

Tool Box Talk

WORKING IN COLD WEATHER

NOVEMBER 2011

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 -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. When working in cold weather, employers and workers should take simple precautions, such as these listed:

- 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 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.
- Refer to the chart below to determine work time in cold weather.
- 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.

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 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. 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.

Sunny Sky Air Temperature		No Noticeable Wind		Wind 8 km/h (5 mph)		Wind 16 km/h (10 mph)		Wind 24 km/h (15mph)		Wind 32 km/h (20 mph)	
°C below zero *	°F below zero *	Max. work period	Number of breaks**	Max. work period	Number of breaks**	Max. work period	Number of breaks**	Max. work period	Number of breaks**	Max. work period	Number of breaks**
26 to 28	15 to 19	120 minutes	1	120 minutes	1	75 minutes	2	55 minutes	3	40 minutes	4
29 to 31	20 to 24	120 minutes	1	75 minutes	2	55 minutes	3	40 minutes	4	30 minutes	5
32 to 34	25 to 29	75 minutes	2	55 minutes	3	40 minutes	4	30 minutes	5	Non-emergency work should stop	
35 to 37	30 to 34	55 minutes	3	40 minutes	4	30 minutes	5	Non-emergency work should stop			
38 to 39	35 to 39	40 minutes	4	30 minutes	5	Non-emergency work should stop		Non-emergency work should stop			
40 to 42	40 to 44	30 minutes	5	Non-emergency work should stop		Non-emergency work should stop		Non-emergency work should stop			
43 and below	45 and below	Non-emergency work should stop		Non-emergency work should stop		Non-emergency work should stop		Non-emergency work should stop		Non-emergency work should stop	



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