



# Ventilation

**BCBC 9.32. & 9.36.3.9.  
2014**



## 9.32. Ventilation - Changes

- Exhaust only ventilation no longer acceptable
- New Principal Fan Sizing Table
- Ventilation air must be distributed to each bedroom and a common area
  - 4 acceptable options
- Principal System – must run continuously
- Crawlspace Ventilation Required
- Credit for very short bath fan exhaust ducts



## 9.32.3. Ventilation

- **Every dwelling must have a mechanical ventilation system conforming to:**
  - **CSA F326 Residential Mechanical Ventilation Systems, or**
  - BCBC 9.32.3 prescriptive**
  - **Referenced system design guides:**
    - ASHRAE Handbook
    - HRAI Digest
    - TECA Ventilation Guidelines
    - HRAI Residential Mechanical Ventilation Manual
    - SMACNA Manuals



## 9.36.3.9. Heat Recovery Ventilation

- Heat recovery ventilation for the house is not mandated, but when it is used, performance criteria are set out
- HRV must have sensible heat recovery efficiency rating at a flow rate as set out in 9.32
  - 60% for locations with a January design temp of  $\geq -10^{\circ}\text{C}$
  - 55% for locations with January design temp of  $< -10^{\circ}\text{C}$



## 9.32.3.5. Principal Ventilation System Exhaust Fan

- Principal ventilation rate based on bedroom count & square footage
- Minimum exhaust fan air-flow rate in Table 9.32.3.5

Floor area m <sup>2</sup>	Minimum air flow rate, L/s				
	Number of bedrooms				
	0-1	2-3	4-5	6-7	>7
< 140	14	21	28	35	42
140 - 280	21	28	35	42	49
281 - 420	28	35	42	49	56
421 - 560	35	42	49	56	64
561 - 700	42	49	56	64	71
> 700	49	56	64	71	78



## 9.32.3.5. Principal Ventilation System Exhaust Fan

- **Principal exhaust fan capacity @ 50 Pascals**
- **Designed to run continuously**
- **Controlled by dedicated switch**
  - **Clearly marked “principal Ventilation Exhaust Fan”**
  - **Two settings: on & off**
  - **Accessible for servicing**
  - **If capable of running at multiple flow rates, must have a separate switch so low rate is not less than required**
- **Sound rating not to exceed 1.0 sone**



## 9.32.3.6. Kitchen & Bath Fans

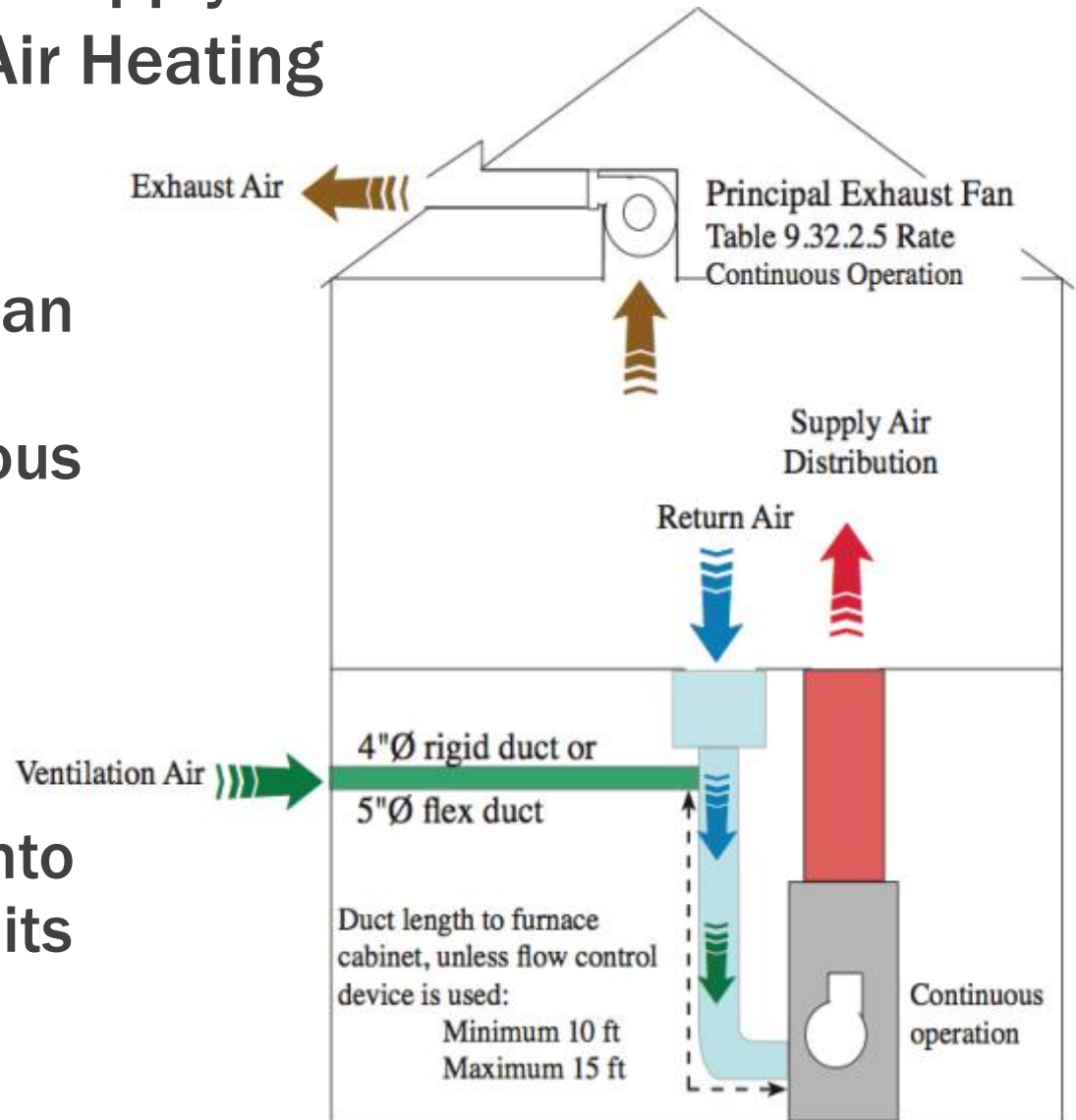
- Exhaust must be installed in every kitchen and bathroom
  - Unless these are served by principal ventilation system, the Minimum flow rate is as per Table 9.32.3.6.
- Capacity rating at 50 Pascals

Room	Minimum Exhaust Fan Flow Rate L/s	
	Intermittent	Continuous
Kitchen	47	N/A
Bathroom	23	9



## 9.32.3.4. (2) Supply with Forced Warm Air Heating

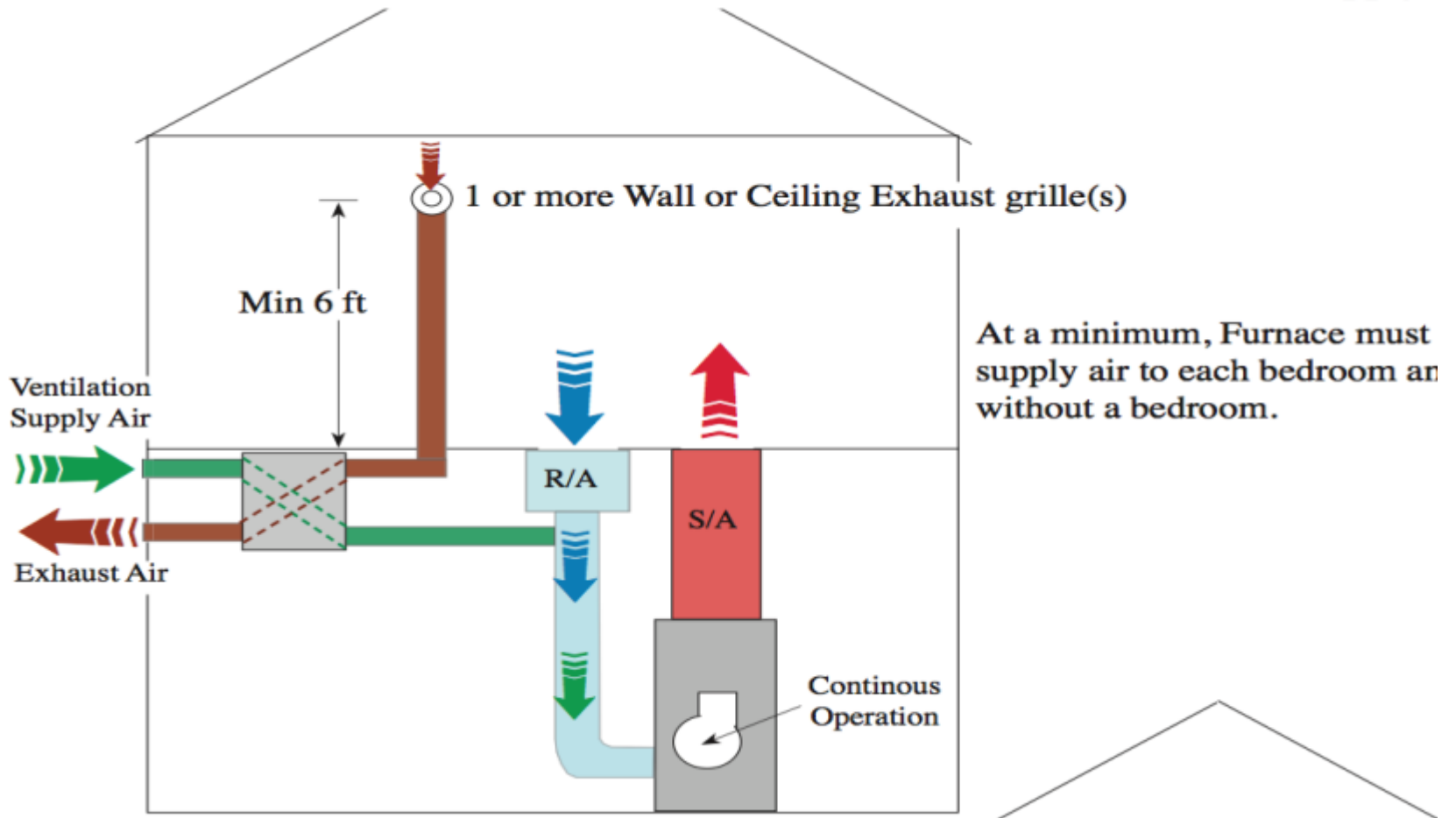
- Principal exhaust fan sized to Table 9.32.3.5.; continuous operation
- Furnace fan must run continuously
- Supply air drawn into furnace return; limits on supply duct







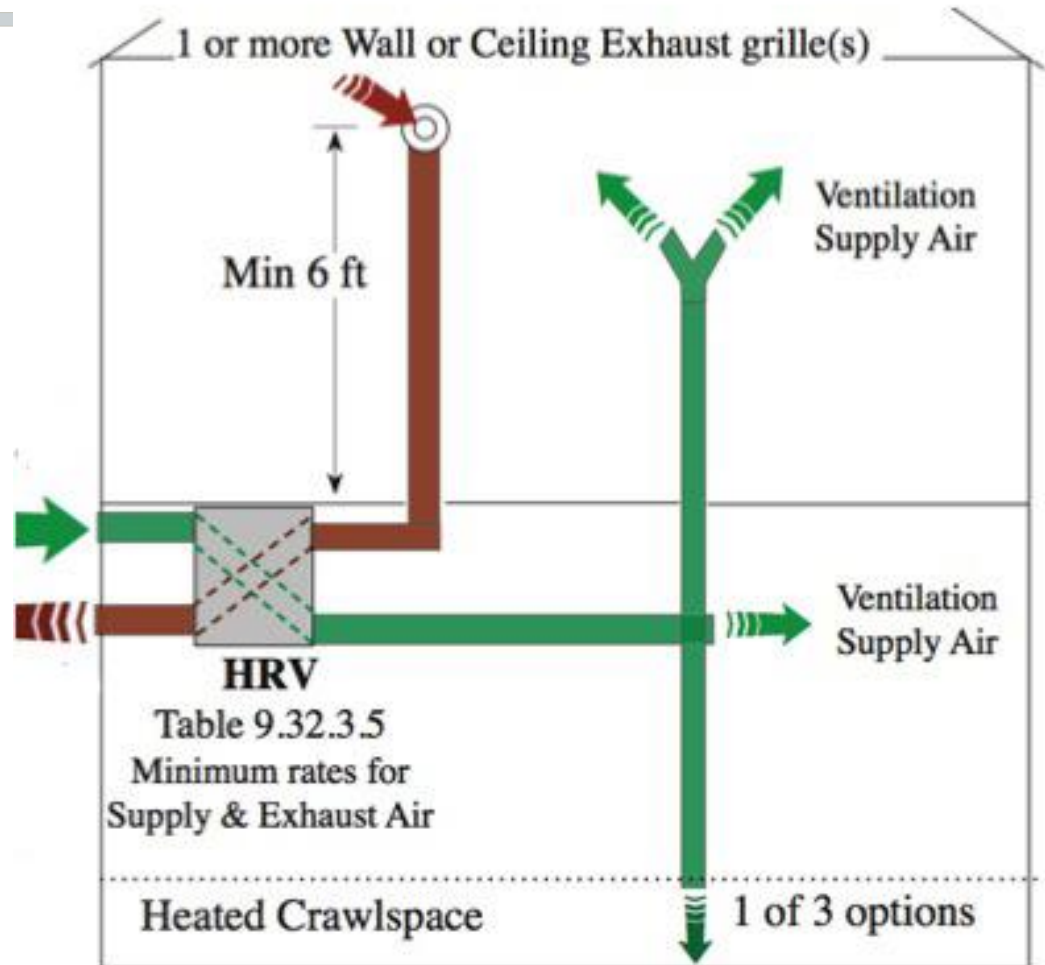
## 9.32.3.4. (3) HRV Supply with Forced Warm Air Heating





## 9.32.3.4.(4) Independently Distributed HRV System

- Dedicated supply ducts to each bedroom and to each floor
- At least one exhaust located 2 m above upper floor



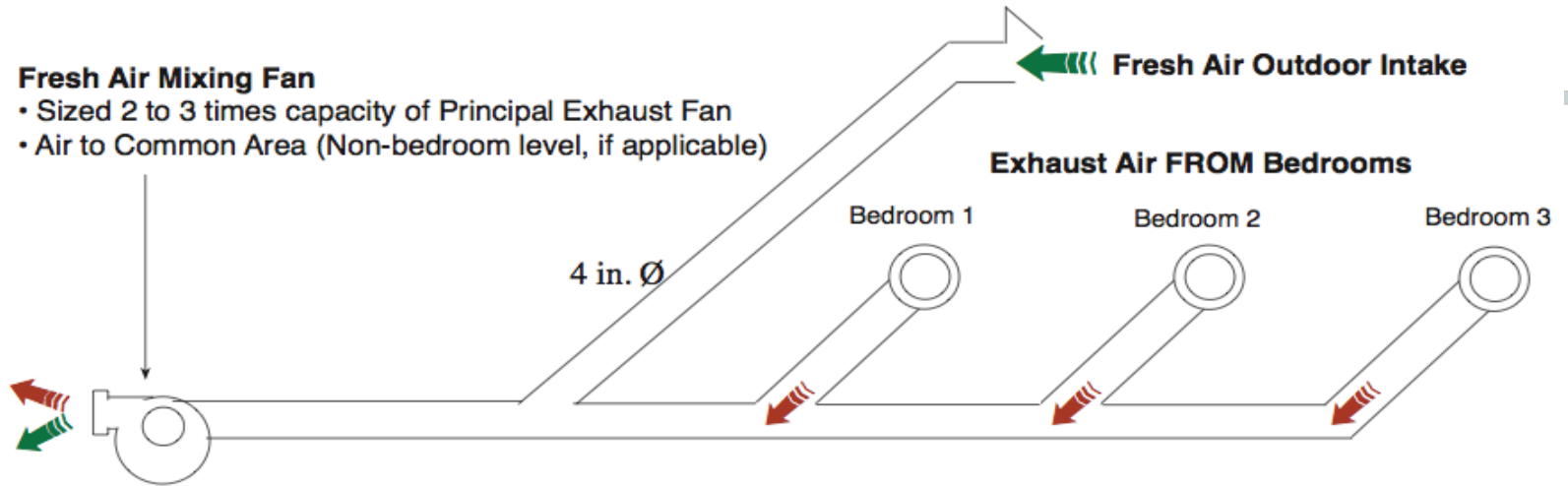


# 9.32.3.4.(5) Central Recirculation Ventilator

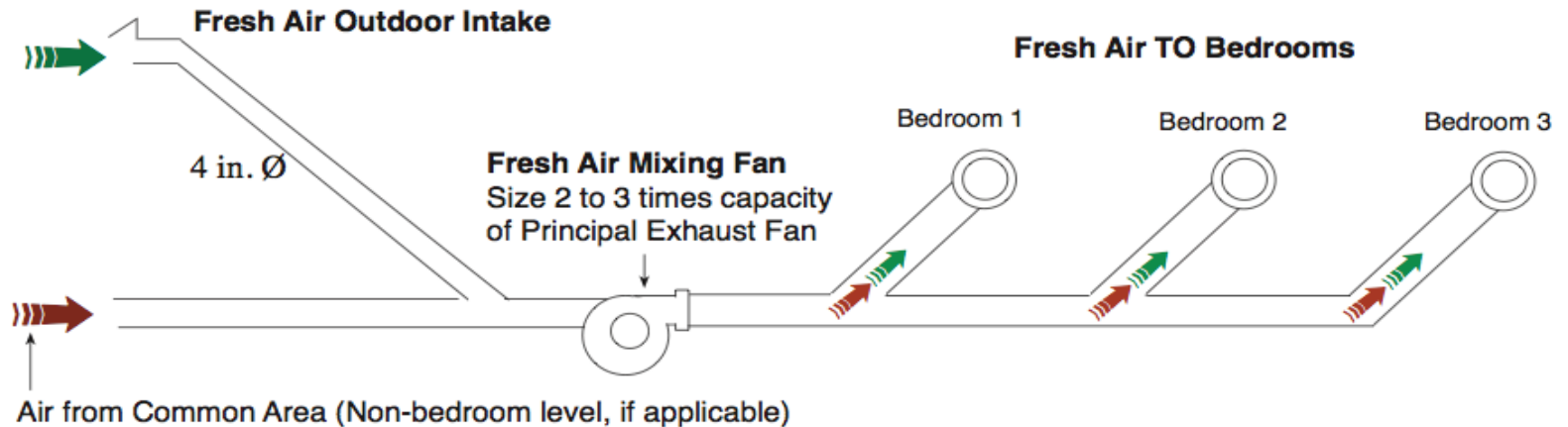
**Example 3A: RCV System—Supply common area, Exhaust bedrooms**

## Fresh Air Mixing Fan

- Sized 2 to 3 times capacity of Principal Exhaust Fan
- Air to Common Area (Non-bedroom level, if applicable)



**Example 3B: RCV System—Supply bedrooms, Exhaust common area**





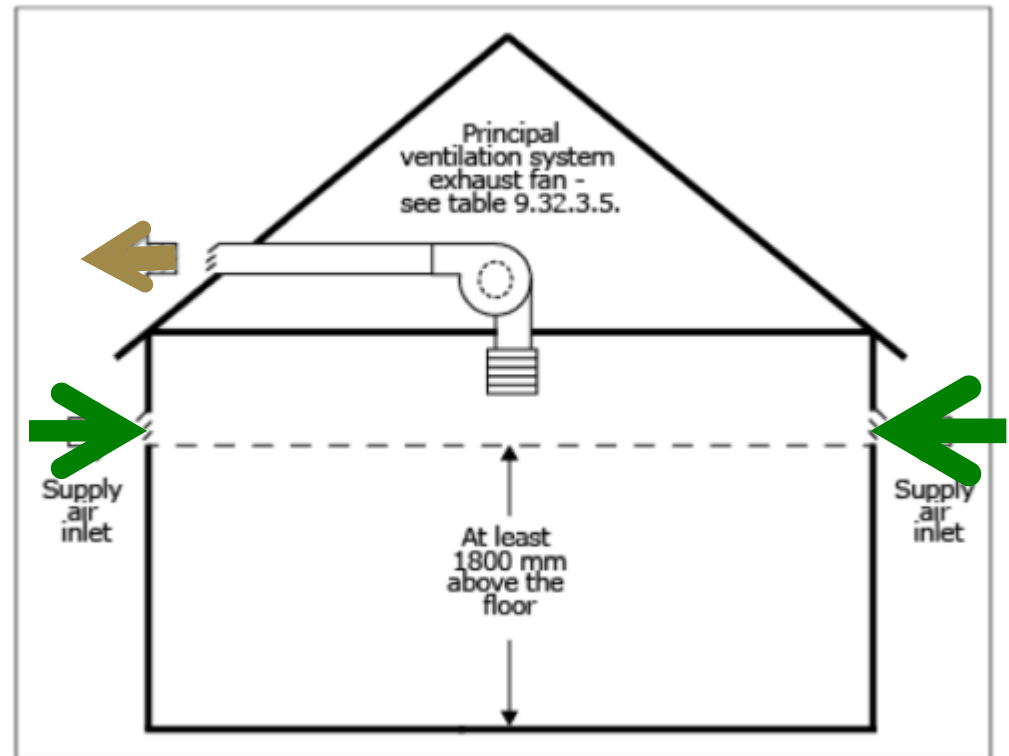
## 9.32.3.4.(6) Passive Supply

- **Passive supply vents can be used where:**
  - Where January design temp is greater than  $-10^{\circ}\text{C}$
  - One storey dwelling only
  - Floor area less than  $168\text{ m}^2$
  - There is no forced air heating



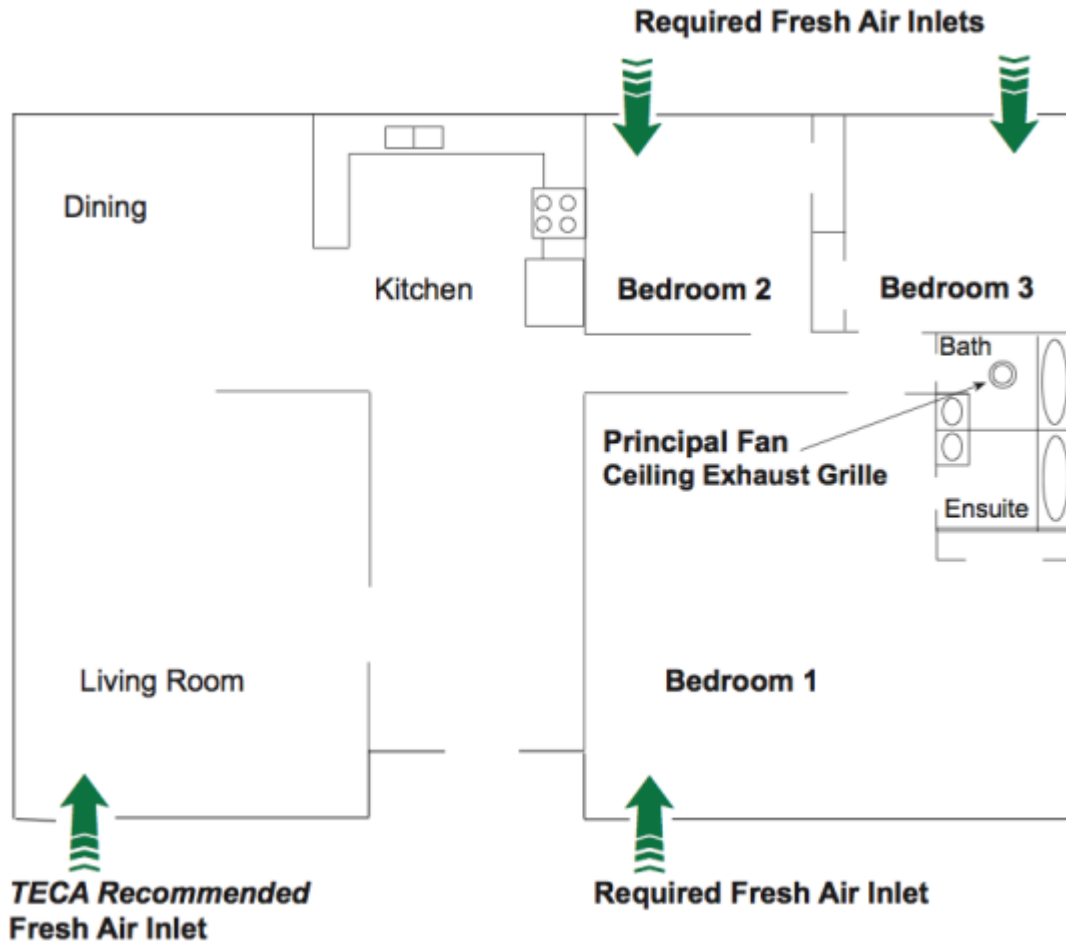
## 9.32.3.4. (6) Passive Supply

- Passive inlets must be a min. 1800 mm above floor
- Each bedroom must have one inlet with unobstructed vent area of 100 mm<sup>2</sup>
- At least one common area must have an inlet





## 9.32.3.4. (6) Passive Supply





## 9.32.3.7. Heated crawlspace ventilation

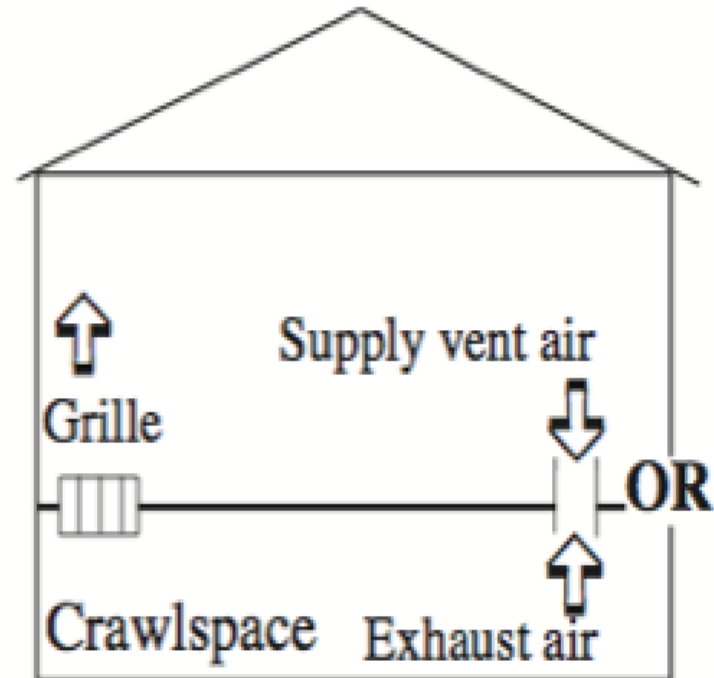
- If crawlspace is heated by ducted forced air heating, it must be connected to floor above by at least one transfer grille for each 30m<sup>2</sup> of crawlspace area
- *Note: Crawlspace ventilation in this section must not be confused with exterior ventilation of unheated crawlspace*



## 9.32.3.7. Heated crawl space ventilation

### OPTION ONE 9.37.3.7 (2)(a):

- i) Principal Vent System Fan either supplies or exhausts air with dedicated duct to crawl, and
- ii) Minimum 1 Transfer grille, with 4 sq in free area per 323 sq ft crawlspace.

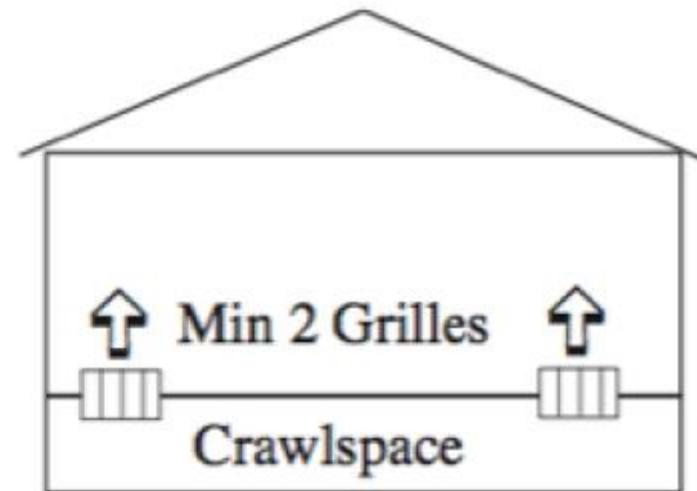






## 9.32.3.7. Heated crawl space ventilation

**OPTION TWO 9.37.3.7 (2)(b):**  
**Minimum 2 Transfer grilles, each**  
**with 4 sq in free area for every 323**  
**sq ft crawlspace.**

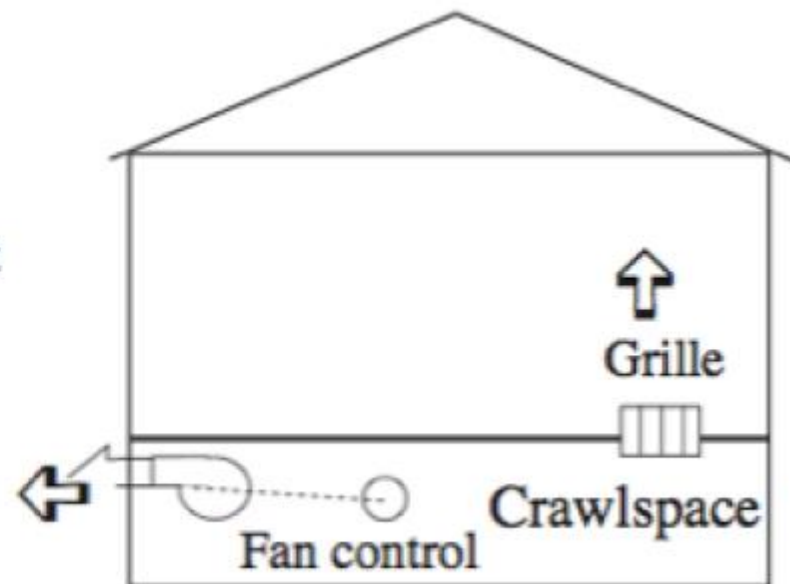




## 9.32.3.7. Heated crawl space ventilation

### **OPTION THREE 9.37.3.7 (2)(c):**

- i) Minimum 1 Transfer grille,** with 4 sq in free area per 323 sq ft crawlspace, and
- ii) Dedicated crawlspace Exhaust Fan** to the outdoors, minimum 50 cfm, and controlled by a timer set to run a minimum of 8hr per 24 hr period or by a dehumidistat.





## 9.32.3.8. Ducts

- Exhaust ducts must discharge to outdoors
- Exhaust and supply ducts:
  - Must be sized as required by manufacturer & equivalent diameter as per Table 9.32.3.8 (3)
  - Need to be air-sealed
  - Insulated & provided with vapour barrier



## 9.32.3.9. Exterior Hoods

## 9.32.3.10. Interior Distribution

- Outdoor hoods must must be protected from weather, birds & rodents with corrosion resistant screens
- Interior doors must be undercut min **12 mm** above finished floor or provided with transfer grille with min. **100 mm<sup>2</sup>** area



## 9.32.4. Protection Against Depressurization

- **Make-up air is required for large capacity exhaust equipment (0.5 air changes/hour) when:**
  - House has appliance subject to back drafting or
  - House is located in area classified as Radon area **1** (table C-3 in appendix C)