



People power

HABM's **Mathew Thomas** takes a look at an alternative to mechanical extract ventilation and how SAP is overlooking an energy-efficient solution in occupancy-controlled ventilation systems.

It's been stated time and time again that before a contractor, specifier or landlord looks to install the latest in renewable energy solutions into a home that the property in question needs to be as energy-efficient as possible. The reason for this is simple: a home's energy efficiency has more impact on its CO₂ emissions than renewables.

With properties becoming better insulated the need for ventilation systems has grown. Contrary to popular belief, there is a viable alternative to heat recovery ventilation systems in dwellings and it has been used successfully in Europe for many years.

Reacting to demand

Demand Controlled Mechanical Extract Ventilation (DCV) can offer nearly the same performance as an 80% heat recovery system – at half the price. Working very much like lights operating via a motion sensor, a DCV system will vary the levels of ventilation in reaction to demand, rather than running

constantly or at regular intervals. The technology satisfies all the requirements of the Code for Sustainable Homes and, as the technology can be easily retrofitted, it is also ideal for refurbishment projects.



The government is proposing a 25% improvement in energy efficiency standards for buildings in the update to Part L of the Building Regulations, due in October 2010, alongside new Part F ventilation standards to take account of the higher air tightness standards.

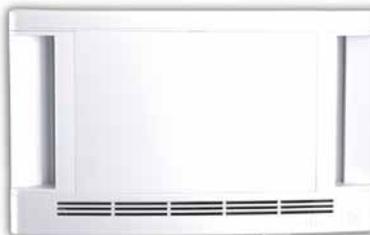
Aereco has been manufacturing its DCV systems for many years at its French manufacturing facility at Marne-la-Vallee. "Demand Controlled Ventilation is not a term that is heard extensively in the UK but our system is used in more than 2.9 million homes on the continent with no hint of problems," says UK sales director Colin Hone.

Hone points at a recent report by NHBC entitled *Indoor air quality in highly energy efficient homes – a review*. Published in July 2009, it states: '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.'

Social housing projects

"DCV is already here – the technology and product has been established for many years," says Hone. "It makes sense to install a DCV system in social housing projects because it ticks all the boxes both ecologically and cost-wise. There are no filter changes, no electricity is used to operate the system and it is virtually maintenance-free. In fact, they can be planned into the life of the actual building."

One of the biggest problems facing DCV systems at the moment is SAP Appendix Q. At present, the assessment procedure is only applied to what are deemed as 'recognised





technologies', namely: mechanical extract ventilation (MEV), mechanical extract with heat recovery (MEVHR), and specific fan process (SFP). Demand controlled systems can't be measured against SAP as they provide variable ventilation depending on occupancy – the exact type of system which is championed in the NHBC document.

One of the big downsides to heat recovery systems is that the filters must be changed annually. Another is that tenants and homeowners are often worried about the fans being switched on all the time; this may lead to tenants isolating them to save money and to cut down on noise levels. With whole-life cost playing a major part in social housing budgeting and specification, avoiding the investment of time and money in fitting new filters annually is a benefit.

The NHBC report mirrors Hone's concerns questioning whether the filters will be cleaned regularly and also points out that: 'The requirement for cleaning fan units and ductwork needs to be thoroughly investigated. Evidence from the USA suggests that a market has been created which is based on fear, with cleaning costs being high. The rate of build-up of dust and dirt within fan units and ducts in UK dwellings needs evaluating and guidance produced on good practice maintenance.'

Concerns over residents' health

Prior to this, a draft BRE study had already found widespread failure to maintain filters, sparking concern that airtight, energy-efficient homes could damage the health of residents. The BRE study also said: 'There is no market for replacement filters, with several manufacturers reporting no filter sales at all. Even basic maintenance is not undertaken.'

"Aereco's passive stack ventilation units incorporate humidity sensors on the grilles which automatically react to occupancy," continues Hone. "So when all the occupants are out of the house the system operates on a minimum, producing a trickle of air. When the house is occupied again the special humidity-sensitive grilles sense that and boost ventilation."



"Trials of the system are currently going ahead in a number of social housing developments: three six-month trials to see what happens with condensation in a new, air-tight house. So far we have had no problems whatsoever," says Hone.

"At the same time we are speaking to CLG about our DCV systems which we believe can make a significant, ecologically sound, cost-efficient, energy-efficient and practical contribution to achieving the government's zero carbon targets."

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