



# BIE SAFETY ADVISOR



## Winter Is Here, Are You Prepared to Protect Your Workers?

Winter weather presents hazards including slippery roads/surfaces, strong winds and environmental cold. As outdoor temperatures drop and winter storms approach, employers should take measures to keep their employees safe. OSHA has a Winter Weather webpage, [www.osha.gov/dts/weather/winter\\_weather/index.html](http://www.osha.gov/dts/weather/winter_weather/index.html), that provides information on protecting employees from hazards while working outside during severe cold and snowstorms.

Outdoor work requires proper preparation, especially in severe winter weather conditions. Although OSHA does not have a specific standard that covers working in cold environments, employers have a responsibility to provide workers with employment and a place of employment which are free from recognized hazards, including winter weather related hazards, which are causing or are likely to cause death or serious physical harm to them. Employers should, therefore, train workers on the hazards of the job and safety measures to use, such as engineering controls and safe work practices, which will protect workers' safety and health.

### ***Employers Should Train Workers-***

At a minimum train workers on Cold Stress - How to recognize the symptoms of cold stress, prevent cold stress injuries

and illnesses

- The importance of self-monitoring and monitoring coworkers for symptoms
- First Aid and how to call for additional medical assistance in an emergency
- How to select proper clothing for cold, wet, and windy conditions
- Other winter weather related hazards that workers may be exposed to, for example, slippery roads and surfaces, windy conditions, and downed power lines.
- How to recognize these hazards
- How workers will be protected: engineering controls, safe work practices and proper selection of equipment, including personal protective equipment

### ***Employers Should Provide Engineering Controls***

- Engineering controls can be effective in reducing the risk of cold stress. For example, radiant heaters may be used to warm workplaces like outdoor security stations. If possible, employers should shield work areas from drafts or wind to reduce wind chill. Employers should use engineering controls to protect workers from other winter weather related hazards, for example, aerial lifts or ladders can be used for safely applying de-icing materials to roofs, to protect workers from the hazard of falling through skylights.

### ***Employers Should Implement Safe Work Practices***

- Safe work practices that employers can implement to protect workers from injuries, illnesses and fatalities.

### ***Employees Should Dress Properly for the Cold***

- Dressing properly is extremely important to preventing cold stress. When cold environments or temperatures cannot be avoided.



# Monthly Toolbox Talk

BIE Safety Advisor

## Cold Stress

Anyone working in a cold environment may be at risk of cold stress. Some workers may be required to work outdoors in cold environments and for extended periods, for example, snow cleanup crews, sanitation workers, police officers and emergency response and recovery personnel, like firefighters, and emergency medical technicians. Cold stress can be encountered in these types of work environments. The following frequently asked questions will help workers understand what cold stress is, how it may affect their health and safety, and how it can be prevented.

Cold stress occurs by driving down the skin temperature and eventually the internal body temperature (core temperature). This may lead to serious health problems, and may cause tissue damage, and possibly death.

***What are the risk factors that contribute to cold stress?*** Some of the risk factors that contribute to cold stress are:

- Wetness/dampness, dressing improperly, and exhaustion
- Predisposing health conditions such as hypertension, hypothyroidism, and diabetes
- Poor physical conditioning

***How does the body react to cold conditions?*** In a cold environment, most of the body's energy is used to keep the internal core temperature warm. Over time, the body will begin to shift blood flow from the extremities (hands, feet, arms, and legs) and outer skin to the core (chest and abdomen). This shift allows the exposed skin and the extremities to cool rapidly and increases the risk of frostbite and hypothermia. Combine this scenario with exposure to a wet environment, and trench foot may also be a problem.

***What are the most common cold induced illnesses/injuries?***

- Hypothermia
- Frostbite
- Trench Foot

***What is hypothermia?*** Hypothermia occurs when body heat is lost faster than it can be replaced and the normal body temperature (98.6°F) drops to less than 95°F. Hypothermia is most likely at very cold temperatures, but it can occur even at cool temperatures (above 40°F), if a person becomes chilled from rain, sweat, or submersion in cold water.

***What are the symptoms of hypothermia?***

- Mild symptoms:
  - An exposed worker is alert.
  - He or she may begin to shiver and stomp the feet in order to generate heat.
- Moderate to Severe symptoms:
  - As the body temperature continues to fall, symptoms will worsen and shivering will stop.
  - The worker may lose coordination and fumble with items in the hand, become confused and disoriented
  - He or she may be unable to walk or stand, pupils become dilated, pulse and breathing become slowed, and loss of consciousness can occur. A person could die if help is not received immediately.



***What can be done for a person suffering from hypothermia?***

- Call 911 immediately in an emergency; otherwise seek medical assistance as soon as possible.
- Move the person to a warm, dry area.
- Remove wet clothes and replace with dry clothes, cover the body (including the head and neck) with layers of blankets; and with a vapor barrier (e.g. tarp, garbage bag). Do **not** cover the face.
- If medical help is more than 30 minutes away:
  - Give warm sweetened drinks if alert (no alcohol), to help increase the body temperature. Never try to give a drink to an unconscious person.
  - Place warm bottles or hot packs in armpits, sides of chest, and groin. Call 911 for additional rewarming instructions.

***What is frostbite?*** Frostbite is an injury to the body that is caused by freezing of the skin and underlying tissues. The lower the temperature, the more quickly frostbite will occur. Frostbite typically affects the extremities, particularly the feet and hands. Amputation may be required in severe cases.

***What are the symptoms of frostbite?***

- Reddened skin develops gray/white patches.
- Numbness in the affected part.
- Feels firm or hard.
- Blisters may occur in the affected part, in severe cases.

***What can be done for a person suffering from frostbite?***

- Follow the recommendations described above for hypothermia.
- Do not rub the affected area to warm it because this action can cause more damage.
- Do not apply snow/water. Do not break blisters.
- Loosely cover and protect the area from contact.
- Do not try to rewarm the frostbitten area before getting medical help; for example, do not place in warm water. If a frostbitten area is rewarmed and gets frozen again, more tissue damage will occur. It is safer for the frostbitten area to be rewarmed by medical professionals.
- Give warm sweetened drinks, if the person is alert. Avoid drinks with alcohol.

***What is immersion/trench foot?*** Prolonged exposure to wet and cold temperatures causes Trench Foot or immersion foot. It can occur at temperatures as high as 60°F if the feet are constantly wet. Non-freezing injury occurs because wet feet lose heat 25-times faster than dry feet. To prevent heat loss, the body constricts the blood vessels to shut down circulation in the feet. The skin tissue begins to die because of a lack of oxygen and nutrients and due to the buildup of toxic products.

***What are the symptoms of trench foot?***

- Redness of the skin, swelling, numbness, blisters

***What can be done for a person suffering from immersion foot?***

- Call 911 immediately in an emergency; otherwise seek medical assistance as soon as possible.
- Remove the shoes, or boots, and wet socks.
- Dry the feet.

