



Experimental study of supply-only ventilation effectiveness

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Introduction

Supply-Only ventilation system

- Continuous outdoor air supply
- Filtered air
- Positive indoor pressure

Advantages

- Reduces radon
- Improves open-fluid combustion apparatus operation
- Reduces Humidity
- Reduces surface condensation/mould growth

Disadvantages

- Envelope condensation
- Electrical preheating the air







Introduction

VENTILAIRSEC



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Introduction



Objective Multiple insufflation Bedroom Wet rooms Living room







Objective

- Evaluate the ventilation effectiveness of the SOV system and compare it to a EOV system positioned in same conditions.
 - As a function of air flow rate
 - As a function of air terminal devices' positions

Ventilation effectiveness:

- Air change efficiency ε_a
- Contaminant removal effectiveness ε_c







Methodology

35m³ cell test:

- Air quality cell
- Controlled outdoor conditions
- 2 cylinders manikins \rightarrow occupants
- > 29 sampling points
- Measured parameters:
 - CO2 Concentration
 - Air Velocity
 - Air temperature
 - Surface temperature











Methodology

3 different configurations:



- Gas tracer technic:
 - Step-down method
 - Constant emissions method







Results: Air change efficiency



Results: Contaminant removal effectiveness



Conclusion

Number of air change: I ACH

Air change efficiency:
Supply-only ventilation system /configuration C.

Contaminant removal effectiveness
Supply –only ventilation/configuration A





Α





Perspectives

Using these results in conception design of a low-energy renovated house for experimental characterizing of the SOV system.









