



# **HOME VENTILATION**

*Living in healthy  
surroundings*

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# 1. Why ventilate ?

## **A. Why ventilate : air quality in our houses**

- ⇒ 90% of our time we live in closed spaces
- ⇒ Exposure to the pollutants : carbon monoxide, dioxide nitrogen, formaldehyde, made up volatile organics
- ⇒ + of 50% of these exposures are done in our home.
- ⇒ Odors, smoke, steam and allergens, are also present

## **B. Why ventilate : Risks for our health and environment**

- ⇒ Allergies : increase in the victims of allergy
- ⇒ Cancers by the contribution of toxic molecules
- ⇒ Intoxication and headaches by carbon monoxide
- ⇒ Moisture, mould and degradation of our walls

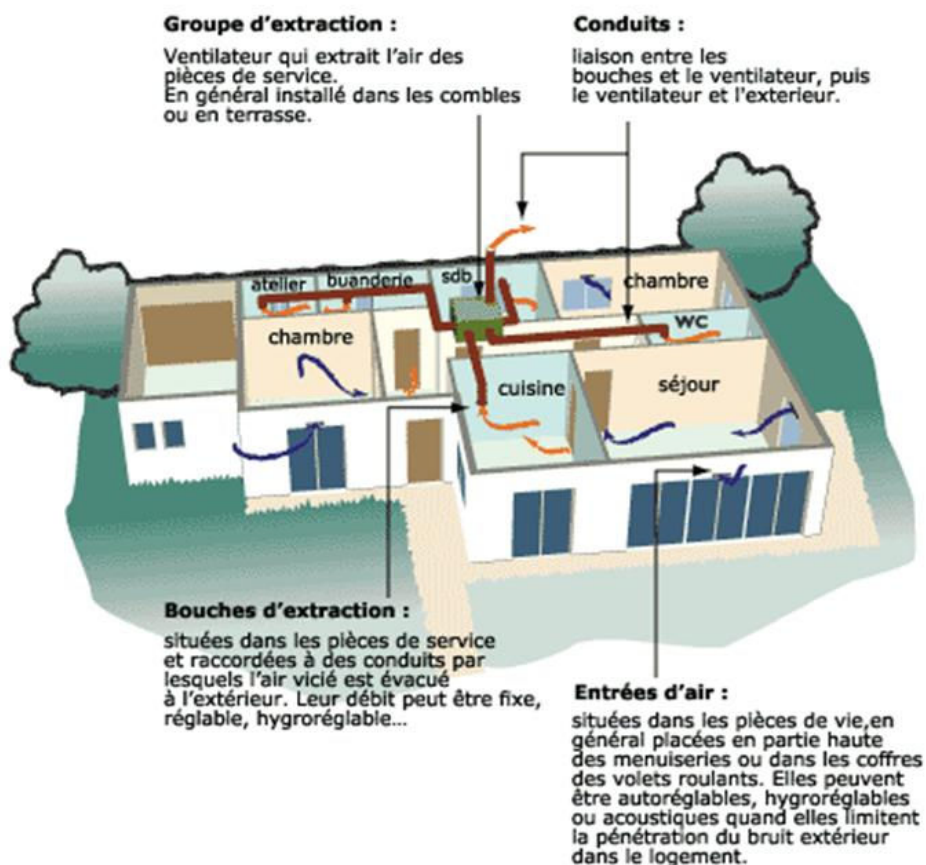
## **C. Why ventilate : the thermal regulation**

- ⇒ The European standards set up a thermal regulation aiming at decreasing the loses of energy in the new dwellings.
  - \* This implies to make new constructions airtight.
- ⇒ The need for ventilating appears in order to bring in fresh air.

## 2. Types of ventilation

	Air supply	Evacuated air
System A	NATURAL	NATURAL
System B	MECHANICAL	NATURAL
System C VMC simple flux	NATURAL	MECHANICAL
System D VMC double flux veneco	MECHANICAL	MECHANICAL

## 3. Mechanical Controlled Ventilation (System C)



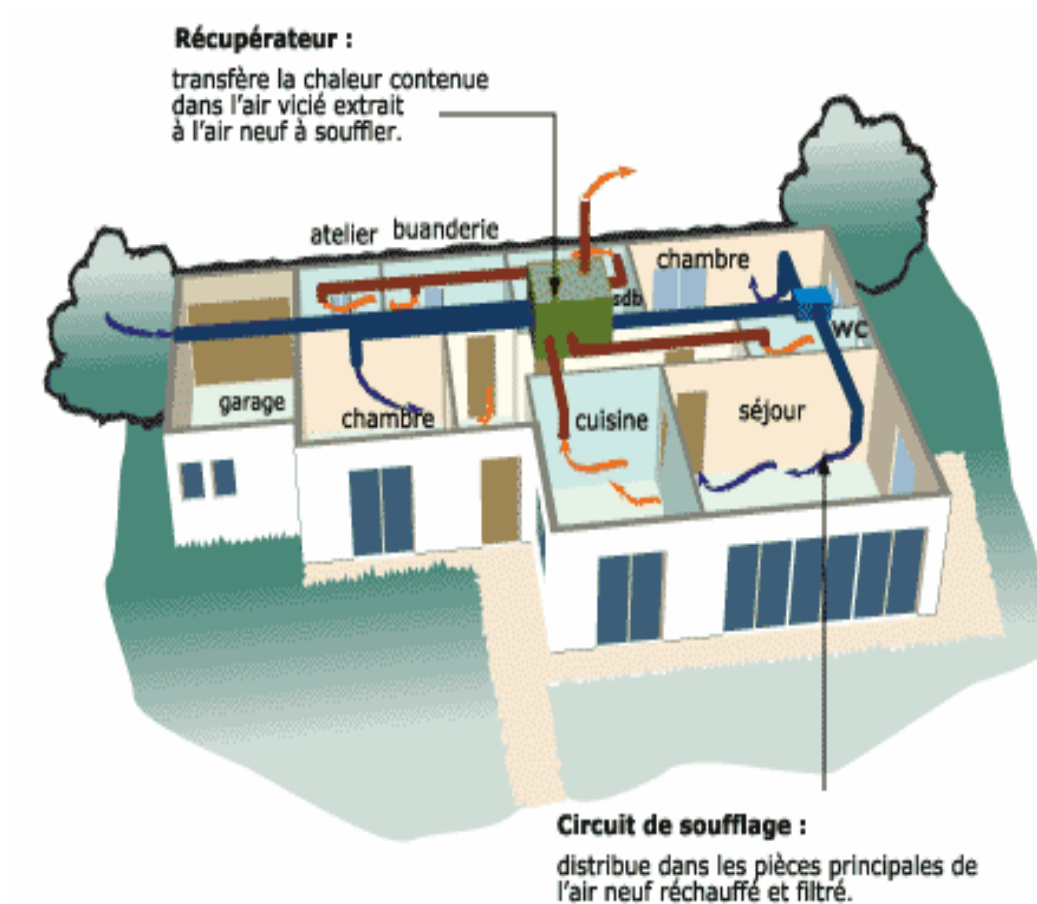
## ADVANTAGES

⇒ Economique à l'installation

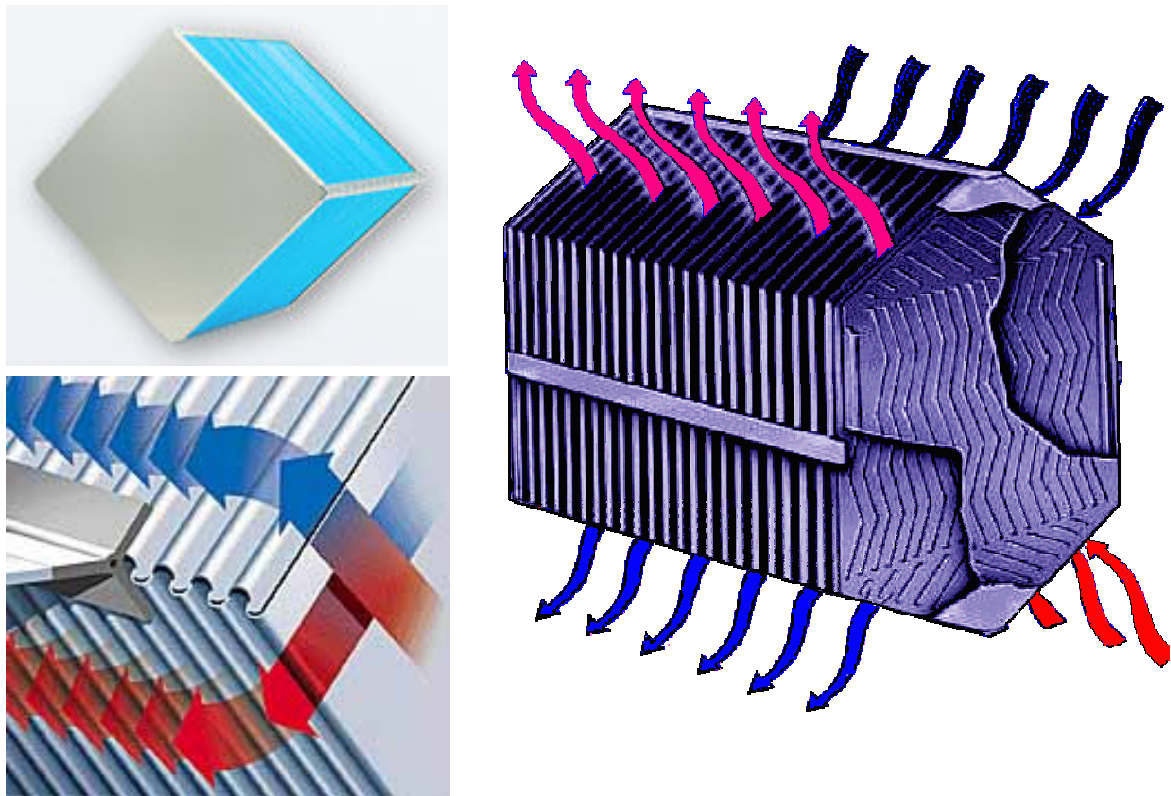
## DISADVANTAGES

⇒ Random ventilation (A,B,C)  
⇒ Exposure to external harmful effects  
⇒ Total loss of heat  
⇒ Lack of comfort (cold air)  
⇒ Lack of adaptability  
⇒ Doesn't take account of interior moisture

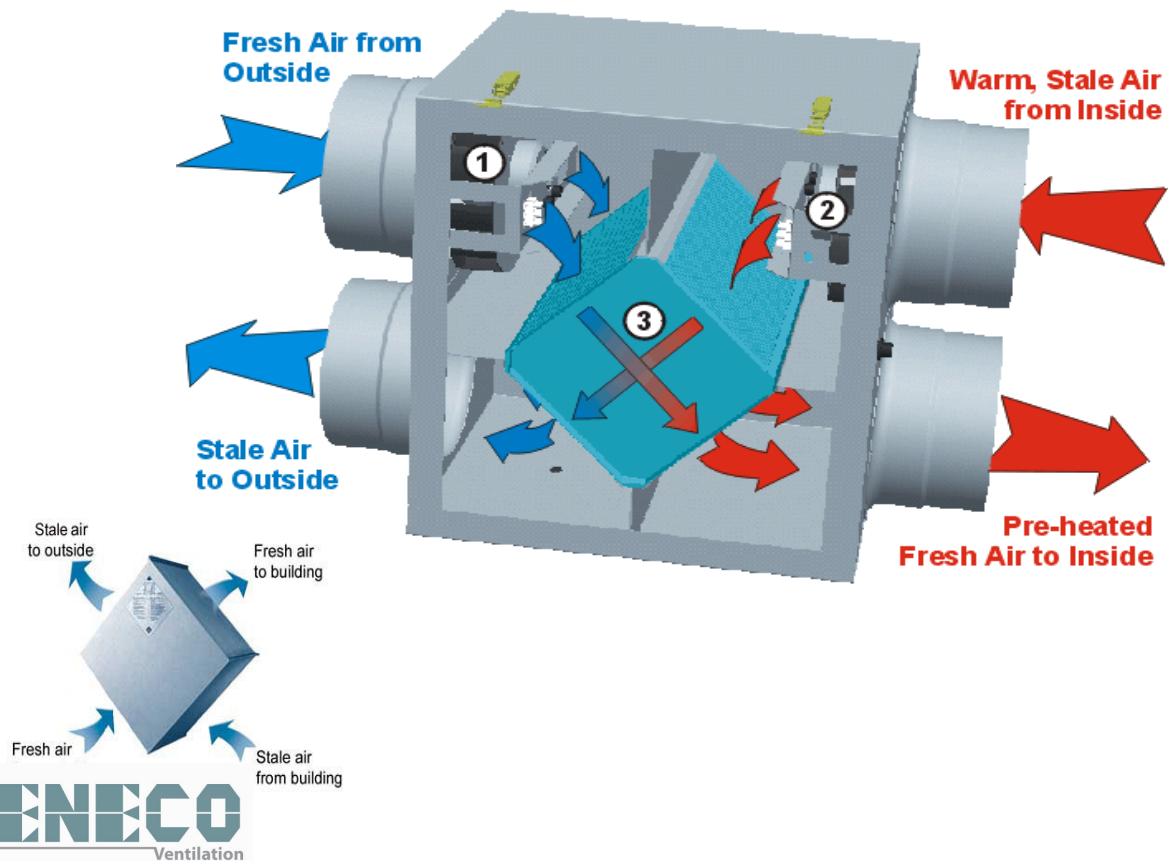
## 4. Mechanical Controlled Ventilation (System D)



### A. Mechanical Controlled Ventilation (System D)



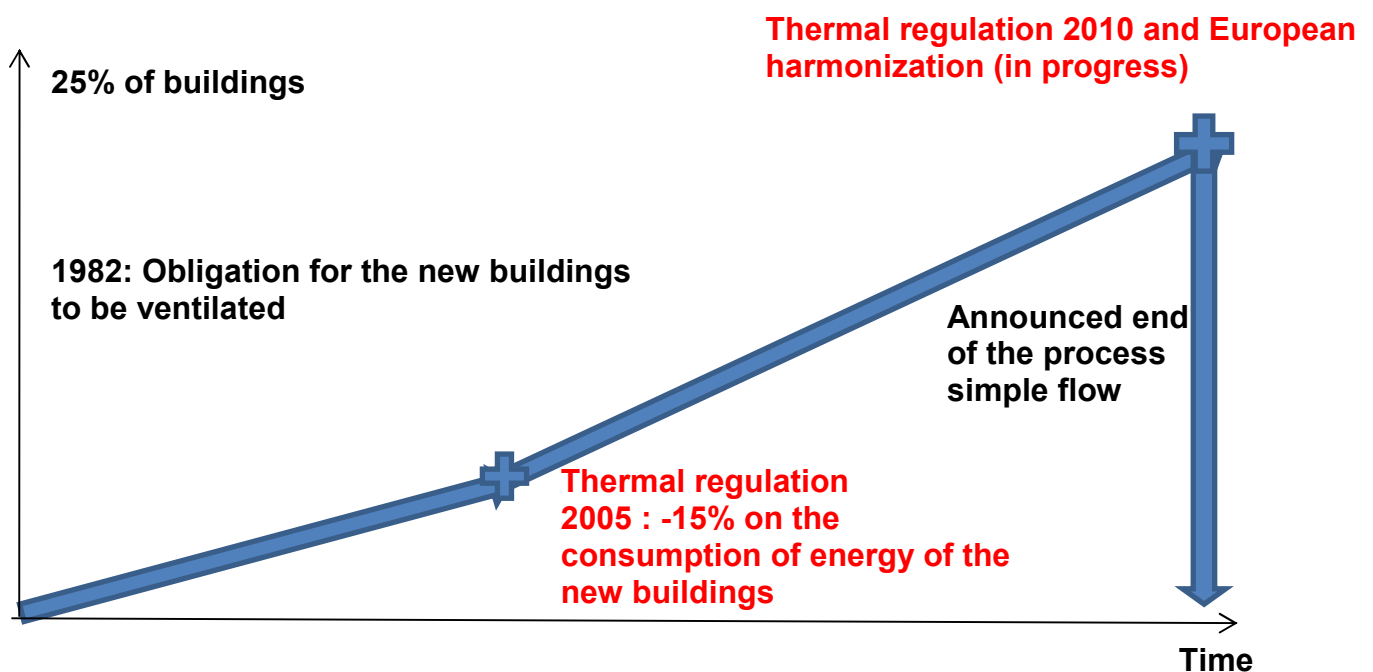
### B. Mechanical Controlled Ventilation (System D) : Working of the ventilation group



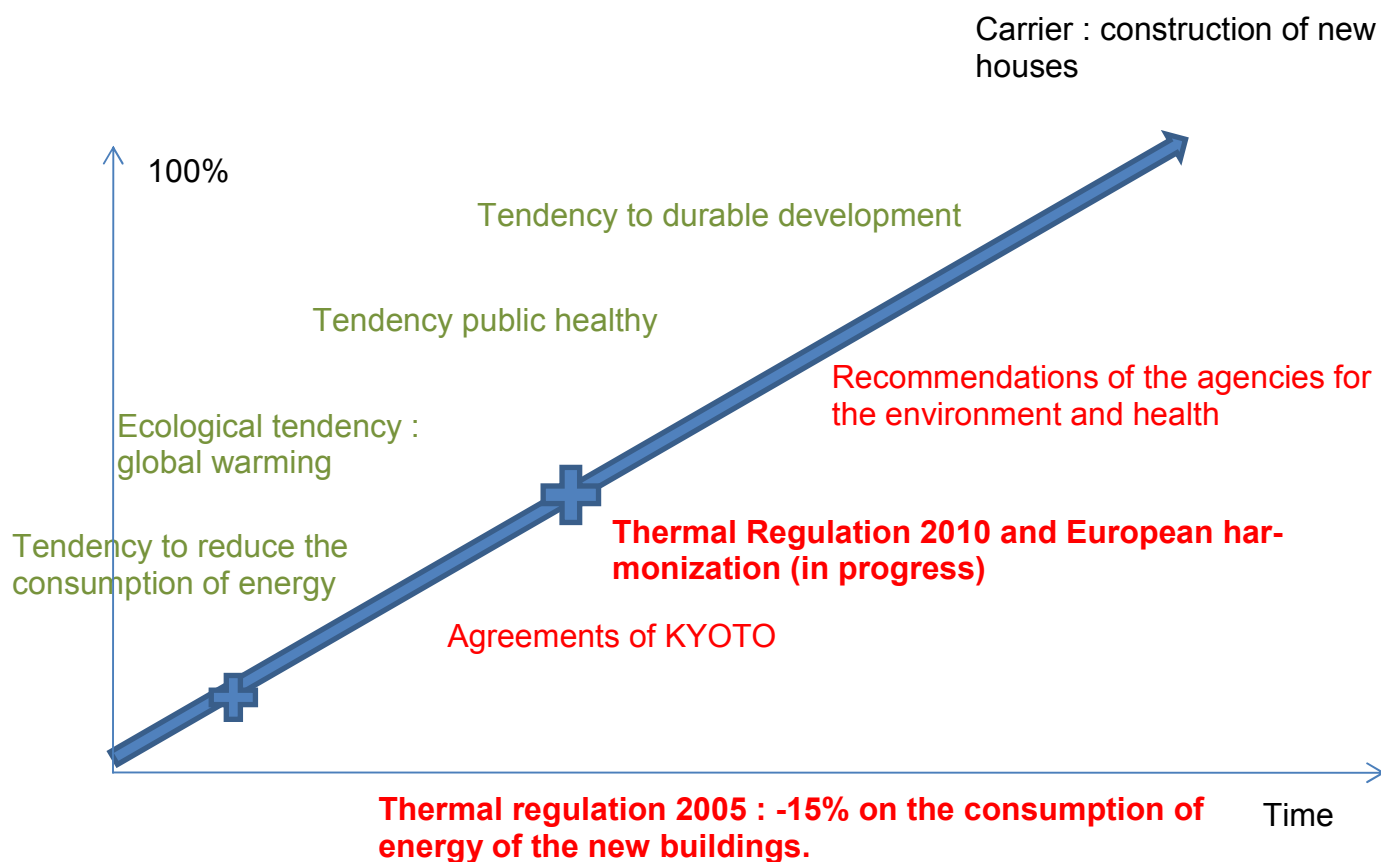
### C. Mechanical Controlled Ventilation (System D) :

ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none"><li>⇒ Centralized and powerful system (motorized extraction and contribution of air)</li><li>⇒ Comfort and health</li><li>⇒ Ecological : less loss of heat by recovery</li><li>⇒ Economic profitability : - of loss of heat in the winter and—need for air-conditioning the summer.</li><li>⇒ Controlled ventilation</li><li>⇒ Filtered air</li><li>⇒ Adaptability (hygroadjustable)</li><li>⇒ Silence ...</li></ul>	<ul style="list-style-type: none"><li>⇒ Long-term investment</li></ul>

## 5. Market of System C



## 6. Market of System D



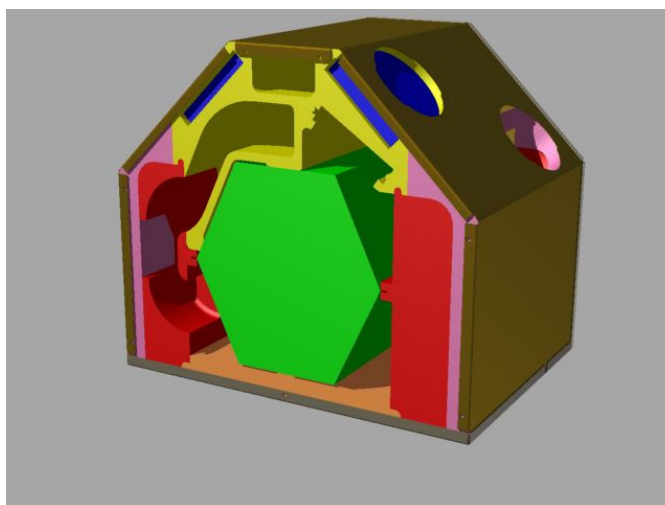
## 7. Elek-Trends creates VENECO

⇒ **Creation of a new department :**

- \* To answer the new market trend
- \* To propose powerful energy solutions
- \* To propose solutions for the health of the private individual
- \* To propose solutions powerful and adapted to the market needs.
- \* To propose a package aspiration / ventilation

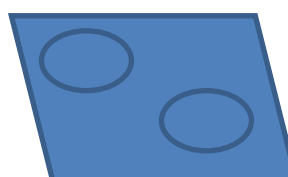
## 8. The Veneco solution

- ⇒ AC 250V 50 Hz.
- ⇒ DC motorisation possible with low power consumption
- ⇒ Dim.: 700 x 575 x 500mm
- ⇒ Weight : 30 Kg
- ⇒ 2 models :
  - \* VENECO 350 for 350m<sup>3</sup>/h (max. 420m<sup>3</sup>/h)
  - \* VENECO 450 for 450m<sup>3</sup>/h (max. 540m<sup>3</sup>/h)
- ⇒ Capacity exchanger : 220 or 270m<sup>3</sup>/h according to model (90%) of output.
- ⇒ Output > 90% with technology of exchangers of high efficiency.
- ⇒ G4 filtration



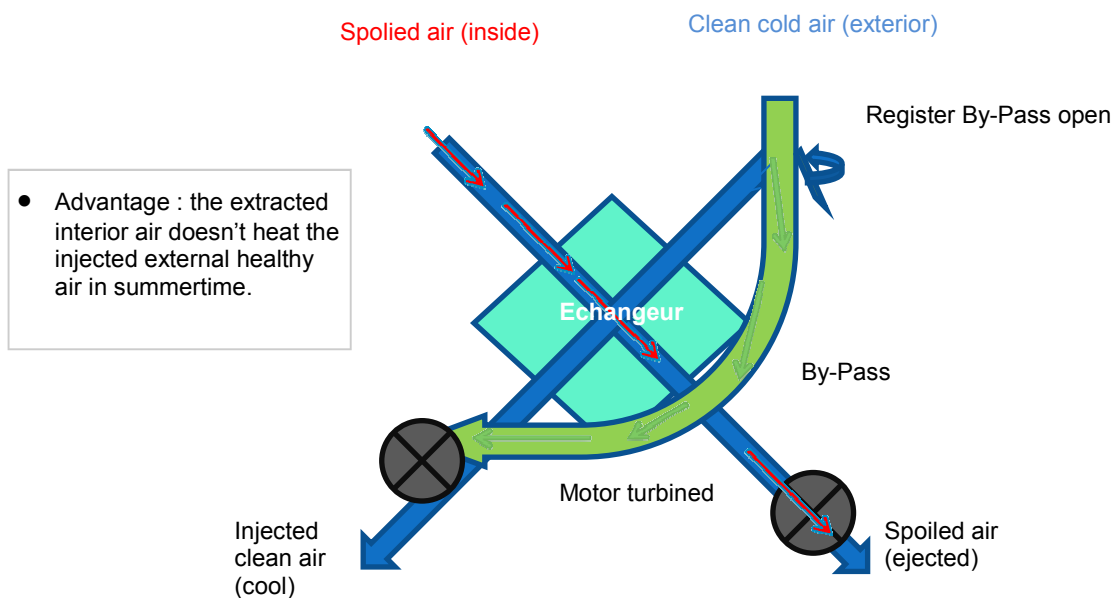
Filtration capacity in %							
Filter Class	Grain size						
G1	0,1	0,3	0,5	1	3	5	10
G1	-	-	-	-	0-5	5-15	40-50
G2	-	-	-	0-5	5-15	15-35	50-70
G3	-	-	0-5	5-15	15-35	35-70	70-85
<b>G4</b>	-	0-5	5-15	15-35	30-55	60-90	85-98
F5	0-10	5-15	15-30	30-50	70-90	90-99	>98
F6	5-15	10-25	20-40	50-65	85-95	95-99	>99
F7	25-35	45-60	60-75	85-95	>98	>99	>99
F8	35-45	65-75	80-90	95-98	>99	>99	>99
F9	45-60	75-85	90-95	>98	>99	>99	>99

- ⇒ Auto By-Pass (winter/summer)
- ⇒ De-icing
- ⇒ Ø of pipes 150mm for a network meeting the standards



+ free orientation thanks to the shift of the openings.

- ⇒ Thermo and sound isolation
- ⇒ Evacuation of condensation
- ⇒ Modern design and adapted forms
  
- ⇒ Advantages of the Veneco (System D) :
  - \* High performance exchanger : output > 90%
  - \* Automatic By-Pass
  - \* De-icing mode
  - \* 3 ventilation programmes
  
- ⇒ De-icing configuration
  
- ⇒ By-pass summer configuration



- **Advantages:**
  - *Used with Geoclimo (puits canadien).*
  - *Summer configuration*
  - *De-icing configuration.*

## 9. Technique of the ventilation network (calculation & installation)

### Extraction of poluted air (maximum flows) Qmax

Number of principal rooms	Kitchen	Bathroom or shower	Other "wet rooms"	Simple	Multiple
1	75	15	15	15	15
2	90	15	15	15	15
3	105	30	15	15	15
4	120	30	15	30	15
5 and more	135	30	15	30	15

We choose the VMC double flux VENT RECO 450

### Number of principal rooms (minium flow)

	1	2	3	4	5	6	7
Total minimal flow in m <sup>3</sup> /h	35	60	75	90	102	120	135
Total minimal flow in kitchen in m <sup>3</sup> /h	20	30	45	45	45	45	45

### ⇒ FRENCH STANDARD

	Number	M <sup>3</sup> /h
Rooms	4	
Extraction kitchen	1	135
Extraction bathroom	2	30
Extraction laundry	1	15
Extraction WC	2	15
		Max. 240m <sup>3</sup> /h and min 102m <sup>3</sup> /h

We choose the VMC double flux VENT RECO 450

	Number	M <sup>3</sup> /h
Extraction kitchen	1	120
Extraction bathroom	1	30
Extraction laundry	1	15
Extraction WC	1	30

Max. 195m<sup>3</sup>/h and min 90m<sup>3</sup>/h

We choose the VMC double flux VENT RECO 350

⇒ **BELGIAN STANDARD**

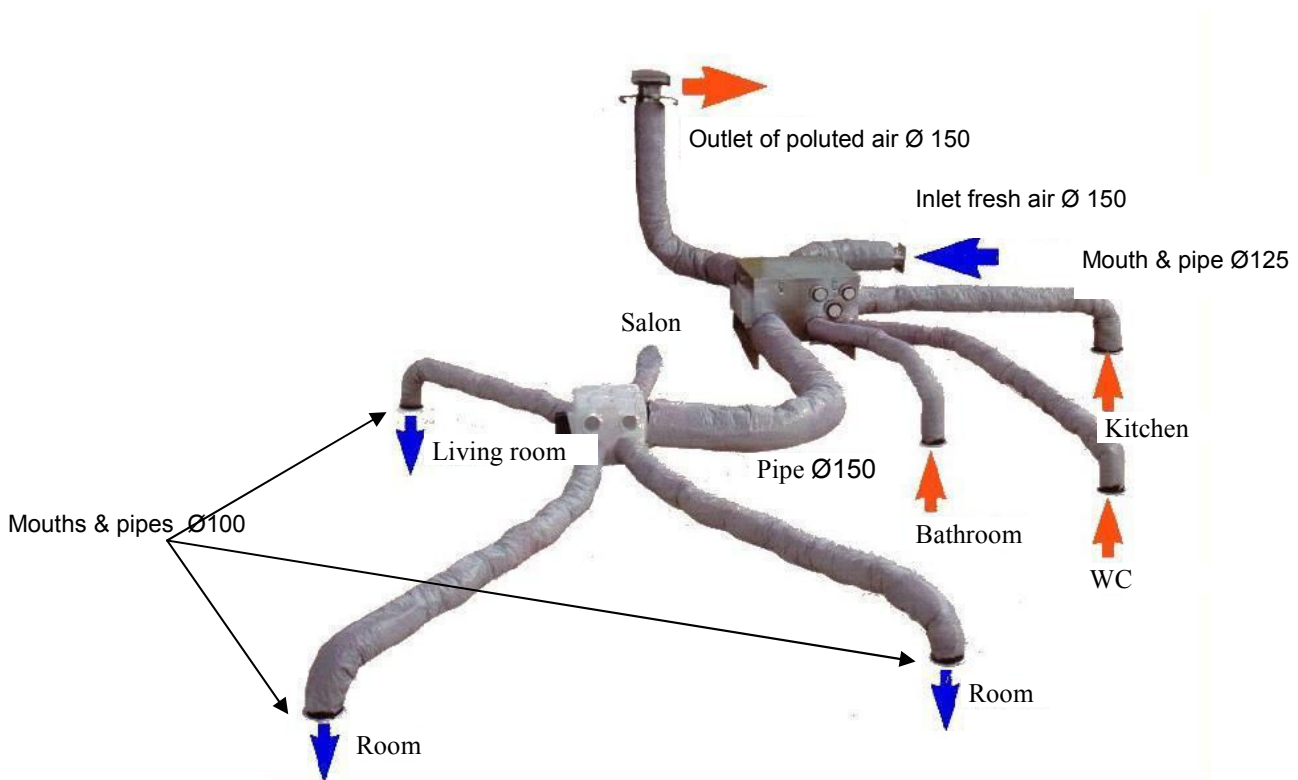
NBN D50—001					
INPUT					
Local	Nominal debit		Can be limited up to m <sup>3</sup> /h	Insufflation libre (A,C) max.	
	General ajustement m <sup>3</sup> /h. m <sup>2</sup>	Debit min. m <sup>3</sup> /h			
<b>Living room</b>	<b>3.6</b>	<b>75</b>	<b>150</b>	<b>2 x nominal</b>	
<b>Rooms</b>	<b>3.6</b>	<b>25</b>	<b>72</b>	<b>2 x nominal</b>	
<b>Buro</b>	<b>3.6</b>	<b>25</b>	<b>72</b>	<b>2 x nominal</b>	
<b>Play room</b>	<b>3.6</b>	<b>25</b>	<b>72</b>	<b>2 x nominal</b>	
bathroom	-	-	-	-	
laundry	-	-	-	-	
Kitchen	-	-	-	-	
Open kitchen	-	-	-	-	
WC	-	-	-	-	
NBN D50—001					
OUTPUT					
Local	Nominal debit		Can be limited up to m <sup>3</sup> /h	ROA (A,B) min section cm <sup>2</sup>	Diameter (A,B) min. cm
	General ajustement m <sup>3</sup> /h. m <sup>2</sup>	Debit min. m <sup>3</sup> /h			
Living room	-	-	-	-	-
rooms	-	-	-	-	-
Buro	-	-	-	-	-
Play room	-	-	-	-	-
<b>Bathroom</b>	<b>3.6</b>	<b>50</b>	<b>75</b>	<b>140</b>	<b>13.4</b>
<b>Laundry</b>	<b>3.6</b>	<b>50</b>	<b>75</b>	<b>140</b>	<b>13.4</b>
<b>Kitchen</b>	<b>3.6</b>	<b>50</b>	<b>75</b>	<b>140</b>	<b>13.4</b>
<b>Open kitchen</b>	-	<b>75</b>	-	<b>210</b>	<b>16.4</b>
.....	-	<b>25</b>	-	<b>70</b>	<b>9.4</b>

⇒ **GERMAN STANDARD**

LOCAL	Air exchange	Air quantity in m <sup>3</sup> /h
Living room	0,5 up to 0,8 fach	
Room	0,5 up to 0,8 fach	
Kitchen	2,0 up to 4,0 fach	60
Bathroom	2,0 up to 4,0 fach	60
WC	2,0 up to 4,0 fach	30

⇒ **For a good installation of your extraction network and inlet of air it's necessary :**

- \* To think it's network well
- \* Take care of the necessary sections
- \* Take care of the sealing and isolation
- \* Ensure its lifespan
- \* To limit pressure losses
- \* To mount accessories (grid, evacuation, inlet) envisaged for this purpose
- \* To refer to the standards in use



⇒ **To think its network well :**

- \* To draw up a diagram of the parts to be ventilated
- \* To limit the length of the small sections

- ⇒ **Take care of the necessary**
  - \* Ø125 min. for the kitchen
  - \* Ø100 min. for the rooms, toilet, bathroom and living rooms
  - \* Ø150 min. for the inlets and rejections of air
  - \* Ø150 min. between group VMC and the distribution t-pieces
  
- ⇒ **Veiller à l'étanchéité et à l'isolation**
  - \* use pipe fittings (male for the sheaths and female for the accessories)
  - \* Use silicone and adhesive aluminium for sealing
  - \* insulate thermically and phonically installations under roofs
  
- ⇒ **Ensure its lifespan :**
  - \* Firmly anchor the tubes using auto-drilling screws and support collars.
  
- ⇒ **To limit pressure losses :**
  - \* Use to the maximum straight sections
  - \* Use the least possible diamter reductions
  - \* Use the least possible diameter reductions
  - \* Position your VMC double flow in the middle of your network
  - \* Respect the capacity of your VMC double flow
  
- ⇒ **To mount accessories (grid, evacuation, inlet) envisaged for this purpose.**
  - \* Use in-and outlets adapted to the capacity of your VMC double flux.
  
- ⇒ **To refer to the standards in use**

## 10. Maintenance of the installation

Maintenance	Mouths of inlets	Mouths of outlets	Ventilator VMC double flow	Filter Exchanger	Tubes & network
Frequency	1 time / 2 years	2 time / year	1 time/ year	2 time / year	1 time/ 5 years

Washing of the filters and mouths : washable with water with period of drying.

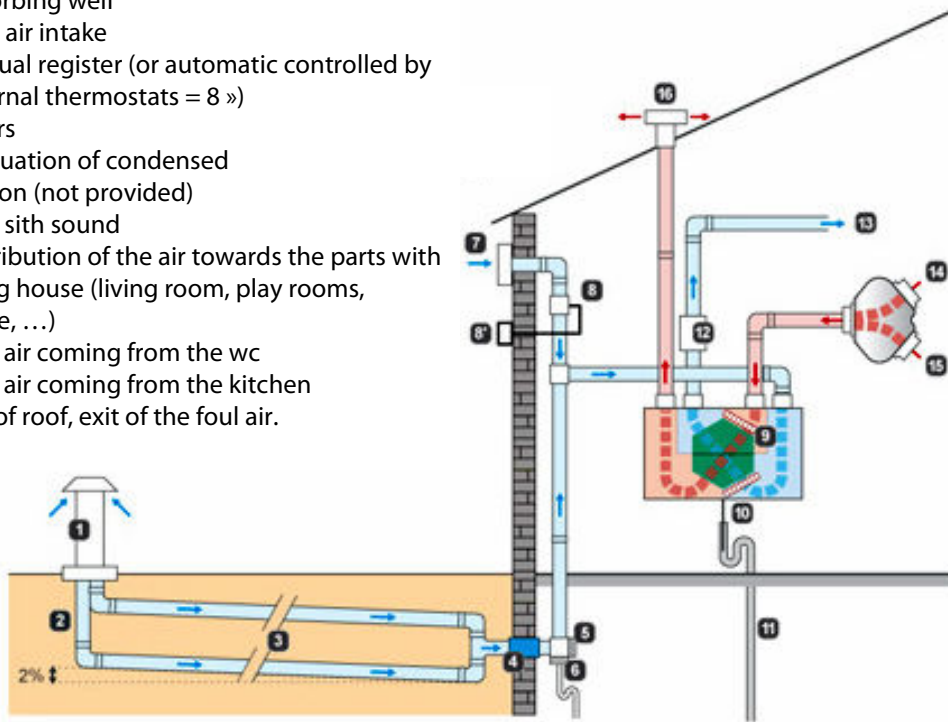
Washing of the tubes and ventilators : washable using a brush (without water)

# 11. VENECO + GEOCLIMO

- 1 Geothermic air intake
- 2 PVC tubes of 1,50 and 2,00m of depth (not provided)
- 3 Length of PVC pipes of 25 mètres
- 4 Protection mattress crossing the wall
- 5 Inspection door (not provided)
- 6 Stopper with purging towards sewer or absorbing well
- 7 New air intake
- 8 Manual register (or automatic controlled by external thermostats = 8 »)
- 9 Filters
- 10 Evacuation of condensed
- 11 Siphon (not provided)
- 12 Trap sith sound
- 13 Distribution of the air towards the parts with living house (living room, play rooms, office, ...)
- 14 Foul air coming from the wc
- 15 Foul air coming from the kitchen
- 16 Hat of roof, exit of the foul air.

**-20% on the invoice heating**

**(thanks to the use of ventilation double flow)**



Ømm	Debit m <sup>3</sup> /h	Speed m/s	Ømm	Debit m <sup>3</sup> /h	Speed m/s	Ømm	Debit m <sup>3</sup> /h	Speed m/s
150	390	6,1	125	390	8,8	100	390	13,8
150	360	5,7	125	360	8,2	100	360	12,7
150	330	5,2	125	330	7,5	100	330	11,7
150	300	4,7	125	300	6,8	100	300	10,6
150	270	4,2	125	270	6,1	100	270	9,6
150	250	3,9	125	250	5,7	100	250	8,8
150	180	2,8	125	180	4,1	100	180	6,4
150	150	2,4	125	150	3,4	100	150	5,3
150	135	2,1	125	135	3,1	100	135	4,8
150	120	1,9	125	120	2,7	100	120	4,2
150	105	1,7	125	105	2,4	100	105	3,7
150	90	1,4	125	90	2,0	100	90	3,2
150	75	1,2	125	75	1,7	100	75	2,7
150	60	0,9	125	60	1,4	100	60	2,1
150	45	0,7	125	45	1,0	100	45	1,6
150	30	0,5	125	30	0,7	100	30	1,1
150	22	0,3	125	22	0,5	100	22	0,8

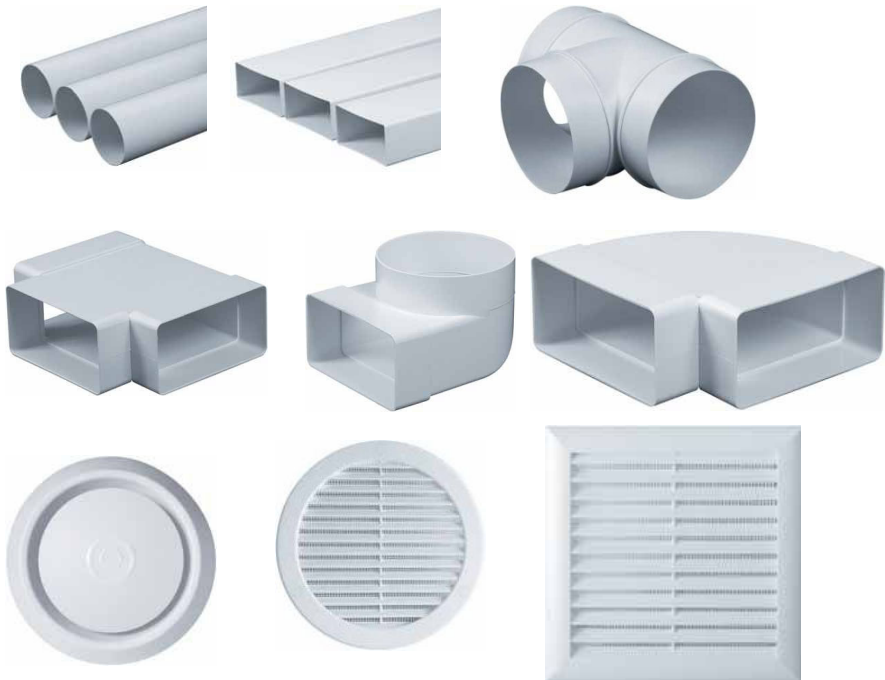
$$\frac{D \text{ m}^3/\text{hour}}{3600 \times S \text{ and m}^2} = V \text{ and m/s}$$

# 11. Accessories and components of the installation

Under the roofs



Behind the partitions and in the ground



*Veneco wishes you  
a life in healthy  
surroundings*

**VENECO**  
Ventilation