

## **Cold Weather Hazards: Are Your Workers at Risk?**

Winter is here—well, technically not until December 21, but the cold weather has already arrived. For the next few months, many workers will be required to work briefly or for sustained periods in cold weather conditions and will face the special hazards that such work entails.

The two main health hazards of overexposure to cold weather are frostbite and hypothermia.

**Frostbite** occurs when body tissues freeze. Most often, frostbite affects fingers, toes, nose, cheeks, and ears. Frostbite can cause permanent tissue damage and loss of movement in affected parts.

**Hypothermia** occurs as a result of exposure to cold, which can send body temperatures down to dangerously low levels. Hypothermia can even occur in above-freezing temperatures when it's windy, or when a person is exhausted or wearing wet clothes. Untreated, hypothermia can lead to unconsciousness and death.

### **Safety Hazards, Too**

There are other safety hazards involved with working in the cold. For example, the cold can affect the function of hands and fingers so that a worker loses feeling and dexterity, making it difficult to handle tools, equipment, and materials, thereby increasing the chance of an accident.

The cold can also affect a worker's mood. Workers who are cold and uncomfortable may be less alert to hazards or may rush to get a job done so that they can get inside and get warm.

### **Windchill Factor**

Canadians know a lot about the cold. And, according to Canada's largest union, the Canadian Union of Public Employees (CUPE), one of the keys to working safely in the cold is taking the windchill factor into account.

CUPE says that the windchill factor can account for as much as 80 percent of total body heat loss on a cold day.

"Different combinations of air temperature and wind speed can present the same hazards. For example, when the air is calm and the temperature is 1° C [about 34° F], the body will feel cool. The same temperature with 40 km/h [about 25 mph] winds can produce bitter coldness. The wind blows away the thin layer of air that acts as an insulator between the skin and the outside air."

So on windy, cold days, the risk to employees working outdoors increases dramatically. And it's a risk that workers might not even be aware of until it's too late.

### **Pay Special Attention to Work Clothes**

Wearing the right clothing is essential to protect against cold weather and to prevent heat loss. According to CUPE, the cold weather work clothes should:

- Provide high insulation.
- Allow the escape of moisture from within.
- Resist wetting from outside.

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- Shed snow.
- Have a means of varying insulation and air flow.
- Not restrict movement.
- Have minimum weight and bulk.
- Be easy to put on and take off.
- Be durable.

CUPE recommends the following cold weather clothing system to its members:

**Underwear.** Cotton shirt and shorts should be worn under thermal underwear. Long underwear in a two-piece style is better than one single garment. The fit should be loose so that blood vessels are not constricted.

**Socks.** High wool socks are recommended. Socks should encourage evaporation of sweat. Stretch socks restrict circulation.

**Pants.** Wool and quilted pants or lined thermal types are recommended. Pants should be roomy and worn with suspenders rather than a belt, because belts are constricting.

**Boots.** The best boots are felt-lined, rubber-bottomed, and leather-topped with removable insoles. Footwear should be waterproof and reach high up the leg.

**Shirt.** A wool shirt (cotton or synthetic shirt worn under for those allergic to wool) should be worn over underwear tops and suspenders with shirttail worn outside pants to aid ventilation.

**Head covers.** Wool knit caps or hat liners that extend down the back of the neck should be worn. A balaclava (ski mask) provides further face protection.

**Face masks.** Workers who can't afford reduced vision on the job can wear face masks. Face masks should be removed periodically to check for frostbite.

**Gloves and mittens.** Mittens offer the best protection but limit finger movement. On very cold days, it's wise to carry both.

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