

Mechanical ventilation with heat recovery

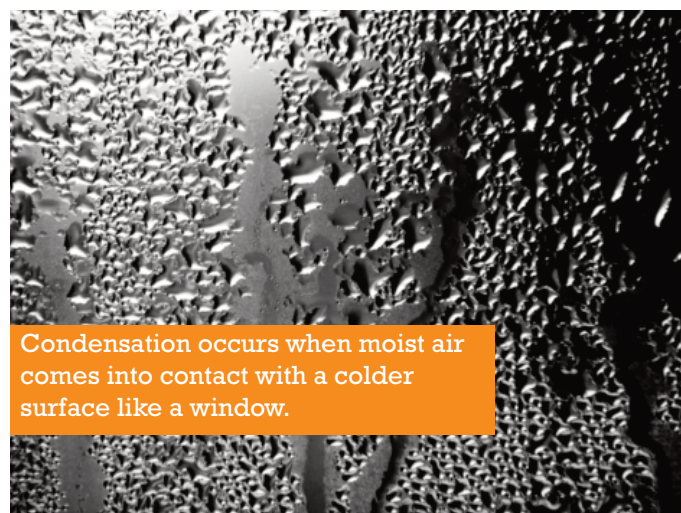
The need for ventilation in new buildings

Modern homes have greatly reduced levels of ventilation which reduces heat loss and improves energy efficiency. A well designed mechanical ventilation system can provide the right amount of clean, fresh air that is vital for the health and wellbeing of a household.

Having adequate ventilation in your home is important for good health. It removes moisture and stale air along with odours and pollutants and replaces them with fresh air to breathe.

Usually, ventilation is achieved by simply opening windows and doors (known as 'natural' or 'passive' ventilation) and by using extractor fans in steamy rooms such as kitchens and bathrooms. Although this works well, it can account for around one third of space heating energy demand in an average home as a lot of warm air flows outside. Draughts create a similar problem. While they serve to ventilate a home, they are a major source of heat loss and can make rooms feel uncomfortably chilly.

Modern energy efficient homes are more airtight (less draughty) than older buildings because they have to follow specifications for air-tightness in the Building Regulations. Because of this modern homes are sometimes fitted with **Mechanical Ventilation with Heat Recovery (MVHR)** systems also known as 'whole house ventilation' systems.



Condensation occurs when moist air comes into contact with a colder surface like a window.



The outlets for MVHR are small and unobtrusive, and look like ordinary extractor fans

Photos: droplets, Roey Ahram; shower, reproduced with permission from Passivent, www.passivent.com

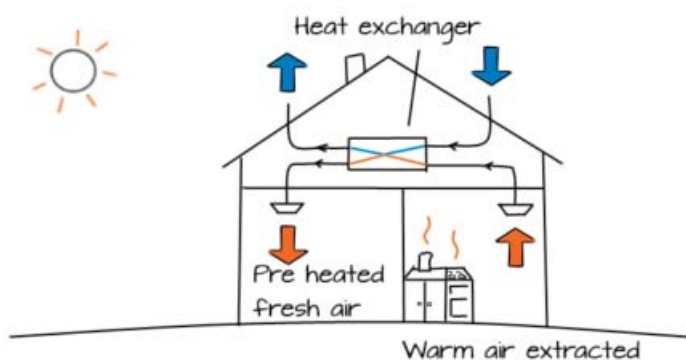
How do they work?

Whole-house MVHR systems extract warm, damp air from the home and draw in fresh air from the outside. The warm, extracted air is passed through a **heat exchanger** to recover the heat before being expelled outside. The cool, fresh outside air is also passed through the heat exchanger, without coming into direct contact with the pollutant air where it is pre-warmed before being pumped in to the property.

"MVHR works best in buildings that are relatively airtight, such as new-build homes or older properties that are being fully refurbished. Air tightness tests will show whether a MVHR system is likely to save you money."



continued overleaf ▶



Above: a mechanical ventilation heat recovery system at work: stale moist air is expelled from the home, but not before its warmth is 'captured' in the heat exchanger and passed on to the fresh air being drawn in.

These systems tend to comprise of concealed ducting in ceiling voids leading to the heat exchanger unit in the loft or another void in the home. Some units have an automatic or manual boost setting which can be used when generating excessive moisture whilst cooking or using the bathroom. **Air filtration** is commonly built into MVHR systems to prevent pollen and other particles from entering the home which then provides a more comfortable environment for allergy sufferers. Systems typically run continually at 80% efficiency and are inaudible during normal use.

Cost and savings

MVHR systems do require servicing as all equipment such as filters and fans must be kept clean to ensure effective operation. MVHR systems can cost in the region of £1500 to £3000 but an accurate quote can only be provided based on your individual property.

Because the fresh air is pre-warmed, heat loss from ventilation is largely avoided. This means the householder can spend less on heating their property, reducing costs by as much as £200, therefore saving money and ensuring a healthy, well ventilated home.

For more technical information see the website of the BEAMA: www.beama.org.uk

And to find approved installers, see the website of the Federation of Environmental Trades Association and search for the Residential Ventilation Association: www.feta.co.uk

Like this leaflet? There are lots of other energy advice leaflets at www.cse.org.uk/advice/advice-and-support

Tips for lower energy bills

Happy paying more for your electricity and gas than you need to? Course not. So here's how you can cut your bills:

Give your clothes a day in the sun and give your tumble drier a break. Clothes dried in the fresh air feel great, and there are drying days in winter, too.



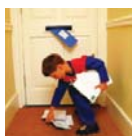
Catch 'em young. Encourage your children to switch off electric toys and lights that they're not using. They'll soon get the hang of saving energy.

Be a friend to your freezer. Defrost it regularly to help it run more efficiently.

Buying a new washing machine, TV or dishwasher? Look out for the Energy Saving Trust logo.



Don't over-fill the kettle (but do make sure you cover the metal element at the base).



Dodge the draught! Fit draught-excluders to your front door, letter box and key hole, and draw your curtains at dusk to keep the heat in.

Turn your heating down by 1 degree. You'll hardly notice the change in temperature, but it'll make a big difference to your heating bill.

Sleep tight. Make sure all the lights are turned off when you go to bed. If you want to light a child's room or a landing, use a low-wattage night light.



The Centre for Sustainable Energy's **Home Energy Team** offers free advice on domestic energy use to householders in Bristol and Somerset (including the unitary authorities of North Somerset and Bath & North East Somerset).

Call free: 0800 082 2234

Email: home.energy@cse.org.uk

Web: www.cse.org.uk/loveyourhome



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