

Working in the Cold

Many workers may be exposed to cold temperatures while working outdoors during the winter.

- In a cold environment, body heat must be conserved to maintain the core temperature at normal levels and to ensure an adequate blood flow to the brain and extremities.
- Feelings of cold and discomfort should not be ignored, since these may be early warning signs.
- The effects of cold are such that problems can occur before you are aware of them, and furthermore, over-exposure to cold may affect judgment.
- Do not work alone; the "buddy" system enables workers to observe each other for early signs of frostbite or hypothermia.
- Even temperatures above freezing can cause problems, especially if you are wet and exposed to cold elements for a long period of time.
- Workers can become fatigued earlier due to the need to produce more body heat and due to the bulk or weight of the extra clothing that is worn in cold environments.



Cold temperatures and increased wind speed (wind chill) cause heat to leave the body more quickly, putting workers at risk of cold stress. Anyone working in the cold may be at risk.

- Symptoms: numbness, reddened skin develops gray/white patches, feels firm/hard, and may blister.

Common Types of Cold Stress

Hypothermia

- Normal body temperature (37°C) drops to 35°C or less.
- Mild Symptoms: alert but shivering.
- Moderate to Severe Symptoms: shivering stops; confusion; slurred speech; heart rate/breathing slow; loss of consciousness; death.

Frostbite

- Body tissues freeze, e.g., hands and feet. Can occur at temperatures above freezing, due to wind chill. May result in amputation.

How to Protect Yourself and Others

- Use engineering controls like radiant heaters.
- Know the symptoms; monitor yourself and co-workers.
- Drink warm, sweetened fluids (no alcohol).
- Dress properly:
 - Layers of loose-fitting, insulating clothes
 - Insulated jacket, gloves, and a hat (waterproof, if necessary)
 - Insulated and waterproof boots

What to Do When a Worker Suffers from Cold Stress

For Hypothermia:

- Call 911 immediately in an emergency.
- To prevent further heat loss:
 - Move the worker to a warm place.
 - Change to dry clothes.
 - Cover the body (including the head and neck) with blankets, and with something to block the cold (e.g., tarp, garbage bag). Do not cover the face.
- If medical help is more than 30 minutes away:
 - Provide warm, sweetened drinks if alert (no alcohol).
 - Apply heat packs to the armpits, sides of chest, neck, and groin. Call 911 for additional rewarming instructions.



- Do not apply snow/water. Do not break blisters.
- Loosely cover and protect the area from contact.
- Do not try to rewarm the area unless directed by medical personnel.

For Frostbite:

- Follow the recommendations “**For Hypothermia**”.
- Do not rub the frostbitten area.
- Avoid walking on frostbitten feet.





















Work and Warm-up Schedule



Your work schedule should have regular breaks for warming up.

- Breaks should be not less than 10 minutes in length and should be taken in a heated area.
- Outer clothing should be removed to prevent perspiration when indoors, which may cause chilling when going out into the cold again.

All non-critical work should be stopped at temperatures of -43 °C, air temperature or wind chill. Refer to the chart for other scenarios.

Maximum exposure times between breaks

Air Temperature Sunny Sky (°C)	Calm	8 km/h wind	16 km/h wind	24 km/h wind	32 km/h wind
-26 to -28			75 min	55 min	40 min
-29 to -31		75 min	55 min	40 min	30 min
-32 to -34	75 min	55 min	40 min	30 min	
-35 to -37	55 min	40 min	30 min		
-38 to -39	40 min	30 min			
-40 to -42	30 min				
-43 & below					

 Work with normal breaks
  All but emergency work should cease