When Winter Changes the Fire Risk at Work



A portable heater appears beside a loading dock because employees are struggling to keep warm. A maintenance crew seals a temporary enclosure to protect a job from the wind. In the mechanical room, someone adjusts a heating schedule to save energy over the weekend. None of these decisions necessarily seems unusual. In winter, they may be part of keeping a workplace operational.

But consider what has changed. The heater adds an ignition source. The enclosure changes airflow and can concentrate combustion gases. The reduced building heat may put water-filled sprinkler piping at risk. Meanwhile, snowbanks are narrowing access to a fire hydrant that was perfectly accessible in September. Each decision belongs to a different department, and each may be reasonable when viewed alone.

Together, they can create a fire risk no one intended.

That is the problem with treating winter fire safety as a reminder to keep combustibles away from space heaters. Cold weather alters the workplace itself. It changes how equipment is used, where fuel is stored, whether ventilation operates as intended, how quickly workers can leave and whether the systems meant to contain a fire are available when needed. For Canadian OHS professionals, the objective isn’t another seasonal poster. It is to make those changes visible before they combine.

Temporary heat is often introduced for a legitimate reason. Concrete needs suitable curing conditions. Construction crews need workable temperatures. Water lines and process equipment must be protected from freezing, while warehouse employees can’t simply abandon a poorly heated loading area. The hazard isn’t the decision to provide heat. It is the assumption that heat can be added without changing the original risk assessment. A fuel-fired heater brings combustion, fuel supply and potential exhaust exposure into the work area. An electric unit adds a sustained electrical load and a hot surface. In either case, its position relative to packaging, insulation, dust, tarpaulins or traffic matters. So do the hours it runs and what happens when the last employee leaves.

Ontario’s construction-project regulation offers a useful example of how specific these controls can be. Section 49 requires fuel-fired heaters to be positioned and protected against ignition of tarpaulins and nearby combustibles, provides conditions for their use in enclosed spaces, protects them against damage or overturning, and prohibits placement that restricts egress. Those provisions apply in the Ontario construction context; other jurisdictions have their own rules and adopted codes. Still, the underlying questions are relevant almost everywhere: What might this heater ignite? What might strike it? Where does its exhaust go? Could it compromise an exit?

A heater can be suitable for one environment and wholly inappropriate for another. Supervisors should insist on equipment approved for the intended location and use, follow the manufacturer’s instructions, and have qualified people handle installation and service where required. When temporary heating is moved, the controls must move with it.

That last point deserves attention because portable equipment tends to migrate toward whoever is coldest, not necessarily toward the safest location. A new position can change which combustibles, exit routes and workers are exposed.

Winter workspaces are frequently wrapped, sealed or partitioned to keep heat inside. A tarpaulin enclosure that protects a welding crew from the wind can also interfere with air movement. A warehouse dock door kept closed for most of the shift may reduce ventilation that workers took for granted during warmer months. The building can feel more comfortable while the air becomes more hazardous. Carbon monoxide is the clearest example. It is colourless and odourless, and fuel-burning equipment can produce dangerous concentrations in enclosed, partly enclosed or poorly ventilated spaces. CNESST notes that winter closures reduce natural ventilation and that temporary fuel-burning heaters increase concern, particularly in construction. WorkSafeBC has warned that enclosing spaces heated with propane or natural gas can expose workers to carbon monoxide. The Canadian Centre for Occupational Health and Safety also cautions against unvented portable gas heaters indoors.

This is not simply a matter of providing a detector and assuming the problem is solved. The preferred approach is to eliminate the combustion source from the occupied space where practicable, use properly designed and vented equipment, maintain appropriate ventilation, and assess or monitor exposures as warranted by the work. Alarms and monitoring can provide essential warning, but they do not make unsafe equipment or inadequate ventilation acceptable.

Watch for work processes that change during the day. A direct-fired heater may begin running before ventilation is operating. A propane-powered forklift may be moved into a temporary enclosure. A diesel generator may be parked near a fresh-air intake because snow has made its usual location inaccessible. The risk comes from the combination, and combinations are easily missed when each contractor assesses only its own equipment.

Workers also need to recognize that headache, dizziness, nausea, confusion or unusual fatigue can indicate carbon

monoxide exposure rather than an ordinary winter illness. Suspected exposure calls for immediate withdrawal to fresh air and emergency assistance, not an attempt to finish the shift or investigate without proper protection. A suspected atmosphere should be assessed and made safe by appropriately qualified personnel.

A frozen pipe, damaged bracket or failed piece of equipment rarely arrives on the maintenance calendar at a convenient time. Repairs happen under pressure, often in cramped mechanical spaces or behind temporary partitions. Cutting, grinding, welding and soldering may be the fastest ways to return the operation to service. They also introduce ignition energy precisely when combustibles have accumulated and access has become awkward. The familiar hot-work permit can be valuable, but only if the walk-through is real. An inspection of the immediate workbench may miss insulation behind a wall, dust in a void, combustible material on the opposite side of a partition or a hidden route through which sparks can travel. Winter adds another complication: temporary plastic sheeting and insulated coverings may be installed long after the original work area was assessed.

Ontario’s Fire Code addresses hot work that produces heat or sparks, including thawing pipes, and prescribes controls for combustible surroundings. British Columbia’s OHS Regulation also requires suitable fire-extinguishing equipment immediately available where welding or cutting is performed. The applicable clearance, fire watch, permit and monitoring arrangements must be determined from the local rules, the work and the facility’s own fire-safety procedures; a familiar rule of thumb should not be treated as a universal legal standard.

Frozen pipes deserve special attention because improvisation can feel harmless. Applying an open flame to thaw a pipe creates a fire exposure that can extend into concealed spaces. The City of Hamilton’s winter fire guidance specifically warns against using open flame for this purpose.

A safer method still requires assessment of the surrounding electrical and water hazards, the condition of the pipe and the equipment used. It is not a repair to improvise under production pressure.

The question a supervisor should ask isn’t merely whether a hot-work permit has been signed. It is whether the area still matches the conditions under which the permit was approved. If tarpaulins have moved, stored materials have shifted or ventilation has stopped, authorization needs to be reconsidered before sparks start flying.

Fire prevention gets most of the attention because ignition is easy to picture. Suppression readiness is less visible, especially in a building that has operated without incident for years. Yet prolonged cold can make fire-protection systems vulnerable at exactly the time temporary heating and maintenance activity are increasing ignition risk. Wet-pipe sprinkler systems depend on water remaining available in piping that must be protected from freezing. Dry-pipe systems are designed for different conditions, but they still require appropriate maintenance, drainage and temperature control for vulnerable components. An unused loading bay, vestibule, roof space or mechanical room can become a weak point after a heat outage or a change in building occupancy. A valve can be inaccessible behind winter storage. A hydrant can disappear into a snow pile.

The City of Hamilton advises building owners to protect sprinkler piping from freezing and to make sure water has been drained from dry systems where needed. B.C.’s Office of the Fire Commissioner also emphasizes accessible hydrants, maintained standpipes, firefighting water supplies and fire department access in construction-site planning. These are not cosmetic inspection items. They determine whether responders and suppression systems can perform when seconds matter.

Facility managers should know which spaces contain vulnerable

components, who watches low-temperature alarms, what happens after-hours and who is authorized to respond. If a sprinkler, alarm, fire pump or other protection component is impaired, the appropriate notification, interim precautions and restoration procedures must follow the applicable code, insurer requirements and site fire-safety plan. A disconnected alarm or shut valve cannot become just another maintenance ticket with an unspecified completion date.

There is also a management issue hiding inside this technical one. Building operations may own the heating system, maintenance may own the sprinkler contractor, security may receive the alarm, and the OHS team may own the emergency plan. Unless those responsibilities meet in one escalation process, everyone can complete their assigned task while the fire exposure remains unresolved.

A workplace evacuation map usually shows fixed doors, corridors and assembly areas. Winter does not respect those fixed conditions. Ice makes an exterior stair unsafe. Snow narrows an exit path. A plow pushes a bank across a gate, while a delivery truck uses the only cleared area near a fire department connection. The posted plan may remain accurate as a drawing and be wrong as an escape route. This matters particularly at shift changes and overnight operations, when fewer people are present to notice an obstruction. It also matters in facilities with public access, contractors, visitors, workers with mobility limitations or unfamiliar seasonal staff. The simplest emergency plan in the world fails if a person reaches the door and cannot use what is on the other side.

Fire service access needs equal attention. Hydrants, standpipe connections, fire lanes, gates and visible building addresses must remain usable under actual winter conditions, not simply appear on a site plan. Clearing a road once after a storm is not the same as verifying access through the next freeze-thaw cycle, delivery period or overnight snowfall.

Winter evacuation drills should be more than a repetition of the summer route. Consider the night shift, a blocked preferred exit, poor visibility, an alarm heard over equipment noise, or an assembly point exposed to severe wind chill. These are planning scenarios, not predictions. Testing them helps identify whether employees know an alternative and whether emergency coordinators can account for everyone without forcing them into another hazard.

Not every winter fire hazard has a visible flame. Portable electric heaters, heat tracing, battery chargers, vehicle block heaters and temporary lighting may add loads to circuits that were never intended to support them all at once. Extension cords and temporary power arrangements can become permanent by habit, particularly when a building’s original heating system is underperforming. A supervisor notices that a heater keeps tripping a breaker. The tempting response is to find another outlet or a longer cord, but a tripped protective device is information. Before the operation continues, qualified electrical personnel need to determine whether the load, circuit, cord, equipment or operating arrangement is safe. Workers should not bypass protection or improvise connections to avoid an interruption.

Winter moisture creates a further problem. Snow melts on electrical equipment, cords cross wet thresholds, and connectors can be crushed by doors or vehicle traffic.

A quick inspection should consider equipment suitability for its environment, physical damage, approved power supply, routing and exposure to moisture. The control can’t be just ‘check the heater’ if the entire temporary electrical arrangement has changed.

An after-hours review is especially important. What remains energized when the building is empty? Who authorized it, what protection is installed, and who responds to a fault or alarm? Many seasonal adjustments are made informally at the end of a

shift. They should be treated as changes to the fire-risk profile, not as small housekeeping decisions.

Cold weather often pushes materials indoors. Pallets are moved closer to dock doors for speed. Cardboard accumulates because waste collection is delayed. Fuel cylinders are shifted away from snow, sometimes into locations unsuitable for storage. With every move, the distance between ignition sources and available fuel can shrink. Propane deserves attention beyond the heater itself. Leaking gas can collect in low areas, and cylinders, hoses and regulators can be damaged by traffic or poor handling. Alberta’s Safety Codes Council publishes guidance specifically addressing safe temporary propane heat on construction sites, recognizing that winter construction arrangements can fall short of required safety practices. WorkSafeBC’s residential construction guidance likewise describes the danger of propane accumulating in low spots and the need to control ignition sources.

The better question is whether the winter storage plan has been designed at all. Identify the approved locations for cylinders and flammable materials, prevent vehicle damage, keep combustibles away from heating equipment, and make waste removal reliable even during a storm. Housekeeping shouldn’t depend on someone finding a gap in production.

Remember that fuel may be introduced by contractors. A building owner can have an excellent indoor storage program while a subcontractor brings in fuel, a generator and temporary enclosures that change the building’s exposure. Those interfaces need an owner before the work starts.

In severe cold, evacuation itself creates exposure. Employees who leave a heated workplace in shirtsleeves may be standing in dangerous conditions while firefighters respond. A remote worksite may have limited access, poor communications or long emergency response times. Even at an urban facility, ice can slow movement and complicate access for responders. This

doesn’t mean delaying evacuation to collect winter clothing. Life safety and prompt withdrawal remain the priorities. It means planning for a safe assembly location, rapid accountability and sheltered arrangements that don’t draw people back into a dangerous building. The plan should also address how the organization will manage people with disabilities, visitors, contract workers and anyone working alone.

CCOHS advises employers to plan for cold-weather emergencies and notes that extreme weather may delay emergency services. That warning becomes more significant when combined with a fire alarm, a blocked access road or a facility evacuation. The cold is part of the response environment. It should be considered before the alarm sounds.

A useful review doesn’t begin with a generic checklist. It begins by walking the site as though the conditions have just changed. Start at the new heaters and temporary enclosures. Follow the air movement, fuel lines and power supply.

Then go to the parts of the building where heat can be lost, protection systems may freeze and workers are least likely to notice a problem. These are precisely the locations that a routine walk-through can miss.

The most important answers usually require more than one department. Ask the following questions on the floor, with operations, facilities, maintenance and contractor representatives present:

- **What changed to keep this place operating in the cold?** Identify every new heater, enclosure, electrical load, fuel source and altered process.
- **What can ignite, and what has moved closer to it?** Include packaging, insulation, waste, dust, tarpaulins and concealed combustibles.
- **Where do combustion products go?** Confirm equipment

suitability, ventilation and exposure controls rather than assuming that a door or detector is enough.

- **Which fire protection components could freeze or be unavailable?** Confirm monitoring, inspections, impairment procedures and a named responder.
- **Can people get out and firefighters get in right now?** Walk the actual exits, outdoor routes, hydrants, gates and connections after snow or ice accumulates.
- **What changes after the last shift leaves?** Review unattended heat, electrical equipment, alarms, contractors and overnight responsibilities.

The answers should result in a small number of assigned corrections, not a thick report that disappears into a shared drive. If the loading dock heater needs relocation, name the person and the deadline.

If a sprinkler room has a vulnerable temperature condition, identify who will monitor it and what triggers an immediate response. If contractors have altered the fire-risk profile, require a joint review before they resume the work.

For larger operations, the strongest approach is to treat the start of winter like a controlled operational change. Bring together the people who own fire systems, work methods, building services, contractors and emergency response. Review what will be added, what will be shut down and what will operate differently over the next several months. The meeting should produce decisions about equipment approval, monitoring, inspections, communications and response authority. That isn’t a demand for a new committee or another annual binder. It is a way to keep routine winter adjustments from occurring independently. A heater moved by operations, a ventilation change made by facilities and a contractor’s hot-work permit should be visible to the same risk-management process whenever they affect one another.

The legal requirements will differ across Canada. The National

Fire Code of Canada 2025 is a model code, not a single automatically enforceable national rule for every provincial workplace. British Columbia applies its BC Fire Code 2024, while Ontario has its own Fire Code and construction-project regulation.

Employers must check their jurisdiction, local fire authority and the standards incorporated by reference, as well as the specific demands of the work. The compliance obligation is important, but it should be the starting point for identifying real exposures rather than the end of the conversation.

Winter fire safety is often described as seasonal housekeeping. That undersells it. Cold conditions change the relationships among ignition, combustibles, ventilation, suppression and escape, sometimes in ways that no single team can see. The workplaces best prepared for winter will be those that recognize how their own adaptations affect the whole system and make somebody responsible for checking the connections.