

Simon Ward,
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Distech Controls,
explains why it is
important for
system integrators
and building
services
consultants to
consider specifying
a modular control
system that is
easily adjustable
and adaptable to
the changing needs
of the building and
its occupants.

MODULAR CONTROL SYSTEMS

Modularity is the key to adaptability

According to the CIBSE TM24 (Environment Factors Affecting Office Worker Performance: Review of Evidence) document, approximately 80% of the UK workforce now work in an office. The report also identifies how the physical environment affects productivity in the workplace.

The findings show that an increase in employee productivity of up to 20% with appropriate lighting, up to 50% with appropriate temperature settings, and up to 9% is achieved when occupants are provided with control over their environmental settings. Ensuring occupants work under the right conditions is vital but how do you guarantee these factors are met when the layout of the office changes or new occupants take over the building?

This is where a modular control system can come into its own. This type of system can bring about cost and energy savings and is ideal for commercial buildings that are subject to changing layouts and where control of a range of HVAC, energy management, lighting, security and other sub-systems is required. A modular controls package should be recommended from the very beginning of the project and is easy for system integrators and building services consultants to install and monitor.

We spend a lot of time and money planning, designing and constructing a building but the vital part that is often forgotten is what use the building will have after it is completed. A lot of effort goes into creating an energy-efficient building that has the latest technology and will save the building owner money as well as managing the plant. However, if the occupants that use the building are not applying the technology correctly or it is not set up in the way the original plans suggested, the energy efficiency requirements will not be met. We need to take a long term view and carefully consider what the building will be used for immediately after construction and in the future.

Office churn

What if the occupants change? We have all heard of 'office churn' and the effect it can have on not only the layout of the building, such as the position of room partitions and furniture, but also what it means for the electrical and environmental comfort systems. The cost and time it takes to reconfigure the control system to suit the new needs of the building can be onerous and put building owners off making the required investment in an effective and versatile control system. A modular system negates these factors by allowing system integrators to easily and simply access the control system and add the expansion modules that are needed whilst also thinking about building life cycle and its evolution.

A recently completed project, the Incity tower in Lyon, France uses a Distech Controls' modular controls solution. The skyscraper office, which peaks at 200m and is 40,000sq m in size, is the highest tower in Lyon and the third tallest in France. It is also one of the first high-rise constructions labelled as a Low Consumption building and has achieved High Environmental Quality (HQE) and BREEAM Excellent certifications. We have installed a BACnet based Smart Room Control solution, which is an all in one system for the control of HVAC, lighting and blinds.

Energy performance

The project brief had three essential elements: it had to be a modular controls system, would give great energy performance and had to use the BACnet protocol. The Smart Room Control solutions installed in the building allows the control of the HVAC system, lighting and sunblinds in each individual office space. This unique and modular solution, based on open standards, allows the occupants to have greater comfort whilst also providing the energy efficiency savings the building is required meet. Importantly, the total life cycle of the building was also considered so that the property could continue to function at optimum levels over the long term.

As one of the integrated systems, the EC-Multi-Sensor Series, designed as a '4-in-1' communicating sensor, combines a motion detector, light sensor, temperature sensor and an infrared receiver in one single compact device. Ideal for low consumption buildings, the sensor optimises energy use according to the building's conditions and occupation. Motion sensing, temperature measurement and occupancy detection monitors are used to gauge the optimum heating, cooling and lighting settings at its most energy efficient level.

An all-in-one system that lightens the network's infrastructure reduces the number of BACnet MSTP routers since there is only one device per room. Only one main HVAC Controller has to be configured to enable all functionalities in a room. The lighting and sunblind expansion modules operate as soon as they are connected and powered by the main HVAC controller. The Smart Room Control solution provides seamless integration, lower operational and maintenance costs, and energy savings.

Integrators, building owners and operators will all benefit from a solution that can simplify the control integration and operation process, whilst at the same time, ensuring improved energy efficiency and occupant comfort. By combining and allowing for the expansion of numerous functions within a building including HVAC, lighting, blinds, access and security, and power monitoring, you can create a truly modular solution.

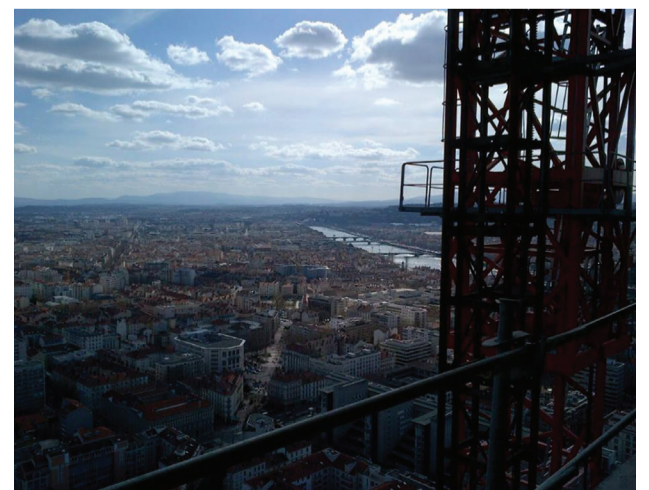
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► The ECLYPSE controller series utilise BACnet/IP and IT standards, delivering empowered IP connectivity and open integration with building management systems. Choose wired IP, Wi-Fi, or combine both on a same controller to suit the building's infrastructure, architecture and layouts.

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