A recent Ventilation and Indoor Air Quality Task Force (VIAQ) report raises concerns about MVHR that need to be taken very seriously. "The Task Group considers that examples of failures in typical design, installation and commissioning practice are all too common and these will have the effect of reducing the performance of systems. Badly performing systems may not deliver the anticipated carbon savings and may result in degraded IAQ with related consequences for health."

It also commented that : "The Task Group noted that although good control is essential to the correct operation of systems, good practice in the design and provision of controls is uncommon. Clearly this needs to be addressed. Realising good performance throughout the life of systems also requires that maintenance is undertaken in accordance with manufacturers' requirements. In this regard the Task Group noted that many systems have been installed in locations, such as roof spaces, where access for user-maintenance is restricted. It also noted anecdotal reports that a market for replacement filters does not exist at present, which suggests that even basic maintenance is not being undertaken, possibly because users are not aware of the requirement for it."

AERECO: Expert says 'DCV more effective than CONVENTIONAL MECHANICAL VENTILATION SYSTEMS'

According to independent H&V consultant Dr. Chris Irwin, DCV systems are far more effective and energy efficient than their MVHR counterparts. Here he details the evidence and data.

Increased emphasis on SAP as house builders look for the most energy efficient method of ventilation has led to a situation where MEV and MVHR ventilation systems are perceived as the only systems that can ventilate air tight homes adequately and still meet Target Emission Rates (TERs).

We are half way towards the Government's target to make all new housing carbon neutral by 2016, but DCV, probably the most effective energy saving ventilation innovation proven to reduce emissions and slash running costs is left to languish on the sidelines of new build projects because the Code for Sustainable Homes (which DCV satisfies completely) is so tightly tied to SAP.

The SAP assessment procedure is only applied to 'recognised technologies', ie: mechanical extract ventilation (MEV) & MVHR; the "key" indicators of energy efficiency measured under SAP being specific Fan Power(SFP) and heat recovery efficiency through the heat exchanger.

DCV systems can't be measured against SAP as they provide variable ventilation depending on occupancy.

This state of affairs has left the not so effective MVHR in pole position simply because SAP has no methodology to measure DCV performance, which has unfortunately put the technology on the back burner despite its many advantages over MVHR in terms of better indoor air quality, energy efficiency, cost and ease of installation and operation.

Nevertheless, DCV is the system recommended in the 2009 NHBC report 'Indoor air quality in highly energy efficient homes – a review' which says: "The next drive by the industry will be for advanced controls and, in particular, for demand controlled ventilation (DCV). If the energy savings resulting from the potential reduction in fan operation and heat loss are to be realised, the 'building empty' and 'room empty' minimum ventilation rates must be determined."

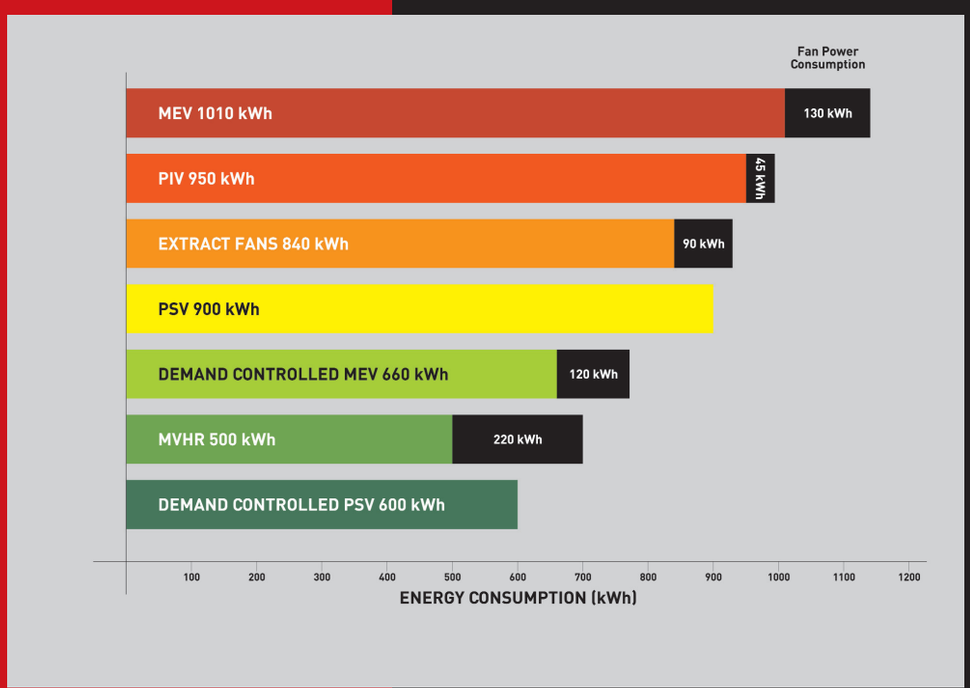
And now there is conclusive evidence that shows the impact of different ventilation systems on annual energy consumption.

The house used for this comparison is a typical 1930s two storey, three bedroom semi-detached property with three wet rooms. Typical air tightness for this type of property is N50 value around 7 m3/hr/m2 envelope area.

The annual heating season is taken to be 33 weeks long and for the purpose of comparison it is assumed that the property has a gas fired central heating system.

The research shows that the most energy efficient ventilation system is Demand Controlled PSV, followed by MVHR and thirdly, Demand Controlled MEV.

The three worst energy consuming ventilation systems are in the following order Standard MEV, Positive Input ventilation (PIV) and finally, Individual Extract Fans.



In SAP Q bench testing, MVHR meets all the Code criteria for energy efficiencies but in reality an installation turns in different results to a SAP bench test carried out in laboratory conditions. The problem is that for the technology to deliver the high efficiencies seen in the SAP Q tests, the dwellings must be air tight – and this is not happening.

At the Zero Carbon Hub conference in February, 'Progress towards 2016', Alan Gilbert of BSRIA informed the meeting that in 2011 BSRIA tested approximately 7500 properties for air tightness of which only 200 were to the 2010 version of the Building Regulations. In 2012 he estimates BSRIA will test 8000 to 10000 properties of which 1500 will achieve Building Regulations.

He went on to say that according to 'The Domestic Ventilation Compliance Guide Section 5.2' measurement of air flows should be performed using equipment that has been calibrated at a UKAS accredited calibration centre.

BSRIA Instrument Solutions is the only UKAS accredited calibration laboratory for evaluating air volume devices with a test facility specifically designed for products used on domestic ventilation systems. However, said Gilbert, Instrument Solutions has to date only calibrated three hoods and anemometers not belonging to BSRIA for air volume. "So who is measuring compliance and on what authority?" he asked.