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Cold Weather Safety

Working in cold weather can be dangerous without adequate winter clothing and preparation. When the body is unable to warm itself, life-threatening injuries such as hypothermia and frostbite may occur. Winter work can be both enjoyable and fulfilling, if you are well-prepared and well-informed. To cope with the weather, stay active, dress warm, and follow these tips.

Why should I be concerned about working in cold weather?

- A cold environment whisks away your body heat. Too much heat loss can cause lowering of the inner body temperature to dangerously low levels, causing hypothermia.
- Exposed skin may freeze in the right conditions, causing frostbite.
- Hypothermia and frostbite can

present serious danger to your health and can be life-threatening.

- Cold air is dry air, which causes dry skin and loss of body fluid.
- Prolonged exposure to moderate cold and dampness can result in other types of injuries, such as back or musculoskeletal injuries. For those with arthritis or rheumatism, cold weather can create even more pain problems.

Considerations for Working in Cold Weather

- Cold affects dexterity, reducing the skill and ease of using your hands.
- Cold affects your grip force and the skin's ability to sense temperature and pain.
- Winter clothing, head protection, gloves, and boots can all restrict your normal range of motion.

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Treating Cold Weather Injuries

Frostbite

This is the freezing of deep skin tissue layers, which leads to the whitening, hardening, and numbing of skin. It typically affects the fingers, hands, toes, feet, ears, and nose. To treat frostbite:

- ✓ Move the person to a warm, dry area. Do not leave the person alone.
- ✓ Remove any wet or tight clothing that may cut off the blood flow to the affected area.
- ✓ Do not rub the affected area – it will cause damage to the skin and tissue.
- ✓ Gently place the affected area in a warm (105°F) water bath and monitor the water temperature to slowly warm the tissue. Do not pour warm water directly on the affected area because it will warm the tissue too fast, causing damage. Warming should take about 25 to 40 minutes.
- ✓ After the area has been warmed, it may become puffy and then blister. It may also have a burning feeling or numbness. When normal feeling, movement and skin color have

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- Cold exposure reduces muscle power and time to exhaustion. Do not overexert.
- Cold tool handles reduce grip force.
- Special care is needed while using ladders or working on elevated platforms in snow and icy conditions.
- Power tools and equipment need special care to be operational in a cold environment.
- Cold exposure aggravates vibration – making manual work painful.
- Extremely cold conditions can adversely affect your mental skills and coordination.
- Blizzards can produce extremely cold conditions and endanger lives within minutes. In blizzard conditions, seek shelter immediately.

Signs of Cold Stress

Cold-related injuries can slowly overcome a person who has been chilled by cold weather, brisk winds, or wet clothing. The danger signs of a cold-related injury

include uncontrolled shivering, slurred speech, clumsy movements, fatigue, and confused behavior. If these signs are observed, seek professional medical help immediately.

How Cold is Too Cold?

According to the U.S. Occupational Safety and Health Administration (OSHA), there is no exact temperature in which the environment becomes hazardous. Air temperature is not the only factor. Brisk winds and cold temperatures, when combined, make it dangerously cold.

Exposed skin freezes within one minute at -20°F when wind speed is 5 mph. When the wind speed increases to 20 mph, skin will freeze at 10°F if clothes and skin are dry. If they are wet, injury can happen in less cold temperatures. Remember, a variety of factors – including low temperature, wind speed, and wetness – all contribute to conditions that lead to cold-induced injuries and illness; it does not have to be below freezing for injury to occur. ■

returned, the area should be dried and wrapped to keep it warm. *NOTE: If there is a chance the affected area may get cold again, do not warm the skin. If the skin is warmed and then becomes cold again, it will cause severe tissue damage.*

- ✓ Seek medical attention as soon as possible.

Hypothermia

When the body loses heat faster than it produces it, causing the body temperature to drop below 95°F, hypothermia has occurred. The first sign of it is pronounced shivering, followed by drowsiness. Irritability, confusion, and loss of coordination can also set in. If untreated, hypothermia may progress to slurred speech, irrational behavior, unconsciousness and ultimately, heart failure. To treat hypothermia:

- ✓ Call for emergency medical help.
- ✓ Move the person to a warm, dry area. Do not leave him/her unattended. Remove any wet clothing and replace with warm, dry clothing, or wrap the person in blankets.
- ✓ If alert, have the person drink warm, sweet drinks (sugar water or sports-type drinks). Avoid drinks with caffeine or alcohol.
- ✓ Have the person move his/her limbs to produce body heat. If unable, place warm bottles or hot packs in the armpits, groin, neck and head areas. Do not rub the person's body or place him/her in a warm water bath. This may stop the heart. ■

The ABCs of Cold Weather Gear

Proper protection begins with layered clothing. The goal is to keep warm enough to be safe, but cool enough so as not to perspire excessively. The inner layer of clothing should be a synthetic weave to keep perspiration away from the body. The middle layer should be made of wool or synthetic fabric to absorb sweat and retain as much body heat as possible. The outer layer should be made from a material designed to break the wind (such as Gore-Tex®) and allow some ventilation.

To prevent frostbite, exposed skin must be covered. Insulated gloves and boots, ear covers and facemasks should be worn.

Since almost 40 percent of the body's heat is lost through the head, insulated hats are vital. When hard hats must be worn, quality winter liners that cover the neck and the sides of the face should be used.

Heated items such as vests, head/ear bands, and neck warmers are also available from leading personal protective equipment (PPE) providers. The items are heated by packets that come in various sizes and can also be used in standard clothing such as gloves, hats, and boots. ■