Energy saving ventilation

Colin Hone of Aereco deplores the SAP tick-box culture that debars tried and tested DCV technology simply because SAP has no methodology to measure its performance. Here he explains and argues for a proven method of domestic ventilation in air tight homes...

As we reach the half-way stage in the Government's plan to have all new housing carbon neutral by 2016, energy saving innovations to reduce emissions and slash running costs have been embraced by both the social and private housing sector.

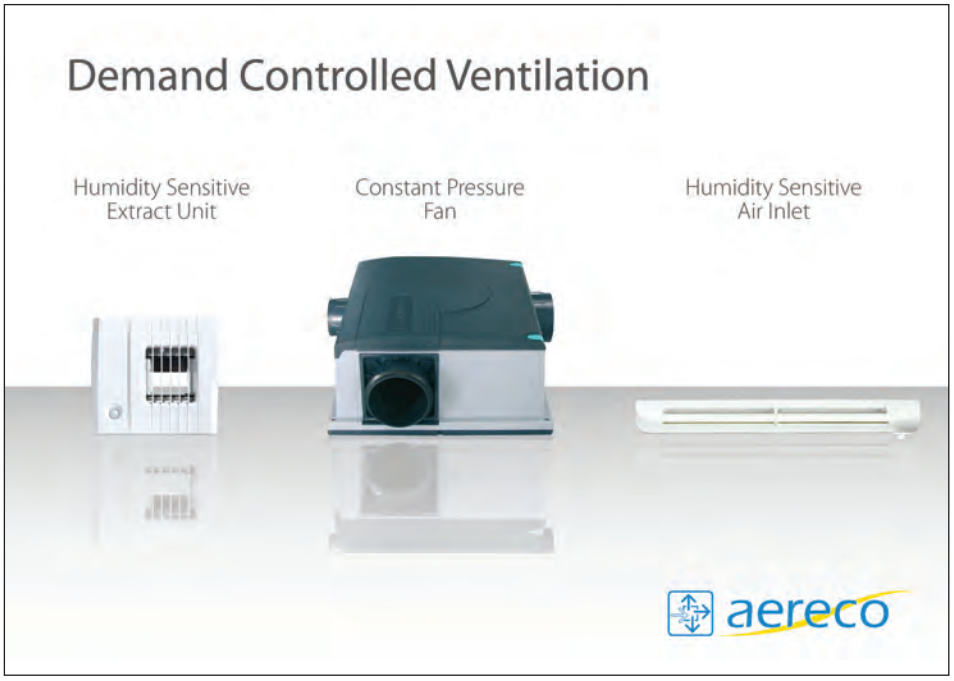
However, modern houses and apartments are now better insulated. In theory, they are also air tight, so efficient ventilation needs to deliver the best possible indoor air quality (IAQ) and this should be integral to the building process. This avoids subsequent problems with the fabric of the building (such as mould, condensation) and the adverse effects this can have on the inhabitants' health.

But as more and more airtight dwellings pop up all over the UK, what many industry experts see as the most efficient method – humidity sensitive demand-controlled ventilation (DCV) – is left languishing in the wings while mechanical ventilation with heat recovery (MVHR) takes centre stage.

A humidity controlled DCV system offers nearly the same

performance as an 80% heat recovery system – and at half the price.* The technology also satisfies all the requirements of the Code for Sustainable Homes. Humidity controlled DCV has been used in more than three million homes on the continent for decades with no problems. DCV incorporates humidity sensitive grilles and inlets that react to occupation so you only ventilate when and where required, a true zonal system that does not over ventilate like some flat line systems that operate the same when the dwelling is empty as when occupied, plus there are no filter changes. No electricity is used to operate our DCPSV system and it is virtually maintenance free. It ticks all the boxes both ecologically and cost wise.

True, in the UK, ventilation operates at a different rate to European specifications, but this is not a problem as DCV systems need no change or adapting to the UK.



The problem faced by champions of DCV – and there are many specifiers who are aware of its merits – is that there is no real recognition of the savings in reducing ventilation heat loss for it in SAP; quite simply there is no tick box included for DCV when it comes to totting up points.

Despite existing data from a two-year study in France** showing savings of up to 50% over a standard MEV system plus a BRE study undertaken 15 years ago that clearly showed energy savings of 17-40% in the case of PSV, DCV still doesn't appear in SAP.

At the recent Zero Carbon Hub conference, where the theme was Progress towards 2016, 300 industry stakeholders heard Stewart Baseley, executive chairman, Home Builders Federation, say: "Because of the demanding standards entailed in zero carbon policy it is essential we have a model of SAP that is fully and properly fit for purpose. Without this, builders are in the invidious position of having to design buildings that they believe should deliver the performance that is expected but subsequently discover, though no fault of their own, that actual performance is not what is predicted."

In SAP bench testing MVHR meets all the criteria for energy efficiencies, but in reality, in situ, you don't get the same performance. An installation turns in different results to the SAP bench test carried out in laboratory conditions. The unfortunate conclusion is that Baseley is right: what SAP says on the tin doesn't happen when installed.

Demand controlled systems at present do not benefit from their energy saving controls which are occupancy driven, the SAP test is based on SFP (specific fan power), which unfortunately does not tell the whole story of how a system performs.

DCV is the system championed 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."

This proven energy saving technology is being lost to organisations and people who can benefit from it simply because SAP has no methodology for measuring its performance despite testing by BRE 15 years ago.

Another worrying aspect of this blindness is that later this year, when existing properties come into the scope of the Green Deal, specifiers will still be looking to MHRV simply because it is a tick box for SAP even though it is not fit for purpose for the scheme.

The Government could save £millions by encouraging the social housing sector to specify DCV systems to give them valuable long-term savings. DCV can be approximately 50% cheaper to install and has no filters to replace or maintain. The benefit of humidity controlled PSV is that it is a product that can literally be fitted and forgotten – for up to 30 years.

Specifiers and contractors must take an informed view and consider all options and put pressure on the Government to have SAP overhauled so it recognises the technology of DCV and offers a level playing field for all energy saving ventilation products to be judged fairly.

*Price comparison is based on a standard Aereco DCV system versus a standard heat recovery system: products plus installation.

**The Performance project (undertaken by the French Environment and Energy Management Agency ADEME in 2006).

ENQUIRIES

For more information about AERECO use any of the enquiry methods below quoting number BS222