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The five-star experience enjoyed by guests at the newly refurbished InterContinental London Park Lane, is due in part to a Trend building management system whose duties extend from individually controlling the air conditioning in each of the hotel's 447 bedrooms to monitoring its supplies of wine and champagne to ensure they are always at the right temperature. Supplied and engineered by AES Control Systems, the BMS is also set to play a vital energy saving role.

The InterContinental's £76 million refurbishment has left it with eight floors of elegant guest rooms and suites. Among its amenities are two new restaurants, a 300m^2 spa and a magnificent ballroom that accommodates up to 750 people. All rooms and communal areas are controlled and monitored by the Trend BMS, which comprises some 600 IQ controllers of various types, including Ethernet and LonWorks based units. These operate together as a single, integrated system.

Every guest room is fitted with a fan coil air conditioning unit with an IQL controller. Connected to the IQL is a Trend RDU (room display unit). Through this, the room's occupants can adjust both the temperature level and fan speed (to high, medium or low). To avoid unnecessary use of energy, AES is interfacing the BMS with the hotel's Fidelio front office system so that when a guest checks

out, the fan coil unit in their room will be automatically switched to a setback condition. The IQL will close the unit's heating and cooling valves and only modulate one or other of them open again if the space temperature goes outside preset limits. When the next guest books in, the fan coil will revert to the settings entered by the previous occupant.

Further IQLs control fan coil units in the hotel's spa, gym, offices and meeting rooms. These and the controllers in the guest rooms are distributed across 17 LON communication busses, which link via routers to the BMS internetwork that runs throughout the building. Also connected to this is an Ethernet network supporting IQ3xcite controllers that regulate the hotel's 20 air handling plants – all of which are new – and its boilers and chillers. Where possible, air is recirculated to minimise energy consumption. Fresh air volumes are also controlled to

maximise the use of available free cooling. The IQ controlling the car park extract fan varies its speed in accordance with CO_2 levels, a further check on power consumption.

Other IQ3xcites monitor the basement and ground floor cold rooms, which include food preparation and wine storage areas. They generate an alarm if high or low temperature limits are breached. A number of IQ2 series controllers switch corridor and external lights – the latter on the basis of photocell readings – and also log the readings from 15 electricity meters, which will enable the hotel to identify any areas of over-consumption. These meters measure usage in locations such as the laundry, kitchen and guest rooms.

The IQ2s are networked together on two Trend LANs. Like the Ethernet and LON networks these are linked to the internetwork. The whole system –
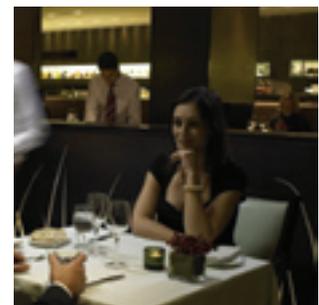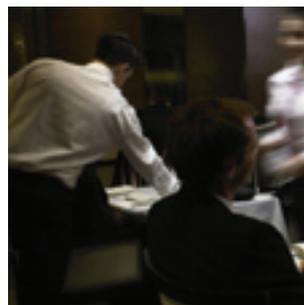
which comprises over 5000 input and output points – is centrally managed from a Trend 963 supervisor located in the hotel's maintenance department, which is manned 24/7. Through the supervisor it is possible to view monitored data from all the controllers on the system and adjust their control settings.

Occupation times for the meeting rooms and other communal areas with irregular occupancy patterns are set up on the system supervisor a week in advance and reviewed on a daily basis. This ensures that the air handlers only operate when they are needed. The number of hours run by each air handling unit is logged by its IQ controller and the totals are viewable on the supervisor. The fan drive belts are renewed after a set number of running hours, which obviates the need to carry out routine inspections and reduces the risk of plant suddenly being lost as a result of a broken belt.

Another way in which the BMS helps to ensure high plant availability and reduced maintenance costs is by means of an automatic valve exercising routine performed by the

air handler controllers. Should a valve not have opened by more than 10% in any 24hr period, and the plant is shut down, it is driven fully open (being returned to its original position after 15 minutes). This prevents valves seizing through corrosion.

The IQ controllers on the boilers and chillers and those associated with the meters were installed prior to the refurbishment and were not supplied and engineered by AES. However this did not present a problem, as it is a simple matter to upload an IQ's control strategy. It was thus unnecessary for AES to get hold of copies of the controllers' software or, worse still, write the strategies again.

With over 500 IQLs to install and commission, AES was keen to find ways of speeding up the process. They thus decided to bench test and address the controllers on their arrival on site, effectively commissioning them before they were installed in the guestrooms. Consequently they did not have to wait for the rooms to get power to prove that the IQLs were working. Nor did they have to do the job with other trades working around them.

This is the second Trend system to be installed at the InterContinental London. The first, which has now been taken out of service, was commissioned in 1991. As the hotel's Director of Engineering, Paul Carr explains: "It was our experience of that first system that led us to specify Trend again. The on-going support that the company can provide was important to us too. We've also been impressed by AES, and not just because of their ability to tackle a project of this scale. They've also shown that they care about their client's interests."

Mr Carr is a firm believer that a BMS must undergo regular maintenance "If you depend on system monitored data then you have to be confident it is accurate". The hotel has thus taken out a Service Level Agreement with AES (who are a Trend 'IQ Assured' Accredited Partner) that not only provides emergency breakdown cover but also twice-yearly system check-ups. Trend's service division will support them in this, dealing with any out-of-hours faults. If these can't be rectified remotely, a service engineer will visit site (within 4hrs).

Other InterContinental Hotels with Trend building management systems include those in Sydney, Jakarta, Lusaka, Berlin and Frankfurt.

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