SYSTEM PLANNING

Forward thinking and planning is essential and will save a lot of hassle in the long run and will ensure that your system looks neat and is well suited for the purpose.

Often we go into brand new blocks of flats and have to run trunking everywhere because the architects have not given a single thought to the customer’s requirements for access control and security.

In multi-occupancy blocks doors need to be of commercial grade (NOT PVCu) with built in door closers and factory fitted with an Adams Rite Door Release or if a high risk area twin magnetic locks (built into the door jam)

We are generally finding multi-point locking systems which are totally useless for door entry applications and lots of trouble when they go wrong.

The exit button, break-glass, fireman’s switch etc can all be fitted and tubed back to a suitable junction point (ie to the panel or under-stairs cupboard)

A TYPICAL SYSTEM IS AS FOLLOWS :
WHICH SYSTEM SHOULD I CHOOSE?

Decisions, Decisions . . . . .

1) Video Entry or Audio Entry?
2) Do you need access control (ie keypad or proximity)
3) Style of panel (ie stainless steel, Brass, Aluminium, anti-vandal)
4) DDA Requirements
5) Style of handsets or monitors
6) Locking method (Fail Safe / Fail Secure)
7) Controls (ie exit button, break-glass, fire interface relay)

System Wiring

Currently there are many different types of system available:

**Audio Systems**: 5 Wire Audio, 2 Wire Analogue Audio, 2 Wire Digital Audio, Wireless, GSM, IP, PABX, Direct Fixed Line

**Video Systems**: 5 Wire & Coax, 4 Wire & Coax, 3 Wire & Coax, 4 Wire, 2 Wire, Wireless, IP

“Being old school I would always suggest a cabled solution”

Being old school I would always suggest a cabled solution as it is totally separate from other building services and therefore will operate if other networks or infrastructure fails, costs a little bit more at the point of installation, but has the advantage of **NO ON-GOING CHARGES**.

Many new build council and social housing blocks are being built without cabling being run in and instead rely on fixed line or GSM solutions. These are fine, but often you are reliant on the provider for altering the telephone numbers on the system when people move out (these services may not be free) so you may end up with a door entry system that calls the bloke who used to live there! Particularly an issue if the block has a high turn over of tenants.

You also have to consider the ongoing costs with these systems ie cost of a fixed BT line or Mobile Phone Contract (or Pay As You Go) and call charges. (every time you get a visitor or time waster, it’s adding to your bill)
DDA REQUIREMENTS (AUDIO)

If you are fitting a new system into a block of flats or offices, you are now required to provide accessibility for disabled users, there are a few different options these panels offer clear illuminated buttons, speak now and door open buttons and are often longer so that they are viable for able bodied users as well. Whilst this is ok for 1 to 1 audio systems things get a bit more complicated when you have multi-way systems or video entry.

BPT PANELS

VIDEX PANELS

BELL SYSTEM (BSTL) PANELS

If you have a receptionist, a large call switch (like the one shown below) can be linked to the call button for the reception handset, the button can be mounted at low level or on a post, so it is easily accessible to wheelchair users to call for assistance. This then means the panel can be mounted at a more reasonable height for able bodied users.

TYPICAL DDA CALL SWITCH
DDA REQUIREMENTS (VIDEO)

With video entry systems there is an obvious problem with camera positioning, if the panel is mounted low (for disabled users) you may get a good picture of them, but a trouser shot of everyone else. The solution is to go for a system with a separate camera input, that way the buttons and speech unit can be set at an appropriate level and the camera fixed in a different location to provide a wider viewing angle of the door and caller.

Spot the problem with the system below

THE BLACK CROSS ON THE WALL IS AT 5ft 7” (ie Average Height)
LOOK AT THE HEIGHT OF THE CAMERA, TOTALLY USELESS !!!!!!!

IF YOU ARE GOING TO DO THIS, FIT AN AUDIO SYSTEM AND SAVE YOURSELF A LOT OF MONEY
**AUDIO SYSTEMS (1 to 8 flats)**

For traditional 5 wire audio systems an 8 core BT cable (conforming to CW1308) to each flat is usually sufficient (this leaves 3 spare cores for emergencies) if a second handset is required these can generally be looped on (to a maximum of 3 with AC call buzzers) with small systems (typically 1 to 4 flats) these can be run directly to the panel, also run a 12v supply cable from landlords cupboard and a lock release cable.

LOCK CABLE : (position depends on lock type, for Yale Rim or Union Mortice types run to door jam, for Cisa types run across door to lock body (via a door loop) See lock section for magnets and other locking devices

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**AUDIO SYSTEMS (LARGER SYSTEMS 9-20)**

For larger systems, run all cables back to a junction box (ie under the stairs or where power can be drawn) then run sufficient cables to the front panel for call wires, power, speech and lock release (preferably a few spares too) and join with connector strip neatly inside box (label all cables with flat numbers clearly.

LOCK CABLE : (position depends on lock type, for Yale Rim or Union Mortice types run to door jam, for Cisa types run across door to lock body (via a door loop) See lock section for magnets and other locking devices
AUDIO SYSTEMS (LARGE SYSTEMS 20-100+ FLATS)

Once you get above 20 flats the panels can become too large and visually unacceptable (especially if space is limited), at this point you can either go with a elegant multi button panel (below) or consider a 2 wire digital system, the wiring can remain the same as the previous systems (unless cable spec from manufacturer is different).

Lots of buttons, need not be ugly . . . . . as these two demonstrate

The 2 Wire Digital Audio Panel From Videx.
IMPORTANT NOTE: If you choose to go with a digital audio door entry system or video entry it is worth picking a unit where the binary code is programmed in the handset via dip switches or jumper pins. If the handset does not have this set up, when the front panel goes wrong you will need access to all the flats in your block to re-program (ie learn) the handset to the panel . . . . . this is not really an issue in a very small block, not so great with larger systems.

Do Not Buy Cheap Gear.

Currently there are many cheap multi-way video entry systems on the market, these models tend to require power at the front panel and a 240v supply at each monitor (costing you more money to install (ie fused spurs in each flat) in our experience these systems do not last long and in most cases are not easily repaired.

Generally quality brands are centrally powered systems and will often only need additional power supplies if there is more than one monitor operating at the same time, these can often be fitted with the rest of the control gear if sufficient cables have been run in.

Buy from an established manufacturer

For video entry systems we would suggest a 12 core BT cable (conforming to CW1308) and a coax (type RG59) to each flat as a general guide. NOTE: some manufacturers ie AIPHONE, BELL SYSTEM, BPT may specify their own cable requirements (some will operate on CAT 5)

Refer to system instructions for second monitors (as often it is not simply looped on)

On very long cable runs maybe up this to a 20 core (conforming to CW1308) so that power supply lines can be doubled up.

Run all cables back to an under stairs cupboard and terminate there, most systems will be fed from a main transformer / distributor or switcher (if more entrances are present) So allow some space for the equipment and access for servicing etc.

VIDEO ENTRY SYSTEMS
Run sufficient cores and coax to the front panel allowing for calls, power, speech lines, lock may also be fed from the distributor as well) and any additional requirements (ie proximity readers, coded keypads etc)

LOCK CABLE : (position depends on lock type, for Yale Rim or Union Mortice types run to door jam, for Cisa types run across door to lock body (via a door loop) See lock section for magnets and other locking devices

ACCESS CONTROL SOLUTIONS

Keypads (Stand Alone)

These are a neat solution if you need to lock a door, just add a power supply and lock release or magnet, exit button and breakglass.

Keypads (Built In)

If you need an intercom with coded access then there are many combined kits available from all the manufacturers, it then just comes down to a question of looks.
PROXIMITY READERS

As an installer we have found that the Paxton Switch 2 and Net 2 to be very reliable . . . . . . our customers like them too, as the fobs are easy to add and delete and with 10,000 users on the Switch 2 (stand alone unit) you will never be short of capacity.

PAXTON SWITCH 2

The panel mount reader will fit standard cut outs on most manufacturers door entry and video entry panels

PAXTON NET 2

The Net 2 is a computer based system, which is ideal for use in schools and offices for security control, the system enables flexibility for remotely locking doors and denying access. They have also introduced a wi-fi version that will communicate over short distances without the need for the Cat 5 link.

On-Line wiring diagram
Controller mounted in power supply housing

Net 2 controller wiring in power supply

**TYPES OF DOOR RELEASE**

- **Standard Rim Release**
  - (For use with Yale rim locks
    - fail safe or fail secure versions)
- **Mortice Release**
  - (For use with Union 2332 mortice locks
    - fail safe or fail secure versions)

There are adjustable jaw and AC/DC versions for both of the above releases
Momentary Action Release

This release stays open when momentarily energised and relocks once the door has been pushed open. It is handy for situations where the entrance door is a long way from the panel or there is an inner lobby door that needs to open at the same time as the main door (saves having a 2nd panel at the inner door)

Best suited for low traffic situations, a good fit of the latch into the release is essential without movement for it to operate correctly, the latch of the lock needs to push button in the keep inwards.

Adams Rite

The Adams Rite release is suitable for fitting into aluminium section doors, for DC and AC operation and can be internally reconfigured to be either fail safe or fail secure.

Trimec

The Trimec Lock Company also produce high security locks for fitting metal and wooden section doors.
CISA LOCKS

Cisa locks are ideal for high traffic and heavier duty applications, an additional power supply and relay may need to be added to most door entry panels to provide enough power to open these, but they stay open until the person opens the door it then relocks behind them.

Right Hand                           Left Hand

Cisa Handing Chart

You need to order the correct cisa lock for the application as they are handed.

Taylor Lock Company

The Taylor lock is an electronic lock (handed) which is suitable for installation into wooden doors. The door jam is fitted with a paddle that latches into the front opening, there is a little play in the paddle for alignment problems and to allow for the door dropping slightly. A little tricky to fit, but very secure.
MAGNETS

If you intend to use magnets to lock the main front door of a building, there are other issues that need to be considered.

1) Escape in event of a fire
2) Access to building by fire services
3) Access in event of system failure (ie proximity or coded access fails)

Shear Magnets

Not found these to be particularly successful, once the door drops (as it will) you can get problems with it locking consistently. We have also had problems with the armature plate self adjusting (due to constant movement)
Hook Bolts

Much like the Taylor lock principle a hook goes into the mechanism and is held locked (fail safe and fail secure options are available)

Drop Bolts And Solenoids

Once again good door alignment is essential for this type of lock to operate consistently

Glass Doors

Architects like glass doors, but how can you lock them? If you have a header and footer rail made of metal, then you could use a standard magnet, if the door is frameless some magnets are available with special brackets that attach the armature to the glass. If it is a swing door then a solenoid bolt or shear magnet is the only option (great if the door settles in the middle every time, most do not)
KEEP IT NEAT !

1. Mark all the cables up clearly (ie write on them with a permanent marker)
2. Use common colours and cable types for each phone (ie not a mix of B.T and Alarm Cable, or anything else to hand)
3. Keep the wiring neat and ordered (not like shown below)
4. Leave a diagram on site (with the panel) it will make it easier for you to wire it up and also help the person who has to come along and repair it.

Don’t Do It Like This . . . . .

A NOTE ABOUT FAKE CABLE

NOTE : There is fake 8 and 12 core cable doing the rounds (2009 onwards) and some major wholesalers have been caught out by taking it into stock, it is made of steel with a coating to look like copper. If the cable you have purchased has a bright white insulation, is not marked (CW 1308) and is unusually springy, test it with a magnet, if it sticks it is not copper. If you wire up your system with this cable it will not work, so save yourself the hassle and check it first.

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