



Toolbox Talk

WORKING IN EXTREME COLD

Explain Dangers

Prolonged exposure to cold, wet and windy conditions, even when the temperatures are above freezing, can be dangerous. Extreme cold conditions exist when the equivalent wind chill temperature is at or below minus 32°C (-25°F). Wind chill temperature is a function of the actual temperature and the estimated wind speed. Under windless conditions, air provides an invisible blanket around the skin. As wind speed increases, this layer of heated air is carried away from the body at an accelerated rate resulting in apparent temperatures well below the air temperature.

The two serious medical conditions that can result from prolonged exposure to the cold are frostbite and hypothermia.

Frostbite is an injury to the skin and underlying tissue—most often that of the nose, ears, fingers or toes—resulting from prolonged exposure to extreme cold. The first symptoms are a “pins and needles” sensation followed by numbness or pain in the affected extremities. Frostbite is distinguishable by hard, pale, and cold skin. As the area thaws, the flesh becomes red and very painful.

Hypothermia is a medical condition in which the victim’s core body temperature drops significantly below normal and normal metabolism begins to be impaired. This begins to happen when the core temperature drops below 35°C (95°F). When body temperature falls below 32°C (90°F) the condition can become critical and eventually fatal. The early warning signs of hypothermia are: excessive shivering, blue lips and fingers, slurred speech, poor coordination, confusion and impaired thinking. Hypothermia may occur at temperatures well above freezing when a victim is submerged in cold water.

Controls

When working in cold weather, employers and workers should take the following precautions:

- Wear several layers of clothing rather than one thick layer.
- Wear gloves and a warm wool hat or a liner under the hard hat, because 40 percent of a person’s body heat can be lost from an uncovered head; remember to cover the ears.
- Wear synthetic or cotton clothing next to the skin to wick away sweat.
- Wear warm footwear with one or two pairs of warm socks; footwear should not fit too tightly because it will restrict blood flow and may cause more harm than good.
- Wear a scarf or face mask in cold windy weather.
- Take frequent short breaks in a warm shelter to allow the body to warm up and establish work standards in accordance with the American Conference of Industrial Hygienists.
- Avoid exhaustion or fatigue because energy is needed to keep muscles warm.
- Drink warm, sweet beverages and avoid drinks with caffeine or alcohol.
- Eat warm, high calorie food such as pasta dishes.
- Workers who take certain medications, are in poor physical condition or suffer from illnesses such as diabetes, high blood pressure, or cardiovascular disease are at increased risk and should therefore check with a doctor for additional advice.

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