

# Public Review

## BC Building Code 2023

Proposed change to harmonize with National Building Code 2020

**Topic:** Ventilation for Housing and Small Buildings

**Code change number:** BCBC2023-07-VT

**Code reference:** BC Building Code 2018 – Section 9.32. of Division B

**Related code reference(s):** NBC 2020 Notes to Part 9 – Housing and Small Buildings

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## Description of the proposed change

The proposed change adopts the National Building Code (NBC) ventilation requirements for housing and small buildings, Section 9.32., while preserving some of B.C.'s unique provisions from past editions of the British Columbia Building Code (BCBC). The organization of the requirements is substantially different from the past BCBC Section 9.32.; B.C.-specific requirements have been integrated into the appropriate location within the NBC content. Due to the substantial reorganisation of Section 9.32., the approach in this proposed change in identifying new content will be different than other proposed changes that have less impactful code formatting. As such, the legacy B.C. language is not stricken out in ~~red text~~. Instead, the body of Section 9.32. NBC is wholly reprinted and B.C.-specific content, including legacy code language from the past BCBC, is shown in green text.

Examples of unique to B.C. requirements that are proposed to be continued are, but not limited to:

- requirements for carbon monoxide detectors and alarms for residential, mercantile, and business occupancies
- provisions for passive supply air for secondary suites
- requirements for protection against depressurization of Naturally Aspirating Fuel-Fired Vented Appliances (NAFFVA)
- requirements for heated crawl space ventilation

B.C. has previously offered a shared heating-season ventilation system prescribed within Subsection 9.32.3. to serve both dwelling units of a house with a secondary suite. The NBC does not specifically prescribe this option recognizing that it may be expensive, requires regular inspection, and smoke dampers require resetting after every activation (see NBC 2020 Note A-9.32.1.2.(2)). This proposed change aligns the BCBC with the NBC to direct the design of shared systems using good engineering practise and Part 6, and not expand the scope of Section 9.32. beyond a single dwelling unit as it is intended.

## Justification

The ventilation requirements in previous editions of the BCBC were substantially different than those of the NBC. Over the past few code cycles, the BCBC and NBC requirements have developed on a similar path, both resulting primarily in ventilation systems with dedicated intake and exhaust air requirements. Some unique to B.C. requirements that have been shown to provide an appropriate level of health and safety are proposed to be retained to support housing affordability and to minimize changes for the industry.

## Proposed National Building Code content and B.C. specific code content

### Legend

Black Text – 2020 National Building Code content

Green Text – Proposed and historical BC specific content

## **Section 9.32. Ventilation**

### **9.32.1. General**

#### **9.32.1.1. Application**

- 1) This Section applies to the ventilation of rooms and spaces in *residential occupancies* and, requirements for carbon monoxide alarms of residential occupancy, business and personal services occupancy, or a mercantile occupancy.
- 2) Ventilation of all other *occupancies* shall comply with Part 6

- 3) A *storage garage* for up to 4 motor vehicles that serves a *residential occupancy* may be considered to be part of that *occupancy*.
- 4) Systems used for ventilation shall conform to the energy efficiency requirements in Section 9.36.

### 9.32.1.2. Required Ventilation

- 1) Every *residential occupancy* shall incorporate
  - a) provisions for non-heating-season ventilation in accordance with subsection 9.32.2., and
  - b) except as required by Sentences (2) and (3), if supplied with electrical power and a heating system, provisions for heating-season ventilation in accordance with Part 6.
- 2) A self-contained heating-season ventilation system serving a single *dwelling unit* shall comply with Subsection 9.32.3. (See Note A-9.32.1.2.(2).)
- 3) In houses that contain a *secondary suite*, heating-season ventilation need not be provided for
  - a) *exits*,
  - b) *public corridors*, and
  - c) ancillary spaces that are not within a *dwelling unit*, except as provided in Sentence (4).(See Note A-9.32.1.2.(2).)
- 4) Where ancillary spaces described in Clause (3)(c) contain exhaust devices, these spaces shall be provided with make-up air in accordance with Article 9.32.3.8.

### 9.32.1.3. Venting of Laundry-Drying Equipment

- 1) *Exhaust ducts* or vents connected to laundry-drying equipment shall discharge directly to the outdoors.
- 2) *Exhaust ducts* connected to laundry-drying equipment shall be
  - a) independent of other *exhaust ducts*,
  - b) accessible for cleaning, and
  - c) constructed of a smooth corrosion-resistant material.(See Note A-9.32.1.3.(2).)
- 3) Where collective venting of multiple installations of laundry-drying equipment is used, the ventilation system shall
  - a) be connected to a common *exhaust duct* that is vented by one central exhaust fan and incorporates one central lint trap,
  - b) include an interlock to activate the central exhaust fan when laundry-drying equipment is in use, and
  - c) where required by Article 9.32.3.8., be provided with make-up air.

## 9.32.2. Non-Heating-Season Ventilation

### 9.32.2.1. Required Ventilation

- 1) The non-heating-season ventilation required by Clause 9.32.1.2.(1)(a) shall be supplied by
- natural ventilation in accordance with Article 9.32.2.2., or
  - a mechanical ventilation system in accordance with Article 9.32.2.3.

### 9.32.2.2. Non-Heating-Season Natural Ventilation

- 1) The unobstructed openable ventilation area to the outdoors for rooms and spaces in residential *buildings* ventilated by natural means shall conform to Table 9.32.2.2.

**Table 9.32.2.2.**  
**Natural Ventilation Area**  
 Forming Part of Sentence 9.32.2.2.(1)

	<b>Location</b>	<b>Minimum Unobstructed Area</b>
Within a <i>dwelling unit</i>	Bathrooms or water-closet rooms	0.09 m <sup>2</sup>
	Unfinished <i>basement</i> space	0.2% of the <i>floor area</i>
	Dining rooms, living rooms, bedrooms, kitchens, combined rooms, dens, recreation rooms and all other finished rooms	0.28 m <sup>2</sup> per room or combination of rooms
Other than within a <i>dwelling unit</i>	Bathrooms or water-closet rooms	0.09 m <sup>2</sup> per water closet
	Sleeping areas	0.14 m <sup>2</sup> per occupant
	Laundry rooms, kitchens, recreation rooms	4% of the <i>floor area</i>
	Corridors, storage rooms and other similar public rooms or spaces	2% of the <i>floor area</i>
	Unfinished <i>basement</i> space not used on a shared basis	0.2% of the <i>floor area</i>

- 2) Where a vestibule opens directly off a living or dining room within a *dwelling unit*, ventilation to the outdoors for such rooms may be through the vestibule.
- 3) Openings for natural ventilation other than windows shall provide protection from the weather and insects.
- 4) Screening shall be of corrosion-resistant material.

### 9.32.2.3. Non-Heating-Season Mechanical Ventilation

- 1) Where a habitable room or space is not provided with natural ventilation as described in Article 9.32.2.2. and is mechanically cooled, its non-heating-season mechanical ventilation system shall
- a) have the capacity to exhaust air from inside the room or space, or to introduce outdoor air into that room or space, at a rate conforming with Table 9.32.2.3., or
  - b) comply with Subsection 9.32.3.
- 2) In applying Clause (1)(a),
- a) at least one bedroom in each *dwelling unit* shall be designated as the master bedroom,
  - b) air change rates for any combined living/dining or family/dining space shall be determined as if the spaces were individual rooms,
  - c) where a *basement* incorporates rooms of the types designated in Table 9.32.2.3., the assigned air change rate for each room shall be as specified for those types of rooms,
  - d) *basement* areas used for other purposes that exceed 2/3 of the total *basement floor area* shall be assigned an air change rate of 10 L/s,
  - e) *basement* areas used for other purposes that are 2/3 of the total *basement floor area* or less shall be assigned an air change rate of 5 L/s, and
  - f) other habitable rooms, other than spaces intended solely for access, egress, storage, or service equipment, shall be assigned an air change rate of 5 L/s.

**Table 9.32.2.3.**  
**Air Change Rate**  
 Forming Part of Clause 9.32.2.3.(1)(a)

Room or Space	Rate, L/s
Master bedroom	10
Other bedrooms	5
Living room	5
Dining room	5
Family room	5
Recreation room	5
<i>Basement</i>	10
Kitchen	5
Bathroom or water-closet room	5
Laundry room	5
Utility room	5
Other habitable rooms	5

3) Where a habitable room or space is not provided with natural ventilation as described in Article 9.32.2.2. and is not mechanically cooled, the non-heating-season mechanical ventilation system shall have the capacity to exhaust indoor air from the room or space or to introduce outdoor air to that room or space at a rate of one air change per hour.

4) A non-heating-season mechanical ventilation system shall be designed and installed in conformance with good practice such as that described in the ASHRAE Handbooks and Standards, [the TECA Ventilation Guidelines](#), the HRAI Digest, the Hydronics Institute Manuals and the SMACNA manuals.

### 9.32.3. Heating-Season Mechanical Ventilation

(See Note A-9.32.3.)

#### 9.32.3.1. Required Ventilation

1) The heating-season ventilation required by Clause 9.32.1.2.(1)(b) shall be provided by a mechanical ventilation system complying with

- good practice such as that described in CAN/CSA-F326-M, “Residential Mechanical Ventilation Systems,”
- for *dwelling units* with 5 or fewer bedrooms, the balance of this Subsection, or
- Part 6.

(See Note A-9.32.3.1.(1).)

2) Mechanical ventilation systems complying with the balance of this Subsection shall incorporate at least the following components:

- a principal ventilation system complying with Article 9.32.3.3.,
- supplemental exhaust fans complying with Article 9.32.3.7., and
- protection against depressurization in accordance with Article 9.32.3.8.

#### 9.32.3.2. Design and Installation

1) Aspects of mechanical ventilation systems not specifically described in this Subsection shall be designed, constructed and installed in accordance with good practice such as that described in the ASHRAE Handbooks and Standards, the HRAI Digest, the HRAI Residential Mechanical Ventilation Manual, [the TECA Ventilation Guidelines](#), the Hydronics Institute Manuals and the SMACNA manuals.

2) Ventilation system equipment installed to meet the requirements of this Section shall be installed in accordance with the manufacturers’ instructions and recommendations except that, where such instructions and recommendations are in conflict with the requirements of this Subsection, the requirements of this Subsection shall govern.

3) Except where mounted on concrete foundations, fans and heat recovery ventilators shall be isolated from structural components by resilient mountings to minimize the transmission of noise and vibration to occupied spaces.

- 4) Where flow-regulating dampers are required,
  - a) they shall be adjustable and accessible without requiring the removal of fans, motors or insulating materials, or the use of specialized tools, and
  - b) a device on the outside of the duct or device in which they are installed shall indicate the position of the damper.
- 5) Ventilation equipment shall be accessible for inspection, maintenance, repair and cleaning.
- 6) Ventilation equipment installed in unheated spaces shall be installed so as to avoid condensation of moisture on fans and motors, in accordance with the manufacturers' instructions.

### 9.32.3.3. Principal Ventilation System

(See Note A-9.32.3.3.)

- 1) The principal ventilation system shall incorporate the following components:
  - a) a principal ventilation fan complying with this Article, and
  - b) except as permitted by Article 9.32.3.6., provision for the introduction of outdoor air to the *dwelling unit*, in conformance with Article 9.32.3.4. or 9.32.3.5., and
  - c) if the building includes a heated crawl space, the components that are required by Article 9.32.3.14.
- 2) The principal ventilation fan shall be capable of operating at an exhaust capacity complying with Table 9.32.3.3., referred to hereinafter as the "normal operating exhaust capacity." (See Note A-9.32.3.3.(2).)

**Table 9.32.3.3.**  
**Normal Operating Exhaust Capacity of Principal Ventilation Fan**  
 Forming Part of Sentence 9.32.3.3.(2)

Number of Bedrooms in <i>Dwelling Unit</i>	Normal Operating Exhaust Capacity of Principal Ventilation Fan, L/s	
	Minimum	Maximum
1	16	24
2	18	28
3	22	32
4	26	38
5	30	45
More than 5	System must comply with Clause 9.32.3.1.(1)(a)	

- 3) The requirement for a principal ventilation fan may be satisfied by a single fan, by the exhaust side of a heat recovery ventilator, or by a group of fans, provided all fans in the group are controlled simultaneously by a controller complying with Sentences (5), (6) and (7). (See Note A-9.32.3.3.(3).)

- 4) The components of the principal ventilation system shall be approved by their manufacturer for continuous operation.
- 5) The principal ventilation fan shall be controlled by a manual switch located within the living area of the *dwelling unit* and clearly marked “VENTILATION FAN.” (See Note A-9.32.3.3.(5).)
- 6) If all controls serving the principal ventilation fan are in the “off” position, the principal ventilation system shall not operate.
- 7) The requirement for a manual switch stated in Sentence (5) can be satisfied by a manual override incorporated in a dehumidistat or other automatic control, provided
  - a) the automatic control is located within the living area of the *dwelling unit*, and
  - b) the manual override is clearly marked “VENTILATION FAN.”
- 8) Where the principal ventilation fan is controlled by a dehumidistat or other automatic control in addition to the manual switch required by Sentence (5), the manual switch shall be capable of activating the fan regardless of the setting of the automatic control.
- 9) Where an exhaust air intake for the principal ventilation fan is connected directly to the return side of the duct system of a forced air heating system or other forced air distribution system, it shall be connected, where applicable, not less than 1 m upstream from the connection of the outdoor air *supply duct* required by Sentence 9.32.3.4.(5).
- 10) Exhaust air intakes for principal ventilation fans located in kitchens, bathrooms and water-closet rooms shall be located in the ceiling or on the wall not less than 2 m above the floor. (See Note A-9.32.3.3.(10).)

#### 9.32.3.4. Ventilation Systems Used in Conjunction with Forced Air Heating Systems

(See Note A-9.32.3.4.)

- 1) Where outdoor air is to be introduced to the *dwelling unit* through a forced air heating system, the provision of outdoor air shall comply with this Article.
- 2) Where the actual normal operating exhaust capacity of the fan installed to satisfy the requirement for a principal ventilation fan exceeds the maximum outdoor airflow permitted by Table 9.32.3.4. for a mixed air temperature of 15°C or exceeds the minimum acceptable return air temperature specified by the manufacturer of the *furnace*, whichever is less, then either
  - a) the system shall incorporate a means for tempering outdoor air introduced to the heating system ducts so that a mixed air temperature of 15°C or the minimum acceptable return air temperature specified by the manufacturer of the *furnace*, whichever is less, is achieved when the outdoor air is at the January 2.5% temperature and the indoor air temperature is 22°C, or



b) this Article shall be considered to be no longer applicable and the mechanical ventilation system shall comply with either Clause 9.32.3.1.(1)(a) or with Article 9.32.3.5.

- 3)** For the purposes of Table 9.32.3.4., the *furnace* airflow shall be determined
- a) by operating the forced air heating system’s circulation fan at the rate chosen to satisfy Clause (9)(a) when measuring the return airflow in the *furnace* return air *plenum* immediately upstream of the connection of the outdoor air *supply duct* required by Sentence (5) and then adding this return airflow measurement to the actual normal operating exhaust capacity of the fan installed to satisfy the requirement for a principal ventilation fan, or
  - b) by using the manufacturer’s rated flow for the *furnace* for 150 Pa static pressure and the wiring configuration necessary to achieve the flow specified in Clause (9)(a).
- 4)** Linear interpolation is permitted in using Table 9.32.3.4.

**Table 9.32.3.4.**  
**Maximum Outdoor Airflow**  
Forming Part of Sentence 9.32.3.4.(2)

January 2.5% Temperature as per Appendix C, °C	Maximum Outdoor Airflow for Indicated Mixed Temperature, L/s																	
	0	0	0	-10	-10	-10	-20	-20	-20	-30	-30	-30	-40	-40	-40	-50	-50	-50
Minimum Mixed Air Temperature, °C	15	10	5	15	10	5	15	10	5	15	10	5	15	10	5	15	10	5
<i>Furnace</i> Airflow, L/s																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	32	55	77	22	38	53	17	29	40	13	23	33	11	19	27	10	17	24
200	64	109	155	44	75	106	33	57	81	27	46	65	23	39	55	19	33	47
300	—	—	—	66	113	159	50	86	121	40	69	98	34	58	82	29	50	71
400	—	—	—	—	—	—	—	—	—	54	92	131	45	77	110	39	67	94
500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	49	83	118

- 5)** An outdoor air *supply duct* shall be installed between the outdoors and the *furnace* return air *plenum* and shall be connected
- a) not less than 3 m upstream of the *plenum* connection to the *furnace*, as measured along the length of the duct, or
  - b) through an acceptable mixing device installed in the return air *plenum*.
- 6)** The outdoor air *supply duct* required by Sentence (5) shall incorporate a flow-regulating damper.
- 7)** Where the outdoor air *supply duct* required by Sentence (5) is not connected to an outdoor air supply fan, it shall be connected downstream of all return branch connections.
- 8)** Where the outdoor air *supply duct* required by Sentence (5) is connected to an

- auxiliary outdoor air supply fan, the auxiliary outdoor air supply fan shall be
- a) approved by the manufacturer for the handling of untempered outdoor air if it will be handling untempered outdoor air,
  - b) approved by the manufacturer for continuous operation, and
  - c) designed to provide an outdoor air supply flow within  $\pm 10\%$  of the actual normal operating exhaust capacity of the exhaust fan installed to satisfy the requirement for a principal ventilation fan.
- 9)** The principal ventilation fan control required by Sentence 9.32.3.3.(5) shall be wired in such a way that
- a) activation of the principal ventilation fan automatically activates the forced air heating system's circulation fan to provide an airflow not greater than the space-heating airflow,
  - b) where applicable, activation of the principal ventilation fan automatically activates the auxiliary outdoor air supply fan described in Sentence (8), and
  - c) the auxiliary outdoor air supply fan does not operate when the principal ventilation fan is not operating.
- 10)** With the principal ventilation fan operating at its normal operating exhaust capacity, the airflow in the outdoor air *supply duct* shall be measured and the flow-regulating damper required by Sentence (6) shall be adjusted and permanently fixed so that the airflow in the outdoor air *supply duct* is within  $\pm 10\%$  of the actual normal operating exhaust capacity of the principal ventilation fan.
- 11)** The airflow measurements required by Sentences (3) and (10) shall be done using a method accurate to within  $\pm 15\%$  of the flow rate being measured.
- 12)** All connections between the ventilation system and the heating system shall be in accordance with Articles 9.33.4.1. and 9.33.5.2.

### **9.32.3.5. Ventilation Systems Not Used in Conjunction with Forced Air Heating Systems**

(See Note A-9.32.3.5.)

- 1)** Where outdoor air is to be introduced to the *dwelling unit* through means other than a forced air heating system, the provision of outdoor air shall comply with this Article [or Sentence \(15\) where permitted.](#)
- 2)** An outdoor air supply fan shall be installed with a rated capacity within  $\pm 10\%$  of the actual normal operating exhaust capacity of the exhaust fan installed to satisfy the requirement for a principal ventilation fan.
- 3)** The principal ventilation fan control required by Sentence 9.32.3.3.(5) shall be wired in such a way that

- a) activation of the principal ventilation fan automatically activates the outdoor air supply fan required by Sentence (2), and
- b) the outdoor air supply fan does not operate when the principal ventilation fan is not operating.
- 4)** The outdoor air supply fan shall be connected to the outdoors through an outdoor air *supply duct*.
- 5)** The outdoor air *supply duct* required by Sentence (4) shall incorporate a flow-regulating damper.
- 6)** With the principal ventilation fan operating at its normal operating exhaust capacity, the airflow in the outdoor air *supply duct* shall be measured and the flow-regulating damper required by Sentence (5) shall be adjusted and permanently fixed so that the airflow in the outdoor air *supply duct* is within  $\pm 10\%$  of the actual normal operating exhaust capacity of the principal ventilation fan.
- 7)** The airflow measurements required by Sentence (6) shall be done using a method accurate to within  $\pm 15\%$  of the flow rate being measured.
- 8)** Except where a heat recovery ventilator is used to supply the outdoor air, the outdoor air shall be tempered to at least  $12^{\circ}\text{C}$  before being circulated to habitable spaces.
- 9)** Any tempering device installed to comply with Sentence (8) shall be installed in accordance with Articles 9.33.4.1. and 9.33.5.2.
- 10)** Except as provided in Sentence (11), outdoor air shall be distributed by a system of trunk and branch *supply ducts*, from the outdoor air supply fan required by Sentence (2) to
- a) each bedroom,
- b) any *storey*, including *basements* and heated crawl spaces, without a bedroom, and
- c) if there is no *storey* without a bedroom, to the principal living area.
- 11)** In a *dwelling unit* in which there is no *storey* without a bedroom, if an exhaust air intake for the principal ventilation fan is located in the principal living area and the principal ventilation fan has no more than 2 exhaust air intakes located in other rooms, distribution of outdoor air to the principal living area is not required.
- 12)** All branch *supply ducts* that are not fitted with diffusers with adjustable balance stops shall be supplied with balancing dampers that
- a) can be fixed in their adjusted positions, and
- b) include devices to indicate the positions of the dampers.
- 13)** The air supply outlets through which outdoor air is delivered to the rooms shall be located in the ceiling or in a wall at not less than 2 m above the floor and shall be designed and installed to promote diffusion across the ceiling.
- 14)** Provision shall be made for the free flow of air to or from all rooms by leaving gaps beneath doors, using louvred doors or installing grilles in doors.
- 15) Provisions for outdoor air conforming with Sentence (1) need not be provided if the principal ventilation system**
- a) services a secondary suite that

- i) is located where the January design temperature, on a 2.5% basis determined in conformance with Article 1.1.3.1., is greater than -20°C,
- ii) has only 1 storey and a floor area of less than 168 m<sup>2</sup> within the building envelope,
- iii) does not have ducted forced-air heating system, and
- iv) is not located in a building conforming to Subsection 9.36.6. or 10.2.3.,  
and
- b) provides supply air passively from outdoors through dedicated inlets that
  - i) are located in each bedroom and at least one common area,
  - ii) are located at least 1800 mm above the floor, and
  - iii) have an unobstructed vent area of not less than 25 cm<sup>2</sup>.

### 9.32.3.6. Exhaust-Only Ventilation Systems

(See Note A-9.32.3.6.)

- 1) A ventilation system with no provision for the introduction of outdoor air to the *dwelling unit* may only be used where the *dwelling unit*
  - a) contains no solid-fuel-burning *appliance*, no fireplace of other than *direct-vented* type, and no other fuel-fired space- or water-heating *appliance* of other than *direct-vented* or *mechanically vented* types, ~~and~~
  - b) has a forced air distribution system with a circulation fan with a rated capacity equal to at least 5 times the actual normal operating exhaust capacity of the fan installed to satisfy the requirement for a principal ventilation fan, a supply side that complies with Sentences 9.32.3.5.(10) to (12), and a return side that complies with Articles 9.33.6.12. and 9.33.6.13., and
  - c) is not located in a building conforming to Subsection 9.36.6. or 10.2.3.
- 2) Except as provided in Sentence (3), where an exhaust-only system is installed, the principal ventilation fan control required by Sentence 9.32.3.3.(5) shall be wired in such a way that, where applicable, activation of the principal ventilation fan automatically activates the circulation fan of the forced air distribution system required by Clause (1)(b) at its rated capacity.
- 3) Interlocking the forced air distribution system's circulation fan with the principal ventilation fan as required by Sentence (2) is not required where the forced air distribution system is equipped with a control that automatically activates the circulation fan at user-selected intervals.

### 9.32.3.7. Supplemental Exhaust

(See Note A-9.32.3.7.)

- 1) Except as provided in Sentences (2) and (3), a supplemental exhaust fan with a rated capacity not less than 50 L/s shall be installed in each kitchen.

- 2) A supplemental exhaust fan is not required in a kitchen where the only exhaust air intake for the principal ventilation fan is located in that kitchen.
- 3) A supplemental exhaust fan is not required in a kitchen where the principal ventilation fan draws from that kitchen and other rooms, provided
  - a) the principal ventilation fan can be switched to a high exhaust rate equal to not less than 2.5 times the minimum normal operating exhaust capacity specified in Table 9.32.3.3., and
  - b) the high exhaust rate of the principal ventilation fan, as described in Clause (a), is activated by a manual switch in the kitchen labeled "KITCHEN EXHAUST."
- 4) Where an exhaust air intake for the principal ventilation fan is not located in a bathroom or water-closet room, a supplemental exhaust fan with a rated capacity not less than 25 L/s shall be installed in that bathroom or water-closet room.
- 5) Where the intake for a supplemental exhaust fan other than a cooking *appliance* exhaust fan serving a *cooktop* is installed in a kitchen, it shall be installed in the ceiling or on the wall at not less than 2 m above the floor.
- 6) A supplemental exhaust fan required by this Article shall be controlled by a manual switch located in the room served by the fan.
- 7) Where a kitchen or bathroom is exempted from the requirement to install a supplemental exhaust fan by virtue of Sentences (2) or (3), the principal ventilation fan shall be controlled by a manual switch located in the kitchen or bathroom and wired in parallel with the manual switch required by Sentence 9.32.3.3.(5).
- 8) Where a supplemental exhaust fan required by this Article is controlled by a dehumidistat or other automatic control in addition to the manual switch required by Sentence (6), the manual switch shall be capable of activating the fan regardless of the setting of the automatic control.

### 9.32.3.8. Protection Against Depressurization

(See Note A-9.32.3.8.)

- 1) This Article applies to
  - a) *dwelling units* that contain a fuel-fired *space-heating appliance* or fuel-fired water-heating *appliance* of other than *direct-vented* or *mechanically vented* types,
  - b) ancillary spaces that contain an exhaust device, where the space is not within a *dwelling unit* in a house with a *secondary suite* and where the house with a *secondary suite* contains a fuel-fired *space-heating appliance* or fuel-fired water-heating *appliance* of other than *direct-vented* or *mechanically vented* types, and
  - c) a vented *appliance* that is subject to back drafting (see Note A-9.32.3.8.(1)(c)).
- 2) Except as provided in Sentences (6) to (8), any mechanical air exhausting device, other than the principal ventilation fan operating at a rate not greater than the maximum permitted by Table 9.32.3.3., shall be provided with outdoor makeup air supplied by a fan rated to deliver outdoor air to the *dwelling unit* at a rate

- a) not less than the exhaust capacity of the device, and
  - b) not greater than that exhaust capacity plus 10%.
- 3)** An outdoor makeup air supply fan required by Sentence (2) shall be wired so that it is activated whenever the device for which it supplies outdoor makeup air is activated.
- 4)** The outdoor makeup air required by Sentence (2) shall be
- a) introduced to a normally unoccupied area in the *dwelling unit*, or
  - b) tempered to at least 12°C before being introduced to occupied areas or to a *supply duct* system.
- 5)** If the outdoor makeup air required by Sentence (2) is not tempered upstream of the supply fan, the supply fan required by Sentence (2) shall be approved by the manufacturer for the handling of untempered outdoor air.
- 6)** The provision of makeup air as described in Sentence (2) is not required in a *dwelling unit* with solid-fuel-burning *appliances*, where all other fuel-fired *appliances* are *direct-vented* or *mechanically vented*.
- 7)** The provision of makeup air as described in Sentence (2) is not required if it can be shown using the test procedures in CAN/CGSB-51.71, “Depressurization Test,” that the maximum depressurization levels to which fuel-fired space- or water-heating *appliances* and their venting systems will be exposed will not exceed the limits set out in CAN/CGSB-51.71 for the categories of fuel-fired *appliances* and venting systems installed in the *dwelling unit*.
- 8)** The provision of makeup air as described in Sentence (2) is not required for mechanical exhausting devices operating a subfloor depressurization system installed for the purpose of reducing the risk of radon ingress.

### 9.32.3.9. Carbon Monoxide Alarms

(See Note A-9.32.3.9.)

- 1)** This Article applies to every *building* that contains a *residential occupancy*, *a business and personal services occupancy, or a mercantile occupancy* and that
- a) is served by or contains a fuel-burning *appliance*, or
  - b) contains a *storage garage*.
- 2)** Carbon monoxide (CO) alarms installed in a residential occupancy required by this Article shall
- a) conform to CAN/CSA-6.19, “Residential Carbon Monoxide Alarming Devices,”
  - b) be equipped with an integral alarm that satisfies the audibility requirements of CAN/CSA-6.19, “Residential Carbon Monoxide Alarming Devices,”
  - c) have no disconnect switch between the overcurrent device and the CO alarm, where the CO alarm is powered by the *dwelling unit’s* electrical system, and
  - d) be installed as recommended by the manufacturer.
- 3)** Where a room in a residential occupancy contains a solid-fuel-burning *appliance*, a CO alarm conforming to CAN/CSA-6.19, “Residential Carbon Monoxide Alarming Devices,” shall be



- a) installed as recommended by the manufacturer where these instructions specifically mention solid-fuel-burning *appliances*, or
- b) in the absence of specific instructions related to solid-fuel-burning *appliances*, on or near the ceiling.
- 4)** Where a fuel-burning *appliance* is installed in a *suite of residential occupancy*, a CO alarm shall be installed
- a) inside each bedroom, or
- b) outside each bedroom, within 5 m of each bedroom door, measured following corridors and doorways.
- 5)** Where a fuel-burning *appliance* serves a residential occupancy and is installed in a *service room* that is not in a *suite of residential occupancy*, a CO alarm shall be installed
- a) either inside each bedroom, or if outside, within 5 m of each bedroom door, measured following corridors and doorways, in every *suite of residential occupancy* that shares a wall or floor/ceiling assembly with the *service room*, and
- b) in the *service room*.
- 6)** For each *suite of residential occupancy* that shares a wall or floor/ceiling assembly with a *storage garage* or that is adjacent to an attic or crawl space to which the *storage garage* is also adjacent, a CO alarm shall be installed
- a) inside each bedroom, or
- b) outside each bedroom, within 5 m of each bedroom door, measured following corridors and doorways.
- 7)** Where CO alarms are installed in a house with a *secondary suite* including their common spaces, the CO alarms shall be wired so that the activation of any one CO alarm causes all CO alarms within the house with a *secondary suite* including their common spaces to sound.
- 8)** CO alarms installed in a business and personal services occupancy, or a mercantile occupancy as required by this Article shall conform to
- a) CAN/CSA-6.19, “Residential Carbon Monoxide Alarming Devices,” notwithstanding the scope of that standard,
- b) UL 2034, “Standard for Single and Multiple Station Carbon Monoxide Alarms,” notwithstanding the scope of that standard, or
- c) good engineering practice.
- (See Note A-6.9.3.1.(6).)
- 9)** Where a fuel-burning appliance serves a business and personal services occupancy, or mercantile occupancy, a CO alarm shall be,
- a) where the fuel-burning appliance is part of a system that could circulate or distribute CO to a suite of business and personal services occupancy or mercantile occupancy, installed on each storey of each suite that may be exposed, and
- b) installed in the room or space in which the fuel-burning appliance is located.
- (See Note A-6.9.3.1.(7).)
- 10)** For each suite of business and personal services occupancy or mercantile occupancy that shares a wall or floor/ceiling assembly with either a storage garage, or a service room containing a fuel-burning appliance, or that is adjacent to an attic or crawl space

to which either a storage garage, or a service room containing a fuel-burning appliance is also adjacent, a CO alarm shall be installed

a) on each storey of the adjacent suite, and

b) in each service room containing a fuel-burning appliance.

(See Note A-6.9.3.1.(8).)

### 9.32.3.10. Fans

(See Note A-9.32.3.10.)

- 1) Except as provided in Sentence (4), capacity ratings for required fans shall be determined in accordance with
  - a) CAN/CSA-C260-M, "Rating the Performance of Residential Mechanical Ventilating Equipment," or
  - b) HVI Publication 916, "Airflow Test Procedure."
- 2) Sound ratings for fans shall be determined in accordance with
  - a) CAN/CSA-C260-M, "Rating the Performance of Residential Mechanical Ventilating Equipment," or
  - b) HVI Publication 915, "Loudness Testing and Rating Procedure."
- 3) Capacity ratings for fans shall be measured at the external static pressure differentials shown in Table 9.32.3.10.-A.
- 4) Fans in heat recovery ventilators used to provide one or more required fans shall have their airflow at normal temperature rated in accordance with CAN/CSA-C439, "Rating the Performance of Heat/Energy-Recovery Ventilators."
- 5) Where a heat recovery ventilator is used to provide one or more required fans, it shall have a low-temperature ventilation reduction factor of not less than 50% when tested in accordance with CAN/CSA-C439, "Rating the Performance of Heat/Energy-Recovery Ventilators," at an outdoor temperature at least as low as the outdoor design temperature for the location where the ventilation system is to be installed, but the outdoor design temperature need not be lower than -25°C.

**Table 9.32.3.10.-A**  
**Minimum External Static Pressure Differential for Rating of Fans**  
 Forming Part of Sentence 9.32.3.10.(3)

Fan Configuration or Application	Minimum External Static Pressure Differential to be Used in Determining Rated Capacity
Fans installed with ducts connected on both sides, any application	100 Pa (0.4 inch water column)
Fans installed with ducts on one side only, used as the principal ventilation fan in exhaust-only systems permitted by Article 9.32.3.6.	62 Pa (0.25 inch water column)
Other required fans	25 Pa (0.1 inch water column)

- 6) Fans, including makeup air supply fans, installed to satisfy Articles 9.32.3.3. to



9.32.3.8. with less than 1 m of duct between themselves and the visible interior surfaces of rooms other than unfinished *basements*, furnace rooms, utility rooms and attics, shall have a sound rating complying with Table 9.32.3.10.-B when operating at the required flow rate.

7) Mechanical ventilation devices shall conform to CSA C22.2 No. 113, “Fans and Ventilators.”

**Table 9.32.3.10.-B**  
**Maximum Sound Rating for Fans**  
 Forming Part of Sentence 9.32.3.10.(6)

Fan Application	Maximum Sound Rating, sones	
	Rated according to CAN/CSA-C260-M	Rated according to HVI Publication 915
Principal ventilation fan	2.0	2.5
Supplemental fans installed in bathrooms and their makeup air fans	2.5	3.5
Supplemental fans installed in kitchens and their makeup air fans	No rating required	No rating required

### 9.32.3.11. Ducts

(See Note A-9.32.3.11.)

- 1) Except as provided in Sentence (6), ventilation ducts and their fittings shall conform to the requirements of Article 9.33.6.2., except that *exhaust ducts* serving only a bathroom or water-closet room are permitted to be of *combustible* material, provided they are reasonably airtight and constructed of a material impervious to water.
- 2) *Exhaust ducts* shall not discharge into heated or unheated enclosed spaces.
- 3) Where an *exhaust duct* passes through an unheated space or is not separated from an unheated space by an insulated *building* assembly, the duct shall be insulated to not less than RSI 0.5.
- 4) Where a duct carrying outdoor air that is not tempered and not mixed with indoor air passes through heated space, it shall be
  - a) insulated to not less than RSI 0.5, and
  - b) provided with a *vapour barrier*.
- 5) All exhaust intakes located within 3 m horizontally of a *cooktop* shall be equipped with a grease filter at the intake end.
- 6) Ductwork for cooking *appliance* exhaust fans shall
  - a) be of *noncombustible*, corrosion-resistant material,
  - b) lead directly to the outdoors with no connections to other exhaust fans or ducts, and
  - c) be equipped with a grease filter at the intake end.

- 7) All ductwork shall be installed to avoid crushing and shall be permanently supported to prevent sagging.
- 8) Joints in all ventilation system ducting shall be sealed with mastic, metal foil duct tape or the manufacturers' specified sealants.
- 9) Except where the size of a duct can be determined using Table 9.32.3.11.-A or Table 9.32.3.11.-B, duct sizes shall be determined according to Subsection 9.33.4.

**Table 9.32.3.11.-A**  
**Equivalent Duct Sizes**  
 Forming Part of Sentence 9.32.3.11.(9)

Fan's External Static Pressure, Pa	Duct Diameter, mm	Maximum Airflow in Duct, L/s						
		7	15	25	35	50	75	100
		Maximum Length of Duct, m						
25	75	6	1	0	0	0	0	0
	100	25	6	2	1	0	0	0
	125	60	17	6	3	1	0	0
	150	60	42	16	8	4	2	1
	175	60	60	34	18	9	4	2
	200	60	60	60	35	18	8	5
50	75	16	4	1	0	0	0	0
	100	60	16	6	3	1	0	0
	125	60	47	18	9	5	2	1
	150	60	60	44	23	12	5	3
	175	60	60	60	49	25	12	7
	200	60	60	60	60	48	22	13
62.5	75	22	5	2	1	0	0	0
	100	60	21	8	4	2	1	0
	125	60	60	24	12	6	3	1
	150	60	60	58	31	15	7	4
	175	60	60	60	60	33	15	9
	200	60	60	60	60	60	29	17
100	75	38	9	3	1	0	0	0
	100	60	36	14	7	3	1	1
	125	60	60	41	22	11	5	3
	150	60	60	60	53	27	12	7
	175	60	60	60	60	57	27	15
	200	60	60	60	60	60	51	30
150	75	59	14	5	2	1	0	0
	100	60	57	22	11	6	2	1
	125	60	60	60	34	17	8	4
	150	60	60	60	60	42	20	11
	175	60	60	60	60	60	42	24
	200	60	60	60	60	60	60	46

- 10)** In using Table 9.32.3.11.-A,
- a) when sizing branch ducts, “maximum length of duct” refers to the physical length of the duct from the interior grille served by that branch duct to the exterior hood,
  - b) when sizing a trunk duct, “maximum length of duct” refers to the physical length of the duct from the interior grille of the longest branch served by that trunk to the exterior hood,
  - c) outdoor air supply ducts shall be sized as trunk ducts,
  - d) “maximum airflow in duct” refers to the maximum airflow rate that a given section of duct (branch or trunk) must provide to satisfy the ventilation system design, and
  - e) “fan’s external static pressure” refers to the external static pressure at which the fan is rated to achieve the maximum airflow rate that the fan is required or intended to provide.
- 11)** Where flexible duct is used, it may be sized by choosing the next higher diameter in Table 9.32.3.11.-A or by choosing the diameter for a duct twice as long as the actual length.
- 12)** Where rectangular duct is used in place of round duct, it shall be selected according to Table 9.32.3.11.-B.

**Table 9.32.3.11.-B**  
**Equivalent Duct Sizes**  
 Forming Part of Sentences 9.32.3.11.(9) and (12)

Required Round Duct Size, mm	Permitted Equivalent Rectangular Duct Size, mm			
	Stack duct	100 mm depth	125 mm depth	150 mm depth
75	75 x 150	50 x 100	—	—
100	75 x 250	75 x 100	75 x 125	75 x 150
125	75 x 250	125 x 100	100 x 125	100 x 150
150	75 x 300	200 x 100	150 x 125	125 x 150
175	75 x 350	275 x 100	200 x 125	175 x 150
> 175	Design to Subsection 9.33.4.			

### 9.32.3.12. Heat Recovery Ventilators

(See Note A-9.32.3.12.)

- 1)** This Article shall apply to heat recovery ventilators installed to provide one or more of the fans required by this Subsection.
- 2)** Two or more heat recovery ventilators shall not be connected in parallel airflow to a common air *supply duct*, unless specifically permitted by the manufacturer.

- 3) Two or more heat recovery ventilators shall not be connected in parallel airflow to a common downstream *exhaust duct*.
- 4) All start-up procedures recommended by the manufacturer, including air balancing and airflow determination, shall be followed.
- 5) A means for the free flow of condensate shall be provided in accordance with the manufacturer's recommendations or, in their absence, a condensate drain of at least 1/2 inch (12.7 mm) nominal pipe size pitched in the direction of flow and complete with a trap or condensate pump of sufficient capacity shall be installed and connected to the *dwelling unit's* drain, waste and vent system.
- 6) The heat recovery ventilator and all condensate lines shall be installed in a space where the ambient temperature will not adversely affect the operation of the system.

### 9.32.3.13. Outdoor Intake and Exhaust Openings

- 1) Intake openings shall be located so as to avoid contamination of the ventilation air from other local sources such as automobile exhaust and exhaust from the *building* or adjacent *buildings*.
- 2) The distance from the bottom of an air intake opening to finished ground or to any nearer and lower permanent horizontal surface shall be not less than 450 mm or the depth of expected snow accumulation, whichever is greater.
- 3) The distance separating air intakes for mechanical ventilation from exhaust outlets that are potential sources of contaminants, such as *gas vents* or oil fill pipes, shall be not less than 1 800 mm.
- 4) Except as provided in Sentences (5) and (6), exhaust outlets that discharge air containing moisture, such as bathroom ventilation and clothes dryer exhaust outlets, shall be located at least 1 800 mm from air intakes and vented soffits.
- 5) Where an exhaust outlet referred to in Sentence (4) is located within a soffit, the soffit shall either be unvented, or if vented, the full depth of the soffit shall be blocked for a distance of 1 800 mm on each side of the exhaust outlet.
- 6) Where an exhaust outlet referred to in Sentence (4) is located in a side wall less than 1 800 mm from a soffit, a section of the soffit above the exhaust outlet shall be unvented, or if vented, the full depth of the soffit shall be blocked in accordance with the widths stipulated in Table 9.32.3.13.-A, centred over the location of the outlet.

**Table 9.32.3.13.-A**  
**Widths of Unvented or Blocked Soffits Where Exhaust Outlets Are Less Than 1 800 mm from a Soffit**

Forming Part of Sentence 9.32.3.13.(6)

Distance Between Exhaust Outlet and Soffit, mm	Total Width of Unvented or Blocked Soffit Centred Over Location of Exhaust Outlet, mm
1 to 300	3 600
301 to 600	3 400

601 to 900	3 100
901 to 1 200	2 700
1 201 to 1 500	2 000
1 501 to 1 799	1 000

**7)** Air intakes shall be clearly labeled as such for identification from locations outside the *dwelling unit*.

**8)** The distance from the bottom of an exhaust outlet to finished ground or to any nearer and lower permanent horizontal surface shall be not less than 100 mm.

**9)** Where air intake and exhaust openings are in exposed locations, provision shall be made to protect them from the entry of precipitation by the use of louvres, weather cowls or other suitable protection.

**10)** Air intake openings shall incorporate screens or grilles to protect against the entry of animals and insects.

**11)** Except for exhaust outlets serving heat recovery ventilators, exhaust outlets shall incorporate backdraft dampers.

**12)** An exhaust outlet that does not incorporate a backdraft damper located at the *building* envelope shall incorporate a screen located at the *building* envelope to protect against the entry of animals.

**13)** Screens, grilles and filters installed in air intake and exhaust openings shall be easily removable for cleaning purposes, without the need for special tools.

**14)** Where screens or grilles are installed in air intake and exhaust openings, the net free area of the air intake or exhaust opening shall be equal to or greater than the required cross-sectional area of the duct served or such openings shall comply with Table 9.32.3.13.-B

**15)** Screens and grilles shall be of corrosion-resistant material.

**Table 9.32.3.13.-B**  
**Area of Openings with Screens or Grilles**  
 Forming Part of Sentence 9.32.3.13.(14)

<b>Mesh Size of Screen or Grille, mm</b>	<b>Area of Opening</b>
Less than 4	3 times required area of duct served
4 to 6	2 times required area of duct served
Larger than 6	Required area of duct served

### 9.32.3.14. Heated Crawl Space Ventilation

- 1) Where a crawl space is heated by a ducted forced-air heating system that does not draw air from the crawl space to the furnace through the return air plenum, the crawl space shall be connected to the floor space above the crawl space by at least one air-transfer grille.
- 2) Where a crawl space is heated other than by a ducted forced-air heating system, the crawl space shall
- a) be connected to
    - i) the floor space above the crawl space by at least one air-transfer grille,
    - and
    - ii) the principal ventilation system by a supply air outlet or an exhaust air inlet,
  - b) be connected to the floor space above the crawl space by at least 2 air-transfer grilles for every 30 m<sup>2</sup> of crawl space area, or
  - c) be connected to
    - i) the floor space above the crawl space by at least one air-transfer grille,
    - and
    - ii) the outdoors by a dedicated exhaust fan that complies with Sentence (4).
- 3) An air-transfer grille required by Sentence (1) or (2) shall have an unobstructed vent area of the greater of
- a) 25 cm<sup>2</sup>, and
  - b) 0.83 cm<sup>2</sup> for every m<sup>2</sup> of crawl space area.
- 4) Where a dedicated exhaust fan is installed in accordance with Subclause (2)(c)(ii), the dedicated exhaust fan shall
- a) provide an air-flow rate of at least 23 L/s, and
  - b) be controlled by
    - i) a humidity control device, or
    - ii) an adjustable time control device that is capable of providing not less than 8 total hours of ventilation per 24 hour period.
- 5) Where a crawl space is divided into 2 or more compartments, each heated compartment shall conform to Sentence (1) or (2).

## Notes

**A-9.32.3.8.(1)(c) Naturally Aspirating Fuel-Fired Vented Appliance (NAFFVA).** NAFFVA, typically appliances with draft hoods, are subject to back drafting when a negative pressure condition occurs in the dwelling. The following tables describe the conditions under which Clause 9.32.3.8.(1)(c) applies:

**Table A-9.32.3.8.(1)(c)-A**  
**Vent Safety — Natural Gas and Propane**

<u>Fuel Type</u>	<u>Natural Gas and Propane</u>			
<u>Vent Type</u>	<u>Power Vent<sup>(3)</sup></u>	<u>Direct Vent<sup>(3)</sup></u>	<u>Thermal Buoyancy Chimney<sup>(2)</sup></u>	
<u>Appliance Type</u>	<u>Furnace</u> <u>Boiler</u> <u>HWT</u> <u>Fireplace</u>	<u>HWT</u> <u>Fireplace</u> <u>Heater</u>	<u>Mid-Efficient F/A</u> <u>Furnace or</u> <u>Boiler<sup>(5)</sup></u>	<u>Drafthood Boiler</u> <u>HWT<sup>(4)</sup></u>
<u>Special Conditions</u>				<u>Located in Air-Barriered Room<sup>(1)</sup></u>
<u>Classification</u>	<u>Non-NAFFVA</u>		<u>NAFFVA</u>	<u>Non-NAFFVA</u>
<u>9.32.3.8.(1)(c) Applies</u>	<u>No</u>		<u>Yes</u>	<u>No</u>

**Notes to Table A-9.32.3.8.(1)(c)-A:**

(1) Mechanical room must be air-barriered from remainder of house with no access from within house. Room must be lined with panel products with sealed joints and all pipe and wire penetrations sealed. Effectively, the room must be finished before equipment is installed and holes drilled for pipes and wires. This option is not available for forced air furnaces as it is not possible to effectively seal the ducts.

(2) Thermal buoyancy chimneys must be within the heated envelope of the house to provide acceptable venting performance.

(3) Any power vented appliance with pressurized vent (1 pipe) or sealed combustion (2 pipe) or direct vent appliance (fireplace, heater or HWT) are non-NAFFVA.

(4) Mid-efficient (draft induced) appliances are considered NAFFVA with the exception of a boiler or HWT located in an air-barriered room.

(5) This category applies only to

- a) mid-efficient forced air furnaces equipped with induced draft fans and exhaust proving switch, and
- b) boilers equipped with induced draft fans and exhaust proving switch.

**Table A-9.32.3.8.(1)(c)-B**  
**Vent Safety — Oil and Solid Fuel**

<u>Fuel Type</u>	<u>Oil</u>			<u>Solid</u>		
<u>Vent Type</u>	<u>Thermal Buoyancy Chimney<sup>(2)</sup></u>		<u>Direct Vent</u>	<u>Thermal Buoyancy Chimney<sup>(2)</sup></u>		<u>Any</u>
<u>Appliance Type</u>	<u>Boiler HWT<sup>(4)</sup></u>	<u>F/A Furnace Boiler HWT<sup>(3)(4)</sup></u>	<u>F/A Furnace Boiler HWT</u>	<u>Boiler</u>	<u>F/A Furnace Boiler HWT Fireplace Heat Stove</u>	<u>Outside Boiler</u>
<u>Special Conditions</u>	<u>Located in Air-Barriered Room<sup>(1)</sup></u>			<u>Located in Air-Barriered Room<sup>(1)</sup></u>		
<u>Classification</u>	<u>Non-NAFFVA</u>	<u>NAFFVA</u>	<u>Non-NAFFVA</u>	<u>Non-NAFFVA</u>	<u>NAFFVA<sup>(5)</sup></u>	<u>N/A</u>
<u>9.32.3.8.(1)(c) Applies</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>Yes<sup>(5)</sup></u>	<u>No</u>

**Notes to Table A-9.32.3.8.(1)(c)-B.:**

(1) Mechanical room must be air-barriered from remainder of house with no access from within house. Room must be lined with panel products with sealed joints and all pipe and wire penetrations sealed. Effectively, the room must be finished before equipment is installed and holes drilled for pipes and wires. This option is not available for forced air furnaces as it is not possible to effectively seal the ducts.

(2) Thermal buoyancy chimneys must be within the heated envelope of the house to provide acceptable venting performance.

(3) Oil-fired HWT, boilers and furnaces equipped with blocked vent switches.

(4) Sealed combustion kits can be added to oil-fired appliances but they switch to interior combustion air if intake is blocked and rely on barometrically dampered thermal buoyancy chimneys so they are considered NAFFVA.

(5) Wood-burning appliances certified for use in mobile homes and installed to mobile home installation standards are considered non-NAFFVA and Clause 9.32.3.8.(1)(c) does not apply to them.