



**Safety
Matters @Work**
Workers Compensation Board of PEI

COLD STRESS PREVENTION GUIDE

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CHAPTER 1 - ABOUT THIS PUBLICATION

1.0 Introduction

Working in cold conditions is a reality for many Prince Edward Islander workers. Whether working outside in winter or working inside cold storage areas, workers face the risk of cold stress, which can lead to serious health problems. Like other work-related injuries, cold stress can be prevented when the right precautions are taken.

This publication offers practical guidance and recommendations to help employers identify and control cold stress hazards while meeting the requirements of the *Occupational Health and Safety Act* (OHS Act) and its Regulations.



For additional support, please contact:

Workers Compensation Board (WCB)
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24-Hour OHS Emergency Line: 902-628-7513

For additional resources:

- Visit our website at wcb.pe.ca
- Download our **Guide to OHS Legislation App** available for iOS and Android

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1.1 What is the *Occupational Health and Safety Act (OHS Act)*?

The **OHS Act and its Regulations** set the minimum standards for occupational health and safety in the workplace and define the general safety principles for provincially regulated workplaces in Prince Edward Island. A safe workplace starts with employers and workers understanding the OHS Act and its Regulations.

Section 12 of the OHS Act states that employers must take every reasonable precaution to protect the health and safety of individuals at or near the workplace. This includes making sure that machinery, equipment and materials are in safe working condition, and that workers are provided with adequate training and supervision. Employers are also required to identify and eliminate workplace hazards to help prevent incidents and injuries.

In PEI, the WCB's OHS division enforces the following legislation and regulations at workplaces and work sites:

- *Occupational Health and Safety Act (OHS Act)*
- OHS Act General Regulations
- Fall Protection Regulations
- Scaffolding Regulations
- Workplace Hazardous Materials Information System (WHMIS) Regulations
- Workplace Harassment Regulations
- *Smoke Free Places Act* and General Regulations
- *Youth Employment Act*

This publication isn't intended as a form of legal advice and shouldn't be taken as a statement of the law. The information provided in this guide is for general application and therefore, the reader should always refer to the OHS Act and its Regulations for specific requirements.

Visit our website wcb.pe.ca for more information and additional resources.

CHAPTER 2 - RESPONSIBILITIES UNDER THE OHS ACT

Employers must assess the work environment to identify cold-related hazards and put controls in place. This includes providing heated or sheltered areas for rest breaks, making sure workers have access to warm clothing and drinking fluids, adjusting workloads or schedules to limit exposure to cold, and maintaining proper ventilation and heating systems.

In Prince Edward Island, the OHS Act, specifically **Regulation 42.1 - Extremes of Temperature**, states that exposure to heat and cold must align with the Threshold Limit Values (TLVs) established by the American Conference of Governmental Industrial Hygienists (ACGIH). These guidelines are detailed in the publication TLVs for Chemical Substances and Physical Agents 2019, available at acgih.org.

In addition, **Sections 11.10 and 11.11 of the OHS Act General Regulations** establish minimum temperature requirements for enclosed workplaces based on the nature of work performed. For example, light seated work such as office or precision tasks must be maintained at a minimum of 20°C, while heavy standing work such as drilling or manual labour must be maintained at a minimum of 12°C.

Exceptions apply in situations where maintaining minimum temperatures isn't practical or is unnecessary, such as:

- Workplaces that are normally unheated
- Areas where frequent opening of doors prevents stable heating
- Facilities where perishable goods are processed or stored at lower temperatures
- Workspaces using radiant heating that provide equivalent comfort
- Work processes where heating to prescribed levels would cause discomfort or interfere with operations

When there's a risk of cold-related injury or illness, employers are legally required to take every reasonable precaution to make sure workers are safe. This includes developing a cold stress prevention plan, establishing safe work procedures, providing appropriate protective equipment, and making sure workers are trained to recognize and prevent cold-related injuries.

Visit our website wcb.pe.ca for more information and additional resources.

CHAPTER 3 - WHAT IS COLD STRESS?

Cold stress is the body's reaction to cold conditions when it loses heat faster than it can produce it. This drop in core body temperature can lead to hypothermia or, in extreme situations, a loss of consciousness. Prolonged exposure of the hands, face or feet to cold can cause frostbite and trench foot.



You're more at risk if:

- You work outside in cold or wet weather
- You work in a cold storage facility
- You don't take enough warm-up breaks
- Your clothes get wet from snow, rain, or sweat



3.0 Factors that cause cold stress

There are three key factors that cause and contribute to cold stress:

Exposure to cold	particularly if the worker is wet, dehydrated or tired.
Wind	removes the thin layer of warm air that surrounds the skin, making it harder for the body to stay warm.
Wetness or dampness	increases the risk of cold stress when clothing becomes wet or damp from water, snow or perspiration. Immersion in cold water will lead heat away from the body 25 times faster than cold air.

3.1 Types of Cold Stress

Hypothermia

Hypothermia is a dangerous condition that happens when your body loses heat faster than it can produce it, causing your core temperature to drop below 35 °C (95 °F). This can slow brain function, reduce coordination, and eventually affect vital organs.



Signs of hypothermia include:

- Shivering
- Tiredness, stumbling
- Confused or slow speech
- Pale or blue skin
- Weak pulse

There are three types of hypothermia: mild, moderate, and severe.

Mild hypothermia	32–35 °C (89.6–95 °F) symptoms include shivering, cold skin, slight confusion
Moderate hypothermia	28–32 °C (82.4–89.6 °F) symptoms can include intense shivering or no shivering, slurred speech, poor coordination, drowsiness
Severe hypothermia	below 28 °C (82.4 °F) symptoms can include unconsciousness, slow or irregular heartbeat, shallow breathing, possible death



Severe hypothermia is life-threatening. Call 911 right away.

First aid measures for hypothermia:

Move worker to a warm, dry shelter	Transport worker to shelter without sudden movements.
Keep awake and warm	Remove wet clothing, wrap in warm covers, and rewarm core areas such as the neck, chest, abdomen and groin. Avoid extremities.
Apply heat safely	Use body heat or safe heating devices. Don't massage extremities.
Hydrate if conscious	Give a warm, sweet drink.
Monitor and support	Check breathing. Give artificial respiration if needed.
Call for help	Treat moderate or severe hypothermia as a medical emergency and call 911 or transport carefully.
Avoid risky actions	Don't make the worker exercise, use a hot bath/shower, or stop/start cardiopulmonary resuscitation (CPR) unnecessarily.
Be persistent	Even if the worker appears lifeless, continue first aid measures. Survival is possible in extreme cold.

Frostbite

Frostbite is a common cold-related injury that occurs when skin and tissues freeze due to exposure to extremely cold temperatures. It occurs quickly when touching cold metal objects because metal conducts heat away from the body quickly. The body parts most affected by frostbite are exposed areas including face, ears, fingers, and toes.



Signs of Frostbite include:

- White, blue, or grey skin
- A sharp, prickling sensation in the skin
- Skin feels hard or waxy
- Numbness—may not hurt at all
- Blisters and blackened skin in later stages



First Aid Measures for frostbite:

- Move worker to a warm, sheltered location
- Warm frostbitten area gradually with body heat. Do not rub
- Don't thaw hands or feet unless medical aid is far away and there's no chance of refreezing. Body parts are better thawed at the hospital
- Apply sterile dressing to blisters to prevent breaking the skin
- Get medical attention

Trench Foot

Trench foot is a serious condition caused by prolonged exposure to cold, damp, and unsanitary conditions, especially when feet are wet and can't dry properly. It doesn't require freezing temperatures, unlike frostbite, and can occur at temperatures as high as 15°C (59°F) if the feet are wet for long periods.



Signs of trench foot include:

- Cold, numb, or painful feet
- Red or swollen skin
- Blisters or sores
- Red or blue discoloration
- Pain when walking or when rewarmed
- Dead tissue, in severe cases

First Aid Measures for trench foot:

- Remove wet footwear and socks as soon as possible
- Gently clean and dry the feet. Avoid rubbing them hard
- Rewarm slowly at room temperature. Don't use direct heat like a heater or hot water
- Keep feet dry and elevate them slightly to reduce swelling
- Avoid walking or pressure on affected feet if possible
- Replace with clean, dry socks and footwear



Seek medical help if:

- There are blisters, open sores, or signs of infection
- Pain or numbness persists
- Skin looks dark, cracked, or feels hard

Visit our website wcb.pe.ca for more information and additional resources.

CHAPTER 4 - KEEP WARM AND WORK SAFELY

The best protection against cold-related injuries is to be aware and be prepared. Workers should plan for cold conditions. They should dress properly, take frequent warm breaks and know how to recognize signs and symptoms of overexposure to the cold. Pain in the extremities may be the first warning sign of a cold-related injury.

4.0 Reduce the risk of cold stress

Implementing effective strategies can help reduce the risk of cold stress and provide a safer, more comfortable working environment.

- Monitor temperature and wind and adjust work-rest schedules
- Make sure workers are trained in cold-weather safety
- Dress in layers: moisture-wicking based, insulating middle like wool, use wind and waterproof outer layer, cover heads, hands, and feet
- Stay dry: remove or loosen layers to reduce perspiration and carry spare mitts and liners
- Pace physical work to prevent fatigue and hypothermia
- Use shelters, schedule work for warmer times, take heated breaks and remove outer layers indoors
- Drink warm, non-caffeinated/non-alcoholic fluids for hydration and circulation



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Appendix A - Cold Stress Prevention Checklist

✓	Task	Description	Example
	Develop a written cold stress plan that identifies high risk tasks and work areas.	<ul style="list-style-type: none"> • Outline responsibilities, procedures, and protective measures for cold work • Identify which jobs, tools, or areas increase cold exposure 	<ul style="list-style-type: none"> • Include emergency contacts, risk controls, and personal protective equipment (PPE) standards
	Provide cold stress prevention training and educate workers on how to stay warm.	<ul style="list-style-type: none"> • Educate workers on cold stress symptoms, first aid, and prevention techniques • Encourage workers to look out for signs and symptoms of cold stress in themselves and others • Provide training on PPE, proper clothing, and layering techniques 	<ul style="list-style-type: none"> • Annual training session or safety meeting • Demonstrate layering in safety meeting
	Assess weather conditions daily when working in the cold and communicate control plan to workers	<ul style="list-style-type: none"> • Evaluate temperature, wind chill, and exposure duration before and during work • Make sure all workers are aware of current weather conditions and required PPE through effective communication and training 	<ul style="list-style-type: none"> • Use weather forecasts
	Provide heated shelters or warm areas when necessary	<ul style="list-style-type: none"> • Make sure workers know that accessible warm-up locations for scheduled breaks are available 	<ul style="list-style-type: none"> • Heated trailer, vehicle cab, or building entryway

Appendix A - Cold Stress Prevention Checklist

✓	Task	Description	Example
	Schedule and rotate work to reduce exposure	<ul style="list-style-type: none"> Plan shorter outdoor shifts during extreme cold 	<ul style="list-style-type: none"> Rotate crews or adjust start times
	Monitor workers for cold-related signs and symptoms and respond promptly to signs of cold stress	<ul style="list-style-type: none"> Supervisors or team leaders observe workers for fatigue, shivering, or confusion Train first aiders to recognize and treat cold exposure symptoms 	<ul style="list-style-type: none"> Annual training session or safety meeting Demonstrate layering in safety meeting
	Review the program annually	<ul style="list-style-type: none"> Make sure workers know that accessible warm-up locations for scheduled breaks are available 	<ul style="list-style-type: none"> Review incident data and worker feedback

