

Physical Agents

Temperature Conditions - Cold

On this page

[Is there a minimum temperature at which work becomes dangerous and should be stopped?](#)

[What are the warning signs of hypothermia?](#)

[Are there exposure limits for working in cold environments when outdoors?](#)

[What are exposure limits for working in the cold when in a building or indoors?](#)

[What should be done when work must be done when it is very cold and windy outside?](#)

[Where can I find more information?](#)

Is there a minimum temperature at which work becomes dangerous and should be stopped?

The short answer is yes.

At very cold temperatures, the most serious concern is the risk of hypothermia or dangerous overcooling of the body. Another serious effect of cold exposure is frostbite or freezing of the exposed extremities such as fingers, toes, nose, and ears. Hypothermia could be fatal in absence of immediate medical attention.

This document focuses on working in cold conditions. Please see the OSH Answers [Temperature Conditions - Hot](#), and [Humidex Rating and Work](#) for more information on temperature conditions.

What are the warning signs of hypothermia?

Warning signs of hypothermia can include complaints of nausea, fatigue, dizziness, irritability or euphoria. Workers can also experience pain in their extremities (hands, feet, ears, etc), and severe shivering. Workers showing signs of illness should be moved to a heated shelter and seek medical advice when appropriate.

For more information please see our OSH Answers documents on [Cold Environments - Health Effects and First Aid](#)

Are there exposure limits for working in cold environments when outdoors?

In Canada, the legislation from some jurisdictions provide a [range of acceptable temperatures](#) for specific circumstances. In other cases, occupational health and safety jurisdictions use the Threshold Limit Values® for cold stress as published by the American Conference of Governmental Industrial Hygienists (ACGIH). Some Canadian jurisdictions have adopted these TLVs® as occupational exposure limits and others use them as guidelines.

Where there are no maximum/minimum exposure limits for cold working environments, there are guidelines that can be used to conduct work/task assessments, create safe work plans, and monitor conditions to protect the health and safety of workers who may be exposed to cold temperatures. Where there are differences between the recommendations made by various organizations (and where there are no established limits or guidelines from your jurisdiction), employers are encouraged to choose a system that best provides protection for their workforce.

For example, ACGIH (2022) suggests a work-warming regimen when work is done continuously in the cold when the wind chill temperature is at or below -7°C (19.4°F), heated warming shelters (tents, cabins, rest rooms, etc) should be made available nearby. Workers should be encouraged to use these shelters, depending on the severity of the exposure. If signs of cold stress are noticed, return to the shelter immediately. For work at or below -12°C (10.4°F), work should include:

- constant observation (supervisor or buddy system),
- adjusting the pace or rate of work so that it is not too high and cause heavy sweating that will result in wet clothing
- time for new employees to become accustomed to the conditions
- adjusted to include the weight and bulkiness of the clothing when estimating work performance and weights to be lifted by the worker
- arranged in such a way that sitting and standing for long periods is minimized
- instructions in safe work practices, re-warming procedures, proper clothing practices, proper eating and drinking habits, recognition of cold stress/frostbite, and signs and symptoms of hypothermia or excessive cooling of the body (including when shivering does not occur)

See the OSH Answers [Cold Environments – Working in the Cold](#) for more information, such as the effect of wind chill.

What are exposure limits for working in the cold when in a building or indoors?

Some Canadian jurisdictions specify a minimum temperature for indoor work environments in buildings that are normally heated. See the OSH Answers on [Temperature Conditions - Legislation](#) for a list of legislation.

What should be done when work must be done when it is very cold and windy outside?

Employers have a duty to take every reasonable precaution to make sure the work site is safe for the worker. This duty includes taking effective measures to protect workers from cold stress injuries when the work is done outdoors.

General recommendations include to:

- Dress in layers of warm clothing, with an outer layer that is wind-resistant.
- Cover all exposed skin.
- Wear a hat, mittens or insulated gloves, a scarf, neck tube or face mask, and insulated, waterproof footwear.
- Stay dry (including taking steps to prevent excess sweating).
- Keep active.
- Maintain a work/break schedule. Breaks should be taken in a warm area, with protection from drafts.
- When very cold, consider cancelling outdoor activities.

Please see the OSH Answers document [Cold Environment - Working in Cold](#) for more information.

Where can I find more information?

Please see the following OSH Answers documents:

- [Temperature Conditions - Hot](#)
- [Temperature Conditions - Legislation](#)
- [Cold Environments - General](#)
- [Cold Environments - Working in Cold](#)
- [Cold Environments - Health Effects and First Aid](#)

- [Thermal Comfort for Office Work](#)
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