Chapter Seven: Installation Types

LOCATION & ENVIRONMENTAL CONSIDERATION

Local Area The system will need to work effectively against all the potential hazards the local environment will throw at it.

Example; an Automatic Lift Barrier across a car park opposite a football ground would not be the ideal choice, as fans from the losing team could vandalise it every Saturday after a match. A durable 'Fail release' Automatic Swing Gate could be more suitable.

Environment Once again the system will need to operate against potential environmental conditions, such as coastal weather and salt filled rain, where the need for galvanizing of the metal-work and detailed finishing is highlighted. Exposed areas may have high winds that would affect the performance of close boarded or in-filled gates?

Water tables vary from site to site and from time to time throughout the year, and will affect the installation and possible performance or reliability of subterranean parts, This is highlighted with the use of under-gate operators, some of which have a very limited warranty when left immersed and some cables that are not ideal for long periods of saturation.

Location The location of the system may have a bearing on its safe use and the level of convenience offered by it. E.g. Systems installed adjacent to a main road could cause an obstruction if large vehicles are delayed in gaining access.

Geology The geology of the local installation may have a bearing upon the whole system design and suitability of any foundations, base or drainage, etc. required throughout the life of the system. Clay and movement, land fill and other such unstable types, may need to have additional care?

Access The type of system may well have a direct effect on suitable access through the opening. For example, a sliding gate may well be best suited to control the entrance to a court yard, where space is limited.

Level of use Total operations in an average day, is a measurement that is used for maintenance calculations and wear & tear, as well as the type of operator system design and materials needed within the physical element.

Often the assumed level-of-use, is lower than evident once the system has been in for a while. This usually happens when the original design is for the system to be left open during the day and only used infrequently. This situation can change with new management or customer need, such as an increased requirement for a revised security or safety purpose.

The number of operations per day is an important part of the design criteria, however an expectation of increase should always be allowed for.

Saturation of operations is found when users arrive on masse and the system barely completes one full cycle before starting another. This can happen during rush hour or factory shifts when the level of use is increased for a period of time. Adequate safety cover is vital during these situations and some systems are designed to control every movement, with others allowing free egress (the barriers across a Toll road stop each vehicle so that payment can be made, whereas for a block of flats may wish people to simply leave).

Very high use sites may be designed to control traffic in one direction at a time and also be faster in operation so that they avoid unnecessary delay.

Very little use, can also cause reliability issues if it is not considered in the original design (idle running from the control panel etc. could aid in these cases)

Sites that have a varying level of use can be equipped with a combination system, such as lift barriers during peak times and gates for more secure periods.

Traffic flow Every site is different and as such will have its own restrictions. Two-way traffic through a single opening is a commonly found

scenario, however separate entrance and exit systems are recommended where the budget and site layout allow. The level of use and type of traffic will have a bearing on the system type and its opening size.



Traffic lights The long term effect traffic lights will have on a system is subject to each site's detail. Lights are essential on systems that retract out of site, like Bollards or Road Blockers, so that the user doesn't drive into them, however when directional traffic lights are used, drivers often follow a 'Green Light' without adequate caution and accidents still happen. Traffic flow mirrors can be a better solution, as drivers become more cautious.


Roller shutters Most roller shutters are designed to work about 10 times a day and with regular maintenance may offer approx. 25 years' service (100,000 operations). This rule is a good guide when considering a roller shutter or grille to secure the entrance to an underground car park. As the number of operations a day increases the life expectancy reduces accordingly, however, the risk of abuse and accidental damage increases dramatically. A shutter serving 50 car park spaces to an office block may well be subject to 125+ operations a day and as a result, could only be expected to last less than 2.5 yrs.


PEDESTRIAN ACCESS AND THE HIGHWAY

Pedestrians Pedestrian access through a vehicular route should always be avoided and actively discouraged. Asking pedestrians to walk in the roadway is poor practice and may put lives at un-necessary risk. A separate gate or path is recommended where possible. Systems that have to cater for pedestrians should include adequate safety cover.

Wicket gates (a gate within a gate) are **not recommended** on any automatic system and should not be considered unless special arrangements are made to disable the system when the wicket gate is open, even then the mere fact that inviting someone into a potential danger area of the gates movement should be enough to avoid this at all costs and find an alternative solution.

Side or pedestrian gates should be wide enough for use, safe in operation and designed with disabled persons in mind, with security to suit the design requirement.

If access security is a requirement, there may be a need for **self-closing** and suitable locking, both of which could have a bearing on the construction and mounting of the gate.

Manual gate closers either above or below ground will require set geometry of the gate and as such are best allowed for at the original design stage.

Automatic controls may be added to pedestrian gates and will require suitable hinges, subject to type with specific consideration given to intended users including the disabled.

Ped. Access types: **Open** or **free access**, is where there is a gap in the boundary or around the entrance and there is no restriction of pedestrian access.

Shared or **combined access**, is where the same entrance system is used for both vehicular and pedestrian access. This can be limited pedestrian use with full vehicular use, when the system only opens part way as required.

Combination access, is where there is a dedicated side gate or other such pedestrian only route, created nearby the vehicular one.

Alone or **standalone access**, is where the pedestrian access is removed or away from the vehicular entrance.




Pedestrian control **Unrestricted**, is where there is free access in and out through the pedestrian route or gate.

Latch, is a basic low security locking facility that may only restrict access of small children or stop the gate blowing in the wind. Also could be used from a single side of the entrance only, if free access in one direction is needed.

Restricted, is where the pedestrian route is controlled in one or both directions, Entry and / or Exit, according to the owner's requirements.

Locking, is the type of securing required and allows fail secure or fail release, dependent upon the needs of the site.

Timed, this is where any mode of operation is controlled or overridden during time periods as required. Tradesman access is a typical use of such a facility.

Closer, is a device or hinge arrangement that closes the gate after it has been opened or vice versa if so required?

Powered, is when the pedestrian system has its own operator or controls that move it as required, without manual aid.

Sprung, is when the gate (or similar) is held under load (pre sprung) and may open or close during a particular need. An example is fire doors, normally held back, but release under their own control during an alarm state, etc.

SYSTEM CRITERIA

WORK LOAD, USE & MIS-USE THE SYSTEM IS LIKELY TO DEAL WITH.

Domestic A domestic system is usually one that is installed across an access way of a single private dwelling, normally low usage, up to 20 operations a day and used with reasonable care.

Restricted Private would usually be a domestic installation located within a private estate, often serving a secondary access point.

Multi-user A multi-user system is usually residential and one that more than one/two families would use. Also it could be used as an access point to premises used for light private business and family residence.

The number of dwellings or parking availability for the site, usually provides a fair guide to the expected level of use a system should be designed to deal with (3 or 4 times each space for residential and 4 to 6 times for commercial).

The typical usage level for a multi-user site is assumed to start at 20-60 operations a day as a minimum, going up to saturation at about 300 operations (but not usually over 200).

Due to the higher level of use and subsequent additional misuse all multi-user systems should be designed to withstand more abuse and continue working against tougher conditions than that of a domestic system.

The likelihood of damage is greater and the demands on the system higher, therefore every element of the design is usually more robust to suit. Accidental damage or vehicular impact are also more likely so a margin of error should be accommodated.

The consequence of the system's performance often affects more people so that the failure status and mean time to repair (MTTR) should be a major consideration within the original design. The more people that are inconvenienced the bigger the demand. A suitable system support agreement should be provided to ensure adequate service and continued operation accordingly (Hotels, hospitals, etc.)

Public Typical Public locations are areas where there may be a higher level of general public presence as users and / or by-standers. Schools, hospitals, sports centers etc. are such locations where young or vulnerable users and by-standers are often in the vicinity, so additional care in system design is needed.

Estimated levels of use will vary according to periods of access required and often become considerable.

Commercial A commercial system is one that caters for business, commercial or a mix of either type traffic and is light industrial, usually wider and sometimes taller. Retail or business parks and similar developments may have staff access or restricted parking control systems that are neither wholly residential nor industrial.

The typical level-of-use is assumed to be similar to a multi-user system catering for the same capacity of users.

These systems often cater for a constant flow of users throughout the day and therefore, pose heavier workloads on any entrance.

The attitude of the users can be more demanding on the products and the need for security greater, once again resulting in a higher design and engineering specification to suit.

Restricted Commercial would usually be an installation located within a commercial site, often serving a lesser used secondary point.

Industrial An industrial system is often exposed to longer durations of heavier traffic, machinery, and daily abuse than a commercial system. It could, however, simply have a greater security or safety purpose, such as a military site or location of higher danger to the public like a power station, water works, railway or similar.

Industrial systems should be designed to deal with **'worst case'** conditions and levels of abuse, allowing for a far stronger physical product and controls.

Restricted Industrial would usually be an installation located within an industrial site, often serving a lesser used secondary access point.

Busy A Busy location is often one that has a mixture of uses and needs. It may be subject to varying demands during different times of the day, or days of the week. In such installations the whole system design should cater for the most extreme or demanding of needs anticipated.

Levels of use should also focus on the most active demands that would be placed upon the system