GATE SAFETY BY DESIGN

Identifying the correct gate or barrier solution

Generally, it is an architect's responsibility to specify the correct style of gate or barrier most suited to a site.

Firstly, let's clarify a basic tenet of site access control and security. If you are looking to provide an access control solution exclusively for vehicles, a barrier is the best option but if you need to include pedestrian access, or security is an issue, a gate should be considered – with segregated access for non-vehicular traffic. We often hear comments where a client requests a barrier with a skirt, to stop pedestrians from going under the barrier. The response in this instance should be, if you have pedestrians using the barrier, you should be installing a gate, not a skirt. Whilst the latter is cheaper, it comes with a hefty price in terms of compromising pedestrian safety.

WHICH STYLE OF GATE?

Whilst sliding gates are great for security, their weight and size means they have a slower opening speed, which makes them a less than an ideal choice for traffic control. On the positive side, because a sliding gate does not require the space for a gate to swing into, they can often be fitted without impinging into the site.

Swing gates are generally accepted as the norm for a domestic setting. These gates should always open inwards to avoid potential contact with pedestrians using a walkway. Wind loading risks should always be considered and heavier solid infill gates are likely to require more powerful operators to overcome wind forces.

Bi-folding gates – which are a type of swing gate – are a good choice for a restricted space as these gates effectively half the arc of the movement of the gate. However, there is the potential for the gate to open and close at a greater speed than a traditional swing gate which can pose a risk which will need to be mitigated. The increased amount of moving surfaces and gaps dictates an increased amount of safety devices compared to a standard swing gate.

Telescopic gates – which are a type of sliding gate – represents two leaves running next to each other which both extend and retract. These are an expensive investment and care needs to be taken to protect the obvious drawing in risk.

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MATERIALS MATTER

The two materials most frequently used for gates are timber or metal. In general, a metal gate will offer a longer life span, but it is likely to be heavier to move and will therefore require the appropriate safety measures to mitigate the increased risk associated with being hit / crushed or dragged by a heavy gate. A metal gate will need protection against corrosion so should feature either a galvanised or an added powder coated finish (PPC).

A wooden gate will also need the relevant timber preservation treatment to deliver an enhanced defence against wood-boring pests and wet & dry rot.

Composite and lightweight aluminium gates are also becoming popular options. Be aware that these can, without the correct supporting frames, be over flexible and not supply the appropriate rigidity required to deliver a reliable operation.

When addressing the need for materials to be suitably robust to endure the challenges of the outside environment it is worth mentioning that there is no point spending money on a gate with a 20-year guarantee unless the posts that are installed offer the same level of guarantee, ie make sure that all the components of the gate offer a similar service life.

If mesh is included in the fabric of the gate take time to identify the correct profile (shape) and gauge conducive to the setting.

Consider whether the gate posts will be bolted down or concreted in. If posts are to be bolted, the pads must be fabricated from the right concrete to enable a secure and stable fixing – and that fitting must be capable of withstanding rust to avoid compromising the integrity of the post fitting. Posts must be fit for purpose and therefore have secure and sufficiently deep foundations. Ground conditions will determine what is needed - for example, looser soil requires a bigger, deeper foundation.

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RETRO WELDING

Remember that any alterations to an existing gate structure or gate supports on site may compromise the safety of the original gate design and should therefore be kept to a minimum. This can include the fitting of automated components to allow for automated components to be installed such as the mounting bracket for ram operators, which must be sufficiently protected against rust so to prevent weakening the overall system.

Ideally, any gate that is going to be automated should have safety designed in from the outset, rather than 'making the gate / machine as you go along'. No installer should ever feel pressurised into automating a gate if they don't think it is appropriate – and ultimately safe – to do so.

WATER WISE

Any automated gate which features an underground operator must be in a setting which offers good drainage to avoid the likelihood of the casings potentially sitting in water. Unless this is resolved as part of the overall gate design, if the motor is fully submerged in water for extended periods it will fail.