

# Contact Safety

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# Mine Safety & Training Section

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## Winter Workplace Safety

With winter in full swing, it is important for employers to take the necessary actions to protect their workers from various risk associated with winter hazards. While there are many hazards that come with winter and the workplace, the focus here will be on winter driving and cold stress.

### Winter Driving

Winter workplace safety begins with employees arriving at work safely. Once there, it continues with operating equipment on slick, wet surfaces. In order to prepare for winter roads, the National Highway Traffic Safety Administration (NHTSA), recommends the *Three P's of Safe Winter Driving*. (Safe Winter Driving, 2016)

### Prepare for the trip

- Maintain your vehicle – This includes checking your battery, tire tread, and windshield wipers. Keep your windows clear so your view of the road and traffic around you is not obstructed. Ensure your coolant (antifreeze) level is appropriate. Put no-freeze washer fluid in washer reservoir. If traveling ice or snow covered roads, vehicles should be equipped with traction tires or have traction devices such as vehicle chains on-hand.
- Have on hand – flashlight, jumper cables, abrasive material (sand or kitty litter), shovel, snow brush and ice scraper, warning devices (flares or reflective emergency triangles), and blankets. If preparing for a long trip, ensure to carry food, water, medication and a cell phone.

- Stopped or stalled – stay in your vehicle, don't overexert, put bright markers on antenna or windows and shine the dome light. If you need to run your vehicle, ensure the exhaust pipe is cleared and only run it enough to stay warm.
- Plan your route – Ensure you allow plenty of time, check the weather, familiarize yourself with maps/directions. Make sure others know the route you plan to take and expected arrival time.
- Practice cold weather driving
  - During the daylight, rehearse maneuvers slowly on ice or snow in an empty lot.
  - Steer into a skid.
  - Know what your brakes will do: stomp on antilock brakes, pump non-antilock brakes.
  - Stopping distances are longer on water covered-covered ice and ice.
  - Don't idle for a long time with the windows up or in an enclosed space.

### Protect yourself

- Buckle up and use child safety seats properly.
- Never place a rear-facing infant seat in front of an air bag.
- Children under 12 are much safer in the back seat.

## Prevent Crashes

- Drugs and alcohol never mix with driving.
- Slow down and increase distance between cars.
- Keep your eyes open for pedestrians walking in the road.
- Avoid fatigue – Get plenty of rest before the trip, stop at least every three hours, and rotate drivers if possible.
- Designate a sober driver if you are planning to drink.

It is important to note that according to the National Weather Service, 70% of all injuries during winter storms are the result of vehicle accidents, while another 25% are the results from being caught out in storms.

## Workplace Hazards

Once your employees arrive safely to work, it is important to ensure that they are trained on hazards associated with working outdoors. First and foremost, employees need to understand the cold stress and its hazards.

## Cold Stress

Cold stress is brought on when workers are exposed to or work in cold environments. These environments can be dangerous and lead to serious health emergencies. Some of these health related emergencies include the following:

- **Hypothermia** – caused when the body is exposed to cold temperatures and begins to lose heat faster than it can be produced. If the exposure continues, the body will eventually use up its stored energy. This loss of energy cause the body temperature to reach an abnormal level, resulting in hypothermia.
  - **Symptoms:** Vary depending on how long you have been exposed to cold temperatures.
    - **Early symptoms**
      - Shivering
      - Fatigue
      - Loss of coordination
      - Confusion and disorientation

## ▪ Late symptoms

- No shivering
- Blue skin
- Dilated pupils
- Slowed pulse and breathing
- Loss of consciousness

## ○ First Aid

- Alert the supervisor or dispatch and request medical assistance.
  - Move the victim into a warm room or shelter.
  - Remove wet clothing.
  - Warm the center of their body first (chest, neck, head and groin).
  - Warm beverages may help increase the body temperature, but do not give alcohol. Never try to give beverages to an unconscious individual.
  - Once the body temperature has increased, keep the victim dry and wrapped in a warm blanket.
  - If the victim has no pulse, begin CPR.
- **Frostbite** – is an injury to a body part that is caused by freezing. An individual suffering from frostbite will notice a loss of feeling and color in the affected area. The most prone areas of the body to frostbite include the nose, ears, cheeks, chin, fingers and toes. Injuries as a result of frostbite can result in permanent damage to body tissue, and if severe enough, can result in an amputation. As air temperatures decrease, the risk of frostbite is increased in workers with reduced blood circulation and workers that are not dressed appropriately.

## U.S. Customary Wind Chill Chart

Estimated Wind Speed in MPH	Actual Thermometer Reading (F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Temperature (F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-124
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect)	<b>LITTLE DANGER*</b> <small>(for properly clothed person)</small>				<b>INCREASED DANGER*</b> <small>(for properly clothed person)</small>				<b>GREAT DANGER*</b>			
<b>*DANGER FROM FREEZING OF EXPOSED FLESH</b>												

- **Symptoms**

- Reduced blood flow to hands and feet
- Numbness
- Tingling or stinging
- Aching
- Bluish or pale, waxy skin

- **First Aid** – when suffering from frostbite workers should:

- Get to a warm location or room as soon as possible
- Unless absolutely necessary, never walk on frostbitten feet as this can increase the damage
- Immerse the affected area in warm water (not hot water), the temperature should be comfortable to touch for the unaffected parts of the body.
- Warm the affected area using body heat; for example, the armpit can be used to warm frostbitten fingers.
- **Do not** rub or massage the affected area as this can increase the damage.
- **Do not** use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiation for warming. Remember, affected areas can be numb and therefore easily burned, without noticing it is occurring.

- **Trench Foot** – is an injury that results from prolonged exposures to wet and cold conditions. This condition can result at

temperatures up to 60 degrees (F), if feet are constantly wet. This injury occurs because wet feet lose heat 25 times faster than dry feet. Because of this, body constricts blood vessels to shut down circulation in the feet to prevent heat loss. Due to the lack of oxygen and nutrients and the buildup of toxic products, skin tissue will begin to die.

- **Symptoms**

- Reddening of the skin
- Numbness
- Leg cramps
- Swelling
- Tingling Pain
- Blisters or ulcers
- Bleeding under the skin
- Gangrene

- **First Aid**

- Remove shoes/boots and wet socks
- Dry their feet
- When possible and where work must be conducted in wet areas, carry an extra set of dry shoes/boots and socks
- Avoid walking on feet, as this may cause tissue damage

## References

Dambreville, J. R. (2015, January 20). *HR Legalist*. Retrieved from [www.hrlegalist.com](http://www.hrlegalist.com)

*Safe Winter Driving*. (2016, December 8). Retrieved from National Highway Transportation Safety Administration: [www.nhtsa.gov](http://www.nhtsa.gov)

*Types of Cold-related Illnesses*. (2016, July 11). Retrieved from The National Institute for Occupational Safety and Health (NIOSH): [www.cdc.gov/niosh/topics/coldstress/coldrelatedillnesses.html](http://www.cdc.gov/niosh/topics/coldstress/coldrelatedillnesses.html)

# **QUIZ**

**1) Winter workplace safety begins with employees**

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**2) \_\_\_\_\_ caused when the body is exposed to cold temperatures and begins to lose heat faster than it can be produced.**

**3) List 3 symptoms of frost bite**

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

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**4) \_\_\_\_\_ is a condition that results from prolonged exposures to wet and cold conditions.**

**5) List two ways to prevent crashes**

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**If there is any specific topics you would like to learn more about please write on line below.**

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**Employee:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Mine/Company:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_