



Energy Tutorial: Building Fabric

Draughts and ventilation

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There's quite a bit of confusion about ventilation and draughts. We need fresh air in occupied buildings, but it also makes sense if we can control it. Draughts are uncontrolled ventilation, and are also the cause of considerable heat loss. This can lead to discomfort, or cold, and to higher than necessary heating bills. The good news is that there is something you can do about it. Ventilation is the controlled entry of fresh air into a building.

DRAUGHT PROOFING

Draughts are easy and cheap to fix but we tend to learn to live with them. It's just a matter of blocking up any holes which allow warm air out, and hot air in. In the typical UK house draughts will account for at least 10% of the total heat loss. If there is an unused open fireplace that figure will rise to over 50%.

There are all the obvious places to seal – gaps around windows and under doors, floor to wall joints, ceiling to wall joints, gaps between floor boards – but the real culprits tend to be where pipes and cables are brought through walls or floors, and there is often a gap around the pipe or cable.

Some draughts will be so bad that they are easy to spot. You can find the others by using a thermal heat detector or by walking round the house with a lit candle, and noticing where the flame flickers (make sure you are supervised by an appropriate adult when using a lit candle to find draughts if you're under 18!).

Draught proofing is a cheap, effective and easy DIY measure to install. A good place to start is adding weather strips to windows, external doors and loft hatches. There are also lots of products in your local DIY store for sealing round windows and doors; mastic, caulk or sealant will do the job at the junction of floor and walls, and even gaps between floor boards. Gaps through walls for pipes and cables can be sealed with mastic, or expanding polyurethane foam for the larger spaces.

Chimney flues can be bricked up or there is a handy balloon-type thing called a Sempaflu that will do the job. It is important to seal the top as well as the bottom to stop rainwater getting in. Sealing the bottom will still allow rainwater into the top, with consequent damp problems now that the flow of air that used to dry it has been blocked.

A note of caution: beware of air bricks. Air bricks are special bricks that are made with holes in them to allow the circulation of air under the floor of a building. By enabling air to circulate, cold or damp air is prevented from sitting in any empty spaces, which could otherwise cause very expensive damage to the building as a result of wet or dry-rot. So make sure you don't fill in these gaps! Also avoid blocking trickle vents in windows and extractor fans – we do need some controlled ventilation to prevent damp, rot and mould.

VENTILATION

Ventilation is talked about in terms of air changes per hour. Older buildings may experience as many as one air changes per hour (this is why draught proofing is worth doing well). A modern building needs a ventilation rate of about one air change an hour. If it's super insulated it will need twice that.

Trickle vents

Modern window frames generally have small vents which you can open and close at will.

Extractor fans

These are generally used in bathrooms and kitchens. They can operate automatically when a certain level of humidity is reached, or come on with a light, or be controlled manually.

Mechanical ventilation

In super insulated buildings, such as [Passivhaus](#) buildings, mechanical ventilation with heat recovery (MVHR) is used to extract warm, humid air from rooms such as the bathroom and kitchen via a heat exchanger. Fresh air is drawn from outside, warmed in the heat exchanger and delivered to cooler room such as the lounge and bedrooms.

How to air a room in winter

If you don't have good ventilation in a room, it is better to turn off the heating and open the window for a five minute burst of air, than to leave the heating on and the window half open for a long time. This tip is from the Home Energy Handbook.

FURTHER RESOURCES AND INFORMATION

Check out these YouGen blogs for more information about draughts and ventilation:

- [How to stop draughts coming through your floor boards: a case study](#)
- [Introduction to draught proofing your home](#)
- [Draughts can be cured](#)
- [The best way to draught-proof an old window or a door](#)
- [How to find the worst draughts](#)
- [How important is air-tightness to energy efficiency?](#)
- [Heat recovery ventilation - is it a retrofit option?](#)