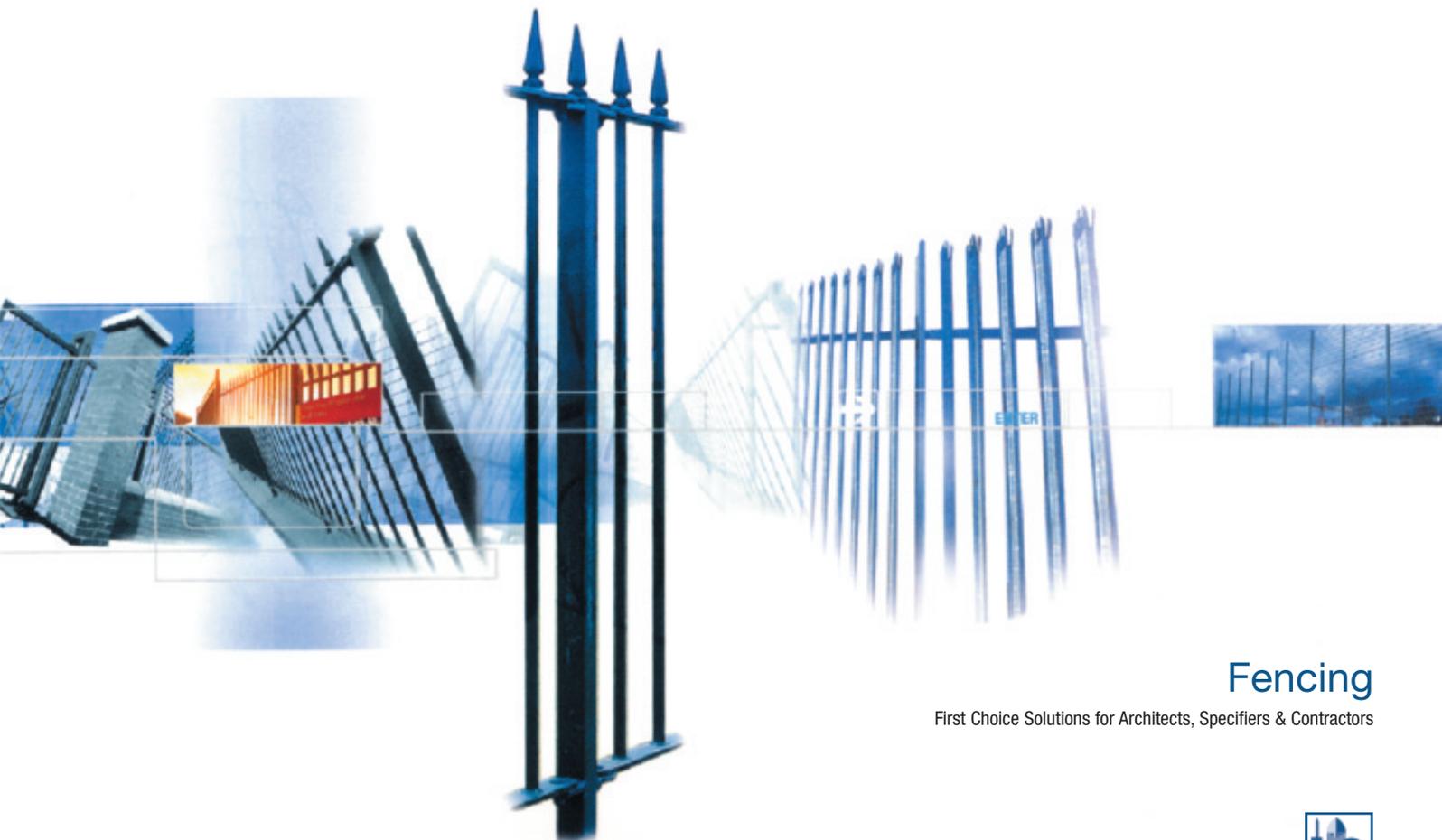




All-Round Protection

A Specifier's Guide to
Perimeter Security Fencing



Fencing

First Choice Solutions for Architects, Specifiers & Contractors



Perimeter security fencing is the first line of defence around an organisation's premises and is therefore vitally important. Furthermore, it is a significant factor in the first impression made on a visitor, whether they are welcome or unwelcome.

What many people do not realise is just how complex the subject of perimeter security is today. Not only are there legal requirements to be met, but each application has its own needs - so the solution to the problem is different in every case.

This specifier's guide to perimeter security fencing explains the different options available, presents the advantages and limitations of each, and steers the reader towards making the right decision that will provide the necessary level of security at an acceptable cost and without compromising other areas such as aesthetics.

Perimeter security achieves the following...

- Deters casual trespassers and/or determined intruders
- Increases the time it takes for determined intruders to breach the security
- Prevents unauthorised removal of valuable goods from a site
- Compliance with insurer's requirements - in terms of theft and public liability
- Marks the boundaries of a property

Security Pitfalls To Avoid

Whatever security measures are implemented, be sure to avoid the most commonly encountered pitfalls. These include holes that are left unrepaired, trees that grow up adjacent to fencing that make it easy to climb over, fences that are constructed alongside quiet, unlit roadways where a vehicle can readily - and without attracting attention - be parked alongside to provide an easy route over the fence, and other items such as wheeled rubbish bins that can be manoeuvred to aid climbing.

Security Starts With A Risk Assessment

Risk assessment is the best place to start when specifying perimeter security. Factors to consider include:

- the value of the property being protected
- the likelihood of an attempt to breach security
- the likely frequency of attempted breaches
- the risk to employees and members of the public of a successful security breach.

Essentially the risk assessment involves the identification and evaluation of the risks, for which security measures can be proposed. After this, the risks should be re-assessed to see if an acceptable level has been achieved. If not, either the proposed security measures need to be revised, or additional measures - such as security guards or CCTV - need to be proposed. Again, the risks are reassessed, and so the cyclical process continues until the risks have all been reduced to a level that is as low as reasonably practical (which takes into account the cost of implementing the security measures compared with the associated reduction in risk).

Risk assessments also need to be reviewed as follows:

- periodically - to check that there have been no significant changes to the factors considered in the initial assessment
- in response to any changes in circumstances - such as an increase in the value of the property being protected, or a spate of local burglaries or vandalism.



If facilities managers are not familiar with performing risk assessments, it is strongly recommended that the services of experts should be sought, as a risk assessment conducted incorrectly will give misleading results that could cost organisations dear - either as a result of insufficient security being put in place or excessive expenditure on an unnecessarily high level of security.

Choosing The Right Type Of Perimeter Fencing



Chain link fencing has been popular for decades due to its low cost and versatility. Chain link is available in a range of strengths and finishes including galvanised and plastic coated options. Chain link fencing is suitable for low security applications where boundary demarcation is the main purpose; it is easily adapted to uneven ground. Chain link can be mounted on steel or concrete posts with or without additional security features (such as extensions for barbed wire).



Palisade fencing became extremely popular in the 1980s as it typically takes around twice as long to cut through as chain link, though climb-resistance is seldom much better. Different thicknesses and profiles are available, and polyester powder coating can provide a more attractive finish than the common galvanised finish. Palisade is available with the vertical pales formed into a variety of shapes from round-topped to a single point or a splayed multi-point form. Security is only marginally improved compared with chain link.



Vertical bar fencing is similar in concept to palisade fencing but less visually obtrusive, having a less industrial appearance. The level of security is similar or better than that provided by palisade fencing, and there is normally a choice of top finials for the vertical rails. Purchase and installation costs, however, tend to be slightly higher than for comparable palisade fencing due to the greater manufacturing cost.



Welded wire mesh (weldmesh) panels provide a more secure type of fencing. It takes many times longer to cut through than most alternatives and can be significantly harder to scale due to the lack of hand and footholds presented by the small mesh sizes available. Welded mesh fencing is normally galvanised to provide a long-lasting finish, and polyester powder coating can be used on top of the galvanising to add colour. Although the top of the weldmesh panel can provide only limited anti-climb features (a short vertical wire), toppings can be mounted on the supporting posts to increase security.

Additional Security Features

Fence extensions

Extensions can be mounted on most concrete or steel posts that have vertical, cranked, Y-shaped or T-shaped forms for securing rows of barbed wire or rows or rolls of razor wire. There are also various purpose-designed products, usually with metal or plastic spikes that rotate on bars fixed between posts. These extensions all significantly reduce the likelihood of intruders climbing over the fence.



However, great care must be taken when specifying toppings that could potentially cause injury. There is, for example, a legal requirement to mount the toppings visibly so that anyone can see them as they approach the fence, and, with certain toppings, there should be warning signs mounted on the fence at regular intervals; these signs should also be visible/lit at night. It is never recommended to use an anticlimb topping below 1.8m and, additionally, local planning restrictions may not permit the use of certain types of topping.

Buried fencing

In some cases there is a risk that intruders may attempt to dig beneath a fence. To counteract this threat the fence can be buried so that it extends below ground level. This technique can also be effective if it is necessary to keep out rabbits or other burrowing pests.

Elsewhere it might not be necessary to bury the fence, but eliminating gaps adjacent to the ground is often essential, which may require pinning to prevent the lifting of lighter weight fabrics. One example of this requirement is with DIY retailers, where flat-packed goods could otherwise be stolen by being slid beneath fencing or gates.



Detection systems

For high security premises, intrusion detection and location systems are available that utilise a variety of sensing technologies to provide fully automated real-time security monitoring to detect if an intruder is attempting to climb, cut or force open a gap in a fence. Such systems can be highly reliable, with a very low rate of false alarms, and require virtually no maintenance.

CCTV

Closed circuit television (CCTV) is a cost-effective deterrent and provides evidence to help secure convictions in the event of crimes being committed. Nevertheless, one of the main advantages of CCTV is that it provides an instant alert of an attempted break-in, thereby helping to prevent theft and vandalism. CCTV is most effective when used in conjunction with other measures - such as perimeter security fencing.



Access control

While security fencing is effective at keeping intruders out, there has to be access for authorised personnel. Maintaining control of the necessary access points is therefore vital. Depending on the technology employed, the level of control can vary enormously. For example, particular personnel may be permitted access through defined access points and at predetermined times.

Mechanical keys and swipe cards may be appropriate in some circumstances, and photo ID cards can be used when security staff are employed. However, Maximum security is provided by state-of-the-art technologies such as fingerprint recognition or iris recognition.

When considering the type of access control to use, bear in mind...

- Level of security required
- Number of areas and points to control - especially if more than one site is involved
- Site layout
- Employee numbers (and turnover)
- Visitor numbers
- Likely future growth
- Disabled access
- How the system will be managed internally

Double-row fencing

In applications such as airports or military establishments, extra security fencing is usually installed inside the outer perimeter fence - sometimes with sensors, detectors or a patrol road between the two. Alternatively a perimeter fence is used to provide a 'first line of defence', with secondary fencing installed to protect specific high-risk zones, buildings or items of equipment.

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A Guide to Cast Stone Products
for Architects and Specifiers



What Type Of Fence Posts To Use?

Timber is unsuitable for security fencing, which leaves either concrete or steel - with a choice of RSA (rolled steel angle), RHS (rectangular hollow section) or CHS (circular hollow section). Factors to consider include strength, cost, aesthetics, use of toppings, and if tamper-resistant barrel winders need to be concealed within a hollow section. Concrete is often used for coastal applications, as it is less prone to corrosion than galvanised, powder coated or painted steel.



Gates

Whenever there is a perimeter fence, there needs to be at least one access point. Manually operated and powered gates are usually available from the fencing supplier to complement the specified type and design of fencing. It is important to ensure that the gates' design and specification provides the same level of security as the fencing. While the size will depend on the type of access required (individuals, groups of people, or single or multiple vehicles), it is best practice to keep the access points as small in size and number as reasonably possible. Hinged and sliding gates are typically used, though lifting barriers and road-mounted barriers are also appropriate in some circumstances.

Whatever type of gate or access is used, care must be taken to ensure that it is not vulnerable in comparison with the remainder of the perimeter security. For example, gates should be located where they are clearly visible, and all hinges and other mechanical components must be adequately maintained.

Note also that gates need to be considered in conjunction with the access controls.



The Importance Of Correct Installation

A fence is only as good as its installation. Poorly installed fencing detracts from the appearance of the premises, and everybody knows how important first impressions are. An invited visitor to the site may see the poor fence as a reflection of the company's own standards, and a potential intruder may look upon poorly installed fencing as a sign that the company pays little attention to security.

Furthermore, poorly installed fencing may be easier to breach in some cases, and it will be more likely to need repairs and maintenance earlier than would otherwise be necessary. In the worst case, an insurer may contest a claim if the security fencing was deemed to be unsatisfactory.

Installing fencing is a skilled job and specifiers should be aware that some fencing contractors hire unskilled labour on a project-by-project basis, rather than retaining a team of properly trained installers.

Specifiers are strongly recommended only to use fencing contractors that are accredited to ISO 9001: 2000

Standards

Some applications require adherence to British, European or international standards. In such cases, it is essential that the specifier is aware of the applicable standards. The following table lists the most commonly encountered standards in the UK.

BS 1722-1:2006	Fences. Specification for chain link fences
BS 1722-2:2006	Fences. Specification for strained wire and wire mesh netting fences
BS 1722-8:2006	Fences. Specification for mild steel (low carbon steel) continuous bar fences and hurdles
BS 1722-9:2006	Fences. Specification for mild steel (low carbon steel) fences with round or square verticals and flat horizontals
BS 1722-10:2006	Fences. Specification for anti-intruder fences in chain link and welded mesh
BS 1722-12:2006	Fences. Specification for steel palisade fences
BS 1722-14:2006	Fences. Specification for open mesh steel panel fences
BS 1722-16:1992	Fences. Specification for organic powder coatings to be used as a plastics finish to components and mesh [To be superseded in 2007]
BS 1722-17:2006	Fences. Specification for electric security fences. Design, installation and maintenance
BS 4102:1998	Specification for steel wire for general fencing purposes
BS 8220-2:1995	Guide for security of buildings against crime. Offices and shops
BS 8220-3:2004	Guide for security of buildings against crime. Storage, industrial and distribution premises
BS EN 10223-1:1998	Steel wire and wire products for fences. Zinc and zinc alloy coated steel barbed wire
BS EN 10223-2:1998	Steel wire and wire products for fences. Hexagonal steel wire netting for agricultural, insulation and fencing purposes
BS EN 10223-3:1998	Steel wire and wire products for fences. Hexagonal steel wire netting for engineering purposes
BS EN 10223-4:1998	Steel wire and wire products for fences. Steel wire welded mesh fencing
BS EN 10223-5:1998	Steel wire and wire products for fences. Steel wire woven hinged joint and knotted mesh fencing
BS EN 10223-6:1998	Steel wire and wire products for fences. Steel wire chain link fencing
BS EN 10223-7:2002	Steel wire and wire products for fences. Steel wire welded panels. For fencing
BS EN 12839:2001	Precast concrete products. Elements for fences
05/30129061 DC ISO 7900	Steel wire and wire products for fences. Zinc and zinc-alloy coated steel barbed wire [Current, Draft for Public Comment]

If In Doubt, Ask

Procter Fencing Systems is the one of the UK's leading specialist manufacturers of fencing and gates. From its sites in Leeds, South Wales and Brentwood, Procter Fencing Systems offers a comprehensive service to survey, design, manufacture and install fencing and gates nationwide. All products are designed in accordance with the requirements of ISO 9001 and all meet the appropriate health, safety and product standards. Installation is carried out by the company's own teams of skilled installers.

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Further Information

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The information contained in this publication is intended as a guide only and is believed to be correct at the time of going to press. However, it is the reader's responsibility to ensure that all current legislation is complied with when specifying or installing perimeter security fencing.

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