



MVHR

Mechanical Ventilation with Heat Recovery



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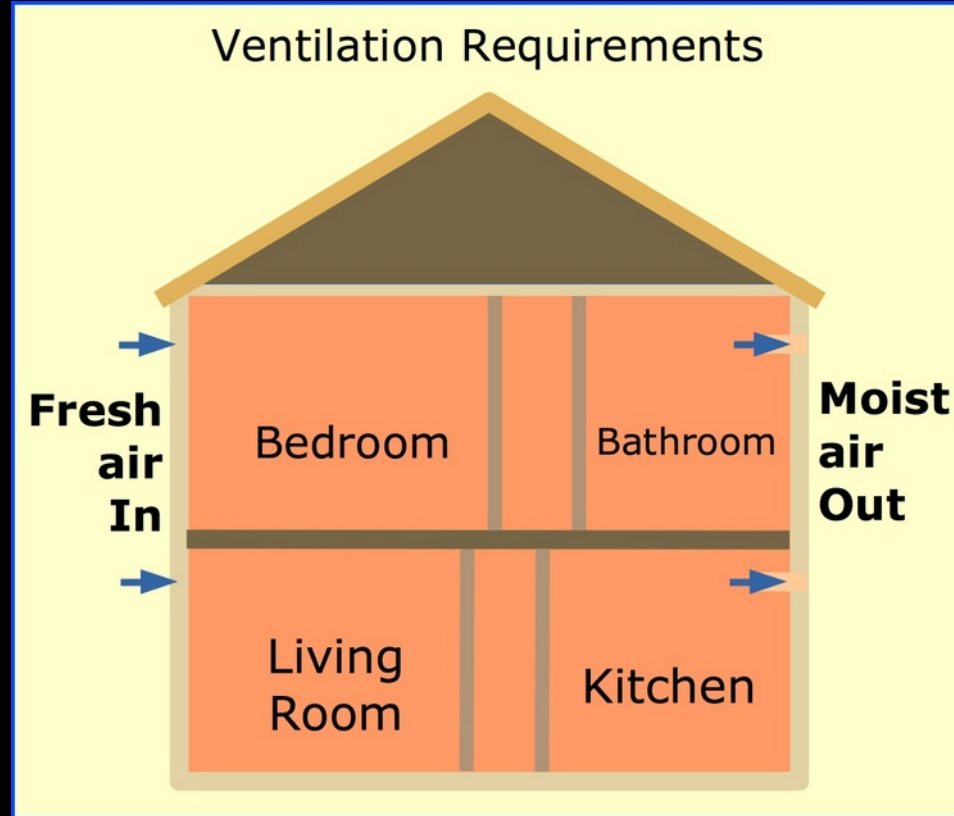
Martin Tallis – 22-Apr-2026
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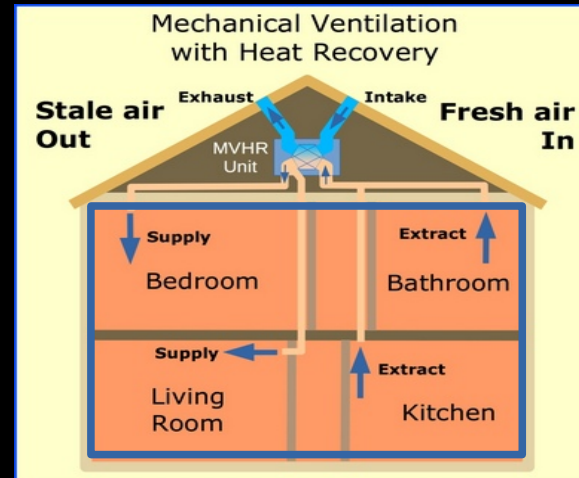
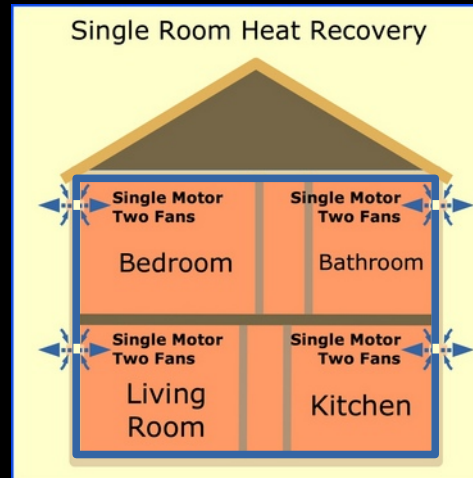
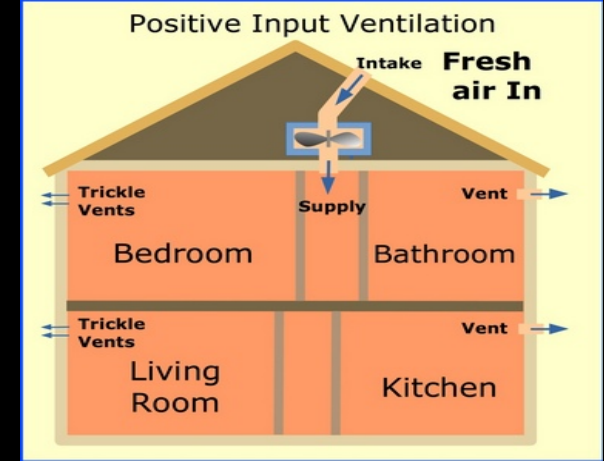
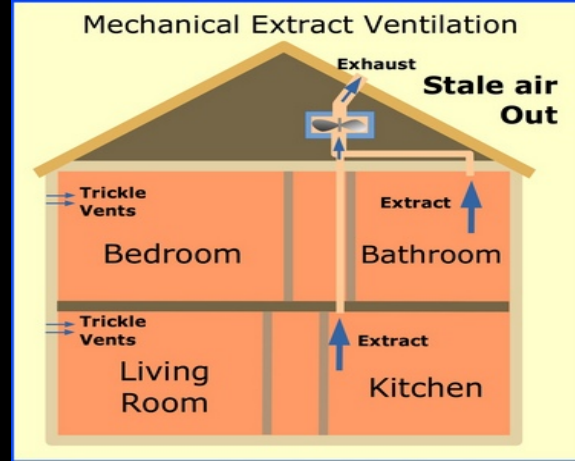
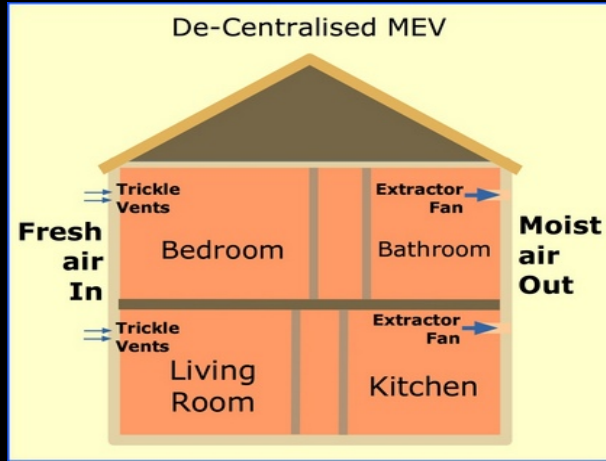
What's Coming

- Ventilation Systems – a quick overview
- MVHR – what is it, how does it work
- Our System – design, installation, refinement and maintenance
- The Choices
- What to do Differently

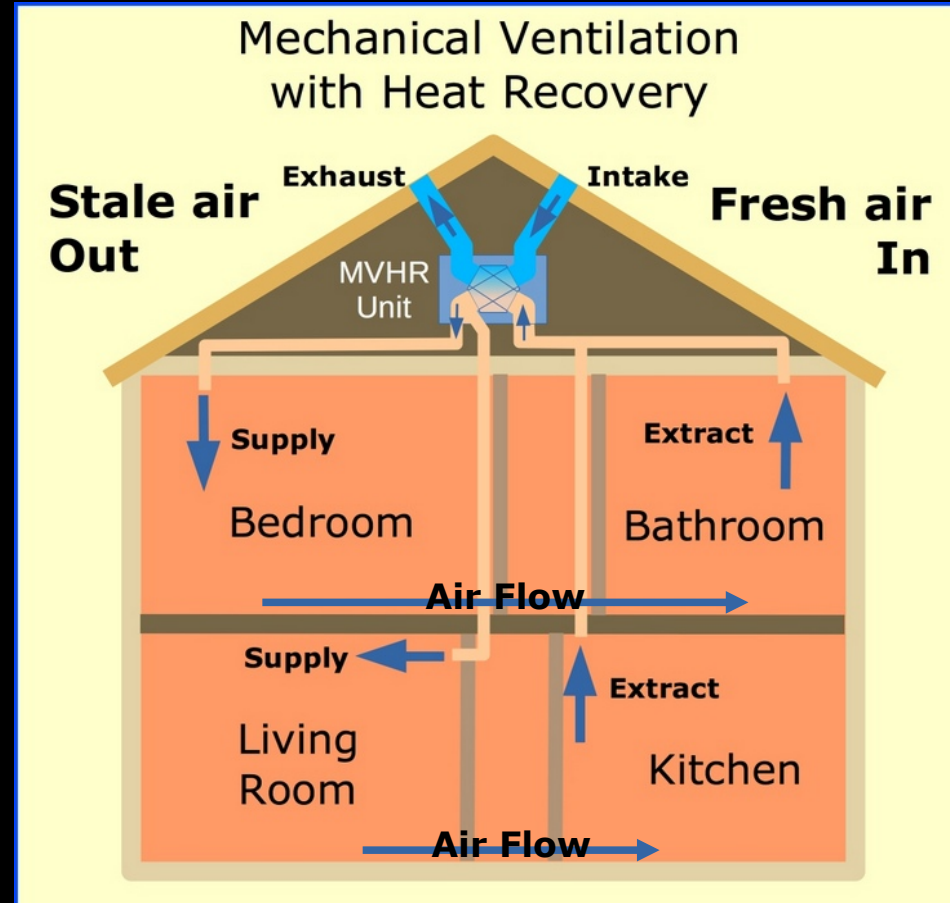
Ventilation Systems



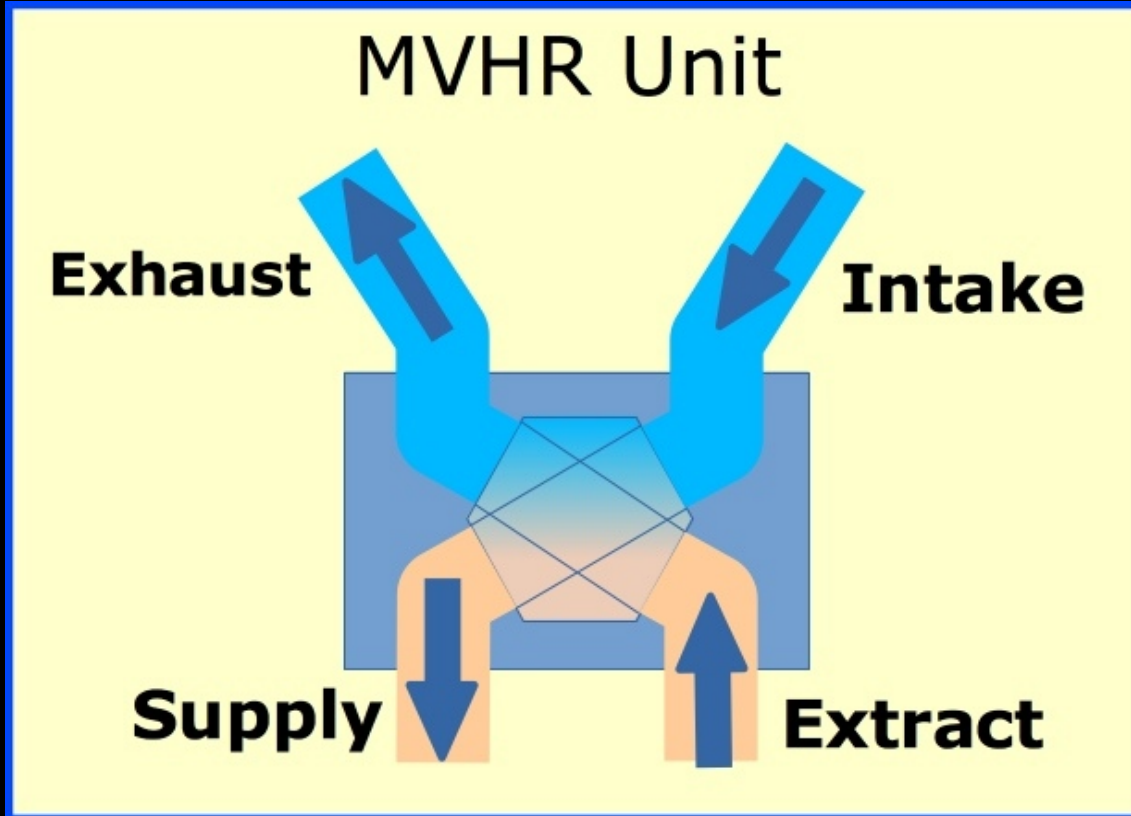
Ventilation Systems



MVHR



MVHR Unit

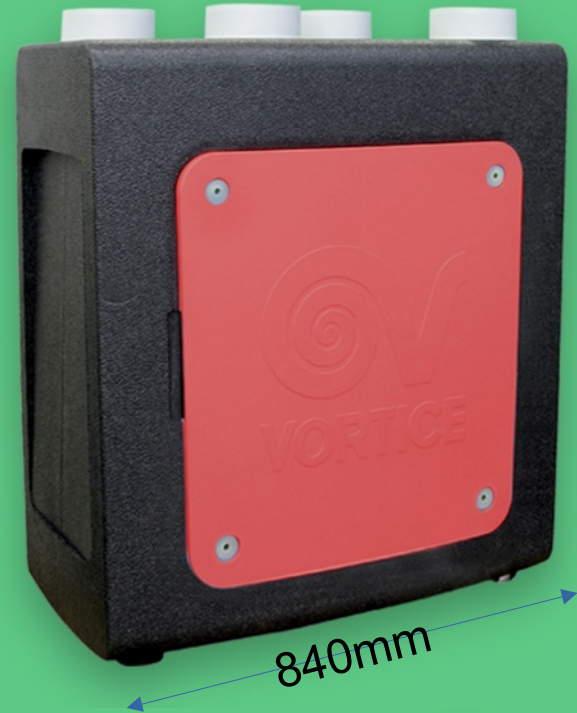


Our One

CODE 11582

VORT PROMETEO PLUS HR 400 ITA/EXP

DOCUMENTATION



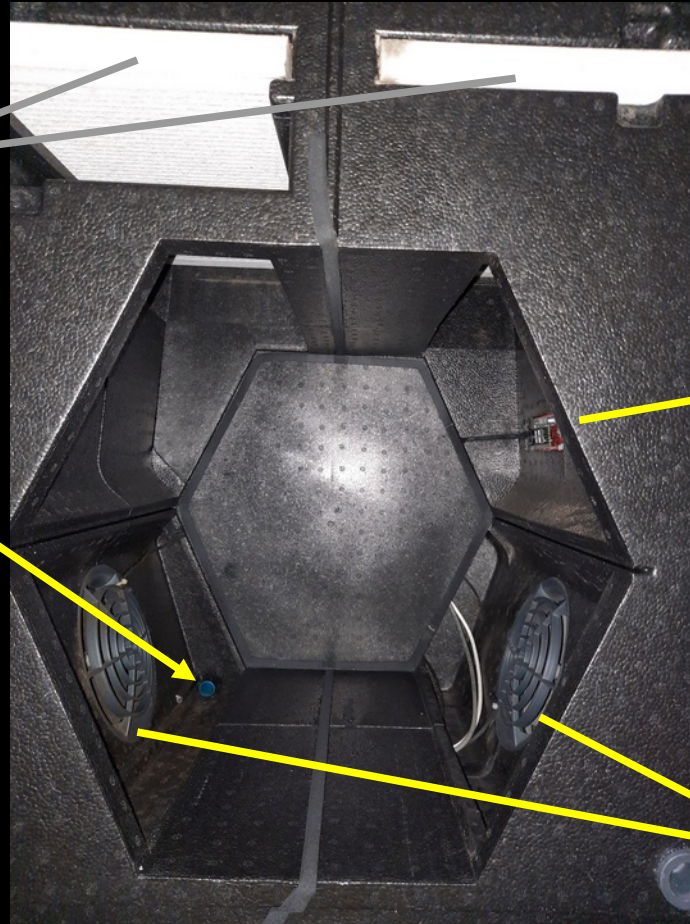
Inside Ours

Filters

Condensate
Drain

Sensor
 $\text{CO}_2 / \text{H}_2\text{O}$

Fans

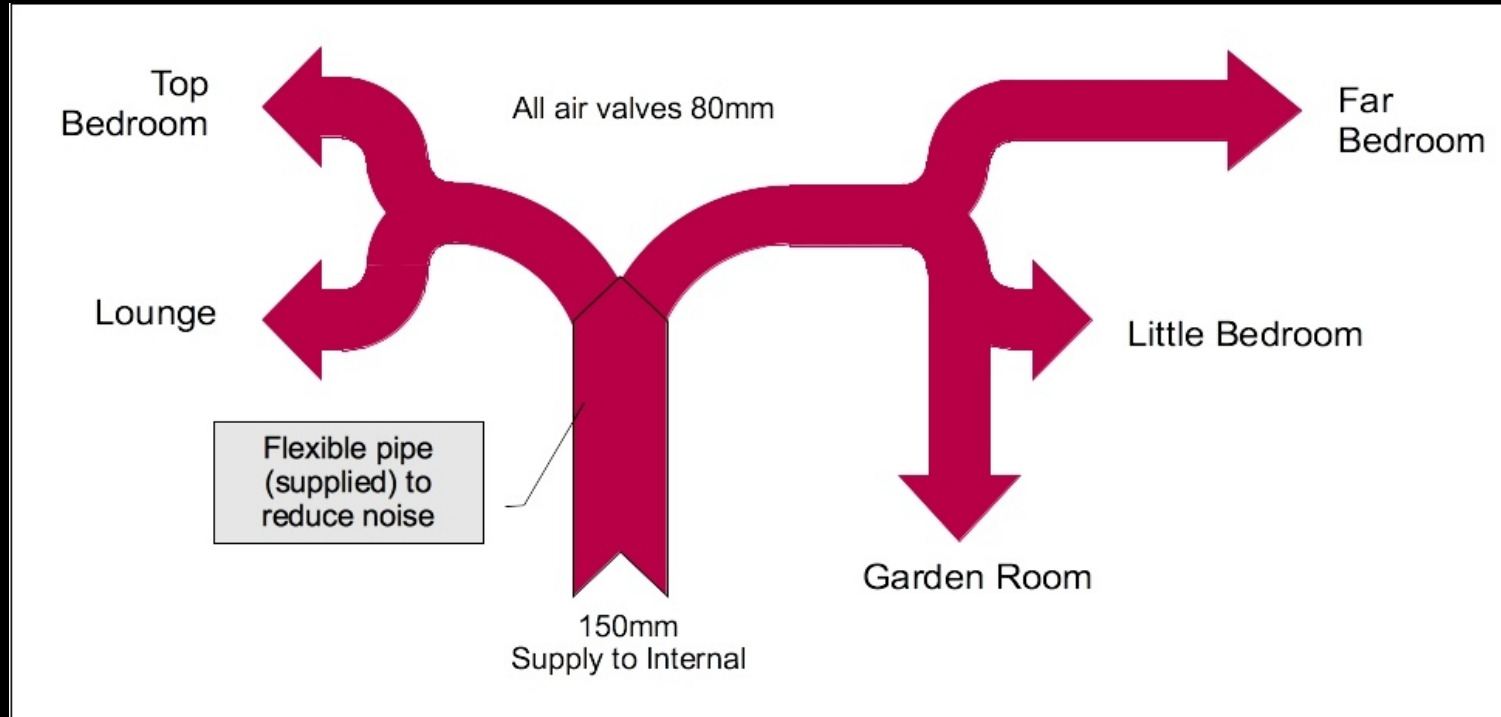




Mechanical Ventilation with Heat Recovery

- Saves some energy by exchanging heat from the outgoing air to the incoming air
- Allows the exclusion of all draughts
- It can vary the flow depending on Humidity or Carbon Dioxide levels
- It needs an electricity supply and a drain pipe

Topology – Warm-Side Supply



– Warm-Side Supply

Bedroom



Far
Bedroom

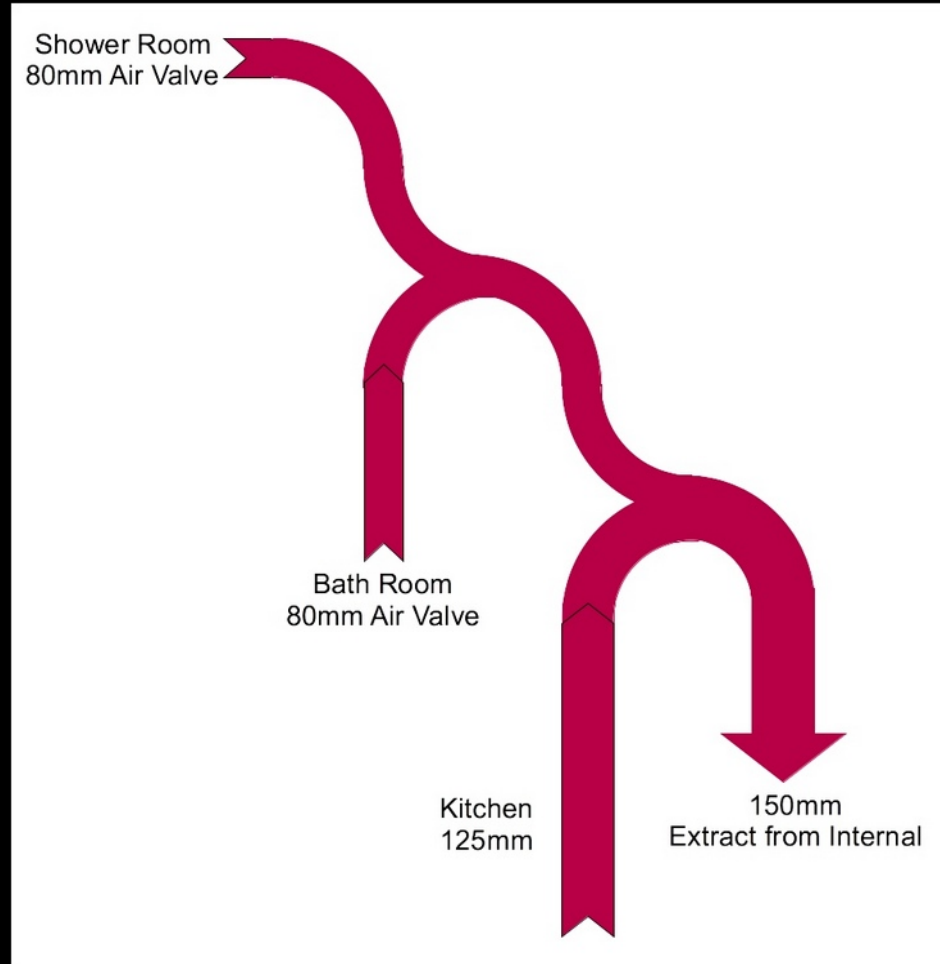
Flexible pipe
(supplied)
to
reduce noise

Garden Room

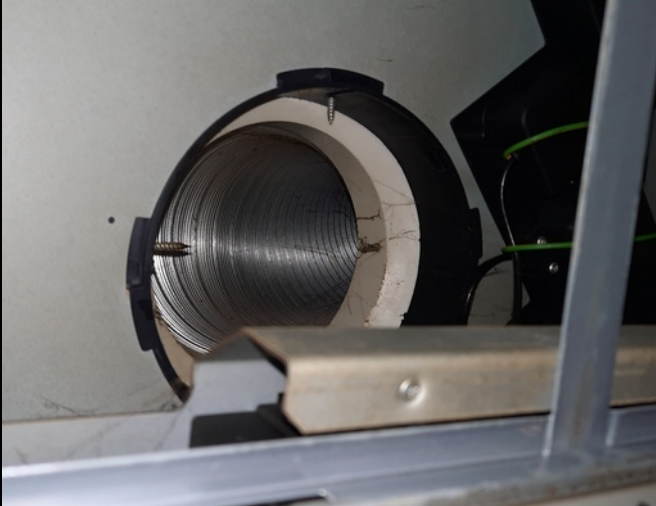
150mm
Supply to Internal



Topology – Warm-Side Extract



Topology – Warm-Side Extract



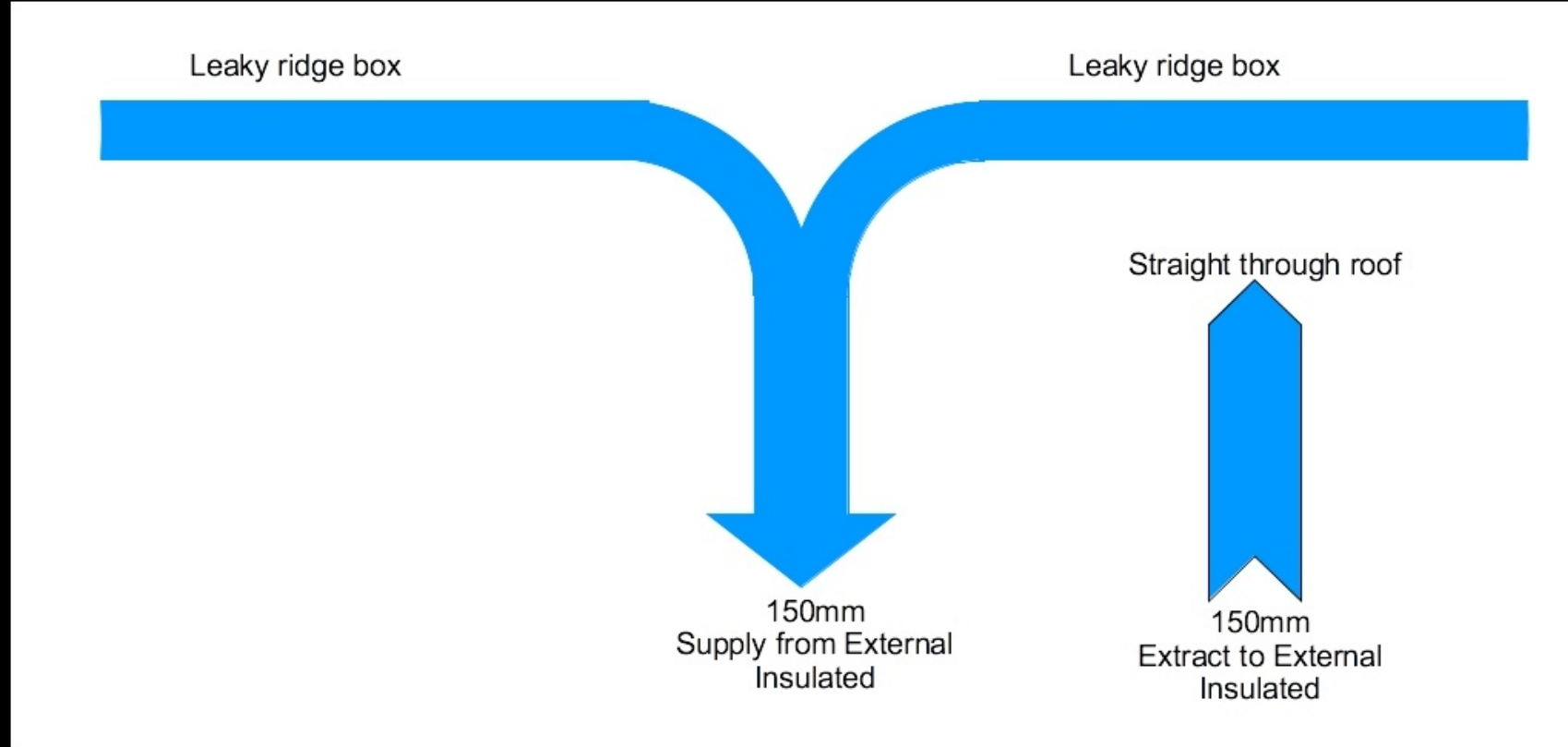
Shower Room
80mm Air Valve

Bath Room
80mm Air Valve

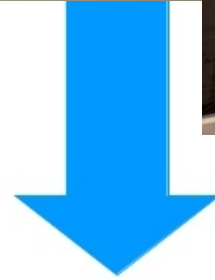
Kitchen
125mm

150mm
Extract from Internal

Topology - Cold-Side



Topology - Cold-Side



150mm
Supply from External
Insulated



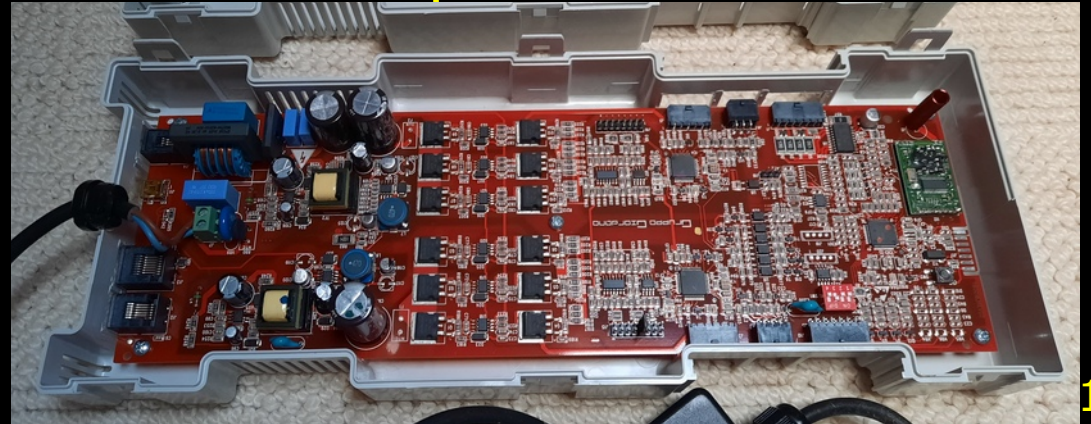


Mechanical Ventilation with Heat Recovery

- You can design it yourself
- Ideally room supply/extract valves would be diagonally opposite the door. Retrofits have to be pragmatic
- Doors should have 10mm floor clearance
- It can heat or cool a building to a degree
- You can get prettier supply vents
- Termination vents are now more easily found

My Expenses 2012 - 2026

- Vortice Promoteo HR400+ – £1,539
- Plus Ducts etc. ~£250
- About every 6 years – Filters – £80 / £83
- After 8 years – Controller Died – Replacement £189
- After 9 years – Fault in Electronics – Spare £438





That's Mine – Now Yours ...

- MVHR does not save money – but it does save energy
- Provides fresh air all the time – It's Great!
- You won't regret it
- First ... Sizing



Regulation (AD F) Ventilation Rates

Minimum Extract Rate		l/s	m ³ /h
Continuous High Rate	Kitchen	13	46.8
Continuous High Rate	Utility Room	8	28.8
Continuous High Rate	Bathroom	8	28.8
Continuous High Rate	Sanitary Accommodation	6	21.6
Minimum Supply Rate		l/s	m ³ /h
Whole Dwelling	Base	13	46.8
Plus	Each Bedroom	6	21.6
Minimum Supply Rate		l/s	m ³ /h
Whole Dwelling	Per m ² of total floor area	0.3	1.08

Make three calculations. Take the largest

Choice of Format and Location



Ducting

- Branch or Radial
- Sound insulating duct is needed on the supply duct
- Metal or Plastic
- Rigid (better airflow) or Flexible (more convenient?)





In Hindsight ...

- Get one with Washable Filters
- Summer By-pass is useful
- Try to get Intake from North Wall (for maximum cooling)
- The 'cold' ducts should be insulated if within the insulation envelope
- 'Warm' ducts must be insulated if outside the thermal envelope
- Noise transfer between rooms can be a problem



Questions?

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CalderRetrofit.info/Information



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this presentation



Calder Retrofit Support Group
(Link to join the WhatsApp group)