Cold
"Cold" is more than just a temperature. It includes environmental elements such as humidity, wind speed, and other factors. Cold weather can seriously affect your health and well-being.

Cold temperatures cause blood vessels to narrow, slowing the flow of warm blood from the core of the body to the extremities. With prolonged exposure to cold, ice crystals form in your tissues. These ice crystals damage cells and blood vessels.

People who are exposed to cold temperatures for prolonged periods are at greatest risk of cold stress. Cold stress occurs when the body can no longer maintain a normal temperature. The results can be serious cold-related illnesses and injuries, permanent tissue damage or death. Cold injury occurs with and without freezing of body tissues. Body parts that are commonly affected include:

- Nose
- Cheeks
- Toes
- Feet
- Hands/Fingers
- Ears

The goal is to expose as little skin as possible to the cold environment but everyone is susceptible to cold-related injuries, even people who have been living in cold climates for most of their lives. Common examples of cold injuries include:

- Chilblain - painful inflammation of small blood vessels in your skin that occur in response to repeated exposure to cold. Symptoms: itchy, red patches, swelling and blistering on hands and feet.

- Trench Foot - medical condition caused by prolonged exposure of the feet to damp, unsanitary, and cold conditions. Symptoms: tingling, itching, pain, swelling, cold/blotchy skin, numbness, prickly or heavy feeling in the foot/feet.

- Frostnip - a mild form/first stage of frostbite that irritates the skin, causing redness and a cold feeling followed by numbness; frostnip doesn't permanently damage the skin. Symptoms: pale skin, itching, burning, tingling, and numbness.

- Frostbite - when exposure to cold temperatures causes freezing to the skin or other tissues. Symptoms: cold skin, prickling feeling, numbness, discolored skin (red, white, bluish-white, or grayish-yellow), hard or waxy-looking skin, clumsiness (joint and muscle stiffness), blistering after rewarming.

Frostbite is one of the most common cold-related injuries. Exposed skin in cold and windy weather is most vulnerable to frostbite. It usually affects the hands, feet, and face. The longer areas are exposed to cold, the worse the frostbite becomes. Frostbite is classified by various degrees of severity; first degree is superficial damage to surface skin and fourth degree involves bone, muscle and tendon. This causes irreversible damage and often requires amputation.

Frostbite can happen faster than you may think. In severely frigid weather, frostbite can happen in just 5 minutes.
Cold Weather Injury Prevention
Dressing properly is extremely important to preventing cold stress and injuries. The type of fabric worn also makes a difference. Cotton loses its insulation value when it becomes wet. Wool, silk and most synthetics retain their insulation - even when they are wet. The following are recommendations for working in cold environments:

- **Protect Your Hands.** Layers are best; mittens are better than gloves (they keep your warm fingers together while warming each other).
- **Protect Your Feet/Toes.** Wear two pairs of socks with the inner layer made of synthetic fiber, to keep water away from the skin; the outer layer should be made of wool for increased insulation. Shoes and boots should be waterproof.
- **Protect Your Head.** Cover your head, face, nose, and ears at all times. Wear a wool or fleece hat.
- **Use Buddy System.** Always travel with a friend in case help is needed.
- **Stay Hydrated.** Drink at least one glass of water before going outside. Avoid smoking, alcohol and all caffeine – which increase the risk of frostbite. Eat and drink warm high-caloric foods and beverages.
- **Avoid exhaustion and fatigue.** Fatigue depletes energy. Energy keeps muscles warm.
- **Adopt a healthier lifestyle.** People who are sick, not in good physical condition, have diabetes, heart disease, high blood pressure, and/or those who are sixty-plus years old should take extra precautions against cold weather injuries.

Tips for Workers Wearing Winter Personal Protective Equipment (PPE)

- If you get warm, unzip your coat or jacket, but do NOT remove your hat and gloves.
- Keep your ears covered to help prevent discomfort and heat loss.
- Bring dry clothes to work so you can change if your clothing gets wet.
- Be sure to wear regular PPE in addition to cold weather PPE. For example, wear your safety vest over your winter layers to alert vehicles to your presence. (Also wear eye protection).
- If possible, take breaks in an area that is heated. Overexertion can cause excessive sweating, which can lead to wet, cold clothing.
- Winter layers can be bulky - but don’t wear loose clothing that could get caught in machinery.

What to do if symptoms of frostbite/cold injuries are experienced:

- The first step is to call 911 for medical help and explain the injured person’s condition. Keep them calm, engage them in conversation, and assist them until medical help arrives.
- Go into a warm room as soon as possible to get the body dry and warm.
- Remove all wet clothing from the affected area and elevate the area higher than the heart if possible - to avoid swelling.
- Unless absolutely necessary, do not walk on frostbitten feet or toes—this increases the damage.
- Do not rub or massage the frostbitten area! This can cause more damage.
- Warm the affected area using body heat. For example, the heat of an armpit can be used to warm frostbitten fingers.
- Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, radiator, or other device for warming because since the affected areas are numb, they can be easily burned.