

2 Ventilation Checklist 2 - HRV Systems

Sentence 9.32.3.4(3) & (4)

Use this Checklist when a centrally ducted HRV (Heat Recovery Ventilator) is used alone or in combination with a Forced Air Heating System to meet principal ventilation system requirements.

Civic Address	3404 Salsbury Rise	Permit No.	
Climate Zone	4	Number of Bedrooms:	3 (A)
	Total Floor Area of Living Space:		1977 Sq. Ft. (B)
	Total Interior Volume of Dwelling:		17416 Cu. Ft.
	½ ACH (air changes/hour) = Volume x 0.5 ÷ 60 =		145 CFM (C)

A bedroom is a room with an openable window (minimum dimensions apply), a closet, and a closing interior door.
Total volume includes all heated interior spaces (including crawlspace if heated).
Exhaust appliances exceeding 0.5 ACH may require make-up air.

1. Use the bedroom count from Box (A) and the Total Square Footage from Box (B) above and use Code Requirements or use Table 9.32.3.5 to determine capacity.

Minimum Required Rate **60** CFM (D)

2. HRV Make: **Venmar**

Model: **A110**

3. HRV Capacity: CFM @ 0.4" ESP.

Box E must meet Box D CFM **100** CFM (E)

4. List Exhaust Grille Locations. 1 minimum at 6 ft. or higher from floor of uppermost level.

1	<u>Upper Floor Closet</u>	<u>6</u>
2	<u>Lower Floor Kitchen</u>	<u>7</u>
3	<u>Lower Floor Powder Rm</u>	<u>8</u>
4	<u>Upper Floor Ensuite</u>	<u>9</u>
5	<u>Upper Floor Bathroom</u>	<u>10</u>

5. Required Kitchen and Bathroom Exhaust

If HRV used to meet all or part of Kitchen / Bathroom spot exhaust requirements, list below.

Floor / Room	Req'd Exhaust Rate See Table 9.32.3.6	EXHAUST EQUIPMENT					HRV Principal System CFM
		Spot Exhaust Kitchen & Bath Wall or Ceiling Fans					
		Fan Make & Model	CFM @0.2" ESP Manuf. Rated	* Duct Sizing per Table 9.32.3.8(3)		Max Equiv. Length per Table	
Duct Dia (in.)	Rigid			Flex			
Upper / Closet	0	Venmar A110	100				
Lower / Kitchen	100	Whirlpool YWMH31017HS	350	6		x	> Maximum
Lower / Powder Rm	50	Panasonic FV05-VQ11	62	5		130	50
Upper / Ensuite	50	Panasonic FV05-VQ11	62	5		130	45
Upper / Bathroom	50	Panasonic FV05-VQ11	62	5		130	46
						Total (must = Box E)	100 x

* For fans exceeding 175 CFM in Table 9.32.3.8(3), follow manufacturer's installation instructions or use good engineering practice to size duct. See Ventilation Guidelines Appendix page 16A, Duct Sizing for Larger Fans.

6. HRV Fresh Air Distribution (Choose a or b)

a) Supply Air from HRV direct connect to Return Air of a Forced Air Heating System:

- Forced air heating system fan and HRV fans are set to run continuously, and
- Forced air heating system is ducted to supply air to every bedroom and any level without a bedroom.

b) Supply Air from HRV distributed independently

- HRV fans are set to run continuously, and
- HRV system is ducted to supply air to every bedroom and any level without a bedroom.

7. Heated Crawlspace is present, (choose one). Area of CS: N/R Tfr Grille min area: N/R
- Minimum of one (1) RA grille located in the crawlspace, connected to F/A heating appliance
 - Transfer Grille to adjacent floor + S/A outlet in crawlspace (from heating appliance).
 - Transfer Grille to adjacent floor + Exhaust from crawlspace into Principal Ventilation System (HRV)
 - Two (2) Transfer Grilles to adjacent floor
 - Tfr Grille to adj. floor + Exhaust Fan (See table above). Controlled by dehumidistat or timer.

Make-Up Air Requirements

1. NAFFVA (Naturally Aspirated Fuel Fired Appliance) present in Dwelling Unit? (per sentence 9.32.4.1)

- No. Omit Steps 2 & 3.
- Yes. Proceed to Step 2.

2. Exhaust Appliance present which exceeds Box (C) Air Volume (1/2 AC per hour)

- No such appliance. Omit Step 3.
- Yes. Commit to Depressurization Test. (See Caution, TECA Ventilation Manual Page 24).
- Yes. Proceed to Step 3.

3. Use Active Make-Up Air for Exhaust Appliance. (Choose (a) or (b) below.

Make-Up Air Fan required:

Fan Make: _____ Model: _____ Installed Exhaust Appliance CFM _____
 Duct Size: _____ inches MUA is electrically interconnected with large volume exhaust fan: _____
 Fan location: _____ Fan ducted to: _____

a) Active Make-Up Air delivered to an Unoccupied Area first (not directly to room containing the appliance)

i) Tempering Required per 9.32.4.1(4)(a):

Show calculation how make-up air will be tempered to at least 34°F (1°C) before entering unoccupied area.

$$\frac{\text{Make-up Fan CFM (0)} \times 1.08 \times (34^\circ\text{F} - (24.8^\circ\text{F}) \text{ Winter Design Temp this area}}{3412 \text{ BtuH/kW}} = \text{Duct Heater}$$

ii) Transfer Grille Required. Size 1 sq. in. gross area per 2 CFM.

Transfer Grille size: _____ sq. inches Location: _____

iii) Additional tempering required per 9.32.4.1(4)(b) before air transferred to occupied area.

Show calculation and describe how make-up air will further be tempered to at least 54°F (12°C).

$$\frac{\text{Make-up Fan CFM (0)} \times 1.08 \times (54^\circ\text{F} - 34^\circ\text{F})}{3412 \text{ BtuH/kW}} = \text{Heat from Unoccupied area required to raise temp by } 20^\circ\text{F}$$

Tempered by: _____

or b) Active Make-Up Air delivered to an Occupied Area. Tempering Required.

Show calculation how make-up air will be tempered to at least 54°F (12°C).

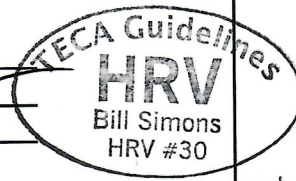
$$\frac{\text{Make-up Fan CFM (0)} \times 1.08 \times (54^\circ\text{F} - (24.8^\circ\text{F}) \text{ Winter Design Temp this area}}{3412 \text{ BtuH/kW}} = \text{Duct Heater}$$

NOTES: Range hood fan vented to manufacturers specs

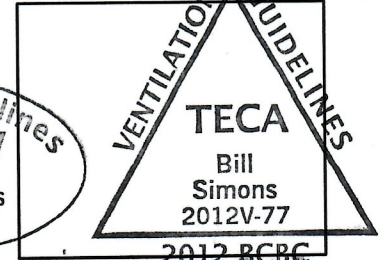
Installer Certification:

I hereby certify that the design and installation of the ventilation system complies with the 2012 BC Building Code, Section 9.32, 2014 & 2015 Amendments

Date October 13, 2022
 Print Name Bill Simons
 Signature _____
 Company B.R. Ventilation Ltd.
 Phone 250-812-8314



2012 TECA Ventilation Certification Stamp



4 Ventilation Checklist 4 - Exhaust Fan & Passive Inlets Sentence 9.32.3.4(6)

Use this checklist for small (<=1800 sq. ft.), single level, non-forced air heated dwellings located in coastal climate areas where winter design temperature is warmer than -20°C (-4°F).

Civic Address 3404 Salisbury Rise	Permit No. _____
Climate Zone 4 Number of Bedrooms: 1 (A)	A bedroom is a room with an openable window (minimum dimensions apply), a closet, and a closing interior door.
Total Floor Area of Living Space: 478 Sq. Ft. (B)	Total volume includes all heated interior spaces (including crawlspace if heated).
Total Interior Volume of Dwelling: 3824 Cu. Ft.	Exhaust appliances exceeding 0.5 ACH may require make-up air.
½ ACH (air changes/hour) = Volume x 0.5 ÷ 60 = 32 CFM (C)	

1. Principal Ventilation System Exhaust Fan Minimum Air Flow Rate

Use the bedroom count from Box (A) and the Total Square Footage from Box (B) above and use Code Requirements or use Table 9.32.3.5 to determine capacity.

Minimum Required Principal Exhaust System Capacity **30 CFM** (D)

2. Principal System Fan Choice

Exhaust Fan Make: **Panasonic** Model: **FV05VKS1** Sone Rating: **0.3**
 (Continuously running)
 Location: **Upper / Bathroom** Capacity @ 0.2" ESP **30 CFM** (E)
Floor Level / Room If CEV, capacity @ 0.4" ESP Must be ≥ Box (D)

3. Fan Duct Size and Equivalent Length

- a) Installed Equivalent Length:
 Length of duct (6 ft) + exh hood (30 ft) + 2 elbows (@ 10 ft ea. = 20 ft) = **56 Ft.** (F)
- b) Choose type of duct: Flex duct or Rigid (smooth) duct
- c) Duct size req'd to flow Box (E) CFM through Box (F) equiv. length of duct = **5 in.ø**
 Use Table 9.32.3.8(3) to determine duct size.

4. Required Kitchen and Bathroom Exhaust Fans: Re-list below if Principal Exhaust Fan meets all or part of Kitchen / Bathroom spot exhaust requirements.

Floor / Room	Req'd Exhaust Rate See Table 9.32.3.6	EXHAUST EQUIPMENT						Ex Fan/CEV Principal System CFM
		Spot Exhaust Kitchen & Bath Wall or Ceiling Fans						
		Fan Make & Model	CFM @0.2" ESP Manuf. Rated	* Duct Sizing per Table 9.32.3.8(3)		Max Equiv. Length per Table	Installed Equivalent Length	
Rigid	Flex							
Upper / Bathroom	30	Panasonic FV05VKS1	30	5		150	56	30
Upper / Kitchen	100	Whirlpool YWMH31017HS	350	6		x	> Maximum	
Total (must = Box E)								30 ✓

* For fans exceeding 175 CFM in Table 9.32.3.8(3), follow manufacturer's installation instructions or use good engineering practice to size duct. See Ventilation Guidelines Appendix page 16A, *Duct Sizing for Larger Fans.*

5. Required Inlets for passive Ventilation Air Supply

- a) High wall installation (minimum 6 ft. above floor)
- b) Located in each bedroom and at least one common area
- c) Inlet Free Area greater than or equal to 4 sq. in.

6. Heated Crawlspace is present, (choose one). Area of CS: N/R Tfr Grille min area: N/R
- Transfer Grille to adjacent floor + Exhaust from crawlspace into Principal Ventilation System (CEV)
 - Two (2) Transfer Grilles to adjacent floor
 - Transfer Grille to adj. floor + Exhaust Fan (See table above). Controlled by dehumidistat or timer.

Make-Up Air Requirements

1. NAFFVA (Naturally Aspirated Fuel Fired Appliance) present in Dwelling Unit? (per sentence 9.32.4.1)
- No. Omit Steps 2 & 3.
 - Yes. Proceed to Step 2.

2. Exhaust Appliance present which exceeds Box (C) Air Volume (1/2 AC per hour)
- No such appliance. Omit Step 3.
 - Yes. Commit to Depressurization Test. (See Caution, TECA Ventilation Manual Page 24).
 - Yes. Proceed to Step 3.

3. Use Active Make-Up Air for Exhaust Appliance. (Choose (a) or (b) below.

Make-Up Air Fan required: Installed Exhaust Appliance CFM _____
 Fan Make: _____ Model: _____ Make-Up Air Fan CFM _____
 Duct size: _____ inches MUA is electrically interconnected with large volume exhaust fan: _____
 Fan location: _____ Fan ducted to: _____

- a) Active Make-Up Air delivered to an Unoccupied Area first (not directly to room containing the appliance)
- i) Tempering Required per 9.32.4.1(4)(a):
 Show calculation how make-up air will be tempered to at least 34°F (1°C) before entering unoccupied area.

$$\frac{\text{Make-up Fan CFM (0)} \times 1.08 \times (34^\circ\text{F} - (24.8^\circ\text{F}) \text{ Winter Design Temp this area}}{3412 \text{ BtuH/kW}} = \text{Duct Heater}$$
 - ii) Transfer Grille Required. Size 1 sq. in. gross area per 2 CFM.
 Transfer Grille size: _____ sq. inches Location: _____
 - iii) Additional tempering required per 9.32.4.1(4)(b) before air transferred to occupied area.
 Show calculation and describe how make-up air will further be tempered to at least 54°F (12°C).

$$\frac{\text{Make-up Fan CFM (0)} \times 1.08 \times (54^\circ\text{F} - 34^\circ\text{F})}{3412 \text{ BtuH/kW}} = \text{Heat from Unoccupied area required to raise temp by } 20^\circ\text{F}$$
- Tempered by: _____

- or b) Active Make-Up Air delivered to an Occupied Area. Tempering Required.
 Show calculation how make-up air will be tempered to at least 54°F (12°C).

$$\frac{\text{Make-up Fan CFM (0)} \times 1.08 \times (54^\circ\text{F} - (24.8^\circ\text{F}) \text{ Winter Design Temp this area}}{3412 \text{ BtuH/kW}} = \text{Duct Heater}$$

NOTES: Kitchen hood fan vented to manufacturers specs.

Installer Certification:

I hereby certify that the design and installation of the ventilation system complies with the 2012 BC Building Code, Section 9.32, 2014 & 2015 Amendments

Date October 13, 2022
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 Signature _____
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