

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

with the requirements of the Equality Act 2010. Doorset attributes which may require closer attention include opening mechanisms, glazing, level access and door width.

- 58.4 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).

Secure vision panels

- 58.5 Where privacy is required, together with a degree of security, both external and internal doorsets can be fitted with a secure vision panel. Secure vision panels allow for the control of vision into a private area or room or for views of an outside area for the purpose of manual visual access control. They can be supplied to various security levels dependent upon the door in which they are installed.

59 Door installation

- 59.1 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.

60 Security glazing

- 60.1 All ground floor and easily accessible glazing must incorporate one pane of laminated glass to a minimum thickness of 6.4mm (See *Glossary of terms*) or glass successfully tested to BS EN 356:2000 *Glass in building. Security glazing - resistance to manual attack* to category P1A unless it is protected by a roller shutter or grille as described in paragraphs 52 above. With effect from 1st January 2014 the Secured by Design requirement for all laminated glass in commercial premises will be certification to BS EN 356 2000 rating P1A unless it is protected by a roller shutter or grille as described in paragraphs 52 above.
- 60.2 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. Specifiers are reminded that the minimum requirement for SBD is BS EN 356: 2000 category P1A.

- 60.3 When premises are assessed as being at significant risk to the effects of blast from a terrorist attack, blast resistant glazing or anti shatter film may be required to mitigate the risk of death or injury from the effects of flying glass. Refer to the Home Office glazing document.

Electronic access control

61 Electronic access control systems

- 61.1 Electronic access control is likely to be required at the main entrance to a warehouse or industrial unit and may also be required on some internal doorsets, such as those that lead from an entrance lobby or reception into offices and production and warehouse floors. The requirement for electronic access control will be influenced by some of the following factors:
- 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 to prevent crime and maintain health and safety
 - To prevent trespass onto the production or warehouse floors, especially where the offices and the reception are located on an upper floor



- Type of business or business practices
- Local crime risk factors
- Where two or more businesses are served by a common entrance

61.2 In all such cases the doors must incorporate an electronic access control system, with an electronic lock release and (for the main entrance) an audio link to the individual businesses' offices or receptions. In some cases visual verification by CCTV camera incorporated into the call panel or separately located may be required. Specifiers are reminded that changing the lock specification of a certificated security doorset will require further testing. It is therefore important to discuss such changes with the manufacturer and the CPDA.

Electronic access control standards

61.3 Specifiers are advised to make reference to guidance published by the British Security Industry Association (BSIA) 'A specifiers guide to the Security classification of access control systems'.

Electronic Access control and security staff

61.4 Where security officers are to be employed at the entrance electronic access control will still be required. See paragraph 69 for further information about security staff and manned guarding and guard houses.

Protection of window apertures

62 Protection of window apertures

62.1 It is important that the window aperture is protected. Due to the nature of some commercial building uses and locations there is an expectation that the security will need to exceed the following standards when the building is unoccupied:

Certification to

- PAS 24:2012 or
- STS 204 Issue 3: 2012, or
- LPS 1175 Issue 7:2010 Security Rating 1 or
- LPS 2081 Issue 1:2014 Security Rating A

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.

62.2 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 62.1. 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.

62.3 A requirement for external windows to be certified to a higher standard of security will be supported by crime analysis provided by the CPDA or specific insurance requirements.

- LPS 1175: Issue 6, Security Rating 2 or higher
- STS 202 Burglary Rating 2 or higher (Note 62.3.1)

Note 62.3.1; STS 202 is the equivalent standard to LPS 1175 and is published by Warrington Certification Laboratories

62.4 See paragraphs 52 for the SBD requirements for roller shutters and grilles

62.5 Windows must be certified by one of the following UKAS accredited certification bodies (Note 62.5):

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

Note 62.5: 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.

62.6 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 accredited to conduct such activities. The CPDA may refer such cases to SBD for verification.

62.7 All glazing in windows that are easily accessible (See *Glossary of terms*) must include one pane of attack resistant glass (See *paragraph 60.1*) that is securely fixed in accordance with the manufacturer's instructions.

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

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

62.9 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 window can be identified on the SBD website.

62.10 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.

62.11 Windows must meet the requirements of the local Building Regulations with regard to safety glazing and emergency egress. The following additional specific SBD requirements must be complied with:

- Security glazing as required in paragraph 60.1 in windows below 800mm (from floor level) or 1500mm if within 300mm of a doorframe.
- Non-key locking hardware on designated emergency egress windows together with security glazing as required in paragraph 60.1.

Secondary glazing

62.12 Security of the minimum standard windows can also be improved through the use of secondary glazing systems to the standards as shown in paragraphs 62.1 and 62.3.

Mail Delivery

63 Mail Delivery

- 63.1 Letter plates and letter boxes must meet one of the following requirements:
- A robust external letter box securely fixed to the external face of the building in accordance with the manufacturer's specifications with fire retardation and anti-fishing attributes Letter boxes complying with DHF TS 009 have been found to meet the above requirements
 - A letter plate located within the wall, providing 'through the wall' delivery via a sloping chute into a secure internal letter box with fire retardation and anti-fishing attributes.
- 63.2 Letter plates for the above must comply with BS EN 13724: 2002 and must have a maximum aperture size of 260mm x 40mm . Letter plates complying with DHF TS 008 have been found to meet the above requirement and provide

additional security against anti-fishing characteristics and are especially recommended where thumb-turn release mechanisms are installed.

Internal security considerations

64 Intruder alarms systems

- 64.1 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 Security Systems policy, which can be found at www.securedbydesign.com
- 64.2 System designers may wish to specify component products certificated to the following standards:
- LPS 1602 Issue 1.0: 2005
Requirements for LPCB Approval and Listing of Intruder Alarm Movement Detectors
 - LPS 1603 Issue 1.0: 2005
Requirements for LPCB Approval and Listing of Alarm Control Indicating Equipment
- 64.3 Security fogging devices can be incorporated within the intruder alarm system to disorientate the intruder when the alarm system is activated. They must conform to BS EN 50131-8:2009 Security device fog systems.

65 Public address systems

- 65.1 In large commercial buildings a public address system is recommended to provide instant, effective communication to all staff members particularly in emergency situations where a prearranged and rehearsed response to particular situations can be initiated.

66 Physical security standards for computers and server rooms

- 66.1 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.

66.2 Where it is impractical to secure a room housing a computer server, there are two alternative solutions i.e. secure cabinets for individual computers, or small server units, and security caging for large or multiple servers. In both cases the SBD requirement is for full product certification. The following standards apply:

- LPS 1214: Issue 2.1, Category 1 (small server units)
- LPS 1175: Issue 7, SR2 (for large or multiple servers)
- LPS 1175: Issue 7, SR3 (for high risk or value servers)
- STS 202: Issue 3, BR 3
- LPS 2083: Issue 1

67 Secure internal doorsets

67.1 There is no specific SBD requirement for secure internal doorsets unless there is an identified security risk. Specifiers should contact the CPDA if there are any internal doorsets that may require additional security e.g. computer server room. The standards applicable will vary dependent upon the risk but the minimum recommended standards are as follows:

- PAS 24: 2012 or
- STS 201

High risk doorsets should be certificated to the following standards:

- LPS 1175: Issue 7, SR 2 or above, or
- STS 202: Issue 3, BR 2 or above

68 Safes and strongrooms

68.1 SBD recommends commercial safes and strongrooms are certificated to:

- LPS 1183: Issue 4.2, or
- BS EN 1143-1:2012 (*Note 68.1*).

The required resistance grade for a safe is determined by the value of the contents of the safe. 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 insurers prior to selecting a safe or strongroom.

Note 68.1 There are reported variations in some safes certificated to BS EN 1143-1:2012, however 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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Other design security considerations

69 Security staff manned guarding and guard houses

- 69.1 Where security staff are to be employed the following information should prove useful for designers where such a service is to be employed.
- 69.2 The provision of manned guarding may require additional design features to be built into the buildings and grounds at the outset in order to reduce overall costs.
- 69.3 In order to ensure a comprehensive patrolling regime is maintained an

electronic patrol monitoring system is recommended.

- 69.4 BS 7499: 2013 *Static site guarding and mobile patrol services. Code of practice* offers guidance for the operation of a security control room.
- 69.5 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.
- 69.6 Doors, windows and glazing in masonry built guard houses must meet the same requirements as shown in the above relevant paragraphs.
- 69.7 It is recommended that purpose built modular build guard houses or other prefabricated buildings used for the purpose are certificated to LPS 1175: Issue 7, SR 1 or STS 202: Issue 3, BR 1 or higher depending on local risks.

70 Arson and fire protection

- 70.1 If arson is identified as one of the potential risk factors in an area the new industrial units or warehouses should be designed with arson prevention in mind. Architects should consult with the fire service and insurance specialists and it is deemed appropriate a sprinkler system should be installed.
- 70.2 Measures that the designer should consider to prevent arson include:
- Deterring unauthorised entry onto the site

- Preventing unauthorised entry into the building
- Reducing the opportunity for the potential offender to start a fire
- Reducing the scope for potential fire damage

70.3 Measures that the building occupier should consider to prevent arson include:

- Ensuring the designer's in-built measures are put into practice
- Reducing subsequent losses and disruption to business resulting from a fire by preparing a disaster recovery plan

70.4 The following places of special fire hazard have been identified as such either because of 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 or chemicals
- Laboratories
- Other rooms with open heat sources
- Kitchens
- Oil filled transformer and switch gear rooms
- Rooms housing a fixed internal combustion engine

80 ARGUS: Professional

Project ARGUS Professional is aimed at encouraging architects, designers and planners to consider counter terrorism protective security measures within the built environment at the concept design stage. It encourages debate and demonstrates that counter terrorism measures can be designed into structures and spaces to create safer crowded places. It is fully supported by the various organizations associated with these professions.

Undercrofts

90 Buildings with Undercrofts – recommended protective measures

90.1 Depending upon the nature of the building, its location and use, under-croft car parking can assist in the commission of a terrorist attack. It is therefore of paramount importance that the police Crime Prevention Design Advisor is notified at the earliest possible opportunity if there are plans to incorporate such a feature within a new development. It is probable that if the building is deemed to be 'at risk' that the CPDA will inform the Police Counter Terrorism Security Advisor (CTSA).

90.2 **In an ideal world the preferred advice would be not to construct buildings on top of under-croft parking areas;** however it is acknowledged that the availability of land and the increased expense of purchasing larger plots are not particularly viable options in the world of business. Where space is at a premium then consideration should be given to placing any parking in a single storey open environment above the main building structure. The blast effect would have less impact than with an under-croft design. However, if under-croft or 'stilts' design is to be pursued then the two points below **should be implemented as a matter of course if the CTSA has assessed the build as a Medium High/ High risk** and will assist to make these buildings safer:

90.2.1 It is recommended that the structure is enhanced to withstand a 100kg (TNT Equivalent) explosive device (VBIED) such that it has adequate resistance to disproportionate and progressive collapse and maintains lateral stability at all times all in accordance with the Approved Document part A, BS 5950 Structural Use of Steel in Buildings, and SCI report P244 Protection of Buildings against Explosions. The

flooring system should be designed such that it will resist the effects of blast uplift and is fully restrained to the horizontal structure in the event of load reversal including the provision of suitable peripheral and internal ties and maintains horizontal continuity across all lines of support. The location of the 'design basis device' should be noted as appropriate to the configuration of the building – i.e. inside the structural envelope for a situation where vehicle parking is below the retail space.

90.2.2 As recommended by the CPNI, where the primary means of pedestrian access and egress is through or near the parking area, the transit route should be designed in such a way as to provide a minimum of two routes all in accordance with the Approved Document Part B and BS9999; 2008 Code of Practice for Fire Safety in the Design, Management and Use of Buildings. The physical resilience of these two routes should be constructed so that following the design basis event at least one route will remain fully functional and accessible. This is to allow for emergency response to and evacuation of the retail/office area. It should be noted that the desired physical resilience of the access routes relates to the generated blast effects and not just the effects of fire.

The following points are offered as best practice and will enhance the recommendations above:

- The use of laminated glazing to all public areas adjacent to the car park area or within any potential blast area. Where there is existing glazing then the use of Anti-Fragmentation Film (AFF) should be installed.
- If the under-croft area is used for deliveries then the access point should have Access Control - consider deployment of active Vehicle Security Barrier solutions, procedures, long term operations management and emergency access.

- In addition, all staff should receive counter terrorism awareness briefings such as Project Argus and Project Griffin. Whilst this is not directly linked to the planning process

it will improve staff awareness and resilience of the site.

Where space allows within a new build design or an existing build then the recommendations below should also be considered:

- Traffic exclusion is the ideal in terms of ambitious and effective protection. On larger self-contained sites, car parking for both visitors and staff further away from a protected building can bring extra confidence through natural stand-off (*Note 90.2.2*). Covered walkways which are not typically provided in car park designs, or a park and ride facility depending on relative distances, may reduce any staff/public concerns.
- Traffic exclusion but with screening of any vehicles that are allowed in to the secure area is the next best option. Less than 100% screening or a random screening strategy increases risk. Off-site consolidation and screening facilities can offer multiple security benefits by reducing the number of vehicles that need to access a secure site and/or underground delivery and parking facilities within a development. This increases the confidence in any vehicle that does arrive at a site following security checks and releases valuable space inside the development. If screening is to be conducted on site then the ability to reject a vehicle without allowing it access to secure areas must be built into the design.
- Traffic inclusion into a large perimeter site is an option but typically would need to be coupled with individual protection around critical and/or vulnerable assets to provide some standoff.

Note 90.2.2: Blast stand-off is used to keep a potential VBIED away from a protected asset thus limiting the damage caused by blast effects. Adequate blast stand-off distance can be enforced through the use of physical barriers and effective traffic management. See the link on the NaCTSO website under Threats/ VBIED for more information: <http://www.nactso.gov.uk/threats>.



GLOSSARY OF TERMS

Architectural Liaison Officer

Specially trained police officers or police staff, employed by police forces to administer the Secured by Design initiative on behalf of the Police Service. This is the same role as Crime Prevention Design Adviser (CPDA). The term CPDA is used throughout the SBD guides.

Easily Accessible

Easily accessible windows (or doorsets) are those that can be accessed via a flat roof, balcony or other similar structure e.g. external supporting or decorative balcony detail. Also means that access can be gained by two persons (one climbing, one assisting) without the use of a climbing aid, such as a ladder.

Certification (of products)

Independent, ongoing third party surveillance of the manufacturing process of security tested products, such as doors, windows and shutters, which includes periodic sample re-testing and factory audits to ensure consistency in manufacture. Independent certification by an accredited organisation is a vital requirement of the SBD project.

Crime Prevention Design Adviser (CPDA)

Specially trained police officers or police staff, employed by police forces who administer the Secured by Design initiative on behalf of the Police Service. This is the same role as Architectural Liaison Officer (ALO). The term CPDA is used throughout the SBD guides.

Defensible Space

An environment where the physical characteristics allow the legitimate occupiers to assert influence and control to ensure their security. Secured by Design recognises the benefit of spaces that are recognisably private in nature, as such spaces promote a sense of ownership and responsibility by the people who live and work in them. *Further reading: Design Guidelines for Creating Defensible Space. Oscar Newman*

Natural Surveillance

An architectural design that limits the opportunity for crime by enhancing the chance that a potential offender might be or will be seen. The effectiveness of such measures relies on witnesses reacting to and or reporting what they have seen to others to enforce the law and the potential offender's expectation of such a reaction.

ParkMark®

Safer parking status, ParkMark®, is awarded to parking facilities that have met the requirements of a risk assessment conducted by the police. These requirements mean that the parking operator has put in place measures that can help deter criminal activity and anti-social behaviour. The scheme is managed by the British Parking Association. Further information is available at www.britishparking.co.uk

Secured Environments

Secured Environments is a police certification scheme. It is awarded to organisations that are able to show that they have adopted key principles for protecting themselves against crime. The scheme is administered by Perpetuity Research and Consultancy International Ltd on behalf of Secured by Design. Further information is available at www.securedenvironments.com

Sold Secure

A test and certification body, owned by the Master Locksmiths Association, which accredits security products. Typically, products are graded bronze, silver or gold.

Terrorism

The use or threat of a specified action where the use or threat is designed to influence the government or to intimidate the public or a section of the public, and the use or threat is made for the purpose of advancing a political, religious or ideological cause. The action is a specified action if it involves serious violence against person; involves serious damage to property; endangers a person's life, other than

the person committing the action; creates a serious risk to the health or safety of the public; or is designed seriously to interfere with or disrupt an electronic system *Section 1 The Terrorism Act 2000*

UKAS

The United Kingdom Accreditation Service. The sole national accreditation body recognised by government to assess, against internationally agreed standards, organisations that provide certification, testing, inspection and calibration services.

The authors of the SBD guidance documents are always ready to receive and respond to constructive criticism and if necessary make alterations to the guidance providing this is based upon evidence. Should you wish to contribute towards this or any of the Secured by Design guides please contact our head office by email to guides@acpo-sbd.co.uk

References

Publications

BREEAM UK New Construction: Non-domestic Buildings
Technical Manual: SD5076: 2.1

CCTV Operational Requirements Manual

Design and access statements

Guidance on changes to the development control system

National Planning Policy Framework

National Planning Practice Guidance

PAN 77 Designing safer places

TAN12 Design 2009

Safer places: a counter-terrorism supplement

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Page 33: Note 1.17 changed to 43.17

Page 40: Note 1.5 changed to 51.5

Page 43: Note 56.5 changed to 56.6

Page 43: New text added to Note 56.6: “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.”

Page 48: New text added to Note 62.5: “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.”

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