Compliance Cheat Sheet: The 5 Things You Must Do to Manage Cold Stress Hazards

WHAT'S AT STAKE

Under OHS laws, you have a duty to protect workers against exposure to extreme cold regardless of which part of Canada you're in and regardless of whether exposed workers are indoors or outdoors. The exact source of that duty varies by jurisdiction:

- Under Alberta and Federal law, the duty is implied as part of the employer's general duty to protect workers from recognized hazards;
- In the other 12 jurisdictions, there are parts of the OHS regulations that specifically address cold stress hazards.

Table 1. OHS Cold Stress Laws by Jurisdiction

Jurisdiction	Part of OHS Law Requiring Employers to Protect Workers from Cold
Federal	*Canada Labour Code*, Section 125(1)(n): Employer must ensure that levels of ventilation, lighting, temperature, humidity, sound and vibration meet prescribed standards
Alberta	*OHS Act*, Section 3(1): Implied part of employer's general duty to ensure, as far as it's reasonably practicable to do so, workers' health, safety and welfare
BC	*OHS Regulation,* Sections 7.33 to 7.38
Manitoba	*Workplace Safety & Health Regulations,* Sections 4.12 and 4.13
New Brunswick	*OHS General Regulation,* Sections 22, 23 and 44
Newfoundland	*OHS Regulation,* Section 44
Nova Scotia	*Workplace Health and Safety Regulation,* Section 2.3

Table 1. OHS Cold Stress Laws by Jurisdiction

Ontario	**Industrial Establishments*, RRO 1990, Reg 851, Section 129 *(Employers not subject to *Ind. Ests.*): *OHS Act*, Section 25(2)(h): Implied part of employer's general duty to take every precaution reasonable in the circumstances for the protection of a worker
Prince Edward Isl.	*OHS Regulations,* Section 11.10
Qu□bec	*Regulation respecting occupational health and safety,* Division XII, Sections 116 to 120
Saskatchewan	*OHS Regulations,* Section 70
NWT/Nunavut	*OHS Regulations,* Section 74
Yukon	*Occupational Health Regulations,* Section 9

OHSI Resources Around the Provinces: Cold Stress Requirements in Each Jurisdiction

THE 5 THINGS YOU MUST DO TO MANAGE COLD STRESS HAZARDS

There are 5 basic steps you must take to protect workers from cold stress hazards.

Step 1: Do a Cold Stress Hazard Assessment

First, you need to have a competent person do a hazard assessment at your workplace to determine whether workers are exposed to cold stress risks, i.e., thermal conditions that could cause a worker's core body temperature to fall below the normal 36øC (96.8øF). In assessing cold stress hazards, you should consider not just temperature but other factors affecting how cold the air actually *feels* on a worker's body, including:

- Wind and air circulation;
- Humidity;
- Level of activity;
- Clothing or equipment worn; and
- Whether workers are in contact with cold surfaces or cold water.

OHSI Resources Around the Provinces: Cold Stress Requirements in Each Jurisdiction
Cold Stress Hazard Assessment Checklist

Step 2: Maintain Safe Thermal Conditions

All jurisdictions require employers to take measures to keep workers warm and comfortable. A few jurisdictions, including FED, ON and QC, specify a range of acceptable *indoor* temperatures for different situations or locations, e.g., 20'C for non-physical work done while standing.

Table 2. Required Thermal Conditions by Jurisdiction

Jurisdiction	Minimum Indoor Work Temperatures by Jurisdiction

Table 2. Required Thermal Conditions by Jurisdiction

Federal	> Personal service food preparation area: 18øC to 29øC > Motorized materials handling equipment, operators' compartment: 26øC maximum > First aid room: 21øC to 24øC
Alberta	Not specified
BC	Not specified
Manitoba	Not specified
New Brunswick	> 20øC for light work done while sitting > 18øC for light physical work done while sitting > 16øC for light or moderate physical work done while standing > 12øC for heavy physical work done while standing
Newfoundland	Minimum 10øC for a refuge station
Nova Scotia	Not specified
Ontario	*Industrial Establishments: Minimum 18øC for enclosed workplace(1) *Construction Projects minimum temps of: > 27øC for change room for underground workers > 18øC for medical locks
Prince Edward Island	> 20øC for light work done while sitting > 19øC for light physical work done while sitting > 17øC for light physical work done while standing > 16øC for moderate physical work done while standing > 12øC for heavy physical work done while standing(2)
Qu□bec	> 20øC for light work done while sitting > 19øC for light physical work done while sitting > 17øC for light work done while standing > 16øC for moderate work done while standing > 12øC for heavy work done while standing
Saskatchewan	Not specified
NWT/Nunavut	Not specified
Yukon	Not specified

Notes

(1) In Ontario, the minimum 18'C rule for indoor workplaces doesn't apply if: i. the workplace is normally unheated; ii. the need to open doors makes heating to required levels impracticable; iii. perishable goods requiring lower temperatures are processed or stored; iv. radiant heating is such that a worker working in the area has the degree of comfort that would result were the area heated to the required temperature; v. the process or activity is such that the required temperature specified could cause discomfort; or vii. during the first hour of the main operating shift if process heat provides a substantial portion of building heat

(2) In PEI, the minimum temps requirements don't apply if the workplace is

normally unheated, the need to open doors makes heating to required levels impractical, if the workplace is used to process or store perishable goods, radiant heating makes the air comfortable without the need for heating or the required temperature would cause discomfort

When work is done outdoors or in indoor or enclosed places where cold temperatures can't be avoided, e.g., meat lockers or freezers, the issue goes beyond comfort to actual physical danger of cold stress. The 4 common examples:

- Hypothermia, or a drop in body temperature to 35øC (95øF) or lower;
- Frostbite, or actual freezing of the skin which can lead to amputation;
- Trench foot, or freezing of the foot caused by immersion in cold water or prolonged exposure to extremely cold air; and
- Chilblains, or cold exposure damage to blood vessels causing blistering or ulceration of the skin.

Your responsibility is to ensure that workers exposed to cold stress hazards don't get any of these things. How' Six jurisdictions (BC, MB, NB, NL, NS, PEI) require employers to limit exposure to Threshold Limit Values (TLVs) levels classified as posing 'little danger' to workers under the American Conference of Governmental Industrial Hygienists (ACGIH) method of calculating and preventing cold stress. In Ontario, MOL guidelines say that employers must maintain ACGIH TLVs levels even though the duty isn't spelled out in the OHS Regulations.

Step 3: Select Cold Stress Hazard Controls

As with other hazards, you must follow the so called 'hierarchy of controls' approach in deciding how best to protect workers from the cold stress hazards you identify.

First Choice: Elimination

If it's reasonably practicable, completely eliminate the cold stress hazard, e.g., by turning off indoor freezers and allowing them to warm up before workers enter them. And while you can't control the weather, it may be possible to avoid requiring workers to work outdoors in cold conditions. Unfortunately, for operations like snow removal, emergency response and even construction, cold weather work is part of the job and elimination isn't a reasonably practicable option.

Second Choice: Engineering Controls, Work Controls & PPE

If elimination isn't reasonably practicable, you must use a combination of engineering and work/administrative controls and PPE to minimize cold stress hazards.

Engineering controls for cold stress include systems and devices that make the air warmer, such as:

- Heating and ventilating systems for indoor workplaces;
- Use of radiant heaters at outdoor sites;
- Erecting shields or other barriers to block the wind and reduce wind chill; and
- Maintaining 'warm-up stations' inside buildings or trailers.

Work/Administrative controls reduce cold stress hazards by changing the methods of carrying out the work. Strategy: Implement a cold stress prevention policy that includes safety measures such as:

- Developing safe work procedures for cold weather operations;
- Scheduling regular outdoor maintenance and repair jobs for warmer months;
- Scheduling the most exerting work for the warmest part of the day;
- Letting workers take frequent warm-up breaks;
- Providing a nearby heated shelter where workers can take warm-up breaks (mandatory in BC, NB and QC);
- Making sure workers stay hydrated by drinking plenty of fluids and avoiding caffeine and alcohol;
- Having workers operate in pairs so they can keep an eye on each other;
- Monitoring weather conditions during the work;
- Monitoring the pulse and other vital signs of exposed workers;
- Ensuring that somebody is available at the scene who's trained to provide first aid in case workers exhibit signs or symptoms of cold stress;
- Implementing emergency response procedures for cold stress;
- Acclimatizing, i.e., getting workers used to working in the cold; and
- Providing workers safety information and training (See Step 3 below).

PPE and protective clothing that exposed workers should wear to protect against cold stress may include 3 layers of outer clothing, hats and hoods, face covering and insulated, water-proof gloves and boots.

OHSI Resources Around the Provinces: Cold Stress Requirements in Each Jurisdiction
Cold Stress Exposure Control Policy
Cold Stress Checklist
Cold Work Warm Break Schedule
Cold Weather Acclimatization Procedure
Cold Stress Emergency Response & First Aid Procedure
Model Space Heater Safety Checklist

Step 4: Provide Cold Stress Safety Training

Worker education and training are crucial to preventing cold stress. By the time they complete their training, workers need to understand:

- What cold stress is;
- Why it's dangerous;
- How to protect themselves from the danger;
- How to recognize the signs and symptoms of the different forms of cold stress; and
- How to respond if they or a co-worker exhibits such signs or symptoms.

OHSI Resources Train the Trainer: How to Provide Cold Stress Safety Training
Cold Stress Exposure Control Policy

Step 5: Monitor Your Controls

You need to continually monitor the controls you implement to ensure they're effective, identify problems and make the necessary corrections. Review should be undertaken on a regular basis and in response to incidents and changes in work operations or conditions that may alter or weren't addressed in the current

assessment.

OHSI Resources	Model Cold Stress Exposure Control Policy Model Cold Stress Checklist