Ventilation and Indoor Air Quality Law Requirements Across Canada



General indoor air quality and mechanical ventilation standards differ across Canada.

The OHS laws require employers to supply workers who work indoors an adequate supply of fresh air from the outside, including via use of mechanical ventilation systems, if necessary. Most jurisdictions also specify standards for ventilation system design, operation, cleaning and maintenance. Here are the basic rules in each part of Canada. **Note:** These rules are for general indoor air quality and ventilation. Mechanical ventilation used to control specific air hazards, such as inside a confined space containing a hazardous atmosphere, are subject to more stringent rules.

- FEDERAL
- ALBERTA
- BRITISH COLUMBIA
- MANITOBA
- NEW BRUNSWICK
- NEWFOUNDLAND
- NORTHWEST TERRITORIES & NUNAVUT
- NOVA SCOTIA
- ONTARIO
- PRINCE EDWARD ISLAND
- QU□BEC

- SASKATCHEWAN
- YUKON

FEDERAL

What Are the General IAQ Requirements’

1. The *Canada Occupational Health and Safety Regulations* (COHS) don’t prescribe specific standards but require the employer to develop, or appoint a qualified person to develop, a procedure for investigating dangerous IAQ situations (COHS, Sec. 2.27(1)).
2. The investigation procedure must take into account Department of Health publication 93-EHD-166, *Indoor Air Quality in Office Buildings: A Technical Guide*, and include the following steps: (a) a review of the nature and number of health or safety complaints; (b) a visual inspection of the workplace; (c) inspection of the HVAC system for cleanliness, operation and performance; (d) a review of the maintenance schedule for the HVAC system; (e) assessment of building use as compared to the use for which it was designed; (f) the assessment of actual level of occupancy as compared to the level for which the building was designed; (g) the determination of potential sources of contaminants; (h) the determination of levels of carbon dioxide, carbon monoxide, temperature, humidity and air motion, where necessary; (i) the specification, where necessary, of tests to be conducted to determine levels of formaldehyde, particulates, airborne fungi and volatile organic compounds; and (j) the identification of the standards or guidelines to be used in evaluating test results (COHS, Sec. 2.27(2)).
3. The investigation must be carried by a qualified person, in consultation with the workplace JHSC or safety

representative (COHS, Sec. 2.27(4) and (5)).
4. If feasible, the employer must, in consultation with the JHSC or safety representative, remove or control any health or safety hazard the investigation identifies (COHS, Sec. 2.27(6)).
5. The employer must keep records of every IAQ complaint and investigation for at least 5 years (COHS, Sec. 2.27(7)).

What Are the Requirements for Ventilation Equipment'

Newly installed ventilation equipment must meet the design requirements of the most recent version of ASHRAE 62-1989, *Ventilation for Acceptable Indoor Air Quality* (COHS, Sec. 122(1)).

What Are the Requirements for Ventilation Equipment Maintenance'

1. Employers must appoint a qualified person to set out written instructions for the operation, inspection, testing, cleaning and maintenance of an HVAC system and the calibration of probes or sensors on which the system relies, taking into account CSA Guideline Z204-94, *Guideline for Managing Air Quality in Office Buildings* (COHS, Sec. 2.24(1)).
2. The above instructions must be readily available and specify, among other things, the nature and frequency of inspections, testing, cleaning and maintenance (COHS, Sec. 2.24(2)(f)).
3. Employers must also appoint a qualified person or persons to implement the instructions and make a written report of each inspection, testing, cleaning and maintenance operation (COHS, Sec. 2.24(4)).
4. Employers must keep these reports for at least 5 years (COHS, Sec. 2.24(5)).

ALBERTA

What Are the General IAQ Requirements’

The Alberta *Occupational Health and Safety Code* (Code) includes limited requirements for mechanical ventilation but doesn’t broadly address IAQ issues.

What Are the Requirements for Ventilation Equipment’

Ventilation requirements apply only to mechanical ventilation systems used to protect workers from hazardous atmospheres, such as those containing biological or airborne contaminants above the OEL, rather than general or office workplace settings (Code, Sec. 386).

What Are the Requirements for Ventilation Equipment Maintenance’

Employers must ensure that mechanical ventilation systems used to protect workers from hazardous atmospheres, are: (a) designed, installed and maintained in accordance with established engineering principles; and (b) maintained and operated according to the manufacturer’s specifications (Code, Sec. 387).

BRITISH COLUMBIA

What Are the General IAQ Requirements’

The BC *Occupational Health and Safety Regulation* (Reg.) doesn’t prescribe specific IAQ standards but requires the employer to ensure that the IAQ is investigated when: (a) complaints are reported; (b) occupancy in the space changes substantially; or (c) renovations involving significant changes to the ventilation system occur (Reg., Sec. 4.79(1)). The air quality investigation must include: (a) assessment of

the ventilation rate, unless the indoor carbon dioxide level is less than 650 ppm above ambient outdoor levels; (b) inspection of the ventilation system as required in section 4.78(2) of the Reg.; (c) sampling for airborne contaminants suspected to be present in concentrations associated with the reported complaints; and (d) a record of the complaint, the findings of the investigation, and any actions taken (Reg., Sec. 479(2)).

What Are the Requirements for Ventilation Equipment'

1. Employers must ensure that a ventilation system for the supply and distribution of air and removal of indoor air contaminants is designed, constructed and operated in accordance with: (a) established engineering principles; and (b) ASHRAE 62-1989, *Ventilation for Acceptable Indoor Air Quality*, including with regard to outdoor air supply contained in Table 2 of the standard (Reg., Sec. 4.72).
2. The ventilation system must be balanced to: (a) ensure that each space within the building receives an adequate allotment of outdoor air; and (b) accommodate the actual or the normally anticipated occupancy of each space (Reg., Sec. 4.75).
3. A ventilation system must not be obstructed by material or equipment placed in front of the ventilation air intakes or discharge points (Reg., Sec. 4.76(1)).
4. Outdoor air intakes must be located so that outdoor air entering the ventilation system doesn't contain any contaminant in a concentration greater than normal outdoor ambient air in that locality (Reg., Sec. 4.76(2)).
5. A ventilation system that discharges air from the work area must be designed to minimize the likelihood of exposing any worker at a workplace, including an adjacent workplace: (a) to an air contaminant in a

concentration exceeding either 10% of its applicable OEL, or an acceptable ambient air quality standard established by an authority having jurisdiction over environmental air standards, whichever is greater; and (b) where practicable, to an objectionable odour (Reg., Sec. 4.77).

What Are the Requirements for Ventilation Equipment Maintenance'

The employer or owner of the ventilation system that's responsible for system maintenance must establish an effective preventive maintenance program that includes: (a) regular inspections (i) of all critical components of the ventilation system, such as dampers, fans, belts, baffles, ductwork, diffusers and control systems, and (ii) for conditions that would promote the growth of micro-organisms, such as water leaks or stagnant water pools; (b) correction of any deficiencies found during the inspection; (c) repair or replacement of malfunctioning and consumable components, such as filters and belts, and the cleaning of air distribution systems, ducts and dampers when necessary to correct an IAQ deficiency; (d) adequate treatment of open water systems associated with ventilation equipment such as cooling towers and humidifiers, to control biological growth; and (e) maintenance of combustion sources, such as furnaces, space heaters and water heaters to assure proper burning and exhausting of waste gases to prevent recirculation of gases to the workplace (Reg., Sec. 4.78).

MANITOBA

What Are the General IAQ Requirements'

The Manitoba *Workplace Safety and Health Regulations* (Regs.) require that an employer, as much as is reasonably practicable, ensure that: (a) a workplace has appropriate air quality and is adequately ventilated; and (b) contaminants and

impurities are prevented from accumulating in the air at a workplace (Regs., Sec. 4.1).

What Are the Requirements for Ventilation Equipment’

1. The employer or owner that provides a mechanical ventilation system at a workplace must ensure that: (a) it’s designed and installed in accordance with the requirements of (i) the Manitoba Building Code, Manitoba Regulation 31/2011, and (ii) any applicable standard, code or municipal by-law; (b) it provides sufficient amounts of air to replace the air it exhausts from the workplace; and (c) its ventilation openings are kept free of obstructions and sources of contamination (Regs., Sec. 4.2).
2. The employer and owner must also ensure that any mechanical ventilation system designed to recirculate air in the workplace removes particulate and gaseous contaminants through an air cleaning system that’s designed, installed and maintained to protect workers’ safety and health (Regs., Sec. 4.3).

What Are the Requirements for Ventilation Equipment Maintenance’

The employer or owner that provides a mechanical ventilation system at a workplace must ensure that it, and any associated humidification equipment, is inspected and maintained by a competent person at a frequency that’s sufficient to (i) protect the safety and health of workers, and (ii) minimize the growth of biological contaminants and their dissemination through the system (Regs., Sec. 4.2(c)).

NEW BRUNSWICK

What Are the General IAQ Requirements’

1. Under the New Brunswick *OHS General Regulation* (Reg.), the employer must ensure that a place of employment is adequately ventilated by either: (a) natural ventilation which introduces outside air provided by openings having a combined area equal to at least 5% of the floor area; or (b) mechanical ventilation that meets ASHRAE 62-1989, *Ventilation for Acceptable Indoor Air Quality*, including the supply rates of required outside air; but if there is no specified rate, the employer must ensure that a minimum of 8 litres/second/person of outside air is introduced (Reg., Secs. 20(1) and (2)).
2. The employer must also ensure that exhausted air is replaced by air that: (a) doesn’t constitute a hazard to the health of employees; (b) doesn’t contain air contaminants in concentrations above 10% of the threshold limit values; (c) is heated, when necessary, to maintain the required minimum temperature specified in section 21 of the Reg.; and (d) is properly distributed so as not to cause undue drafts or disturbance of conditions (Reg., Sec. 20(4)).

What Are the Requirements for Ventilation Equipment’

1. Mechanical ventilation must meet ASHRAE 62-1989, *Ventilation for Acceptable Indoor Air Quality* (Reg., Sec. 20(1)).
2. The employer must ensure that a ventilation system prevents the return of exhausted air through the outside air intake (Reg., Sec. 20(3)).

What Are the Requirements for Ventilation Equipment Maintenance’

The Reg. doesn’t include specific maintenance standards for mechanical ventilation systems.

NEWFOUNDLAND

What Are the General IAQ Requirements'

The Newfoundland *Occupational Health and Safety Regulation* (Reg.) requires employers follow ASHRAE and ACGIH standards to ensure that: (a) there's appropriate circulation of clean and wholesome air; (b) there's adequate ventilation; and (c) impurities are made harmless and inoffensive (Reg., Sec. 45(1)).

What Are the Requirements for Ventilation Equipment'

The employer, contractor or owner must ensure that the mechanical ventilation system, (i) including humidification equipment, is constructed and maintained to minimize the growth and dissemination of micro-organisms, insects and mites through the ventilation system, and (ii) where reasonably practicable, is readily accessible for cleaning and inspection (Reg., Sec. 45(9)(a)). When mechanical ventilation is required, the ventilating fans must be located to prevent recirculation of contaminated air (Reg., Sec. 45(9)(d)).

What Are the Requirements for Ventilation Equipment Maintenance'

1. The employer must ensure that: (a) all parts of a ventilation system are maintained; (b) louvers are cleaned regularly; and (c) ventilation openings are free of obstruction and sources of contamination (Reg., Sec. 45(5)).
2. Employers, contractors or owners must ensure that a qualified person inspects and maintains all parts of a mechanical ventilation system, cleans all louvers and replaces or adequately cleans all filters at a frequency that's sufficient to protect the health and safety of workers (Reg., Sec. 45(9)(b)).

3. Employers, contractors or owners must ensure that a record of all inspections, maintenance and cleaning of the mechanical ventilation system is: (i) completed by a qualified person who performs the work; and (ii) readily available for examination by the JHSC, worker representative or designate or, where there's no JHSC, representative or designate, by the workers (Reg., Sec. 45(9)(c)).

NOVA SCOTIA

What Are the General IAQ Requirements'

The Nova Scotia *Occupational Safety General Regulations* (Regs.) requires employers to provide for a supply of fresh air into, and the removal of air from, a workplace or part of a workplace, so far as is reasonably practicable, sufficient to: (i) keep the air reasonably pure, and (ii) render harmless all gases, vapours, dust or other impurities that are likely to endanger the health or safety of any person therein (Regs., Sec. 15(a))

What Are the Requirements for Ventilation Equipment'

The employer must ensure that all ventilation systems used for controlling the dissemination of gases, vapours, dust or other impurities, including their collection systems and emptying processes, are designed, installed, operated, maintained and repaired in an adequate manner by a competent person (Regs., Sec. 15(c)).

What Are the Requirements for Ventilation Equipment Maintenance'

The employer must ensure that all ventilation systems used for controlling the dissemination of gases, vapours, dust or other impurities, including their collection systems and emptying

processes, are designed, installed, operated, maintained and repaired in an adequate manner by a competent person (Regs., Sec. 15(c)).

ONTARIO

What Are the General IAQ Requirements’

The Ontario OHS *Industrial Establishment Regulations* (Regs.) require an industrial establishment to be adequately ventilated by either natural or mechanical means so that the atmosphere doesn’t endanger the health and safety of workers (Regs., Sec. 127).

What Are the Requirements for Ventilation Equipment’

While not describing the type of equipment required, the Regs. require that air exhausted be replaced by replacement air that: (a) is heated, when necessary, to maintain at least the minimum temperature in the workplace specified in Section 129 of the Regs.; (b) is free from contamination with any hazardous dust, vapour, smoke, fume, mist or gas; and (c) enters in such a way as: (i) to prevent blowing of settled dust into the workplace; (ii) to prevent interference with any exhaust system; and (iii) not to cause undue drafts (Regs., Sec. 128(2)).The discharge of air from an exhaust system must also be in such a manner as to prevent the return of contaminants to any workplace (Regs., Sec. 128(3)).

The employer must ensure that all ventilation systems used for controlling the dissemination of gases, vapours, dust or other impurities, including their collection systems and emptying processes, are designed, installed, operated, maintained and repaired in an adequate manner by a competent person (Regs., Sec. 15(c)).

What Are the Requirements for Ventilation Equipment Maintenance'

The Regs. don't specifically address the design or maintenance of ventilation equipment. However, Section 19 of the OHS *Health Care Health Care and Residential Facilities Regulation* requires that:

1. A mechanical ventilation system be inspected every 6 months to ensure it's in good condition (Sec. 19(2));
2. The inspection be carried out by a person who's qualified by training and experience to make such an inspection (Sec. 19(3));
3. The person carrying out the inspection file an inspection report with the employer and workplace JHSC or safety representative, if any (Sec. 19(4)).

PRINCE EDWARD ISLAND

What Are the General IAQ Requirements'

The Prince Edward Island *Occupational Health and Safety Act General Regulations* (Regs.) require the employer to ensure that the workplace is adequately ventilated by either natural or mechanical means so that the atmosphere doesn't endanger the health and safety of employees under normal working conditions (Regs., Sec. 11.1).

What Are the Requirements for Ventilation Equipment'

The employer must ensure that the workplace is adequately ventilated by either: (a) natural ventilation provided by windows, shutters or louvres which can be opened, having a combined area equal to at least 5% of the floor area; or (b) mechanical ventilation, where the minimum amount of outside air introduced into any room is at least 0.45 m'/min. (15 c.f.m.) per person (Regs., Sec. 11.7). The employer must also

ensure that the discharge of air from any exhaust system is in such a manner as to prevent the return of contaminants to any workplace (Regs., Sec. 11.8).

What Are the Requirements for Ventilation Equipment Maintenance’

The employer must ensure that all parts of ventilation systems are maintained and cleaned, and that ventilation openings are always free of any obstruction or source of contamination (Regs., Sec. 11.4).

QU□BEC

What Are the General IAQ Requirements’

The air quality requirements contained in the Qu□bec *Occupational Health and Safety Regulation* are limited to situations where hazardous atmospheres may exists, such as those containing airborne or biological contaminants above OELs, and don’t address general IAQ issues in offices and other general workplace settings not involving exposure to hazardous atmospheres.

What Are the Requirements for Ventilation Equipment’

The air quality requirements contained in the Qu□bec *Occupational Health and Safety Regulation* are limited to situations where hazardous atmospheres may exists, such as those containing airborne or biological contaminants above OELs, and don’t address general IAQ issues in offices and other general workplace settings not involving exposure to hazardous atmospheres.

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SASKATCHEWAN

What Are the General IAQ Requirements'

The Saskatchewan *Occupational Health and Safety Regulations* (Regs.) require the employer, contractor or owner to: (a) ensure the adequate ventilation of a place of employment; and (b) to the extent reasonably practicable, render harmless and inoffensive, and prevent the accumulation of, any contaminants or impurities in the air by providing an adequate supply of clean and wholesome air and maintaining its circulation throughout the place of employment (Regs., Sec. 65).

What Are the Requirements for Ventilation Equipment'

An employer, contractor or owner must ensure that: (a) the mechanical ventilation system, including any humidification equipment, is constructed and maintained to minimize the growth and dissemination of micro-organisms, insects and mites through the ventilation system; and (b) where reasonably practicable, the components of a mechanical ventilation system are readily accessible for cleaning and inspection (Regs., Sec. 67(1)).

What Are the Requirements for Ventilation Equipment Maintenance'

1. The employer, contractor or owner must ensure that a competent person inspects and maintains all parts of a mechanical ventilation system, cleans all louvres and

replaces or adequately cleans all filters at a frequency that is sufficient to protect the health and safety of the workers (Regs., Sec. 67(2)).
2. The employer, contractor or owner must keep all ventilation openings free of any obstruction or source of contamination (Regs., Sec. 67(3)).

NORTHWEST TERRITORIES & NUNAVUT

What Are the General IAQ Requirements'

The Northwest Territories and Nunavut *Occupational Health and Safety Regulations* (Regs.) require the employer to: (a) ensure the adequate ventilation of a work site; and (b) to the extent reasonably possible, render harmless, and prevent the accumulation of, any contaminants or impurities in the air by providing an adequate supply of clean and wholesome air and maintaining its circulation throughout the work site (Regs., Sec. 68).

What Are the Requirements for Ventilation Equipment'

An employer must ensure that: (a) the mechanical ventilation system, including any humidifying equipment, is constructed and maintained to minimize the growth and dissemination of micro-organisms, insects and mites through the ventilation system; and (b) if reasonably possible, the components of a mechanical ventilation system are readily accessible for cleaning and inspection (Regs., Sec. 71(1)).

What Are the Requirements for Ventilation Equipment Maintenance'

1. The employer must ensure that a competent person inspects and maintains all parts of a mechanical ventilation system, cleans all louvres and replaces or adequately cleans all filters at intervals sufficient to

ensure the effective operation of the system (Regs., Sec. 71(2)).
2. The employer must keep all ventilation openings free of any obstructions and sources of contamination (Regs., Sec. 71(3)).

YUKON

What Are the General IAQ Requirements’

The air quality and ventilation requirements contained in the Yukon *Occupational Health and Safety Regulations* are limited to situations where ventilation systems are used to control hazardous atmospheres, such as those containing airborne or biological contaminants above OELs, and don’t address general IAQ issues in offices and other general workplace settings not involving exposure to hazardous atmospheres.

What Are the Requirements for Ventilation Equipment’

The air quality and ventilation requirements contained in the Yukon *Occupational Health and Safety Regulations* are limited to situations where ventilation systems are used to control hazardous atmospheres, such as those containing airborne or biological contaminants above OELs, and don’t address general IAQ issues in offices and other general workplace settings not involving exposure to hazardous atmospheres.

What Are the Requirements for Ventilation Equipment Maintenance’

The air quality and ventilation requirements contained in the Yukon *Occupational Health and Safety Regulations* are limited to situations where ventilation systems are used to control hazardous atmospheres, such as those containing airborne or biological contaminants above OELs, and don’t address general IAQ issues in offices and other general workplace settings not

involving exposure to hazardous atmospheres.