

Workplace Health and Safety Bulletin



Focus on Human Performance Part 2: Working in the Cold

It is important to realize that environmental conditions can have a bearing on your personal safety and your ability to work effectively. Working in the cold can result in hypothermia or frostbite — and even the heavy and bulky clothing worn for protection from the cold can cause problems on the work site.

Hypothermia, or below-normal body temperature, is generally the result of a combination of factors, including cold and windy weather, fatigue and clothing that is poorly insulated or wet.

There is a range of outward signs of hypothermia, depending on the severity.

- Mild hypothermia: mild shivering, discomfort and muddled thinking
- Moderate hypothermia: violent shivering, loss of dexterity of the hands and feet, and an inability to think or pay attention
- Severe hypothermia: unconsciousness and death.

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Clearly, the lapses in judgment and attention span that occur even in mild cases of hypothermia can have serious consequences on the worksite.

Exposure to cold can reduce muscle power and grip strength, thus limiting your ability to work for extended periods. Reduced power and strength can make climbing a ladder or similar structure very challenging.

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Cold combined with vibration can reduce the flow of blood to the hands and fingers and cause hand-arm vibration syndrome (HAVS), also known as “vibration-induced white finger” or “dead-finger”. Symptoms include numbness, loss of grip strength and clumsiness with the hands.

Many workers rely on their hands to operate equipment controls, adjust process controls, sense surface temperatures and finishes, and hold heavy or awkward tools. In cold weather, these workers may take longer to perform an action and/or need to attempt an action repeatedly. In some cases, they may be altogether unable to perform an action until they get warmed up or alter their clothing.

In addition, exposed skin can be affected by the cold. Frostbite results from thick layers of tissue freezing solid. The affected area feels hard and cold, and turns white or grey. Frostnip is a mild form of frostbite affecting only the skin’s outer layers. Either condition affects your health and can influence your ability to work safely.

Clothing worn in the cold can also affect performance. Hats and hoods may interfere with hearing, vision and movement. Bulky clothing layers may restrict movement, particularly in tight spaces and increase the amount of effort required to move. Gloves, mittens and overmitts may reduce dexterity and “feel”, while heavy and bulky footwear may not fit into footholds or onto foot pedals. Clothing “systems” appropriate for the task and the temperature can overcome many of these limitations.

For ideas about how to overcome some of the limitations, readers should take a look at the resources listed below:

Resources

 http://employment.alberta.ca/documents/WHS/WHS-PUB_mg021.pdf
Working in the Cold, Alberta Health and Safety Bulletin

 www.outside.away.com/outside/features/200212/200212_Popsicle_splash.html#
Video clips about hypothermia and cold water immersion

 www.umanitoba.ca/faculties/phsyed/research/people/giesbrecht/Cold_Weather_Clothing.pdf
Cold Weather Clothing

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