

Cold

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.



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 hat or a helmet liner under the hard hat.
- Wear synthetic or cotton clothing next to the skin to control 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.



Workers exposed to cold must dress appropriately for the weather.

Frostbite & Hypothermia

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 (Frostbite)

- 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.
 - 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 (Hypothermia)

- 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

THE COLD STRESS EQUATION

**LOW TEMPERATURE + WIND SPEED + WETNESS
= INJURIES & ILLNESS**

When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, and permanent tissue damage and death may result.

Hypothermia can occur when *land temperatures* are **above** freezing or *water temperatures* are below 98.6°F/37°C. Cold-related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.

