

Working in Cold Weather

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 -25° F (-32 °C). 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. To determine the wind chill temperature, refer to the chart at the end of the article.

When working in cold weather, employers and workers should take simple precautions, such as those listed below:

- ▲ Wear several layers of clothing rather than one thick layer.
- ▲ Wear gloves and a warm wool hat or a helmet 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 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.
- ▲ 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.

Note: For a free copy of OSHA's Cold Stress Card in English or Spanish, visit www.osha.gov/Publications/osha3156.pdf (English) and www.osha.gov/Publications/osha3158.pdf (Spanish).

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. First Aid – Move the victim to a warmer place and remove any constricting jewelry and wet clothing. Wrap the affected areas in sterile dressings (remember to separate affected fingers and toes) and immediately get medical attention. Do not rub or massage the affected skin and do not apply hot water or heat. Also, look for signs of hypothermia and treat accordingly.

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 95 °F (35 °C). When body temperature falls below 90 °F (32 °C) 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. First Aid – If any of the symptoms of hypothermia are observed, the victim should immediately be taken to shelter—e.g., heated office, trailer, car or truck. Remove wet clothing and wrap victim in warm covers or provide him/her with warm dry clothing. Keep the victim awake if possible. Provide victim with warm, sweet drinks (sugar water, sports type drinks), avoiding drinks with caffeine (e.g. coffee, tea, sodas or hot chocolate) and alcoholic beverages. Get medical attention.



Wind Chill Chart

