pockets.

5. First-Aid. General Industry Standard Part 472, Medical Services and First Aid, Rule 325.47201(2), requires that in the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, the employer shall ensure that a person or persons shall be adequately trained to render first aid. Construction Standard Part 1, General Rules, Rule 132(3), requires a person who has a valid certificate in first aid training shall be present at the worksite to render first aid.

E. Citations.

1. MIOSHA Standards. MIOSHA has no comprehensive standard for the prevention of heat-related illnesses. MIOSHA standards are available for a few components of a heat-illness prevention program, such as the provision of water, reporting and recording of cases of heat-related illness, first aid, and for construction only, worksite inspections to eliminate the heat hazard and instruction to employees on the heat hazard (through an APP).
2. General Duty Clause. For heat, the general duty clause is typically cited only when heat syncope, heat exhaustion, rhabdomyolysis, heat stroke, or death has occurred, and the case(s) can be linked to deficiencies in the employer's heat illness prevention program. The IH shall document the environmental conditions and work activities that presented the heat-related hazards.

To cite the general duty clause, the IH must establish the four elements necessary to prove a violation of the general duty clause as described in the MIOSHA FOM. [Appendix B](#) gives examples of evidence for each of the four elements. [Appendix E](#) offers sample language for general duty clause citations.

- F. Safety/Health Recommendation. When an uncontrolled heat hazard exists, but there is insufficient evidence to issue a general duty clause citation, and no MIOSHA rule is available to address the deficiency in the heat-illness prevention program, the SO/IH will propose a safety/health recommendation to mitigate the hazard in accordance with the MIOSHA FOM. Sample language and a template for a safety/health recommendation for heat stress can be found in [Appendix F](#). The SO/IH will pick, modify, and/or remove text from the template so that the safety/health recommendation narrowly addresses the deficiencies found at the inspected establishment.

Indications of uncontrolled heat hazards are cases of heat-related illness, employees experiencing symptoms of heat-related illness, and employees exposed over values prescribed by the ACGIH. A safety/health recommendation will not normally be issued for mere thermal discomfort.

- G. Due to the transient nature of extreme outdoor heat conditions and the need for prompt action, issuance of citations and safety and health recommendations shall be expedited. At a minimum, the SO/IH will work with the employer on the day of the on-site inspection to ensure the provision of water, rest, and shade and other critical components of a program.
- H. SO/IH Resources.
1. The OSHA Technical Manual, Section III, Chapter 4, Heat Stress describes the different types of heat-related illness and the elements of the heat-prevention program as well as how to conduct monitoring for heat. It also explains how the WBGT can be calculated from weather data.
  2. From the NOAA, [Appendix G](#) shows how the heat index is derived from the air temperature and relative humidity and the likelihood of heat disorders by heat index.
  3. The NOAA NWS website has county-by-county heat advisories, excessive heat warnings, current temperature, weather forecasts, and maps showing the same. Historical data is provided for Detroit, Grand Rapids, Gaylord, and Marquette.
  4. At the Local Climatological Data webpage of the NOAA, temperature information from prior dates can be obtained, including at 3-hour intervals, dry bulb, wet bulb, dew point, and relative humidity. Certified copies can be purchased as evidence for use in a court of law.
  5. The NIOSH document, Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments (192 pages), is a comprehensive review and reference on the science of heat stress and the elements of an effective heat-illness prevention program.
  6. The ACGIH TLV booklet has an action level and TLV for heat stress exposure based on the WBGT value, metabolic rate (light, moderate, heavy, or very heavy), the allocation of work in a cycle of work and recovery (0 to 25%, 25 to 50%, 50 to 75%, or 75 to 100%, also known as the work-rest regimen), and clothing type (which results in an adjustment factor and addition to the WBGT). The agency will make the ACGIH TLV booklet available to IHs.
- I. Employer Resources. The SO/IH will direct employers to the MIOSHA webpage for heat. The webpage contains hyperlinks to a sample heat illness prevention plan for employers, a workplace heat illness prevention PowerPoint that can be used by employers to train their employees, the OSHA webpage for its heat illness prevention campaign, the OSHA fact sheet on protecting workers from the effects of heat, and this MIOSHA instruction. Other employer resources are the NIOSH webpage on heat stress, the OSHA webpage on the safety and health topic of heat, and the OSHA-NIOSH Heat Safety Tool, which is a smartphone application.

XIX. Follow-Up Inspections.

- A. If an employer covered by the SEP has not implemented an effective heat-stress prevention program or its related elements shown to reduce employee exposures to heat, or if an employer covered by the construction industry has not either fully or properly implemented elements related to an effective heat-stress prevention program, within the time period specified on the citation, then a follow-up inspection shall be conducted in accordance with the MIOSHA FOM and Agency Instruction MIOSHA-COM-05-2, Abatement Assurance and Follow-up Inspection Procedures, as amended.
- B. Follow-up inspections should also be conducted if there are any unabated violations of other provisions of the issued citation(s).
- C. A Rule 1349(1) citation should be issued under MIOSHA Administrative Standard Part 13, Inspections and Investigations, Citations and Proposed Penalties if there are only unabated other-than-serious citations, per Agency Instruction MIOSHA-COM-05-2, Abatement Assurance and Follow-up Inspection Procedures.
- D. For situations where follow-up inspections cannot be performed (for example, due to temporary, intermittent, or mobile operations), the enforcement divisions should, when possible, require the employer to provide written updates documenting the progress of abatement efforts.
- E. A follow-up inspection is not required when the enforcement division has specific knowledge and documentation indicating no workers are exposed to heat.

XX. Outreach. Upon issuance of this instruction, CETD shall conduct outreach programs for this SEP for at least three months. The outreach includes informing the public of the SEP through the MIOSHA eNews, MIOSHA News, and GovDelivery announcement and providing resources for employers at the MIOSHA website. [Appendix H](#) is a copy of the outreach plan.

XXI. Consultation. CETD’s consultation program will use the same guidance as the enforcement divisions when addressing heat-related illnesses at indoor and outdoor worksites where potential heat-related hazards may exist.

XXII. OSHA Information System (OIS) Coding.

- A. Enforcement inspections conducted under this SEP shall be coded as “HEATNEP” under the National Emphasis Program field on the Inspection tab. Compliance assistance conducted under this SEP shall be coded as “HEATNEP” under the National Emphasis Program field on the Request tab.
- B. The existing Additional Codes will continue to be used to track industry groups for all enforcement activities, and now also for compliance assistance: N-02-HEATGI (general industry), N-02-HEATCON (construction), N-02-HEATAG (agriculture), or N-02-HEATMI (maritime).

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- C. Programmed Inspections. Additional coding is required for programmed inspections.
  - 1. CSHD. In CSHD, for all programmed inspections initiated using the targeting list of this SEP, on the OIS Inspection tab/page, code “HEATNEP” as the Primary Emphasis Program.
  - 2. GISHD. In GISHD, for a general programmed inspection, on the OIS Inspection tab, select “Programmed Inspection List” from the State Emphasis Program field and then “Programmed Inspection List” from the Primary Emphasis Program field.
- D. General Duty Citations. The word ‘Heat’ will be selected as the General Duty Keyword for all heat-related violations written under the general duty clause.
- E. Consultation. Whenever a consultation request or visit is made related to this SEP, the existing topic, Heat Illness Prevention, will continue to be used for all heat-related compliance assistance activities. Also, for task, type “technical assistance.” Add Additional Codes as directed in this section.

**Appendix A**  
**Letter for Indoor Heat**

«Date»

Complaint #«Complaint\_Nbr»

«Mr\_Ms» «First\_Name» «Last\_Name»  
«Company\_Name»  
«Address»  
«City\_State» «ZIP\_Code»

Dear «Mr\_Ms» «Last\_Name»:

The Michigan Occupational Safety and Health Administration (MIOSHA), General Industry Safety and Health Division received a complaint regarding heat hazards at your establishment. The specific allegations are:

1. {Enter specific heat issues}

At this time, MIOSHA will not be conducting an on-site investigation. However, you are required by section 11(a) of the Michigan Occupational Safety and Health Act to provide employees with a place of employment free from recognized hazards that can cause death or serious physical harm to the employee. This would include preventing heat-related illnesses. Therefore, we ask that you evaluate your heat stress control program using the attached recommendation sheet and take appropriate measures to prevent employees from exhibiting signs and symptoms of heat stress.

We ask that you post a copy of this letter and a copy of the enclosed recommendation sheet where they are accessible to employees for the duration of the hot season. A copy of this letter will be provided to the complainant.

Section 65 of Act 154, the Michigan Occupational Safety and Health Act, states that an employer shall not discriminate against an employee for exercising his or her rights under Act 154. If an employee believes that he or she was discharged or otherwise discriminated against as a result of filing a complaint, the employee may file a complaint with the MIOSHA Employee Discrimination Section within 30 days of the alleged discriminatory action. To contact the MIOSHA Employee Discrimination Section, please call (313) 456-3109.

If you have any questions, please contact me at {telephone #}.

Sincerely,

*{Name}*

MIOSHA-COM-22-1R1

July 27, 2023

Heat-Related Illness – State Emphasis Program (SEP)

{Name}

{Title}

{Signers initials in capital letters}:{person preparing letter initials – lower case}

Enclosure:      Recommendations for Preventing Heat Stress in Buildings

### **Recommendations for Preventing Heat Stress in Buildings**

In the interest of workplace health, it is recommended that employers take the steps below to minimize thermal discomfort and prevent heat-related illnesses in office buildings, retail areas, schools, hospitals, and other non-industrial indoor work environments.

1. Maintain temperature in the range of 68°F-78°F and humidity in the range of 30%-60%. These values provide thermal comfort for the majority of but not all building occupants; individual needs for comfort can vary widely.
2. Use air conditioning to reduce the temperature and humidity in the building.
3. Provide portable cooling fans to employees.
4. Allow employees to wear lighter clothing during warmer periods.
5. Provide adequate, cool drinking water at the worksite. Ensure that the water is easily accessible. Remind employees to stay hydrated.
6. Educate workers on the types of heat-related illnesses, signs and symptoms of heat stress, steps employees can take to avoid heat stress, first aid procedures, and how to alert management to heat-related issues (for example, if the air conditioning is not working).
7. Respond quickly to heat complaints. Communicate heat complaints and management actions taken to resolve them promptly to the workgroup.
8. If there are indications of heat stress, survey employees for thermal discomfort and physical symptoms to determine the extent of the problem.
9. Encourage workers to consult a doctor or pharmacist if they have questions about whether they are at increased risk for heat-related illness because of health conditions they have or medications they take. Some conditions, such as pregnancy, fever, gastrointestinal illness, heart disease, and obesity, may increase the risk of heat-related illness.
10. For further information, consult these resources:
  - American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 55, Thermal Environmental Conditions for Human Occupancy, which provides temperature and humidity guidelines based on air speed, amount of clothing worn, metabolic rate (level of physical activity), and radiant heat load.
  - OSHA, Safety and Health Topics: Heat – [www.osha.gov/heat-exposure](http://www.osha.gov/heat-exposure)
  - OSHA, Heat Illness Prevention Campaign – [www.osha.gov/heat](http://www.osha.gov/heat)
  - OSHA, Indoor Air Quality Commercial and Institutional Buildings – Safety and Health Topics: Indoor Air Quality – [Indoor Air Quality in Commercial and Institutional Buildings \(osha.gov\)](http://www.osha.gov/indoor-air-quality-commercial-and-institutional-buildings)



## **Appendix B**

### **Evidence for General Duty Clause Violation for Heat-Related Illness**

A violation of the general duty clause may exist in conditions when a worker has experienced a heat-related illness such as heat syncope, heat exhaustion, rhabdomyolysis, or heat stroke and their employer is aware of heat-related danger but has not taken protective action to provide the worker with, at a minimum, water, rest, and shade. To establish a general duty clause violation, four elements must be necessary, as described in the MIOSHA FOM. The following are the types of evidence to establish each element.

NOTE: These examples represent some types of evidence that could establish each of the factors; they are not the only types that would satisfy MIOSHA's burden:

1. The employer failed to keep the workplace free of a hazard to which its employees were exposed:
  - Workers were exposed to a heat index (HI) at or above the Extreme Caution zone (see [Appendix G](#)); or
  - Workers were working outside for most of the day or during the heat of the day when there was a NWS heat advisory or excessive heat warning.
2. The hazard was recognized:
  - NWS issued a heat advisory or excessive heat warning, and the employer was or should have been aware of the advisory or warning.
  - Employees made complaints regarding the heat;
  - Employees showed signs or symptoms of heat-related illness;
  - Employer indicated awareness of the heat hazard (e.g., by providing water but not rest and shade); or
  - The employer's industry has issued guidance or information about heat hazards.
3. The hazard was causing or likely to cause death or serious physical harm:
  - Employer had a case of heat syncope, heat exhaustion, rhabdomyolysis, or heat stroke;
  - Employer had a fatality in which environmental heat was a factor (the immediate cause of death may be attributed to another condition like a heart attack).
4. There was a feasible and useful method to correct the hazard:
  - Employer could have provided workers with immediate access to water, rest, and shade and allowed them to use those measures;
  - Employer could have implemented an acclimatization program for new employees and for those returning to work after an extended absence (e.g., vacation);
  - Employer could have implemented a work/rest schedule;

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- Employer could have provided an air-conditioned area for employees to cool down;  
or
- Employer could have provided a shaded area for employees to cool down.

**Appendix C  
Employer Questionnaire**

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

Inspection Number: \_\_\_\_\_

Date: \_\_\_\_\_

CSHO: \_\_\_\_\_

1. What are the sources of heat at this worksite? [Heat sources can include working outdoors in direct sunlight, work in the hot air (outdoors; indoors because of open doors and windows), high humidity, direct physical contact with hot objects, moderate-to-heavy physical activity, and hot work processes. Examples of hot work processes are roof tarring, asphalt paving, welding, torch cutting, vehicle exhaust, heat from machines, furnaces, molten metal, and heated metal.]
  
2. At what activity level do employees perform job tasks – light, moderate, heavy, or very heavy (see ACGIH definitions)? Please describe the activities.
  
3. What actions has the company taken to prevent heat-related illnesses?

**Written Program**

4. Is there a written program for the prevention of heat-related illnesses? Can I see it?

**Exposure Monitoring**

5. Are environmental conditions (temperature, humidity, heat index, cloud cover) at the worksite monitored? If yes, how are they monitored? By who?
  
6. Does the company monitor the weather forecast or National Weather Service for information? If yes, by who?
  
7. What is done with this information?
  
8. Are special measures if any taken on heat warning and heat advisory days? If yes, please describe. When was the last time there was a heat warning or heat advisory day?

### **Ventilation and Air Conditioning**

9. What mechanical ventilation is provided at the workplace? [Sources of ventilation may include personal cooling fans, personal misting fans, general ventilation (wall exhaust fans and ceiling exhaust fans) to increase air movement through the facility, local exhaust ventilation at high heat production operations, and local exhaust ventilation at high moisture points.]
  
10. Is air-conditioning provided at the workplace? Examples of air-conditioning could be air-conditioned work areas, air-conditioned break or rest areas, and air-conditioned vehicles.

### **Engineering Controls**

11. Are there any engineering controls implemented to shield employees from radiant heat sources? [Examples include reducing radiant heat emissions from hot surfaces, insulating hot surfaces, shielding, installing cooling seats or benches for rest breaks, and using mechanical equipment to reduce manual work.]

### **Acclimatization**

12. Is there an acclimatization program in place for new or returning employees (e.g., returning from extended leave or vacation)?
  
13. How are the employees acclimatized to the work environment?

### **Administrative Controls**

14. Do employees receive breaks?
  
15. Are employees given breaks according to an established work/rest schedule? If yes, how long are the breaks, where are the breaks, and how many breaks do they get per shift? How is the work/rest schedule established?
  
16. Is there a provision for an air-conditioned rest area? If yes, where?

17. If employees work outdoors, is there a provision for a shaded rest area? If yes, where?
18. Are administrative controls like earlier start times, evening work, night work, or employee job rotation used to limit heat exposures? If yes, please describe.

### **Hydration and Clothing**

19. Do employees drink fluids while working? If yes, how much and how often?
20. Are water and drinks provided to employees? If yes, how and where?
21. Are employees required to wear protective clothing or equipment? If yes, describe.
22. Are employees allowed to wear shorts, light clothing, loose-fitting clothing, cotton clothing, and/or (if working outdoors) a hat to block the sun? If yes, which of these? Do they wear such clothing?

### **Medical Surveillance**

23. Is there a medical surveillance program to identify workers at increased risk of heat-related illness due to personal factors (such as age, weight, medical conditions, medications, and lifestyle)? What does it consist of? Is there a written policy or procedure? Can I see a copy?
24. Is there a buddy system in place? If yes, please describe.
25. Have any employees complained of the heat? If yes, what were the complaints?
26. How did the company respond to those complaints?
27. Have there been any cases of heat-related illness? Examples of heat-related illness are heat rashes, heat cramps, feeling lightheaded or dizzy, fainting, heat exhaustion, and heat stroke.
28. What is the employer protocol if an employee suffers a heat-related illness?

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29. Were any employees sent to the clinic or hospital?

**Training**

30. Are employees provided with information or training on preventing heat-related illness? If yes, describe the format (classroom, online, at the jobsite, brochure), topics, time lengths, and dates. Are there training records? If yes, can I see them?

**Appendix D**  
**Employee Questionnaire**

Establishment Name: \_\_\_\_\_ Inspection Number: \_\_\_\_\_

Date: \_\_\_\_\_ CSHO: \_\_\_\_\_

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

1. Please describe your job tasks.
  
2. How long have you worked at this task or work assignment?
  
3. How much physical activity is involved in your job – light, moderate, heavy, or very heavy?
  
4. What are the sources of heat in your job? [Heat sources can include working outdoors in direct sunlight, work in the hot air (outdoors or because of open doors and windows), high humidity, direct physical contact with hot objects, moderate-to-heavy physical labor or activity, and hot work processes. Examples of hot work processes are roof tarring, asphalt paving, welding, torch cutting, vehicle exhaust, heat from machines, furnaces, molten metal, and heated metal.]
  
5. How many hours a day are you exposed to the heat at work?
  
6. What measures does the company have in place to help you deal with the heat?
  
7. Has the company provided any information and training on protecting yourself from the heat? If yes, describe the training. What was the format – classroom, online, at the jobsite, brochure? Where was it held? When was it? How long did it take? Who did the training? What topics did they cover?
  
8. Did the training cover the different types of heat-related illness? If yes, what did they say?
  
9. Is there a work/rest cycle in place?

10. If yes, describe the work/rest cycle (e.g., how many breaks do you take, when do you take breaks, how long is a typical break).
11. Where do you take your breaks?
12. Is a climate-controlled (air-conditioned) break area available? If yes, please describe.
13. If you work outdoors, is a shaded area available for your rest breaks? If yes, please describe.
14. At your workstation, is mechanical ventilation provided? [Examples of ventilation are personal cooling fans, misting fans, local exhaust ventilation (hoods) at hot processes or moisture-generating processes, and wall and ceiling exhaust fans in the building.]
15. What types of personal protective equipment are you required to wear? [Examples of personal protective equipment are hardhats, respirators, earmuffs, jackets, gloves, suits, and boots.]
16. Are you allowed to wear shorts, light clothing, loose-fitting clothing, cotton clothing, and/or (if working outdoors) a hat to block the sun? Do you wear any such clothing?
17. Is drinking water available? If yes, describe the drinking water source? How far away is it?
18. Are you required to drink water or any other beverages when working under hot conditions? If yes, is there a specific amount? Is it enforced?
19. Have you experienced any health effects related to working in excessive heat? If yes, describe. Examples of heat-related illnesses are heat cramps, heat rashes, lightheadedness, fainting, confusion, muscle pain, heat exhaustion, and heat stroke.
20. Are other workers experiencing any such symptoms?
21. Is there a buddy system in place to make sure workers do not get ill from the heat? If yes, please describe it.



22. Is there an acclimatization program in place for new or returning workers? An acclimatization program is where the employees are gradually introduced to the heat and to moderate and high levels of the physical activity in the heat. If there is a program, please describe it.
  
23. Are measures like earlier start times, evening work, night work, and job rotation available to reduce the exposure to heat? If yes, please describe.
  
24. Do you have any additional comments or suggestions you would like to share about heat-related illness or symptoms at this worksite and how to prevent them in the future?

**Appendix E**  
**Sample General Duty Clause Citations for Heat**

When employees are exposed to heat stress and the employer does not have an adequate heat-illness prevention program, below is a generic general duty clause citation. More specific examples of general duty clause citations follow:

Generic Citation:

MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, ACT 154, P.A. 1974, AS AMENDED, SECTION 11(a):

The employer did not furnish to each employee, employment and a place of employment which was free from recognized hazards that were causing or were likely to cause death or serious physical harm to the employee. Employees were exposed to the hazard of excessive ambient heat from [specify the environmental or process sources generating the heat and any heat measurements taken] during the performance of their duties, which included [describe duties]. Such exposures may lead to the development of serious heat-related illnesses such as [describe heat-related illness(es) workers were at risk of developing; if there was an actual heat-related illness, then describe it]. [Describe any actions the employer took or failed to take that contributed to the risk of heat-related illness.]

Feasible and acceptable methods to abate this hazard include, but are not limited to:

1. Providing adequate amounts of cool, potable water and electrolyte replacements (specific recommendations should be made by medical consultation) in the work area and require employees to drink frequently.
2. Providing a work/rest regimen.
3. Training employees about the effects of heat-related illness, how to report and recognize heat-related illness symptoms and how to prevent heat-related illnesses.
4. Including a heat acclimatization program for new employees or employees returning to work from absences of three or more days.
5. Providing a cool, climate-controlled area where heat-affected employees may take their breaks and/or recover when signs and symptoms of heat-related illnesses are recognized.
6. Providing shaded areas where heat-affected employees may take their breaks and/or recover on worksites that do not have access to climate-controlled areas.
7. Providing specific procedures to be followed for heat-related emergency situations and procedures for first aid to be administered immediately to employees displaying symptoms of heat-related illness.
8. Using dermal patches for monitoring core temperature to better identify when workers need to be removed from the work area.

Sample Citation No. 1:

MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, ACT 154, P.A. 1974, AS AMENDED, SECTION 11(a):

The employer did not furnish to each employee, employment and a place of employment which was free from recognized hazards that were causing or were likely to cause death or serious physical harm to the employee. Employees who worked in the autoclave area were exposed to an indoor wet bulb globe temperature of 99.5 degrees Fahrenheit (°F). Such exposures may lead to the development of serious heat-related illnesses such as heat cramps and heat exhaustion.

Feasible and acceptable methods of correcting this violation may include, but are not limited to, the following:

1. Develop a heat stress training program to inform employees about the effects of heat stress and how to recognize heat-related symptoms and prevent heat-induced illnesses.
2. Use cooling rooms, which can be used to offer a recovery area near hot jobs, and portable blowers with built-in air chillers, which can offer relief at the workstation.
3. Train employees to stay hydrated by drinking five (5) to seven (7) ounces of water every 15 to 20 minutes throughout the workday and to avoid drinks with caffeine, alcohol, and large amounts of sugar.
4. Instruct employees to wear light-colored, loose-fitting, breathable clothing, such as cotton.
5. Implement a screening program to determine any causal factors that may affect the employee's heat illness susceptibility.
6. Establish a work/rest regimen so that exposure time to high temperatures and/or the work rate is decreased.
7. Utilize an acclimation program for new employees or employees returning to work from absences of three or more days.
8. Specify procedures to be followed for heat-related emergency situations.
9. Make provisions so that first-aid can be administered immediately to employees displaying symptoms of heat-related illness.

Sample Citation No. 2:

MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, ACT 154, P.A. 1974, AS AMENDED, SECTION 11(a):

The employer did not furnish to each employee, employment and a place of employment which was free from recognized hazards that were causing or were likely to cause death or serious physical harm to the employee. On July 27, 2022, a crew of five workers performed lawn care services in the direct sunlight from 8 AM to 11:30 AM and from 1:05 PM to 3:20 PM when the heat index ranged from 82°F-110°F. The employer lacked an air-conditioned rest area and an adequate training program for the prevention of heat-related illness. One employee was taken to the emergency room after he became lightheaded and fainted.

Feasible abatement methods include, but are not limited to:

1. Provide employees training in appropriate languages (including annual training and training upon rehire) about the effects of heat stress and how to prevent, recognize, and report heat-related illness and implement a record-keeping system to ensure that new employees receive such training, regardless of start date, prior to starting work.
2. Conduct daily pre-shift tailgate meetings on days involving extreme heat, during which employees will be reminded of the effects of heat stress, how to prevent heat-induced illness (such as, but not limited to, taking breaks to drink fluids, rest and protect from overheating, identifying places to cool off and the availability of cool, potable water, and delivery of electrolyte replacement supplies at the worksite) and how to recognize, report, and respond to heat-induced illness.
3. Make air-conditioned trucks available onsite or by calling production managers.
4. Ensure that crew leaders are sufficiently trained to remind and monitor employees of the effects of heat stress, how to prevent heat-induced illness, and how to recognize, report, and respond to heat-induced illness.
5. Provide each employee with a portable card that sets forth the signs and symptoms of heat-induced illness and the elements of appropriate first aid in the event of a heat-induced illness.
6. Perform wellness checks, at 85°F and above, by crew leaders in person and via radio.

Sample Citation No. 3:

MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, ACT 154, P.A. 1974, AS AMENDED, SECTION 11(a):

The employer did not furnish to each employee, employment and a place of employment which was free from recognized hazards that were causing or were likely to cause death or serious physical harm to the employee. Employees in the forging area were exposed to excessive heat during the work shift, and the employer failed to protect employees from the hazards associated with heat stress.

A feasible and acceptable method to correct this hazard is to develop and implement an effective heat stress program that includes, but is not limited to the following:

1. Adequate amounts of cool, potable water and electrolyte replacements in the work area and requiring employees to drink frequently.
2. Work/rest regimen so that exposure time to high temperatures and the work rate is decreased and/or rest periods are increased in length and frequency.
3. A training program informing employees about the effects of heat stress, how to report and recognize heat-related illness symptoms, and how to prevent heat-induced illness.
4. A heat acclimation program for new employees or employees returning to work from extended absences.
5. A cool, climate-controlled area where heat-affected employees may take their breaks and/or recover when signs and symptoms of heat-related illnesses are recognized.
6. Cold air showers in work areas where employees are continuously exposed to heat.
7. Specific procedures to be followed for heat-related emergency situations.
8. Provisions requiring first aid to be administered immediately to employees displaying symptoms of heat-related illness.

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**Appendix F**

**SAFETY/HEALTH RECOMMENDATION**

Michigan Department of Labor and Economic Opportunity  
**MIOSHA**

— General Industry Safety & Health Div.  
 530 W. Allegan St., P.O. Box 30644  
 Lansing, MI 48909-8144  
 Phone: (517) 284-7750  
 FAX: (517) 284-7755

— Construction Safety & Health Div.  
 530 W. Allegan St., P.O. Box 30645  
 Lansing, MI 48909-8145  
 Phone: (517) 284-7680  
 FAX: (517) 284-7685

— Construction Safety & Health Div.  
 Asbestos Program  
 530 W. Allegan St., P.O. Box 30671  
 Lansing, MI 48909-8171  
 Phone: (517) 284-7680  
 FAX: (517) 284-7700

Est. Name:

Insp#:

SO/IH:

List Site Address if Location of Inspection is Different Than Mailing Address:

|  |   |
|--|---|
| <p><b>An inspection/investigation of your worksite revealed the following condition(s) which may constitute a safety or health hazard to your employee(s).</b></p> | <p><b>ACTION TAKEN</b><br/> <b>(To be completed by the employer.)</b></p> |
|--|---|

An inspection of your workplace found that your heat-illness prevention program was deficient. It lacked several necessary elements: [briefly describe or list (i.e., in one sentence) the missing elements.] [Briefly describe employee exposure to heat including dates, number of employees, job titles or work activities, and a summary of the heat exposure assessment.] [If exposure monitoring was conducted, briefly summarize the results including whether exposures were above the ACGIH action level or TLV, and refer to the attached data sheets for additional information.] [Briefly describe any heat-related illnesses and heat-related complaints among employees found by examining employer records and interviewing management and employees.]

To meet its obligations under the Michigan Occupational Safety and Health Act to provide workers with employment free of recognized hazards that can cause death or serious physical harm, including heat-related illness, MIOSHA recommends that [name of employer] take the following actions:

**Written Program** – Develop and implement a written program for the prevention of heat-related illnesses.

[During the investigation, it was noted that: (describe conditions).]

**Exposure Monitoring** – Institute procedures to monitor employee exposure to heat. You should:

- Check the weather report each day for the maximum air temperature, humidity level, and heat index.
- Check the weather report or the National Weather Service website each day for heat advisories and excessive heat warnings.
- Purchase and use a wet bulb globe thermometer to determine employee exposures to heat.
- Observe and monitor employees for factors that affect their heat exposure, such as time spent working versus at rest, time spent in direct sunlight versus shade, time spent in air-conditioned areas, level of physical activity on the job (light, moderate, heavy, very heavy), type of clothing and personal protective equipment, and proximity to hot work processes.
- Compare employee exposures to Action Level and Threshold Limit Value for heat stress exposure from the American Conference of Governmental Industrial Hygienists.

[During the investigation, it was noted that: (describe conditions).]

**Exposure Limits** – Ensure that employee exposures are below the Action Level prescribed by the American Conference of Governmental Industrial Hygienists for most healthy hydrated unacclimatized workers. Ensure that employee exposures are below the Threshold Limit Value prescribed by the American Conference of Governmental Industrial Hygienists for most healthy hydrated acclimatized workers.

[During the investigation, it was noted that: (describe conditions).]

**Ventilation and Air Conditioning** – Use ventilation and air conditioning to decrease employee exposure to heat and to increase evaporative cooling from the skin by raising the air velocity in the work area. You should:

- Increase air velocity in the work area (only when the air temperature is below 98°F).
- Provide personal cooling fans at workstations.
- Provide misting fans at workstations.
- Install or increase general ventilation using wall fans and ceiling fans in buildings.
- Install local exhaust ventilation (hoods) to capture heat-laden air at hot work processes.
- Install local exhaust ventilation (hoods) to capture moisture-laden air at wet or high-humidity work processes.
- Install air conditioning in work areas.
- Install air conditioning in break areas.

[During the investigation, it was noted that: (describe conditions).]

**Engineering Controls** – Use engineering controls to shield employees from radiant heat. You should:

- Reduce the radiant heat emission from hot surfaces.
- Insulate hot surfaces.
- Shield workers from radiant heat.
- For outdoor work, install shaded rest areas (for example, canopies).
- Use mechanical equipment to reduce manual work and physical exertion in the heat (equipment such as backhoes, front end loaders, forklift trucks, and conveyors).

[During the investigation, it was noted that: (describe conditions).]

**Administrative Controls** – Institute work practices to reduce employee exposure to heat. You should:

- Inform workers when the National Weather Service has issued a heat advisory or excessive heat warning.
- Create a work-rest schedule using criteria from the American Conference of Governmental Industrial Hygienists.
- Set maximum exposure times to heat each hour.
- Allow sufficient recovery for employees exposed to heat.
- Require mandatory rest breaks in a cooler environment (such as a shady location, an air-conditioned building, or an air-conditioned vehicle).
- Schedule work at a cooler time of day, such as early morning, late afternoon, evening, or night.
- Reduce physical demands as much as possible by planning the work to minimize manual effort (such as delivering material to the point of use so that manual handling is minimized).
- Rotate job functions among workers to help minimize exertion and heat exposure.

[During the investigation, it was noted that: (describe conditions).]

**Training** – Train supervisors and workers on heat stress with contents tailored to the worksite conditions. Include the following topics in the training program:

- Names and descriptions of each type of heat-related illness.
- Signs and symptoms of each type of heat-related illness.
- What first aid should be rendered for each type of heat-related illness.
- When the signs and symptoms call for emergency medical services.
- The sources of heat exposure in the workplace.



- How physical activity and personal protective equipment increase heat stress.
- Steps employees can take to reduce the risk of heat-related illness including drinking enough water, monitoring the color and amount of their urine output, taking rest breaks in shaded and air-conditioned areas, and wearing appropriate clothing for the hot work environment.
- Effects of other factors (drugs, alcohol, obesity, medications etc.) on tolerance to occupational heat stress.
- The importance of acclimatization. How acclimatization works.
- The importance of immediately reporting any symptoms or signs of heat-related illness in themselves or in coworkers to the supervisor.
- Procedure for contacting emergency medical services.

In addition, training for supervisors should include the following specific elements:

- How to monitor weather reports.
- How to respond to hot weather advisories.
- How to implement acclimatization.
- How to monitor and ensure adequate fluid intake and rest breaks.
- What procedures to follow when a worker has symptoms of heat-related illness, including emergency response procedures.

[During the investigation, it was noted that: (describe conditions).]

**Hydration and Clothing** – Ensure that workers are properly hydrated and have appropriate clothing for the hot work environment. You should:

- Monitor employees for fluid intake.
- Ensure that workers drink an adequate amount of water or electrolyte-containing fluids.
- Ensure that drinking water is easily accessible and near the work area.
- Encourage workers to drink water often.
- Encourage employees to wear clothing appropriate for the hot weather, such as short sleeve shirts, shorts, lightweight and absorbent materials like cotton, light or bright colors to reflect radiant heat, and hats to block the sun. Exceptions are where heavier clothing is needed to protect employees from other hazards.
- Provide and ensure that employees wear cooling devices, such as
  - Insulated suits.
  - Reflective clothing.
  - Infrared-reflecting face shields.
  - Cooling neck wraps.

- Vests that receive cooled air from a vortex tube connected to an external compressed air source.
- Jackets or vests with reusable ice packs or phase change cooling packs in the pockets.
- Fire proximity suits.

[During the investigation, it was noted that: (describe conditions).]

**Medical Surveillance** – Establish a medical surveillance program overseen by a licensed medical professional to prevent heat-related illness.

You should:

- Screen employees prior to employment to ensure they are physically capable of working in the heat and performing the physical activity demanded by the job (in the heat).
- Identify workers at increased risk of heat-related illness due to personal factors (such as age, weight, medical conditions, medications, and lifestyle).
- Have supervisors observe and monitor employees for signs and symptoms of heat-related illness such as fatigue, confusion, disorientation, lightheadedness, lack of coordination, muscle pain, muscle cramps, or flushed skin.
- Institute a buddy system where workers observe each other for signs of heat-related illnesses.
- Promptly provide first aid, medical evaluation, and emergency medical services if an employee begins to exhibit signs of heat-related illness.

[During the investigation, it was noted that: (describe conditions).]

**Acclimatization** – Institute a heat acclimatization program for new and returning employees assigned to the hot work environment. You should:

- Minimize the time spent in the heat for workers unacclimatized to the hot environment.
- Minimize the level of physical activity for workers unacclimatized to the hot environment.
- Gradually increase exposure to the heat and the level of physical activity over the first 1-2 weeks.

[During the investigation, it was noted that: (describe conditions).]

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EMPLOYER'S NOTE: Please give these potential hazards your immediate attention. When you have taken action, please indicate the action taken, sign, and return to the appropriate division. Work Safe... Be Safe!

Employer's Signature:

Date:

The Michigan Department of Labor and Economic Opportunity will not discriminate against any individual or group because of race, sex, religion, age, national origin, color, marital status, handicap or political beliefs.

### Appendix G Heat Index Chart from NOAA

The heat index is what the temperature feels like to the human body when relative humidity is combined with the air temperature. The heat index is a better measure than air temperature alone of the danger posed by extreme heat. To find the heat index, look at the heat index chart below. As an example, if the air temperature is 96°F (found on the top row of the table) and the relative humidity is 65% (found on the left column of the table), the heat index is 121°F. The NWS will initiate alert procedures when the heat index is expected to exceed 100°F (depending on local climate) for at least two (2) consecutive days.

#### NOAA's National Weather Service

#### Heat Index

Temperature (°F)

|     | 80 | 82 | 84  | 86  | 88  | 90  | 92  | 94  | 96  | 98  | 100 | 102 | 104 | 106 | 108 | 110 |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 40  | 80 | 81 | 83  | 85  | 88  | 91  | 94  | 97  | 101 | 105 | 109 | 114 | 119 | 124 | 130 | 136 |
| 45  | 80 | 82 | 84  | 87  | 89  | 93  | 96  | 100 | 104 | 109 | 114 | 119 | 124 | 130 | 137 |     |
| 50  | 81 | 83 | 85  | 88  | 91  | 95  | 99  | 103 | 108 | 113 | 118 | 124 | 131 | 137 |     |     |
| 55  | 81 | 84 | 86  | 89  | 93  | 97  | 101 | 106 | 112 | 117 | 124 | 130 | 137 |     |     |     |
| 60  | 82 | 84 | 88  | 91  | 95  | 100 | 105 | 110 | 116 | 123 | 129 | 137 |     |     |     |     |
| 65  | 82 | 85 | 89  | 93  | 98  | 103 | 108 | 114 | 121 | 126 | 130 |     |     |     |     |     |
| 70  | 83 | 86 | 90  | 95  | 100 | 105 | 112 | 119 | 126 | 134 |     |     |     |     |     |     |
| 75  | 84 | 88 | 92  | 97  | 103 | 109 | 116 | 124 | 132 |     |     |     |     |     |     |     |
| 80  | 84 | 89 | 94  | 100 | 106 | 113 | 121 | 129 |     |     |     |     |     |     |     |     |
| 85  | 85 | 90 | 96  | 102 | 110 | 117 | 126 | 135 |     |     |     |     |     |     |     |     |
| 90  | 86 | 91 | 98  | 105 | 113 | 122 | 131 |     |     |     |     |     |     |     |     |     |
| 95  | 86 | 93 | 100 | 108 | 117 | 127 |     |     |     |     |     |     |     |     |     |     |
| 100 | 87 | 95 | 103 | 112 | 121 | 132 |     |     |     |     |     |     |     |     |     |     |

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

- Caution
- Extreme Caution
- Danger
- Extreme Danger

**IMPORTANT:** The heat index values in the chart above are for shady locations. If a person is exposed to direct sunlight, the heat index value can be increased by up to 15°F. Likewise, the chart assumes light wind conditions. Strong wind conditions when the air temperature is above 95° add to the heat burden of body.

Please note that the heat index does not account for impermeable clothing. The chart above assumes light clothing, which allows for evaporative cooling of sweat from the skin. Insulated or impermeable clothing or equipment (such as hardhats, respirators, earmuffs, gloves, jackets, pants, and suits) reduce the skin surface area available for evaporative cooling and thus create risk of heat-related illness at temperatures lower than those listed in the chart.

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Heat-Related Illness – State Emphasis Program (SEP)

## **Appendix H Outreach Plan**

**Name of Initiative:** State Emphasis Program (SEP) on Heat-Related Illness

**Initiative Liaison:** Eric Zaban **Email:** [zabane@michigan.gov](mailto:zabane@michigan.gov) **Phone:** 517-719-7444

**Date Submitted:** 5/11/2023

**Check all that Apply:**  New/Revised Standard     New Targeted Industry  New Targeted Hazard

**Divisions Involved:**

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Administration | <input type="checkbox"/> Appeals          | <input checked="" type="checkbox"/> CETD<br><b>(Lead)</b> |
| <input checked="" type="checkbox"/> CSHD           | <input checked="" type="checkbox"/> GISHD | <input checked="" type="checkbox"/> TSD                   |

**Purpose/Scope:**

This plan identifies MIOSHA activities that will be completed from effective date of the SEP to the expiration date to educate MIOSHA staff, as well as employers and employees in the State of Michigan, about the implementation of the SEP to identify and reduce or eliminate worker exposures to excessive heat-related hazards indoors and outdoors. The SEP targets specific industries expected to have the highest exposures to heat-related hazards. This outreach program will inform MIOSHA staff, employers, and employees of the SEP and will be conducted for three months at the start of the SEP.

**1. Policy/Procedure**

New or revised MIOSHA policies, procedures, instructions, or interpretations.

Federal OSHA has an Instruction CPL 03-00-024 National Emphasis Program (NEP) – Outdoor and Indoor Heat-Related Hazards. MIOSHA is now adopting the OSHA instruction and NEP as part of its SEP.

**2. Staff Training**

MIOSHA staff training. For example: a new/revised rule, measures to implement the rule, hazard(s) that initiated need for the rules, and/or MIOSHA policy or procedures affected by the rules.

All staff with enforcement or consultation responsibilities under the SEP will need training.

- CETD – outreach presentation will be added to CETD meeting including information on inspection procedures.
- GISHD – inspection procedure presentation will be added to GISHD staff meeting including information on outreach.
- CSHD – inspection procedure presentation will be added to CSHD staff meeting including information on outreach.

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Heat-Related Illness – State Emphasis Program (SEP)

**3. Communication (Check all that apply.)**

Press Release

MIOSHA News – CSHD, GISHD and/or CETD will author one or more heat article(s) during the SEP.

MIOSHA eNews

MIOSHA Website – Update A-Z index to include hyperlink to MIOSHA Heat webpage. Update MIOSHA Heat webpage to include links to updated agency instruction and other available resources not currently linked. Current materials/links:

- Spotlight – Link to resources pages
- MIOSHA Resources
  - New handout Sample Heat Illness Prevention Plan
  - MIOSHA/CET, publication 5964, Guidelines for Combating Heat Stress
- OSHA Resources
  - OSHA, Heat Illness Prevention Campaign
  - OSHA, Safety and Health Topics: Heat

MIOSHA Messenger – When SEP is effective, announcement will be made to MIOSHA staff.

GovDelivery Message – When SEP is effective, CETD will draft announcement to its subscribers.

Social media –

- When SEP is effective, CETD will post announcement to its subscribers.
- As appropriate, promote excessive heat warnings, alerts, and heat advisories issued by the National Weather Service.

Other –

- Include information on no-cost on-site consultation services.
- Review and edit heat content in MIOSHA Training Institute courses (ex. Health Hazards in Construction), as needed.
- Use Heat Illness Prevention PowerPoint presented at the 2022 Michigan Safety Conference, as needed.

**4. Educational Resources (Check all that apply.)**

Promote existing DVDs in lending library and available for MIOSHA staff use.

New reference materials for MIOSHA staff use.

New or revised MIOSHA publications/fact sheets - New handout – Sample Heat Illness Prevention Plan

New or revised MIOSHA presentations/training –

**5. Outreach Activities (Check all that apply.)**

Develop, revise, and conduct training program. Training and Consultation Core Committee to compose / generate training presentation for use by CETD staff.

Consultation. CETD IH staff to discuss outdoor and indoor heat-related hazards with clients as appropriate.

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Heat-Related Illness – State Emphasis Program (SEP)

- Alliances/partnerships with impacted public or private organizations.
  - Contact all alliance partners with potential heat exposures.
  - Target co-sponsors and MVPP companies or alliances (e.g., HBA, CAM, AGC, DTC, Black and Veatch, Holly, Marathon, DTE).
  - Seek participation of MIFACE staff for health effects outreach seminars.
- Letters to target industries – Informing them of CETD services, make them aware of the SEP.
- Targeted enforcement – As specified in SEP.
- No outreach activities needed.

**6. Data Generated (Check all that apply.)**

- Number of training seminars conducted.
- Number of employees trained.
- Number of consultation activities conducted.
- Number of compliance inspections conducted.

**7. Workgroup**

- Create a workgroup to implement outreach plan. Staff from CETD, GISHD, and CSHD to be members.

Anticipated Launch Date: 8/1/2023

Length of Initiative: 1 year