

Ventilation in Retrofitted Homes

Keeping homes fresh, warm, and energy-efficient

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Potential Problem in Modern or Retrofitted Homes

- Homes are better insulated and more airtight
- Without ventilation
 - Moisture and pollutants build up
 - Condensation and mould can appear
 - Bedrooms and living spaces can feel stuffy



Traditional Ventilation

- Opening windows
- Extractor fans
- Passive vents

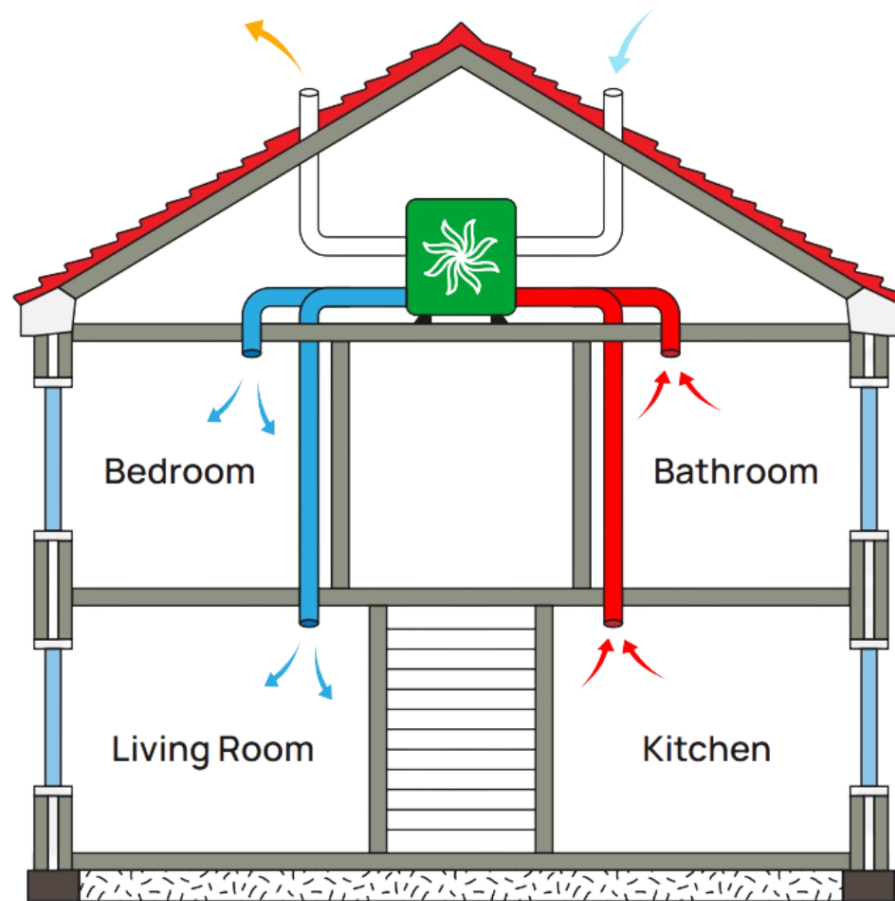


Problems:

- heat loss
- inconsistent temperatures
- draughts
- may not suffice to stop condensation

Mechanical Ventilation with Heat Recovery (MVHR)

It continuously swaps stale indoor air for fresh outdoor air, while keeping most of the heat inside



The MVHR unit

Typical unit



- **Draws in** and filters fresh air from outside and delivers it to living rooms, bedrooms.
- **Extracts** warm humid air from wet rooms (kitchen, bathroom, utility room, toilets) and expels to outside.

In-situ in loft



The clever bit

- Two air streams pass through a *heat exchanger*
- Heat transfers from the outgoing warm air to the incoming fresh air
- The air streams do not mix
- Typically recovers 85–95% of the heat
- Switches off in hot weather



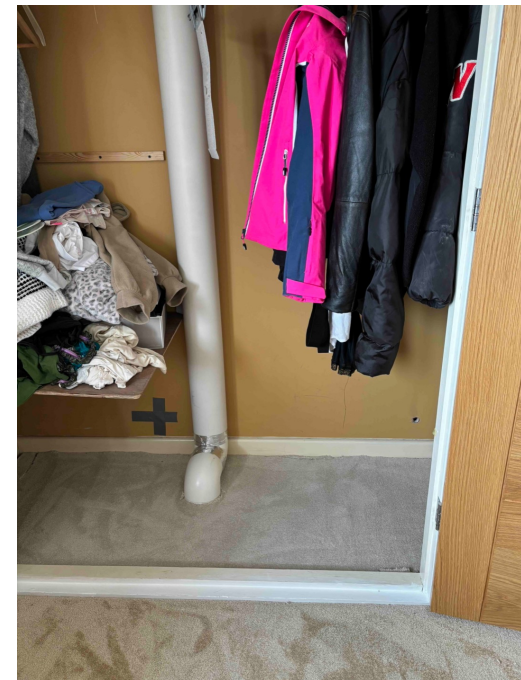
Ducting

Connects the inlet and outlet airstreams in rooms to the MVHR unit

Routed through loft space....



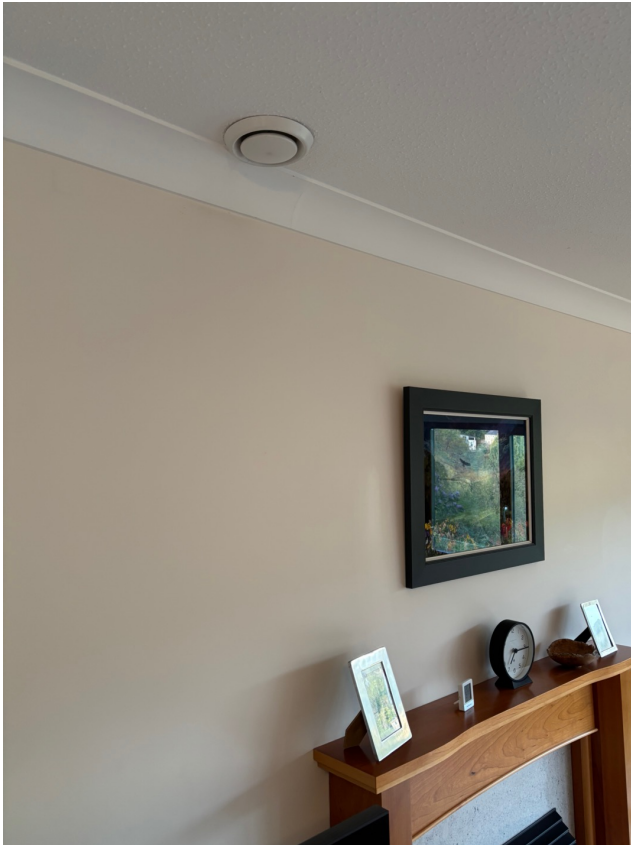
.....cupboard space



...or a (boxed-in?) corner

Internal vents

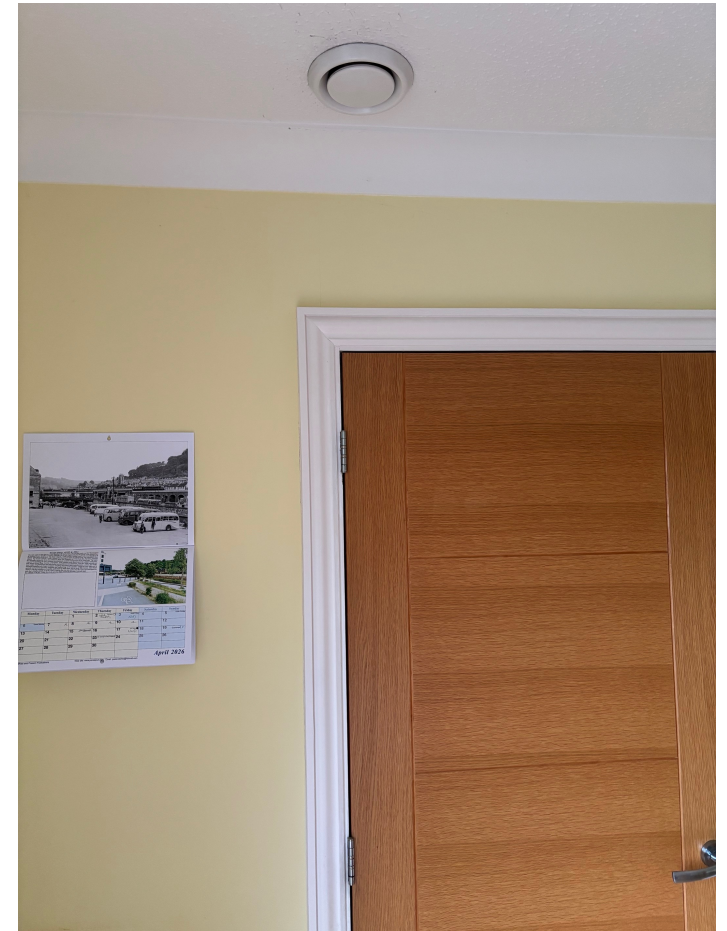
Ducting terminates on unobtrusive room vents



Living room (inlet)



Kitchen (outlet)



External vents

Further ducting connects the MVHR unit to external inlet and outlet vents on external wall or eaves.



Things to consider

- Efficiency is better the more airtight the home. BUT doesn't have to be near-Passivhaus!
....can help with general condensation or mould problems
- Installation involves costs and some disruption, so is best done as part of a wider retrofit
- Needs good design: unit sizing, location, duct routes and vent positioning all matter
- Limited maintenance: occasional filter cleaning/replacement, servicing

What you get

- Fresh, filtered air throughout house
- Less need to open windows for everyday ventilation
- Reduced condensation and mould
- Uniform temperatures, improved comfort
- Lower ventilation heat loss, with potential energy-bill savings
- Quiet operation and running costs modest compared to heat saved

Key Takeaway



MVHR helps retrofitted homes to stay both energy-efficient and healthy



Fresh air and comfort no longer require wasting heat

