case study

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Independent Heat Recovery Ventilation Specialists

It's a dog's life with heat recovery ventilation

Choosing a heat recovery ventilation system (MVHR) had unexpected benefits for one family in Edinburgh.

As well as improving the energy efficiency of the property and addressing health issues caused by condensation, the system helped reduce the level of odours. With two very large dogs and a busy kitchen, this had become quite a nuisance in the property.

The MVHR system was able to reduce the presence of odours because it constantly changes the air inside the building, which removes smells from cooking and of course large wet dogs!

The owners of the property were also concerned with Volatile Organic Compounds (VOCs). These are emitted by household items such as furnishings, paints, chemically formulated cleaning products and building materials. The Building Research Establishment (BRE) has found that potentially dangerous gases like VOCs along with carbon monoxide, carbon dioxide, nitrogen dioxide and radon pose serious health risks and can exceed the Government's recommended limits in many homes.

"Without an effective air management system, it means that air within a building can be as much as ten times more polluted than the air we breathe outside." ***(Building Research Establishment report).***

Lack of an effective air management system also creates a warm, humid environment that results in condensation, as well as an unhealthy and stale indoor air quality that can be detrimental to sufferers of breathing related conditions such as asthma as well as hay fever, eczema and bronchial attacks. Condensation can also result in dampness and mould growth, which leads to expensive damage to furnishings and the fabric of the property.

Fitting an MVHR system is a very effective method of tackling all these issues.

The heat recovery files

Client:	George and Judith McDermid
Project:	Refurbishment of 1960s bungalow
Ventilation:	Heat recovery ventilation
Heating system:	Gas central heating
Options:	Summer bypass to introduce an element of cooling due to the size of the 40m² conservatory
Local conditions:	Swimming pool in conservatory was creating high levels of humidity throughout the property
Construction:	Existing bungalow

" The heated pool was generating a high level of humidity in the home and we therefore needed a ventilation system that could tackle this problem – the MVHR system from ADM proved the ideal solution."

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With over 90 per cent of heat being recovered from the extracted air, latent heat from the pool area and solar gain from the conservatory further boosts the temperature of the incoming air. Feeding this heat back into the house as warm fresh air ensures that the homeowners are able to reduce the overall energy requirement of the property.

There was an additional reason for choosing an MVHR system in this property as the heated swimming pool in its 40m^2 conservatory was creating a very humid atmosphere. George McDermid, the owner of the property, explains: " The heated pool was generating a high level of humidity and we therefore needed a ventilation system that could tackle this issue - the MVHR system from ADM proved the ideal solution."

A welcome benefit of lower relative humidity is that it significantly reduces dust mite numbers and the allergens they produce, which has been shown to be detrimental to asthma sufferers. Pollen filters also ensure that the circulated air remains clean and fresh without having to open windows, which conserves heat and improves security.

The property has a variety of additional energy savings features such as a sun tube in the hallway and woodburning stoves.

George McDermid, concludes: " We are delighted with the MVHR system from ADM as it helped address our issues with humidity, creating a much more comfortable home. We have noticed a huge difference."

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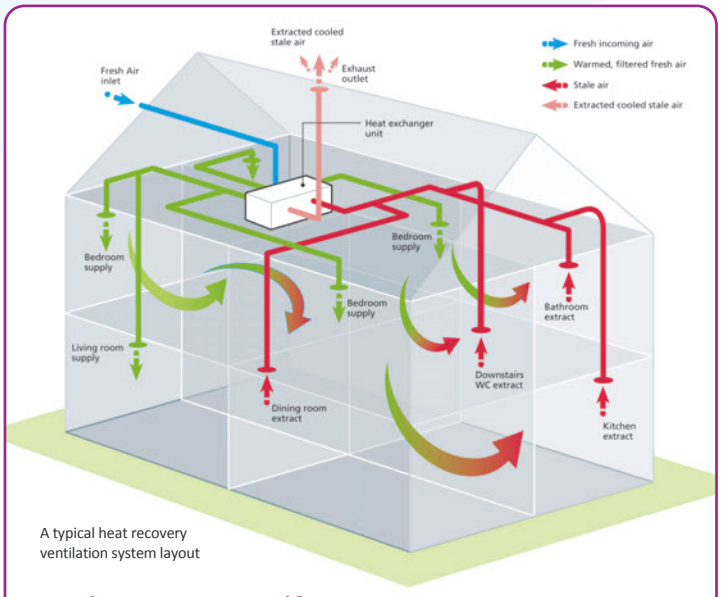

A typical heat recovery ventilation system layout

How do MVHR systems work?

An MVHR system collects stale moist air from the conservatory swimming pool, kitchen, laundry and bathroom - a typical household of four people like the McDermids can produce up to 18 litres of moisture per day, simply by breathing, cooking and washing! Unless checked this can lead to condensation, mould growth and, in some cases, it can damage the actual fabric of the building itself.

This stale humid air passes through the system and is exhausted to the outside. Clean fresh air is then simultaneously drawn from the outside and, as the two air streams pass each other, the heat is transferred from the outgoing stale air to the fresh incoming air. There is no mixing of air streams.

During winter, the system is able to capture over 90 per cent of the energy from the outgoing stale air before delivering it as warm, filtered, preconditioned air into the living areas of the property through the ducting.

The benefits gained by the McDermids include:

1. Constant background flow of fresh tempered air to the living spaces whilst extracting stale humid air, kitchen and dog odours as well as volatile organic compounds from carpets and fittings
2. Lower relative humidity, even with the heated swimming pool, reduces the house dust mite population, thus contributing to healthier internal air quality
3. Improved energy efficiency by 'recovering' solar heat gain during winter from the large conservatory
4. Comfort cooling in summer as the system expels warm air and draws in cooler air, without any transfer of heat

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