Heat Stress: Are You Doing Enough to Protect Your Workers



It’s important to warn your workers about the different heat-related illnesses (which, for simplicity’s sake, we’ll refer to collectively as “heat stress”) and remind them to drink lots of water, take breaks, wear appropriate clothing, etc. But is that enough?

Are you confident that you’re doing everything necessary to protect your workers? And if, heaven forbid, a worker were to die of heat stress, would you be liable? Let’s look at your liability risks and what you can do to manage them.

What the Law Says About Heat Stress

There is a legal duty to guard workers against heat stress, even though OSHA doesn’t have a specific standard on heat stress. The OSHA General Duty Clause (Section 5(a)(1) of the OSH Act) says that every employer must safeguard workers against “recognized hazards” that can cause great bodily harm or death. Heat stress can cause great bodily harm or death. And it’s a recognized hazard. As a result, all employers must take steps to protect their workers against heat stress.

This isn’t just abstract legal theory. OSHA has invoked the duty to protect workers against heat stress in actual cases.

Example: An Ohio steel and iron castings manufacturer plant with 1,500 workers used molten metal containers that produced tremendous amounts of heat. During a heat wave, one of the workers who worked near a molten metal container collapsed twice from heat stress. After he passed out the first time, the employer tried to cool the work area with large fans and radiant heat shields. But the heat was still unbearable and workers complained to OSHA. An OSHA inspector took measurements and reported the temperature of the worker’s workstation as 95° F. That was just too high in OSHA’s opinion. So it fined the employer for failing to take adequate measures to reduce heat stress hazards in violation of the General Duty Clause [Duriron Co. v. Secretary of Labor, 750 F.2d 28 (6th Cir. 1984)].

The Duriron case isn’t the only source of authority to show that there’s an OSHA duty to protect against heat stress. In a 2001 Interpretation Letter, OSHA stated that it has the right to prosecute employers for not taking measures to deal with heat stress hazards [OSHA Interpretation Letter, Oct. 17, 2001]. The Letter also lists specific steps that employers can take to reduce such hazards including:

- Letting workers drink as much water as they want whenever they want while working in hot conditions;
- Scheduling short shifts and frequent breaks to limit how long workers exert

themselves in the heat; and
- Developing a heat stress program that includes specific procedures to be followed for heat-related emergency situations.

In addition to the General Duty Clause, the OSHA Hazardous Waste Operations and Emergency Response Standard, arguably requires prevention of heat stress hazards. For example, it requires employers to adopt personal protective equipment programs that limit workers' exposures to temperature extremes and heat stress.

The Law of Heat Stress in Canada

Canadian OHS laws are generally clearer and more specific than OSHA about heat stress. At least seven jurisdictions—BC, NB, NL, PEI, QC, SK and YT—include specific measures that employers must take to protect workers against heat stress in their OHS regulations. For example, Part 7 of the BC OHS Regulation requires employers to:

- Limit workers' exposure to excessive heat;
- Conduct heat stress assessments to determine workers' risk of hazardous exposure;
- Put into place a heat stress exposure control plan; and
- Implement engineering and administrative controls.

The laws of the other provinces don't say anything specific about heat stress. But that doesn't mean employers in those provinces get a free ride. On the contrary, every province has a general duty clause that requires employers to take all reasonable precautions to protect workers against foreseeable risks that can cause death or great bodily harm like the U.S. OSHA statute.

Although the specifics vary slightly, all provinces require at a minimum that employers train employees about heat stress and adopt policies and procedures for working in high temperatures.

Some of the "general duty clause" provinces that don't spell out specific heat stress measures in their regulations do so in guidelines or special alerts. In essence, these guidelines explain what the General Duty Clause requires respecting heat stress. For example, the Ontario Ministry of Labour has issued guidelines stating that Section 25(2)(h) of the OHS Act—the Ontario version of the general duty clause (which requires employers to "take every precaution reasonable in the circumstances for the protection of a worker")—requires employers to "develop hot environment policies and procedures to protect workers in hot environments due to hot processes or hot weather."

Employers Fined for Lack of Heat Stress Protection

As in the U.S., Canadian employers have been prosecuted for not doing enough to protect workers against heat stress. Two examples:

Ontario: A worker at a national bakery and food store died on the job from heat stress. The incident occurred on August 6, 2001, when southern Ontario was in the middle of a heat wave. With outdoor temperatures of 34° C, the temperature inside the bakery was 36°. The worker overheated and collapsed. The MOL charged the employer with failing to implement a heat stress management plan in violation of Sec. 25(2)(h). The employer pleaded guilty and was fined $215,000 [Weston Bakeries Limited, MOL News Release, Feb. 18, 2004].

New Brunswick: In 1992, a boilermaker who worked for a repair contractor collapsed and died after three days of repair work in a paper mill. The outside temperature was 30° C and the inside of the mill was even hotter. The contractor pleaded guilty to not instructing the worker how to deal with heat stress dangers (in violation of Sec. 23(1) of the NB OHS Regulations) and was fined $7,500 [R. v. Lorneville Mechanical Contractors Ltd., [1993] N.B.J. No. 633].

How to Create a Hot Weather Plan

To conclude, telling your workers to be aware of hot weather hazards, take breaks and drink plenty of water is just part of what you need to do to prevent injuries and ensure compliance. You also need to create and implement a heat stress plan that combines appropriate engineering, administrative and work controls. Here's how to create a plan. There's also a Model Plan in the below that can be adapted in both the U.S. and Canada.

Although it's based on a plan written for forestry operations, the Model Plan in TOOLS can be adopted to other kinds of work, especially outdoor work. Also keep in mind that these are minimum measures. For example, the plan doesn't provide for medical monitoring or calculations of exposure limits such as the wet bulb-globe thermometer index (WBGT), which is a generally recognized heat standard.

Like the Model Plan, your plan should:

Say When Heat Stress Measures Should Be Taken. Set a thermal trigger when heat stress measures should take effect. You can use a WBGT calculation, a humidex advisory, smog alert or particular temperature as your trigger (assuming your state hasn't adopted specific standards regarding exposure levels).

Require Periodic Monitoring of Temperature and Humidity Levels. To control exposure to heat stress conditions you need to monitor temperature and humidity levels of work areas on hot days. Put someone in charge of measuring the temperature and humidity levels at designated areas throughout your workplace. Require that person to take measurements both at the beginning and end of employee shifts.

Adopt Engineering Controls. Consider using engineering measures to control how hot your workplace gets including:

- Insulation and reflective heat barriers;
- Exhausting hot air and steam;
- Air conditioning;
- Using fans to keep air moving; and
- Using machinery, such as hoists and lift tables, to make work less strenuous.

Adopt Administrative Controls. Your plan should include administrative controls such as:

- Assessing job demands and monitoring control strategies for hot days and workplaces;
- Longer and more frequent rest breaks;
- Scheduling strenuous job tasks for cooler times of the day;
- Providing cool drinking water near workers and reminding them to drink a cup every 20 minutes or so;
- Limiting the amount of time workers spend working in direct sunlight;
- Assigning additional workers or slowing down the work pace;
- Making sure everyone is properly acclimatized;
- Training workers to recognize the signs and symptoms of heat stress;
- Starting a "buddy system;" and
- First aid and emergency response plans for workers with symptoms of heat stress.

Require Appropriate Clothing. Your plan should also instruct workers to wear light summer clothing. If they work outdoors, they should wear light colors. It might be appropriate to require clothing for high radiant heat and water or ice-cooled insulated clothing for extremely hot temperatures.

Require Employee Training. Make sure your plan requires someone at your facility to train all employees and supervisors on the signs and symptoms of heat stress and how to prevent or treat them.

Describe Appropriate First Aid Measures. Set out the appropriate first aid measures that should be taken to handle different kinds of heat-related illnesses. For example, workers should be instructed to take those suffering from heat stress to an air conditioned room for evaluation. In some cases – such as heat stroke – it may be necessary to call emergency services.

Conclusion

There's no such thing as a one-size-fits-all plan. Details of your own plans will vary according to your industry, facility type, work process and state or provincial law. But the Model Plan lays out the fundamental elements a basic plan should include. So it should help get you started in your own efforts to establish effective and systematic heat stress protective measures before the hot weather season.

Hot Weather Plan

When the outside temperature reaches 80° F (25° C), or the humidex reaches 85° F (29° C), ABC Company's Health & Safety Director shall implement this Hot Weather Plan. All affected supervisors will be contacted to ensure they are aware of the proper procedures to be activated.

The Health & Safety Director will measure the temperature as well as the humidity level at the following locations while the plan is active. These measurements will be taken at the beginning and halfway through the shift.

- Slicer – Operator area
- Log Washer – Operator area
- Dryer – Infeed & Outfeed
- Clipper – Operator area
- Log Yard– Chainsaw area
- Sawmill– Log deck
- Sawmill – Bander
- Sawmill – Boardway piling lumber
- Sawmill – Grader
- Shipping – Bander
- Log Yard – Garage
- Maintenance – Shop

A record of these measurements shall be kept in the Human Resource office.

The following are control measures that will be implemented when this plan become effective:

Engineering Controls

- Air conditioned rest areas
- Fans and air bag to increase air movement
- Full use of powered equipment – forklifts, transfer carts, cranes etc.

Administrative Controls

- Provide extra workers when possible
- Provide cool drinking water, as well as juice or Gatorade near work stations and remind workers to drink a cup every 20 minutes or so
- Remind workers to salt their food (salt level drops in blood due to heavy sweating)
- Provide training for workers and supervisors to recognize the signs and symptoms of "heat stress"
- Encourage workers to wear light summer clothing to allow free air movement
- Outside workers should wear light-colored clothing and are advised to wear sunscreen
- Chainsaw operators shall receive a 5 minute break every hour in an air-conditioned rest area

An extra break of 5 minutes every hour will be given when the outside temperature reaches 85° F (29° C).

The Health & Safety Coordinator shall ensure that all employees and supervisors will receive documented training which includes:

- Signs and symptoms of “heat stress”
- Prevention and control measures
- Factors that could increase the risk of illness
- First aid response

First Aid Response

If an employee is experiencing symptoms of “heat stress,” please follow these important steps:

1. Take the employee to an air-conditioned first aid room, cool him down with cold compresses, and give him mildly salted water to drink.
2. Contact the employee’s supervisor, who will ensure the employees’ safety by determining what heat stress illness or injuries are present.
3. If the employee appears to be suffering from “Heat stroke,” call 911 immediately for medical assistance.

AN EMPLOYEE WHO IS SUFFERING FROM A HEAT RELATED ILLNESS MUST NOT BE LEFT ALONE.