

# EC does it – technology that ticks all the boxes

There are pressures to lower carbon emissions, but with the potential of a double-dip recession, particularly in the construction industry, lowering costs is also a priority, says **Andrew Sargent**

**GENERALLY** speaking, you can't have your cake and eat it – life's not like that. But when it comes to lowering carbon emissions on terminal air conditioning systems, it can be done with little or no cost penalty.

The ubiquitous fan coil systems that have been around for over 50 years have recently been given a new lease of life with the development of ec motor technology. Over the last five years, extensive use of the ec motor has meant that very few new ac motor fan coil systems are now being installed.

## Difficult and cumbersome

Previously, with ac motors, speed variation was difficult, expensive and sometimes cumbersome, and the norm was to run machinery at constant speed. However, the fluctuating heating and cooling requirements of a building needed variability in air flow and water volumes.

Nowadays, fans, pumps and fan coils are fitted with ec motors for two very important reasons. First, the ec motor is much more efficient than ac drives and secondly, with ec drives, it is simple to vary the speed over a wide range of duties and still maintain the higher efficiencies.

In the past with ac fan coils, constant speed and constant air volume units were used. So, the fan coil would be running full speed irrespective of the actual room requirements, since these were adjusted by changing the water flow rates or temperature.

The carbon emissions using ec fan

coils with variable air volume are a staggering 90 per cent less than the equivalent constant speed ac unit. While the ec fan coil costs are slightly higher than the basic ac models, the payback period is measured in months rather than years and cost is therefore not an issue.

It is not surprising to find that the latest BSRIA statistics bear out these trends making, for example, the market size for fan coil units now almost three times larger than chilled beams. So we are witnessing the renaissance of the fan coil unit, but what about the future?

The pressure to reduce carbon emissions is not going away and we know with successive building regulations the commitment is to force higher efficiencies from all items of plant in the air conditioning system. The efficiency of the fan deck within the fan coil unit could be enhanced with new ec motor developments. Also, the configuration of the fan deck could be changed to allow the use of larger motors and horizontally mounted fans.

Fan coil units are well liked by consulting engineers because they are familiar with the design process and the unit itself gives greater flexibility of output even in situ. Although carbon emissions are a very strong market driver, cost, as I



Sargent: "A high proportion of commercial buildings are property developer-led"

mentioned at the beginning of the article, will always be a key issue. The design of the fan coil makes it a relatively simple product and as such compares favourably on cost with other terminal air conditioning systems.

A high proportion of commercial buildings are property developer-led as opposed to the occupier owning the building. The developer therefore needs a terminal air conditioning system that can meet the varying

cooling loads of different tenants and provide flexibility within the offices and centres of future partitioning.

EC fan coil units tick all the boxes and I predict they will outperform other terminal air conditioning systems in terms of popularity, sales, and market volume, by a very long way, for a very long time.

// The author is general manager of Advanced Air //