
# Safety Training Topics

Working in Cold Weather

Hypothermia

Frostbite: Signs & Symptoms

First Aid: Frostbite

Fall Protection

# SAFETY TRAINING TOPIC

# Working in Cold Weather

December marks the official start of the winter season, which means you are far more likely to be exposed to extreme cold temperatures. It is imperative that you understand the risks associated with prolonged exposure to cold weather and how to best protect yourself from the dangers that come with it.

If you work in cold or cool temperatures there is an increased that you will experience trench foot, hypothermia and frostbite. You should be aware that people who are in poor physical condition or have medical conditions such as hypertension, hypothyroidism and diabetes are at greater risk when working in cold weather.

Before conducting outdoor work in cold temperatures you should be trained in the safety precautions that go along with it. When work needs to be done in these conditions, plan to do so at the warmest part of the day. It can also helpful to work in pairs. This will better allow you monitor each other for symptoms of cold stress.

When working in the cold you need to stay dry. Moisture or dampness caused by sweat, snow or rain can increase the rate of heat loss from your body. You should carry an extra set of dry clothes when working in winter conditions avoid tight clothing because it reduces blood flow to your extremities and can result in more rapid heat loss.

OSHA recommends wearing multiple layers to provide better insulation and to help adjust to changing temperatures. Typically, an inner layer of wool, silk or synthetic (polypropylene) to keep moisture away from your body; a middle layer of wool or synthetic to provide insulation even when wet; and an outer wind and rain protection layer that allows some ventilation to prevent overheating. You might also consider wearing a knit hat along with insulated water proof boots and gloves. Remember if working with electricity Arc-Rated (AR) clothing may be needed. Some of the materials mentioned above may not be appropriate. Your supervisor should check with a supplier for cold weather garments and under garments that provide dual protection.

In addition to taking these precautions, your employer should provide a warm dry place for you to take breaks from freezing temperatures, as you can experience exhaustion and fatigue in cold weather at a more rapid rate than usual. Drinking warm beverages and sports drinks, avoiding caffeine and alcohol also help. Finally, you should consider eating warm high calorie foods such as pasta, prior to working in cold environments.

**REVIEW AND DISCUSSION**

- When should work be scheduled if necessary in cold environments?
- Why should you avoid wearing tight clothing when working in cold weather?
- What are some types of clothing that OSHA recommends wearing in cold weather?

# SAFETY TRAINING TOPIC

# Hypothermia

When working outdoors in cold or cool conditions, you are at risk for hypothermia. What is hypothermia? Hypothermia occurs when your body heat is lost faster than it can be replaced. Then your body temperature drops below 95°F. It most commonly occurs when exposed to extreme cold temperatures. However it can also occur in warmer conditions if you are chilled from rain, sweat or submersed in cold water.

Here are some indicators or symptoms that you or a colleague might be hypothermic. Mild symptoms include increased alertness, shivering and stomping of your feet to help generate heat. As your body temperature drops your condition will worsen and shivering will stop.

More moderate and severe symptoms may include dilated pupils, confusion, disorientation, impaired motor skills, slowed breathing and heart rate, difficulty standing and even unconsciousness. If you experience or observe any of these symptoms, it is important to get help immediately. You could die from hypothermia, if you don't seek immediate medical attention!

While waiting for help you should move yourself or your colleague to a warm, dry area. Then take off any wet clothes, replacing them with dry ones. The body should also be covered with layers of blankets, leaving a vapor barrier to help retain body heat. This can be done with garbage bags or tarps. However be careful to never cover the face.

If emergency responders are more than 30 minutes away, drink or offer warm sweet drinks to help increase body temperature. Never try to give a drink to an unconscious person. You may also place warm bottles or hot packs in armpits, sides of chest and /or groin areas.

In the event a hypothermia victim is not breathing or has no pulse, you may attempt to administer cardiopulmonary resuscitation (CPR) if you are comfortable and trained to do so.

**REVIEW AND DISCUSSION**

- What is hypothermia?
- What are some moderate to severe symptoms of hypothermia?
- Why is it important to leave a vapor barrier when warming up a hypothermia victim?
- When is it ok to give a drink to an unconscious person?

# SAFETY TRAINING TOPIC

# Frostbite: Signs & Symptoms

Frostbite is another ailment that you may encounter when working in cold weather. It is an injury that happens when your skin and underlying tissues freeze. Typically the colder the temperature, the shorter the length time it takes for frostbite to occur. It usually affects your fingers, toes, nose, ears, cheeks and chin.

You are most vulnerable to frostbite when your bare skin is exposed to cold, windy weather. However it can also be caused by direct contact with ice, freezing metals or very cold liquids.

The first stage of frostbite is known as frostnip. This is the mildest form of frostbite. At this stage your skin may turn pale or red and feels very cold to the touch. It may also result in prickling and numbness. Once your skin warms up, you may feel pain and tingling. However you won't experience permanent damage.

The second stage of frostbite occurs with more prolonged exposure to cold. When this occurs your skin may remain soft, but ice crystals can form in the tissue. According to the Mayo Clinic, your skin may begin to feel warm — a sign of serious skin involvement. If you treat frostbite with rewarming at this stage, the surface of your skin may appear mottled, blue or purple. And you may notice stinging, burning and swelling. A fluid-filled blister may appear 24 to 36 hours after rewarming the skin.

In severe cases you can experience numbness, pain or discomfort in the affected area. Your joints and muscles may not work at this point. Once the skin is re-warmed the area might turn black and hard as the tissue dies. This can result in amputation.

You may be a greater risk for experiencing frostbite if you have a history of substance or tobacco use, poor blood flow, diabetes, mental illness or previous frostbite or cold injury. Additionally higher altitudes, exhaustion and dehydration can accelerate the onset of frostbite.

If you experience any form of frostbite, seek medical attention. All stages require some type of treatment.

**REVIEW AND DISCUSSION**

- What part of the body does frostbite usually affect?
- What causes frostbite?
- What is the mildest form of frostbite?
- What are some factors that can put you at greater risk of experiencing frostbite?

# SAFETY TRAINING TOPIC

# First Aid: Frostbite

If you experience frostbite, you need to seek prompt medical attention. If your skin is turning hard or black or you have lost feeling in the affected area call 9-1-1 immediately

Whether you are afflicted with a severe or mild case of frostbite, the first thing that you need to do is restore warmth to the skin. Until you can see a doctor, you should go to a warm, dry area and remove all wet clothing. However do not attempt to re-warm skin unless you can keep it warm. Re-exposing warm frostbitten areas to cold air can cause worse damage.

When re-warming the skin do not use direct heat from heaters, fireplaces or heating pads. You may use warm, NOT HOT, water to help do so. If no water is available you can attempt to breathe on the area or hold it close to the skin. Never rub the area or break any blisters that may have formed. Unless absolutely necessary, do not attempt to walk on feet or toes that have frostbite.

Once your skin is warm again, you should bandage the area. You can do so by applying loose, dry and sterile dressing. If the frostbite has occurred on your fingers or toes, use gauze or clean cotton balls between each to keep them separated.

After receiving medical attention, your next courses of action will vary on a case-by-case basis. Some cases require being in the hospital for an extended time. Other times you may be offered medication for pain or even intravenous fluids if you are dehydrated. More often than not you will also be given a tetanus shot.

You should also return to the doctor if you exhibit fever, new symptoms, increased pain, swelling, redness or discharge in the area that was frostbitten. Once you have experienced frostbite you may encounter the following complications:

- Increased sensitivity to cold
- Increased risk of developing frostbite again
- Long-term numbness in the affected area
- Changes in the cartilage between the joints (frostbite arthritis)
- Infection, gangrene or amputation

**REVIEW AND DISCUSSION**

- How should you re-warm areas afflicted with frostbite?
- When should you return to a health care provider after being treated for frostbite?

# SAFETY TRAINING TOPIC

# Fall Protection

## SOME FACTS

Fall-related accidents account for about 10% of all workplace fatalities. Nearly all of the fall accidents on record were preventable.

Ways of protecting yourself include hazard elimination, fall protection, and work procedures.

## HAZARD ELIMINATION

The most effective way to deal with fall hazards is to eliminate them. For example, if you can lower a light to replace its lamp and then raise the light back up, you have eliminated the hazard.

Partial elimination is the second most effective way. For example, if you can pre- assemble items before going up in a lift or up on a ladder, you will spend less time being vulnerable to a fall.

## FALL PROTECTION

You can't always eliminate a fall hazard, and partial elimination still leaves you with a hazard. Fall protection, as defined by the fall protection industry, is a passive way of preventing you from falling.

Fall protection examples are all around you. These include ladder cages, platform railings, and secured hole covers.

## FALL RESTRAINT

This is what most people think of, when they think of fall protection.

It involves the use of a secure anchorage and a lanyard connected to your full body harness. The lanyard allows you to reach the work area, but prevents you from falling too far.

Fall restraints require you to have training in the proper use and inspection of your equipment.

## WORK PROCEDURES

Some situations make fall protection and fall restraint measures impractical or impossible.

The idea of changing the work procedure is not to find a cheaper way of protecting against the fall. The idea is to rethink the work process so fall protection measures become practical, possible, or unnecessary.

You may need to help change the procedure or find a way to eliminate the task completely. Your input is valuable, as you are the one doing the work.

## SAFETY HARNESS INSPECTION

When using fall restraint devices, you must inspect them. Look for fiber dan1age, pulled stitches, or frayed edges. Examine D-rings, grommets, rivets, buckles, tongues, and straps.

## LANYARD INSPECTION

Look for fiber damage, pulled stitches, or frayed edges. Inspect the snaphooks, carbineer, and any other mechanisms.

If it is a retractable lanyard, ensure the back nuts and rivets are tight.

If it is a retractable lanyard, test for smooth operation and proper locking.

## ANCHORAGE POINTS

Before attaching to an anchorage point, look for cracks, sharp edges, or evidence of abuse.

In a particularly dangerous area, you will need to attach to a new anchorage point before un-attaching from the one you are attached to.

Do not attach to guardrails, C-clamps, ladders, conduit, light fixtures, rebar, plumbing, roof stack, or any object that you aren't sure can support your weight plus the force of your fall. Anchorage points must be capable of supporting 5,000 pounds per person because of the forces generated from the impact of a fall.

## REVIEW AND DISCUSSION

- If there are ten people in your crew, how many are statistically likely to die from a preventable fall accident?
- What are three ways of protecting yourself from falls?
- What are some examples of how might you eliminate or partially eliminate a fall hazard?
- What is fall protection, as defined by the fall protection industry, and what are some examples?
- What is fall restraint, and what are some examples?
- What kind of training do you need if you are going to use fall restraint equipment?
- What is the purpose of changing work procedures?
- How do you inspect a harness?
- How do you inspect a lanyard?
- What do you need to know about attachment points?