

VENTILATION, AIR TIGHTNESS AND INSULATION

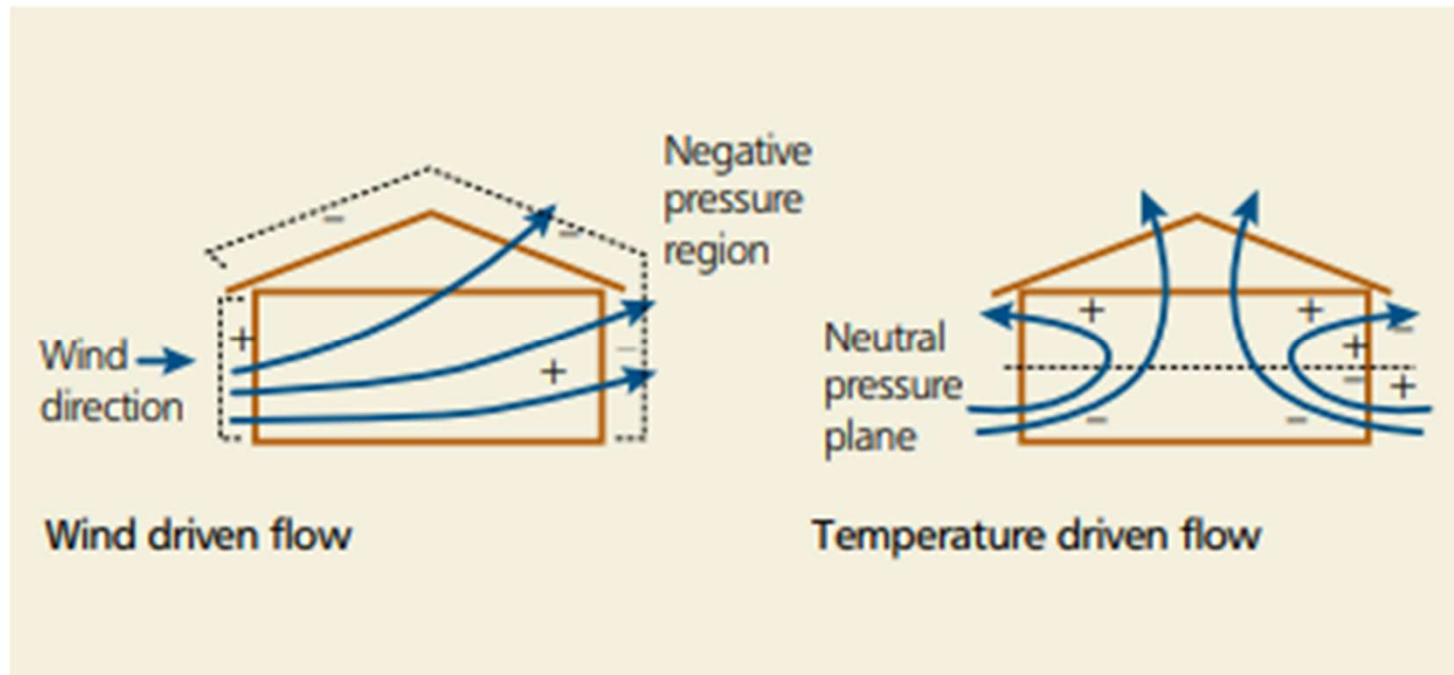


We all want to make our homes consume less energy and help decarbonise domestic heating. However there can be risks and the arrival of signs of dampness can be one of them.

Why might this occur?

HOW HOMES USED TO BE VENTILATED

Until the 1970s, homes in the UK were mostly ventilated by wind-driven air infiltration and air leakage, supplemented by the opening of windows. This brought in fresh air and removed moisture.



WHY MAY THERE BE PROBLEMS IF WE MAKE HOMES MORE ENERGY EFFICIENT?

The old method of ventilating our homes no longer works when we fit better windows, draught stripping, remove chimneys and insulate walls, roofs and floors.

Fresh air is no longer introduced and moisture can build up inside. Families in smaller houses or flats tend to have more problems than single people or empty nesters in larger homes.

DO I NEED BUILDING REGULATIONS APPROVAL?

Some insulation measures singly or in combination may require you to ensure the works are compliant with the Building Regulations. You would need to involve LA Building Control or an Approved Inspector to confirm they are compliant and provide a completion certificate. You could be asked to produce proof of compliance when the property is to be sold.

CURRENT BUILDING REGULATIONS

To avoid these problems Building Regulations since June 2022 require you to install a ventilation system when you make one major energy efficiency change or three or more minor changes.

Examples are:

- **Minor changes:** loft insulation, cavity wall insulation, draught proofing measures
- **Major changes:** external or internal wall insulation to more than 50% of external walls, changing more than 30% of windows to a modern type, insulating a suspended ground floor, sealing or removing a chimney etc

BUILDING REGULATIONS

		Number of minor measures							
		0	1	2	3	4	5	6	
Number of major measures	0	Category A							
	1	Category B							
	2								
	3					Category C			
	4								

Diagram 3.1 Chart for categorising impact on ventilation when carrying out works in existing dwellings

BUILDING REGULATIONS

Category A – There should be no problems

Category B - it is likely that the ventilation provision of the dwelling could prove inadequate for people in the building and could lead to dampness

Category C - it is likely that the ventilation provision of the dwelling has been reduced significantly and would be seriously inadequate for people in the building and would lead to dampness and poor health

NO INSULATION WITHOUT VENTILATION

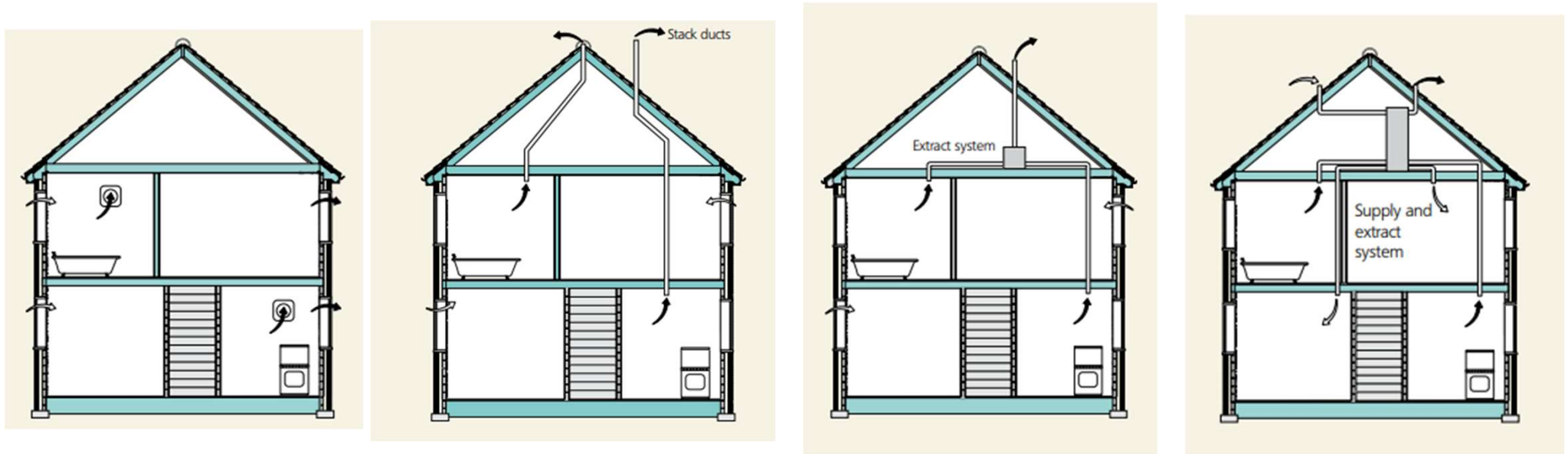
Therefore, if we retrofit any insulation or airtightness measures it is wise to compensate for the lost infiltration and air leakage by assessing the existing ventilation and upgrading, if necessary, to an adequate system.

If we don't do this, there is a chance black mould may appear on the coldest parts of our homes, the internal air quality will be poor and respiratory problems may be worse.

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WHAT ARE THESE VENTILATION SYSTEMS?

“Systems” vary but can be as simple as fitting extract fans in all kitchens, bathrooms and utility rooms together with adequate trickle vents in all the windows. As the house becomes more airtight more complex systems are recommended.



Simple > > > > Complex

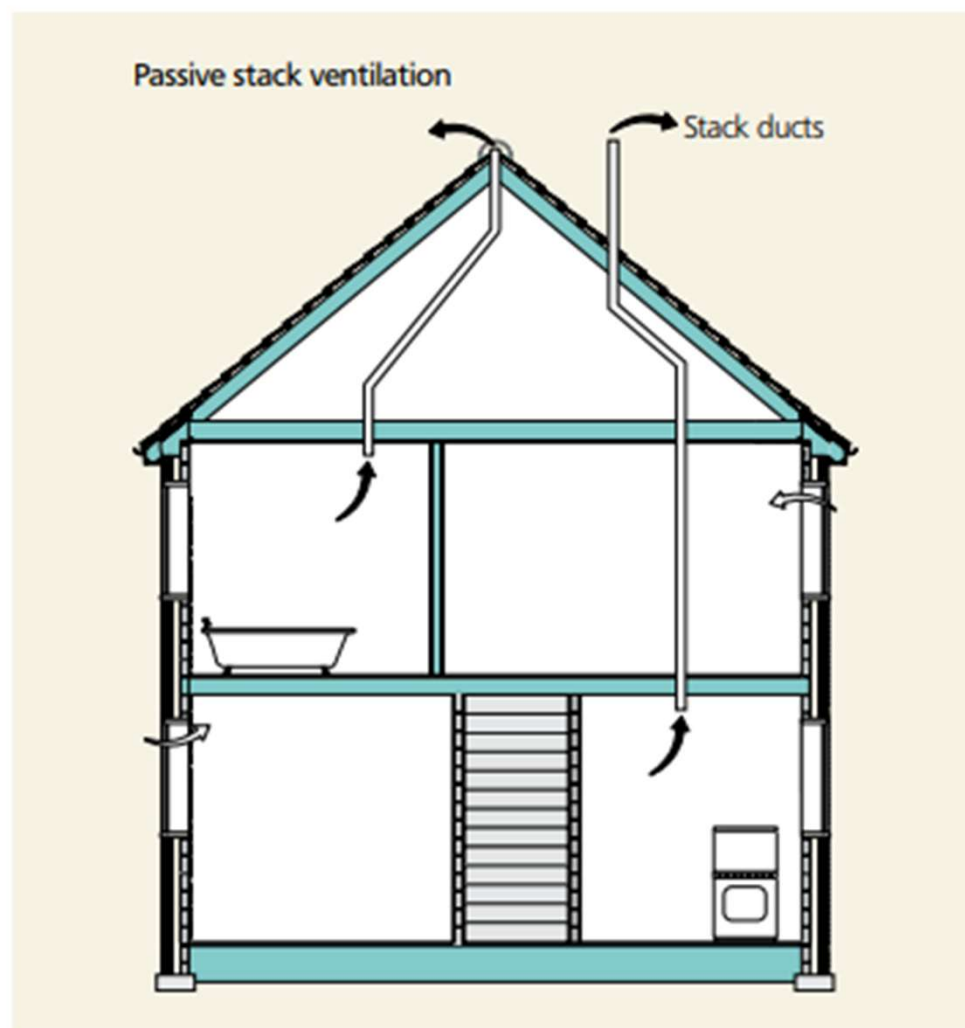


Figure 6 Passive stack ventilation

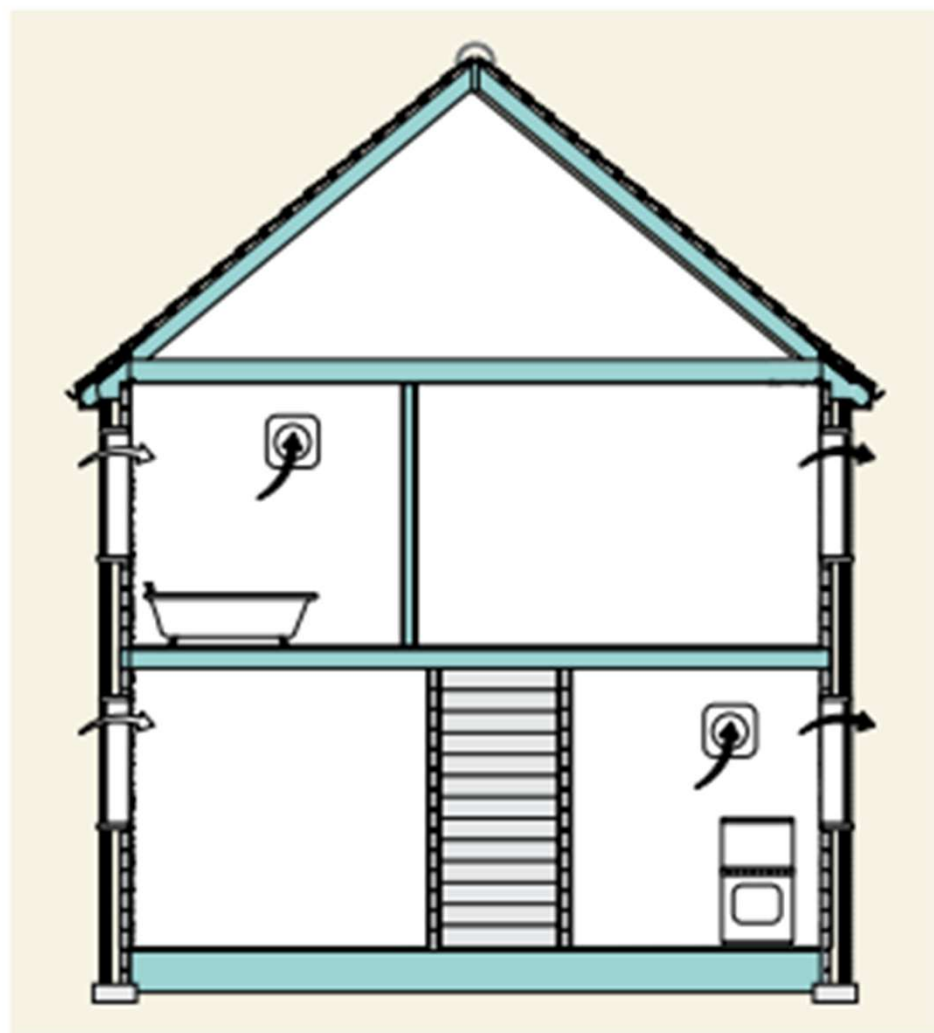


Figure 8 Intermittent extract fans

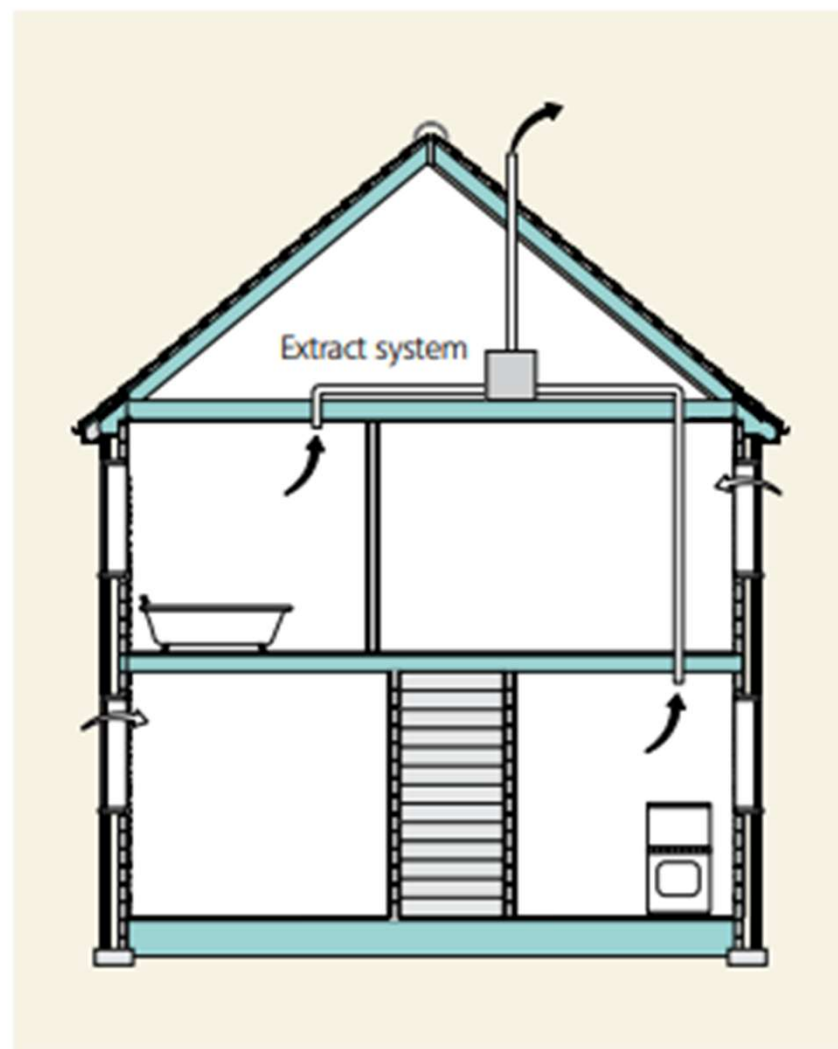


Figure 9 Mechanical extract ventilation (MEV)

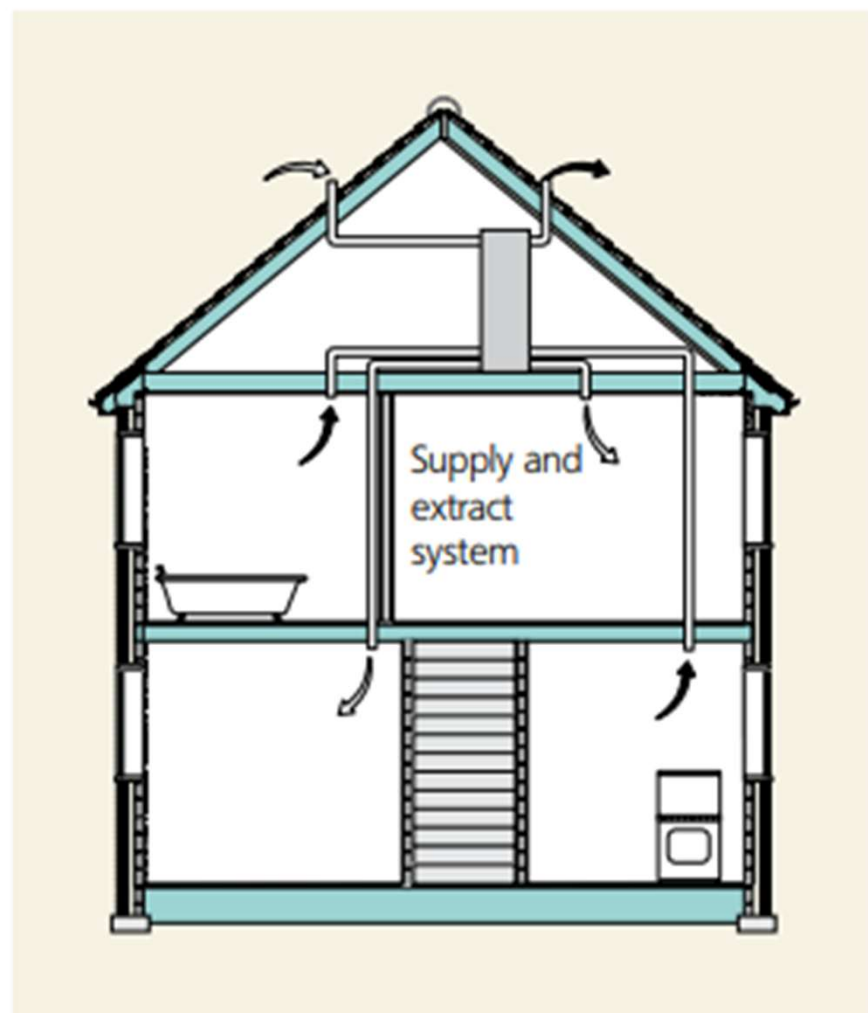


Figure 10 Whole house mechanical ventilation with heat recovery (MVHR)

Single room MVHR aka decentralised



Ventilation with heat recovery
– single room decentralised approach

- A toe in the water, tackling individual room problems
- Popular as being a cheaper solution avoiding ducting requiring only a large circular hole to outside per fan
- Not a Building Regulations approved solution

- Two types available, 1 simultaneous supply and extract 2 fans that cycle between intake and exhaust but should be used in pairs in each room eg VentAxia Heat Save
- Makes such as Kair, Envirovent, Vent-Axia Tempra and Heat Save etc
- Despite extravagant claims from makers, seem to be lower efficiency than central systems
- Two of our members have had good experiences using only single units but combination of each home and occupancy is unique

Maintenance

All MVHR systems have filters that require regular cleaning

Table 3.1 Energy efficiency measures

	Category of measure
Roof insulation	
a. Renewing loft insulation, including effective edge sealing at junctions and penetrations	Minor
b. Loft conversions or works that include changing a cold loft (insulation at ceiling level) to a warm loft (insulation at roof level)	Minor
Wall insulation	
c. Installing cavity wall insulation to any external wall	Minor
d. Installing external or internal wall insulation to less than or equal to 50% of the external wall area	Minor
e. Installing external or internal wall insulation to more than 50% of the external wall area	Major
Replacement of windows and doors⁽¹⁾	
f. Replacing less than or equal to 30% of the total existing windows or door units	Minor
g. Replacing more than 30% of the total existing windows or door units	Major
Draught-proofing (other than openings)⁽²⁾	
h. Replacing a loft hatch with a sealed/insulated unit	Minor
i. Sealing around structural or service penetrations through walls, floors or ceiling/roof	Minor
j. Sealing and/or insulating a suspended ground floor	Major
k. Removing chimney or providing another means of sealing over chimney, internally or externally	Major

NOTES:

1. If the energy efficiency works involve only replacing windows, then the guidance in paragraphs 3.14 to 3.16 may be followed as an alternative means of demonstrating compliance.
2. Draught-proofing measures might not, on their own, constitute building work. This work may be controllable under the Building Regulations if carried out as part of other building work.

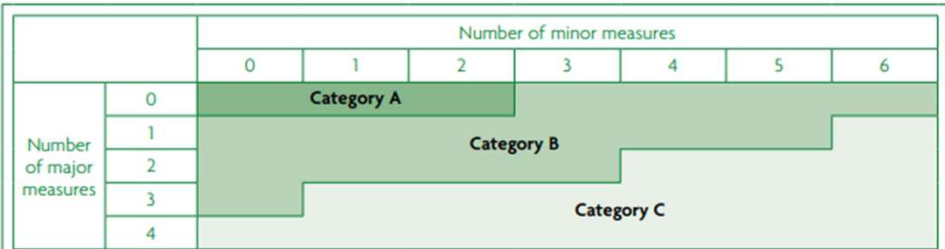


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