

**Briefing Notes:
Access Control Systems**

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Revision Index.

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0	22/07/14	MWG	Issued for use
1	20/11/17	MWG	Updated
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ACCESS CONTROL

General Compliance

The access control system must provide a secure and monitored perimeter to the building and internal doors, or complex of buildings if linked in any way.

All access control systems are to be designed, programmed and installed by G4S Fire & Security Systems to fully integrate with the existing master University Access Control system, complete with the provision of all required master terminal graphics/system maps. If not connected to the University Master system all safety devices must still be installed ie. Local emergency Break-glass and fire alarm interfaces.

The systems will operate with the standard University ID cards, which are currently a Philips Mifare type A, proximity card. No sector of the card is reserved for access control and the systems must operate using the card's unique serial number located within the directory sector.

Power requirements (240v ac) and all other cabling and containment may be provided and installed by others, to G4S Fire & Security Systems requirements.

All required network connection points to be provided by others at positions detailed by G4S Fire & Security Systems.

The University iSolutions department will be responsible for providing the information on the LAN addresses.

All card readers are to be provided with PIN key-pads to allow for the additional functions required by security, to control and override system door commands. (G4 Series 711) S843 Type,

In general, access controlled perimeter doors will be unlocked automatically by their associated fire alarm systems. In addition, local, green monitored and audible emergency break-glass units will be provided to allow emergency egress as required, outside of a fire condition.

Fire interlock relays must be provided by the Fire Alarm installer, adjacent to all G4S Fire & Security Systems controllers and auxiliary lock power supply units.

- All Battery back-up power supplies for locks and controller supplies must maintain full system operation for a minimum of 30 minutes, but some situation may merit a longer battery backup , depending on risk and consequences of failure.

All external door locking to be of the magnetic types where no mechanical components are used for the actual door locking, types to be chosen as appropriate to each door set but must be of the 'monitored' type.

All internal electric door locking to be of the magnetic type are to be fail safe, failing in the unlocked position, (current-less).

All internal electric door locking to be of the magnetic type, Where the door is on the route of an alternative emergency escape route ie. Staircases **MUST** be provided with a green emergency break-glass unit on the un-secure side.

Locking

All locking will be of the magnetic type suitable to size of door.

Abloy EL415 and EL560 locks can be used but only if magnetic locking cannot be installed and must be approved by the University access control Engineer before installation.

iSolutions Hub Rooms –Coms Rooms

Please note that Access control is **NOT** fitted to any rooms and is by key operation, **PLEASE** refer to iSolutions specification.

Non standard access systems.

All non standard access systems not connected to the University main access control G4S Fire & Security Systems.

i.e. Bewator or any stand alone systems must have the same safety features as that of the main University Access control system, doors should be fitted with a magnetic lock to fail open/unlocked in a fire condition or power outage and an emergency break-glass to be situated adjacent to the door.

Automatic doors in general.

Swing open, or Power closer types, are to be provided with maglocks which must de-power on a fire alarm signal or emergency break glass activation. Egress to be gained by physically opening the unlocked door.

Sliding type doors are to be provided with integral locking which must de-power on a fire alarm signal, or activation of the local emergency break-glass unit, AND must move the door(s) to the fully open position. Sufficient battery back-up is to be provided to maintain the door operational under power fail conditions for a minimum period of 30 minutes. An independent battery source is also required, of sufficient capacity to guarantee door opening, after the operational battery back-up is exhausted. Additionally, an alarm output is to be provided for the access control system indicating when the operational battery back-up is exhausted, as the building will be rendered unsecured at this point.

On a power outage all doors must operate as if in a fire condition.

Network Connections

Each individual building will have at least one nominated master controller for connection to the University TCP/IP network. Final connection must not terminate in a wall plate but, the cable is to be taken inside of the controller and terminated in the required RJ45 plug for direct connection into the controller's LAN card.

Door Controllers

Door controllers are to be distributed throughout the building as required and located within suitable rising ducts or plant rooms as close as possible to the doors they control. Maximum mounting height of the door controllers, and their associated power supplies, to be no more than 2m from the finished floor.

Controller types to be selected as the most efficient combination for the number of readers installed and minimum sub-bus interconnection distance but for cost a 4 doors controller would normally be installed for new installations.

All door controllers must use the M2150 Series multiNODE controllers with a minimum card capacity of 100,000.

Hardware Requirements (Revision 3 June 2018)

A1	Single leaf	perimeter door	Magnetic lock	card reader both sides	Open during day; card entry/exit night
A2	Double leaf	perimeter door	Magnetic locks	card reader both sides	Open during day; card entry/exit night
A3	Single leaf	perimeter door	Magnetic locks	card reader both sides	24hr card entry/exit only
A4	Double leaf	perimeter door	Magnetic lock	card reader both sides	24hr card entry/exit only
B1	Single leaf	perimeter door	Magnetic lock	no readers	Open during day; no access at night
B2	Double leaf	perimeter door	Magnetic locks	no readers	Open during day; no access at night
C1	Single leaf	perimeter door	Magnetic lock	Emergency exit, no readers	No general access day or night
C2	Double leaf	perimeter door	Magnetic locks	Emergency exit, no readers	No general access day or night
D1	Automatic	perimeter door	lock signal	card reader both sides	Automatic during day; card entry/exit night
E1	Single leaf	internal office door	Magnetic lock	card reader corridor side	Card entry, pass-back exit at all times
E2	Double leaf	internal office door	Magnetic locks	card reader corridor side	Card entry, pass-back exit at all times
F1	Single leaf	internal link door	Magnetic lock	card reader both sides	Open during day; card entry/exit night
F2	Double leaf	internal link door	Magnetic locks	card reader both sides	Open during day; card entry/exit night
F3	Double leaf	internal link door	Magnetic locks	card reader one side	Open during day; card entry/pass-back exit night
F4	Single leaf	internal link door	Magnetic lock	card reader one side	Open during day; card entry/pass-back exit night
F5	Double leaf	internal link door	Magnetic locks	no readers; key barrel both sides	Open during day; no entry at night
F6	Single leaf	internal link door	Magnetic lock	no readers; key barrel both sides	Open during day; no entry at night
G1	Addition	Key override facility	Magnetic locks		
G2	Addition	Card override facility	Magnetic locks		
G3	Addition	Electric hold-open	Magnetic locks		
G4	Addition	Local alarm		auxiliary local audible alarm unit	
G5	Addition	Local sounder		auxiliary local sounder triggered by local access system interface	

General Requirement

- Master Perimeter door alarm for each building for connection to University Central Control Room (CCR)
- Master Internal door alarm for each building for connection to University Central Control Room (CCR)
- 30 Minutes minimum Battery back-up, but some situation may merit a longer battery backup, depending on risk and consequences of failure
- Telephone adjacent to main door for contact with Central Control Centre (CCR) for visitor release.
- Fire Alarm connections as required for emergency door release.
- General information signage

All buildings are to be provided with a minimum of a single card controlled entry/exit point (type A or type D), electrical control/monitoring of all doors required to be open during normal working hours (type B) and monitoring of all other normally closed perimeter doors (type C). This will be funded and maintained by Estates and Facilities

Internal access control and additional card controlled entry/exit points to be determined and funded by the individual occupying departments.

Where there is a requirement for only a few internal rooms or areas to be provided with access control, these would normally be (type E) doors.

Where whole floors are to be protected, consideration should be given to providing card controlled points from stair-wells and lift points to keep the number of controlled doors to a minimum.

Type **A1** Door

Single-leaf Perimeter door Selected as Night entry/exit point. **(Unlocked during normal working hours, card access at all other times.)**

To be equipped with the following:

In reader + PIN keypad for entry.

- To be mounted externally, adjacent to the door, to allow easy access for normal and disabled personnel.
- Components to be weathered to IP65 or equivalent.
- Cabling to be contained within the door frame extrusions where possible.
- External cabling to be run in steel conduit and provided with a tamper loop.

Exit reader + PIN keypad

- To be mounted internally, adjacent to the door, to allow easy access for normal and disabled personnel.
- All exposed cabling to be provided with a tamper loop.

Door monitoring contact.

- To be of the magnet/reed type mounted internally, generally above the mechanical lock, giving the maximum practical distance from the hinge side.
- All exposed cabling to be provided with a tamper loop.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closer must be fitted.
- Deadlock latch must have no 'snib' facility.
- Deadlock Half-Euro MulTiloc barrel key mechanism to be provided on both sides of the door for system fail emergency use. Note, buildings to be vacated before emergency manual locking is engaged.
- No hold-open facilities to be provided for the door.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All external, electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Type **A2** Door

Double-leaf Perimeter door Selected as Night entry/exit point. **(Unlocked during normal working hours, card access at all other times.)**

To be equipped with the following:

In reader +PIN keypad for entry.

- To be mounted externally, adjacent to the designated door, to allow easy access for normal and disabled personnel.
- Components to be weathered to IP65 or equivalent.
- Cabling to be contained within the door frame extrusions where possible.
- External cabling to be run in steel conduit and provided with a tamper loop.

Exit reader + PIN keypad

- To be mounted internally, adjacent to the designated door, to allow easy access for normal and disabled personnel.
- All exposed cabling to be provided with a tamper loop.

Door monitoring contact.

- To be of the magnet/reed type mounted internally, generally above the lock, giving the maximum practical distance from the hinge side and capable of monitoring both doors.
- All exposed cabling to be provided with a tamper loop.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.
- Both doors to be fitted with independent magnetic locks to allow only a single leaf to be released to provide access on against a valid card read during locked periods.

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Doors, frames and furniture.

- Doors must be adapted or replaced to be suitable for access control.
- Suitable door closers must be fitted.
- Deadlock Half-Euro MulTiloc barrel key mechanism to be provided on both sides of the door for system fail emergency use. Note, buildings to be vacated before emergency manual locking is engaged.
- Second leaf doors to be provided with manual bolting facilities top and bottom, for system fail emergency use only, star-key operated to prevent normal use.
- No hold-open facilities to be provided for the doors.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All external, electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Type **A3** Door

Single-leaf Perimeter door **(24hr card access only.)**

To be equipped with the following:

In reader + PIN keypad for entry.

- To be mounted externally, adjacent to the door, to allow easy access for normal and disabled personnel.
- Components to be weathered to IP65 or equivalent.
- Cabling to be contained within the door frame extrusions where possible.
- External cabling to be run in steel conduit and provided with a tamper loop.

Exit reader + PIN keypad

- To be mounted internally, adjacent to the door, to allow easy access for normal and disabled personnel.
- All exposed cabling to be provided with a tamper loop.

Door monitoring contact.

- To be of the magnet/reed type mounted internally, generally above the mechanical lock, giving the maximum practical distance from the hinge side.
- All exposed cabling to be provided with a tamper loop.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closer must be fitted.
- Night/mortise latch must have no 'snib' facility.
- Deadlock with half-Euro MulTiloc barrel key mechanism provided on the both side of the door for system fail emergency use only. Note, buildings to be vacated before emergency manual locking is engaged.
- No hold-open facilities to be provided for the door.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Type **A4** Door

Double-leaf Perimeter door **(24hr locked card access only.)**

To be equipped with the following:

In reader +PIN keypad for entry.

- To be mounted externally, adjacent to the designated door, to allow easy access for normal and disabled personnel.
- Components to be weathered to IP65 or equivalent.
- Cabling to be contained within the door frame extrusions where possible.
- External cabling to be run in steel conduit and provided with a tamper loop.

Exit reader +PIN keypad

- To be mounted internally, adjacent to the designated door, to allow easy access for normal and disabled personnel.
- All exposed cabling to be provided with a tamper loop.

Door monitoring contacts.

- Required for each individual door leaf.
- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock.
- All exposed cabling to be provided with a tamper loop.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.
- Both doors to be fitted with independent magnetic locks to allow only a single leaf to be released to provide access on against a valid card read during locked periods.

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply.
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Doors, frames and furniture.

- Doors must be adapted or replaced to be suitable for access control.
- Suitable door closers must be fitted.
- Deadlock Half-Euro MulTiloc barrel key mechanism to be provided on both sides of the door for system fail emergency use. Note, buildings will be vacated when emergency manual locking is engaged.
- Second leaf doors to be provided with manual bolting facilities top and bottom, for system fail emergency use only, star-key operated to prevent normal use.
- No hold-open facilities to be provided for the doors.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All external, electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Type **B1** Door

Single-leaf Perimeter doors used as normal entry/exit point **(Unlocked during normal working hours only.)**

To be equipped with the following:

Door monitoring contact.

- To be of the magnet/reed type mounted internally, generally above the mechanical lock, giving the maximum practical distance from the hinge side.
- All exposed cabling to be provided with a tamper loop.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closer must be fitted.
- Night/mortise latch must have no 'snib' facility.
- Deadlock with half-Euro MulTiloc barrel key mechanism provided on the both side of the door for system fail emergency use only. Note, buildings will be vacated when emergency manual locking is engaged.
- No hold-open facilities to be provided for the door.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All external, electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Type **B2** Door

Double-leaf Perimeter doors used as normal entry/exit point **(Unlocked during normal working hours only.)**

To be equipped with the following:

Door monitoring contacts.

- Required for each individual door leaf.
- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock.
- All exposed cabling to be provided with a tamper loop.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.
- Both doors to be fitted with independent magnetic locks to allow only a single leaf to be released to provide access on against a valid card read during locked periods.

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Doors, frames and furniture.

- Doors must be adapted or replaced to be suitable for access control.
- Suitable door closers must be fitted.
- Deadlock Half-Euro MulTiloc barrel key mechanism to be provided on both sides of the door for system fail emergency use. Note, buildings will be vacated when emergency manual locking is engaged.
- Second leaf doors to be provided with manual bolting facilities top and bottom, for system fail emergency use only, star-key operated to prevent normal use.
- No hold-open facilities to be provided for the doors.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All external, electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Type **C1** Door

Single-leaf Perimeter Fire/Emergency door **(Monitored for operation 24hr/day)**

Door monitoring contacts

- To generate alarm on door being opened
- Required for door leaf.
- To be of the magnet/reed type mounted internally, generally on the top edge of the door, at the maximum practical distance from the hinge side.
- All exposed cabling to be provided with a tamper loop.
- Contacts set to provide 24hour monitoring.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closer must be fitted.
- Night/mortise latch must have no 'snib' facility.
- Deadlock with half-Euro MulTiloc barrel key mechanism provided on the both side of the door for system fail emergency use only. Note, buildings will be vacated when emergency manual locking is engaged.
- No hold-open facilities to be provided for the door.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All external, electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Type **C2** Door

Double-leaf Perimeter Fire/Emergency door **(Monitored for operation 24hr/day)**

Door monitoring contacts

- To generate alarm on door/s being opened
- Required for each individual door leaf.
- To be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side.
- All exposed cabling to be provided with a tamper loop.
- Contacts set to provide 24hour monitoring.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.
- Both doors to be fitted with magnetic locks

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Doors, frames and furniture.

- Doors must be adapted or replaced to be suitable for access control.
- Suitable door closers must be fitted.
- Deadlock Half-Euro MulTilock barrel key mechanism to be provided on both sides of the door for system fail emergency use. Note, buildings will be vacated when emergency manual locking is engaged.
- Second leaf doors to be provided with manual bolting facilities top and bottom, for system fail emergency use only, star-key operated to prevent normal use.
- No hold-open facilities to be provided for the doors.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All external, electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.



Automatic Doors.

- Automatic doors are to be capable of accepting command signals from the Access Control system.
- A voltage-free, change-over contact on the Access System will be used to change the door mode from day to night.
- A voltage-free, change-over contact on the Access System will be used to command to door open during 'night mode' from a valid card read.
- A voltage free contact on the automatic door unit to be available for use by the access control system to provide a 'door forced' alarm. If not available it must be provided as an additional contact.
- Operation

Day mode: Normal operation, doors opening on command from local PIR switches or PUSH pad

Night mode: Local PIR switches inhibited, doors open only via an output from the Access controller, triggered from a valid smart card read, or activation of the local internal emergency break-glass unit.

During night mode, 'door forced' alarms are to be active.

During night mode the automatic door mechanism must be 'locked' and not capable of being forced open, typically by an internal sheer-lock.

- Automatic doors are to be interlocked directly to the local fire alarm systems to unlock, in the case of swing/power opener types and unlock and open in the case of slide types.
- Swing type doors to have sufficient battery back-up to allow normal operation for a minimum of 30 Minutes under full power fail conditions.
- Slide type doors to have sufficient battery back-up to allow normal operation for a minimum of 30 minutes under full power fail conditions, plus an a separate battery system to motor the doors to the open position when the operational battery-back up is exhausted.

To be equipped with the following:

In reader + PIN keypad for entry.

- To be mounted externally, adjacent to the designated door, to allow easy access for normal and disabled personnel.
- Components to be weathered to IP65 or equivalent.
- Cabling to be contained within the door frame extrusions where possible.
- External cabling to be run in steel conduit and provided with a tamper loop.

Exit reader + PIN keypad for egress.

- To be mounted internally, adjacent to the designated door, to allow easy access for normal and disabled personnel.
- All exposed cabling to be provided with a tamper loop.

Door monitoring contacts.

- To be of the magnet/reed type mounted internally, or preferably be part of the door control package.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Note: If the emergency break-glass unit is to drop the 240v ac power to the door controller, a no-volt relay will need to be provided within the door controller to provide a monitor function. This will keep segregation of the different classes of cabling at the break-glass unit.

Fire Alarm Interlock

All external, electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.



Internal single-leaf door. (Office, Laboratory or Store)

To be equipped with the following:

In reader + PIN keypad for entry.

- To be mounted adjacent to the designated door to allow easy access for normal and disabled personnel.

Pass-back switch (Not required when 'Night-latch' is fitted with a mechanical paddle release or Abloy EL** lock fitted.)**

- To be mounted internally adjacent to the designated door to allow easy access for normal and disabled personnel.
- Pass-back switch action to drop lock and hold door alarm contacts for set grace time.

OPTIONS

- Pass-back switch can be replaced with a PIR detector to function fully automatically.

Door monitoring contact

- To be provided for the door leaf.

- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock

Magnetic lock

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal position sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass unit. (Not required when 'Night-latch' is fitted with a mechanical paddle release or Abloy EL41X lock fitted.)

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closer must be fitted.
- Emergency manual night/mortise latch must have no 'snib' facility.
- Half-Euro barrel key mechanism to be provided both sides of the door for system fail emergency use.
- No hold-open facilities to be provided for the door.
- Manual lock to be vandal-proof and complete with an anti-thrust mechanism.
- Any accessible strike region to be protected by a metal guard, at least 150mm above and below the lock centre, but preferably to be of full door height.

Fire Alarm Interlock

Doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.



Internal twin-leaf door. (Office, Laboratory or store)

To be equipped with the following:

In reader + PIN keypad for entry.

- To be mounted adjacent to the designated door to allow easy access for normal and disabled personnel.

Pass-back switch (not required if Abloy EL** lock used)**

- To be mounted internally adjacent to the designated door to allow easy access for normal and disabled personnel.
- Pass-back switch action to drop lock and hold door alarm contacts for set grace time.
- OPTIONS
- Pass-back switch can be replaced with a PIR detector to function fully automatically.

Door monitoring contacts

- To be provided for each individual door leaf.
- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock

Magnetic lock,

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal position sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Or

Double header magnetic locks may be used with full-width housings, arranged to lock / unlock independent of each other.

Green emergency break-glass unit.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Doors, frames and furniture.

- Doors must be adapted or replaced to be suitable for access control.
- Suitable door closers must be fitted.
- Night/mortise latch must have no 'snib' facility.
- Half-Euro barrel key mechanism to be provided on the un-secure side of the door for system fail emergency use.
- No hold-open facilities to be provided for the doors.
- Second leaf doors to be provided with manual bolting facilities top and bottom, for system fail emergency use only, star-key operated to prevent normal use.
- Lock to be vandal-proof and complete with an anti-thrust mechanism.
- Any accessible strike region to be protected by a metal guard, at least 150mm above and below the lock centre, but preferably to be of full door height.

Fire Alarm Interlock

Doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.



Internal, single-leaf Link door,

(Blocking access both ways. Normal entry/exit during building occupation times only.)

To be equipped with the following:

Reader 1 + PIN keypad for entry one way.

- To be mounted externally, adjacent to the door, to allow easy access for normal and disabled personnel.
- Cabling to be contained within the door frame extrusions where possible.
- All exposed cabling to be provided with a tamper loop.

Reader 2 + PIN keypad for entry other way.

- To be mounted internally, adjacent to the door, to allow easy access for normal and disabled personnel.
- All exposed cabling to be provided with a tamper loop.

Door monitoring contact

- To be provided for the door.
- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock
- All exposed cabling to be provided with a tamper loop.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass units.

- To be mounted adjacent to, and both sides, of the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock .
- To be monitored at all times, generating an auditable alarm on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closer must be fitted.

- Mechanical lock must have no 'snib' facility.
- Deadlock Half-Euro MulTilloc barrel key mechanism to be provided on both sides of the door for system fail emergency use. Note, buildings will be vacated when emergency manual locking is engaged.
- No hold-open facilities to be provided for the door.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All internal link electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.



Internal, double-leaf Link door,

(Blocking access both ways. Normal entry/exit during building occupation times only.)

To be equipped with the following:

Reader 1+ PIN Keypad for entry one way.

- To be mounted externally, adjacent to the door, to allow easy access for normal and disabled personnel.
- Cabling to be contained within the door frame extrusions where possible.
- All exposed cabling to be provided with a tamper loop.

Reader 2 +PIN keypad for entry other way.

- To be mounted internally, adjacent to the door, to allow easy access for normal and disabled personnel.
- All exposed cabling to be provided with a tamper loop.

Door monitoring contacts

- To be provided for each individual door leaf.
- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock
- All exposed cabling to be provided with a tamper loop.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass units.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closers must be fitted.
- Mechanical lock must have no 'snib' facility.
- Deadlock Half-Euro MulTilloc barrel key mechanism to be provided on both sides of the door for system fail emergency use. Note, buildings will be vacated when emergency manual locking is engaged.
- No hold-open facilities to be provided for the door.
- Second leaf doors to be provided with manual bolting facilities top and bottom, for system fail emergency use only, star-key operated to prevent normal use.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All internal link electrically locked doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.



Internal, double-leaf Link door,

(Blocking access one way. Normal entry/exit during building occupation times only.)

In reader + PIN keypad for entry.

- To be mounted adjacent to the designated door to allow easy access for normal and disabled personnel.

Pass-back switch (not required when using Abloy EL41X locks)

- Switch will be on the secure side
- Switch to be mounted internally adjacent to the designated door to allow easy access for normal and disabled personnel.
- Switch action, to drop lock and hold door alarm contacts for set grace time.

OPTIONS

- Pass-back switch may be replaced with a PIR detector to function fully automatically.
- Internal doors which have no requirement for 'door-forced' alarms may simply have their night-latches fitted with a simple paddle release for convenience.

Door monitoring contacts

- To be provided for each individual door leaf.
- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock.
- All exposed cabling to be provided with a tamper loop.

Electric locks.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass units.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closers must be fitted.
- Mechanical lock must have no 'snib' facility.
- Deadlock Half-Euro MulTilock barrel key mechanism to be provided on both sides of the door for system fail emergency use. Note, buildings will be vacated when emergency manual locking is engaged.
- Second leaf doors to be provided with manual bolting facilities top and bottom, for system fail emergency use only, star-key operated to prevent normal use.
- No hold-open facilities to be provided for the door.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All electrically locked internal link doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.



Internal, single-leaf Link door,

(Blocking access one way. Normal entry/exit during building occupation times only.)

In reader + PIN keypad for entry.

- To be mounted adjacent to the designated door to allow easy access for normal and disabled personnel.

Pass-back switch

- Switch will be on the secure side
- Switch to be mounted internally adjacent to the designated door to allow easy access for normal and disabled personnel.
- Switch action, to drop lock and hold door alarm contacts for set grace time.

OPTIONS

- Pass-back switch may be replaced with a PIR detector to function fully automatically.
- Internal doors which have no requirement for 'door-forced' alarms may simply have their night-latches fitted with a simple paddle release for convenience.

Door monitoring contacts

- To be provided for door.
- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock.
- All exposed cabling to be provided with a tamper loop.

Electric lock.

Mag lock suitable for size of door

- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass units.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closer must be fitted.
- Mechanical lock must have no 'snib' facility.
- Deadlock Half-Euro MulTilock barrel key mechanism to be provided on both sides of the door for system fail emergency use. Note, buildings will be vacated when emergency manual locking is engaged.
- No hold-open facilities to be provided for the door.
- Locks to be as vandal-proof as possible.

Fire Alarm Interlock

All electrically locked internal link doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Type **F5** Door

Internal, double-leaf Link door,

(Blocking access both ways. Normal entry/exit during building occupation times only.)

To be equipped with the following:

Door monitoring contacts

- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock.
- All exposed cabling to be provided with a tamper loop.

Electric locks.

Mag lock suitable for size of door.

- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass units.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Doors, frames and furniture.

- Doors must be adapted or replaced to be suitable for access control.
- Suitable door closers must be fitted.
- Night/mortise latches must have no 'snib' facility.
- Lock mechanism to be vandal-proof and complete with an anti-thrust mechanism.
- Any accessible strike region to be protected by a guard, at least 150mm above and below the lock centre, but preferably be full door height.
- Half-Euro barrel key mechanism to be provided on both sides of the access-leaf door.
- Second leaf doors to be provided with manual bolting facilities top and bottom, for system fail emergency use only, star-key operated to prevent normal use.
- No mechanical hold-open facilities to be provided for the doors.

Fire Alarm Interlock

All electrically locked internal link doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Type **F6** Door

Internal, single-leaf Link door,

(Blocking access both ways. Normal entry/exit during building occupation times only.)

To be equipped with the following:

Door monitoring contact

- To be provided for the door.
- As required to be of the magnet/reed type mounted internally, generally on the top edge of the doors, at the maximum practical distance from the hinge side. If strike lock option is used, a single contact set mounted generally above the strike lock to be used to monitor both doors in conjunction with the bolt monitoring facility of the lock.
- All exposed cabling to be provided with a tamper loop.

Electric lock.

- Mag lock suitable for size of door
- Operating voltage to be 12v dc. Internal sensing to be incorporated to prove correct locking.
- All exposed cabling to be provided with a tamper loop.

Green emergency break-glass units.

- To be mounted internally, adjacent to the designated door to allow easy access for normal and disabled personnel.
- Primary action to directly break the door lock supply
- To be monitored at all times, generating an audible and auditable alarm event on operation.

Door, frame and furniture.

- Door must be adapted or replaced to be suitable for access control.
- Suitable door closer must be fitted.
- Lock mechanism to be vandal-proof and complete with an anti-thrust mechanism.
- Any accessible strike region to be protected by a guard, at least 150mm above and below the lock centre, but preferably be full door height.
- Half-Euro barrel key mechanism to be provided on both sides of the access-leaf door.
- No mechanical hold-open facilities to be provided for the doors.

Fire Alarm Interlock

All electrically locked internal link doors are to be interlocked with the local fire alarm systems to unlock during a fire alarm condition.

Addition G1

Override Key Facilities

Access control override key facilities, where required to allow local goods access, will be provided by the installation of a key operated switch.

- Key-switch to be half-Euro barrel type with key removal in a single 'normal' position only.
- Key operation to open the lock circuit and block the door monitoring switches from generating an alarm.
- The key is to be retained in the override position, to stop the door being left in an 'alarm deactivated' condition.
- Two-pole switch action required: (Pole 1) to drop power to latch and/or lock, (Pole 2) to block alarm generation of door monitoring switches.
- Where latch and lock are fitted for a double leaf door, the common negative supply is to be broken by (Pole 1).
- Key differs to be agreed between the department and E&F, as suitable.
- Switch housing to be flush-mounted wherever possible, with 'security' type face-plate fixing screws.

Addition G2

Card activated door override

In special circumstances, a normally 24hr locked, card entry only door, can be provided with an additional key-pad equipped card reader, located within a secure/manned area to provide an override facility.

The override when active will place the controlled door set in the free access unlocked mode, blocking all alarms. The additional reader will use the standard '*' commands to activate and de-activate the override for as long as required. De-activation will revert the door set back to its normal 24hr locked, card entry only mode, and enable the associated alarms.

In operation, the additional reader will only be used when the location where it is installed is manned, the person manning the area using their ID card to activate the override only whilst they are present. Leaving the location at any time, they must deactivate the override.

Addition G3

Electric Door Hold-opens

Internal links to other buildings, and some corridors in heavy traffic areas, have fire doors equipped with electric hold-open devices. These allow the doors to be held in the open position, unless a fire condition occurs, at which time the electric hold opens are released to close the doors to provide the fire barrier.

Where these doors are to be used by the access control system to provide additional internal security barriers, their hold open circuits will be modified to allow automatic closure by the access control system as well as the fire alarm system.

- Integrated closer / hold-open is preferred option.
- Magnetic type hold-opens to have suitable power for the doors they are fitted to.
- Preferred operating voltage 12v dc.

The direct interlock connection from the fire alarm system to be retained, to drop the door hold opens on alarm condition.

At lock-up, the access controller must also drop the doors to allow locking.

Day mode: Doors unlocked by the Access System, and hold-opens energised, personnel may then place the door in their hold-open position if desired.

Night Mode: Hold-opens de-energised and electric locks energised.

Fire Mode: Hold-opens de-energised and electric locks de-energised.

Local green Emergency break-glass operated: For emergency use when no Fire Alarm is present and the doors are in 'Night mode'.

Electric locks de-energised and monitor alarm is generated.

Addition **H1**

Local alarm Unit

A self contained, local audible alarm unit to be fitted internally, adjacent to monitored door to provide a local alarm when door is opened.

- Unit to be self contained, triggered from separate magnetic door contacts.
- 12v dc powered, from Access Control system or local power.
- Hi/Lo tone sounder required.

Addition **H2**

Local alarm sounder

Local audible alarm sounder fitted internally, adjacent to monitored door to provide a local alarm when door is opened without a valid card read or pass-back signal.

- Sounder to be initiated from an auxiliary output of the local door Access Control interface.
- 12v dc powered, from Access Control system.
- Hi/Lo tone sounder required.

General Requirements

Access controlled Perimeter doors

All access controlled doors fitted with an IN reader must also have an Exit reader installed. All other perimeter doors must be mag locked and controlled via a programmable auxiliary output making the building secure.

Perimeter Door Alarm.

Each individual building is to be provided with perimeter door alarms, derived from the local Access Controller for reporting to the University Central Control Room.

Internal Door Alarm.

Each individual building is to be provided with internal door alarms, derived from the local Access Controller for reporting to the University Central Control Room

Battery Back-up

A minimum of 30 minutes battery back-up will be provided to maintain the systems fully operational during power outages, which should allow sufficient time to arrange for manual locking arrangements to be made should the outage persist, but some situation may merit a longer battery backup, depending on risk and consequences of failure.

Telephones

Internal, and adjacent to every access controlled main entrance, a telephone will be installed to afford non-card holders a means of egress, via contacting the University 24hr Central Control Room.

Security will then attend to deal with the release.

It is anticipated that occupants of the buildings, who have visitors staying after the normal lock-up times, will escort their visitors out of the building allowing them egress via their own 'cards'.

Fire Alarms

In general, all perimeter doors will be unlocked automatically by their associated fire alarm systems. The locally provided, green emergency break-glass units will also allow egress as required.

Fire interlock relays must be provided adjacent to all controllers and lock power supply units.

All electric door locks are to be of the magnetic type only to ensure doors fail in the open position.

Signage

Main entrance

All signage associated with entering and leaving the building, together with the provision of a local internal telephone, will be the responsibility of E&F. All Access Controlled buildings to be provided with adequate signage to inform those entering of the times when 'lock-up' will occur.

"WARNING

This building, including all associated perimeter doors, will automatically lock between the hours of 18:00 and 08:00, Monday to Friday on normal working days.

If you hold no rights of entry/egress for this building, and are intending to be within the building after lock-up, please ensure that your host escorts you out. Apologies for any inconvenience."

Instructions also to be provided to inform those unable to gain exit what they must do.

"INFORMATION

If you are unable to gain exit from this building, please use the adjacent internal telephone to contact the University Centre Control Room on Ext.22811."

Other perimeter doors

All other perimeter entry/exit doors, which are monitored and automatically locked by the Access Control system but not equipped for card entry, are to be provided with warning signage.

"WARNING

Please note that this door is monitored and alarmed

Information

This door will automatically lock between the hours of 18:00 to 08:00.

For egress or entry to the building outside of these hours, please use the main access controlled door. Location stated."

All perimeter Fire/Emergency doors, which are monitored by the Access Control system, are to be provided with warning signage.

"WARNING

Emergency Exit Door, only.

Please note that this door is monitored and alarmed."

Lift Signage

Where lifts are fitted with access control, to inhibit transport to specific floors under time regimes, instructions must be provided within the lift car to inform the users of what to do if they are in transit when the time-zone regime is activated. Exit from the lift at a restricted floor level will not be allowed and an unrestricted floor button will require selection.

Lift control is not be funded by E&F so the required signage will also be charged to the individual department.

"WARNING

**Access to levels 3 and 4 is restricted between the hours of 18:00 to 08:00.
If you are in transit at 18:00 the lift doors will not open onto a restricted floor.
Please re-select an unrestricted floor to exit the lift."**