

Cool by design — services all in one

.....> Integrated service modules based on chilled ceilings have the potential to transform building design and project management. **ANDREW JACKSON** explains.

A development of the chilled-beam concept, integrated service modules (ISMs) incorporate multiple services into a prefabricated module that can be used where an open soffit ceiling is preferred to the traditional suspended ceiling.

Tailored to a specifier's individual requirements, ISMs generally include chilled beams, luminaires, and a variety of other services such as sprinklers, voice, data and public-address systems, smoke detectors, computer and mains electric cables, PIR sensors, CCTV, Bluetooth and even fresh air.

While ISMs are not appropriate for every building (each project should be judged on the characteristics of the development and the demands of the occupants) there is no reason why this technology cannot be applied to most new and refurbished office developments. Other applications include universities and libraries.

The 'designer' look

In the absence of suspended ceilings ISMs, if correctly utilised, have the potential to change the face of office design. They offer architects greater flexibility to create aesthetically interesting spaces and consultants the performance they require. ISMs are increasingly being developed with this design element in mind, whilst ensuring that performance is an equal consideration.

Instead of opting for standard designs, archi-



Demonstrating the capability of integrated service modules to integrate all the functions of building services and a conventional suspended ceiling into one compact unit is this installation for Imperial College in London.

ts are making a design feature of ISMs by specifying bespoke casings for the modules. However, this approach requires co-ordination between architects, service engineers and the

ISM manufacturer at the early design stage to ensure the correct balance between aesthetics and performance is achieved.

ISMs require details concerning the connection of services into the main distribution ductwork, pipework and cables to be determined in advance, and it is imperative that ISM manufacturers work closely with the entire design-and-construction team to ensure that any future changes do not impact on the performance on the modules.

Time and cost savings

By locating all services in a single prefabricated unit the cost, time and effort involved in building-services installation is greatly reduced. ISMs are delivered pre-tested as complete units that fit together onsite, greatly simplifying a procedure that usually involves the co-ordination of multiple sub-contractors all competing for space in the ceiling void. Reducing manpower and the number of parties involved, combined with savings made by the consolidation of manufacture means that ISMs offer a significant reduction in capital and manufacturing costs and installation time. Fixed production, delivery and installation times also greatly reduce the risk of project over-run.

In the past, developers have tended to keep capital costs low to provide the best return on investment. However, a system's running, maintenance and replacement costs are of increasing interest to tenants — and are often key in the decision-making process. In addition, many developers do not realise that with the introduction of the revised Part L in April this year, the first tenants in new commercial build-

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ings will need to show compliance with Part L2A too — changing how developers need to design and market buildings.

Various reports have shown that chilled ceiling and beam technology, which is used within ISMs, offers reduced running costs over conventional air conditioning — 60% in some cases. With energy efficiency and climate change becoming increasingly important and potential hikes in energy prices on the horizon, it is no wonder that such figures are increasingly used when comparing different building-services options.

Reduced maintenance costs can also be expected with ISMs due to the lack of moving

parts. When maintenance is required, the co-ordinated nature of the module and easy-access panels greatly simplify the task.

More space

As ISMs integrate all the functions of building services and a conventional suspended ceiling into one compact unit, the floor to ceiling height is effectively increased. In new buildings, this can significantly reduce overall construction costs because the height of the building can be lowered or additional floors can be constructed.

ISMs also allow the successful refurbishment of 1960's buildings with their typical low ceil-

ings and can easily accommodate changes in the use of space. New partitioning and layout requirements can be integrated with minimal re-adjustment.

Persuasive as these arguments sound, the message has to a certain extent fallen on stony ground — especially with developers. However, the changes to the Building Regulations outlined above and the increased interest that tenants and owner occupiers have in energy efficiency should change this. **MBS**

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