

CASESTUDY

HMRC | Newcastle – UK

Central control of 1million sq feet across 24 buildings



HM Revenue and Customs was formed on the 18 April 2005, following the merger of Inland Revenue and HM Customs and Excise Departments providing the opportunity to create a modern, effective revenue collection and enforcement department.

01 HMRC
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Projekt Overview

HMRC is responsible for collecting the bulk of tax revenue, as well as paying Tax Credits and Child Benefits. In the late 1990's HMRC, then the DSS & The Department of Working Pensions (DWP), embarked upon an extensive redevelopment of 12 sites within the Tyne and Wear area. This development covers over 2 million square feet and is a major administration centre for the United Kingdom employing over 16,000 staff. This makes the Newcastle estate one of the largest employers in the North East of England.

One of the prime objectives was to integrate environmental sustainable development into the daily running of the Estate. It was essential that the development and the on-going management and maintenance (which was awarded to Interserve FM), be carried out in such a way as to minimise the impact on the day-to-day conduct of business. The estate is separated into 4 different sites, the 2 largest being Benton Park View (15 Buildings) and Tyne View Park (9 Buildings). These buildings are controlled by the ABB Cylon® BEMS. The controls were installed and are maintained by Astral Control Services. A key requirement in the use of ABB Cylon® products was that the project dictated a high

Project Summary

Applications:	Monitoring, Heating, Air handling, Chilled Water, Metering, Smoke Ventilation System
Number/Type of Building:	24 Buildings over 1m sq feet
Network:	Ethernet (Fibre and CAT5)
ABB Cylon® Hardware Installed:	Unitron UC32
ABB Cylon® Software Installed:	UEC

standard of energy efficiency, which required a "BREEM Rating" (British Research Establishment Environmental Assessment Method) of very good.

"The high performance ABB Cylon® BEMS has contributed to the provision of a world class service to all clients involved in the project" - John Campbell, Interserve

Solutions Benefits

Ease of Remote Site Monitoring – The sites are connected in a variety of ways to a central BEMS monitoring location. The central monitoring means that specialist-trained staff are not needed at each building and in fact all 24 buildings are managed by Interserve from the central help desk.

The intuitive graphics designed by Astral Control Services provide easy to use monitoring solution for the facilities management personnel who do not need to be BEMS experts. Astral Control Services Limited also provide a Technical Bureau Service where an operator will receive critical alarms from HMRC Newcastle Estate BEMS Systems.

High Performance System – Across both campuses the ABB Cylon® system provides the high performance monitoring required with all information available instantly at the help desk. The robust monitoring and control capabilities of ABB Cylon® products mean that strategies can be quickly refined to improve energy efficiency and client other requirements to achieve their KPI's as detailed later. The ABB Cylon® system fully utilises the 100Mbs network unlike the old BEMS at the site, which had communication performance issues across their old bespoke RS485 network. At Benton Park View, optical fibre has been selected based on the geographical size and spread of offices across this site. At Tyne View Park CAT5 cabling is used.

Flexible Integration – At Tyne View Park 800 ASIC VAV units are in place. The ABB Cylon® system was able to integrate with this 3rd party OEM proprietary system to provide an overall solution. With the old BMS system, only very limited information was available, which made effective control difficult.

ABB Cylon® Solution

The ABB Cylon® BEMS provides Interserve with the level of control it needs to deliver a world-class service to its client and ultimately HMRC. Interserve's brief includes obligations to maintain stringent temperature parameters during opening periods. Similar Key Performance Indicators (KPIs) exists for service levels such as call response and time to correct any reported issues. Astral, the system integrator providing the solution have carefully reviewed all alarms and separated out 12 critical alarm types.

For example one boiler failing is not critical to maintaining KPIs if 3 others are available. But 2 boilers out at the same time is viewed as critical as it might be difficult to get back to optimum temperature before the morning start. An Astral Bureau Engineer will remotely connect to the BEMS should a critical alarm occur outside of normal working hours. The engineer will then analyse and interrogate the alarms and system parameters and make any changes in order to correct the problem remotely. If a problem cannot be resolved remotely, the Astral engineer contacts the Interserve FM 24hr Maintenance helpdesk and informs them immediately. If the problem requires a BEMS controls engineer to attend, Astral despatch their on call engineer and inform security and the Interserve FM Maintenance helpdesk. If the problem appears to be a mechanical fault, Astral will inform the Interserve of further action to be taken and then forward an e-mail of all the alarm data and actions taken to Interserve FM Estates team.

Benton Park View offices use displacement air ventilation. The main buildings have a central atrium 4 stories high and are divided into 4 separate ventilation areas with their own air-handling units. Air is drawn through ceiling plenum on each floor and radiator heating is provided along the glass perimeters. The UnitronUC32 solution is also interfaced with the smoke ventilation system to enhance temperature control and provide free cooling during warm weather conditions.

The site includes extensive energy metering. For example there are 16 electrical meters per block, which are interfaced with the BEMS via Modbus. This interface not only provides the utmost reliability for meter data but also saved on wiring costs as the same cable connects all meters to the UC32.net communications controller.