

1 Ventilation Checklist 1—Forced Air Systems SENTENCE 9.32.3.4(6)

Use this Checklist where **forced air heating system ducts intake and distribute** ventilation air.

Civic Address _____		Permit No. _____	
Climate Zone: <u>5</u>	Number of Bedrooms	<input type="text"/>	(A) A bedroom is a room with an openable window (minimum dimensions apply), a closet and a closing interior door.
Total Floor area of conditioned space		<input type="text"/> ft ²	(B)
Total Interior Volume of Dwelling		<input type="text"/> ft ³	Total volume includes all heated interior spaces
.5 ACH (air changes/hr) = Volume x 0.5 ÷ 60 =		<input type="text"/> cfm	(C) Exhaust appliances exceeding .5 ACH may require make-up air.

1. Principal Ventilation System Exhaust Fan Minimum Air-flow Rate

Use the bedroom count from Box (A) and Total square footage from Box (B) above and Table 9.32.3.5. to determine

Minimum Required Principal Exhaust System Capacity cfm (D)

2. Principal System Fan Choice

a) Exhaust Fan continuous running Make _____ Model _____ Sone Rating _____

Location: _____ **Capacity at 0.2 ESP** cfm (E) Must be ≥ than Box (D)

If CEV, capacity @0.4ESP

3. Fan Duct Size and Equivalent Length

Use actual fan cfm in Box(E) above and Table 9.32.3.8 (3) [See note at bottom of page for larger fan duct sizing].

a) Length of duct _____ ft + Exterior hood 30ft + number of 90° elbows _____ X 10 ft = _____ **Equivalent Length**

Maximum Equivalent Length allowed in Table 9.32.3.8(3) = _____

b) Fan Duct size: _____ inches Ø Duct type: ___ Rigid ___ Flex

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

ROOM	REQUIRED EXHAUST RATE Table 9.32.3.6	EXHAUST EQUIPMENT						Ex.Fan/CEV Principal System CFM
		Spot Exhaust Kitchen & Bath WALL/CEILING FANS					Principal System CFM	
		Fan Make & Model	CFM @ 0.2 ESP Manf. Rated	*Duct Sizing per Table 9.32.3.8.(3)		Max. Equiv. Length per table		
		rigid	flex					

* For fan capacities **exceeding** 175cfm 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 16-A

TOTAL (must = Box E)	<input type="text"/>
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5. Fresh Air must be ducted from outside to Return Air of furnace for distribution.

- a) Duct length from this connection to furnace cabinet must be 15 ft maximum and 10 ft minimum unless a flow control device is used. Duct length confirmed at _____ feet.
- b) Duct Size for Fresh Air intake to RA:
 4" Ø minimum for Rigid Duct. Must be insulated & vapour barriered for full length. ____ confirmed.
 5"Ø minimum for insulated, vapour barriered Flex Duct ____ confirmed.

6. Forced Air Furnace system ducted to supply air to every bedroom and any level without a bedroom__ confirmed.

7. If Heated Crawlspace present, state method of ventilating_____

MAKE-UP AIR Requirements

1. NAFFVA (Naturally Aspirated Fuel Fired Vented Appliance) or radon present in dwelling unit? Sentence 9.32.4.1

- Yes, Proceed to Step 2** **No, Omit Steps 2 & 3**

2. Exhaust Appliance present which exceeds Box C 0.5 ACH:

- Yes, Proceed to Step 3** **Yes, Commit to** **No such appliance. Omit Step 3**
Depressurization Test (See CAUTION, TECA Vent Manual pg 24)

3. Use Active Make-up Air for Exhaust Appliance.

Make-up Air Fan required: **Exhaust Appliance Actual Installed Cfm** _____
 Fan Make _____ Model _____ **Make-up Air Fan Cfm** _____
 Duct diameter _____ inches
 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 & describe how make-up air will be tempered to at least 34°F (1°C) before entering unoccupied area.

ii) **Transfer Grill Required:** Size 1 sq in of gross area per 2 cfm):
 Transfer grill size _____ sq. in. Location _____

iii) **Additional Tempering Required per 9.32.4.1.(4)(b) before transfer to occupied area:** Show calculation and describe how make-up air will be further tempered to at least 54°F (12°C).

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

Installer Certification:

Date _____

I hereby certify that the design and installation of the ventilation system complies with the 2012 B.C. Building Code, 2014 Section 9.32 Amendment.

2014 TECA Ventilation Certification Stamp

Print Name _____
 Signature _____
 Company _____
 Phone _____



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 furnace to meet principal ventilation system requirements.

Civic Address _____		Permit No. _____	
Climate Zone: <u>5</u>	Number of Bedrooms	<input type="text"/>	(A) A bedroom is a room with an openable window (minimum dimensions apply), a closet and a closing interior door.
	Total Floor area of conditioned space	<input type="text"/> ft ²	(B)
	Total Interior Volume of Dwelling	<input type="text"/> ft ³	Total volume includes all heated interior spaces
.5 ACH (air changes/hr) = Volume x 0.5 ÷ 60 =		<input type="text"/> cfm	(C) Exhaust appliances exceeding .5 ACH may require make-up air.

1. Use the bedroom count (Box A above) and total square footage (Box B above) to determine the minimum principal Air Flow rate required by Table 9.32.3.5

Minimum Required Rate cfm (D)

2. HRV Make _____ Model _____

3. HRV Capacity: CFM @ 0.4 ESP. Box E must meet Box D requirement. cfm (E)

4. List Exhaust Grilles Locations: 1 minimum @ 6ft or higher from floor of uppermost level.

5. Required Kitchen and Bathroom Exhaust

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

ROOM	REQUIRED EXHAUST RATE Table 9.32.3.6	EXHAUST EQUIPMENT						Principal System CFM		
		Spot Exhaust Kitchen & Bath WALL/CEILING FANS							HRV	
		Fan Make & Model	CFM @ 0.2 ESP Manf. Rated	*Duct Sizing per Table 9.32.3.8.(3)					Max. Equiv. Length per table	Installed Equiv. Length
				Duct Dia (in Ø)		Length	Length			
rigid	flex									
							TOTAL (must = Box E)			

* For fan capacities **exceeding** 175cfm 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 16-A

6. HRV Fresh Air Distribution (choose A or B option)

A) Supply Air from HRV direct connect to Return Air of a Forced Air Furnace system:

Furnace Fan continuous operation: yes and Forced Air system ducted to supply air to every bedroom and any level without a bedroom: yes and heated crawlspace: yes

B) Supply Air from HRV distributed independently to every bedroom and any level without a bedroom and to a heated crawlspace. List distribution grille locations: _____

MAKE-UP AIR Requirements

1. NAFFVA (Naturally Aspirated Fuel Fired Vented Appliance) or radon present in dwelling unit? Sentence 9.32.4.1

Yes, Proceed to Step 2

No, Omit Steps 2 & 3

2. Exhaust Appliance present which exceeds Box C 0.5 ACH:

Yes, Proceed to Step 3

Yes, Commit to

No such appliance. Omit Step 3

Depressurization Test (See CAUTION, TECA Vent Manual pg 24)

3. Use Active Make-up Air for Exhaust Appliance.

Make-up Air Fan required:

Exhaust Appliance Actual Installed Cfm _____

Fan Make _____ Model _____

Make-up Air Fan Cfm _____

Duct diameter _____ inches

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

ii) Transfer Grill Required: Size 1 sq in of gross area per 2 cfm):

Transfer grill size _____ sq. in.

Location _____

iii) Additional Tempering Required per 9.32.4.1.(4)(b) before transfer to occupied area: Show calculation and describe how make-up air will be further tempered to at least 54°F (12°C).

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

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Date _____

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2014 TECA Ventilation Certification Stamp

Print Name _____

Signature _____

Company _____

Phone _____



3 Ventilation Checklist 3—Distributed CRV Systems SENTENCE 9.32.3.4(5)

Use this Checklist when a ducted Central Recirculating Ventilator (CRV) is used to meet the fresh air intake and distribution requirements and a Principal Exhaust fan meets the exhaust requirements.

Civic Address _____		Permit No. _____	
Climate Zone: <u>5</u>	Number of Bedrooms <input type="text"/>	(A)	A bedroom is a room with an openable window (minimum dimensions apply), a closet and a closing interior door.
	Total Floor area of conditioned space <input type="text"/> ft ²	(B)	
	Total Interior Volume of Dwelling <input type="text"/> ft ³		Total volume includes all heated interior spaces
.5 ACH (air changes/hr) = Volume x 0.5 ÷ 60 = <input type="text"/> cfm		(C)	Exhaust appliances exceeding .5 ACH may require make-up air.

1. Principal Ventilation System Exhaust Fan Minimum Air-flow Rate

Use the bedroom count from Box (A) and Total square footage from Box (B) above and Table 9.32.3.5. to determine

Minimum Required Principal Exhaust System Capacity cfm (D)

2. Principal System Fan Choice

a) Exhaust Fan continuous running Make _____ Model _____ Sone Rating _____

Location: _____ Capacity at 0.2 ESP cfm (E) Must be ≥ than Box (D)
 If CEV, capacity @0.4ESP

3. Fan Duct Size and Equivalent Length

Use actual fan cfm in Box(E) above and Table 9.32.3.8 (3) [See note at bottom of page for larger fan duct sizing].

a) Length of duct _____ ft + Exterior hood 30ft + number of 90° elbows _____ X 10 ft = _____ **Equivalent Length**
 Maximum Equivalent Length allowed in Table 9.32.3.8(3) = _____

b) Fan Duct size: _____ inches Ø Duct type: ___Smooth___Flex

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

ROOM	REQUIRED EXHAUST RATE Table 9.32.3.6	EXHAUST EQUIPMENT						Principal System CFM	
		Spot Exhaust Kitchen & Bath WALL/CEILING FANS							Ex.Fan/CEV
		Fan Make & Model	CFM @ 0.2 ESP Manf. Rated	*Duct Sizing per Table 9.32.3.8.(3)		Max. Equiv. Length per table	Installed Equiv. Length		
rigid	flex								

* For fan capacities **exceeding** 175cfm 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 16-A

TOTAL (must = Box E)	<input type="text"/>
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5. CRV Recirculation and Fresh Air Intake Fan

Capacity @

0.4 ESP

cfm (F)

Make _____ Model _____

Box F CFM < minimum 3 times Box D for less than +5°F winter design temperature. Confirmed

Duct Size for Fresh Air intake into return air of CRV: Min 4"Ø rigid duct _____, or 5", flex duct _____

6. CRV Fresh Air circulation (Choose option a or b)

a) Draw air from bedrooms and Supply air to common area.

List location of supply grille _____ and location of each bedroom return grille _____

b) Draw air from common area and Supply air to bedrooms.

List location of return grille _____ and location of each bedroom supply grille _____

7. If Heated Crawlspace present, state method of ventilating _____

MAKE-UP AIR Requirements

1. NAFFVA (Naturally Aspirated Fuel Fired Vented Appliance) **or radon present in dwelling unit? Sentence 9.32.4.1**

Yes, Proceed to Step 2

No, Omit Steps 2 & 3

2. Exhaust Appliance present which exceeds Box C 0.5 ACH:

Yes, Proceed to Step 3

Yes, Commit to

No such appliance. Omit Step 3

Depressurization Test (See CAUTION, TECA Vent Manual pg 24)

3. Use Active Make-up Air for Exhaust Appliance.

Make-up Air Fan required:

Exhaust Appliance Actual Installed Cfm _____

Fan Make _____ Model _____

Make-up Air Fan Cfm _____

Duct diameter _____ inches

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

ii) **Transfer Grill Required:** Size 1 sq in of gross area per 2 cfm):

Transfer grill size _____ sq. in. Location _____

iii) **Additional Tempering Required per 9.32.4.1.(4)(b) before transfer to occupied area:** Show calculation and describe how make-up air will be further tempered to at least 54°F (12°C).

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

Installer Certification:

Date _____

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Print Name _____

Signature _____

Company _____

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Table 9.32.3.5.
Principal Ventilation System Exhaust Fan Minimum Air-flow Rate
Forming part of Sentence 9.32.3.5.(1)

Floor Area		Minimum Air-flow Rate, L/s and cf/m									
		Number of Bedrooms									
		0-1		2-3		4-5		6-7		>7	
m ²	ft ²	L/s	cf/m	L/s	cf/m	L/s	cf/m	L/s	cf/m	L/s	cf/m
< 140	< 1507	14	30	21	45	28	59	35	74	42	89
140-280	1507- 3014	21	45	28	59	35	74	42	89	49	104
281-420	3015-4521	28	59	35	74	42	89	49	104	56	119
421-560	4522-6028	35	74	42	89	49	104	56	119	64	136
561-700	6029-7535	42	89	49	104	56	119	64	136	71	150
> 700	>7535	49	104	56	119	64	136	71	150	78	165

Table 9.32.3.6.
Kitchen/Bathroom Exhaust Fan Minimum Air-flow Rate
Forming part of Sentence 9.32.3.6.(1)

Room	Minimum Exhaust Fan Air-flow Rate, L/s and cf/m			
	Intermittent		Continuous	
	L/s	cf/m	L/s	cf/m
Kitchen	47	100	N/A	N/A
Bathroom	23	49	9	19

Table 9.32.3.8.(3)
Maximum Equivalent Duct Length, m
Forming part of Sentence 9.32.3.8.(3)

Flexible Duct													
Equivalent Diameter (Cross Section Area for Rectangular Ducts)				Fan Capacity, L/s and cf/m									
mm (cm ²)		in (ft ²)		L/s	cf/m	L/s	cf/m	L/s	cf/m	L/s	cf/m	L/s	cf/m
				25	53	40	85	50	106	60	127	70	148
125	(123)	4.92	(0.13)	32		15		-		-		-	
150	(177)	5.91	(0.19)	46		40		28		18		13	
175	(240)	6.89	(0.26)	46		46		46		46		46	24
200	(314)	7.87	(0.34)	46		46		46		46		46	46
Rigid Duct													
Equivalent Diameter (Cross Section Area for Rectangular Ducts)				Fan Capacity, L/s and cf/m									
mm (cm ²)		in (ft ²)		L/s	cf/m	L/s	cf/m	L/s	cf/m	L/s	cf/m	L/s	cf/m
				25	53	40	85	50	106	60	127	70	148
100	(79)	3.94	(0.09)	32		15		-		-		-	
125	(123)	4.92	(0.13)	46		40		28		18		13	
150	(177)	5.91	(0.19)	46		46		46		42		34	24
175	(240)	6.89	(0.26)	46		46		46		46		46	46