COLD WEATHER SAFETY / COLD STRESS

OSHA Cold Stress QuickCard 3156

Cold related work illness is a real threat to our employees who work outside during months of cold weather. In order to lessen this threat, this program has been prepared.

An assessment will be made to identify the types of jobs or employees who are at risk for cold exposure. Clearly, every **employee who is working in an environment where the temperatures or wind chill factors are equal to or less than 30 degrees F**, whether indoors or outdoors, is at risk for cold exposure.

Training will utilize the OSHA Cold Stress QuickCard 3156, our Frostbite Safety Meeting found on **page 6** of this document, and other informational items.

Prior to working in an environment where the possibility of frostbite and hypothermia exists, employees will be given instruction the symptoms of cold illnesses, first aid procedures, and methods to prevent stress in the first place..

On days when applicable environmental conditions exist (**temperatures or wind chill factors equal to or less than 30 degrees F**), the site supervisor will, before the morning shift starts, remind workers of the danger of frostbite and hypothermia, the procedures to lessen its impact, and, in the worst case, the procedure for medical response.

Symptoms of cold related illness and First Aid Procedures:

FROSTBITE
(Sensations of coldness; tingling, stinging or aching feeling of the exposed area followed by numbness of ears, fingers, toes, cheeks, and noses. Frostbitten areas appear white and cold to the touch)

Seek medical assistance immediately.
Frostbitten parts should be covered with dry, sterile gauze or soft, clean cloth bandages.

DO NOT massage frostbitten tissue
Take measures to prevent further cold injury.

GENERAL HYPOTHERMIA
(Shivering, an inability to do complex motor functions, lethargy, and mild confusion)

Conserving remaining body heat.
Providing additional heat sources.
Seek medical assistance for persons.

SEVERE HYPOTHERMIA
(Unresponsive and not shivering)

Seek medical attention immediately.

Reduce heat loss by:

1. obtaining shelter.
2. removal of wet clothing.
3. adding layers of dry clothing, blankets, or using a pre-warmed sleeping bag.

TRENCH FOOT
(Tingling, itching or burning sensation. Possible blistering)

Gently dry the foot.
Re-warm the foot.
Keep foot elevated above the heart.
Seek medical attention immediately.

Measures to Prevent Cold Related Stress / Illnesses

The four environmental conditions that cause cold-related stress are low temperatures, high/cool winds, dampness and cold water. Wind chill, a combination of temperature and velocity, is a crucial factor to evaluate when working outside. For example, when the actual air temperature of the wind is 40°F (4°C) and its velocity is 35 mph, the exposed skin receives conditions equivalent to the still-air temperature being 11°F. A dangerous situation of rapid heat loss may arise for any individual exposed to high winds and cold temperatures.

The purpose of this program is to take definitive measures prior to the onset of cold related illnesses so that medical response will not be necessary. If the above conditions do present themselves, the supervisor, who will always have access to a mobile phone, will follow our standard emergency procedures.

Definitive measures to prevent cold related illness include:

1. **Personal Protective Clothing**

   Personal Protective Clothing is the most important step in fighting the elements is providing adequate layers of insulation from them. Wear at least three layers of clothing:

   1. An outer layer to break the wind and allow some ventilation (like Gore-Tex® or nylon);
   2. A middle layer of wool or synthetic fabric (Qualofil or Pile) **to absorb sweat** and retain insulation in a damp environment. Down is a useful lightweight insulator; however, it is ineffective once it becomes wet.
   3. An inner layer of cotton or synthetic weave to allow ventilation.

   Pay special attention to protecting feet, hands, face and head. Up to 40% of body heat can be lost when the head is exposed. Footgear should be insulated to protect against cold and dampness. Keep a change of clothing available in case work garments become wet.

2. **Engineering Controls**

   Engineering Controls help reduce the risk of cold-related injuries.

   1. Use an on-site source of heat, such as air jets, radiant heaters, or contact warm plates.

      Note: The use of space heaters for comfort may or may not require compliance with local Fire Codes.

   2. Shield work areas from drafty or windy conditions.
   3. Provide a heated shelter for employees who experience prolonged exposure to equivalent wind-chill temperatures of 20°F or less.
   4. Use thermal insulating material on equipment handles when temperatures drop below 30°F.
   5. Keep walkways and travelways sanded, salted, or cleared of snow and ice as soon as practicable.

3 **Safe Work Practices**

   Safe Work Practices, such as changes in work schedules and practices, are necessary to combat the effects of exceedingly cold weather. Possible workable safe practices include:

   1. Allowing a period of adjustment to the cold before embarking on a full work schedule.
   2. Permitting employees to set their own pace and take extra work breaks when needed.

3. Reducing, as much as possible, the number of activities performed outdoors. When employees must brave the cold, selecting the warmest hours of the day and minimize activities that reduce circulation.
4. Ensuring that employees remain hydrated.
5. Establishing a buddy system for working outdoors to ensure that no employee works alone in cold work environments. All employees should be under constant protective observation by a co-worker and/or supervisor.
6. Educating employees to the symptoms of cold-related stresses -- heavy shivering, uncomfortable coldness, severe fatigue, drowsiness, or euphoria.
7. Ensuring that all employees are trained and knowledgeable in administering first aid treatment on cold induced injuries or illnesses.

Provision of water

Employees will have access to adequate quantities of potable drinking water.

Where the supply of water is not plumbed or otherwise continuously supplied, water will be provided in sufficient quantity.

Supervisor will provide frequent reminders to employees to drink frequently, and, if needed, more water breaks will be provided.

Drinking water will be dispensed in containers with a tight sealing lid and labeled as Drinking Water. Drinking water containers are to be cleaned daily. Water containers will be placed as close as possible to the workers.

Supervisors will monitor water consumption and water supply and ensure adequate levels are available to last the whole shift

Disposable/single use drinking cups will be provided to employees

Supervisors will remind employees that personal military style canteens may be worn containing water. In cold weather conditions, employees are encouraged to drink warm, sweet beverages (sugar water, sports-type drinks. They should avoid drinks with caffeine (coffee, tea, or hot chocolate). Employees are cautioned, however, that sharing water from a personal canteen is forbidden and, because of the health hazard to the user and the person with whom it is shared, disciplinary action will be taken against both employees if they drink out of the same container. This disciplinary action will be documented using our disciplinary enforcement form.

Cold Weather Supplies

Cold weather supplies will be regularly inspected and restocked when necessary. Cold weather supplies would include shovels, gloves, hand warmers, jackets, scrapers, sand, salt, etc..

If needed, these items should be readily accessible and in good order.

Training

All employees will be required to work in cold weather conditions will receive initial and annual training regarding the health effects of cold exposure, proper re-warming procedures, recognition of, and first aid for, frostbite and hypothermia, required protective clothing, proper use of warming shelters, the buddy system, vehicle breakdown procedures, and proper eating and drinking habits for working the cold.

Training will also included information on the dangers and destructive potential caused by unstable snow and ice buildups, sharp (and falling) icicles, and ice dams and how to prevent accidents caused by these items.

SAFETY MEETING

Note: Our company conducts scheduled safety meetings to focus attention on one major safety topic per meeting. Should an employee have a question on any subject related to safety or job procedure, it will be addressed by the person conducting the meeting.

FROSTBITE

You have probably experienced some degree of frostbite at one time or another -- possibly on the job site. It generally starts with a light reddening of the ears, nose, chin, fingers, or toes. The sensation of cold is present. The feeling of cold changes to tingling and then to pain as the frostbite becomes more intense. Finally, the redness has turned to pale, grayish blue and the pain has disappeared only to be replaced by numbness. You now have a full blown case of frostbite.

What actually occurs during frostbite and how dangerous is it? Most of your body is made up of water and water is abundantly present in all your cells. When your exposed extremities are subjected to extreme cold, the temperature (heat) flows from your cells to the outside cold. The result is ice! That's right. Ice actually forms in your cells and tissue. The ice crystals within the cells cause cell damage. There is a loss of oxygen to the tissue and, in a worst case, gangrene can set in.

There are three (3) levels of frostbite: incipient, superficial, and deep. You might not even know you have had incipient frostbite until you start warming up and notice a slight tingling. The total cure involves gentle warming. If you don't notice incipient frostbite and remain in the extreme cold, superficial frostbite may develop. In this case, the freezing occurs in the tissue below the skin. Blisters may form and pain may last for several weeks. Deep frostbite is dangerous and the freezing occurs in the subcutaneous tissue. Attempts will be made at the hospital to decrease the oxygen needs of the tissue, improve blood supply, and prevent infection. Some tissue may have to be removed.

Because frostbite involves the loss of oxygen to the tissue, persons with poor circulation are at greater risk. Having very tight shoes can also increase the risk for toes getting frostbite.

Contrary to what you may have heard, never rub snow in a frostbitten area of your body. This will only increase trauma to the injured tissue. Gently soaking in warm water (110°F) is your best bet. Certainly, if it is deep or bothersome superficial frostbite, seek professional medical help.

Several light layers of clothing will offer greater warmth than one heavy layer. Because moisture is a good conductor of heat (the temperature will leave your body and go to the outside air) and dry air is not a good conductor, dry clothing is a must in cold weather.

Frostbite may be a warning that could save your life. Get out of the cold! As your body cools and shivering stops, heat loss will exceed heat production and you will get listless, apathetic, and sleepy. Pulse and respiration will slow. Freezing, unconsciousness, and death may occur.