



# AUTOMATIC GATES



## GUIDANCE FOR **SCHOOLS**

Gate Safe  
Beverlea, Clavertye,  
Elham, Canterbury  
Kent. CT4 6YE  
t: 01303 840 117

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# AUTOMATED GATES

## GUIDANCE FOR SCHOOLS

The head teacher, facilities team, governing body and LEA all have roles to play in the implementation of an effective security strategy for a school. Schools are regulated and inspected by Ofsted, and part of the audit process will naturally cover the security of the site, which by definition will also include assessing its overall safety.

Automated gates offer an effective solution to managing access control, which includes not only safely containing the children within the school site during standard hours, but also restricting the flow of additional visitor traffic to protect pupils and staff from unwanted or undesirable individuals.

However, whilst automated gates undoubtedly deliver an improved level of security, designed to enhance site safety, unless this type of installation is appropriately installed and adequately maintained, the very device intended to protect can in fact inflict considerable harm and represent a significant hazard.

Parents / guardians send their children to school in the belief that they are placing them in a protected and secure environment so schools considering investing in a new powered gate, or those whose sites already feature this type of access control should ensure they follow the correct protocol to ensure a safe and legally compliant installation. This is first and foremost to uphold the highest standard of safety and to meet the duty of care responsibilities commensurate with this type of facility. However, thought should also be given to the potential legal and financial ramifications in the event of an accident involving an automated gate, as well as the significant negative publicity such an incident will attract resulting in irreparable damage to the school's reputation – and ultimately to the school's revenue.

### Is an automatic gate required?

Gate Safe believes there are a significant number of school sites, which feature automated gates when in fact, a manual gate or possibly a turnstile would have delivered a more appropriate solution – representing a far more cost effective option. There is little point in investing in an automated gate if it is not going to be used on a regular basis, equally if a gate is required to allow

multiple cars or people through without the requisite security checks,

an automated gate will be adding little to the overall security of the school site.

See our advice on manual gates at the end of this document.



Making Gates **Safe**

## Aesthetics

Those involved in implementing security measures for a school should be mindful of the need to establish an appealing and attractive learning environment, rather than risk creating a prison like institution. If the automated gates feature as part of the overall perimeter security, the gates will need to emulate the design and style of the perimeter fencing which is likely to be in the guise of a robust steel railing. For school sites, the preference would be to specify a gate that features a hot dip galvanised finish to provide maximum resistance to rust, which is then polyester powder coated to enhance the level of protection. Aluminium or stainless steel gates do not require a coating for protection purposes but

aluminium can be polyester powder coated to create a gate to match the general corporate school colours.

A gate over 1.8 metres that is solid will of course effectively screen the school from any unwanted visitors and safeguard against any potential acts of voyeurism – but equally, if an intruder does manage to gain access to the school site, they won't be seen and can therefore continue to operate unlawfully without fear of reprisal!

If the gate is less than 1.8 metres high then there is little point in the school investing heavily to install a solid gate as in terms of security, this can easily be scaled.

## Type of gate

### **Automated gates come in a variety of configurations:**

swing, sliding, bifolding or telescopic. For a school site, the most likely choice will be either a swing or sliding gate. Automated swing gates offer the most cost effective solution and are the easiest of all automated gates to install. However, a swing gate will be more adversely affected by windy conditions so care needs to be taken to ensure that wind load factors are taken into consideration. A swing gate may also be problematic if the driveway is sloping whereas,

sliding gates will not be affected by wind loading issues and if installed correctly are very reliable, especially if they are a cantilevered system without a track. All automated vehicle access points should feature a separate independent gate to allow for pedestrian access. Where the pedestrian gate is located next to the vehicle gate, there should be fencing or a guard rail to ensure that pedestrians are kept away from the main gate during its operations.

## Type of gate operator

A swing gate functions using either a ram, underground or crank arm operator. Ram operators will ultimately offer the most 'powerful' solution to opening and closing the gates but because of the crushing hazards associated with this style of operator (especially if the gate is opening against a solid object) care must be taken to incorporate the necessary safety features to avoid an accident. Swing gates fitted with a ram operator are also easier to maintain because the operating equipment is not buried underground and is therefore easier to access. Although common practice is to position the ram at about waist height, the most sensible place to site the ram would be at the top of the gate, provided the gate is of a sufficient height to prevent being reached by young children's fingers - bearing in mind the need to access the manual release.

An underground operator clearly has the advantage of not detracting from the aesthetic charm of the actual gate but schools should be aware of the expense associated with installing this type of operator; in addition to the added complications in terms of maintenance due to the limited access and potential water ingress.

A crank arm operator is typically suited to moving smaller gates and acts like a pair of scissors when opening and closing so special attention needs to be paid to ensuring the safety of this type of operator.

A sliding gate is usually operated by a rack and pinion mechanism. Attention should be paid to the support rollers and these must be made in such a way as to reduce a drawing in hazard. Both the support rollers and the motor drive should feature some kind of physical protection around the support posts as well as physical stops in the open and close position to prevent over-travel.



## Making Gates **Safe**

## Site conditions

When installing an automated gate the site should ideally be level **throughout the travelling distance of the gate**. To prevent possible attempts by an intruder, the gap under the gate should not be more than 100mm. If this cannot be achieved further safety devices may be required to ensure the gate's safe operation and to prevent reducing gaps under the gate from creating a further hazard.

## Method of entry and exit

There are a variety of methods, which might be employed to gain access to premises using automated gates. The degree of security provided by the gate will be largely dictated by the method of entry and this in turn will have an impact on the safety requirements of the gate, see the table below.



Type of Entry / exit	Control over security	Safety required
Ground loop	1	Maximum
Push button	1	Maximum
Radio remote control	2	Maximum
Digital keypad	2	Maximum
Coded card reader	3	Maximum
Audio/video intercom	3	Maximum
Biometric card reader	4	Maximum
Automatic Number Plate Recognition (ANPR)	4	Maximum
Automatic Number Plate Recognition with secondary security check (e.g biometric)	5	Maximum
Guard house with remote control intercom	4	Maximum
Guard house with hold to run control	4	Minimum
Guard house with hold to run and airlock	5	Minimum
Time clock	1	Maximum

Key – 1 = None, 2 = Minimal, 3 = Fair, 4 = Good, 5 = Excellent

## Safety recommendations

**Before** an automated gate is installed on a school site, a full multiple risk assessment should be undertaken by the installer, to identify all the potential risks associated with the gate. The installer should then put in place measures to eliminate or substantially reduce the likelihood of an automated gate accident occurring.

All automated gates should be installed with at least two different type of safety devices / features to protect gate users from the risk of injury or worse, as a result of becoming trapped by the gate. As the leading and original campaigner for improved standards of safety for automated gates, Gate Safe recommends the use of photocells (or light curtains) and pressure edges on all gates that are automated. However, the person who takes responsibility for installing these devices must possess the appropriate knowledge to understand WHERE the devices should be sited to mitigate or eliminate the risk. The installer must also have a clear understanding of how to select the correct pressure

edges to ensure that they are capable of effectively stopping and reversing the gate when an object / person is detected.

Try to avoid time clocks to hold the gates open due to the risk of gathering parents and children waiting for the gates to open. Use a flashing lamp, with a pre-flashing warning to provide plenty of notice that the gates will be moving and always ensure that photocells have been fitted so that the gate will stop opening in the event of an interruption.



## Additional factors influencing gate safety

In addition to the general automated operation of the gate and the risks associated with this, there are some physical factors pertaining to the gate itself or the siting of the gate, which may influence its overall safety.

If the gate is not solid (whether it is a swing or sliding gate), mesh is frequently used, as the infill for the gate. This poses a risk in that people may try and climb the gate or reach through the mesh. If someone reaches through the mesh, the risk of entrapment must be considered. Similarly there is a need to safeguard against the risk of someone slipping and falling whilst the gate is in operation. End stops should be fitted in both the open and closed positions to prevent any uncontrolled movement.

Vertical pales featuring on any automated gate are required to feature a maximum gap of 100 mm between the pales to minimise the risk of whole / part body entrapment.

Swing gate hinges must be fitted so that there are no reducing gaps as the gate opens and closes. If there are closing gaps, these should be protected by shrouds or electronically (ie using pressure edges). The failure of a swing gate hinge must not create a situation which could potentially lead to the gate falling, ie the failure of one component should not jeopardize the safety of the whole gate.

Gate posts must be sufficiently strong and correctly bedded into the ground to support the overall gate structure. The foundations into which the gate is installed must be adequate and consistent with the specific ground conditions for the site. For example a sandy type soil will require a deeper foundation than a stony soil.

The siting of any control equipment (push button or key switch) should be such that a person cannot put their arm through the gate to start the operation. Control equipment should always be (on both sides of the gate), a minimum of 1500 mm away from the gate or shrouded to prevent activation from the wrong side of the gate.

Objects which might obscure the photocells' ability to detect movement will also influence the safety of the gate. Snow, a build of leaves or general debris can therefore represent a further potential safety hazard by stopping the gate from operating.

Automated gates should feature a lockable IP rated control cabinet, visual and / or audible warnings and signage. The electrical connection into the mains must be tested by an electrician qualified to 19th edition.

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## Legal Responsibilities

### Installer:

Health and Safety at Work Act 1974  
The Workplace (health, safety and welfare) Regulations 1992  
Provision and Use of Work Equipment Regulations 1998  
Supply of Machinery (safety) Regulations 2008

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## Finding an installer

Schools should always seek out a Gate Safe Aware trained installer who has undergone the specialist training required to understand the protocol required to ensure a safe and compliant automated gate installation. Suitably trained installers can be found on the Gate Safe Aware installer register featured on the Gate Safe website ([www.gate-safe.org](http://www.gate-safe.org)).

All automated gates are legally required to be CE marked to demonstrate that they comply with the Machinery Directive. In addition all gates must be supplied with a Declaration of Conformity, issued by the Responsible Person (normally the manufacturer) declaring the product's conformity. It is worth noting that a gate that is CE marked is not necessarily safe!

Once the gate has been installed the installer should provide a handover pack that will include:

- Location of control cabinet keys and manual release keys
- Details of how to put the gate into manual operation
- Details of key contacts
- A maintenance log book

In addition to this key personnel at the school should also be given a comprehensive briefing on how to use the gate, witness a demonstration on how to place the gate in manual operation and be provided with details of the weekly checks (on the safety equipment fitted and the gate structure itself) that need to be carried out to ensure the gate continues to operate correctly and safely.

## Maintenance matters

All automated gates require routine maintenance. The gate should be checked over by a suitably trained and competent installer every six months as a minimum. Most reputable installers will supply an automated gate with a warranty of a minimum of 12 – ideally 24 – months covering parts and labour.



## Guidance for manual gates

If the decision is taken to install a manual gate, care must still be taken to mitigate against any potential safety hazards:

- finger guards should be placed over gate hinges to avoid fingers becoming trapped and a soft close feature should also be in operation to prevent further slamming or trapping of fingers
- hinges should feature tamperproof screws and bolts
- all gates must deliver a clearance of between 60 – 110 mm to reduce scope for a foot becoming trapped underneath the gate
- there should be a minimum of 12 mm between the gate and the gate post, to prevent a child becoming caught in the gap
- all gates should be presented in a different colour to help children / parents avoid any fear associated with not being able to identify an exit quickly
- the failure of one hinge should not allow the gate to fail

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## I have an electric / automated gate what do I need to be aware of?

- Q.** Has the gate been installed / maintained by a Gate Safe (or suitably trained) installer?
- A.** If no, carry out an immediate risk assessment.
- Q.** Does the gate have any reducing gaps that are not physically or electronically protected?
- A.** If yes, contact a Gate Safe installer to carry out a risk assessment to eliminate the risks.
- Q.** Has the gate been maintained in the last 6 months?
- A.** If no, contact a Gate Safe installer.
- Q.** Do you know what weekly checks need to be carried out on the gate?
- A.** If no, contact a Gate Safe installer.
- Q.** Do you know how to put the gate into manual operation?
- A.** If no, contact a Gate Safe installer.

If you are unclear on any of the above, visit [www.gate-safe.org](http://www.gate-safe.org).

## Important contacts

**Gate Safe:** [www.gate-safe.org](http://www.gate-safe.org) / [info@gate-safe.org](mailto:info@gate-safe.org) / 01303 840 117

**Handsam:** [www.handsam.education](http://www.handsam.education) / [info@handsam.co.uk](mailto:info@handsam.co.uk) / 03332 070737

**Health and Safety Executive:** [www.hse.gov.uk/work-equipment-machinery/power-gates/introduction.htm](http://www.hse.gov.uk/work-equipment-machinery/power-gates/introduction.htm)

## Glossary of terms

For a full glossary of automated gate related terms, visit the Gate Safe website, [www.gate-safe.org](http://www.gate-safe.org).

# Gate Safe working together with IOSH

GATE SAFE IS PROUD TO BE SUPPORTED BY THE FOLLOWING ORGANISATIONS



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