

CASE STUDY

TREND GAINS ANOTHER PLACE AT OXFORD

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Oxford University's newly opened Said Business School has been praised for its imaginative and well thought out design. Much thought has also gone into the building's HVAC services and the Trend BMS – supplied and engineered by AES Control Systems Ltd – that controls and monitors them. Some 50 of the university's buildings now incorporate Trend control systems.

Built on a brownfield site opposite Oxford station, the £37million Said Business School has many of the architectural features seen on older academic buildings in the city, including a central quadrangle, cloister, tower and gate. It remains though a very modern looking building. It is also a large and heavily serviced one.

One of the design criteria for the space heating/cooling services was that they should be hidden from view. As a result, underfloor heating has been installed in a number of areas, while in the school's many offices there are chilled/heated beams (built into the light fittings). The latter meet another important requirement – that the type of plant used should be energy efficient. So does the use of condensing boilers and air handling units with adiabatic cooling and heat recovery. The installation of a full Trend building management system is another illustration of this desire for energy efficiency.

The system comprises 86 network-linked IQ controllers in a range of sizes. The largest are IQ251s, a model that can have up to 128 input/output points. These are used for such tasks as controlling air handlers and for enabling, sequencing and monitoring the building's large boiler plant. At the other end of the scale, 11-point IQ212s provide individual, weather compensated control of the underfloor heating circuits.

Similarly sized IQ211s are responsible for automatic opening of windows to allow night cooling during the summer; this routine is activated if the space temperature is above 22°C and it is at least 3°C less outside.

The ACP-made air handling units that serve the school's seven lecture theatres are each controlled by a 40-point IQ241. These were factory-fitted, though like the rest of the system's IQs they were configured by AES. It is the lecture theatre AHUs that make use of

adiabatic cooling, under which a water spray reduces the temperature of the exhaust air stream, which then transfers 'coolth' to the supply air. The IQ241 only brings on a unit's DX refrigeration section if cooling demand can not be met by the adiabatic cooler alone.

Other plant that is IQ controlled and monitored includes a further five large air handlers, the 60 or so chilled/heated beams, plus fan coil units, trench heating and kitchen and toilet fans. The school's entertainment suite is served by Hiross air conditioning units that have their own controls. These are though interfaced to the Trend system, enabling the latter to set operating times and monitor for faults.

The system's main operator interface for accessing monitored data and entering control settings is a Trend 945 supervisor. The 945's calendars task provides an easy-to-use tool for entering and changing the occupation times of the various parts of the school,



thereby ensuring that areas are not fully heated or cooled when not in use. This is a particularly valuable facility in a building of this type where many of its areas – such as lecture theatres and seminar rooms – have intermittent occupancy.

The building can also be remotely monitored, via modem, from any of three 945s within Oxford University's Surveyors' Office, any alarms being automatically transmitted to them. Most of the Trend systems in the other university buildings can also be accessed from these supervisors.

As the number of systems has increased so too has the volume of monitored data traffic. As a consequence the Surveyors' Office is now looking to make use of the University's Ethernet IT network as a means of providing fast data communication to the central supervisors. This will gradually take the place of the modem links that are currently used.

In addition to the BMS for the Said Business School, AES has supplied a number of the University's other Trend systems – including one in the Bodleian Library.

The building services for the business school were designed by Whitby Bird & Partners. The main contractor on the project was Holloway White Allom and the mechanical contractor F G Alden. The architects for the building were Dixon and Jones.

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