SECTION 2:
PHYSICAL SECURITY – SPECIFICATIONS

Introduction

41 Levels of security standards

41.1 It is important that an effective and realistic level of physical security, commensurate with the risk, is incorporated into building construction.

41.2 The CPDA will justify a requirement for higher levels of security with the provision of supporting crime analysis and other police vulnerability assessment advice that indicates heightened levels of risk based primarily on the location and anticipated use of the premises to be developed.

42 Unknown occupiers and risk

42.1 Due to the way in which many industrial developments evolve from inception to completion, and the fact that in many instances the intended occupier, and the nature of their business is unknown even beyond completion, it is often not possible to prescribe the completely appropriate security standard for the assessed crime risk. This document therefore details the minimum acceptable level of security for industrial and warehouse units and also offers relevant guidance for premises that may attract higher security risks. As soon as the end user and their business type are known, the CPDA should be consulted for further guidance.

42.2 Adherence to the SBD security standards will normally exceed minimum insurance requirements. Where there is a known higher risk, in terms of value or business continuity, then early liaison with the insurers is advised.

Perimeter and external areas

43 Fencing

43.1 The demarcation between public space and industrial or warehouse premises 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.

43.2 The five main reasons for providing a perimeter boundary fence are to:

- Mark a boundary to make obvious what is private and what is public property
- Provide safety for employers and employees
- Prevent casual intrusion by trespassers
- Prevent intrusion onto the site by criminals
- Reduce the wholesale removal of property from the site by thieves

43.3 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 commercial 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.

43.4 SBD requirements for fencing will be determined by risk:

- Normal crime risks require the use of the timber or steel security fencing specification listed in paragraphs 43.5 to 43.15 below
- Higher crime risks require adherence to the requirements listed in paragraph 43.16 below

Photo: Jacksons Fencing

Specification for timber or steel security fencing for normal crime risks

43.5 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.

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

43.7 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.

43.8 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.

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

43.10 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

43.11 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 *(See also paragraph 44.1).*

43.12 Entrance 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 galvanized drop bolts and a facility for padlocking (manual gates) or electro-mechanical locking (automated gates) 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 *(See also paragraph 44.1).*

43.13 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 create 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.

43.14 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.

43.15 All steel used in manufacture should be galvanized to BS EN ISO 1461:2009 and/or stainless steel with a service life in excess of 25 years.

Standard for security fencing for higher security risks

43.16 In circumstances where there is a higher risk of crime, a fence that is resistant to intrusion will be required. The minimum standard for such a fencing system is one that is certified to LPS 1175: Issue 7, Security Rating 1 *(Note 43.16)* or Sold Secure Gold standard *(See Glossary of terms)* or higher, depending upon risk. 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.

Note 43.16: 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.

43.17 All fencing systems and gates as described in paragraphs 43 and 44 must be installed by the manufacturer or to the exact installation specifications provided by the manufacturer. BS 1722 offers installation advice. Consideration must given to the provision of a strip foundation if there is a perceived risk of the fence being bypassed or undermined by the removal of substrate, guidance is also provided in BS 1722.

43.18 Secured by Design currently accredits a number of fencing manufacturers and installers who between them can provide fencing solutions for all circumstances. They can be found in the Members and Products section of the SBD website **www.securedbydesign.com**

44 Gates

44.1 All gates installed within a secure fencing system as described above must be suitable for the fencing specification or certified to the same standard as the adjoining certified 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 certified range. *(See paragraphs 57.1 for lock and cylinder standards and see also paragraphs 43.11 and 43.12)*

44.2 Gates used for the purpose of preventing access into a 'fire path' to the side and rear of an industrial or warehouse unit (particularly where the path runs between two units) should be certificated to either of the following standards:

- LPS 1175: Issue 7, SR 2
- STS 202: Issue, BR2

The gates should be of a design that allows for a line of sight along the side wall of the unit. 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.


Photo: Frontier Pitts

44.3 Gates that are certificated to the standards described above or are otherwise suitable for use within fencing systems can be found in the Members and Products section on the Secured by Design website at this link: Perimeter Security.

45 Security bollards (including those intended for Hostile Vehicle Mitigation)

45.1 Where crime risks dictate that there is a realistic chance of a ram raid type attack, with the intent to aide theft of the contents, or a vehicular borne attack to enter the premises or penetrate the shell of the building, ,to carry out an act of terrorism, 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 (Note 45.1)*
- Rising Bollards should have been successfully tested to PAS 68-2:2013 *Performance Specification for vehicle security barriers – rise and fall bollards (Note 45.1)*
- Bollards providing passive protection to areas of a development or building that either are not required to have protection against an attack by a vehicle e.g. to keep a fire door (opening outwards) clear of obstruction, or where there is no means by which a vehicle may have access but a substantial barrier is still required may be tested to BS 170-1.

Note 45.1: The International Organization for Standardization (ISO) has produced an International Workshop Agreement (IWA) for vehicle security barriers. This new agreement has been supported by the UK and therefore Bollards meeting the requirement of IWA 14-1 (Vehicle Security Barriers) will be deemed acceptable for SBD Commercial Developments.

45.2 PAS 69: 2013 provides guidance on the appropriate selection, installation and use of such bollards and should be referenced in the first instance *(Note 54.2)*.

Note 45.2: The International Organization for Standardization (ISO) has produced an International Workshop Agreement (IWA) issuing greater advice on site assessment and bollard installation. This new agreement has been supported by the UK and therefore bollards meeting the requirements of paragraph 45.1 and installed to the requirements within IWA 14-2 (Advice on site assessment and installation) will be deemed acceptable for SBD Commercial Developments.

45.3 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


Photo: Jacksons Fencing

the Crime Prevention Design Advisor at the earliest possible opportunity.

46 Vehicle parking

46.1 The design criteria for car parks should follow the principles laid down in the police owned 'ParkMark' initiative. Full registration to 'ParkMark' is not a requirement of this document. The CPDA will be able to offer additional advice. Further information can be found at www.parkmark.co.uk *(See also Section 1 paragraphs 20 above).*

Underground car parking

46.2 Should a development have an element of underground car parking then the developer should note that the following requirements are necessary:

46.2.1 Every effort must be made to prevent unauthorised access into the car park. Therefore an access control system must be applied to all pedestrian and vehicular entrances. Where terrorism is a consideration access should be controlled with a PAS 68 rated measure.

46.2.2 Inward opening automatic gates, roller shutters or grilles should be located as close to the building line as possible to avoid the creation of a recess. Such products must be certificated to one of the following standards:

- LPS 1175: Issue 7, SR2
- STS 202: Issue 3, BR2
- Sold Secure Gold
- PAS 68:2013

They must be capable of being operated remotely by the driver whilst sitting within the vehicle. All motorized grilles or shutters must be installed with appropriate safety detection systems to avoid personal injury or damage to vehicles. Such systems may afford easy access to disabled drivers, and will satisfy the requirements of the Highways Agency who, under normal circumstances, do not permit vehicles to obstruct a pedestrian footway or highway whilst the driver is unlocking a gate.

46.2.3 The lighting standard required is BS 5489-1:2013. The CPDA may request to be provided with an IsoLux Diagram (Lux Plan) in order that the lighting system can be assessed *(Note 46.2.3)*

Note 46.2.3: The details on the diagram must include the maximum, minimum and average lux levels proposed. The diagram must also show the Uo and Ra values for the scheme).

46.2.4 The lighting system can be activated either by a passive infra red switch, or similar. Alternatively a timed system may be utilised based on a predetermined timed period following activation of the main vehicular or pedestrian doorset. Specifiers and lighting engineers should take due regard to the need for instant requirement for light levels to immediately meet the needs of the user, therefore luminaires that have a slow 'strike up' will not be acceptable for use.

Photo: Cyclepods

46.2.5 It is advised that walls and ceilings have light colour finishes to maximise the effectiveness of the lighting. This will reduce the luminaires required to achieve an acceptable light level.

46.2.6 Any internal door that allows access to the industrial unit or office floors above must have an access control system and meet the physical requirements as advised by the CPDA and described in paragraphs 56 to 58. Due regard must be taken of the requirement of the Building Regulations (Fire and Means of Escape).

46.2.8 In larger developments closed circuit television may be required. The car park must therefore be capable of being monitored from each individual unit if no formal monitoring agreement is planned. Developers are reminded that if images of public space are visible and recorded then there may be a legal responsibility to register the system with the Information Commissioner. Such a system would only be practical if there is a planned management service for the development.

Bicycles

46.3 The securing of cycles left unattended must be considered within the design of any new commercial premises. The cycle stand must facilitate the locking of both wheels and the crossbar.

46.4 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'

46.5 External and preferably roofed bicycle stores with individual stands for securing bicycles are best located close to supervised areas of the main building. 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 46.5).*

Note 46.5: SBD prefers roofed bicycle stores to keep bicycles dry and encourage cycling

46.6 External containers specifically designed for the secure storage of 2 or 3 bicycles and certificated to LPS 1175:Issue 7, SR1/2 or Sold Secure SS314 Bronze are available. These may be suitable for the use of members of staff.

46.7 Ventilated, bicycle stores within the main 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 46.4 above.

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

Two-wheeled motor vehicle parking

46.9 External parking stores for motorcycles, mopeds and scooters should be covered and located close to and in view of the main building and be provided with secure anchor points certified to Sold Secure Silver Standard. Secure containers for crash helmets and waterproof clothing are recommended.

46.10 Similar requirements as in paragraph 46.7 are required for ventilated stores within the main building for two-wheeled motor vehicles. Secure anchor points certificated to Sold Secure Silver Standard must be provided. Secure containers for crash helmets and waterproof clothing are recommended.

47 Telecommunications and utility access covers

47.1 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:Issue 3, 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)*

48 External lighting standard requirements

48.1 All street lighting for both adopted highways and footpaths, private estate roads and 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 48.1).*

Note 48.1: 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.

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

48.3 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 48.3).*

Note 48.3: 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.

48.4 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 48.4).*

Note 48.4: 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.

48.5 The CPDA must be provided with a 'Lux Plan' in order that the lighting system can be assessed *(Note 48.5).*

Note 48.5: 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.

48.6 Light Pollution must be minimised *(Note 48.6)*

Note 48.6: 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 CO2 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.

49 Closed circuit television (CCTV)

49.1 CCTV is not a universal solution to security problems. It can help deter vandalism or burglary and assist with the identification of offenders 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 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.

49.2 Developers of new commercial premises and managers of existing premises 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 *CCTV Operational Requirements Manual 2009 ISBN 978-1-84726-902-7 Published April 2009 by the Home Office Scientific Development Branch*

49.3 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.

49.4 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

49.5 CCTV systems must be installed to BS EN 50132-7: 2012+A1:2013 *CCTV surveillance systems for use in security applications*

49.6 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.

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

49.8 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

49.9 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.

49.10 Remotely monitored detector activated CCTV systems must be installed

in accordance with BS 8418: 2015 *Installation and remote monitoring of detector operated CCTV systems - Code of practice*

Building shell security

50 Wall construction

50.1 Due to the remoteness of some industrial and warehouse units and or reduced activity at night and over the weekends on industrial sites some buildings become prone to criminal attack through the wall, bypassing security doors and shutters. The walls should therefore be designed to withstand such attacks and materials resistant to manual attack or damage should be used to ensure the initial provision of security.

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

51 Glazed curtain walling and window walls

51.1 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'

51.2 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: Issue 7, SR1 or STS 202: Issue 3, BR1)

51.3 Framed windows (iii & iv above) used within the construction of a 'window wall' must meet the requirements as required in paragraphs 62 below

51.4 Attack resistant glazing as defined by paragraph 60.1 below is required where the glazing is easily accessible. *(See Glossary of terms)*

51.5 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*

52 Roller shutters and grilles

52.1 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: Issue 3, Burglary Rating 1

52.2 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.

52.3 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

53 Roller shutter doors providing vehicular access

53.1 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
- Sold Secure Gold

53.2 A higher level of security will be determined by similar factors as in paragraph 52.3 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.

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

54 Roof construction

54.1 Roofs are vulnerable to criminal intrusion and damage through vandalism, therefore careful

consideration must be given to their construction.

54.2 Lightweight roofing systems must be certified to a minimum of:

- LPS 1175: Issue 5 or above, SR 1
- STS 202: Issue 1 or above, BR1

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

54.4 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 to address criminal penetration via the roof such as expanded metal.

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

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

55 Roof lights and sun tubes

Roof lights

55.1 Based on a site specific risk assessment which will be communicated in writing to the applicant (by the CPDA) 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:

55.1.1 In low crime, low risk applications a roof light aperture must be protected by roof lights certificated to LPS 1175: Issue 5 or above, Security Rating 1 or STS 202: Issue 1 or above, Burglary Resistance 1.

55.1.2 In higher crime, higher risk applications a roof light aperture must be protected by roof lights certificated to LPS 1175: Issue 5 or above, Security Rating 2 or 3, or STS 202: Issue 1 or above, Burglary Resistance 2 or 3.

55.1.3 Alternatively, a roof light meeting the requirements in 55.1.1 above may be used in conjunction with an internal grille certificated to LPS 1175: Issue 5 or above, Security Rating 1 or 2, or STS 202: Issue 1 or above, Burglary Resistance 1 or 2.

55.2 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 also paragraph 62.10)*.

55.3 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/tunnels

55.4 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.

56 External doorset apertures

56.1 It is important that the doorset aperture is protected. Due to the nature of some commercial building uses and locations there is an expectation that the security will be required to meet the following minimum standards when the building is unoccupied:

- PAS 24:2012
- LPS 1175: Issue 7, SR2
- STS 201 or STS 202: Issue 3, BR2

Additional security may be gained by utilising additional protection such as a certified roller shutter or grille as described in paragraphs 52 or through the use of a doorset certified to higher security standards in paragraph 56.3.

56.2 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)

56.3 In some circumstances it is highly likely that neither the CPDA nor the developer will know who the occupier of an industrial unit will be or the nature of the business therein. In such circumstances the CPDA will normally require the minimum level of security described in paragraph 56.1 above. If, however, the occupier is known then it is essential that the occupier's insurers are advised in order that the correct level of security can be specified.

56.4 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.

56.5 See paragraphs 52 for the SBD requirements for roller shutters and grilles.

56.6 Doorsets must be certificated by one of the following UKAS accredited certification bodies *(Note 56.5)*:

- 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 Certification
- Buildcheck

Note 56.6: Certificated products undergo continuous assessment to ensure that product standards are maintained. Any documentation submitted as proof of compliance 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.

56.7 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 SBD, the managing body that oversees the Secured by Design initiatives

56.8 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 SBD for verification.

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

56.10 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

56.11 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.

57 Locking systems for doorset upgrade and gates

57.1 Doorsets in new developments or replacement doorsets within refurbished premises should comply with section 56. Doorsets subject to an upgraded i.e. the door and frame are not being changed, or external gate systems utilising a single or multipoint locking system should comply with paragraph 56.

57.2 Locking mechanisms incorporating cylinders (Euro or oval profile) must include an assessment to BS EN 1303:2005 (minimum requirements key security Grade 5, attack resistance Grade 0 and drill attack resistance Grade 2). In addition to the above requirement, the cylinder certification scheme must include cylinder 'snapping' and 'anti-bump' assessments, for this reason all cylinders must be certificated to DHF TS 007 1 star (if the cylinder is protected by DHF TS 007 2-star external hardware) or DHF TS 007 3-star if no external protective hardware is being provided.

The following certification schemes for lock cylinders are currently recognised for use in SBD developments

- British Standard Institute 'Kitemark'
- Loss Prevention Certification Board LPS 1242: Issue 2:2010

57.3 A single point locking system certificated to BS 3621: 2007+A2:2012, BS 8621: 2007+A2:2012 or BS 10621: 2007+A2:2012 *(Note 57.3.1)*. Alternatively a multipoint locking system certificated to PAS 3621:2011, PAS 8621:2011 or PAS 10621:2011 *(Note 57.3.2)*

Note 57.3.1: These British Standard (BS) references have been developed from BS EN 12209, which is the European standard for single point locking devices and BS EN 1303, which is the European standard for lock cylinders and which incorporates an additional General Vulnerability Assessment, which is unique

to the UK. These British Standards reflect the elements of BS EN 12209 and BS EN 1303 that are considered to be the minimum level required for insurance cover with the UK.

The only difference between these British Standards is the level of security offered from the internal face of the door:

- *BS 3621 offers the same level of security to the internal and external face of the lock*
- *BS 8621 allows the use of a non-key operated release mechanism (e.g thumb turn)*
- *BS 10621 offers the same functionality at BS 8621, but has an external override facility, which disables the internal operated release mechanism (e.g thumb turn). This type of lock must only be specified for use within buildings that have alternative means of escape.*

Locksets certificated to the above standards will not require any further protection for the cylinder as this is catered for within the test standards.

Note 57.3.2: The UK multipoint standards have been developed to be equal to or exceed the equivalent single point variations. The operational characteristics echo those of the single point variants i.e. The only difference between these British Standards is the level of security offered from the internal face of the door:

- *PAS 3621 offers the same level of security to the internal and external face of the lock*
- *PAS 8621 allows the use of a non-key operated release mechanism (e.g. thumb turn)*
- *PAS 10621 offers the same functionality at PAS 8621, but has an external override facility, which disables the internal operated release mechanism (e.g. thumb turn). This type of lock must only be specified for use within buildings that have alternative means of escape.*

Locksets certificated to the above standards will not require any further protection for the cylinder as this is catered for within the test standards.

57.3 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*

57.4 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.

58 Glazing within doorsets and secure vision panels

58.1 All glazing in and adjacent to doors must include one pane of attack resistant glass *(See paragraph 60.1)* that is securely fixed in accordance with the manufacturer's instructions.

58.2 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:

- PAS24: 2012 or STS 204
- LPS 1175: Issue 7, at a Security Rating to match the doorset or
- STS 202: Issue 3, 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.

58.3 Care should be taken to ensure that access for the disabled does not conflict