



Courtesy of City of Glasgow College

City of Glasgow College

Providing Security Management Solutions at Scotland's Super College

The City of Glasgow College is a £228 million twin site 'super college' in the heart of Glasgow. Its 'City' campus has immense industry-scaled facilities and its 'Riverside' campus, specialising in nautical science and engineering stands tall on the banks of the River Clyde. As the largest technical institution in Scotland, City of Glasgow College delivers over 2,000 programmes to meet the professional and learning needs of some 40,000 students from over 130 different nationalities.

CASE SUMMARY

Location: Glasgow, UK

Systems Installed:

CEM Systems AC2000 access control

CEM Systems AC2000 VIPPS (Visual Imaging Pass Production System)

CEM Systems AC2000 AED (Alarm Event Display)

Number of doors secured:

1,000+ doors secured over two 'Riverside & City' campus sites

Hardware Installed:

Salto Sallis Wireless locks on classroom doors

CEM Systems intelligent readers (S610e DESFire readers and sPass smart card readers with DCM 350 intelligent two-door door controllers) for external doors and high security areas

Number of cardholders:

30,000+ DESFire technology smart cards (Smart cards personalisation on site using the CEM Systems AC2000 Smart Card Utility software)

Integration:

700+ campus cameras

CEM Systems AC2000 Pelco Endura CCTV Interface

CEM Systems AC2000 Galaxy Intruder Interface

CEM Systems AC2000 API (Application Programming Interface)

CEM Partner: FES Group

Project completion: August 2016

Introduction

The college brief required a large, highly proven and fully integrated IP security solution that incorporated the very latest in security technology and had the flexibility to be easily extended/upgraded to meet changing requirements over time.

In 2016 Johnson Controls' partner **FES Group** provided the mechanical, electrical and ICT design and installation for the twin campus project. They also had responsibility for the commissioning and installation of the complete security solution, and were awarded an additional twenty-five year Facilities Management Services Contract to provide on-going support to both college campuses.



Solution

CEM Systems AC2000

“Due to the sheer size, complexity and uniqueness of the City of Glasgow College project the CEM Systems AC2000 System, from Johnson Controls, was the ideal access control solution of choice. The project scope was for a fully integrated access control, intruder and CCTV system that would be connected to the clients IP network,” said Frank Rafferty, Design Manager, Communications Fire and Security at FES Group. *“We knew Johnson Controls had some of the largest, most robust access control systems installed around the world; including its local success with CEM Systems AC2000 in the prestigious New Southern General Hospital, Glasgow project in 2015 (now renamed Queen Elizabeth University Hospital). Already securing the largest hospital campus in Europe, we were confident that the CEM Systems AC2000 security*

management system would meet all the college’s unique requirements”.

CEM Systems AC2000 is a powerful access control platform with the capability of supporting an unrestricted number of doors and cardholders. It provides City of Glasgow College with longevity and the scalability to adapt its security management system when required.

Unrestricted Expansion

The City of Glasgow College access control system needed to be sizable to cope with thirty-thousand plus cardholders and one-thousand plus access points, but also have the flexibility to be adapted and modified as the needs of the college inevitably changed.

“We know from experience of working on complex projects that very often the contract performance specification changes from conception to completion. With changing technology and ad hoc project challenges you have to be contractually prepared to modify the final solution installed. With an innovative range of intelligent products and an approachable and local support team, Johnson Controls’ CEM Systems team had the necessary skillset to adapt and modify security hardware and software to fit our changing requirements, should the need arise”, continued Frank Rafferty.

Access Controlled Areas

As a large scale, innovative learning and teaching environment, the college team required unrestricted free access to public areas of the campus in order to welcome the local community. However beyond these public areas security needed to be gradually increased using barriers and access controlled doors deeper within campus buildings to protect areas such as the library, data centres and plant rooms.

College entry is controlled using highly encrypted electronic smart cards with security barriers and card readers positioned at entrances to restricted zones.



Security was required for college staff offices, high tech classrooms and workshops, lecture theatres, TV and radio studios as well as the 10 storey student accommodation that sits alongside the main Riverside campus building.

Wireless locks

Taking advantage of the wireless infrastructure implemented throughout campus, FES Group required access control hardware to incorporate the very latest in IP and support wireless access control. Over 970 doors (including all classroom doors) were secured using SALTO Sallis Escutcheon wireless locks and utilising Power over Ethernet technology. Real time wireless door events were also seamlessly integrated into the CEM Systems AC2000 system for centralised control and monitoring.

CEM Systems Hardware

A range of CEM Systems intelligent IP card readers were also installed to control external doors and other high security pinnacle areas around campus. CEM Systems intelligent card readers have their own internal database for offline card validation and can store up to 200,000 cardholder records and 50,000 transactions offline. This ensures zero system downtime, prevents

any loss of transaction data and ensures the highest possible level of system reliability. As such they were the ideal solution for securing internal perimeter doors and campus corridor doors with high levels of “foot traffic”.

CEM Systems S610e DESFire IP readers with keypad for additional PIN security where installed, along with CEM Systems sPass smart card readers and CEM Systems DCM 350 intelligent two-door door controllers. The CEM Systems sPass reader is a cost effective, contactless smart card reader with powerful security and encryption features. It utilizes AES 128-bit



encryption and highly secure DESFire card technology. Used in conjunction with the CEM Systems eDCM 350 IP two door controller, the CEM Systems sPass reader provides the college with a highly secure solution that helps combat against the threat of card cloning.

CEM Systems AC2000 Applications

The CEM Systems AC2000 security management system comes with a comprehensive range of software applications that enhance site operations. The City of Glasgow College utilizes both the CEM Systems AC2000 VIPPS (Visual Imaging & Pass Production System), which enables the College to design professional, quality ID passes for staff, visitors and students and the CEM Systems AC2000 Smart Card Utility software application which enables the college to maintain on-site control of their own smart card keys. The Smart Card Utility software successfully

enables the college to take ownership of their smart card key management process and perform smart card personalisation in a manageable, intuitive and step-by-step way.

One Smart Card Solution

The college required a highly secure smart card solution that was suitable for the development of functionality beyond access control. With the aim of a single, multi-functional card, the college has plans to use smart cards for other operational scenarios in the future. As such it was imperative that ID cards/credentials have the utmost level of security measures. FES Group opted for DESFire smart cards with encrypted algorithms as the card technology conforms to industry leading standards and provides support for highly secure Triple-DES and 128bit AES encryption.

Integrations

FES Group also required a flexible access control provider who supported high level integrations with multiple CCTV, fire and intruder systems. With a dedicated integrations team, CEM Systems has partnerships with a number of leading third party suppliers. FES Group purchased the CEM Systems AC2000 Pelco Endura CCTV interface and a Galaxy SIA interface which enables intrusion alarms to be graphically represented on the central CEM Systems AC2000 AED (Alarm Event Display) application. CEM Systems AC2000 AED provides a dynamic and real-time view of all access control and integrated building alarms/events that occur via the CEM Systems AC2000 system.

CEM Systems also provided an open architecture CEM Systems AC2000 API (Application Programming Interface) which enabled the college's internal IT team to conduct their own interfaces with the access control system.

“The CEM Systems AC2000 API functionality was successfully used to enable the integration of our student management system with the AC2000 access control system,” said Mark Campbell, Systems Developer at City of Glasgow College. “It has given our development team the tools to automate the creation of student cardholder records, as well as the ability to automate the allocation, and when necessary, the subsequent removal of their access privileges. For example, student access to college facilities is automatically determined by their ‘course’ and their enrolment status is checked hourly.”

Integration enables residents using college accommodation areas to be quickly granted access privileges in-line with check-in/out dates. By taking full advantage of the CEM Systems AC2000 API tool, the end result is the integration of multiple college systems on campus which has helped speed up college processes.

“Throughout the CEM Systems AC2000 integration project, Johnson Controls’ CEM Systems team were on hand to offer advice and carry out software customisations where necessary to meet our new requirements. Ongoing technical support from CEM Systems has enabled the college team to access maximum functionality from the AC2000 access control system,” continued Mark Campbell.

Project Challenges

One of the project challenges encountered was the requirement for access control on glass doors and within glass frames. As a wireless network was installed around the college it enabled access control doors to be easily added using wireless locks, without the need for additional cabling or fire alarm interfaces. CEM Systems IP card readers were also easily bolted onto the clients existing IP infrastructure. These combined devices created a flexible, cost effective security solution for the City of Glasgow College.

Virtualisation

FES Group also provided a virtualized server solution with SAN and backup systems for the college's applications and associated data. Now that the virtualized environment has proven its resilience within the college, plans are also in place to virtualize the main CEM Systems AC2000 access control CDC Server.

Time and Attendance Application

In 2018 the college installed the innovative CEM Systems emerald access control terminal for Time and Attendance trial purposes on speed gates. With an integrated access control and staff 'Time and Attendance' application directly on the emerald terminal at the gates, staff can record their Time and Attendance IN/OUT times for human resource monitoring and reporting.



Support

“We received a high standard of pre and post installation support from the Johnson Controls’ CEM Systems team. At the time of installation, the wireless locks solution was a relatively new product for FES Group, so consideration had to be given to product awareness within both our design team and engineering staff. With local support from Johnson Controls’ CEM Systems team, training programmes were meticulously implemented to refine staff’s knowledge of both wireless locks and the CEM Systems product and software features,” said Frank Rafferty, Design Manager, Communications Fire and Security, FES Group. “Throughout the project Johnson Controls successfully delivered on their promise and we will continue to work in partnership together to support the college’s future business requirements as they evolve”.

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