

Chilled ceilings: responding to climate change

The technology offers considerable advantages over conventional air conditioning systems, says *John Staunton, Brand Manager, SAS International*

IT IS NOW GENERALLY ACCEPTED that some degree of climate change is inevitable. However, it could happen faster than previously predicted – and finding a more eco-friendly workplace cooling and heating system is a key challenge. Buildings must somehow be kept within certain comfort parameters without generating excessive carbon dioxide emissions and must be designed to help minimise energy consumption.

Room comfort is not solely about meeting temperature guidelines; a good supply of fresh air and a consistent ambient temperature should also be achieved. Negative elements of traditional air conditioning relating to room comfort include significant air movement and noise, which can pose problems.

Natural ventilation methods are increasingly being used as energy efficient alternatives and it is the use of chilled ceilings and/or beams which ensure such systems can cope in times of extreme summer heat. Minimal air movement is achieved alongside good air quality and a reduction in noise – all key benefits, given that many studies link the environmental conditions and comfort in the workplace to productivity

So is a revolution underway? Fan coil units are still the preferred option for conventional air conditioning, particularly within offices, but industry professionals are increasingly taking more notice of the low running costs, sustainable credentials and aesthetic and space saving benefits that using chilled ceilings and beams can offer.

Drivers for this include recent amends to the Building Regulations Part L. However, the architectural arguments currently seem to carry more weight. Why resist a solution that provides a flexible means of delivering excellent comfort control and low energy consumption all in a discreet way without the bulky and unsightly duct work associated with air conditioning?

Chilled ceilings and beams provide overhead cooling that achieves good occupant comfort – as they generate minimal air movement and remove the obtrusive noise generated by mechanical alternatives. Fewer moving parts guarantee a long product life and the system's low energy credentials offer considerably reduced running costs.

Such water based systems are environmentally very attractive, particularly in light of recent controversies



over the aggressive effects of modern synthetic refrigerants used in air conditioning. The water supply temperature typically needs to be only 14 or 16°C, which allows the use of cold water storage or free cooling from outside air for a proportion of the year. Options also exist for ground sourcing technology. As a result, a much better energy performance is possible. Chilled beams work on a similar principle, there are active or passive stand alone rafts that can be used without suspended ceilings.

While chilled ceilings and beams will not be appropriate for every building, they can be applied to most office developments both for new build and refurbishment projects. In many respects the solution is ideal for refurbishment applications, given the low installation height requirements and the flexibility it offers the office manager when it comes to reconfiguration of space.

Owner occupiers are quick to see the benefits, especially given rising fuel prices and environmental levies – but it is speculative developers who need to consider the whole life cycle cost and energy efficiency criteria. ■

SAS International designs and manufactures a wide range of metal solutions including suspended ceilings and prefabricated modules which are available in a variety of different colours and finishes and have an expected lifespan of over 25 years. The company has designed, manufactured and installed over 250,000 sq m of chilled ceilings. For further information, visit www.sasint.co.uk or call: 0118 929 0900.