NEW SCHOOLS
2014

Introduction

Secured by Design (SBD) is a police initiative owned by the Association of Chief Police Officers (ACPO). Secured by Design Schools is one of several guidance documents that aim to reduce crime in our built environment. ACPO SBD, the managing body that oversees the Secured by Design initiatives periodically amends the various SBD guides in response to research and police experience. This new guidance for schools incorporates several new and improved security standards that have been developed to address emerging criminal methods of attack.

A sensible and practical level of security, which will not adversely affect the efficient running of the school, is essential to a successful teaching and learning environment. The majority of criminal incidents in schools relate to property crime. This is because the modern school contains a vast array of portable and desirable goods with a ready market, such as personal computers, laptops, digital projectors and other valuable equipment. Other crimes that occur, particularly in our larger cities, are acts of vandalism, such as graffiti, arson and assaults. Assaults range from staff being physically assaulted by parents and students, to bullying by one or more students against another. In more recent times 'cyber' bullying has become a noticeable problem in schools, although there are now software solutions that are proving to be most effective. The victims of school crime can also extend beyond the staff and students as many schools open into the evenings and at weekends for use by the local community for activities such as adult education, sport and social events.

The police service places great importance upon the need to build sustainable developments. This not only includes the need to use environmental friendly products, materials and construction methods, but also the need to raise awareness of the fact that crime prevention is a positive sustainability issue. Academic research conducted on behalf of ACPO SBD has confirmed that crime alone is responsible for the release of at least 6,000,000 tonnes of CO_2 into the atmosphere each year. It therefore follows that the achievement of a Secured by Design certificate for the school not only indicates that the designer has made a significant effort to create a secure teaching environment (recognised by the police), but by doing so has also reduced the school's carbon footprint. To that end applicants are also encouraged to build to the Building Research Establishment's environmental and sustainability standard BES 5051: Issue 2. The standard's requirements can be found in the BREEAM Education 2008 Assessor Manual.

It is also important that the benefits of a new secure school are complemented with a clear management and maintenance programme to ensure a safe and secure teaching and learning environment. Further information about risk management in both new and existing schools can be obtained from the SBD partner initiative 'Secured Environments' at www.securedenvironments.com.

Scope of this document

For the purposes of this document a school is defined as a building or collection of buildings located on one or more sites and used for the purposes of full and part time education of pupils between the ages of 2 and 19 and other community uses in line with the 'Extended Schools' agenda.

The scope of this document does not extend to universities or other tertiary colleges.

This document provides design guidance and specification requirements for reducing the risks for crime against people and property in all schools and school grounds such as burglary, theft, arson, vehicle crime and assault. The same advice is also intended to reduce the fear of crime and the incidence of anti-social behaviour. Consequently, consideration is given to both environmental design and physical security.

This is best achieved through negotiation with the designers of new schools or major refurbishment at pre-planning stage. Where acts of terrorism and or extremist activity are of a concern the developer or their agent should inform the police Crime Prevention Design Adviser dealing with your application who will in turn notify the relevant security experts.

Section 1 of this document concentrates on generic environmental crime prevention issues, whilst Section 2 deals with the specific physical crime prevention requirements. Compliance with both sections is required to achieve Secured by Design certification.

Secured by Design is available throughout the United Kingdom of Great Britain and Northern Ireland and in the Isle of Man and the Channel Islands.

Applying for Secured by Design certification

In order to stand the best chance of achieving SBD certification it is of the utmost importance to consult the Crime Prevention Design Adviser prior to a planning application being made.

Should you wish to apply for Secured by Design certification please complete an application and checklist form. Send the application to the relevant Crime Prevention Design Adviser (CPDA).

In some areas Secured by Design is administered by an Architectural Liaison Officer (ALO). However, all subsequent references within this guidance will refer to the process being administered by the CPDA.

Local planning conditions, crime risk assessment and other statutory provisions may influence the measures to be adopted and the applicant is referred to the following government guidance:

- **England**: *National Planning Policy Framework and National Planning Practice Guidance*

- **Scotland**: *PAN 77 Designing Safer Places*, available at this link: www.scotland.gov.uk

- **Wales:** *TAN 12 Design*, available at this link: http://new.wales.gov.uk

- **Jersey:** *Island Plan Planning Policy G9 – Designing out Crime,* available at this link: http://www.gov.je/PlanningEnvironment/ IslandPlan2002/General+Policies/

- **Guernsey:** *Contact the local police.*

- **Isle of Man:** *Isle of Man Strategic Plan 2007 – Towards a Sustainable Island,* available at this link: http://www.gov.im/lib/docs/dlge/planning/ plan/strategicplanfinalversiontoty.pdf

- **Northern Ireland:** *Secured by Design is referenced in the Northern Ireland government's design guidance for new schools. Contact the local police for detail.*

Where acts of terrorism or extremist activity are of a concern reference to consultation documents: *'Safer places: a counter-terrorism supplement'* and *'Working together to protect crowded places'* are recommended.

For England further guidance for school security can be obtained from the Department for Children Families and Schools.

The advice given by the CPDA will be dependent upon the outcome of a crime risk analysis and an understanding of local crime occurrence. Consequently, specific measures recommended to address particular types of crime may vary from one site to another. It is important to note that the national SBD guidelines are minimum requirements and in areas of higher risk, greater crime resistance will be required. Therefore it is inevitable that the advice given to design professionals may occasionally vary according to crime risk whilst still maintaining a consistent approach.

Contents

SECTION 1:
THE DEVELOPMENT – LAYOUT AND DESIGN (PLANNING ISSUES)

Urban design and planning policy

1 Creating a sense of place

1.1 Creating an easily legible sense of place where staff, pupils and legitimate visitors are able to go about their daily routine without undue fear of crime is a key element of the SBD initiative for educational developments. Crime and anti-social behaviour are facilitated by a lack of definition of ownership of space.

2 Phased or speculative developments

2.1 It is recognised that some educational developments may be phased; developed when funds are available or when a school expands. None of the above circumstances will necessarily preclude achievement of SBD certification provided that there is a continuous dialogue with the CPDA.

3 Location and adjoining land use

3.1 Security requirements will be influenced by the location of new or existing educational establishment, in the locality, the hours of operation, by the numbers of staff and others visiting the facility and also by transport links to and from the local area.

3.2 Security may be affected by the type of land use or property immediately adjoining the site. Wooded areas or open fields can make the grounds easier to access by trespassers. In contrast, houses with gardens adjoining the boundary can generate natural surveillance increasing the likelihood of crime or anti-social behaviour being observed and reported.

3.3 In planning new or re-developing existing education establishments, sustainable design principles should be utilised, including the relationship with other facilities in the local area. Security will be significantly improved if the new buildings benefit from natural surveillance from existing occupied buildings. Such measures create conditions in which potential offenders feel vulnerable to detection. However, reliance on natural surveillance alone is not a guarantee of lower crime. Natural surveillance has to work in tandem with defensible space and the presence of persons who can act as potential deterrents and/or witnesses.

4 Multi-site schools

4.1 It is recommended that new schools should be planned on a single site wherever possible. Multi-site schools inevitably generate movement between the sites, with increased potential for unauthorised access and difficulty in managing perimeter security.

5 Configuration of buildings

5.1 Whilst security is more easily managed in a single building it is accepted that such an arrangement may not always be possible for several reasons. These include site constraints, energy efficiency, day-lighting, sound insulation, other environmental considerations and because the site may contain buildings for uses not connected with the school, such as health centres and buildings for community use. It is nevertheless important to consider the crime risks associated with numerous buildings and the CPDA will work closely with the designers to ensure the best outcome.

One design consideration that may have to be considered is the possibility of future school expansion. For example, rather than build another, separate building it may be better to design a building that can be extended and provide sufficient space for that extension.

5.2 Where an existing site comprises several detached buildings, consideration should be given to linking them appropriately to control access. This could involve joining buildings together through the development of a new building in between the existing or through the use of fencing and gates to create secure courtyards.

6 Location of buildings

6.1 Whilst site constraints and solar heating may ultimately dictate the location of a new school building or buildings there are crime prevention advantages in locating them close to the site boundary and surrounding community and to orientate them in such a way as to offer surveillance to as many elevations as possible.

7 Location of outdoor activities

7.1 Provision for different activities and their relationship to the school should be considered carefully. Informal hard play areas and external social spaces should be located within view of occupied rooms. Formal recreation spaces such as multi-use games areas and external all-weather sport facilities may encourage trespass outside of normal school hours and may require fencing. Where community use is planned, changing facilities should be located nearby, with access to that part of the school only.

8 Caretaker or warden accommodation

8.1 Whilst the permanent presence of a warden or caretaker who lives on site is less common these days, such a person can be regarded as a 'capable guardian' (i.e. a deterrent or witness to crime) and as such can play an important role in preventing crime. Considerations for the security of caretaker accommodation if provided may need to take into account risks of isolation and therefore vulnerability to crimes such as burglary. In any event on site caretaker accommodation must be built to the latest SBD New Homes standard.

9 Site boundaries

9.1 A clearly defined boundary using a fence, wall or other effective barrier against intrusion is a prerequisite for a secure site and to define ownership. A secure boundary will help staff manage the school site by limiting trespass and by channelling visitors to the site through appropriate entrances. A secure boundary will also frustrate the intruder intent on breaking into the school out of hours and or limit the quantity or type of goods that can be stolen.

9.2 Secure boundaries are not just important for combating unauthorised access. A secure boundary can also provide for the security and safety of very young children, keeping them in and the 'uninvited' out. Crime prevention work at one school in Yorkshire confirmed that a new, secure and visually open boundary reduced unauthorised absences from school and lessons.

9.3 Public footpaths immediately outside the boundary fencing can affect security. If the footpath already exists and cannot be re-routed, the use of defensive planting in addition to fencing should be considered. However, this should not block natural surveillance from the footpath.

9.4 A party or shared boundary should not compromise security and maintenance. It may be advisable to erect a separate security fence inside the party boundary, ensuring access for maintenance of both existing and new structures. It is important to take account of neighbours' amenity in the choice of structure, as they will be more likely to act as deterrents or witnesses in helping to maintain site security. This arrangement may create a new path around the boundary and measures may be required to obstruct this path at vulnerable points.

10 Security fencing

10.1 Fencing is effective at delaying or deterring intrusion because of the need to climb over or penetrate the fence. It is therefore important that there are no structures close to or over the fence that will aid climbing, e.g. trees, lamp columns or buildings.

10.2 Fencing should be effective but not create a 'fortress' impression. Appropriate types may include welded mesh fencing, railings or expanded metal fencing, ideally colour coated to soften appearance. Dark colours reduce the reflection of light and therefore make it easier for passersby to observe activity through the fencing.

10.3 Surveillance over the site from the immediate neighbourhood can help to deter potential offenders who may fear that their presence on the site will be reported to the police. It is therefore important for the school to develop good relations with the community that overlooks the school and its grounds.

10.4 It is accepted that some security rated fencing systems can be both costly and aesthetically unpleasing. However, the type of fencing that is required in order to gain SBD recognition must ultimately be determined by local crime risks. For example, in an average crime risk location, where the perimeter of the site is very large, it may be more appropriate to use a fence type matching the specification found in Section 2 paragraph 50. Indeed, in some locations it may prove to be more effective to install an inner security fence and then reduce the specification for the outer site boundary fence. There are many options that can be considered and they must be agreed on a site by site basis with the CPDA *(see also paragraph 12.1).*

11 Gates

11.1 The design, height and construction of any gates within a perimeter fencing system should match that of the adjoining fence and not compromise the overall security of the boundary *(See also Section 2, paragraph 50).*

12 Defensive hedging

12.1 In some locations it may be useful to explore the use of defensive hedging, such as Hawthorn, as a means to protect a site perimeter or to further bolster the security of an existing or proposed fence. Obviously it can take several years for a hedge to develop into an effective barrier and therefore a temporary fence will be required in the short to medium term. When the hedge has matured to provide an effective barrier the fence can either be left in place (lost) or removed. Species selection is important, as hedging will require continuous maintenance.

Entrances at the perimeter

13 Pedestrian and vehicle entrances

13.1 SBD prefers one entrance area at the perimeter of the site serving both vehicles and pedestrians or separate entrances that are located in close proximity to one another to aide mutual supervision. There should be clear demarcation between the roadway and the footway and a safety barrier between the two will be necessary.

13.2 Some school sites may include community facility buildings requiring their own secured entrance.

13.3 Where school grounds are extensive, additional entrances at the perimeter of the site for parents and students may be appropriate on grounds of safety and sustainability i.e. to promote walking to and from school along safe routes; to avoid crossing busy roads; to discourage car journeys and to avoid long detours. In these circumstances the additional entrances should only be available at arrival and departure times and the entrance gates locked in between. Whilst these entrance gates could be locked and unlocked manually by school staff it is recommended that they are operated remotely from the school office. Monitoring of these entrances by CCTV may be appropriate for some sites. In some schools separate entrances for sixth formers and staff are provided with an access control system.

13.4 For an extensive site and or where there are special security considerations a gatehouse at the entrance may be required. Such arrangements, although unusual, often include the use of powered vehicular and pedestrian access gates manned by security staff.

13.5 Physical barriers, such as 'anti-ram' bollards, may be required to protect building or site entrances in high crime locations that are directly accessible from a public area *(see Section 2 paragraphs 50.10 to 50.12 for barrier standards).*

13.6 Vehicle and pedestrian access beyond the school entrance area and car park into the school grounds should be restricted, allowing access only for emergency and service/delivery vehicles. Controls can include a combination of rising bollards, gates and fences. High kerbs, dwarf walls and soft and hard landscaping can also be used to good effect to channel vehicles along appropriate routes.

13.7 It is accepted that controlling access as in paragraph 13.6 above may not always be possible due to site constraints. However, the security benefits of this arrangement are well worth considering, especially where a number of external doors in the school building or buildings are used for general access during the day.

13.8 When the school is closed and unoccupied, all entrance gates onto the site must be locked. During partial occupation, whether by teaching staff, cleaners or outside users, gates should be operable by appropriate means of secure access control.

14 Drop-off and collection facilities

14.1 Whilst SBD promotes walking to school along safe routes it is recognised that some students will still be driven to school by car. This action can result in traffic delays outside the school caused by parking vehicles and also damage to footpaths. There seems to be no easy solution to these problems, but the consequences of

these vehicular journeys with respect to school security procedures, road safety and traffic regulations must be considered from the outset to minimise the problems. Parking provision for school buses at arrival and departure times will also need to be considered, ensuring safe access to the school grounds without conflict with other traffic. Similarly, public transport buses and the location of the bus stops will have to be considered in the light of road safety and traffic regulations.

14.2 Secured by Design recognises that school security procedures normally require the parents/guardians of very young children to pick up their children directly from the school in a secure area in a personal exchange between staff and parent/guardian. Similarly, slightly older children are often collected by the parent/guardian from an external supervised area, such as a playground or by the reception area of the school.

15 Signage

15.1 The school's reception entrance should be clearly signposted from the entrances onto the site. People found trespassing and intent on committing crime on school grounds will often use the excuse that they could not find their way to the reception and the presence of clear signs will go some way to dismiss this excuse and help the school staff, police or other authority during their investigations. Likewise, signs that identify areas that are not open to public access can act as a reminder that unauthorised persons could be challenged.

15.2 Colour-coding of signs can be helpful in identifying the routes to various school departments and other community buildings on the school site.

15.3 Site maps, if required, should be correctly orientated for the visitor and be protected from graffiti using a replaceable or cleanable transparent cover.

15.4 If graffiti is likely to be a problem signs can be located in places where they cannot be attacked or treated with anti-graffiti coatings to allow easy cleaning.

16 Community Access

16.1 Co-location of facilities on school sites is being encouraged by central government, particularly when new or replacement schools are being planned, or when major refurbishments take place.

16.2 Where schools are intended to share the use of parts of the site and buildings with the community and other organisations, very often out of school hours, this should be taken into account in the security planning. The need for security has to be maintained, allowing accessibility and flexibility to cater for changes in use by the community who have been given legitimate access.

16.3 For new schools the location of shared community facilities must be considered at the outset as this may affect the design of the reception area and the whole of the building complex. For example, a reception area can have several controlled access doors leading to different wings of the school, thereby enabling parts of the school to remain secured and alarmed outside of normal school hours when the local community is using the shared facilities. These arrangements must be discussed with and approved by the CPDA as they will be critical to the outcome of an application for SBD certification.

17 Access by pedestrians and vehicles

17.1 Local infrastructure, vehicular and pedestrian routes, together with appropriate site layout will determine the location of the car parks, delivery points and bus stops and can help to identify the appropriate location of security controlled entrances.

17.2 The main site entrance is the first line of defence against trespass and should be the focus for directing and controlling all access. Other entrances onto the school site should be kept to a minimum, and all should be controlled.

17.3 A secure emergency vehicle access must be provided on larger sites, which may require a service road layout that includes turning points and space between buildings for large vehicles to operate. Likewise such roadways may also be required for delivery vehicles. These can be blocked by retractable bollards or gated to stop unlawful access as long as the Fire Service has a key (there are specific locally agreed key types for such use).

18 Vehicle parking and deliveries

18.1 The area forming the route from the public site entrance to the reception and to the visitor car parks and delivery points should be as short as possible, open to view from the reception area and secured from the rest of the site. This will help to deter trespass into other parts of the school grounds and channel all visitors through reception.

18.2 Separate parking for staff should be provided in view of occupied offices and or classrooms. In areas of higher crime, it may be prudent to secure this facility with appropriate fencing and an automatic access-controlled gate.

18.3 There should be parking provision for emergency vehicles, such as ambulances.

18.4 The design of the building should incorporate appropriate means for secure deliveries to the school. This may include a secure external compound or easy access to delivery doors.

18.5 Vehicle parking facilities should comply with the police service's 'ParkMark' criteria for safer car parks. Whilst full registration to 'ParkMark' is not a requirement of SBD Schools, the design criteria of the scheme should be adopted wherever appropriate. The CPDA will be able to offer additional advice. Further information can be found at www.saferparking.com

18.6 Section 1 paragraphs 47, and 48 and Section 2 paragraphs 52 below provide further information about lighting requirements for roads and car parks.

19 Motorcycle, moped and bicycle parking

Motorcycles, mopeds and scooters

19.1 Secure motorcycle, moped and scooter parking should be made available for staff and older students (if older students are permitted to bring vehicles onto the site). Such parking provision should benefit from surveillance from occupied school offices and or classrooms, be provided with secure ground anchors and be lit after dark when in use *(See also Section 2 paragraph 54.6 for security standards)*.

Bicycles

19.2 Secure bicycle parking should be provided in view of occupied school offices and or classrooms with stands to which the bicycles can be secured. In order to encourage cycling to school, and therefore reduce car journeys, it is recommended that the cycle parking provision is contained within a securable, roofed building. The building should be lit and secured during school hours. Separate parking for staff should be considered *(See also Section 2 Paragraphs 54.1 to 54.5 for security standards)*.

19.3 For lighting standards see Section 1, paragraphs 47 and 48 and Section 2, paragraph 52.

Access within the school site

20 Routes within grounds

20.1 Footpaths between school buildings and from the public entrance must be direct and follow known or, in the case of new buildings, anticipated desire lines. They should be well lit and without visual obstruction and at least 3m wide to allow passing without conflict.

21 Public use of grounds

21.1 Trespass onto the school grounds by the local community for activities such as dog walking and golf practice should be discouraged at all times through the use of signage and appropriate fencing. It is noted

however that some schools open the school grounds for appropriate supervised public use during school holidays and outside school hours. This is to be encouraged since supervised, lawful occupation of the school grounds can help to prevent crime. At the same time it should be recognised that the use of the grounds and the school buildings by 'outsiders' does introduce additional risks. Potential offenders, intent on committing burglary for example, would have the opportunity of assessing the level of security in the buildings during a 'lawful' visit to use community facilities.

22 Public footpaths through grounds

22.1 Unless local circumstances dictate otherwise, there should be no public footpaths through the school grounds.

22.2 Paragraphs 8 and 12 in schedule 6 of the *Countryside and Rights of Way Act 2000* make provision to extinguish or divert public rights of way through school grounds that create opportunity for crime.

External issues

23 Landscaping

23.1 The use of plants in landscape design is encouraged to soften boundary treatments and introduce visual interest, but care must be taken to ensure that there is plenty of opportunity for surveillance of the school buildings from within and beyond the school site. Although plant growth above 1m and below 2m should be absent to provide a window of surveillance, this does not preclude the use of hedging plants and feature shrubs and trees, providing surveillance opportunity is maintained. Plant growth below 500mm may be required in respect to car parks to deter vehicle interference.

23.2 The planting of new trees should be considered in tandem with the installation and the operational requirement of any specified CCTV system. Likewise, locate new trees so that they do not reduce directed light from lamps or provide climbing aids over boundaries or onto buildings.

23.3 Species selection of trees and shrubs should take account of their future maintenance, as poor maintenance can impact on site security. Mature, slow growing plants, although more expensive to purchase from the outset, are normally much less expensive to maintain in the long term. It is recommended that a landscape architect is consulted about these matters.

24 External furniture, litterbins and sports equipment

24.1 External furniture such as benches and planters, together with sports and play equipment and structures, should be of robust vandal and graffiti resistant design. Furniture should be fixed into the ground in order to prevent its theft and reduce the possibility of it being used for climbing or as a tool to break through the shell of the building. External furniture should not be located at or close to a building line where it can be used to climb onto roofs and nor should it be located against boundary fences.

24.2 Litterbins can also be used to assist climbing and the contents used to start a fire. It is preferable that the bins are of a type that can be locked onto a fixed base and that they are located away from the buildings. Under no circumstances must litterbins be wall mounted beneath windows or on walls covered in combustible material.

25 Troublesome meeting places

25.1 Students of all ages like to meet together within the school grounds and certain locations are preferred to others. If they are meeting to indulge in behaviour contrary to school rules, such as smoking or bullying, these congregation points tend to be in places that are out of sight of the school buildings or at a blind corner of a building. In order to reduce the opportunity for rule-breaking these out of sight locations should be minimised. In existing schools this can be difficult but for new schools they should be designed out. 'Hot spots' for troublesome behaviour may be indicated by, for example, broken windows, excessive littering and graffiti.

25.2 For existing schools remedies may include the removal or repositioning of a building (such as a shed or other lightweight storage building), the trimming of a hedge or the removal of a recess in a building by bringing a door forward to the building line. It must be understood that for safety reasons it may not be possible to move an outward opening door forward if it opens onto a footpath, road or other thoroughfare unless safeguards are put in place to divert passing traffic and or pedestrians away from the opening arc of the door (see also Section 2 paragraph 63.8). Surveillance of such areas should also be considered in a CCTV Operational Requirement (see Section 2 paragraph 53).

25.3 For new schools it is important to anticipate where such congregation might take place. In most circumstances remedies may include the provision of additional windows for surveillance, the absence of recessed doorways and the careful design of soft and hard landscaping.

25.4 Where a new replacement school is to be built on the existing school grounds (often with the demolition of the old buildings), it would be useful to consult the students and staff about the known troublesome congregation points so that these matters can be considered during the design process.

26 Natural surveillance and recessed doorways

26.1 For new buildings it is important to avoid the creation of areas and building features (such as recesses) that cannot be overlooked from another occupied building or room. Recessed doorways can obstruct surveillance and also collect windblown litter that can be used to start fires. Designing in an unobservable recess and then providing CCTV surveillance of the recess is not a sustainable solution.

26.2 Where a recessed doorway is unavoidable because of site constraints, e.g. where an emergency exit door opens onto an 'out-of-site' fire path and has to be recessed due to the safety of those using the path, it would be prudent in this specific scenario to use a secure doorset (see Section 2, paragraph 63) with emergency exit hardware and in-built secure vision panel. The secure doorset would resist most forms of attack and the vision panel would allow the recess to be checked for obstructions before opening the door.

26.3 Ideally, inner courtyards should be sealed by the main school buildings around them and only be accessible from these buildings. Otherwise fencing should be introduced to prevent access.

26.4 Isolated teaching areas should be avoided and areas that provide opportunity for concealment and troublesome behaviour should be fenced off.

27 Temporary classrooms

27.1 Temporary classrooms, such as portable buildings, are notoriously difficult to secure due to their construction and the fact that they are outside the secure envelope of the permanent building structures. The voids under many of these buildings must be secured to prevent litter collecting underneath, which may be used to start a fire.

27.2 Temporary classrooms should not be used for the storage of high value equipment such as computers and projectors unless the building is security rated *(note 27.2)*. All such buildings should be included within the school's intruder alarm system. If practical and possible, additional temporary classroom buildings should be linked to each other to form one larger continuous building, thus avoiding the creation of blind spots in between the buildings. It is expected that the use of non security rated temporary classrooms will be discontinued as soon as possible after the main school has been enlarged (or possibly rebuilt).

Note 27.2 SBD is currently working with interested parties to develop temporary buildings certificated to the Loss Prevention Certification Board's standard LPS 1175: Issue 7 Security Rating 2+ or STS 202 BR2+. Once such buildings become available they will be referenced within this guide

27.3 Portable buildings used as temporary classrooms should be constructed of non-combustible materials.

27.4 The location of temporary classrooms and other temporary buildings must be discussed with the local fire authority to ensure that the spread of fire to other buildings is minimised and that the fire service's access is not hampered.

28 Special sports facilities

28.1 Multi-use games areas and artificial playing surfaces, usually with lighting for night time use, are expensive facilities that are often targets for intrusion, vandalism and misuse. They need to be carefully planned, managed and protected using all appropriate Secured by Design guidelines and specifications.

28.2 Illumination of facilities will inevitably draw local attention to them at night. Lighting needs to be coordinated with actual occupation and use of the particular facility, such as evening community use, to avoid wasting energy and unwanted attention at times when there are no users or 'capable guardians' present.

28.3 Spectator stands should be constructed of non combustible materials and sited appropriately to avoid visual obstruction of other buildings that could be subject to crime.

28.4 Sports pavilions should be constructed of non combustible materials and their overall security requirements should be discussed and agreed with the CPDA. Depending upon the uses of such buildings there may be requirements to use the same physical specifications and standards as required for the main school building.

29 Wind turbines, photovoltaic installations and biomass boilers

29.1 Consideration must be given to protecting wind turbines, photovoltaic installations (PVs) and biomass boilers from vandalism through the use of access control, appropriate fencing and the removal of any climbing facility that may aid access.

29.2 PV panels are susceptible to criminal damage from thrown missiles and are likely to be the subject of theft as their installation becomes more commonplace. Therefore PVs should be located on roofs that are difficult to access, other than by legitimate means, and should be secured onto the roof with theft resistant fastenings. School landscape design should never include the use of loose pebbles for obvious reasons.
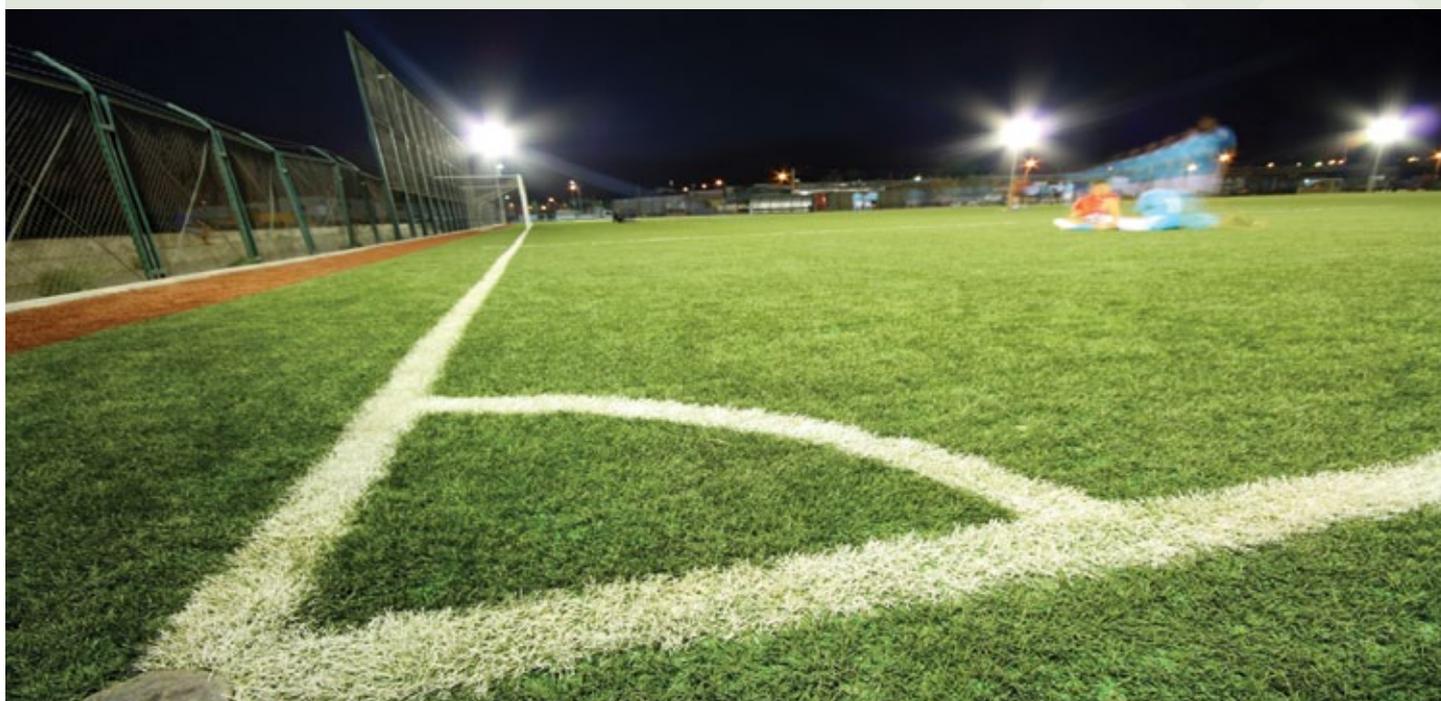
Storage facilities

30 Equipment storage

30.1 Secure storage for play and sports equipment, including seasonal storage for goalposts etc, should, where possible, be provided within the main building, with ready secured access from outside. Initial generous storage provision should help to avoid future need for additional outbuildings which are more vulnerable to attack.

31 External waste storage

31.1 Waste containers, particularly those with wheels, can be used for climbing and the contents used to start fires. Therefore, consideration should be given to using waste containers with lockable lids. Options include a secure, externally accessed store in the main school building or in a secure, roofed compound located well away from the school buildings. Advice in respect to safe stand off distances, fire and smoke detection devices and fire sprinkler systems should be sought from the appropriate fire authority. In general, combustible materials should not be stored within 10 metres of the outside of a building. *(See also section 2, paragraph 79)*

31.2 Adequate secure provision (as above) for temporary storage of materials to be recycled should be included.

31.3 Bin stores for kitchen waste should be located in a similar way to paragraph 31.1 above, although it is accepted that for convenience during school hours the bin(s) may be kept outside and close to the kitchen areas.

32 Fuel storage

32.1 Fuel, such as central heating oil and cans of fuel used for grounds maintenance machinery should be stored in a secured building located well away from the school buildings where space permits. Where there is insufficient space and the fuel has to be stored inside one of the main buildings advice should be sought from the appropriate fire authority as in paragraph 31.1 above. It may also be desirable to store biomass fuel close to the boiler plant in which case the appropriate fire authority should be consulted.

33 Cleaning equipment storage

33.1 A secure store, or stores, inside the school building on each floor must be provided for the safe storage of cleaning equipment and cleaning fluids, given that many of these will be flammable and possibly toxic. Advice should be sought from the appropriate fire authority as in paragraph 31.1 above.

Utility services and mail delivery

34 Meter reading and security of utility services

34.1 Utility access covers, protecting access to drains, sewers, telephone cables, electricity cables and other services, must be secured to prevent access and damage by unauthorised persons *(see Section 2 Paragraph 51 for recognised standards).*

34.2 Utility meters must be sited in a secure building, such as a plant room, and where possible should allow for meter reading without having to enter the main building. Alternatively, instructions should be given to utility providers to carry out their readings during hours of occupancy or by prior appointment, so that access can be arranged without unnecessary disruption or security risk. Smart meters that automatically send readings along a data line or can otherwise be read remotely are encouraged.

35 Mail delivery arrangements

35.1 For the majority of schools it is expected that mail delivery will take place during school opening hours and that the mail will be handed in at reception. For out of hours deliveries please refer to Section 2, paragraph 61 for standards for various methods of mail delivery.

Building shell

36 Automatic opening window systems and vents

36.1 Many sustainable school buildings being proposed require an automatic building management control system in order to ventilate the building and regulate the temperature, including at night to pre-cool the building during hot weather. This can cause security problems and the following issues may need to be addressed:

36.1.1 Automatic opening window systems, vents and pressure relief panels that operate when the school is unattended should be designed in such a way that they do not pose a security risk.

36.1.2 Care should be taken to ensure that any bars or grilles that are used to secure the mechanisms in 36.1.1 do not interfere with their operation

36.1.3 The fitting of grilles to protect the mechanisms in 36.1.1 may affect the airflow requirements and advice should be sought from the relevant authority.

36.1.4 It is recommended that an automatic opening window or vent system incorporates a mechanism to notify school management that a window or vent has failed to close.

37 Walls – facades, apertures and graffiti

37.1 Facades of buildings should minimise the opportunity for hiding and climbing up to windows or onto roofs. An unobstructed building line should be used to provide enhanced protection to the perimeter space as accessible ledges, parapets, indentations and protrusions may provide means of assisting unlawful entry.

37.2 The potential for unauthorised entry by misuse of facilities for essential services i.e. goods lifts, fuel delivery points or ventilation ducts should be considered. Where possible such services should be concealed and / or located in locked compartments. Grilles, air ventilation apertures and shutters should be fitted so that they cannot be removed to permit unauthorised access. Reinforced mounting and fixing points for internal and external grilles, shutters and shutter roller boxes may be necessary as part of the building structure.

37.3 As graffiti tends to attract further graffiti police will always advise that it is removed as soon as possible. Designers should therefore consider wall finishes that make this task easier to perform, particularly when the risk of graffiti is high. Various anti-graffiti glazes and sacrificial coatings are available for treating surfaces already subject to tagging.

38 Roof design and access

38.1 Preventing easy access to roofs should be considered at the design stage of the building. External rainwater pipes can be used for climbing and should be either square or rectangular in section, flush fitted against the wall or contained within a wall cavity or covered recess. Bends in pipes and horizontal runs should be minimized. They should be of fire resistant material. Physical barriers should be used to prevent access to an existing roof.

38.2 Low level eaves/roofs can sometimes pose security problems and are vulnerable to being set alight externally by arsonists, so should be avoided.

38.3 Flat roofs, particularly those at a low level, may be more easily accessed and depending on materials may be more vulnerable to intrusion either by cutting through the deck or forcing open roof lights and other openings. Low-level flat roofs may also create a risk of falling by a person who has climbed onto the roof recklessly *(see Section 2 paragraphs 59 and 60 in respect to roof construction and roof lights).* (Note 38.3).

Note 38.3: Attention is drawn to relevant legislation (including the Occupier's Liability Act) concerning the responsibilities and liabilities of building owners / occupiers for the safe use of roof areas and relevant signage.

39 Entrances into the school building

Main entrance

39.1 There should be one main entrance into the school building, which may incorporate more than one set of doors. For example, one set for volume access for students and possibly staff and another set for parents and visitors and staff. These should be access controlled for all or part of the day depending on local crime risk. In normal circumstances the students' access doorset will be opened at morning arrival times, lunchtimes and afternoon departure times. Outside of these times the school may choose to control the students' doorset using an electric lock remotely operated from the reception desk or office. Likewise a second set of doors reserved for visitors can also be controlled in the same manner *(Note 39.1).*

Note 39.1: It is common practice for infant and younger junior students to meet in the school playground with parents and guardians at the beginning of the day. Shortly before the school day begins the students are met by their teachers and line up in classes. The students will then enter the school through the nearest entrance, which could be directly into the classroom via a door onto the playground.

39.2 The entrance should be well illuminated leading the visitor, staff member, parent or student into a bright and welcoming reception area

39.3 Reception staff should have a clear view of the approaches to the school entrance. If the lighting levels directly outside the building reception are too low after dark, a reflection of the reception area will be seen on the inside of the glazing, which will hamper the receptionist's ability to look outside the building. It is therefore important that levels of illumination both inside and outside of the reception area are well balanced to avoid this inconvenience.

39.4 Where a separate automatically opening door is deemed more desirable for disabled access, the door opening system should be operated utilising suitably located proximity reader technology. The reader should be vandal resistant. Access control for use by students and staff may be necessary in any event *(see Section 2 paragraphs 67 to 69 for further information).*

39.5 It may be appropriate to use an 'airlock' door system whereby two sets of automatic doors are used, the first opening upon the detection of a visitor and the second set, either opening in the same fashion or controlled from the reception desk. At appropriate times or where crime risks dictate both doors can be controlled from the reception desk. This can be combined with a draft lobby/unheated transition space for energy conservation. This transition space is best left unheated and does not need to be too comfortable as people still have outside coats on when within.

Additional entrances

39.6 There will clearly be instances, especially with multi building schools, that further entrance doors will be required for the convenient movement of students between classes. The crime opportunity risks that this arrangement might create will be minimised if access onto the school site beyond the school entrance forecourt and car park has been restricted *(see paragraphs 13.6 and 13.7).*

39.7 Electric door lock solutions for these additional external doorsets are available, which can be operated in numerous ways. Such operations might include automatic deactivation of the lock during breaks

between classes and they can also be operated by use of card swipes and proximity read fobs that can be issued to older students and staff. Such arrangements should not prevent people from exiting the buildings *(see Section 2 paragraphs 67 to 69 for further information).*

39.8 Some schools currently use ID cards that incorporate a metallic strip or chip that provides them with access through selected doors. An integrated access control system installed throughout the school using vandal resistant proximity readers (the SBD preferred technology) can also help to maintain a record of school attendance and where necessary can selectively bar access to certain areas of the school or bar individuals who have been excluded. Biometric access control and voice recognition systems are also available, which can be used in conjunction with other forms of access control into sensitive areas of the school. It is recommended that these various forms of access control are discussed with the CPDA at the earliest opportunity.

39.9 Doorsets that are fitted with electric locks or electric release staples must form part of the manufacturer's certificated range of doorsets.

39.10 Separate access controlled entrances for staff and sixth formers may be appropriate in some circumstances, especially, for example, where site constraints have resulted in the staff car park being located some distance away from the main entrance, possibly with its own access road and gate in some other part of the site boundary. The operation of the door may be achieved by use of proximity reader technology. This would be advantageous for staff carrying books or equipment or for staff with a physical disability.

40 Reception area, visitor control and interview room

40.1 A visitor's first impression of a school and its security is often gained in the reception area. The reception area should therefore be welcoming and create a positive and interesting impression of the school. Colour schemes and textures of wall finishes and furniture should be carefully considered to create a calming environment for the waiting visitor. Behind this outward impression however lies the main function of the reception area, which is the effective and appropriate management of visitors, which is critical to the school's security.

1.2 It is recommended that the reception is staffed or supervised at all times and access beyond the reception area is controlled using automatic locking doors, turnstiles or other barrier operated by the receptionist or by proximity reader technology with fobs/ ID cards issued to staff and older students. Such doors or barriers must allow emergency exit and be integrated into the fire/smoke alarm system for automatic release in an emergency when the building is occupied.

40.3 Schools should comply with relevant health and safety regulations and minimise the risk of assault upon all persons on the school premises. It is therefore important to plan for risk of violent incidents even though the risk may be small. Where there is a history of violence in the reception area it may be appropriate to fix furniture to the floor or walls and to reduce the amount of loose items on display.

40.4 Reception desks should provide the receptionist with a clear view of the waiting area, the approach to the school entrance door and have restricted access from the public side.

40.5 Reception desks should be high and deep enough to afford protection for the receptionist, but the design must consider the needs of a wheelchair user. The floor level behind the reception desk can be raised if deemed appropriate.

40.6 In extreme circumstances where anti-social behaviour may be expected and risks to reception staff high, an escape route to a place of safety such as the school office should be located behind the reception area. A 'slam to lock' door between the area behind the reception desk and the place of safety should include a door viewer or secure vision panel to allow a view of the reception area from the place of safety *(see also paragraph 64.5 for secure vision panels).*

40.7 An audible personal attack alarm should be located at the reception desk so that the receptionist can use it to summon assistance from trained staff if confronted by an aggressive visitor. Consideration should be given to an additional alarm sounder located in the staff room or other location where other members of staff can be alerted. In some areas, where this type of incident is not uncommon, automatic response to this type of alarm by the police or contracted security service may be necessary. Staff training in the use of this deliberately-operated device will be required. False activations may result in limited provision or complete withdrawal of police response. Such a facility should be located in any designated interview room *(See also paragraphs 71).*

40.8 In larger schools visitor toilets can be provided within the secure reception area to avoid having to provide an escort for the visitor into the school solely for this purpose. Likewise, it may be appropriate to locate a community or parent's room or interview room off the reception area if such a facility is required. The use of a vision panel in the doors to these rooms may also be appropriate for privacy and security.

40.9 For new schools the location of shared community facilities must be considered as this may affect the design of the reception area and indeed the rest of the building.

41 Toilet facilities

41.1 Badly designed and located toilets in schools can offer opportunities for bullying, assault, arson and generally poor or anti-social behaviour.

41.2 The toilet blocks should be positioned opposite offices, staff work rooms or preparation rooms so that passive supervision can work well throughout the school day. At least one of the toilet blocks should be positioned to allow easy access from outdoor spaces used during lunch and break times.

41.3 Toilets should be arranged in small blocks, not in a large central block. Small blocks increase the opportunity for passive supervision, discourage anti-social behaviour, reduce disruption caused by cleaning and maintenance, and cut down curriculum time lost through pupils visiting toilets during lessons.

41.4 If it is likely that the community will use part of the school building(s), consideration should be given to the provision of additional toilet facilities close to the rooms or section of the school being used as this will prevent unnecessary movement around the school building.

41.5 Secured by Design recommends full ceiling to floor enclosures for cubicles to provide increased student privacy and reduce anti-social behaviour.

41.6 Most anti-social behaviour occurs when pupils socialise and hang around in the toilets. To discourage this, along with provision elsewhere in the school for indoor social areas, the space within the toilet facility needs to be kept to a minimum, and hand-washing facilities should be made

visible and potentially unisex by being moved out of the cubicle area as a direct extension to the circulation space. This also allows for passive supervision of the common areas from the circulation space, so that pupils can feel safe when using the toilets.

42 Corridors, circulation areas and stairways

42.1 Modern school design very often includes very wide circulation corridors that are similar to 'streets'. They have many uses beyond circulation and are often used to display students' work, for 'break-out' study groups and meeting parents. Because of the nature of the modern school corridor it is recognised that recesses along its length may, in fact, be a deliberate design feature. In these circumstances lines of sight can be maximised through the imaginative use of glazed screens and reflective surfaces. In general, improved surveillance of the corridor from adjacent classrooms and offices (with due regard to unwanted interruption) may be useful.

42.2 Stairways are often the places that attract misbehaviour and bullying. The following design considerations can help to control this type of behaviour.

- Staircase that open onto corridors with heavy cross flow movement should be avoided
- Creating passive surveillance over staircases can help supervision
- Provide the widest stairways to corridors with the heaviest movement flows to avoid pinch points
- Wider stairways can reduce conflict between passing students

- Finishes, fixings and fittings must be robust
- Colour coding of the different staircases can help way finding for new students and those with anxiety problems

42.3 Avoid external staircases, which can create additional security risks

42.4 SBD applicants are directed to the following document for additional advice:

Standard specifications, layouts and dimensions: Internal stairways in schools Published by DCSF ISBN: 978-1-84775-091-4

42.5 Directional signage in circulation areas can be useful, particularly for new students and unaccompanied visitors during for example, open evenings. Wall and door colours can be helpful with direction and to identify various departments within the school building.

43 Internal doorsets

43.1 As a general rule all internal doorsets should be locked when the building is left unoccupied with specific attention paid to locking storerooms, staff restrooms, head teachers' offices and general office areas at the end of the school working day.

44 Changing rooms – field sports, swimming and physical education

44.1 Students and staff should be provided with individual secure storage facilities to hold personal belongings during a lesson.

45 Kitchens and school restaurant

45.1 Areas of the school that may sometimes be available for community use, including the serving of food and drink, should be planned to allow secure separation of these spaces from the rest of the premises. External courtyards associated with restaurant areas should have secure boundaries with access-controlled exits.

45.2 Card reader systems can be programmed to include cashless catering and electronic registration, which can enhance the security of students and staff.

46 Medical Room

46.1 The medical room should be located on the ground floor close to the main entrance door and emergency vehicle parking to allow easy access to medical professionals and other emergency services. The room should be equipped with a secure storage facility for first aid equipment and materials.

Security lighting

47 External lighting

47.1 In terms of security, the objective of lighting a school site after dark is to improve the chances of detecting an intruder and to enhance such an intruder's fear of detection *(see Section 2 paragraphs 51 for standards and values)*.

47.2 Lighting design should be co-ordinated with a CCTV installation (when specified) and the landscape design to avoid any conflicts and to ensure that the lighting is sufficient to support a CCTV system. Light fittings should be protected where vulnerable to vandalism.

47.3 A lighting scheme should be sufficient to cater for lawful after dark activity around the school site. It is important to ensure that there is not too great a contrast between lit and unlit areas as this can lead to intruders not being seen by people using the well lit paths. The lighting system should evenly distribute the light creating no dark shadows, provide good colour rendition, not cause glare or light pollution and should support both formal and informal surveillance of the site *(see Section 2 paragraph 52 for minimum standards)*.

47.4 External illumination when the building is unoccupied is recommended for entrance gates and routes to the main entrance and doors, car parks (if occupied by vehicles) and observable building elevations. When the school is closed and where energy conservation is a priority it may be appropriate to operate this lighting via movement detection devices. In this case consideration must be given to using the most efficient detectors to avoid false activations.

47.5 To be effective, lighting should ensure a realistic chance that there will be witnesses to an intrusion. It should also make intruders feel vulnerable to detection and an increased risk of being challenged. Conversely, installing lighting which cannot achieve this effect, such as the lighting of an elevation that cannot be observed by potential witnesses or CCTV, may actually assist an intruder.

47.6 The CPDA will place greater emphasis on physical and electronic security for vulnerable areas of the building that are not adequately monitored or overlooked at night.

47.7 The use of bollard lights can be useful for way finding, but are generally insufficient for security. Lights placed at lower levels can fail to properly model the facial features of pedestrians, hinder ready identification and might produce a glare effect; all of which does little to promote a feeling of safety and which detracts from efficient vision.

48 Internal lighting

48.1 It is recommended that most internal school lighting is operated by detection devices which will automatically switch lights on and off due to movement activity of the lack of it in each room. Apart from being a considerably more efficient method for reducing energy consumption (does not require a deliberate and remembered action by the user) such a system will identify the presence and progress of intruders in the building when it is closed. It therefore follows that the controlling mechanisms for the system should be contained securely.

48.2 If such a system is not being proposed then areas inside the school that may require 'out of hours' lighting include any critical area used for movement that can be seen from the outside, e.g. entrance foyers, corridors, staircases and landings. Two-stage lighting can be used internally to save energy whereby a higher level of lighting is only triggered by movement. This sudden increase in the lighting level would also serve to indicate the presence of an intruder.

SECTION 2:
PHYSICAL SECURITY SPECIFICATIONS

Introduction

49 Security standards

49.1 It is important that an effective and realistic level of physical security, commensurate with the risk, is incorporated into building construction. The physical security standards outlined within this section of Secured by Design, together with those of Section 1 of this document, indicate the minimum requirements needed in order for a development to be awarded a SBD certificate. It should be noted however, that in some higher risk locations, additional or alternative measures may be required. Any such additional or alternative requirements shall be communicated to the developer (or the developer's agent) in writing at the design stage. Developers should be aware that crime risk analysis and an understanding of local crime risk occurrence plays a significant determining factor in the SBD process to ensure appropriate crime resistance is specified.

49.2 The standards quoted hereafter were relevant within the United Kingdom on the date of publication of this document and are suitable for most insurance risks. A departure from the recognised standards, as outlined below, will only be acceptable in exceptional circumstances.

49.3 All standards quoted within Section 2 of this document are assumed to be the latest version, revision or amendment. Earlier standards/versions will not be valid or acceptable 12 months from the publication date of the succeeding amendment, revision or standard unless otherwise stated within this document.

49.4 At several points within this document a requirement is made for products to be 'Certificated' to relevant standards. It should be understood that any documentation submitted for SBD accreditation should clearly show the certification body name and the manufacturer/fabricator of the product installed within the development. Documentation that is provided bearing the name of a component or system manufacturer will not be deemed acceptable.

50 Fencing, gates and security bollards

Fencing

50.1 The demarcation of public space and the school grounds is important. However in many circumstances there is also a need for fencing that offers greater security in order to protect a particular risk. It is therefore important that the boundary treatment is discussed in detail with the CPDA at the earliest possible opportunity.

50.2 There are at least five reasons for providing a perimeter boundary fence. These are to:

- Mark a boundary to make obvious what is private and what is public property
- Provide safety for staff and students
- Prevent casual intrusion by trespassers such as dog walkers
- Prevent intrusion onto the site by criminals
- Reduce the wholesale removal of property from the site by thieves

1.3 The height of the fence will be determined by local circumstances, crime risk and the system chosen. In most circumstances heights between 1.2m (demarcation) and 2.4m (higher security) will be appropriate. Lower heights of fencing (1.2m to 1.6m) are suitable for boundary demarcation and controlling movement only and not for security, the height of security fencing will generally start at 1.8m and above. It is normally preferable that the perimeter fencing allows clear views over the educational buildings and the grounds from the surrounding land and buildings. Dark colour finish to fencing reduces the reflection of light and therefore makes it easier for passersby to observe activity within the grounds/premises.

50.4 Depending on crime risk the Secured by Design requirements are:

- For low to medium crime risks the timber or steel security fencing specification listed in 50.5 below should be used
- Where the crime risk is deemed to be high, then the requirements listed in 50.6 are required

50.5 Timber or steel security fencing for low to medium crime risks:

50.5.1 Where the fence panel is of a pale/slat design, they should be oriented vertically to avoid step-up points for climbing and able to resist being pried off/away and should be no less than 25mm thick timber or tubular steel with a wall thickness no less than 1.5mm and securely affixed to the frame/rails.

50.5.2 Where a fence panel is constructed of welded mesh the gaps between the mesh strands must be small enough to resist climbing

50.5.3 The method of fixing between panel/rails and posts should create a secure mechanical bond so that panels/slats cannot be easily removed and in addition should provide a chain linking effect where each panel and post acts in concert with the next to resist attack by pushing and pulling.

50.5.4 The fixings employed in the panel/pale to rail construction should be of galvanized steel or stainless steel with a design life to match the fence or gate.

50.5.5   Posts should allow the construction of an unbroken panel to post chain and be of a non-brittle material

50.5.6   Fence heights should be of a minimum 1.8m overall and be capable of raking or stepping to maintain height over different ground levels without creating gaps underneath

50.5.7   Pedestrian gates should be of a framed design and employ galvanized adjustable hinges and fixings mounted behind the attack face. On outward opening gates, where the hinges/brace is mounted on the attack face, fixings should be of a galvanized coach bolt design. Gates should be fitted with locks as agreed with the CPDA. The gate design and fixing features should match that of the fence

50.5.8   Entrance/driveway gates should be inward opening, of substantial framed construction and employ galvanized adjustable hinges and fixings mounted behind the attack

face. Gates should be fitted with a galvanized drop bolts and facility for padlocking (manual gates) or electro-mechanical locking (automated gates (see Note 50.5.8)) and employ mechanical/electro-mechanical devices as applicable to hold gate leaves in the open position. The locking method must be agreed with the CPDA. The gate design and fixing features should match that of the fence.

Note 50.5.8 Specifiers may wish to consider the safety and operational good practice guidance for Automated Gates established by gate-safe.org

50.5.9   The tops of timber fences should finish flush with the neighbouring posts and a securely fixed capping rail should run across the fence and posts to affect a continuous chain. The tops/top rail/capping of fencing and gates should be of a design able to accommodate a security topping to deter attempts to scale over the perimeter.

50.5.10 All timber employed in the manufacture of the fencing should be fit for purpose, from FSC certified sustainable sources and be treated to provide protection against all types of rot and insect infestation for a minimum of 15 years.

50.5.11 All steel used in manufacture should be galvanized to BS EN 1461 and/or stainless steel with a service life in excess of 25 years.

50.6 High security fencing requirements
In circumstances where there is a very high chance of crime requiring a fence that is resistant to intrusion the minimum standard for such a fencing system is one that is certified to LPS 1175 Security Rating 1 (Note 50.6) or Sold Secure Gold standard (See Glossary of terms). In order to meet this security standard the fence may not be aesthetically acceptable in some settings. Should this be an issue the applicant must discuss the matter with the CPDA and an alternative fencing system may be recommended. Higher standards for fencing are available, such as systems tested for use around government property, but a higher standard would not normally be required for a school site.

Note 50.6: The above LPS standard relates to both the height and penetrative resistance of the fence i.e. SR 3 is substantially more resistant to penetration than SR1. Such penetrative resistance may not always be required even though a height of 2.4m is necessary. In such circumstances, SBD will allow the extension in height of a certificated SR 1 fence.

50.7 All fencing as described above in 50.5 and 50.6 must be installed by the manufacturer or to the exact installation specifications provided by the manufacturer. BS 1722 offers installation advice.

Some school perimeter fencing is installed for reasons other than for crime prevention, such as for safety and for ball game areas where a fencing system may be as high as 5m. Such fencing should be resistant to climbing.

Gates
50.8 All gates installed within a secure fencing system as described above must be certificated to the same standard as the adjoining fencing and be of the same height and similar style. It should not be possible to lift the gate from its hinges, and the hinges and lock cylinder should be protected in such a way as to prevent their use as climbing aids. Care should also be taken in the design to ensure that cross sections do not inadvertently aid climbing. It should not be possible to pass under the gate when in the closed position. If gates are installed with locks that are remotely operated, they must form part of the manufacturer's certificated range

50.9 Gates used for the purpose of preventing access into a 'fire path' to the side and rear of an educational establishment should be certificated to either of the following standards:

- LPS 1175 SR 2
- STS 202 BR2

If the gate requires an emergency release mechanism, i.e. release without the use of a key, it should be protected to prevent operation from the outside of the gate. Anti-climb measures above the gate should be included.

Security bollards

50.10 Where crime risks dictate that there is a realistic chance of a vehicular borne attack to enter the school grounds or penetrate the shell of the building the following standards for secure bollards that will prevent such an attack should be specified:

- Fixed bollards should have been successfully tested to PAS 68-1:2013 *Performance specifications for vehicle security barriers – fixed bollards*
- Rising Bollards should have been successfully tested to PAS 68-2:2013 *Performance Specification for vehicle security barriers – rise and fall bollards*

50.11 PAS 69: 2013 provides guidance on the appropriate selection, installation and use of such bollards and should be referenced in the first instance.

50.12 Other measures may be considered to address a possible vehicle borne attack as an alternative to bollards e.g. substantial planting boxes or raised kerb. These should be discussed with the Crime Prevention Design Advisor at the earliest possible opportunity.

51 Telecommunications and utility access covers

51.1 Telecommunication lines and cables should enter buildings below ground and be protected by secure access covers certificated to a minimum of LPS 1175 Security Rating 2 or STS 202 Burglary Resistance 2 and be positioned in highly visible locations. For high risk areas or vulnerable businesses, access to other utilities should also be secured to LPS 1175 Security Rating 3 or STS 202 Burglary Resistance 3 or above. This will help to

delay or prevent the occurrence of burglaries where the perpetrators cut the CCTV or alarm signalling wiring prior to undertaking the offence. *(See also 30.1 to 30.2)*

52 External lighting standard requirements

52.1 All street lighting for adopted highways, estate roads, footpaths and car parks must comply with BS 5489-1:2013. Where conflict with other statutory provisions occurs, such as developments within conservation areas, requirements should be discussed with the CPDA and the local authority lighting engineer *(Note 52.1)*.

Note 52.1: It is recognised that some local authorities have 'dark sky' policies and deliberately light some of their rural, low crime areas to very low levels of illumination and that others are currently experimenting with switching off street lamps in low crime areas between certain hours of the night in order to save energy costs and reduce CO2 emissions. If such policies exist then these must be brought to the attention of the CPDA at the time of application.

52.2 Landscaping, tree planting and lighting schemes shall not be in conflict with each other.

52.3 The Overall Uniformity of light for an SBD development is expected to achieve a rating of 0.4Uo and should never fall below 0.25Uo *(Note 52.3)*.

Note 52.3: The evenness of light distribution is almost always more important than the levels of illumination being achieved by the system (the levels are determined by BS 5489) The British Standards Institute have issued an advisory note stating that they

recommend that Uo be at least 0.25 or 25%. A 0.4 Uo value is the ideal standard for an SBD lighting system, but where technical reasons prevent this we will still require the very best levels possible and under no circumstances may the rating fall below 0.25Uo.

52.4 The Colour Rendering qualities of lamps used in an SBD development should achieve a minimum of at least 60Ra (60%) on the Colour Rendering Index *(Note 52.4).*

Note 52.4: The Colour Rendering Index, scaled from 0 to 100 indicates the colour rendering qualities of lamps. 0 is a non-existent ability to render colour under illumination, such as low pressure sodium lamps, and 100 is the colour rendering qualities of daylight. The 'whiter' the light the better the colour rendition qualities. Properly controlled white light will illuminate an area to higher satisfaction levels for people whilst actually delivering less light than would be required for similar levels of satisfaction if non-white light sources were used.

52.5 The CPDA must be provided with a 'Lux Plan' in order that the lighting system can be assessed *(Note 52.5).*

Note 52.5: The details on the plan must include the maximum, minimum and average lux levels proposed. The plan must also show the Uo and Ra values for the scheme.

52.6 Light Pollution must be minimised *(Note 52.6)*

Note 52.6: All living things adjust their behaviour according to natural light. The application of artificial light has done much to improve our experience of the night-time environment, but if this light is not properly controlled both physiological and ecological problems may occur. Minimising light emitted in directions where it is neither necessary nor desirable is extremely important. Obtrusive lighting is a statutory nuisance and illuminating areas unintentionally is wasteful. SBD requires that only luminaires

with suitable photometry serving to reduce light spill and direct light only to where it is required may be used.

In terms of sustainability consideration must be given to the consequences of turning off street lights. Such a measure may be counterproductive in terms of CO_2 emissions and lead to the greater use of motor vehicles because residents are too afraid to use unlit streets. Crime levels, and in particular fear of crime levels, must also be carefully monitored to see what impact such an action has made to the community. There are other possible technical alternatives to simply 'switching off' including the use of street lights that are sensitive to levels of moonlight, those that are switched on through the detection of pedestrians or vehicles and emerging LED technology which is 80% more efficient than contemporary street lighting.

53 Closed circuit television (CCTV)

53.1 CCTV is not a universal solution to security problems. It can help deter vandalism or burglary and assist with the identification of culprits once a crime has been committed, but unless it is monitored continuously and appropriately recorded, CCTV will be of limited value in relation to the personal security of students, staff and visitors. That being said, the provision and effective use of CCTV fits well within the overall framework of security management and is most effective when it forms *part* of an overall security plan.

53.2 Developers of new schools and managers of existing that are considering the use of CCTV must be very clear about the objectives they wish to meet and establish a policy for its use and operation before it is installed. It is important to seek independent advice before approaching an installer and to develop a

comprehensive operational requirement for the system, which can be supplied to installers during the tendering process. An operational requirement will be used for the design, performance specification and functionality of the CCTV system. In effect, it is a statement of problems, not solutions and will highlight the areas that must be observed by the system and the times and description of activities giving cause for concern. A useful reference to help achieve this goal is the Home Office publication *Surveillance Camera Code of Practice: 2013*

53.3 The CCTV system must have a recording capability, using a format that is acceptable to the local police. The recorded images must be of evidential quality if intended for prosecution. Normally this would require a full 'body shot' image of a suspect. It is recommended that fixed cameras are deployed at specific locations for the purpose of obtaining such identification shots. An operational requirement must take account of this fact and decisions made as to what locations around the building are suitable for obtaining this detail of image. The recording of vehicle licence plates may also be practical and useful.

53.4 Whilst the location of cameras is a site specific matter it would be normal practice to observe the main entrance to the premises and the reception area. Early discussions with an independent expert and potential installers can resolve a number of matters including:

- monitoring and recording requirements
- activation in association with the intruder alarm
- requirements for observation and facial recognition/identification
- areas to be monitored and field of view
- activities to be monitored
- the use of recorded images

- maintenance of equipment and the management of recording
- subsequent ongoing training of operatives

53.5 CCTV systems must be installed to BS EN 50132-7:2012 *CCTV surveillance systems for use in security applications*

53.6 The design of a CCTV system should be co-ordinated with the existing or planned lighting system for the buildings and the external grounds, to ensure that the quality of the lighting is sufficient to support the CCTV.

53.7 In high crime areas CCTV cameras may need protection within a vandal-resistant housing.

53.8 CCTV systems may have to be registered with the Information Commissioner's Office (ICO) and be compliant with guidelines in respect to Data Protection and Human Rights legislation. Further information is available at this website: www.ico.gov.uk

53.9 For guidance on the use of CCTV images as legal evidence see also BS 7958:2009 *Closed circuit television (CCTV). Management and operation. Code of practice*. This document provides guidance and recommendations for the operation and management of CCTV within a controlled environment where data that may be offered as evidence is received, stored, reviewed or analysed. It assists owners of CCTV systems to follow best practices in gaining reliable information that may be used as evidence.

53.10 Remotely monitored detector activated CCTV systems must be installed in accordance with BS 8418:2010 *Installation and remote monitoring of detector operated CCTV systems – Code of practice*

54 Securing of unattended bicycles, mopeds, scooters and motorcycles

Bicycles

54.1 The securing of cycles left unattended must be considered within the design of the new school. Recent research by the 'Design against Crime' Centre suggests that cyclists should be encouraged to lock both wheels and the crossbar to a stand rather than just the crossbar and therefore a design of cycle stand that enables this method of locking to be used is recommended. Minimum requirements for such equipment are:

- Galvanised steel bar construction (minimum thickness 3mm) filled with concrete
- Minimum foundation depth of 300mm with welded 'anchor bar'

54.2 External and preferably roofed bicycle stores with individual stands for securing bicycles are best located close to supervised areas of the school building and preferably within 100m. The 'walls' of such buildings should be open to surveillance and therefore constructed of materials such as welded mesh, grilles or bars, polycarbonate or other secure glazing such as glass composites. When in use the store must be lit after dark using vandal resistant, dedicated energy efficient light fittings and energy efficient lamps, such as compact fluorescent *(Note 53.2).*

Note 53.2 SBD prefers roofed bicycle stores to keep bicycles dry and encourage cycling

54.3 External containers specifically designed for the secure storage of 2 or 3 bicycles and certificated to LPS 1175 SR 1 are available, which may be suitable for members of staff. Products of this type are available from the SBD website in the Members and Products section under 'Bicycle security' and at this link: Bicycles

54.4 Ventilated, bicycle stores within a school building must either have no windows or windows with security grilles and be fitted with a secure doorset that meets the standard as required by the CPDA. The locking system must be operable from the inner face by use of a thumb turn to ensure that persons are not accidently locked in by another user. The lighting in such a building must be automatically activated by a device, such as passive infra-red detector. The store should contain cycle stands as described in 54.1 above. A similar store may also be used to store mopeds, scooters and motorcycles in which case secure anchor points certificated to Sold Secure Silver Standard must be used

54.5 Further information about secure cycle parking can be found at the following resource section on the 'Bikeoff' website: www.bikeoff.org/design_resource

Motorcycles, mopeds and scooters

54.6 External parking stores for mopeds, scooters and motorcycles should be covered and located close to and in view of the school building and be provided with secure anchor points certificated to Sold Secure Silver Standard

Building envelope

55 Wall construction

55.1 School walls in remote locations and in elevations that are out of sight are attacked on occasion and should therefore be constructed to resist such an attack. Materials resistant to manual attack or damage should be used to ensure the initial provision of security.

55.2 Where lightweight construction is being considered for part of the building, for example insulated sheet cladding, a reinforced lining such as welded steel mesh can enhance the security of the building fabric.

56 Glazed curtain walling and window walls

56.1 SBD recognises four distinct types of glazed wall systems. These are:

i.   Large glazed units connected by a 'spider clamp system'
ii. Glazed units directly retained within a framing system (usually aluminium)
iii. Framed windows installed within a separate framing system
iv. Framed windows connected to other framed windows to create a 'window wall'

56.2 Glazed curtain walling (i & ii above) must be installed using a secure glazing retention system. The method of retaining the glass must include one or more of the following:

- Security glazing tape
- Dedicated security sealant or gasket
- A secure mechanical fixing system (Evidence will be required to prove the system is secure. This may be achieved by utilising the specific glazing retention test within PAS-24:2012 or by an indicative test on the retention system to LPS 1175 SR1 or STS 202 BR1)

56.3 Framed windows (iii & iv above) used within the construction of a 'window wall' must meet the requirements as required in paragraphs 70 below

56.4 Attack resistant glazing as defined by paragraph 66.1 below is required where the glazing is easily accessible. *(See Glossary of terms)*

56.5 For information only the following British Standard 'Codes of Practice' are relevant:

- BS 5516-1: 2004 *Patent glazing and sloping glazing for buildings. Code of practice for design and installation of sloping and vertical patent glazing*
- BS 5516-2: 2004 *Patent glazing and sloping glazing for buildings. Code of practice for sloping glazing*

57 Roller shutters and grilles

57.1 Grilles and shutters can provide additional protection to both internal and external doors and windows. The minimum standard for such products, when required, is certification to:

- LPS 1175: Issue 7 Security Rating 1 or
- STS 202 Burglary Rating 1

57.2 For roller shutters, the above minimum security ratings are generally sufficient where:

- a shutter is required to prevent minor criminal damage and glass breakage or
- the shutter is alarmed and the building is located within a secure development with access control and security patrols or
- the shutter or grille is intended to prevent access into a recess or
- the door or window to be protected is of a high security standard in its own right.

57.3 Security ratings higher than the minimum may be required and will be dictated by one or more of the following security considerations

- Type of crime risk
- Level of crime risk
- Location of the building
- Security level of the door or window being protected

Such a requirement will be justified and communicated to the applicant by the CPDA in writing.

1.4 In new build developments roller shutters should be integrated into the fabric of the building

58 Roller shutter doors

58.1 Roller shutter doors providing access for deliveries and other apertures where no other door is present must be certificated to a minimum of:

- LPS 1175: Issue 7 Security Rating 2 or
- STS 202 Burglary Resistance 2

58.2 A higher level of security will be determined by similar factors as in paragraph 56.3 above and a requirement for such will be justified and communicated to the applicant by the CPDA in writing at the earliest opportunity following receipt of the application.

58.3 In new build developments roller shutter doors must be integrated into the fabric of the building.

59 Roof construction

59.1 Roofs are vulnerable to criminal intrusion and damage through vandalism, therefore careful consideration must be given to their construction.

59.2 Lightweight roofing systems are becoming common in school buildings. Such systems must be certificated to a minimum of:

- LPS 1175 Issue 5 SR 1 or
- STS 202 BR1

59.3 The standard above tests the product and its fixings, therefore lightweight roofing systems must be installed utilising the manufacturer's approved fixing system.

59.4 Where traditional roofing systems are being used, the CPDA must be consulted to discuss alternative security measures e.g. the introduction of additional security features, such as expanded metal, to address criminal penetration via the roof.

59.5 Vulnerable ceiling voids should be protected by a monitored intruder alarm system.

59.6 Due regard must be taken to ensure full compliance with the 'duty of care' obligations under Occupiers' Liability Act 1984

60 Roof lights and sun tubes

Roof lights

60.1 Based on a site specific risk assessment which will be communicated in writing to the applicant and which will take into account contributing factors such as the accessibility (*See Glossary of terms*) and visibility e.g. whether activity can be seen from the street or a nearby occupied building, a roof light

aperture must be protected by either one, or a combination of the following:

60.1.1 In low crime, low risk applications a roof light aperture must be protected by roof lights certificated to LPS 1175 Security Rating 1 or STS 202 Burglary Resistance 1.

60.1.2 *In higher crime, higher risk applications a roof light aperture must be protected by roof lights certificated to LPS 1175 Security Rating 2 or 3, or STS 202 Burglary Resistance 2 or 3.*

60.1.3 *Alternatively, a roof light meeting the requirements in 59.1.1 above may be used in conjunction with an internal grille certificated to LPS 1175 Security Rating 1 or 2, or STS 202 Burglary Resistance 1 or 2.*

60.2 The CPDA must be supplied with proof of certification including the technical schedule, prior to the SBD certificate being awarded, unless the supplier is a member of the Secured by Design Licensing Scheme and the roof light can be identified on the SBD website *(see paragraph 70.6).*

60.3 Roof lights must be securely fixed in accordance with the manufacturer's specifications. The CPDA may request a copy of the manufacturer's fitting specifications.

Sun tubes

60.4 To prevent a sun tube being used as an access point into a commercial building the maximum diameter allowed is 350mm. In rare occurrences where larger diameters are required the CPDA should be contacted to discuss alternative means of protection.

61   Mail Delivery

Letter Plates

61.1 There are increasing crime problems associated with letter plate apertures, such as arson, hate crime, lock manipulation and 'fishing'. In order to address such problems SBD strongly recommends, where possible, mail delivery via a secure external letter box or delivery 'through the wall' into a secure area of the building.

61.2 If a letter plate is utilised it must form part of the certificated doorset range in order to be accepted within SBD developments. Specifiers and doorset manufacturers are advised that if a doorset is tested without a letter plate installed, then subsequent installation with a letter plate will invalidate the certificated doorset. For clarity the requirements within PAS 24:2012 and STS 201 Issue 4:2012 replicate the Secured by Design requirements and are as follows:

- Maximum aperture size of 260mm x 40mm
- The fixing shall not be removable from the exterior side of the doorset
- Letter plates must achieve the requirements of the removal test from BS EN 13724:2013 (conducted during the PAS 24 or STS 201 test)
- Doorsets installed with non-key lockable internal hardware shall either be installed with a suitable internal security deflector plate to restrict access to the hardware or the letter plate must be installed no less than 400mm from the internal locking point (measured in plane from the centre point of thumb turn to the nearest edge or corner of the letter plate aperture)

NB. Letter Plate products meeting DHF TS008 meet the above requirements and are deemed acceptable for the purposes of SBD.

61.3 Where there is a concern for arson attacks, or repeat arson attacks, SBD recommends the installation of an 'anti-arson' container. It is important that such products are installed strictly in accordance with the manufacturer's instructions.

Surface Mounted Letter Boxes or Through-the-wall

61.4 As an alternative to the requirements and recommendations in 63.2, a surface mounted or 'through-the-wall' letter box may be used. The use of such a product greatly reduces the crime risk problems associated with letter plates and also reduces heat loss through the door.

61.5 Where a surface mounted letter box is to be used it must be robust in construction and securely fixed to the external face of the building in accordance with the manufacturer's specifications. It must be located in a position that benefits from natural surveillance. The letter box must incorporate a design feature that prevents the removal of mail through the delivery slot and the access door for mail collection must be lockable. Letter boxes certificated to the Door & Hardware Federation Technical Specification 009 (TS 009) offer reassurance that all of the above attributes have been met. In high crime areas TS 009 provides the safest means by which mail can be delivered whilst eliminating the risks associated with letter plate apertures i.e. arson, hate crime, lock manipulation and 'fishing'.

Through-the-wall

61.6 Where there are design constraints that prevent a letter plate with a security cowl being installed within a door e.g. narrow corridor, or where it is undesirable to install a surface mounted secure mail box, it may be preferable to provide 'through-the-wall'

mail delivery into a secure internal letter box. Such a box must incorporate the same design features as described above for a surface mounted box. Anti-arson design features may also be advised if such crime risks are present. Products meeting the requirements of the Door & Hardware Federation Technical Specification 008 (TS 008) provide reassurance that 'through the wall' letter boxes offer similar security attributes to secure letter plates and many of the attributes that an external letter box conforming with TS 009 would provide.

62 Access for persons with disabilities

62.1 In accordance with the Equality Act 2010 (DDA in Northern Ireland), security features should not compromise guidance found in the Building Regulations Part M (England and Wales) or Part S of the Scottish Building Regulations or Part R of the Northern Ireland Building Regulations.

62.2 Security features (e.g. locking devices, door closers, etc) should be designed, where appropriate, for ease of use by people with disabilities.

62.3 Features introduced to meet building regulation access guidance, such as external handrails, should be considered alongside the security risks that these required features might present, e.g. climbing from a handrail onto a flat roof. Measures to counteract such risks must be discussed with the CPDA.

63 External doorset apertures

63.1 It is important that the doorset aperture is protected. Due to the nature of educational establishments and locations there is an expectation that the security will be required to meet one of the following minimum standards when the building is unoccupied:

- PAS 24:2012
- LPS 1175 Issue 7 SR2
- STS 201 or STS 202 BR2

Specifiers should consider the high frequency of operation of some doorsets within educational establishments. BS 6375 sets out the performance requirements for doorsets and specifiers are advised to consider the classifications within this standard to ensure that doorsets can adequately meet the demand placed upon them.

63.2 A requirement for external doorsets to be certified to a higher standard of security will be supported by crime analysis provided by the CPDA or specific insurance requirements. Additional security may be gained by utilising additional protection such as a certified roller shutter or grille as described in paragraphs 57 and 58 or through the use of a doorset certified to higher security standards in paragraph 63.1.

63.3 It is expected that all doorset products are fit for purpose and therefore certification to the following material specific standards is also required:

- BS 6510:2010 (Steel)
- BS 7412:2007 (PVCu)
- BS 644:2012 (Timber)
- BS 8529:2010 (Composite)
- BS 4873:2009 (Aluminium)

63.4 See paragraphs 57 and 58 for the SBD requirements for roller shutters and grilles.

63.5 Doorsets must be certificated by one of the following UKAS accredited certification bodies *(Note 63.5)*:

- BM Trada Certification
- British Board of Agrément
- British Standards Institute
- Loss Prevention Certification Board (part of the Building Research Establishment)
- Exova Certisecure Scheme
- ER Certification
- UL International UK
- Buildcheck

Note 63.5: Certificated products undergo continuous assessment to ensure that product standards are maintained

63.6 Alternative compliance is acceptable only from SBD member companies that have alternative compliance testing or reached an advanced stage of the certification process with one of the above bodies. Such cases must be verified with ACPO SBD, the managing body that oversees the Secured by Design initiatives

63.7 Alternatively, third party accreditation to the above standards via a Notified Certification Body that has signed the EA MLA (European cooperation for accreditation multi-lateral agreement) may be acceptable if this body is also specifically accredited to conduct such activities. The CPDA may refer such cases to ACPO SBD for verification.

63.8 Outward opening doorsets must specifically form part of the manufacturer's certificated product range.

63.9 The CPDA must be provided with proof of certification through one of the above bodies, including the scope of certification, prior to the SBD certificate being awarded, unless the supplier is a member of the Secured by Design licensing scheme and the doorset can be identified on the SBD website.

Avoiding door recesses

63.10 Recessed doorways should, where possible, be avoided as they provide opportunities for crime and anti-social behavior i.e. graffiti, arson and burglary. In the event that the building design or location requires such recesses efforts should be made minimize such negative consequences. This may include a requirement for higher security rated doorsets, doorsets and surrounding building material to be fire retardant and anti-graffiti surface treatments to be applied to both.

63.11 In addition to the above requirements, doorsets designated as 'emergency' or 'panic' exits must be fitted with the hardware appropriate to the specific use:

- BS EN 179: 2008 *Emergency exit devices*
- BS EN 1125: 2008 *Panic exit devices*

63.12 Doorsets must be supplied with a suitable (easily removed) label outlining the operational instructions for the locking system. The label shall be applied to the internal face of the door at the time of installation and remain in place until handover to the end user. A separate instruction leaflet for the locking system shall also be supplied to the end user.

64 Glazing within doorsets and secure vision panels

64.1 All glazing in and adjacent to doors must include one pane of attack resistant glass *(See paragraph 66.1)* that is securely fixed in accordance with the manufacturer's instructions.

64.2 If glazed panels are installed adjacent to the doorset and are an integral part of the doorframe then they should be tested as part of the manufacturer's certificated range of door assemblies. Alternatively, where they are manufactured separately from the doorframe, they shall be certificated to either:

- PAS 24:2012 or STS 204
- LPS 1175 at a Security Rating to match the doorset or
- STS 202 at a Burglary Rating to match the doorset

Such windows must be securely fixed to the door assembly in accordance with the manufacturer's instructions.

64.3 Care should be taken to ensure that access for the disabled does not conflict with the requirements of the Equality Act 2010. Doorset attributes which may require closer attention include opening mechanisms, glazing, level access and door width.

64.4 In some circumstances, such as in a remote building with no surveillance over an external, unglazed door, it is recommended that a door viewer is installed between 1200mm and 1500mm from floor level *(see also paragraph 58.5)*.

65 Door installation

65.1 Doorsets must be securely fixed into the fabric of the building in accordance with the manufacturer's instructions. The CPDA may require a copy of the manufacturer's installation specification.

66 Security glazing

66.1 All ground floor and easily accessible glazing must incorporate ███████ ████████████████████████ glass successfully tested to BS EN 356:2000 *Glass in building. Security glazing – resistance to manual attack* to category P1A. This requirement may not be applicable to windows (that are not immediately adjacent to doors) that are protected by a roller shutter or grille as described in paragraphs 57 and 58 above.

66.2 Occasionally, when large laminated glazed panels are used on south facing elevations, there have been incidents of glazing failure (cracking) due to thermal stress. Whilst the use of toughened glass would seem to be a simple solution to the problem of

thermal stress, ordinary toughened glass offers no security resistance. It is therefore recommended that the inner pane of glass used in a double glazed unit is 'laminated toughened'. This combination of the two sheets of toughened glass and the interlayer offers both resistance to intrusion and thermal stress associated with large glazed areas. Specifies are reminded that the minimum requirement for SBD is BS EN 356 P1A.

67 Electronic access control

67.1 Electronic access control may be required at the main entrance to a school and may also be required on some additional external and internal doors. Such requirements will be confirmed by the CPDA in writing. These requirements will be influenced by many factors including the following:

- The need to protect a lone worker or vulnerable persons working in a reception area
- To prevent access into parts of the building beyond the reception area to prevent crime and maintain health and safety
- Local crime risk factors
- During times when parts of the building are being used by the community

67.2 In all such cases the doors must incorporate an electronic access control system, with an electronic lock release *(Note 67.2)* and (for the main entrance and possibly other entrances) an entry phone linked to the reception. In some cases visual verification by CCTV camera incorporated into the call panel or separately located may be required.

Note 67.2: CPDAs and specifiers are reminded that the locking system must form part of the certificated doorset range. Locks

that are supplied with the door which have not been tested as part of the particular doorset range are unacceptable.

68 Electronic access control standards

68.1 Specifiers are advised that at present there are no specific dedicated UK security standards for access control systems i.e. the interface between the user and the lock control mechanism. However, there are a small number of access control systems that are currently licensed by ACPO SBD following Government evaluation. SBD is currently exploring suitable specifications for access control systems, which will be published as an annex to this guide once they have been prepared.

69 Access control and security staff

69.1 Although it is very unusual for schools to employ formal security staff there are some that do. Therefore where security officers are to be employed at the entrance electronic access control will still be required. See paragraph 78 for further information about security staff and manned guarding and guard houses.

70 Protection of window apertures

70.1 Window apertures may require differing levels of security protection dependent upon crime risk and crime levels. They must also meet the local building regulations in respect to safety and thermal performance.

70.2 The minimum SBD standard for the protection of window apertures at ground floor, basement and easily accessible locations *(See Glossary of terms)* is that windows must be certified *(See paragraph*

70.5) to one of the following standards:

- PAS 24:2012 Annex C or
- STS 204 *(Note 70.2)*

Note 70.2: STS 204 is the reference number for PAS 24:2012 Annex C and is published by Exova Warrington.

70.3 All glazing in windows that are easily accessible *(See Glossary of terms)* must include one pane of attack resistant glass *(See paragraph 66.1)* that is securely fixed in accordance with the manufacturer's instructions.

70.4 Windows must also be fit for purpose and must be certificated to the relevant material standard i.e.:

- BS 4873: 2004 (Aluminium)
- BS 7412: 2007 (PVC-U)
- BS 644: 2012 (Timber)
- BS 6510: 2005 (Steel)

70.5 Windows installed in SBD schools must be certificated by one of the following UKAS accredited certification bodies *(Note 70.5)* or can demonstrate alternative compliance as in paragraph 70.6 below.

- BM Trada Certification
- British Board of Agrément
- British Standards Institute
- Loss Prevention Certification Board (part of the Building Research Establishment)
- Exova Warrington
- ER Certification
- UL International UK
- Buildcheck

Note 70.5 Certificated products undergo continuous assessment to ensure that product standards are maintained

70.6 The CPDA must be provided with proof of certification through one of the above bodies, including the scope of certification, prior to the SBD certificate being awarded, unless the supplier is a member of the Secured by Design licensing scheme and the window can be identified on the SBD website in the Members and Products section.

Alternatively, third party accreditation via a Notified Certification Body that has signed the EA MLA (European cooperation for accreditation multi-lateral agreement) may be acceptable if this body is also accredited to conduct such activities. The CPDA may refer such cases to ACPO SBD for verification.

70.7 Windows must be securely fixed and installed in accordance with the manufacturer's specifications. The CPDA may require a copy of the manufacturer's installation specification.

70.8 A higher level of security for the school can be attained by either installing windows to the security standards shown below together with the relevant material standard *(paragraph 70.8)* or by additional protection of the minimum standard windows by the use of roller shutters or grilles as described in paragraphs 56 above. The use of shutters may often only be required to protect windows (and doors) on particularly vulnerable building elevations.

- LPS 1175 Security Rating 1 or higher or
- STS 202 Burglary Rating 1 or higher (Note 70.8)

Note 70.8 Glazing within windows tested to both LPS 1175 and STS 202 are subjected to an attack test as part of the overall assessment

70.9 Security of the minimum standard windows can also be improved through the use of secondary glazing systems to the standards as shown immediately above.

70.10 Although highly unlikely, the requirement for windows to be installed to a higher standard of certification will be determined by the supporting crime analysis provided by the CPDA. This requirement will be communicated in writing to the developer by the CPDA.

Internal security considerations

71 Intruder alarm systems

71.1 A suitably designed, fit for purpose, monitored intruder alarm system must be installed. For police response, the system must comply with the requirements of the ACPO Security Systems Policy.

71.2 Security fogging and offender marking devices can be included within the intruder alarm system to disorientate and mark an intruder as the alarm system is activated. They must conform to BS EN 50131-8:2009 Alarm Systems Security fog device/systems.

72 Public address systems

72.1 A Public address system is recommended to provide instant, effective communication to the whole school particularly in emergency situations where a prearranged and rehearsed response to particular situations can be initiated i.e. fire escape where the PA system may be linked to the fire alarm system. However, this aspect must be discussed with the appropriate fire authority.

73 Physical security standards for computers and server rooms

73.1 Consideration must be given to the structure of the internal walls, floors and ceilings of computer server rooms to provide appropriate security and to prevent damage by fire, smoke or fire extinguishment (water) from other parts of the building. Due to varying construction methods and materials it is not possible to be prescriptive, however combinations of different materials, such as high impact gypsum boards, expanded metal sheets, plywood, and masonry have proved to be effective.

73.2 Computer files should be backed up to an offsite location for the purposes of disaster recovery. This service provider should be certificated to ISO 9001-2008 and ISO/IEC 27001 but reference should first be made to the British Educational Communications and Technologies Agency (BECTA).

74 Internal doorsets

74.1 Where there is a requirement for an internal doorset to be secure (e.g. computer server room) these should be certificated to one of the following acceptable standards:

- PAS 24: 2012
- LPS 1175 Issue 7 SR1 or above
- STS 202 BR 1 or above

74.2 The building of a new school presents the ideal opportunity to design in an integrated access control system for the control of the majority of doorsets. In such cases, various technologies for the control of locking systems exist, however proximity reading technology is the least susceptible to tamper and damage. Any access control system must be supported by robust management to ensure its effectiveness. It must also take account of emergency egress requirements and must not allow students to be locked or to lock themselves into a classroom.

75 Staff room

75.1 Staff rooms should provide each member of staff with secure storage for clothing and personal belongings.

76 Student lockers

76.1 Students should be provided with secure storage for clothing and personal belongings. If the lockers are provided with a power supply for the charging of equipment, such as laptops, the locker system must form part of the manufacturer's certificated range.

76.2 It is preferable to locate lockers in areas that have high circulation and passive surveillance. Where located along corridors the lockers must be non-combustible.

77 Metal detectors

77.1 Metal detectors that are used responsibly can be effective in reducing some forms of violence in schools. Metal detection using arches or wands is more effective if used as part of an overall anti-violence, anti-bullying programme, which may involve many remedies including involvement of the local police, CCTV monitoring, periodic locker searches, and monitoring of the use of the school's internet or intranet service.

Other security considerations

78 Security staff, manned guarding and guard houses

78.1 Although it is very unusual for schools to employ security staff there are some that do, and the following information should prove useful for designers where such a service is to be employed.

78.2 The provision of manned guarding may require additional design features to be built into the school and grounds at the outset in order to reduce overall costs. The standards that are relevant to manned guarding are:

- BS 7499: 2013 *Static site guarding and mobile patrol services. Code of Practice*
- BS 7858: 2012 S*ecurity screening of individuals employed in a security environment. Code of Practice.*

78.3 In order to ensure a comprehensive patrolling regime is maintained an electronic patrol monitoring system is recommended.

78.4 The manned guarding industry is now regulated by the Security Industry Association (SIA). Security personnel are issued with licences by the SIA before they can operate within the industry.

78.5 BS 7499: 2013 *Static site guarding and mobile patrol services. Code of practice* offers guidance for the operation of a security control room.

78.6 Should the security control room (or guard house) act as a key holding facility and first response to an activated alarm system consideration should be given to BS 7984: 2008 *Key holding and response services – Code of practice.*

78.7 Doors, windows and glazing in masonry built guard houses must meet the same requirements as shown in the above relevant paragraphs.

78.8 It is recommended that purpose built modular build guard houses or other prefabricated buildings used for the purpose are certificated to LPS 1175 SR 1 or STS 202 BR 1 or higher depending on local risks.

79 Arson and fire protection

79.1 According to the Arson Prevention Bureau around 20 schools a week suffer an arson attack in the UK, with two thirds of these occurring after normal school hours. Many arson attacks against schools are carried out by pupils, ex-pupils and siblings normally aged between 10 and 18 years. Apart from the obvious huge financial costs, with at least 40 school fires a year costing in excess of £5 million, there is the loss of students' work and the disruption to school and family life which affects around 90,000 students a year.

79.2 With such a high incidence of arson it is obvious that schools should be designed with arson prevention in mind. Architects should consult with the fire service and insurance specialists and a full cost benefit analysis should be undertaken on the installation of a sprinkler system for all new building projects or substantial refits and renovations.

79.3 To help decision makers and design teams assess the level of risk of fire in schools and decide whether or not to install a sprinkler system, the DCLG has developed a document entitled *Fire Risk Assessment: Educational Premises.*

79.4 In addition an Arson Prevention Bureau (APB) publication by the Association of British Insurers entitled *'How to combat arson in schools'* is available. The APB's five point action plan for the prevention of arson in schools is shown below:

1 Deter unauthorised entry onto the site
2 Prevent unauthorised entry into the building
3 Reduce the opportunity for an offender to start a fire
4 Reduce the scope for potential fire damage
5 Reduce subsequent losses and disruption resulting from a fire by preparing a disaster recovery plan

79.5 The DfE, in its Building Bulletin 100 identifies the following places as 'places of special fire hazard' either because the activities in these places could provide opportunity for a fire or the place is or contains a valuable resource

- Boiler rooms
- Storage space for fuel or other highly flammable substances (including PE mats) or chemicals
- Laboratories
- Technology rooms with open heat sources
- Kitchens
- Oil filled transformer and switch gear rooms
- Rooms housing a fixed internal combustion engine
- Cloakrooms by virtue of the relatively large number or arson fires that occur in them

79.6 Building bulletin 100: *Design for fire safety in schools* Published by NBS on behalf of DCSF in September 2007, also provides additional information and advice.

80 Other useful security equipment to recognised standards

80.1 Secured by Design licences many security products that are useful for the school environment, many of which are not referenced within the body of this document. All of these products are either independently certificated to the police preferred specifications or standards or have been assessed as fit for purpose by ACPO SBD's Independently Chaired Product Assessment Panel.

81 Safes and strongrooms

81.1 For commercial safes and strongrooms, Secured by Design recommends those that are certified to LPS 1183: Issue 4, a standard issued by the Loss Prevention Certification Board *(Note 80.2)*. The required resistance grade for a safe is determined by the value of cash or jewellery to be kept in the safe overnight. The ratings in the table below should only be used as a guide as insurers will define their own ratings depending on the performance of the safes and the situation in which the safes and strongrooms are to be used. It is therefore very important that specifiers talk to their insurers prior to selecting a safe or strongroom.

Note 80.2 Secured by Design also recognises BS EN 1143-1:2005+A1:2009, which is very similar to LPS 1183: Issue 4. However there is less certainty in the ratings granted to some of the safes certified to these standards due to the proven variances in test results between test houses across Europe. Testing quality and consistency by VDS (Germany), SBSC (Sweden), CNPP (France) and LPCB (UK) is generally recognised by the UK insurance industry.

Standard	Resistance grade	Typical overnight cash rating (£k)	Typical overnight jewellery rating (£k)
LPS 1183 & BS EN1143-1	0	6	60
	I	10	100
	II	17.5	175
	III	35	350
	IV	60	600
	V	100	1000
	VI	150	1500
	VII – XIII	-	-

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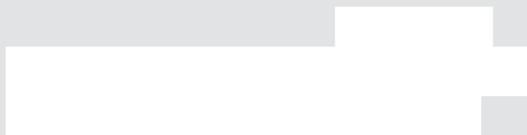
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