Heat Stress Exposure Control Policy

You can adapt this Model Exposure Control Policy for Heat Stress based on the specific circumstances of your workplace and the requirements of your jurisdiction's OHS laws.

1. **PURPOSE**

ABC Company has adopted this Policy to minimize the risk of heat-related disorders, including but not limited to heat exhaustion, heat cramps, and heat stroke (which for purposes of this Policy, we will refer to collectively as "heat stress") faced by workers working outdoors or indoors in extreme heat in accordance with the [*insert jurisdiction*] Occupational Health and Safety Act ("Act"), Occupational Health and Safety Regulations ("Regulations"), the ABC Company Occupational Health and Safety Program ("OHS Program") and other applicable requirements and standards.

2. **DEFINITIONS**

For purposes of this Policy:

- **"ACGIH Standard"** means the American Conference of Governmental Industrial Hygienists publication *Threshold Limit Values and Biological Exposure Limits*;
- **"Administrative controls"** means the provision, use, and scheduling of work activities and resources in the workplace, including planning, organizing, staffing, and coordinating, for the purpose of controlling risk;

- **“Competent”** means possessing knowledge, experience, and training to perform a specific duty safely and effectively;
- **“Engineering controls”** means the physical arrangement, design, or alteration of workstations, equipment, materials, production facilities, or other aspects of the physical work environment, for the purpose of controlling risk;
- **“Practicable”** means possible given current knowledge, technology and invention;
- **“Reasonably practicable”** means practicable unless the person on whom a duty is placed can show that there is a gross disproportion between the benefit of the duty and the cost, in time, trouble and money, of the measures to secure the duty;
- **“TLV”** means Threshold Limit Values®, a standard developed by the ACGIH to measure how much of a dangerous agent, like heat, a worker can be exposed to day after day over a working lifetime without suffering adverse health effects;
- **“Unacclimatized worker”** means a worker who is not accustomed to working in a hot environment or who has been out of a hot environment for 7 consecutive days;
- **“WGBT”** means wet bulb globe temperature, an instrument that measures heat according not just to temperature but also humidity, and radiant heat.

3. **POLICY STATEMENT**

The management of ABC Company recognizes and is committed to eliminating or, where elimination is not reasonably practicable, minimizing the dangers of heat stress by identifying heat stress hazards and implementing necessary engineering controls, administrative controls, and personal protective equipment (“PPE”) to limit workers’ exposure to dangerous heat conditions and provide workers reasonable thermal comfort in accordance with the OHS Program.

4. **WORKERS THIS POLICY IS INTENDED TO PROTECT**

The intent of this Policy is to ensure that all workers engaged to work at ABC Company work sites who are or may be exposed to dangerous thermal conditions, inside or outside, are appropriately protected and, if reasonably practicable, provided reasonable thermal comfort regardless of who pays or employs those workers, including:

- Full- or part-time workers employed by ABC Company;
- Temporary employees placed by an outside agency to work at the site;
- Contract labourers engaged to perform work at the site;
- Volunteers who work at the site for free; and
- Workers employed by prime contractors, contractors, and subcontractors to perform work at the site under a contract with ABC Company.

5. **ROLES & RESPONSIBILITIES**

5.1. Employer

Owners, corporate officers and directors, upper managers, and other representatives of ABC Company who may be defined as an "employer" under the Act are responsible for overall implementation of this Policy, including ensuring that:

- The resources necessary to implement this Policy effectively are provided;
- The heat stress hazard assessment required by Section 7 of this Policy is carried out and appropriately reviewed and revised;
- Appropriate controls are selected and implemented to protect workers from identified hazards;
- Workers are trained in and required to comply with safe work procedures and use the controls selected in accordance with this Policy;
- Exposure is kept to the limits determined using the methods set out in this Policy;

- The monitoring and measuring of workers' exposure required by this Policy is properly carried out and documented;
- Where reasonably practicable, substitution and engineering controls are used to control heat stress hazards;
- All of the emergency equipment, PPE, and protective clothing required is provided and properly used;
- All exposed workers receive adequate instruction and supervision;
- All exposed workers receive the information and training required by this Policy;
- This Policy is appropriately reviewed.

5.2. Safety Coordinator, Site Manager

The safety coordinator, facility manager, or other person designated as being in charge of safety at the workplace is responsible for ensuring the effective implementation of the measures required by this Policy, including ensuring that:

- The heat stress hazard assessment required by Section 7 of this Policy is carried out and appropriately reviewed and revised;
- Appropriate controls are selected and implemented to protect workers from identified hazards;
- Workers are trained in and required to comply with safe work procedures and use the controls selected in accordance with this Policy;
- Exposure is kept to the limits determined using the methods set out in this Policy;
- The monitoring and measuring of workers' exposure required by this Policy is properly carried out and documented;
- Where reasonably practicable, substitution and engineering controls are used to control heat stress hazards;
- All of the emergency equipment, PPE, and protective

clothing required is provided and properly used;
- All exposed workers receive adequate instruction and supervision;
- All exposed workers receive the information and training required by this Policy;
- This Policy is appropriately reviewed.

5.3. Supervisors

Supervisors are responsible for day-to-day implementation of many of the measures provided by this Policy, including:

- Educating and communicating with workers about the signs and symptoms of heat stress and how to react if they or another worker appears to be experiencing difficulty working in the heat;
- Reminding workers to drink cool water frequently and not just when they are thirsty;
- Encouraging workers to wear clothing that is loose fitting, tight woven;
- If workers are working outdoors encouraging the use of a head covering and the clothing be light in colour to reflect the heat rather than absorb it;
- Helping workers become acclimatized to the heat;
- Ensuring workers know about and take advantage of any air conditioned rest areas and cool work areas available;
- Where possible, doing things to increase air movement, e.g., gating off loading dock doors and rolling up doors to allow air movement;
- Cautioning workers working outdoors to avoid direct sunlight;
- Where possible, providing workers with sunscreen and encourage them to apply it to all sun exposed areas;
- Assisting with the investigation of heat stress related events;
- Implementing recommendations and corrective actions that are determined to be necessary as a result of heat

stress investigations.

5.4. Workers

Workers are responsible for knowing, cooperating, and complying with this Policy by:

- Participating in the training and instruction on heat stress provided to them;
- Staying properly hydrated when working in the heat;
- Wearing appropriate clothing and head covering;
- Following the recommendations of their managers or supervisors for becoming acclimatized to the heat;
- Notifying their manager or supervisor if they have medical or physical conditions that may make them more vulnerable to heat stress;
- Learning to recognize and be on the lookout for the signs and symptoms of heat stress;
- Immediately notifying their manager or supervisor if they detect such signs either personally or in a co-worker;
- Being familiar with the medical treatment/first aid required for different heat stress conditions and either initiate those treatments or, if they're not qualified or trained to do so, summoning help from somebody who is;
- Talking to their manager or supervisor about any concerns they may have regarding heat stress.

5.5. Safety Committee/Safety Representative

ABC Company will consult with and secure the participation of the workplace Safety Committee, Safety Representative, or where no Committee, or Representative exists, the affected workers at the site in developing and implementing this Policy, including with regard to:

- Assessment of heat stress hazards;
- Development of training;

- Development of safe work procedures and processes;
- Selection and monitoring of hazard controls;
- Selection and installation of PPE and protective equipment;
- Investigation of exposure incidents;
- Review of this Policy.

6. **HEAT STRESS EXPOSURE LIMITS**

No worker may be exposed to levels that exceed those listed in the screening criteria for heat stress exposure in the heat stress and strain section of the ACGIH Standard, as set forth in Table 1 below, which uses WGBT values to measure exposure to heat that are adjusted based on the following factors:

- Acclimatization: Whether workers are used to working in the heat;
- Work demands: How much metabolic stress the work places on the body, including:
  - Light;
  - Moderate;
  - Heavy;
  - Very heavy;
- Work/recovery cycle: The proportion of time in an hour spent on work v. time spent resting and recovering.

Table 1 : Screening criteria for heat stress exposure (WBGT values in °C)

	TLV®				**Action Limit**			
Work/Recovery cycle	**Light**	**Moderate**	**Heavy**	**Very heavy**	**Light**	**Moderate**	**Heavy**	**Very heavy**
75 – 100% work	31	28	–	–	28	25	–	–
50 – 75% work	31	29	27.5	–	28.5	26	24	–
25 – 50% work	32	30	29	28	29.5	27	25.5	24.5
0 – 25% work	32.5	31.5	30.5	30	30	29	28	27

Because Table 1 measures assume that workers are wearing long sleeved shirts and pants, clothing corrections must be applied in accordance with the heat stress and strain section of the ACGIH Standard for workers wearing different kinds of clothing by increasing WBGT values for the following kinds of clothing:

Additions to measured WBGT values (°C) for some clothing ensembles	
Clothing type	**WBGT addition***
Work clothes (long-sleeved shirt and pants)	0
Cloth (woven material) overalls	0
Double-layer woven clothing	3
SMS polypropylene coveralls	0.5
Polyolefin coveralls	1
Limited-use vapour-barrier coveralls	11

7. **HEAT STRESS HAZARD ASSESSMENT**

ABC Company will designate competent personnel to conduct a thermal conditions hazard assessment to determine the potential for exposure to heat stress taking into account:

- **Temperature:** Including not just ambient temperature shown on the thermometer but how the air actually feels to the worker;
- **Humidity:** Including not just humid outdoor air but other sources, e.g., steam from indoor equipment;
- **Heat Radiation:** Including direct sunlight and other nearby generators of light or heat, e.g., fire welding and hot surfaces, that increase heat stress dangers;
- **Air Movement:** Stagnant air tends to be hotter; but circulating air that's already hot, e.g., air near steam pipes, can also heighten heat stress risks;
- **Workload:** Strenuous work like carrying heavy objects long distances intensify heat stress dangers;
- **Workers' Physical Condition:** Including workers' age, weight, fitness, and acclimatization, i.e., whether they're used to working in hot conditions;
- **Clothing:** Thick clothing and heavy equipment like respirators and face hoods aggravate heat stress risks; lighter clothing of natural fibers alleviate them.

8. **HEAT STRESS PROTECTIONS FOR INDOOR WORK**

In an indoor workplace, ABC Company will take measures to provide and maintain thermal conditions, including air temperature, radiant temperature, humidity, and air movement, that:

- Are appropriate for the nature of the work performed;
- Provide effective protection against exposure to heat stress and other thermal hazards; and
- Provide workers reasonable thermal comfort;

Measures taken to control indoor thermal conditions may include, where reasonably practicable, the use of engineering controls such as:

- **General ventilation** to dilute hot air with cooler air (generally from the outside) which may include permanently installing ventilation systems for large

areas or entire buildings and/or portable or local exhaust systems for smaller areas;

- **Air treatment/air cooling** to not just ventilate but reduce air temperature by removing heat and, in some cases, humidity;
- **Air conditioning** to cool the air or use of chillers to circulate cool water through heat exchangers over which air from the ventilation system is then passed;
- **Local air cooling** to reduce air temperatures in specific areas, e.g., via use of. cool rooms that enclose the workplace or provide a recovery area near hot jobs, or portable blowers with built-in air chillers;
- **Convection**, or use of fans to increase air flow where air temperature is less than the workers' skin temperature and/or change the air speed to help workers stay cool by increasing both the convective heat exchange, i.e., the exchange between the skin surface and the surrounding air, and the rate of evaporation; and/or
- **Heat conduction** methods like insulating the hot surface that generates the heat and changing the surface itself.

If the thermal conditions are likely to pose a hazard to workers in the indoor workplace, ABC Company will provide and maintain an appropriate and suitably located instrument for measuring thermal conditions.

9. PROTECTIONS WHERE THERMAL CONDITIONS CANNOT BE CONTROLLED

If it is not reasonably practicable to control thermal conditions, ABC Company will take measures to provide effective protection against heat stress and other thermal hazards and provide workers a reasonable thermal comfort, including but not limited to the specific measures set out below.

9.1. Monitoring of Thermal Conditions

During the conducting of indoor or outdoor work that exposes workers to heat stress risks, competent personnel will frequently monitor thermal conditions, including temperature, humidity, heat radiation, and air movement . Monitors will also consider the workers' work load, age, physical characteristics, and clothing or PPE worn, in determining if the thermal conditions pose a danger.

9.2. Personal Monitoring

In addition to thermal conditions, monitoring may include personal monitoring of workers carrying out the work including:

- Frequent observations of workers by a person who is trained to recognize the signs and symptoms of heat stress;
- Taking personal measurements of workers':
- Heart rate by counting the radial pulse for 30 seconds at the start of the rest period and shortening the next work period of any worker whose heart rate is over110 beats per minute;
- Recovery heart rate, i.e., heart rate measured at a fixed, reference period over one minute after activity stops, by comparing pulse rate taken at 30 seconds (P_1) with pulse rate taken at 2.5 minutes (P_3) after the rest break starts;
- Body temperature orally under the tongue with a clinical thermometer after work stops and before the worker drinks water (and shortening the next work cycle if the oral temperature readings indicate body temperature of over 37.6°C (99.68°F));
- Body water loss by weighing the worker on a scale at the beginning and end of each work day to ensure weight loss does not exceed 1.5% of total body weight in the work day;

If monitoring reveals that heat stress exposure is dangerous and is not being adequately controlled, monitors will stop or make modifications to the work as necessary to address the danger.

9.3. Cooling Devices to Make the Air Less Hot

If reasonably practicable, ABC Company will provide temporary equipment such as screens, shields, fans, and other cooling devices, to protect workers from heat stress and provide a greater level of thermal comfort.

9.4. Administrative & Work Controls

Administrative and work controls to protect workers and provide greater thermal comfort will include some or all of the following:

- Short work shifts and frequent water breaks;
- Scheduling practices, such as scheduling the most strenuous tasks during the coolest part of the day;
- Constant cycling of fresh workers to relieve workers who’ve been in the heat after a designated amount of time;
- Use of buddy systems requiring co-workers to keep an eye on each other and raise the alarm if they detect signs or symptoms of heat stress;
- Providing cool temperature recovery areas, such as air-conditioned trailers and rooms that workers can use to cool off during breaks.

9.5. PPE & Proper Clothing for Working in the Heat

In lieu of, or in addition to the above controls, ABC Company will provide and require workers exposed to heat stress to use appropriate PPE, which may include:

- Ice vests that can keep the body cool for 2 to 4 hours;
- Wetted clothing like terry cloth coveralls that cool the

body especially when worn underneath reflective and other impermeable protective clothing;
- Water cooled garments like hoods that cool the head and/or vests and long johns that cover more of the body;
- Clothing and equipment that circulate air from a supplied air system around the body;

ABC Company will also require workers to dress appropriately for working in the heat, which may include wearing:

- Light weight, loose fitting clothing made of natural fibers like cotton;
- Light colors, sunglasses and protective skin lotions and creams if they work in the sun;
- Reflective clothing that keeps the skin from absorbing radiant heat (and which should be worn as loosely as possible to make up for its tendency to reduce the body's evaporative cooling by blocking air exchange through the garment).

9.6. Cool Drinking Water

ABC Company will furnish an adequate supply of cool, clean, drinkable water at or close to the work area that is easily accessible to any worker exposed to dangerous heat.

9.7. Removal & Treatment for Heat Exposure

Safe work procedures will be developed to ensure that a worker who shows signs or reports symptoms of heat stress is removed from the hot environment and treated by an appropriate first aid attendant, if available, or a physician in accordance with the ABC Company First Aid Policy.

9.8. Acclimitization to Working in the Heat

Where reasonably practicable, ABC Company will implement acclimatization measures exposing workers to work in a hot environment for progressively longer periods so that their

bodies adapt and become accustomed to working in the heat.

9.9. Heat Stress Contingency Plan Procedure

The above heat stress controls may be implemented on a contingency plan basis as the weather dictates in accordance with the following principles:

- Heat stress contingency plan measures will go into effect when an Environment Canada Humidex issues a heat advisory (air temperature exceeding 30°C and Humidex exceeding 40°C);
- The heat stress contingency plan will be created in consultation with the Safety Committee or Safety Representative, or where no Committee or Representative exists, directly with workers at the site, and follow these general guidelines:

Humidex	Action
30-33	Alert & information & water to workers
34-37	Warning, education & double water to workers
38-39	Restrict activity 25% & actively monitor for signs of heat strain
40-42	Restrict activity 50% & actively monitor for signs of heat strain
43-44	Restrict activity 75% & actively monitor for signs of heat strain
45+	Stop work

10. HEAT STRESS TRAINING & EDUCATION

Workers who perform work operations involving heat stress hazards will receive appropriate safety training and instruction before they are exposed, including at a minimum:

- Knowledge of heat stress hazards;

- Recognition of predisposing factors, danger signs and symptoms;
- Awareness of first-aid procedures for, and the potential health effects of, different forms of heat stress;
- The importance of proper hydration and what they should and should not eat and drink when working in extreme heat;
- The roles and responsibilities of themselves and other for avoiding heat stress;
- Dangers of using drugs, including therapeutic ones, and alcohol in hot work environments;
- Appropriate dress for work involving exposure to heat; and
- The measures in place to protect them from heat stress and how to properly use them.

Where applicable, heat stress training will be part of the safety orientation training provided to new and young workers.

11. **HEAT STRESS RESPONSE & FIRST AID**

Workers must immediately report to their supervisor/manager and call for the appropriate medical help and first aid if they experience or notice their co-workers are experiencing any of the following signs and symptoms of heat stress:

Heat Rash	Hot humid environment; plugged sweat glands.	Red bumpy rash with severe itching.	Change into dry clothes and avoid hot environments. Rinse skin with cool water.	Wash regularly to keep skin clean and dry.

Sunburn	Too much exposure to the sun.	Red, painful, or blistering and peeling skin.	If the skin blisters, seek medical aid. Use skin lotions (avoid topical anaesthetics) and work in the shade.	Work in the shade; cover skin with clothing; apply skin lotions with a sun protection factor of at least 15. People with fair skin should be especially cautious.

Heat Cramps	Heavy sweating drains a person’s body of salt, which cannot be replaced just by drinking water.	Painful cramps in arms, legs or stomach, which occur suddenly at work or later at home. Heat cramps are serious because they can be a warning of other more dangerous heat-induced illnesses.	Move to a cool area; loosen clothing and drink cool salted water (1 tsp. salt per gallon of water) or commercial fluid replacement beverage. If the cramps are severe or don’t go away, seek medical aid.	Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke.

Fainting	Fluid loss and inadequate water intake.	Sudden fainting after at least two hours of work; cool moist skin; weak pulse.	GET MEDICAL ATTENTION. Assess need for CPR. Move to a cool area; loosen clothing; make person lie down; and if the person is conscious, offer sips of cool water. Fainting may also be due to other illnesses.	Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke.

Heat Exhaustion	Fluid loss and inadequate salt and water intake causes a person’s body’s cooling system to start to break down.	Heavy sweating; cool moist skin; body temperature over 38°C; weak pulse; normal or low blood pressure; person is tired and weak, and has nausea and vomiting; is very thirsty; or is panting or breathing rapidly; vision may be blurred.	GET MEDICAL AID. This condition can lead to heat stroke, which can kill. Move the person to a cool shaded area; loosen or remove excess clothing; provide cool water to drink; fan and spray with cool water.	Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke.

Heat Stroke	If a person's body has used up all its water and salt reserves, it will stop sweating. This can cause body temperature to rise. Heat stroke may develop suddenly or may follow from heat exhaustion.	High body temperature (over 41°C) and any one of the following: the person is weak, confused, upset or acting strangely; has hot, dry, red skin; a fast pulse; headache or dizziness. In later stages, a person may pass out and have convulsions	CALL AMBULANCE. This condition can kill a person quickly. Remove excess clothing; fan and spray the person with cool water; offer sips of cool water if the person is conscious.	Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke.

12. **PRIME CONTRACTORS, CONTRACTORS & SUBCONTRACTORS**

Prime contractors, contractors, and subcontractors hired to perform work involving exposure to heat stress hazards at an ABC Company work site will be:

- Notified of the heat stress hazards posed to their workers;
- Notified of the terms of this Policy and the measures in place to protect workers from heat stress;
- Required to notify their own workers of such hazards and

control measures, including but not limited to any safe work procedures that apply;
- Required to ensure their workers comply with such safe work procedures and the terms of this Policy;

Prime contractors, contractors, and subcontractors in charge of work at ABC Company work sites that involves exposure to heat stress hazards covered by this Policy will protect the workers performing the work from heat stress and provide them a reasonable level of thermal comfort by:

- Directly applying this Policy to the work; or
- Applying their own safe work procedures and heat stress control measures that meets the requirements of the Regulations, are suitable for the workplace and work performed, and that are coordinated with and provide at least the same degree of protection as this Policy to workers performing the contract work.

13. **EVALUATION**

This Policy and will be reviewed, in consultation with the Safety Committee or Safety Representative, at least once a year or on a more frequent basis in response to changes affecting workers' health and safety.