Heat Stress Management Guidelines

For garment, textile, footwear, and accessories manufacturers

Part of *AAFA's Toolkit to Protecting Workers from Heat Stress:*

- **Introduction to the Toolkit**
- **Heat Stress Management Guidelines for Manufacturers**
- **Heat Stress Management Workbook for Manufacturers**, the companion to these guidelines
- **Heat Stress Implementation Guidelines for Brands**
- **Brand Supplier Survey Questionnaire,** the companion to the brand guidelines

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AMERICAN APPAREL & FOOTWEAR ASSOCIATION

Contents

This guidance is a self-management tool for facilities. It is not designed as, and should not be deployed as, an audit or compliance checklist. It sets out a process for facilities to understand and manage their own heat conditions.

Introduction

About the toolkit

This guidelines document is a part of *AAFA's Heat Stress Toolkit*, and should be read in conjunction with the

- **Introduction to the Toolkit**
- **Heat Stress Management Workbook for Manufacturers**, the companion to these guidelines
- **Heat Stress Implementation Guidelines for Brands**
- **Brand Supplier Survey Questionnaire**, the companion to the brand guidelines

Recognizing that production is occurring in regions of extreme heat, this toolkit equips brands and manufacturers with clear policies, monitoring protocols, action plans, and checklists. It is designed to be a practical, implementable guidance that the industry can put to work to both mitigate and adapt to rising temperatures. Recognizing that production is occurring in regions of extreme heat, this toolkit equips brands and manufacturers with clear policies, monitoring protocols, action plans, and checklists. It is designed to be a practical, implementable guidance that the industry can put to work to both mitigate and adapt to rising temperatures.

How to use these guidelines

These guidelines are designed for facility management and Environmental, Health, and Safety teams, though brands are also encouraged to read it while developing their own programs. It is organised around the core elements of a heat stress management plan from understanding what is heat stress, to building a facility heat stress profile, and creating action plans through engineering and administrative controls. Throughout, there are supportive examples and case studies to help the reader understand practically the different ways of applying these guidelines.

We encourage factory or group-level management to

- Use the 5 Steps of Heat Stress Mitigation to frame your overall heat stress policy.
- Convene a cross-departmental team (Engineering, EHS, Compliance, HR, Administration, Medical) to work through the guide and set an organisation-level strategy, customised to your regional and operational context.
- Engage workers early and throughout the process (e.g., through safety committees or existing grievance channels) and co-design both the mitigation and adaptation plan with them.
- Create a roles and responsibilities framework at the factory and group level to ensure the plan is implemented and maintained.
- Maintain open communication with brands regarding heat stress events, resulting delays and disruptions, the purchasing commitments needed to enable investments, and capex, opex support required.

On-site EHS teams:

- Follow the Five Steps in the Heat Stress Mitigation and Adaptation Plan and use the workbook to make your facility heat stress profile, identify hotspots, trigger levels, and action plans.

Brand compliance and sourcing teams:

- Use the brand guidelines and the standard brand supplier survey questionnaire to streamline what is asked of manufacturers.
- Build shared risk, cost, and financial responsibility into your heat stress plans.
- Brands should only make reasonable data requests as stated in the core principles of this toolkit in the introduction.

- Do not treat this as an audit protocol - rather this is a facility's self-management guidelines.
- Work with other brands and MSIs to prevent proliferation of multiple standards.

Credits: Authors & Reviewers

Commissioned by the American Apparel & Footwear Association (AAFA), this toolkit was designed through a collaborative process. The AAFA Heat Stress Working Group—consisting of brands, manufacturers, and worker-advocacy groups—developed the Brand Implementation Guidelines and Supplier Survey. Meanwhile, the Fashion Producer Collective (FPC) facilitated the manufacturer-specific guidelines and workbook. Key contributing authors included Elevate Textiles, Inc., Epic Group, Shahi Exports, and YKK Corporation, with additional review support from Crescent Bahuman Ltd, MAS Capital (Pvt) Ltd, TAL Apparel, Yee Chain International, and the Vaada Hope Foundation.

These documents followed a co-creation model that may itself be a lesson for the industry. The manufacturer toolkit and workbook were written by the people who actually run factories, so the guidance is rooted in operational reality. A secondary board of four manufacturers, a medical doctor, brands and worker-focused civil society organizations then reviewed it. The brand guidelines and survey went through the same test in reverse, with extensive input from manufacturers and civil society. The people who have to use these guidelines were at the centre of designing them, with others there to check the blind spots. (See Introduction document for the full list of authors and reviewers.)

AAFA and the Heat Guidance Working Group (See Introduction document for description of Working Group) will regularly review the AAFA Guide to Protecting Workers from Heat Stress and AAFA Heat Stress Toolkit to incorporate new or update information regarding heat related illness, best practices, or global standards to reflect the most up to date and accurate guidance. This review will culminate in a formal annual public review process that the Heat Guidance Working Group will open in January of each year that will lead to publication of an updated Guidance and Toolkit in April of each year. The updated AAFA Guide to Protecting Workers from Heat Stress and updated Heat Stress Toolkit will include a "Change Record" that will list all items that were updated, added, or deleted.

Understanding Heat Stress

Heat stress occurs when the body cannot balance the heat it generates and absorbs from its surroundings against the heat it can dissipate. It is influenced by environmental conditions — temperature, humidity, radiant heat and air movement — as well as the physical demands of the work and the clothing or personal protective equipment (PPE) worn. As heat exposure and workload rise, the body works harder to regulate temperature, raising heart rate, perspiration, and overall physiological strain.

Heat stress is a **significant occupational health risk**. Excessive heat impairs physical and cognitive performance, increases fatigue, and raises the risk of errors, incidents and injuries. When the body is unable to cool itself, workers may develop heat-related illnesses ranging from cramps and exhaustion to the more severe and potentially fatal heatstroke.

Without timely recognition and intervention, these illnesses can worsen rapidly. Heat-stress perception and impact can vary from person to person due to physiological differences; but this does not diminish the need to set a base standard.

Types of heat-related illness[1]

- **Heat cramps:** painful muscle spasms during or after strenuous activity in hot conditions, commonly in the abdomen, calves, thighs and arms.
- **Heat rash:** skin irritation from hot, humid conditions — small red bumps, typically where clothing restricts airflow.
- **Heat exhaustion:** caused by excessive heat and dehydration; pale, clammy skin, fatigue, dizziness, nausea, rapid pulse and intense thirst. Fainting may occur after prolonged standing.
- **Heatstroke:** a life-threatening failure of temperature regulation. The key sign is an altered mental state (confusion or disorientation) is a key sign that distinguishes heat stroke from heat exhaustion.
- **Heat edema:** swelling of hands, feet and ankles most commonly seen during the first days of heat exposure, before the body has adapted.
- **Chronic effects:** repeated heat exposure with dehydration is associated with chronic kidney disease in hot industries, as well as cardiovascular and respiratory effects.

[1] Source: OSHA (osha.gov/heat-exposure/heat-illness); NIOSH (cdc.gov/niosh/heat-stress/about/illnesses.html).

Recognition and first-response table (ILO)

Reproduce the below table as an A3 poster for every production area, in the languages workers read. To accommodate workers who might not be able to read, ensure posters use enough visual language and/or alternate methods to notify workers.

Both workers and supervisors must be trained on how to identify and address signs of heat stress. These trainings should be refreshed at periodic intervals, but especially before the onset of peak summer months.

Table 10. Response guidelines to identify heat-related illnesses.

These are presented in order of increasing severity/urgency. One or more observations for a given diagnosis indicate a positive determination for that diagnosis.

Mild heat exhaustion	**Worker may say they feel:** Tired/fatigued Thirsty Weak Dizzy Lightheaded Likely to faint with change in posture or prolonged standing Muscle cramps	**Actions to follow:** Inform supervisor Move worker to cool area for recovery Encourage worker to drink water and consume electrolytes If symptoms persist after 15 min., treat as severe heat exhaustion
Severe heat exhaustion	**Signs:** Wobbly walking Slow reaction time Severe fatigue Severe muscle cramps Vomiting or collapse without any signs of heatstroke (see below) **Person may say they feel:** Severe fatigue Loss of appetite Nausea Headache Blurred vision	**Actions to follow:** Move worker to cool / air-conditioned area for recovery Encourage worker to lie down, drink water and consume electrolytes Cover head, neck, and shoulders with towels soaked in ice water and ensure the towels remain cold by re-soaking them every 2-3 min. If no ice/cold water is available, cool the worker's body with the most effective method available Watch for signs of heatstroke If there is little improvement in 15 min., arrange for medical treatment and continue to watch for possible heatstroke
Heatstroke	**Signs:** Collapse/fainting Loss of consciousness Vomiting Erratic/irritable behaviour Confusion/disorientation Garbled/gibberish speech Hysteria/delirium/apathy Shivering Convulsions **Person may say they feel:** Severe fatigue Nausea	**Actions to follow:** This is a situation requiring emergency response. Begin aggressive cooling (cover the worker's body in ice or place in cold/ice water bath). If ice-cold water or ice is not available, flush water over person from hose or shower, or keep the skin wet and fan. It is vital to cool the worker's body with the most effective method available Call emergency services and advise them that it is a heatstroke case

Response guidelines to identify heat-related illnesses (ILO), in order of increasing severity/urgency.

Emergency Response — every facility, every tier, from day one

Heatstroke kills within tens of minutes without cooling. Emergency response cannot depend on maturity level or facility size — every facility should have in place: a written, posted procedure for recognising and responding to heat exhaustion and heatstroke (please refer to this OSHA example Prevent Heat Illness at Work) ; trained first-aiders on every shift, stocked with ice, cold packs and cooling aids; the recognition table above must be posted in every production area, in the languages workers read.

It is also highly encouraged for manufacturers to maintain internal records of heat-related incidents to help study trends and identify gaps in approaches. Any worker who experiences severe heat exhaustion or heatstroke at work must be cleared by a medical professional before returning to work, with acclimatization or adjustments made before they resume.

to the 5 Steps of Heat Stress Mitigation

These five steps will help build your heat-stress management plan. Each step produces an output that feeds into the next: you can choose how you measure, understand your facility's heat pattern, find your hotspots, set levels that should trigger action, and build and activate plans.

In the workbook: *each step has a matching tab in the Heat Stress Management Workbook, and the Checklist tab tracks your progress across all five.*

Where no clear scientific threshold exists, facilities should use their discretion to make decisions that best support their employees. We recognize that this may not entirely support the purpose of having a more consistent, uniform approach but we are also cognizant that there remain technical unknowns that are beyond the ability of this group to solve.

Before you start

1. **Heat Index (HI)** and **Wet Bulb Globe Temperature (WBGT)** are two separate measurement methods which we also explain in the Step 1 Section in further detail — this guide does not ask you to measure one and convert to the other. Read only the column for the method you chose in Step 1, throughout.
2. This is not a compliance or audit exercise: it is a way to understand heat on your own shopfloor to improve working conditions for workers.
3. Workers must be engaged at every stage - involving health & safety committees, reviewing grievances & medical data, and walking the shopfloor and consulting workers, are just as crucial as the data collection process.

The 5 Steps at a Glance

Step	What you do	Output
1 · Choose your method	Pick Heat Index or WBGT and get the equipment.	***A working monitoring set-up***
2 · Build your Heat Profile	Log at set times and read your own heat pattern across the day and the year.	***Your facility's heat pattern***
3 · Map your hotspots	Find the areas that run hotter, using data and judgement together.	***Hotspot register map***
4 · Set your trigger levels	Read triggers off the threshold table for your method.	***Posted trigger levels***
5 · Build & activate action plans	Build facility-wide and hotspot plans, and follow the rule for turning them on.	***Live action plans***

Emergency response is not a step in this process — it applies to every facility from day one; see above the callout in Understanding Heat Stress. Air velocity is an optional factor after the 5 steps.

Step 1 — Choose your monitoring method

Action to take in the workbook: *set HI or WBGT on the Instructions tab — this is a key driver of the whole workbook — and begin entering readings in the Daily Log.*

There are two ways to monitor heat stress. Choose what is viable for your organization now and, where possible, move toward the WBGT method over time.

Key to consider: Whichever you choose feeds next steps. These methods are NOT interchangeable.

Method	What it measures / what you need
Heat Index (HI)	Measure temperature and humidity by reading against the Heat Index lookup chart below. Limitation: HI **does not** account for radiant heat, air movement, or reflective surfaces. Need: digital thermo-hygrometers for each area.
Wet Bulb Globe Temperature (WBGT)	Measured directly with a meter. Also captures radiant heat from machinery and roofs. Limitation: Tracks air movement but only **weakly** (unless using one with an anemometer). Need: a calibrated WBGT meter (handheld or wall-mounted), with logging.

Heat Index Reference Chart — Dual Units (°C / °F)

Values computed using the U.S. National Weather Service Rothfusz regression (NWS SR-90-23). Risk bands per OSHA 'Using the Heat Index: A Guide for Employers'.

SHADE ONLY. Direct sun can raise apparent heat by up to 13.5 °F (7.5 °C).

Relative Humidity (%)

Air (dry-bulb) temperature	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
27 °C / 81 °F	27 °C 80 °F	27 °C 81 °F	27 °C 81 °F	28 °C 82 °F	28 °C 83 °F	28 °C 83 °F	29 °C 84 °F	29 °C 85 °F	30 °C 86 °F	30 °C 86 °F	31 °C 88 °F	32 °C 90 °F	33 °C 91 °F
28 °C / 82 °F	28 °C 82 °F	28 °C 82 °F	28 °C 83 °F	29 °C 84 °F	29 °C 85 °F	30 °C 86 °F	31 °C 87 °F	31 °C 88 °F	32 °C 90 °F	33 °C 91 °F	34 °C 93 °F	35 °C 95 °F	36 °C 97 °F
29 °C / 84 °F	29 °C 83 °F	29 °C 84 °F	30 °C 85 °F	30 °C 87 °F	31 °C 88 °F	32 °C 89 °F	33 °C 91 °F	34 °C 93 °F	35 °C 95 °F	36 °C 97 °F	37 °C 99 °F	39 °C 102 °F	40 °C 104 °F
30 °C / 86 °F	30 °C 85 °F	30 °C 87 °F	31 °C 88 °F	32 °C 89 °F	33 °C 91 °F	34 °C 93 °F	35 °C 95 °F	36 °C 97 °F	38 °C 100 °F	39 °C 102 °F	41 °C 105 °F	43 °C 109 °F	44 °C 112 °F
31 °C / 88 °F	31 °C 88 °F	32 °C 89 °F	33 °C 91 °F	34 °C 93 °F	35 °C 95 °F	36 °C 97 °F	38 °C 100 °F	39 °C 103 °F	41 °C 106 °F	43 °C 109 °F	45 °C 112 °F	47 °C 116 °F	49 °C 120 °F
32 °C / 90 °F	32 °C 90 °F	33 °C 92 °F	34 °C 94 °F	36 °C 96 °F	37 °C 99 °F	39 °C 102 °F	40 °C 105 °F	42 °C 108 °F	44 °C 112 °F	47 °C 116 °F	49 °C 120 °F	51 °C 125 °F	54 °C 129 °F
33 °C / 91 °F	34 °C 93 °F	35 °C 95 °F	36 °C 97 °F	38 °C 100 °F	40 °C 103 °F	41 °C 107 °F	43 °C 110 °F	46 °C 114 °F	48 °C 119 °F	51 °C 123 °F	54 °C 128 °F	57 °C 134 °F	60 °C 139 °F
34 °C / 93 °F	35 °C 96 °F	37 °C 98 °F	38 °C 101 °F	40 °C 104 °F	42 °C 108 °F	44 °C 112 °F	47 °C 116 °F	49 °C 121 °F	52 °C 126 °F	55 °C 131 °F	58 °C 137 °F	62 °C 143 °F	66 °C 150 °F
35 °C / 95 °F	37 °C 99 °F	39 °C 102 °F	41 °C 105 °F	43 °C 109 °F	45 °C 113 °F	48 °C 118 °F	50 °C 123 °F	53 °C 128 °F	57 °C 134 °F	60 °C 140 °F	64 °C 147 °F	68 °C 154 °F	72 °C 161 °F
36 °C / 97 °F	39 °C 102 °F	41 °C 106 °F	43 °C 110 °F	46 °C 114 °F	48 °C 119 °F	51 °C 124 °F	54 °C 129 °F	58 °C 136 °F	61 °C 142 °F	65 °C 149 °F	69 °C 157 °F	74 °C 164 °F	78 °C 173 °F
37 °C / 99 °F	41 °C 106 °F	43 °C 110 °F	46 °C 114 °F	48 °C 119 °F	51 °C 125 °F	55 °C 130 °F	58 °C 137 °F	62 °C 144 °F	66 °C 151 °F	70 °C 159 °F	75 °C 167 °F	80 °C 176 °F	85 °C 185 °F
38 °C / 100 °F	43 °C 110 °F	46 °C 115 °F	49 °C 119 °F	52 °C 125 °F	55 °C 131 °F	59 °C 137 °F	63 °C 145 °F	67 °C 152 °F	71 °C 160 °F	76 °C 169 °F	81 °C 178 °F	87 °C 188 °F	92 °C 198 °F
39 °C / 102 °F	46 °C 114 °F	49 °C 119 °F	52 °C 125 °F	55 °C 131 °F	59 °C 138 °F	63 °C 145 °F	67 °C 153 °F	72 °C 161 °F	77 °C 170 °F	82 °C 180 °F	88 °C 190 °F	94 °C 201 °F	100 °C 212 °F
40 °C / 104 °F	48 °C 119 °F	51 °C 124 °F	55 °C 131 °F	59 °C 137 °F	63 °C 145 °F	67 °C 153 °F	72 °C 161 °F	77 °C 171 °F	83 °C 181 °F	88 °C 191 °F	95 °C 202 °F	101 °C 214 °F	108 °C 226 °F
41 °C / 106 °F	51 °C 124 °F	54 °C 130 °F	58 °C 137 °F	62 °C 144 °F	67 °C 152 °F	72 °C 161 °F	77 °C 171 °F	83 °C 181 °F	89 °C 191 °F	95 °C 203 °F	102 °C 215 °F	109 °C 228 °F	116 °C 241 °F
42 °C / 108 °F	54 °C 129 °F	57 °C 135 °F	62 °C 143 °F	66 °C 151 °F	71 °C 160 °F	77 °C 170 °F	82 °C 180 °F	88 °C 191 °F	95 °C 203 °F	102 °C 215 °F	109 °C 228 °F	117 °C 242 °F	125 °C 257 °F

Lower (Caution)
< 91 °F / < 32.8 °C
Basic heat safety & planning

Moderate
91–103 °F / 32.8–39.4 °C
Implement precautions; increase monitoring

High
103–115 °F / 39.4–46.1 °C
Additional precautions; mandatory work/rest cycles

Very High to Extreme
> 115 °F / > 46.1 °C
Aggressive protections; reschedule non-essential work

OSHA action triggers:
'Using the Heat Index' guide: implement heat illness prevention plan when HI ≥ 80 °F (26.7 °C). Proposed rule (2024): initial trigger HI 80 °F (26.7 °C); high-heat trigger HI 90 °F (32.2 °C).

How to read: find the row for the air (dry-bulb) temperature, find the column for the relative humidity — the cell gives the Heat Index in both °C and °F.
Applicability: shade only; low wind; measured air temperature and RH. Add up to 7.5 °C (13.5 °F) to the tabulated HI for full-sun exposure.
Heat Index does NOT account for radiant heat from machinery (boilers, presses, dryers), for air movement from fans, or for workload. For factory hot zones, use WBGT directly.
Sources: Formula — U.S. National Weather Service (Rothfusz LP, 1990, NWS Southern Region Tech. Attachment SR-90-23). Risk bands — OSHA 'Using the Heat Index: A Guide for Employers'. Numbers tabulated by rendering that formula; only layout is custom.

Heat Index reference chart, dual units (°C/°F) — shade only; direct sun can raise apparent heat by up to 13.5 °F (7.5 °C).

Reading the chart: find the column for your relative humidity (%) and the row for your air (dry-bulb) temperature; the cell gives a Heat Index value, colour-coded to the risk level. Confirm the working units (°C/°F) match your thermometers

Limitations to note

- **HI is blind to radiant heat and air movement.** Near presses, boilers, dryers or a hot roof, true heat strain is higher than HI shows — measure those areas with WBGT where you can.
- **WBGT** captures radiant heat but only weakly captures air movement (see the air-velocity note after Step 5).
- **Both are screening tools.** Read them alongside worker feedback and the signs of heat strain (refer to earlier section on Understanding Heat Stress), not in isolation.

Step 2 — Build your Facility Heat Profile

Action to take in the workbook:

- *Add your production areas in Instructions tab*
- *Enter readings in the Daily Log;*
- *The Facility Heat Profile tab builds your averages, peaks and % of time in each band, by area, once you've entered a time period for which you want the analysis.*

Your Facility Heat Profile is a picture of how heat behaves across your site — by area, by time of day and across the year.

Key to consider: It is not a "baseline" you set a target against. It is your own data, which you own and use to understand your conditions and plan your monitoring and controls.

- **Seasonal heat:** where heat is largely seasonal, log data for the months that historically (and recently) represent your high-heat period.
- **Year-round heat:** where high temperatures persist for much of the year, log data for the full calendar year.
- **Document why** you chose that window — it should reflect the periods of greatest heat exposure.

How to log

Log at the same time every day, so readings are comparable and can be graphed:

- **Recommended:** twice a day — [for example: around 11 am (as heat builds) and around 2–2:30 pm (typical peak)]
- **Minimum:** a single daily reading (logged in the workbook or any other internal systems) at the hottest time is acceptable if that is what you can sustain.

How two facilities might do it

Facility X (seasonal heat) logs once a day at 2:30 pm — its hottest point — through the hot months.

Facility Y logs at 11 am and 2 pm. The two readings tell it whether heat is only an afternoon peak, or already a problem by late morning — more suitable for areas with chronic heat.

Read your data

Use the data you have logged to detect and understand patterns. A few examples of analyses:

- Is heat a short afternoon peak or an all-day problem?
- Look month-on-month to pinpoint your extreme-heat months.
- Percentage of readings that fall in each risk band (low / moderate / high / very high) for each area.

Key to consider: Use your judgement to set your ongoing monitoring plan — which sections to watch, at what times and for how long — to shape your action plans. (The workbook's Heat Profile tab does these auto-calculations for you.)

Step 3 — Map your hotspots

Action to take in the workbook: *The Hotspots tab shows the data signal (% HIGH+ and peak) for each area — add work intensity, worker and medical signals, and your walk-through, then record the hotspot decision.*

Hotspots are areas that run consistently hotter than the rest of the facility and require their own approach. Identifying them should be a triage exercise rather than a single calculation — read the numbers alongside other signals including worker feedback and compliance team inputs and medical data. Do not rely on a single data point.

How to find them

- **Start from your Facility Heat Profile:** which areas sit consistently in the higher bands? The percentage of time an area spends in each risk band is a useful signal, but is not the whole answer.
- **Weigh work intensity:** hotter, harder jobs carry more risk at the same temperature. Ironing, pressing and boiler work are hot and intense; sewing is relatively less intense. Treat a high-intensity work area as a hotspot as well, even at a lower-temperature environment than a light-intensity work area.
- **Cross-check with worker and health signs:** which areas generate more heat-related grievances and/or safety observations, and where do heat-illnesses and/or medical cases cluster? Use your existing grievance and reporting channels.
- **Walk the floor:** verify potential hotspots on-site and identify areas affected by equipment heat, poor airflow, direct sunlight, high humidity, or confined spaces.
- **Pinpoint the source:** once a hotspot is verified, a low-cost infrared surface thermometer can help identify the specific heat source (e.g., a dryer, fusing machine, or unshielded steam line), allowing facilities to implement targeted controls such as shielding, insulation, or local exhaust.

Example

Facility X reviewed three years of safety-observation data to see which facilities and areas reported the most heat-related observations, and used that — alongside temperature data — to create its hotspot list. Looking beyond the index data is what makes this exercise realistic.

CASE STUDY

Supplemental approaches for hotspot identification

Read the case study →

Frequency of Measurement

Measure hotspots on the same schedule as your daily log (once or twice a day — your choice). Measure a confirmed hotspot more often if useful — for instance to check whether a new control is working. Re-assess them after equipment, process, or layout changes, or when incidents cluster in an area.

Step 4 — Understand thresholds and set triggers

Action to take in the workbook: *the Thresholds tab holds both tables and applies the one for your method (HI or WBGT) automatically; the Daily Log then classifies every reading for you.*

Use the below threshold tables to know when an area crosses into a higher risk level — the point that activates the matching action plan in Step 5. Follow the table that aligns with your measurement method.

Heat Index thresholds

Heat Index	Risk level
Below 32.8 °C (91 °F)	**LOW**
32.8 – 39.4 °C (91 – 103 °F)	**MODERATE**
39.4 – 46.1 °C (103 – 115 °F)	**HIGH**
Above 46.1 °C (115 °F)	**VERY HIGH / EXTREME**

WBGT thresholds

Follow below occupational heat table from NIOSH and adapted by OSHA.

WBGT	Risk level
Below 25 °C (77 °F)	**LOW**
25 – 28 °C (77 – 82 °F)	**MODERATE**
28 – 30 °C (82 – 86 °F)	**HIGH**
Above 30 °C (86 °F)	**VERY HIGH / EXTREME**

Heat stress recommendations, adapted from NIOSH guidelines (2016).

Adapt to your region

These thresholds rest on OSHA guidance developed primarily for North American conditions. We encourage the OSHA basis for consistency, but it is U.S.-centric: applicability varies with climate, humidity, solar radiation, and workforce acclimatisation. Apply professional judgement, and consult national, regional, and local regulations to set thresholds representative of your operating environment. Where national or local law is more strict, national or local law applies.

Step 5 — Build and activate your action plans

Action to take in the workbook: *build your plans in the Facility Action Plan and Hotspot Action Plan tabs, and record each level change in the Daily Log.*

Build strategic plans for hotspots and build trigger-based facility-wide plans

When preparing these plans, refer to the controls in the Controls Menu (next section) and the templates in the workbook:

- **Facility-wide, trigger-based plan (linked to Step 4):** Prepare a specialized plan for each risk level that should be triggered when a non-hotspot area exceeds the given level — Moderate, High, Very High / Extreme.

> **Key to consider:** Trigger-based measures are likely to be administrative (rest, recovery, hydration, work-rest cycles, buddy pairs, communication) but the selection of these measures might need to vary based on the department and the nature of work. Plans must state which specific measures activate at each level and who owns them.

- **Hotspot plan:** After mapping your hotspots in Step 3, prepare a tailored plan for each hotspot, linked to that area's specific heat sources.

> **Key to consider:** These areas would still be subject to facility-wide plans when triggered. However, once hotspots have been identified, you should decide on a set of controls (engineering and administrative) to deploy to mitigate the heat stress. These strategies can be revised alongside the hotspot assessment each year.

> **Overall note**
> Most level-triggered measures are administrative — rest, recovery, hydration, work-rest cycles, buddy pairs, communication. Post the triggers and response needed in every hotspot and at the main production entrances.

Activate the plans — every reading has a level

Every reading has a level — do what that level says

Take each scheduled reading to the Step 4 table. Whatever band it lands in is that area's level (Moderate, High, Very High / Extreme) now — follow that level's plan.

The alert level (Moderate, High, or Very High/Extreme) and any associated actions remain in effect until the next scheduled measurement. The new measurement determines whether the alert level stays the same, increases, or decreases.

Key to consider: LOW is normal operations (*low is defined as per the thresholds given by OSHA)* — no plan needed. Measure hotspots the same way; workers follow the level of the area they are standing in.

Day-to-day vs over time

Day to day, the reading sets the level and that level's plan — mostly administrative (rest, hydration, work-rest) — turns on. Over time, a level that keeps recurring in the same area is your Facility Heat Profile telling you administrative measures alone are not enough there; that is when you look at engineering controls. We do not fix a percentage for this — persistent recurrence, read from the profile and the floor, is the signal.

Anticipate by measuring more often

Increasing measurement frequency is the only early-warning mechanism — forecasts, advisories and worker complaints do not trigger plans on their own; they tell you to measure more often so you catch a level change sooner. Step up frequency when a heat wave or advisory is declared, when a forecast puts you above Moderate within 24 hours, or during your peak-heat months. The measured value stays the trigger.

Log every change

Record each level change in two or three lines — date and time, area, the reading, the level, and who activated it. If the facility has an existing internal EHS record-keeping system, log these changes here. If not, facilities may utilize the workbook through the ‘Checklist’ and ‘Daily Log’ tabs.

Example

Area A reads LOW on Monday — normal operations, no plan. On Tuesday it reads MODERATE: activate the Moderate plan and start watching the area more closely — if a heat wave is forecast, measure more often so you catch any further rise. On Wednesday it reads HIGH: switch to the High plan.
If Area A keeps landing in HIGH day after day, that recurrence is your signal to go beyond the daily plan — measure more frequently, and look at what engineering controls — especially those that are readily available and could be deployed rapidly — could bring the readings down, or what added administrative support workers need during those high-heat hours. Build those measures from the Controls Menu, using the template in the workbook.

CASE STUDY
Case study on integrating action plan documentation into existing efforts
Read the case study →

Additional Information: After the 5 Steps — Can Consider Air Velocity (optional)
Beyond these 5 steps, facilities can also consider air velocity if they want to monitor and manage ventilation more closely. To measure air velocity, they could pair their meter with a cheap, locally available anemometer (one kit per facility is usually enough; spot-check hotspots during peak windows).

Air velocity does not have an impact on the HI/ WBGT numbers but well-distributed airflow improves how workers feel, under most conditions, without moving the reading.

It tells you whether you have exhausted ventilation as an engineering lever or still have room, and whether airflow is even across the floor.

Summary of the 5-Step process

Step	What you do	Frequency
1 · Choose your method	Choose Heat Index or WBGT and get the equipment.	*Review annually.*
2 · Facility Heat Profile	Log at set times; read your heat pattern by time of day and month.	*Full year or hot months; refresh after a very hot season.*
3 · Map your hotspots	Find hotter areas using data, work intensity, grievance & medical signals, and floor walk-throughs.	*As daily log; re-assess after changes or incidents.*
4 · Set trigger levels	Set Low / Moderate / High / Very High from the threshold table for your method.	*Before the hot season; adapt to the local context.*
5 · Build & activate plans	Build facility-wide and hotspot plans; activated by the "every reading has a level" rule.	*Updated as hotspots or thresholds change.*

Controls Menu

Choose based on feasibility and impact in your own setting and use them to build the facility-level and hotspot-level action plans in Step 5.

Key to consider: Measures are split into administrative and engineering controls, and each is classified as Basic, Intermediate or Advanced by increasing complexity.[2] That classification is influenced by capital and operating cost, additional resource needs, structural changes, and ease of implementation. Most facilities will use a combination of measures across the tiers.

Factors influencing implementation approach

- Monitoring, worker grievances, heat-stress incident patterns, and facility profiling all help identify which controls are needed where, and when to escalate to additional ones.
- Facilities in year-round heat need controls in place for longer periods; facilities with episodic heat should watch triggers and worker comfort closely, given reduced acclimatisation on sudden hot days.
- When thresholds are breached, reassess how controls — especially administrative ones — need to change.
- For engineering controls, work from your risk assessment and speak to professional cooling and ventilation specialists to determine what is most feasible given cost, infrastructure, and context.

Emergency response is not on this menu — it is mandatory for all facilities; see the callout above in Understanding Heat Stress, above.

Administrative controls

Implementing administrative controls through these progressive tiers lets facilities systematically strengthen worker protection — improving worker knowledge, reducing exposure, and supporting informed decisions.

[2] The Basic / Intermediate / Advanced tiers describe the complexity of implementation, not the level of protection owed to workers. A Basic-tier facility must protect workers to the same standard as an Advanced-tier one. Acclimatisation, emergency response and basic monitoring are therefore placed at Basic regardless of facility size, because they are low-cost and can be high-impact.

Hydration & sanitation

Measure	Level	Description
Access to hydration	**Basic**	Readily accessible cool, sanitary drinking water within easy reach of every worker. Electrolyte drinks or water-rich diets during high-heat conditions made available in canteens/break-rooms/high-contact areas (e.g., ORS, buttermilk, or other locally available sources). Additional quality checks of food served to limit spoilage from heat.
Hydration management	**Basic**	Encourage adequate hydration.[3] After roughly two hours of heavy sweating, plain water is insufficient — provide electrolytes[4]. Do not force a worker to drink beyond thirst: over-drinking dilutes blood sodium and can cause confusion, seizures, and death. Post a urine-colour chart (refer to these examples by the NHS and the CDC) in every toilet so each worker can judge their own need.[5]
Bathroom access & hygiene	**Basic**	Workers may use toilets whenever needed, without seeking permission; keep bathrooms well maintained. Without safe, accessible sanitation, hydration policies fail as workers limit their water intake to avoid using substandard facilities.

Work organization & scheduling

Measure	Level	Description
Acclimatization	**Basic**	Acclimatise new and returning workers to the heat, with a schedule set to their prior experience, location, and time away from work — letting workers adjust without overstressing their physical limits.
Exposure management	**Intermediate**	Schedule work during cooler hours where possible; schedule maintenance in hot areas and outdoor activities during cooler periods; limit overtime during heat waves.
Work-rest regimens	**Intermediate**	Implement formal work-rest cycles. Empower workers to take breaks in line with self-monitoring; provide additional recovery breaks during extreme heat. Raise these trade-offs directly with buyers — rest and recovery during peak heat reduces line output, and targets, lead times and incentive structures need to reflect that.
Job rotation & staffing	**Intermediate**	Rotate workers to reduce cumulative heat exposure; reduce the duration of continuous hot-work assignments.

[3] How much hydration a person needs depends on body size, fitness, medication and acclimatisation — and acclimatised workers sweat more, not less, so they need more water, not less.

[4] Electrolytes are crucial because sweat contains salt, sodium, and potassium which are then lost as sweating increases. Drinking plain water only replaces fluid, but can dilute the remaining salt in the blood causing low sodium. This could result in a dangerous condition called Hyponatremia. Intense sweating also burns energy stores which electrolytes and carbohydrates could help replete.

[5] Suggested water intake volumes per hour of work in heat: light work approx. 0.5 L; moderate 0.5–0.75 L; heavy 0.75–1 L. Never more than 1.5 L in any single hour. If a worker needs more than about 6 L across a shift, the heat controls have failed and the area needs engineering intervention.

Buddy system	**Intermediate**	Implement buddy systems for high-heat tasks; encourage partner monitoring during peak heat conditions.

Cooling & PPE

Measure	Level	Description
Clothing	**Basic**	Encourage — or, where feasible, provide — lightweight, loose-fitting, breathable clothing.
PPE	**Intermediate**	Assess the potential to prioritise PPE that minimises heat stress.
Recovery areas	**Intermediate**	Provide shaded rest areas and cooled recovery rooms, particularly for operationally hot areas.

Training & preparedness

Measure	Level	Description
Training & awareness	**Basic**	Workers: heat-illness symptoms and recognition, types of illness, judging hydration by urine colour, prevention, dehydration risk factors, reporting, first aid. Management: escalating incidents, monitoring conditions, assessing risk, protective measures, emergency response, authority to stop work. Medical staff: recognising and treating heat illness, rapid cooling, referral protocols, recordkeeping. Refresh periodically — especially before peak summer — and deliver in local languages.
Self-monitoring	**Basic**	Encourage workers to recognise and report symptoms to supervisors/medical staff, and to watch coworkers for signs of heat illness. Periodic public announcements reminding workers to hydrate, watch for signs, and rest/observe symptoms after work hours.
Heat-illness protocol	**Basic**	Maintain stocked first-aid provision (ice, cold packs, cooling aids); ensure medical staff is trained for first-aid and immediate response. Keep a written, posted procedure (see Emergency Response and refer to this example by NIOSH) plus a protocol for summoning medical assistance. Post across hotspots, breakrooms, bathrooms, canteens. Keep records of all heat-related incidents.
Additional medical checks	**Intermediate**	Where possible, conduct periodic medical surveillance/screening (e.g., renal function checks) for workers with long-tenure exposure in hot areas.

Worker Engagement and Empowerment

Measure	Level	Description
Worker Voice	**Basic**	Encourage early reporting of heat-stress concerns without fear of reprisal; provide structured reporting mechanisms alongside verbal reporting; include worker feedback in heat-stress planning.
Right to stop work	**Basic**	A worker who feels unwell in heat can stop, rest, and drink without fear of consequences. Supervisors may act on a worker's condition without seeking approval first; management must emphasise this.
Employee Safety & Health Committee	**Intermediate**	Involve employees through a Safety & Health Committee to gather employee input on heat-related issues, support continuous improvement efforts, and reinforce heat-stress awareness and training activities.
Health-based work assignment	**Intermediate**	Workers with increased susceptibility must be offered additional protection, not removed from work: enhanced supervision, more frequent rest breaks, priority access to cooled recovery areas, additional hydration, modified schedules, targeted health monitoring, and — at the worker's request — temporary reassignment to a cooler task at no loss of pay. Susceptibility may be increased by medical conditions, certain medications, age, body mass, pregnancy, and previous heat illness. See Protecting Vulnerable Workers, below.

CASE STUDY
Case studies on utilizing employee reporting mechanisms
Understand how manufacturers are leveraging digital platforms to capture worker insights and feedback around heat stress
Read the case study →

Engineering controls

Engineering controls can be highly effective at improving thermal conditions. They address one of the four factors driving heat stress — ambient temperature, humidity, radiant heat, and air movement — but, depending on type, may require infrastructural changes that are not feasible for every facility. Within each category, measures run from basic to advanced.

Building envelope

Measure	Level	Description
Whitewash the roof	**Basic**	The lowest-cost cool-roof option, and often the fastest payback of any heat control.
Shade west-facing façades & windows	**Basic**	Use external shading, louvres or vegetation to cut afternoon solar gain.
Cool-roof paint	**Basic-Intermediate**	Apply heat-resistant/reflective paint; choose high-SRI-value sheets and colours. More durable than whitewashing, less resource-intensive than roofing shells.
Insulated roofing shells	**Intermediate**	Heavily insulated roofing shells with reflective bottoms and under-roof insulation barriers; avoid direct skylights.
Low-conductivity materials	**Advanced**	Use alternative building materials with lower thermal conductivity.

Ventilation

Measure	Level	Description
Optimise existing openings	**Basic**	Ensure vents, doors and windows function well, and leverage existing open-air areas.
Night-purge ventilation	**Basic**	Open the building overnight to flush accumulated heat before the shift starts.
HVLS / turbo fans	**Basic**	Move air across the floor to provide relief to workers. In hot-dry conditions above roughly 35 °C air temperature, fans can add heat rather than relieve it.
Vents, ducts & screens with exhaust fans	**Intermediate**	Draw air in during early mornings and push hot air out as temperatures rise through the day; exhausts also help other solutions (e.g., fans) provide cooler drafts at consistent speed.
Roof turbines / ridge vents	**Intermediate**	Exhaust hot air by natural convection; no additional running costs.

Cooling

Measure	Level	Description
Localised cooling rooms	**Intermediate**	Build localised, covered cooling rooms for rapid heat recovery, especially for workers in high-heat areas.
Individual-level cooling	**Intermediate**	Access to cold/chilled water, especially in hotspots; personal cooling aids (cooling vests, towels, table fans) where viable. Effectiveness of wearables depends on the product — assess feasibility before deployment.
Misting / evaporative cooling	**Intermediate-Advanced**	Works best in dry heat. In humid conditions it adds moisture to already-saturated air and gives little benefit — fans are the better control in humid heat, evaporative cooling in dry heat.

Air conditioning	**Advanced**	Effective for dedicated areas, but constrained by cost, emissions and context — see note below.

Managing heat at source

Measure	Level	Description
Mechanical & assistive aids	**Basic**	Aids for heavy lifting and carrying. Reducing physical effort reduces the worker's own metabolic heat — a heat control, not only an ergonomic one.
Insulation & radiation barriers	**Intermediate**	Insulate and/or create radiation barriers around high-heat machinery such as fusing machines, boilers, and steam lines.
Local exhaust ventilation	**Intermediate -Advanced**	Extraction hoods directly over heat-generating machines, capturing hot air at source before it circulates. The highest-value engineering control for radiant hot spots.
Layout optimisation	**Advanced**	Relocate, enclose, or shield high-heat machinery.

Nature-based

Measure	Level	Description
Greenery & vegetation	**Intermediate**	Plant vegetation / green cover suited to the region, with documented cooling benefits.

Note: Air conditioning

- **Nature of work:** AC may not suit all areas — dedicated cooling areas that workers can access are often more practical than a blanket approach.
- **Cost:** typically very large upfront capital plus higher operating costs, often infeasible without support.
- **Emissions:** AC greatly increases electricity use; without matching renewable energy, it raises manufacturing emissions — and adding renewable capacity escalates cost further.
- **Cultural barriers:** workers often return to hot living conditions without AC, and may be hesitant to switch between cold and hot environments daily.

Note: Maintenance and routine checks

Before the onset of peak summer months, work with engineering and plant maintenance teams to conduct checks of all existing measures to confirm they are in optimal working condition.
For example, check all ventilation ducts to monitor the air draft. Ensure there is sufficient time for repair and/or replacement if needed.

Protecting Vulnerable Workers

This section identifies workers who may need additional protection and accompanies the Controls Menu above. Identifying a worker as more susceptible to heat creates a responsibility to PROTECT them better — it must not be grounds to exclude them from work, reassign them without consent, or reduce their earnings.

Who may need additional protection?

Pregnant or breastfeeding workers; older workers; workers with underlying medical conditions or taking certain medications; workers not yet acclimatized; workers with previously documented heat illness *(especially at work)*; and workers with additional physiological demands.

Workers may be considered unacclimatized if they are new to the job, newly assigned to hot work, returning from an extended absence, or have not had regular exposure to similar heat conditions in recent weeks.

Key: Identify vulnerable workers through workplace risk assessment, with the worker's knowledge and consent. Keep any health and medical condition information strictly confidential and held only by those who need it to provide protection. Never use susceptibility as grounds for adverse treatment of any kind.

The additional protections

Where appropriate and feasible:

- Enhanced supervision
- More frequent rest breaks
- Priority access to cooled recovery areas
- Additional hydration
- Modified schedules
- Targeted health monitoring during elevated heat
- Longer acclimatization periods

Women and heat stress

Women may experience heat stress differently from men due to physiological differences affecting thermoregulation, hydration needs, and cardiovascular response. Individual factors include body composition, fitness level, hormonal changes, and reproductive-health status.

- *Linkages with menstrual health.* Menstrual cycles can also be influenced by heat tolerance, as hormonal fluctuations may affect body temperature regulation, while symptoms such as fatigue, headaches, dizziness, nausea, or heavy menstrual bleeding may reduce comfort and tolerance for physical work in hot conditions. Women may also require more frequent access to restroom facilities for hydration and sanitation management Employers should ensure prevention measures are inclusive and provide adequate hydration, rest breaks, access to cooling areas and sanitation facilities, as well as heat-stress awareness training. These differences are grounds for better provision and must not be used to restrict the work women are permitted to do.

- *Pregnant workers.* Pregnancy increases the likelihood of heat stress and dehydration; the body must work harder to regulate temperature, and excessive heat can raise core body temperature. Elevated heat exposure has been associated with adverse pregnancy outcomes including preterm birth, low birth weight, stillbirth, and certain birth defects.

Employers should provide accommodations on request, at no loss of pay: additional hydration breaks; access to cooled recovery areas; reduced heat exposure; modifications to physically demanding tasks; opportunities to seek medical evaluation; and temporary reassignment to a cooler task at the worker's request with no reduction in earnings.[6]

[6] Source: CDC (Heat Stress and Workers | Heat Stress | CDC); Baker at., 2020 (Temperature regulation in women: Effects of the menstrual cycle - PubMed); OSHA (Prevent Heat Illness Among Pregnant Workers); NIOSH (About Heat Exposure and Reproductive Health | Reproductive Health | CDC)

Best Practices

Heat-stress management is a complex, urgent area. We encourage facilities to track how this area continues to evolve, especially with the emergence of new cooling solutions. Moreover, cross-sectoral exchange would be vital as the industry navigates a rapidly changing climate.

- **Risk assessment:** review key risk areas and hotspots periodically, especially at the onset of peak summer — particularly in India, Bangladesh, Sri Lanka, Pakistan, Cambodia, Viet Nam, Indonesia and China.
- **Accountability:** clearly identify who is accountable and responsible for each part of the plan, from risk assessment through monitoring, threshold review and control selection.
- **Budgeting and planning:** model the capital and operating implications to determine the most financially viable combination of solutions. Review the budget each year against maintenance needs, revised risk assessments, and cost escalations, and run maintenance checks of all engineering controls before peak summer.
- **Documentation:** articulate the heat-stress management policy clearly to support buyer queries and internal alignment; retain flexibility to select localised controls provided the protective outcome is achieved; document organisation-level changes and the measures each facility adopts annually.
- **Escalate to & engage brands early:** flagging serious heat events, the financial support and purchasing commitments needed for high-capex or high-opex controls, and any delivery adjustments before they become crises.
- **Incident reporting:** A facility may document: the incident classification; heat stress as a contributing cause; contributing factors identified during investigation; and corrective actions implemented. This supports incident investigations, trend identification, and evaluation of risk-reduction opportunities.
- **Trend monitoring:** track patterns in average HI/WBGT alongside heat incidents; document incidents and remediation across facilities; analyse frequency, severity and recurring trends to find systemic risks, evaluate control effectiveness and drive improvement.

Implementation examples from facilities that have put reporting and hotspot-mapping approaches into practice are collected in Case Studies, for reference.

Case Studies

Illustrative approaches from facilities that have implemented reporting and hotspot-mapping practices referenced elsewhere in this guide — worker reporting mechanisms feed the Worker empowerment controls, and hotspot mapping feeds Step 3. Kept separate from the working sections above since these are examples to draw on, not steps to complete.

Employee reporting mechanisms

One manufacturing organization has locations that use a digital Safety Observation platform, letting workers report concerns anonymously. Other locations use paper-based observation cards or other anonymous reporting methods — digital apps (e.g., Microsoft Power Apps, SafetyCulture), locally developed systems, or written reporting, depending on what tools a site has. These platforms support proactive identification of heat-stress conditions, reporting hazards before an illness or injury occurs.

Another manufacturer uses an anonymous digital worker-voice tool where workers can call in to share grievances or suggestions — for example, a need for more fans, or maintenance where a control isn't functioning. This gives the facility firsthand information on gaps that complements more typical monitoring methods such as facility profiling.

Data management for paper-based observation cards

At facilities using paper-based Safety Observation cards, a common practice is to transfer information from completed cards into a centralized electronic database or spreadsheet; some sites enter observations directly into a digital platform, others maintain facility-level tracking logs. Centralizing information lets the facility review trends over time, identify recurring concerns, and share information more effectively among stakeholders.

Incident reporting

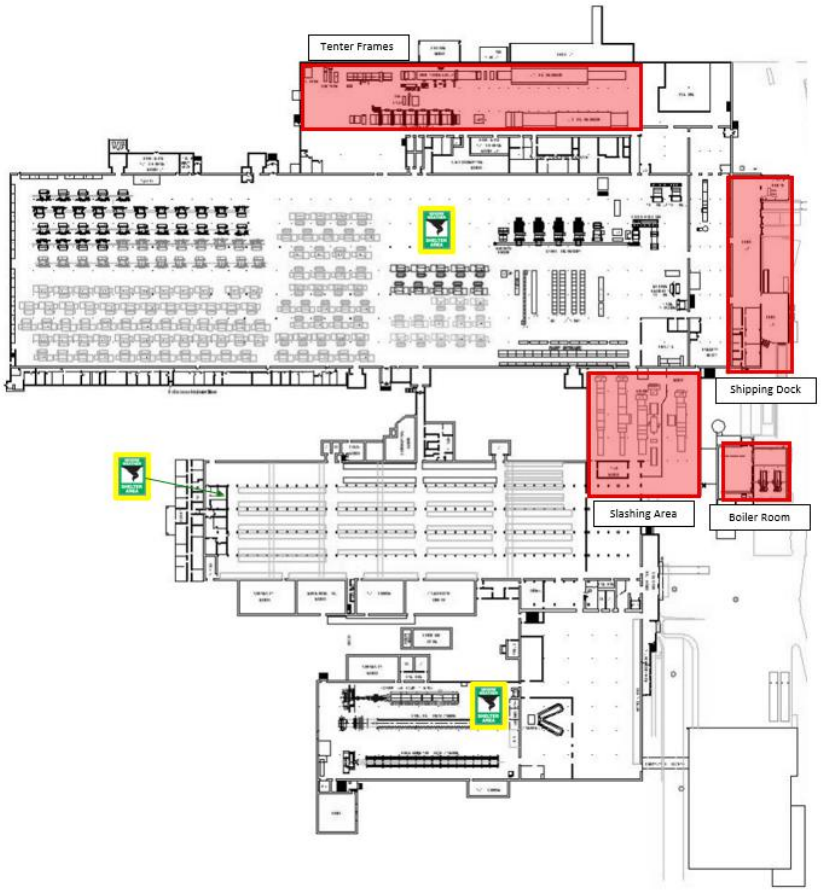
In one organization's heat-stress program, injuries or illnesses associated with heat exposure are formally documented through an incident reporting system — reserved for events that have already occurred, distinct from the proactive Safety Observation tools above. A facility may document: the incident classification; heat stress as a contributing cause; contributing factors identified during investigation; and corrective actions implemented. This supports incident investigations, trend identification, and evaluation of risk-reduction opportunities.

Documenting mitigation controls and response actions

The workbook provides a fillable template for documenting actions against the risk levels set out in Step 4. Some facilities have instead integrated heat-stress action planning into existing operational and safety management systems — recording administrative and engineering controls for each risk level within tools already in use (corrective/preventive action tracking, safety observation platforms, department-specific processes).

To maintain consistency, one manufacturer documented actions whenever conditions transitioned to a different risk category — for example, when moving from Moderate to High during a multi-day heat event, the controls implemented at each threshold change were recorded within the site's existing tracking system, linked to the applicable risk level. This let the facility maintain a documented Heat Stress Action Plan, track control implementation, and demonstrate response to changing conditions using systems already familiar to staff.

Supplemental approaches for hotspot identification



Example facility floor plan with hotspots overlaid on the evacuation map — anonymised; internal reference only.

Example 1: one facility incorporated its evacuation map into its heat-stress assessment, overlaying heat-generating processes, equipment locations and work areas onto the facility layout to visually identify areas of increased heat exposure. In this example, identified hotspots included tenter frame operations, slashing areas, shipping docks and boiler rooms. Mapping these locations gave facility leadership a visual representation of heat exposure risk, and helped prioritise monitoring, engineering improvements and other controls — while supporting discussions on exposure patterns and opportunities for targeted controls.

Example 2: another large manufacturer in India monitors temperature and humidity across the facility multiple times a day, which has identified areas with consistently elevated readings (e.g., the finishing department) and led to targeted measures such as increased ventilation or fans, and closer monitoring to prevent incidents. This is paired with worker-awareness measures — public announcements, visual posters on recognising heat-stress signs, and repeated training for workers, supervisors and medical staff. Facilities retain agency to decide additional context-specific controls the overarching policy might not cover.

References and Standards

- Baker at., 2020 (Temperature regulation in women: Effects of the menstrual cycle - PubMed).
- CDC (Heat Stress and Workers | Heat Stress | CDC).
- ILO, Heat at Work: Implications for Safety and Health — A Global Review of the Science, Policy and Practice (2024).
- ILO Code of Practice on Safety and Health in Textiles, Clothing, Leather and Footwear.
- ISO 7243 — Ergonomics of the thermal environment: assessment of heat stress using the WBGT index.
- ISO 7933 — Analytical determination and interpretation of heat stress using calculation of predicted heat strain.
- ISO 8996 (metabolic rate) and ISO 9920 (clothing insulation).
- OSHA/NIOSH, Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments (2016).
- NHS (South Tees Hospital, NHS Foundation Trust).
- The national occupational heat regulations of each producing country. Where national law is stricter than this guide, national law applies.

Standards and limit values are periodically revised. Verify against the current edition before publication.