

NEW SECTION 9.32. REQUIREMENTS

December 19, 2014
Revisions to Section 9.32. to accompany
the Section 9.36 Energy Efficiency
requirements.

There are some significant changes in this Section of the Code. This a short presentation reviewing the changes not the entire Section.

The requirements apply to any dwelling unit including those in a building containing multiple dwelling units that are **applied** for from Dec. 19, 2014 onward.

Red text is new content

9.32.1.1. Application

4) Systems used for ventilation shall conform to the energy efficiency requirements in Section 9.36.

In terms of ventilation, the energy requirements in 9.36. can be summed up by:

1. **Upgraded Standards for equipment and their performance** requirements. This means that any equipment (**HVAC and service water heating**) installed in a building will be required to be tested and exhibit a label confirming compliance to the new version of the standard, as well, meet the performance requirements set out in a new Table
2. **Better management of penetrations** (partially or totally) through envelope assemblies providing the thermal resistance and air barrier for the building envelope.

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 Guideline, the Hydronics Institute Manuals and the SMACNA manuals.
- 2) Exhaust fans and supply fans shall be installed in accordance with this Subsection and the manufacturer's instructions.
- 3) The **mechanical components** of a mechanical ventilation system shall be **installed so as to be accessible for inspection, maintenance, repair and cleaning.**

9.32.3.3. Mechanical Ventilation System Components

- 1) A mechanical ventilation system **shall include**:
 - a) a **principal ventilation system** that:
 - i) **provides supply air** in accordance with Article 9.32.3.4., **and**
 - ii) includes **an exhaust fan** that conforms with Article 9.32.3.5.,
 - b) the **kitchen and bathroom exhaust fans** that are required by Article 9.32.3.6., **and**
 - c) if the *building* includes a **heated crawlspace**, the **components** that are required by Article 9.32.3.7.

There are now 5 options to provide **supply air** prescribed in the code.

9.32.3.4. Principal Ventilation System Supply Air

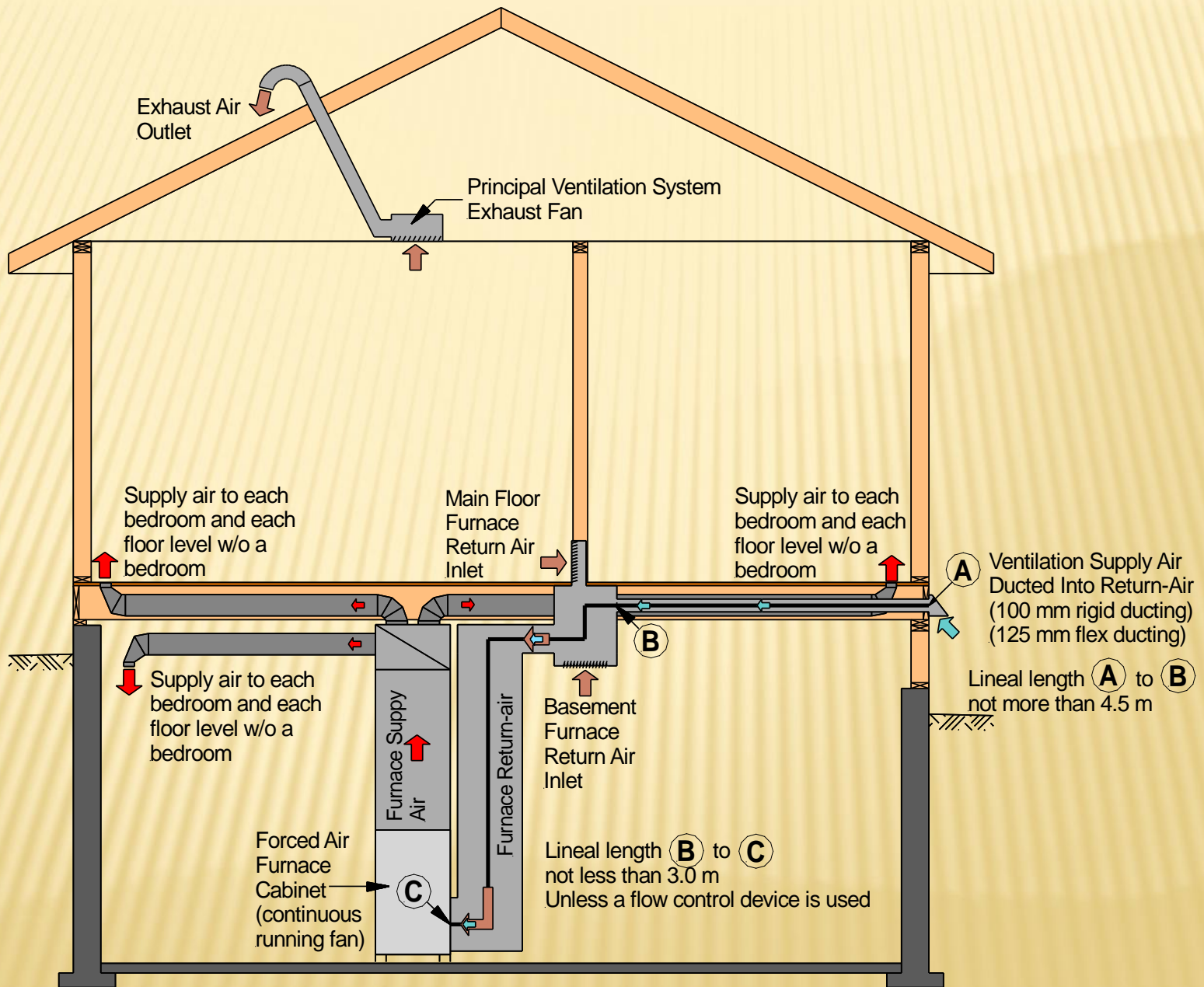
- 1) Except as provided in Sentence (6), a principal ventilation system **shall mechanically provide supply air** in accordance with Sentence (2), (3), (4) or (5).

The exception in (6) is a 1 storey building, in a warm part of BC with a floor area within the building envelope of 168 m² (1800 ft²) max.

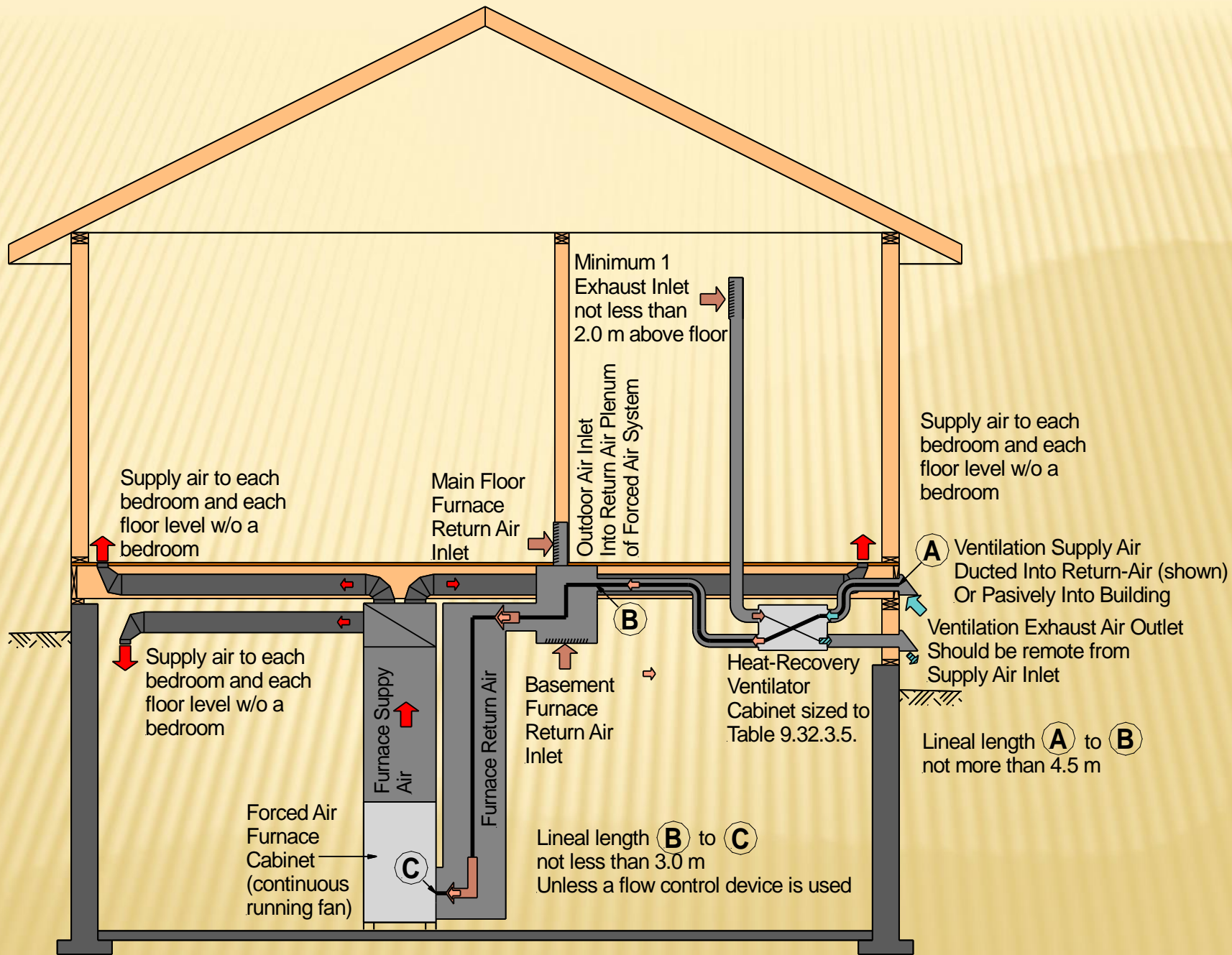
The 4 remaining options then are:

- **ducted forced-air heating system,**
- **ducted forced-air heating system used in combination with a heat-recovery ventilator:**
- **heat-recovery ventilator (HRV)**
- **ducted central-recirculation ventilation system**

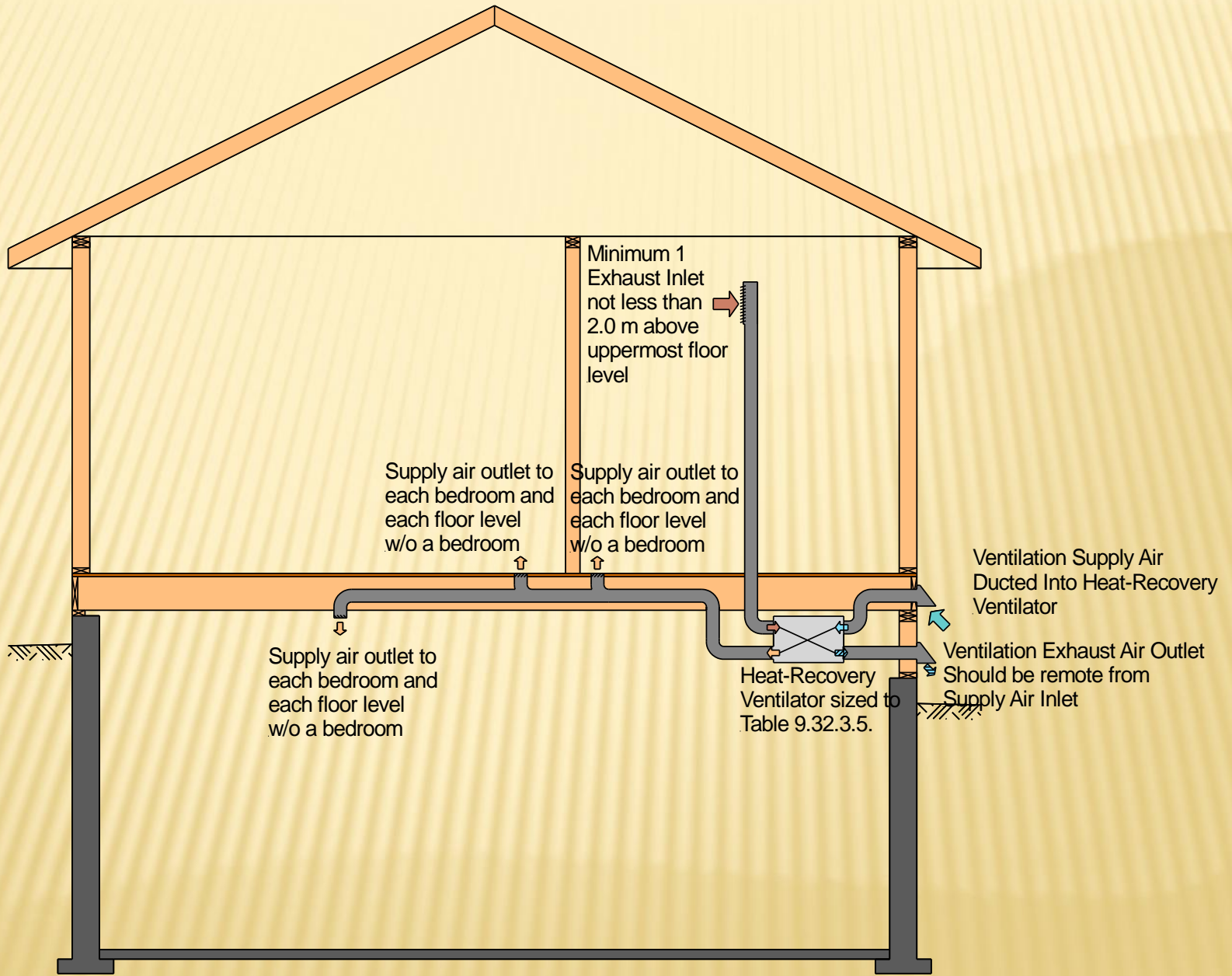
- 2) Where the principal ventilation system is a **ducted forced-air heating system**, the ducted forced-air heating system shall:
- a) provide supply air through the ducting to:
 - i) each bedroom, and
 - ii) each floor level without a bedroom,
 - b) **draw supply air from an outdoor inlet** that is connected to the furnace cabinet by ducting:
 - i) that is no more than 4.5m in length, and
 - ii) unless a flow control device is used, that intersects the return air *plenum* at a point from which the ducting to the furnace cabinet is no less than 3 m in length,
 - c) draw supply air through ducting that is:
 - i) rigid ducting with an equivalent diameter of at least 100mm, or
 - ii) flexible ducting with an equivalent diameter of at least 125mm, **and**
 - d) have a **furnace air circulating fan set to run continuously.**



- 3) Where the principal ventilation system is a **ducted forced-air heating system used in combination with a heat-recovery ventilator**:
- a) the **ducted forced-air heating system shall conform to Sentence (2)**,
 - b) the **heat-recovery ventilator shall draw supply air** from an outdoor inlet into the return air *plenum* of the ducted forced-air heating system, and
 - c) the **heat-recovery ventilator shall draw exhaust air**, through dedicated ducting,
 - i) from one or more indoor inlets, at least one of which is located at least 2 m above the floor of **the uppermost level**, and
 - ii) at the capacity rating of the heat-recovery ventilator, which shall be no less than the air-flow rate specified in Table 9.32.3.5.

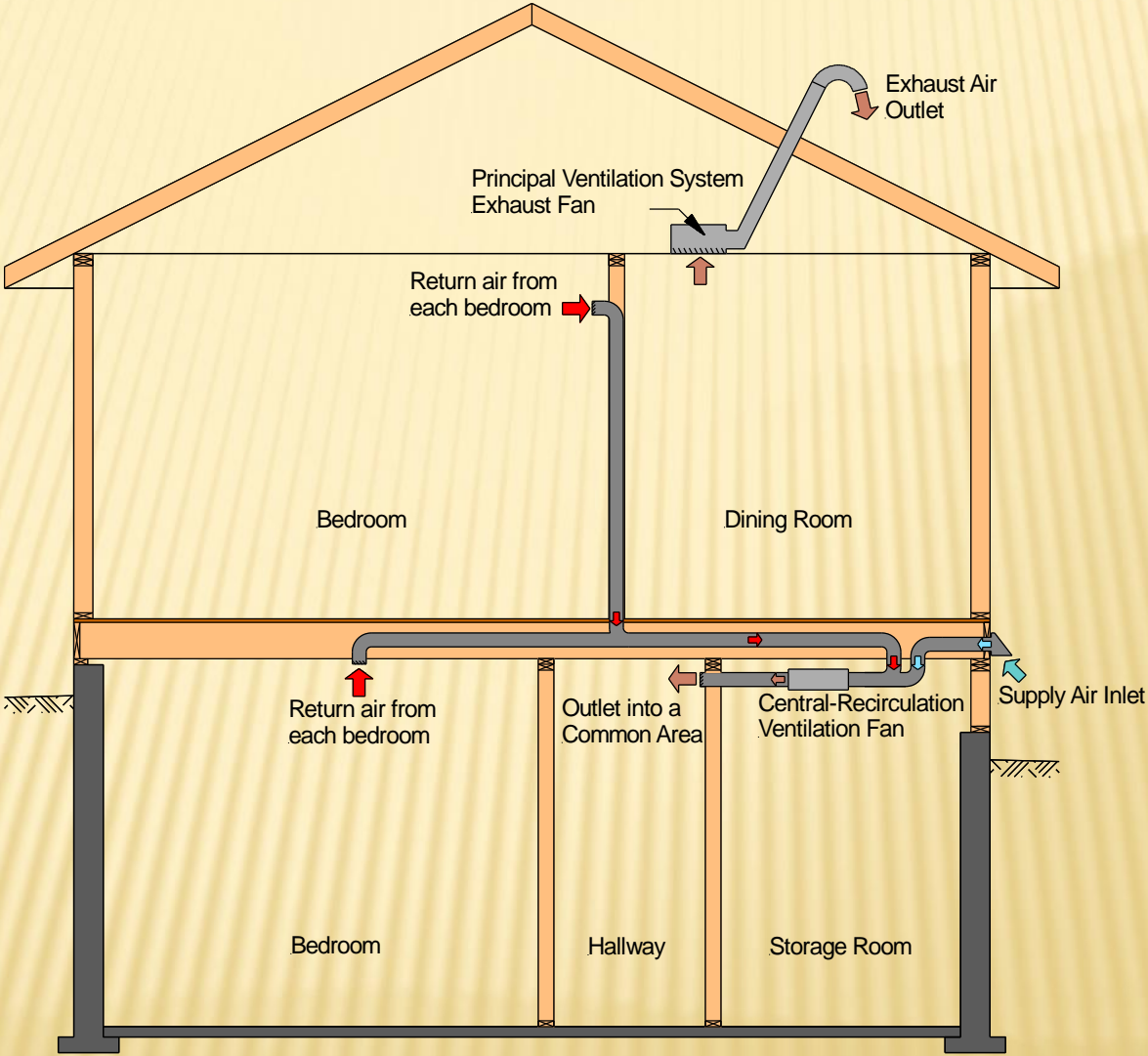


- 4) Where the principal ventilation system is a **heat-recovery ventilator**, the heat-recovery ventilator shall:
- a) provide supply air through dedicated ducting to:
 - i) each bedroom, and
 - ii) each floor level without a bedroom, and
 - b) draw exhaust air, through dedicated ducting,
 - i) from one or more indoor inlets, at least one of which is located at least 2 m above the floor of the **uppermost floor level**, and
 - ii) at the capacity rating of the heat-recovery ventilator, which shall be no less than the air-flow rate specified in Table 9.32.3.5.



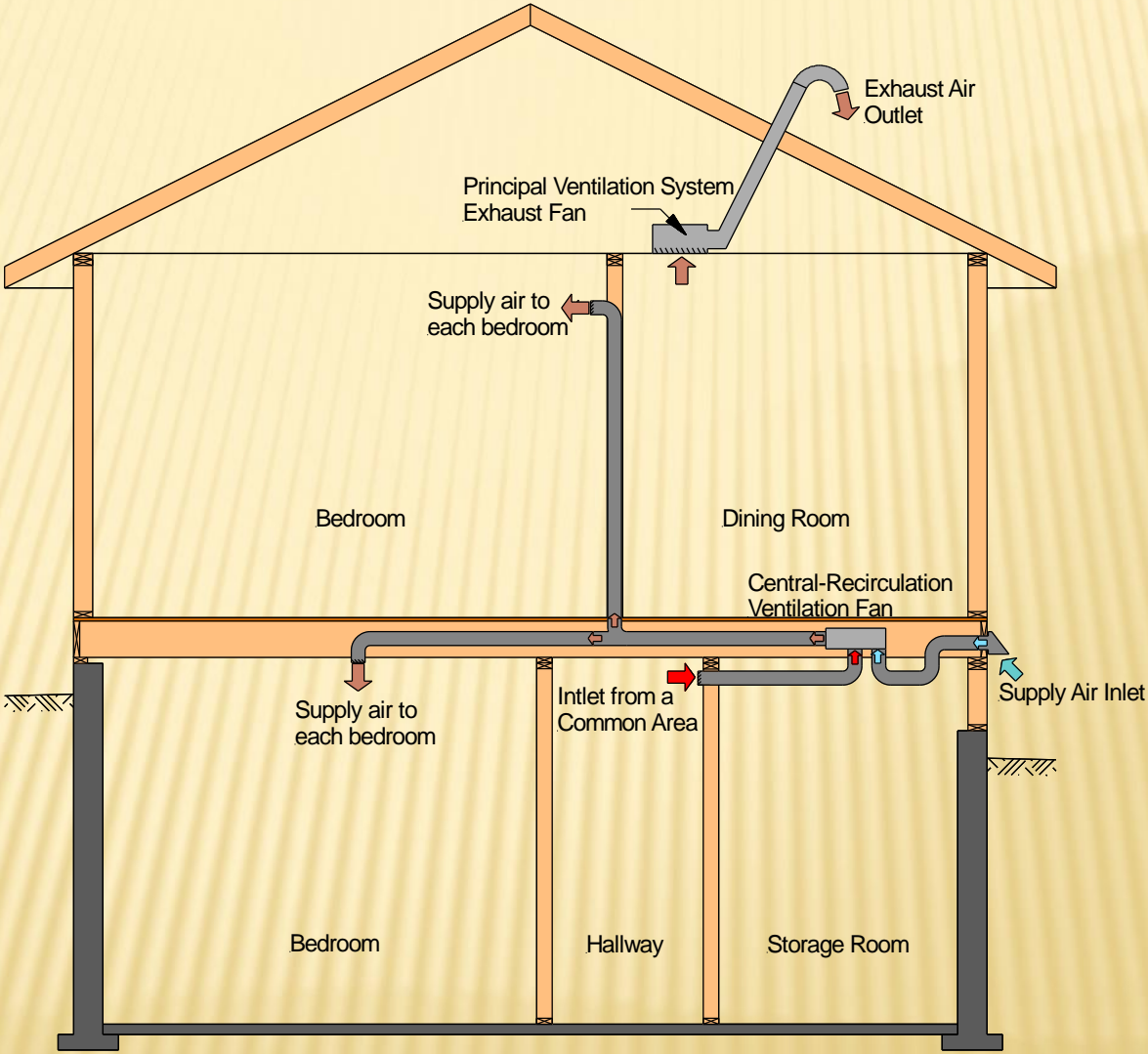
- 5) Where the principal ventilation system is a **ducted central-recirculation ventilation system**, the ducted central-recirculation ventilation system shall:
- a) **draw supply air** from an outdoor inlet connected upstream of the fan, and
 - b) draw air from:

i) each bedroom and deliver it to a common area,



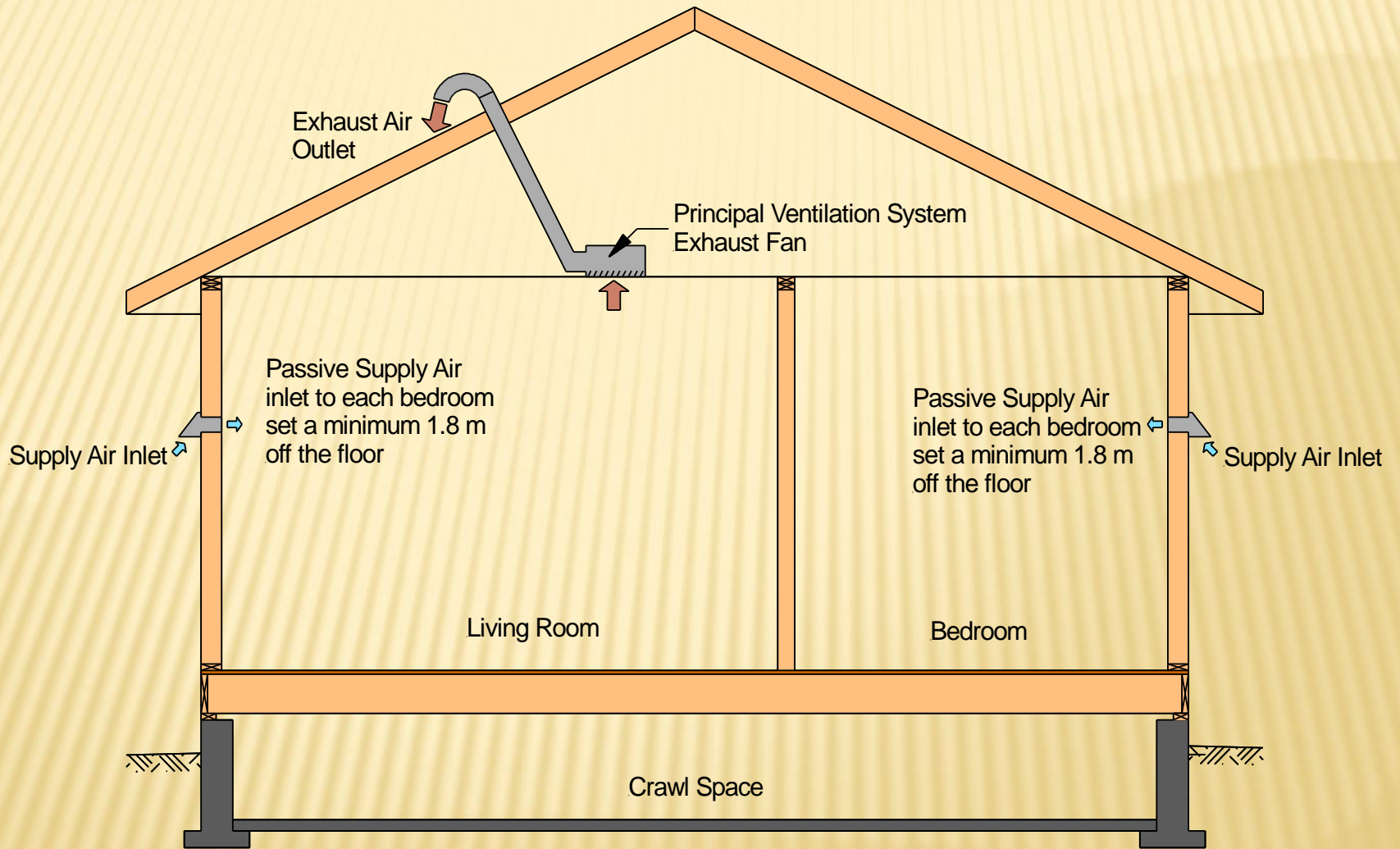
OR

ii) a common area and deliver it to each bedroom.



- 6) A principal ventilation system need not conform to Sentence (1) if the principal ventilation system:
- a) services a *dwelling unit* 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 -10°C ,
 - ii) has only 1 *storey* and a *floor area* within the *building envelope* of less than 168 m^2 (see Appendix A), and
 - iii) does not have a ducted forced-air heating system, 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 1 800 mm above the floor, and
 - iii) have an unobstructed vent area of not less than **100 mm²**.

100 mm² ? This cannot be correct. If this were a round opening it would have a diameter of 11.28 mm (less than ½ inch). We believe this is meant to mean 100 cm² which would be a 112.8 mm (4.44 inch) diameter opening.



Buildings of 1 storey and a floor area within the building envelope of less than 168 m² (1800 ft²)
ONLY

9.32.3.5. Principal Ventilation Exhaust Fan

- 1) A principal ventilation system exhaust fan shall:
 - a) **run continuously**, and
 - b) provide at least the air-flow rate specified in Table 9.32.3.5.

Table 9.32.3.5.
Principal Ventilation System Exhaust Fan Minimum Air-flow Rate
Forming Part of Clause 9.32.3.5(1)(b)

Floor Area, m ²	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	40	56
421 - 560	35	42	49	56	64
561 - 700	42	49	56	64	71
> 700	49	56	64	71	78

- 2) For the purposes of Sentence (1), the capacity rating of the principal ventilation system exhaust fan shall be determined, based on air-flow performance at 50 pa of external static pressure, in accordance with:
- a) HVI Publication 916, “Airflow Test Procedure”, or
 - b) CAN/CSA-C260-M, “Rating the Performance of Residential Mechanical Ventilating Equipment.”

- 3) The principal ventilation system exhaust fan shall be:
- a) designed to run continuously, and

- b) controlled by a dedicated switch that:

- i) has 2 settings, on and off,
- ii) is located where it will be accessible for the purposes of servicing the exhaust fan but not likely to be turned off inadvertently, and
- iii) is clearly marked “PRINCIPAL VENTILATION EXHAUST FAN”

- 4) if the principal ventilation system exhaust fan is designed to run at multiple air-flow rates,
 - a) the air-flow rate of the fan shall be controlled by a switch other than the switch described in Clause 9.32.3.5(3)(b), and
 - b) the lowest air-flow rate shall not be less than the air-flow rate specified in Table 9.32.3.5.

- 5) The sound rating of the principal ventilation system exhaust fan shall not exceed 1.0 Sone when running continuously at the air-flow rate specified in Table 9.32.3.5. as determined in accordance with:
 - a) HVI Publication 915, "Loudness Testing and Rating Procedure", or
 - b) CAN/CSA-C260-M, "Rating the Performance of Residential Mechanical Ventilating Equipment."

9.32.3.6. Kitchen and Bathroom Exhaust Fans

- 1) An external fan that provides at least the air-flow rate specified in Table 9.32.3.6. shall be installed in:
 - a) every kitchen, and
 - b) every bathroom or water-closet room, unless the bathroom or water-closet room is served by the principal ventilation system exhaust fan that complies with Article 9.32.3.5.

- 2) For the purposes of Sentence (1), the capacity rating of the exhaust fan shall be determined, based on air-flow performance at 50 pa of external static pressure, in accordance with:
 - a) HVI Publication 916, “Airflow Test Procedure”, or
 - b) CAN/CSA-C260-M, “Rating the Performance of Residential Mechanical Ventilating Equipment.”

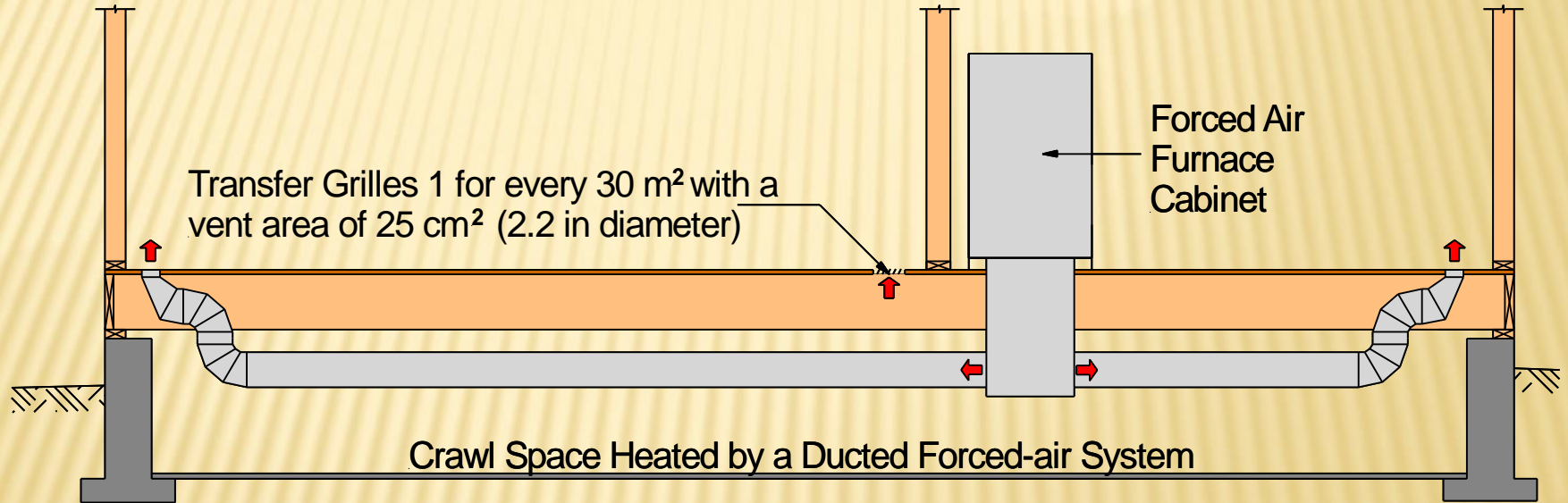
- 2) For the purposes of Sentence (1), the capacity rating of the exhaust fan shall be determined, based on air-flow performance at 50 pa of external static pressure, in accordance with:
- a) HVI Publication 916, “Airflow Test Procedure”, or
 - b) CAN/CSA-C260-M, “Rating the Performance of Residential Mechanical Ventilating Equipment.”

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	
	Intermittent	Continuous
Kitchen	47	N/A
Bathroom	23	9

9.32.3.7. Heated Crawl Space Ventilation

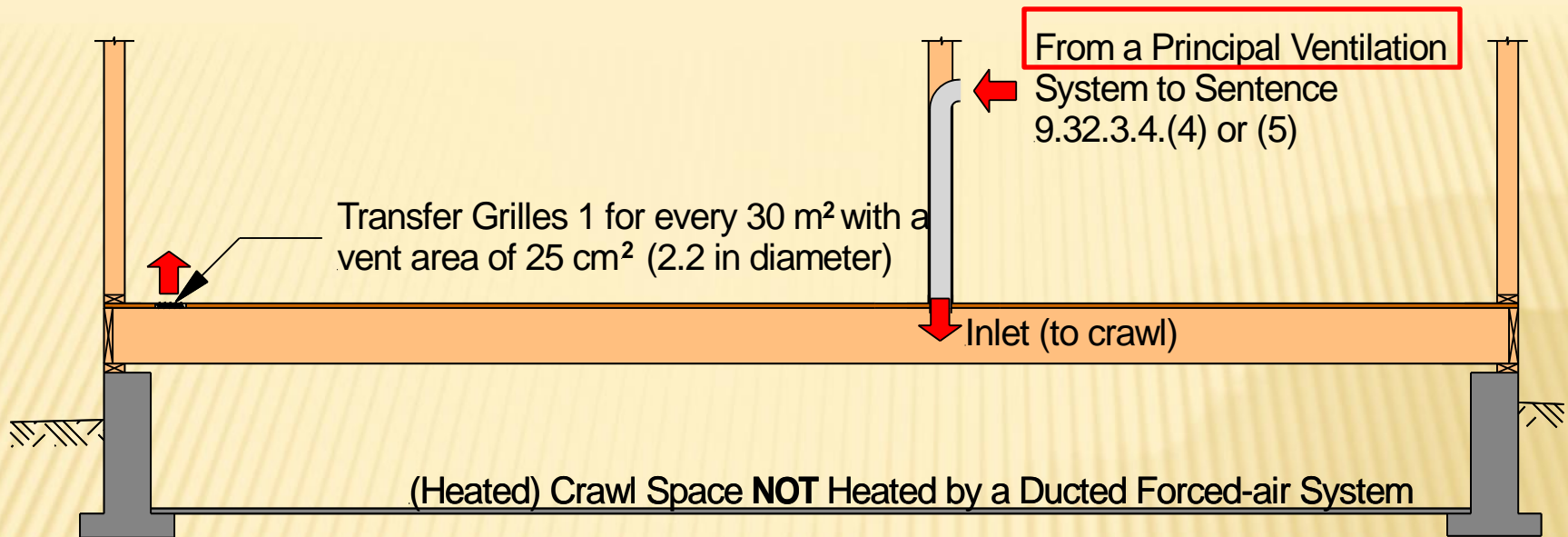
1) Where a crawl space is heated by a ducted forced-air heating system, the crawl space shall be connected to the floor space above the crawl space by at least **one air-transfer grille for each 30 m² (322.9 ft²) of crawl space area.**



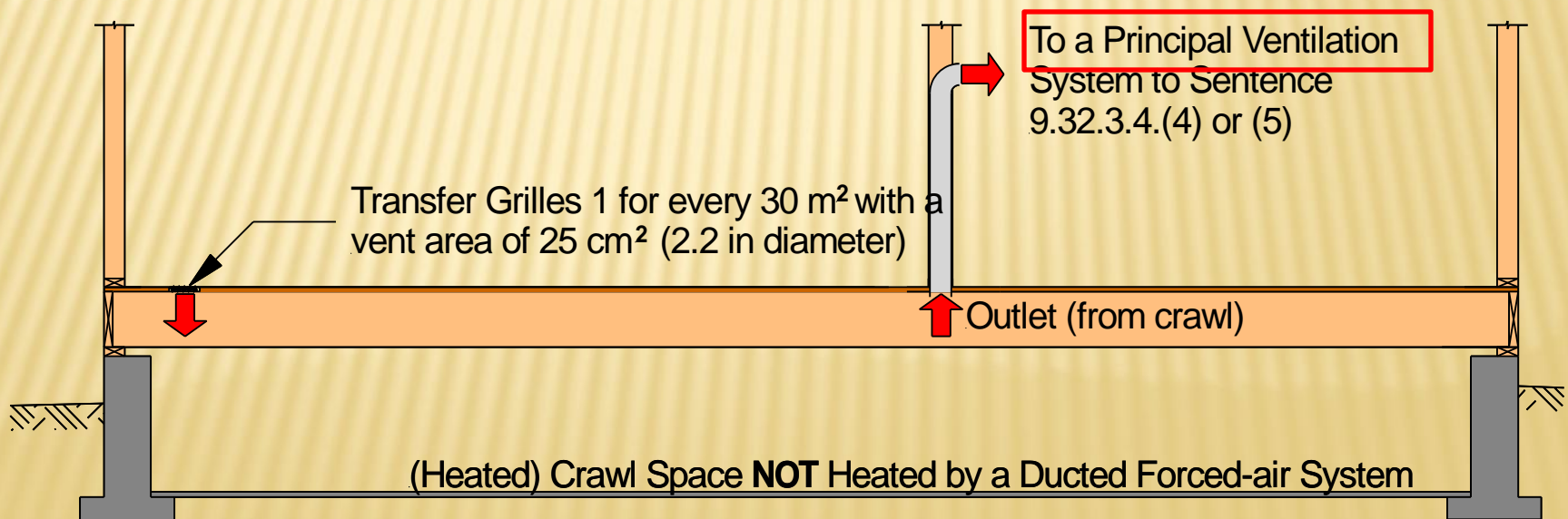
2) Where a crawl space **is heated other than** by a ducted forced-air heating system, the crawl space shall:

a) be connected to:

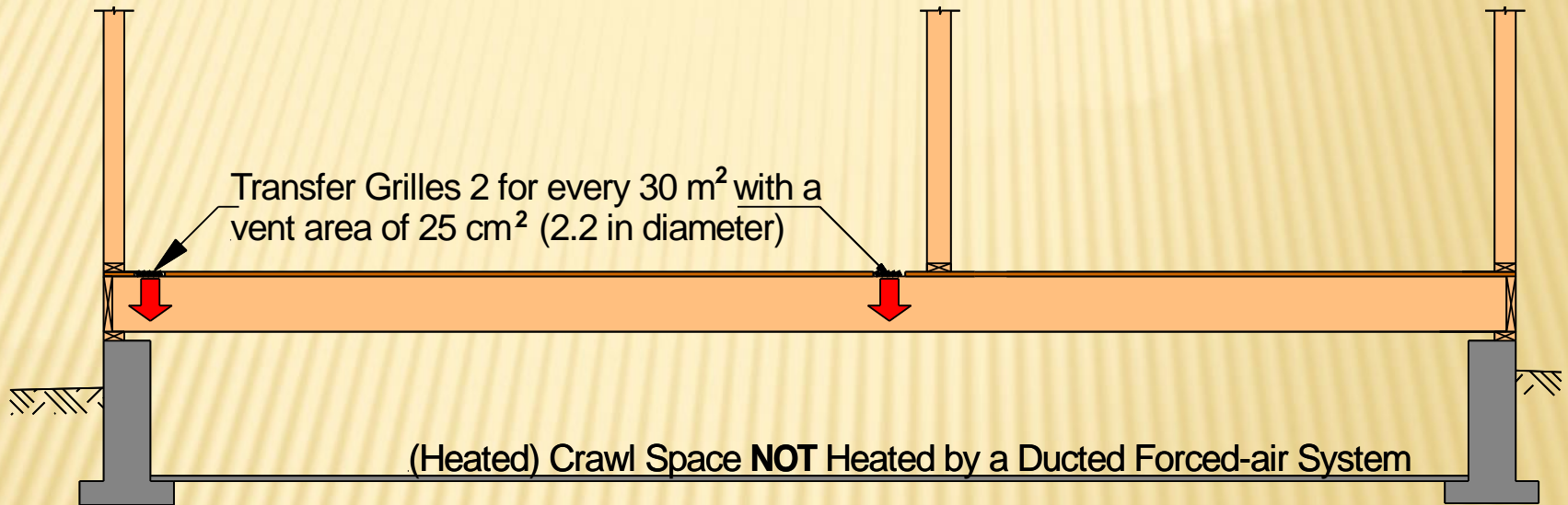
- i) the floor space above the crawl space by at least one air-transfer grille for every 30 m² (322.9 ft²) of crawl space area, and
- ii) the principal ventilation system by a supply air outlet or an exhaust air inlet,



OR



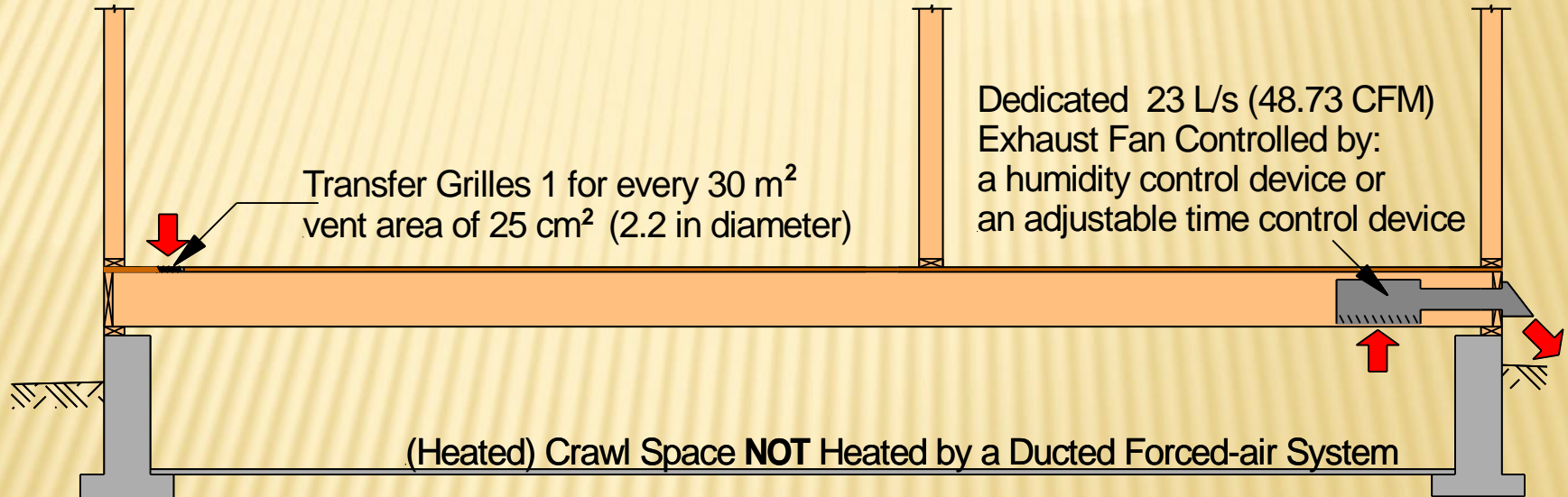
- b) be connected to the floor space above the crawl space by at least 2 air-transfer grilles for every 30 m² (322.9 ft²) of crawl space area,



or

c) be connected to:

- i) the floor space above the crawl space by at least one air-transfer grille for every 30 m^2 (322.9 ft^2) of crawl space area, 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 not less than 25 cm².

This is equivalent to a 56 mm (2.2 inch) unobstructed round hole.

4) Where a dedicated exhaust fan is installed in accordance with Subclause 9.32.3.7.(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 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).

End of Presentation

Questions?