Introduction
UCL has an extensive distributed Gallagher Security System controlling a large number of doors, turnstiles and lifts, in a large number of buildings. We have in excess of 45,000 valid cardholders.

This system runs over a distributed private VLAN on our IT network, with live and standby servers. Controllers in the buildings then communicate with the server via this VLAN (see Appendix A).

Alarms are relayed to our 24/7/365 staffed Security Control Room, and the system is controlled from a number of workstations around UCL.

This system must be used to control all of our electronically locked doors.

Purpose of Document
The purpose of this document is to inform the specification of electronic access control for UCL project officers and design consultants. It includes details of the system, the principles of use and detailed technical specifications.

Principles of use and Processes
The Gallagher access control system is used primarily to provide security in the following applications:

- Perimeter entrance doors.
- Turnstiles and disability entrances.
- Corridors or significant areas within buildings.
- Lifts, where security control is required.
- Data Centres.
- Some high security research areas.
- Major plant rooms.

We do not normally use the system for:

- Individual rooms or laboratories.

Contact should be made at an early stage to discuss the project requirements and consult the Security Department with regard to the use and design of the system (see Contact Details section). This should be part of the wider discussion that must take place with Security with regard to more general concerns related to the all project work.

UCL Estates, Security Department reserves the right to make the final decision about how the system will be deployed, and the specification of installations.

Works should be completed by our nominated access control service provider (see Contacts Details section). Usually access control works would be contracted by the main contractor, or electrical sub-contractor. Small works may be ordered directly by UCL, please contact the Security Systems Manager if clarification is required (see Contacts Details section).

Technical Specification
System Design
The UCL Security Systems section must be consulted with regard to the system architecture design, equipment locations etc., to specify how the new controls will integrate with the existing system, and allow for future expansion.

The following specification must be observed:

- Each door should have ‘locked / not-locked’ monitoring as well as ‘door-position’ monitoring; using monitored mag-locks or monitored electric locks. Double or leaf and a half doors should have double mag-locks, and magnetic reed door contacts on both leaves.

- All controlled doors without a mechanical means of escape (i.e. lever handle) should be released by the fire alarm system, should be of a ‘fail unlocked’ type, and should conform to the UCL Fire Officers Fire Safety Technical Guide (see Appendix B).
- The following alarms should be generated in response to the appropriate conditions:
  - Unit tamper.
  - Door open too long.
  - Door forced.
  - Door not locked.
  - Fire alarm released door (only required on perimeter doors).
  - Mains failure.
  - Break glass operation.

- Exit buttons should be of the green dome type on a stainless steel plate marked ‘Press to exit’.

Break glass units should be green, and of a three pole type. Positive and negative supply to the lock **MUST** both be broken on operation of the break glass. The other pole should be used to monitor the break glass status. See Appendix C for specification. For latest document see - [http://www.ucl.ac.uk/fire/documents/UCLFire_TN_001.pdf](http://www.ucl.ac.uk/fire/documents/UCLFire_TN_001.pdf)

- Readers should be Gallagher T Series type, and mounted at a height of between 0.9m – 1m.

- In some instances of particularly high security concern, we may use ‘chip & PIN’ Prox Plus readers – This would be a matter of specification by UCL Security.

Typical door configuration
**Lock Types**

We have two basic installation specifications:

- Fail unlocked device for most applications.
- Fail locked for areas of high security.

**Fail unlocked locks:**

Our standard for building entrances and internal doors is an Adams Rite Armlock. This comes in two sizes (281 & 261) – Where possible the larger 281 lock should always be used – although the positioning of the lock and it’s impact on headroom should always be considered. A monitored version must always be used – specifications as follows:

<table>
<thead>
<tr>
<th>Lock Type</th>
<th>Holding Force</th>
<th>Model No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armlock 510 Kg holding force – Single</td>
<td>510</td>
<td>281-005</td>
</tr>
<tr>
<td>Armlock 510 Kg holding force – Double</td>
<td>510</td>
<td>281-205</td>
</tr>
<tr>
<td>Armlock 250 Kg holding force – Single</td>
<td>250</td>
<td>261-005</td>
</tr>
<tr>
<td>Armlock 250 Kg holding force – Double</td>
<td>250</td>
<td>261-205</td>
</tr>
</tbody>
</table>

Where ‘Z’ & ‘L’ brackets are used for installation, these must be proprietary Adams Rite accessories.

Doorsets which comprise one full and one half width door must have both leaves locked with maglocks so that there is locked/not-locked monitoring from both door leaves.

Please see manufacturer’s website for the latest datasheets – [www.adamsrite.co.uk](http://www.adamsrite.co.uk)

**Fail locked lock:**

These would only be used for areas specified as by UCL Security as of particularly high security concern. These must be Abloy solenoid locks, with free exit handles – In these instances release by the operation of the fire alarm is not required. Specification as follows:

<table>
<thead>
<tr>
<th>Lock Type</th>
<th>Model No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abloy solanoid lock</td>
<td>EL560/65 12v</td>
</tr>
<tr>
<td>Abloy cable</td>
<td>EA218</td>
</tr>
<tr>
<td>Abloy split spindles</td>
<td>EA288/02</td>
</tr>
<tr>
<td>Abloy concealed door loop</td>
<td>EA280</td>
</tr>
<tr>
<td>Abloy Futura lever handle &amp; rose set</td>
<td>60-0319-SSS</td>
</tr>
</tbody>
</table>

Please see manufacturer’s website for the latest datasheets – [www.abloy.co.uk](http://www.abloy.co.uk)

Specification of the particular lock type for each application must be done in conjunction with Security Systems. Other measure for high security areas (e.g. interlocks, local sounders etc.) may be considered.

**Override Locks**

All perimeter doors, with fail-unlocked locks should also be fitted with a europrofile deadlock, to be used in the event of system or extended power failure. UCL will free issue the lock cylinder for this.

**Programming Standards**

UCL has detailed documentation for the commissioning of the access control systems. This details the programming standards for all software components on the server software, including:

- Naming conventions.
- Interlocks.
- Lift integration.
- Turnstile integration.
- Alarm and event response.
These will be made available at commissioning, and are available on request. All expansion of the system must comply with these programming standards.

**Mains Power**
All mains power supplies for system devices and lock power must be on dedicated mains circuits, to be on circuits shared only with other elements of the system.

**Equipment Locations**
Door controller equipment should not be located in plant areas or riser cupboards where ‘permit to work’ restrictions apply. These should be located local to the door where possible as all equipment is serviced on a regular basis and need to be easily accessible.

**Integration**
As part of installations, the access control system is regularly required to integrate with other systems such as automatic doors, door operators and turnstiles. UCL has a specified approach to each of these integrations – details available on request (see Contact Details section).

Specifically the installation of turnstiles requires the coordination of building work, turnstile suppliers, electrical contractors, access control engineers and fire alarm engineers. A detailed technical specification document is available, and must be referred to for all turnstile installations.

**Commissioning**
All aspects of the operation of all doors must be fully tested, recorded and signed-off as part of commissioning process, in accordance with the requirements stated above. Each of the following separate operations must be tested:

- Card read (valid and invalid).
- Request to exit button.
- Door forced alarm.
- Door open too long.
- Zone override from software.
- Zone override from local card operation (if required).
- Tamper.
- Fire alarm release of doors.
- Mains failure.
- Break glass operation and alarm.

Site plans must be updated in conjunction with Security Systems staff who will arrange for plans to be loaded on to the system. The location of all system elements (doors, break glass units, controllers etc.) must be recorded on the system with the relevant system icons.

Checks must be made to ensure all software setup, naming conventions and event responses are programmed on the head-end software in accordance with UCL’s separate programming standards documentation (available on request).
Contact Details

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Security Systems Manager
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020 7679 7735
m.dawe@ucl.ac.uk
http://www.ucl.ac.uk/estates/security/systems/

Gallagher Security (Europe) Ltd
Security House
Unit 5
Eastboro Fields
Hemdale Business Park
Attleborough
Nuneaton
Warwickshire
CV11 6GL
02476 641234
http://security.gallagher.co/

Reach Active Ltd (Access Control – Nominated Service Provider)
20-22 Curtain Road
London
EC2A 3NF
020 7236 7870
The platform for integration

Reference:

1.0. Introduction

1.1. This guidance note is provided for Design Engineers, Consultants, Project Managers, Contractors and UCL Staff to give general information on interfacing Access Security Systems with the fire alarm system, and security devices on the Means of Escape in general. Careful consideration must be paid to ensure that access systems as well simple fastenings do not impede the Means of Escape (MoE) from the building for the occupants.

1.2. Where electrically controlled locking systems are proposed on escape routes and they are not provided with a simple mechanical override in the direction(s) of escape, (e.g. a normal latch with a handle operating on an electrical strike plate), the following arrangements are to be made:

(a) The system shall fail safe to open, i.e. doors unlock on loss of all power supplies or disconnection of any relevant cable,
(b) The locks shall release on operation of the fire alarm system,
(c) Suitable emergency disconnection arrangements shall be provided at each locked door on the exit route. These will be in the form of a break glass unit, coloured green and suitable signed.

2.0. Electromagnetic or Electrical Release Access Control Devices

2.1. Access and security controlled locking systems on doors used on escape routes (that form part of the MoE) including automatic sliding doors THAT DO NOT have a mechanical override in the direction(s) of escape such as a normal latch with a handle operating on an electrical strike plate. Systems that rely on the release of Electro-magnetic locks or keeps by a ‘code, push button or reader’ to allow the door to open, these systems will require special arrangements to ensure that they fail ‘safe’ at all times in the event of an emergency.

2.2. Where, electromagnetic devices fitted to the MoE do not have a manual override they shall fail safe to open:

(a) the locks shall release on operation of the fire alarm system (except of certain circumstances)
(b) on the loss of electrical power (doors will unlock on loss of power supplies or disconnection of any relevant cable),
(c) suitable emergency disconnection arrangements shall be provided at each locked door on the exit route. (These will normally be in the form of the operation of a ‘break glass’ unit positioned adjacent to the door),
(d) The fire alarm release may be by direct-wired input from the fire alarm system interface or via the fire alarm interfacing with the security system's software configuration at a central location.

2.3 Each emergency break glass unit shall:
(a) be coloured green,
(b) be in a prominent position suitable for escape i.e. adjacent to door,
(c) be clearly labelled, e.g. 'BREAK GLASS TO OPEN DOOR IN EMERGENCY' with a minimum letter size of 20 mm (white letters on a green background),
(d) be a ‘double pole’ type that interrupts both lines of supply.

2.4. It is important that the emergency release is of a double pole type and is 'in line' so that escape cannot be prevented by:
- failure of the control system,
- earth or frame faults in the control circuit,
- failure of relays through doors sticking in the closed position,
- not re-lock the device until reset, e.g. upon replacement of the glass from the break glass unit,

2.5. Under no circumstances is an electronic door release to be connected to a local fire alarm sounder circuit. In all cases, the recommendations indicated within Clause 19 of BS 5839 Part 1: are to be observed.

2.6. Where a battery backup is proposed to maintain the security in the event of power failure, then an override facility (i.e. green break glass call point) is to be installed so that the power supply to the electronic door-locking device is to be interrupted in all cases.

2.7. Suitable normal and escape lighting shall be provided adjacent to the emergency switch / break glass unit.

3.0. VARIATIONS PERMITTED

3.1 Generally, all doors fitted with Electromagnetic locking devices must fail unlocked on activation of the fire alarm. However, Reference A allows a variation on these requirements in certain locations.

3.2. Reference A (Para 8.1 & Note 5), refers to this issue:

*In certain exceptional circumstances in which security considerations (including safety of the public) need to take precedence, a variation from the need to release the electromagnetic locks on relevant doors on activation of the fire alarm system, may be acceptable. These variations should be subject to a suitable assessment to confirm the adequacy of arrangements for safe egress of occupants in the event of fire and in discussion with UCL Fire Officer.*

4.0. SIGNAGE

4.1. All break glass units associated with egress systems for emergency use MUST be GREEN in colour.

4.2. In addition, a specific sign is necessary and placed adjacent to green release boxes. These signs must have 20 mm high lettering indicating 'Break glass to open door'.
5.0.  FURTHER UCL ADVICE

5.1.  Further advice on Access Systems and locking devices should be obtained from the UCL Access Systems Manager (Tel: 020 - 7679 - 7735 or Internal Ext: 37735).
Appendix C
Break-Glass Unit Specification

Green Surface mount break glass unit with replacement glass
Triple Pole offering:
Common
Normally open
Normally closed contacts.
With Green Label
EMERGENCY DOOR RELEASE

Other Options available
Replacement Keys (MX01) pack of 10
Replacement Glasses (MX02) pack of 10
Transparent Hinged Cover (MX03)
Resettable plastic element (MX04) pack of 10

Terminal Details
Terminal 1 Common
Terminal 2 Normally Closed
Terminal 3 Normally Open

Ratings
5 amp @ 50volts DC
5 amp @ 12.5volts AC
3 amp @ 250volts AC

Supplied with
MX00 Surface Box
MX01 Test Key

MX03 cover Dimensions
93mm x 93mm x 20mm

KGG300SG – Triple Pole Break Glass Unit

Specialized Security Products, Units 18-21 Park Farm Industrial Estate, Buntingford, Herts, SG9 9AZ.