

February 28, 2025

SAFETY CODES SERVICES BULLETIN

NBC2023 (Alberta Edition) Building Code,
Section 6.1 General
Sentence 9.32.1.1.(2)
Sentence 9.33.1.1.(2)

HEATING AND VENTILATION SYSTEMS – COMMERCIAL BUILDINGS

Purpose:

To inform builders, contractors, designers, and engineers about the engineering requirements for heating, air-conditioning, ventilation, and their respective ductwork in commercial buildings.

Discussion:

Section 6.2 mandates good engineering practice for the design and installation of commercial heating, air conditioning, and ventilation systems. This requirement is crucial for several reasons, including building pressurization and its impact on the building envelope due to ever increasing air tightness, Legionella control and minimizing its growth and spread, radon control and addressing air quality issues from indoor air contaminants and venting, which can lead to adverse health conditions for the occupants. Good engineering practice helps to reduce excessive heating, cooling and installation costs to the user.

Not all renovations or projects require a full engineering design, but the expectation and intent must be met for any work completed under Part 6, Section 6.2. Training is available for contractors to meet these expectations through ASHRAE and HRAI.

For small renovations and tenant improvements in Part 9 buildings, as well as small changes in ductwork and minor tenant improvements in small suites within Part 3 buildings, we are willing to accept work completed by those trained and certified in HVAC design.

Requirements:

For renovations and tenant improvement to existing Part 9 Buildings, minor changes in ductwork and small suites in Part 3 buildings that are independent of other adjacent occupancies, are of the same occupancy type (building classification) and are not interconnected via open corridors or spaces we will accept HRAI training certification for the design. Additionally, if the project work involves a change of the building use through a change in building classification such as a retail E-mercantile occupancy changing to a restaurant A2-Assembly or change in use of the building such as a church to a daycare both A2-Assembly but a different uses the designer must be trained and competent in calculating the ventilation rates for the specific occupancy to ensure fresh air requirements.

Training:

Obtain and maintain training and certification from recognized organizations like ASHRAE and HRAI. These programs provide essential knowledge and skills for HVAC design and compliance. For specific projects, ensure that designers and contractors have the appropriate certifications, such as HRAI training for Small Commercial Heat Loss & Heat Gain Calculations, Small Commercial Air System Design and Fundamental Requirements of ASHRAE Standard 62.1-2016 (basic requirements of *ASHRAE Standard 62.1-2016, Ventilation for Acceptable Indoor Air Quality*). Other certified training can be considered.

Restrictions:

The design of heating, ventilation and air-conditioning with certification is restricted to the buildings noted above. Engineering is required by a registered engineering professional authorized to work in the province of Alberta if the building, installation or design pertains to one or more of the following:

New or Part 3 buildings, NECB compliant building or suite, is a geo-thermal design, hydronic heating design, ventilation designs for commercial cooking operations and buildings that require professional design and review (see bulletin "Professional design and review" for reference or the building code Division C Section 2.4 Professional Design and Review)

Drawings Requirements:

2.2.6.2. Information Required on Drawings 1) The information shown on architectural drawings and on drawings for heating, ventilating and air-conditioning systems shall be clear and legible and shall contain all necessary details to demonstrate conformance with this Code.

Examples of information that should be shown on architectural drawings and drawings for heating, ventilating and air-conditioning systems are:

- (a) name, type and location of the building,
- (b) name of the owner,
- (c) name of the registered professional with stamp, if require or has contributed to the design,
- (d) north point,
- (e) dimensions of all rooms,
- (f) intended use of all rooms,
- (g) details or description of the wall, roof, ceiling and floor construction, including insulation,
- (h) location of the windows and outside doors, including the size
- (i) size and continuity of all pipes, ducts, shafts, flues and fire dampers,
- (j) location, size, capacity and type of all principal units of equipment,
- (k) size, shape and height of all chimneys and gas vents,
- (l) size and location of all combustion air and ventilation openings, and
- (m) location and fire-resistance rating of required fire separations.
- (n) Calculate ventilation rates based on occupancy type, area, and specific requirements for different spaces. Use standard ASHRAE 62.1 to determine the necessary amount of outdoor air for acceptable indoor air quality, c/w a balancing report at the end of the project prior to occupancy that show the system is balance to the designs provided.
- (o) The name of your company, the name of the HVAC designer, HRAI and/or ASHRAE certification number or equivalent and designer's journeyman's certificate number

Reference:

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The Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI)

ASHRAE