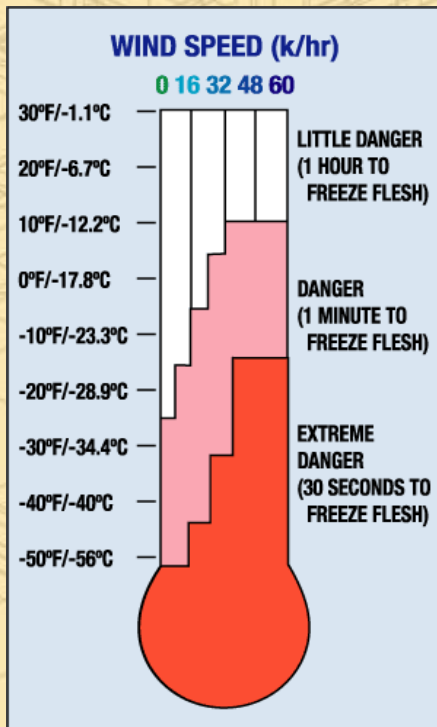




January 2019

## Wind Chill

Wind chill involves the combined effect of air temperature and air movement. The wind-chill cooling rate is defined as heat loss resulting from the effects of air temperature and wind velocity upon exposed skin. The higher the wind speed and the lower the temperature in the work environment, the greater the insulation value of the protective clothing required. The chart below shows equivalents between air temperatures with and without wind.



This month in safety...

## Cold Stress

Cold Stress can affect workers who are not protected against the cold. The cold may occur naturally (eg: from weather conditions) or be created artificially (eg: from refrigerated environments). Cold is a physical hazard in many workplaces. When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, leading to permanent tissue damage and even death.

### Core Temperature

The body tries to maintain an internal (core) temperature of approximately 37°C (98.6°F). This is done by reducing heat loss and increasing heat production. Under cold conditions, blood vessels in skin, arms, and legs constrict, decreasing blood flow to extremities. This minimizes cooling of the blood and keeps critical organs warm. At very low temperatures, however, reducing blood flow to the extremities can result in lower skin temperature and higher risk of frostbite.

### Health Hazards

Exposure to cold causes two major health problems:

#### 1. Hypothermia

When the body can no longer maintain core temperature by constricting blood vessels, it shivers to increase heat production. Maximum severe shivering develops when the body temperature has fallen to 35°C (95°F).

What are the signs & symptoms?

The most critical aspect of hypothermia is the body's failure to maintain its deep core temperature. Lower body temperatures present the following signs and symptoms:

- persistent shivering
- irrational or confused behaviour
- reduced mental alertness
- poor coordination
- reduction in rational decision-making

#### 2. Frostbite

Frostbite is a common injury caused by exposure to severe cold or by contact with extremely cold objects. It occurs more readily from touching cold metal objects than exposure to cold air. The body parts most commonly affected by frostbite are face, ears, fingers, and toes.

What are the signs & symptoms?

Frostbite symptoms vary. They are not always painful, but often include a sharp, prickling sensation. The first indication of frostbite is skin that looks waxy and feels numb. Once tissues become hard, the case is a severe medical emergency. Severe frostbite results in blistering that usually takes 10 days to subside. Once damaged, tissues will always be more susceptible to frostbite in future.