



### Location

Stockport, Cheshire, England

### Client

Mitie Engineering Services Ltd

### Project at a glance

Integrated BEM & Security Systems

Continuum BACnet  
Cyberstations with a  
Centralised SQL database

Mechanical & Security  
Systems, Control Panel,  
Design & Manufacture

Complete Associated  
Electrical Installation by BTS  
Installation Electricians

Full Commissioning of all  
BEMS & Security &  
Integrated Systems

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The Control system installed within this project is a TAC, Continuum System, which operates from a single centralised SQL database with numerous workstations and Web Client facility, providing the end users with various interfaces to manage the colleges personnel records and systems. The centralised SQL server provides integration with the colleges room booking systems and personal data bases.

There are numerous Mechanical & security control panels located around the building, which provide all monitoring and control of the integrated systems. The control panels communicate across the colleges IT infrastructure, so they can be accessed, from workstations or Web browsers from various locations.

The CCTV system is an IP solution with all internal cameras utilising power over Ethernet (POE). Centralised NVR's and additional hard drive storage devices provide the end users with all recorded video evidence from the previous 28 Days. All control of PTZ cameras can be done from Integrated workstations, dedicated security CCTV PC's running DS Control Point software or via web browsers direct into the cameras.

The Intruder Alarm System is configured from Access control door contacts, maglock read switches and the lighting control system PIR's and Microwaves, preventing the need for a separate Intruder Alarm system.

All fan & pump motors are Bacnet drives which are fully networked to the BMS so all parameters can be seen from any supervisor.

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**Systems**

BEMS

Access Control

CCTV

Intruder Alarms

Mitsubishi Bacnet Integration

Lighting Control Bacnet  
Integration

Gents Fire Alarm Bacnet  
Integration

Metering and monitoring

**Controllers / Points counts**

2 - Andover Continuum Supervisors

1 - SQL Server

23 – BACnet ABB Drives

36 – BACnet Controllers

2 - BACnet/IP interfaces to lighting system & Mitsubishi air conditioning system

13 – Modbus RTU Electricity meters

1 – Modbus / 232 interface to Gent fire system

35 - IP Cameras

39 – Access controlled doors (Including Passenger & Goods Lifts)

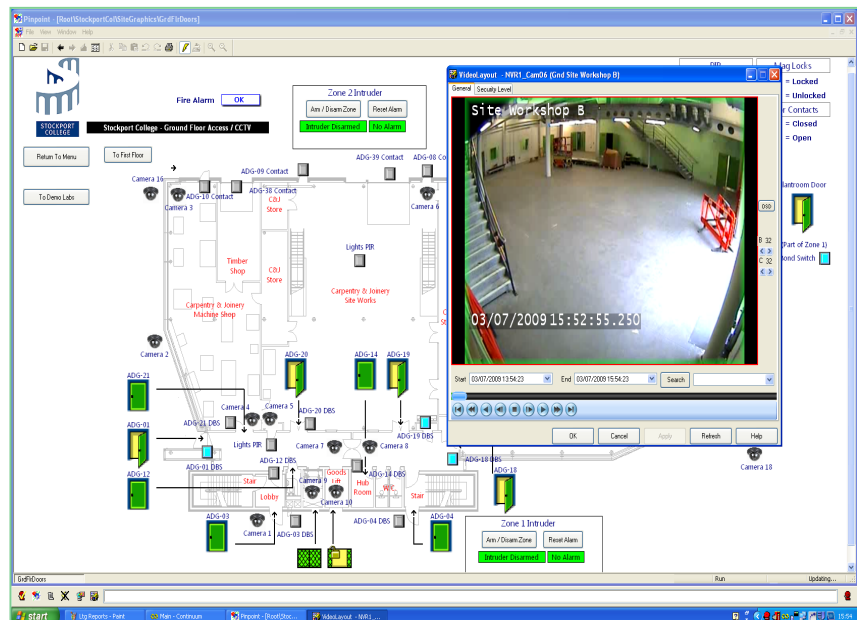
465 – Plain English programmes

1601 – BEMS monitored & controlled points

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# Stockport College spend first Christmas in brand new green and intelligent building.

## By Richard Everett of Intelligent Builders Ltd

After many months of preparation Stockport College's new 10,000 sq meter intelligent building is now being used to prove the efficacy of an integrated approach. The building (Phase 1 of 3) is testifying to the fact that integrated design can result in cost savings in CAPEX, OPEX and Life-cycle costs.

Richard Everett of Intelligent Builders Limited, a specialist consultant in intelligent buildings in education, commented "This building is the first truly intelligent building that I know of in the Further Education Sector – it is a model for the sector to follow in achieving its aims of creating economic, effective, efficient and efficacious learning environments for the future." The building encapsulates the college's mission of "Shape the future at an outstanding college" with a building that exemplifies that ideal.

The building is occupied by Construction and Engineering departments and staff commented that "there is a definite pride in the building" from both staff and students alike. The lighting was one element and as you walk into a room the lights switch on, and more importantly off again when you walk out. Equally the heating was responsive. A positive effect could be seen on teaching methods that were being enhanced by the innovative use of the building. Staff work on the Cisco WiFi system allowing them to utilise modern teaching methods including, for instance, tracking students' attendance with automated registration facilities. One lecturer on the gas course run by the college commented "if technology makes life easier for you it will get used" the building demonstrates that fact. One challenge was the noise created by plant while staff were demonstrating, or delivering, underpinning knowledge and this is

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where the nature of the controllability of systems in the building comes into its own. With relatively minor tweaks the system allows for staff to temporarily turn this off to allow instruction to take place. Staff were complementary of the response by both consultants and contractors to these educational challenges.

Laura Dunlop, Head of Design at Operon M&E consultants to the project (now re-established as Environmental Design Consultants Limited) commented on heating challenges experienced with the project. A cold spell proved the capability of remote control of the system. A heating valve was inadvertently closed preventing the heating from working properly – this was diagnosed, identified and fixed by BTS remotely from their Warrington facility 30 miles away. Any such system glitches (and emerging issues) such as this are now capable of being responded to in this way, with obvious associated ‘cost’ and ‘green’ efficiencies. Laura commented that the implementation experience had been even better than she had expected – “this was down to the M&E consultants and Integration contractors (Operon and BTS) working closely together”.

Graham Spark from Building Technology Systems said that planning had taken place from the very beginning of the project to include the concepts of a green approach (low carbon), space efficiency on a smaller footprint, using clever applications to deliver smaller CAPEX cost, lower OPEX with no vendor lock in, and reduced lifecycle costs. He said that this had been the “key to success” as the “integration specification was included as a crucial part of the M&E specification” with an intelligent building compliance document included as a key appendix. This stopped arguments as to what was in (or out) of scope, or for future delivery, and prevented the loss of these key elements at the value engineering stage.

On the lessons learned Jon Huyton from BTS commented that they had “underestimated the need for training on systems for key personnel at the college”. The advent of such intricate systems brings with it a need for all college staff involved to be up skilled to gain the best value - that is from college management through to engineers, IT and estates personnel.

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The feedback from the college was very positive citing that the security system was very easy to use and gave access to incredibly detailed data – such as locations and status of doors, cameras, fire alarms etc and the ability to drill down from a simple plan diagram into the detail ‘hidden’ below.

The work of those staff has changed considerably and this is where training is really key, both from concept stage, through to response strategies in case of incident. In many cases estates staff need a higher level expertise in IT usage than would have been previously necessary in their roles. These staff are now having to cope with the complexities of systems that control the BMS, Access and ID, CCTV / Security, Fire, Lighting, Heating Ventilation and Air Conditioning, Metering and monitoring supplies (of for example Gas and Electricity) all working over an integrated IP network infrastructure.

**Further information**

The architects for the building were ASL, M&E consultants were Operon (now re-established as Environmental Design Consultants Ltd). The build Contractor was Waites with M&E contractors Mitie. The integration aspects of the project were delivered by Building Technology Systems Limited.

Intelligent Building systems included fully integrated Continuum cyberstations integrating with: Gents Fire alarms; Dali intelligent lighting; Mitsubishi BACnet over IP; Standard BMS plant; Modbus metering; Pelco camera systems; Digital sentry; IP access control multifunction panels with Desfire ID cards.

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