



Architect Sandy Hickey is no stranger to the benefits of an MVHR system, which is why she specified the latest energy efficient version from ADM Systems for refurbishment of her parents 'earth-sheltered' home in the Cotswolds.

The design of the home is 'a rectangle with a circle cut-out' - a curved frontage of glass facing south, along with windows to the three other sides - bringing in light from all directions. This property is unusual in a number of ways because most of the insulation is on top of the build like a thermal 'umbrella' that extends three metres past the sides. The house is built into a hillside, allowing the earth above and the sides to protect it from the heat of summer and cold of winter, saving on heating and cooling costs in the process.

As well as the thermal qualities of the structure, there is a ground source heat pump, located in two 35 m bore holes.

Sandy had originally designed the 260 sq m home for her parents around 10 years ago and at the time incorporated an MVHR system. Now that her parents have moved out Sandy is taking the opportunity to carry out a complete refurbishment of the MVHR system to bring the property up to current standards.

The ducting of the original MVHR system was the flexible variety and when this was removed during the refurbishment it became obvious that kinks and restrictions had developed. In fact, air wasn't even getting through some ducts as it had been so badly distorted. These bends, tears and holes were created by follow on trades. Sandy explained: "One of the reasons why we choose ADM Systems was because they recommended rigid ducting from the outset. After seeing the problems caused by flexible ducting we immediately knew this would correct the issue and give a smooth flow of air."

"My parents liked the house at 23-24°C, and there is a pool to heat, so no heating was not an option, as can be the case with some earth homes," Sandy stated. "Now they are in their 70s, my parents wanted to move somewhere where they don't have to drive so much."

Sandy added: "When my parents moved out of the house into a smaller apartment, we decided to refurbish it. After looking at all the various options in the market we chose ADM Systems because they demonstrated a much better understanding of our requirements."

“The great thing about the MVHR system is that it is able to recover heat from the swimming pool before feeding it back into other areas of the house as warm, fresh, filtered air.”

This ability to recover over 90 per cent of the heat from the outgoing stale air from the swimming pool area as well as heating in other areas of the house, has optimised energy efficiency of the heat pump.

There have been other benefits of choosing an MVHR system too. Indoor swimming pools have a tendency to cause condensation, leading to unsightly mould growth and subsequent musty smells and breathing related health issues. The MVHR system is able to tackle this by reducing relative humidity inside the property to below 70 per cent, which means all areas feel warm and fresh.

The ability of the MVHR system to lower relative humidity creates several health benefits for occupants. That's because house dust mites thrive where there is warmth and moisture - the airborne detritus that they produce has been shown to cause asthma and other bronchial conditions. The MVHR systems ability to reduce relative humidity eliminates dust mites and the problems they cause.

“We have been delighted with the MVHR system because it maximises the energy efficiency of our heat pump as well as avoiding issues with condensation in the pool areas,” said Sandy. “The most noticeable benefit of this is that it stops condensation forming on the windows and the house always feels comfortable and fresh”

Now that her parents have moved into a smaller apartment, Sandy has successfully let the property. “The current residents love the property and were very impressed with how comfortable it felt,” said Sandy.

The MVHR system provides a continuous low level of background ventilation that is designed to change all the air in the property approximately once every one and a half hours. This constant circulation of air avoids uncomfortable draughts developing by eliminating cold and warm air pockets that have a tendency to move around.

Following installation of the MVHR system in the 'earth' house, Sandy has subsequently chosen another ADM System for her parents' new apartment.

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