Occupational Heat Exposure

Many people are exposed to heat on the job, outdoors or in hot indoor environments. Operations involving high air temperatures, radiant heat sources, high humidity, direct physical contact with hot objects or strenuous physical activities have a high potential for causing heat-related illness.

Outdoor operations conducted in hot weather and direct sun also increase the risk of heat-related illness in exposed workers. Every year, thousands of workers become sick from occupational heat exposure, and some even die. These illnesses and deaths are preventable.

Why is heat a hazard to workers?

When a person works in a hot environment, the body must get rid of excess heat to maintain a stable internal temperature. It does this mainly through circulating blood to the skin and through sweating.

When the air temperature is close to or warmer than normal body temperature, cooling of the body becomes more difficult. Blood circulated to the skin cannot lose its heat. Sweating then becomes the main way the body cools off. But sweating is effective only if the humidity level is low enough to allow evaporation, and if the fluids and salts that are lost are adequately replenished.

If the body cannot get rid of excess heat, it will store it. When this happens, the body's core temperature rises and the heart rate increases. As the body continues to store heat, the person begins to lose concentration and has difficulty focusing on a task, may become irritable or sick, and often loses the desire to drink. The next stage is most often fainting and even death if the person is not cooled down.

Excessive exposure to heat can cause a range of heat-related illnesses, from heat rash and heat cramps to heat exhaustion and heat stroke. Heat stroke can result in death and requires immediate medical attention. Exposure to heat can also increase the risk of injuries because of sweaty palms, fogged-up safety glasses, dizziness and burns from hot surfaces or steam.

*The PEI Safety Program Audit is aimed at helping companies provide a safe place of work for all employees. The program is completely confidential and available to distributors doing business in the United States. Each Safety Program Audit reviews company health and safety philosophies, training programs and facilities, as well as written corporate safety policies, chemical inventory sheets and various forms required by OSHA. For information, contact PEI at 918-236-3964 or cbouldin@pei.org.*
Who could be affected by heat?
Workers exposed to hot indoor environments or hot and humid conditions outdoors are at risk of heat-related illness, especially those doing heavy work tasks or using bulky or non-breathable protective clothing and equipment. Some workers might be at greater risk than others if they have not built up a tolerance to hot conditions or if they have certain health conditions.

Workers who are suddenly exposed to working in a hot environment face additional but generally avoidable hazards to their safety and health. New workers and those returning from time away are especially vulnerable. That's why it is important to prepare for the heat. Workers must be acclimatized by gradually increasing the workload during spells of hot weather. New workers and workers returning from time off also must take more frequent breaks until they develop a tolerance for hot conditions.

How can heat-related illness be prevented?
Important ways to reduce heat exposure and the risk of heat-related illness include engineering controls, such as air conditioning or ventilation that make the work environment cooler, and work practices, such as work/rest cycles, drinking water often, and providing an opportunity for workers to build up a level of tolerance to working in the heat. Employers should include these prevention steps in worksite training and plans.

Also, it’s important to know and look out for the symptoms of heat-related illness in yourself and others during hot weather. Plan for an emergency and know what to do — acting quickly can save lives!

References
This SafePractices is based on the article “Occupational Heat Exposure” by the Occupational Safety & Health Administration (OSHA). To download the article, visit www.osha.gov.
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This PEI SafePractices has been reviewed by:

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