

## Loss Prevention Standard

### LPS 2081: Issue 1.1

Requirements and testing procedures for the LPCB approval and listing of building components, strongpoints, security enclosures and free-standing barriers offering resistance to intruders attempting to use stealth to gain entry

The purpose of this standard is to evaluate the resistance to unauthorised access by various physical security products when targeted by intruders using stealth.

The standard specifies two grades of security according to the tools and time likely to be used by an intruder in situations where they will wish to avoid making significant noise. Specifiers can therefore select products/systems that provide levels of security matching their needs.

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## **PARTICIPATING ORGANISATIONS**

This standard was approved by BRE Global Governing Body. The following organisations participated in the preparation of this standard:-

Association for Specialist Fire Protection (ASFP)  
 Association of Insurance Surveyors (AIS)  
 British Automatic Fire Sprinkler Association (BAFSA)  
 British Property Federation (BPF)  
 Chief Fire Officers' Association (CFOA)  
 Construction Industry Council (CIC)  
 Construction Products Association (CPA)  
 Fire Industry Association (FIA)  
 Heathrow plc  
 Home Builders Federation (HBF)  
 Homes & Communities Agency (HCA)  
 NHBC  
 RICS  
 Risktech Ltd  
 Secured By Design (SBD)  
 Sustainability + Architecture  
 Sustainable by Design  
 West One Management Consulting Ltd

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## **REVISION OF LOSS PREVENTION STANDARDS**

Loss Prevention Standards will be revised by issue of revised editions or amendments. Details will be posted on our website at [www.redbooklive.com](http://www.redbooklive.com)

Technical or other changes which affect the requirements for the approval or certification of the product or service will result in a new issue. Minor or administrative changes (e.g. corrections of spelling and typographical errors, changes to address and copyright details, the addition of notes for clarification etc.) may be made as amendments (See amendments table on page 30).

The issue number will be given in decimal format with the integer part giving the issue number and the fractional part giving the number of amendments (e.g. Issue 3.2 indicates that the document is at Issue 3 with 2 amendments).

**USERS OF LOSS PREVENTION STANDARDS SHOULD ENSURE THAT THEY POSSESS THE LATEST ISSUE AND ALL AMENDMENTS.**

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## FOREWORD

This standard identifies the evaluation and testing practices undertaken by LPCB for the purposes of approval and listing of products. LPCB listing and approval of products and services is based on evidence acceptable to LPCB:-

- that the product or service meets the standard
- that the manufacturer or service provider has staff, processes and systems in place to ensure that the product or service delivered meets the standard

and on:-

- periodic audits of the manufacturer or service provider including testing as appropriate
- compliance with the contract for LPCB listing and approval including agreement to rectify faults as appropriate

This standard defines two levels (security ratings) of resistance to manual attack by opportunist intruders attempting to use a combination of physical bodily force, stealth and a selection of tools that are easily concealed about the person in order to gain entry.

Products approved to this standard should therefore only be used in environments in which intruders are highly likely to avoid making noise in order to evade detection through natural surveillance. If it is considered intruders operating in the environment may be willing to use tools and techniques likely to result in levels of noise more likely to draw attention to their actions (e.g. breaking glass), reference should be made to LPS 1175 *Requirements and testing procedures for the LPCB approval and listing of intruder resistant building components, strongpoints, security enclosures and free-standing barriers*. Likewise, if it is considered intruders operating in the environment are likely to be willing to spend longer than three minutes attacking the product, or would use larger tools to gain entry, reference should be made to LPS 1175.

Full details of the LPCB scheme for approval and listing of intruder resistant building components, strongpoints, security enclosures and free-standing barriers to this standard are provided in scheme document SD118.

## NOTES

Compliance with this LPS does not of itself confer immunity from legal obligations. Users of LPSs should ensure that they possess the latest issue and all amendments.

LPCB welcomes comments of a technical or editorial nature and these should be addressed to “the Technical Director” at [enquiries@breglobal.co.uk](mailto:enquiries@breglobal.co.uk).

The BRE Trust, a registered charity, owns BRE and BRE Global. BRE Global and LPCB (part of BRE Global) test, assess, certificate and list products and services within the fire and security sectors. For further information on our services please contact BRE Global, Watford, Herts. WD25 9XX or e-mail to [enquiries@breglobal.co.uk](mailto:enquiries@breglobal.co.uk).

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Listed products and services appear in the LPCB “List of Approved Products and Services” which may be viewed on our website: [www.redbooklive.com](http://www.redbooklive.com) or by downloading the LPCB Red Book App from the App Store (for iPhone and iPad), from Google Play (for Android devices) or from the Windows Store (for Windows 8 Phones and Tablets from 2014).

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## 1 SCOPE

This standard describes requirements and test methods for classifying the intruder resistance provided by building components, strongpoints, security enclosures and free-standing barriers when targeted by intruders using stealth\* in order to avoid being heard.

The scope includes the following types of product and system:

- Access covers and hatches
- Cladding systems
- Conservatories
- Containers
- Curtain walling systems
- Display cases and cabinets
- Hinged and pivot doorsets
- Fences and gates
- Folding doorsets
- Garage doorsets
- Partitioning systems
- Roofing systems
- Roof lights and skylights
- Secondary glazing systems
- Security grilles
- Security screens
- Sheds and tool stores
- Shutters
- Sliding doorsets
- Strongpoints
- Temporary buildings
- Tool containers
- Turnstiles
- Void protection screens
- Windows
- Walls

The intruder resistance of the product itself plus any in-situ hardware, such as locks and hinges, and any associated form of locking, such as padlocks, are tested.

The intruder resistance of the complete building component, strongpoint, security enclosure or free-standing barriers, and any associated hardware is classified regardless of design or materials used in their construction.

Where the product comprises an opening element and a frame or retaining guides, the element and its frame or guides are tested as a combination, locked accordingly. Each opening configuration is subject to a separate evaluation.

The adequacy of the installation/fixing method defined by the manufacturer is assessed. However, it is assumed that the substrate onto which the product is fitted provides a resistance to attack at least equivalent to that afforded by the product itself.

The standard does not cover the classification of individual components such as glass, infill materials or locks in their own right, other than as part of the products tested.

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\* Products/systems used in situations where intruders are not concerned about making noise should be evaluated and approved in accordance with the intruder resistance requirements defined in LPS 1175.

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Resistance to electrical manipulation is not tested. It is therefore recommended that electronic components used to operate the product are also tested and approved to relevant operational and safety standards.

Resistance to thermal shock attack, chemical attack and surreptitious manipulation (e.g. lock picking) are outside the scope of this standard, as is durability and other general performance.

The resistances to scaling over and tunnelling under free-standing barriers are also outside the scope of this standard.

*Notes:*

- i) For guidance, the security rating system is loosely based upon domestic risks in situations where the intruder will wish to avoid making significant noise in order to gain entry undetected.*
- ii) The security rating applies to the prime barrier. No provision is made for enhancement of a product by means of a secondary barrier and it is not the intention of this standard to prohibit such an arrangement.*
- iii) This standard incorporates many of the requirements contained within LPS 1175. However, while that standard permits the test engineer to use techniques resulting in unlimited noise being generated during their attempts to gain entry, this standard is aimed specifically at products used in situations where intruders are likely to attempt to gain entry by stealth (i.e. by making minimal noise). This standard should therefore only be used to specify building components, strongpoints, security enclosures and free-standing barriers that are to be used in environments where the risk to the intruder of detection and subsequent detention is likely to deter them from using methods of entry that will result in the creation of a significant level of noise.*
- iv) The performance of building components, strongpoints, security enclosures and free-standing barriers to other characteristics such as fire resistance, acoustics, durability and weathertightness, may be covered by other LPS, BS, EN and ISO standards. Contact LPCB for further information.*

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## **2 DEFINITIONS**

### **2.1 Attack face(s)**

The face(s) of a product confronting the person attempting forced entry.

### **2.2 Building component**

Either an element of a building façade that prevents unauthorised entry into the building, or an element within the building providing a means of preventing unauthorised access to areas within a building.

*Note: Examples include doors, shutters, grilles, windows and void protection screens.*

### **2.3 Closed condition**

The opening elements of a building component, strongpoint, security enclosure or free-standing barrier are "pulled to" with no engagement of any locking mechanism. The opening elements can be opened from the attack side without a key, force or damage when in this condition. The product therefore has no intruder resistance when in this condition.

### **2.4 Combined number of effective differs/codes**

The sum of the effective differs/codes for each lock fitted to the opening element that is operated with a different code or key of a different differ.

### **2.5 Effective differ**

Difference between lock mechanisms of similar designs which, taking into account practical considerations, ensures that each lock can only be operated by its own key.

### **2.6 Free-standing barrier**

Wall, fence, gate, turnstile or other similar barrier, and their associated foundations, designed to prevent entry to a defined area outside a building.

### **2.7 Intruder resistance**

The capacity of building components, strongpoints, security enclosures and free-standing barriers to withstand forced entry and/or removal from the supporting substrate.

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## 2.8 Latched condition

The opening elements of a building component, strongpoint, security enclosure or free-standing barrier are closed and held shut by automatic latching mechanisms that can be operated from the attack side without a key, force or damage.

This condition also occurs when opening elements are latched or dead-bolted using electronically powered locking devices that are set to “fail unlocked”. This is because the opening element may be opened from the attack side without a key, force or damage when the power fails or is removed.

The product does not provide any intruder resistance when in the latched condition.

## 2.9 Manual intervention attack test

An attempt at forced entry or removal by a person using tools.

## 2.10 Minimum locked condition

This locked condition exists if it is not possible to open the opening elements of a building component, strongpoint, security enclosure or free-standing barrier from the attack side without a key, abusive force or damage when:

- The opening elements are closed; and
- Automatic latching/bolting mechanisms<sup>†</sup> are engaged; and
- Only dead-locking devices fitted to the opening element, which the user can operate from the side of the element that they are on when closing that element, are engaged; and
- There is no visible evidence that the opening elements are not in the optimum locked condition when viewed from the attack side.

## 2.11 Optimum locked condition

The opening elements of a building component, strongpoint, security enclosure or free-standing barrier are closed, latched and deadlocked using all latches, deadbolts and supplementary locking devices fitted to the opening element. It is not possible to open the opening elements from the attack side without a key, force or damage, or with power removed<sup>‡</sup> from any electronic locking devices fitted to the product.

<sup>†</sup> If the automatic latching device is electronically operated and may be set to “fail unlocked”, the minimum locked condition shall be that achieved by the product when the latching device is isolated from the power supply.

<sup>‡</sup> This excludes supplementary power provided by local battery back-up supplied with the product. In such situations the electronic locking devices shall be powered by the battery back-up during the attack test programme.

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## 2.12 Security container

A self-contained security enclosure designed to inhibit unauthorised access to, or removal of, defined items of value.

*Note: Examples include lockers, filing cabinets and security cabinets.*

## 2.13 Security enclosure

An enclosure designed to inhibit unauthorised access to, or removal of, defined items of value.

## 2.14 Security rating

Alphabetic indication of the intruder resistance afforded by a building component, strongpoint, security enclosure or free-standing barrier when targeted by intruders using stealth.

## 2.15 Strongpoint

A security enclosure built-in to an existing building/structure which may rely on the fabric of the building (e.g. floor, roof, wall or ceiling) to provide protection against entry into the secured area from particular directions.

## 2.16 Total height of free-standing barrier

The total height of a free-standing barrier is the perpendicular distance between a line level with the tallest point on the supporting ground and a parallel line level with the tallest point on the permanent part of the free-standing barrier (excluding any semi-permanent toppings). This is illustrated in Figures 1 to 3.

## 2.17 Test block

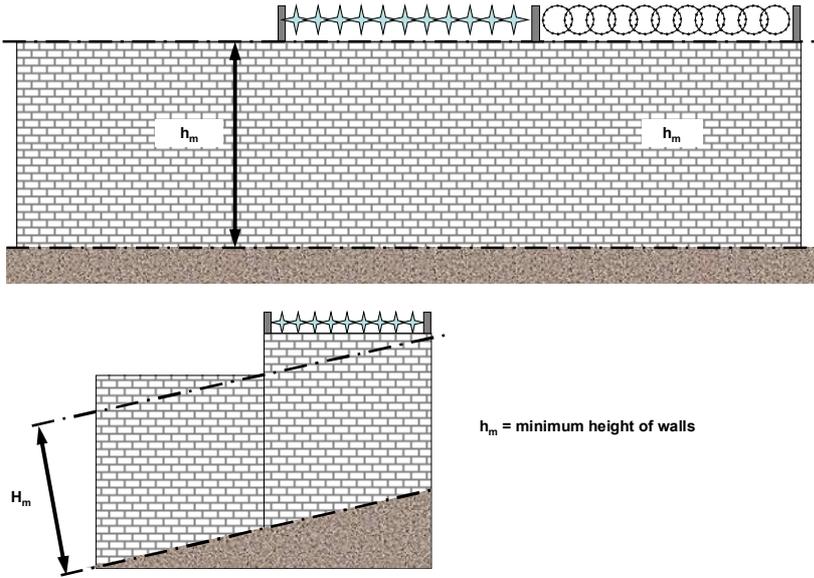
A rigid shape of defined dimensions used to determine whether:

- A person may pass through the product (e.g. a doorset, window or other product designed to prevent access through an aperture) or into the product (e.g. an enclosure).
- A person may reach through the product (e.g. a doorset, window or other product designed to prevent access through an aperture) or into the product (e.g. an enclosure) to access a protected asset.
- An asset that is protected by the product may be removed through the product (e.g. a doorset, window or other product designed to prevent access through an aperture) or from within the product (e.g. an enclosure).

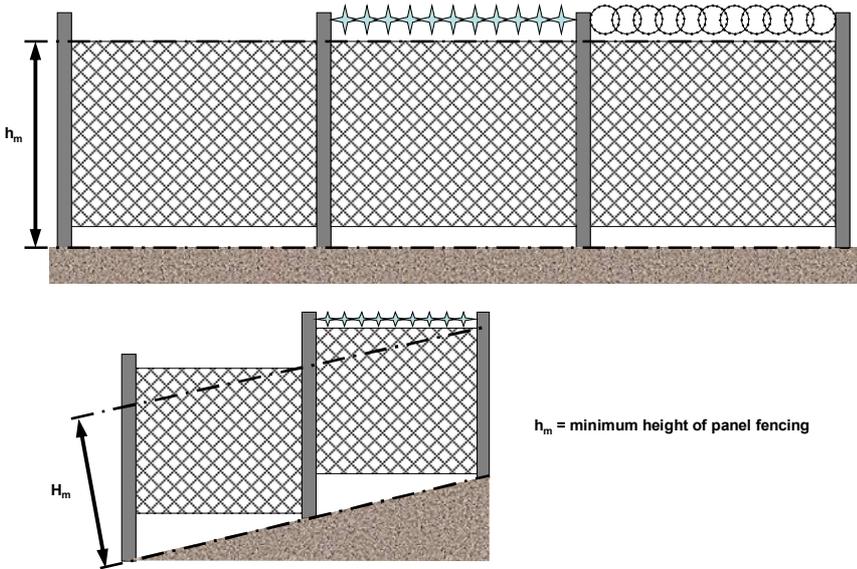
Further details are provided in clause 4.3.

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**Figure 1** Height of free-standing barriers - walls

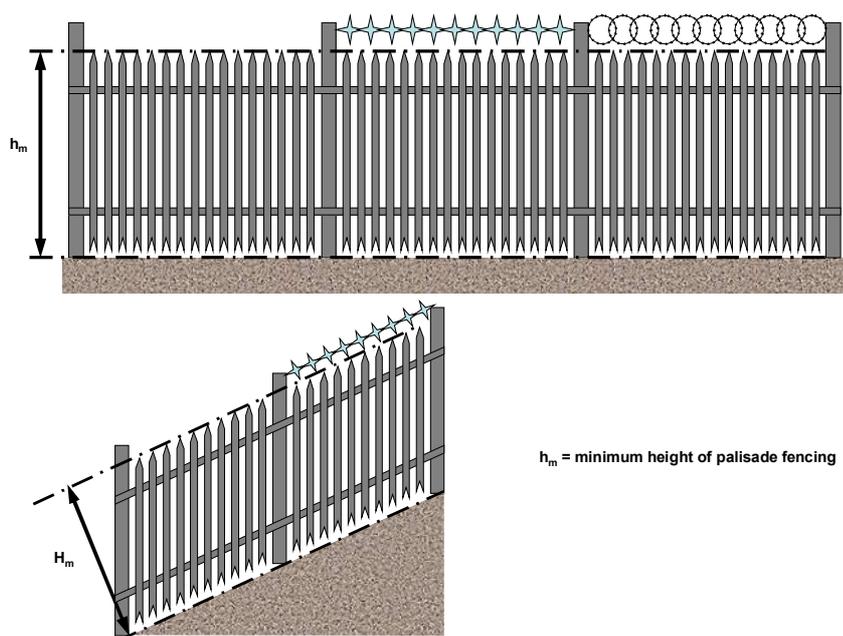


**Figure 2** Height of free-standing barriers - mesh and panel fencing



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**Figure 3** Height of free-standing barriers - palisade fencing



### 2.18 Total test time

The maximum duration of an individual manual intervention attack test. It is the accrued sum of the:

- Working time.
- Rest time of an operative for well-being and safety reasons.
- Time taken to change tools or exchange defective expendable tool elements.
- Inspection time called by the project leader.

### 2.19 Useable code

Number of possible codes that can be set, taking into account practical considerations, which ensure the lock can only be operated by entry of the correct code.

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## 2.20 Working time (resistance time)

The time of an individual manual intervention attack test in which a tool or tools is used to attempt to create a change in the test specimen.

The working time excludes:

- Rest time of an operative for well-being and safety reasons.
- Time to change tools or exchange defective expendable tool elements.
- Inspection time called by the project leader.

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### 3 REQUIREMENTS

#### 3.1 Documentation required from client

The applicant shall provide comprehensive information about the product for consideration prior to examination and testing. This shall define the construction of the product over the range to be covered by the evaluation, together with any associated hardware and optional features/accessories. It shall include:

- a) Details of the applicant and, if different, the manufacturer of the product(s)/systems(s), including:
  - i) Name of manufacturer.
  - ii) Place of manufacture.
  - iii) Year of manufacture.
  - iv) Relationship of applicant to manufacturer.
  - v) Company responsible for design and quality assurance.
  
- b) Drawings of the product including:
  - i) Cross sections.
  - ii) General assembly.
  - iii) The location and design of any local areas of special protection.
  - iv) Details of any other element relevant to physical security.

The drawings must clearly indicate how the construction varies over the scope of sizes and options to be covered by the evaluation. This includes:

  - v) Locations of all hardware, protection and local reinforcement.
  - vi) Type/locations of all welds and mechanical fasteners used to assemble the product.
  
- c) A description of the materials used to construct the product if not shown on the drawings. This shall include material thicknesses and full details of any special finishes/processes applied, e.g. hardening.
  
- d) Details of any materials or device(s) fitted to, or incorporated within, the product that may harm those testing/using/attacking the product together with associated material safety data sheets.
  
- e) Manufacturer's specification sheets defining the hardware used on the product, including locks, strike plates, hinges and dog bolts.

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f) Evidence that any lock cylinders accessible from the attack side of products, for which the applicant seeks a '+' cylinder manipulation classification in accordance with clause 5.2, either meet:

- The requirements for cylinders defined within Annex A of BS 3621:2007 + A2:2012 *Thief resistant lock assembly – key egress*; or
- The requirements of manipulation resistance class '1' defined in LPS 1242: Issue 2 *Requirements and testing procedures for the LPCB approval and listing of cylinders for locks*.

*Notes: This requirement does not apply to cylinders operated by electromechanical keys or non-mechanical devices (e.g. radiofrequency identification devices (RFID)) for which the correct electronic code must also be provided to operate the cylinder.*

- g) Manufacturer's specification sheets/drawings defining any optional features/accessories (e.g. vision panels or louvre panels). These shall also define how and where they will be fitted to the product.
- h) Instructions and specification for secure installation, use and maintenance.
- i) Whether the product or hardware are prototypes or in series production.
- j) The face(s) of the product designed to resist attack.
- k) The applicant's security rating expectation.

All documents shall be dated and given a reference number and issue description.

### **3.2 Specimens to be supplied for testing**

The following shall be observed subsequent to the acceptance of an application for approval:

- a) The applicant shall supply an agreed number of specimens.
- b) The number of specimens to be supplied for test is dependent upon the test schedule specified for the product type/security rating expectation, size range design variations and alternative hardware. All specimens shall be complete with any associated hardware supplied or fitted. Additional specimens of hardware may be required for separate tests.
- c) The size of specimens selected for testing shall be at the discretion of the test laboratory. The normal size of the product and intended application shall be taken into account. Where the product is offered in a range of sizes, specimens

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of sizes likely to be least effective against attack shall be chosen to ensure the test results are representative of the complete range.

- d) The test specimens shall incorporate optional features/accessories that could decrease the intruder resistance provided by the product. Optional features/accessories that could increase the intruder resistance provided by the product (e.g. time delay locks) shall be removed or made inoperable during the test programme.
- e) All specimens shall be supplied complete with specified fixings for secure installation and installed by the manufacturer or their nominated representative.
- f) The specimens shall be fixed to rigid substrates simulating the weakest methods of installation described within the associated installation instructions supplied with the product. For example, doorset specimens shall be installed with maximum gaps between sample and supporting test frame and the minimum packing/fixings recommended within the instructions.
- g) The laboratory may request additional components or elements of products for testing purposes.
- h) If a prototype product or associated hardware/accessories is supplied for testing, then classification cannot be provided until the drawings for subsequent series production have been examined and confirmed that they accord with the tested prototype or that any changes will not reduce the security rating.

*Note: Changes to production methods (e.g. machining to casting) or designs between prototype and final production stages may affect the products' performance. Therefore, it is not automatically possible to attribute security ratings achieved by prototype test samples to subsequent series production.*

- i) When the product incorporates advances or changes in technology, then additional sample pieces, parts or sections can be requested for evaluation prior to the supply of the agreed specimens.

### **3.3 Design requirements**

#### **3.3.1 User instructions**

Operating and maintenance instructions shall be provided with the product. These shall include instructions in respect of the locks and hardware fitted to the product (including any battery back-up for electronic locking components required to achieve the advertised security rating), and instructions for installing/anchoring the product.

*Note: Suppliers have a duty of care to ensure that those fitting and/or using the products know how that product should be fitted and used to achieve the*

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*performance attributed to that product. The instructions submitted for evaluation must reflect those supplied with the product and must cover all aspects of installation and use that may affect the security provided by the product when installed.*

### 3.3.2 Installation methods

The installation methods defined for the product shall include limitations and recommendations for compatible structural opening materials / design and anchorage where applicable. Where allowances are made for gaps between frame elements and supporting substrates, those allowances shall be defined on the drawings/instructions provided together with instructions relating to how the gaps are to be packed out and the minimum finish to be applied in order to achieve the desired security rating.

Free-standing products and security enclosures shall have a means of anchorage compatible with the designated security rating.

The walls, and if applicable, the ceiling of a built-in strongpoint shall have a resistance compatible with the security rating of the opening element.

- Notes:*
- i) The number / type of fixing, attack accessibility and anchorage method may compensate for a reduced fixing diameter or dictate the need for fixings with an increased diameter.*
  - ii) It is recommended that all fixings and security features on products primarily intended for use in areas accessible to general public are, as far as is reasonably possible and where applicable, tamper resistant on the non-attack side to prevent surreptitious interference of the designed level of security by an attacker's accomplice.*
  - iii) Any exposed fixings that can be accessed from the attack side may be exploited as part of the manual attack tests.*

### 3.3.3 Locking

#### 3.3.3.1 Locking logic

The locking logic shall be reviewed in order to determine the product's minimum and optimum locked conditions.

#### 3.3.3.2 Padlocks and other removable locking components/hardware

If the product is secured using an exposed padlock, or other removable locking components/hardware, the padlock/hardware shall be treated as an integral component of the product to be classified.

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### 3.3.3.3 Electronic locking devices

If the product is secured using electronic locking device(s), e.g. locks operated by key pads, swipe card readers or biometric reader, the device(s) and any associated access control system, shall be reviewed to identify whether they may be susceptible to attack when installed in accordance with the manufacturer's instructions. Where components of the electronic locking device(s) and associated access control system(s) are likely to be accessible from the attack face using the tools and time defined for the security rating, those elements shall be treated as part of the product to be classified.

### 3.3.3.4 Minimum effective differs/codes

If the locking mechanism(s) can be operated from the attack side then the combined number of effective differs/codes offered by the locking mechanism(s) used to achieve each locked condition offered by the product shall be no less than those specified in Table 1 for the security ratings achieved by the product in those locked conditions.

**Table 1** Combined minimum effective differs/usable codes of locking mechanisms fitted to opening elements

| Security rating | Minimum number of effective differs/usable codes |
|-----------------|--|
| A               | 1 000  |
| B               | 5 000  |

### 3.3.3.5 Lock cylinders

Lock cylinders that are directly accessible from the attack side of products, for which the applicant seeks a '+' cylinder manipulation classification, shall meet:

- The requirements for cylinders defined within Annex A of BS 3621: 2007 + A2:2012 *Thief resistant lock assembly – key egress*; or
- The requirements of manipulation resistance class '1' defined in LPS 1242: Issue 2 *Requirements and testing procedures for the LPCB approval and listing of cylinders for locks*.

*Note: This requirement does not apply to cylinders operated by electromechanical keys or non-mechanical devices (e.g. radiofrequency identification devices (RFID)) for which the correct electronic code must also be provided to operate the cylinder.*

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### 3.3.4 Free-standing barriers

The total height of free-standing barriers, excluding toppings, shall be at least that defined in Table 2.

**Table 2** Minimum height of free-standing barriers

| Security Rating   | Height (m)  |   |
|---|---|---|
|   | Minimum overall barrier height above ground level (excl. semi-permanent toppings) | Minimum height above ground level to which barrier shall provide optimum penetration resistance (m) |
| A   | 1.8   | 1.8   |
| B   | 2.0   | 2.0   |
| <p><i>Notes: Although climbing resistance is outside the scope of this standard, it is recommended that in order to achieve optimum resistance to entry by climbing, the barrier is not installed adjacent to any items/structures that reduce resistance to scaling by reducing the effective minimum height of the barrier.</i></p> |   |   |

At minimum, the area of the barrier defined in Table 2 must provide resistance to creation of an aperture through which the elliptical test block defined in clause 4.3 can pass, using the tools and times defined in Table 3 appropriate to the optimum security rating sought. The remaining area of the barrier above that level must provide resistance to creation of such a sized aperture at least commensurate with the requirements of Security Rating A.

If the entire barrier does not achieve the optimum intruder resistance, then the documents supplied with the barrier system shall define what areas provide each level of intruder resistance and the security ratings achieved by those areas.

The installation instructions shall describe how to achieve the minimum height of the barrier, and to ensure the optimum intruder resistance is achieved up to the height defined, for different topography/ground conditions.

The instructions shall also define how to achieve the minimum gap between the bottom of the free-standing barrier and supporting ground, if appropriate to that style of free-standing barrier.

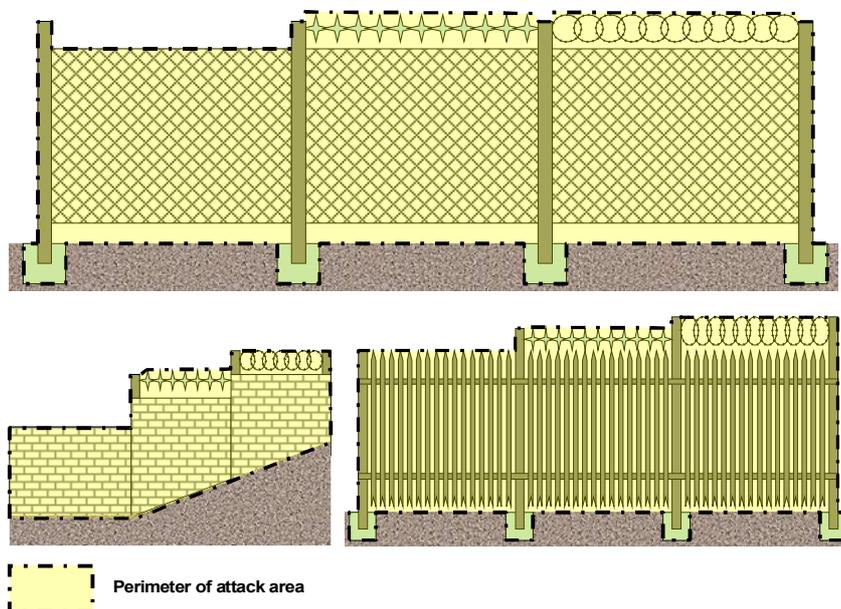
Free-standing barriers that do not have a defined attack face, or one that is easily distinguishable by installers using the installation instructions provided, shall be attack tested in both directions and attributed the lowest security rating achieved during those attack tests.

Unless specified by the applicant at the time of test, semi-permanent toppings shall not be treated as part of the barrier that is tested and rated.

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Where semi-permanent toppings are specified as being part of the barrier to be classified, such toppings shall be defined by the manufacturer and shall be treated as part of the product to be security rated. Such toppings shall form part of the specimen tested and the area of the barrier to be penetrated during the attack tests shall incorporate those toppings, as illustrated in Figure 4.

**Figure 4** Perimeter of attack area on free-standing barriers with defined toppings

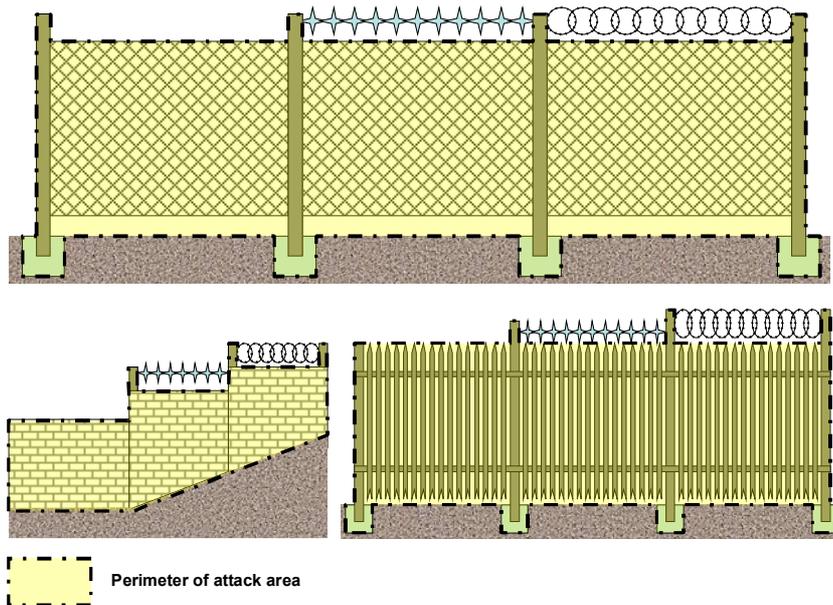


Where there is the provision for toppings on a free-standing barrier but those toppings are not specified by the manufacturer, the toppings shall not form part of the specimen tested nor shall it be included within the area of the barrier to be penetrated during the attack tests, as illustrated in Figure 5. However, any provision for fitting supplementary toppings to the free-standing barrier shall be reviewed to ensure they do not undermine the security rating achieved by the free-standing barrier.

*Note: Toppings that are not tested and rated as part of the free-standing barrier may not offer resistance to penetration equivalent to that achieved by the free-standing barrier and may even undermine the security rating achieved by the free-standing barrier. Care should therefore be taken to ensure the compatibility of toppings and the fixing methods to be employed and to ensure that their use does not invalidate any security rating attributed to the free-standing barrier.*

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**Figure 5** Perimeter of attack area on free-standing barriers where toppings are not defined



### 3.3.5 Security containers

If the un-laden weight of the security container is less than 1000 kg, the container shall incorporate a means by which it is to be anchored to defined substrates. The anchorage system shall be treated as part of the product to be classified, and shall offer resistance to attack consistent with the security rating achieved by the security container.

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## 4 TESTING

### 4.1 Test requirements

#### 4.1.1 General

The overall objective is to confirm the security rating of the product/system by conducting a series of manual intervention attack tests designed to identify the minimum resistance to attack provided by the product/system when it is in the optimum and/or minimum locked conditions.

The attack methods used by the test team shall be those most likely, in the opinion of the test team, to result in the lowest resistance values. Exploratory tests may be made as necessary to enable to test team to determine the most effective attack methods.

Performance requirements for each security rating are defined in Table 3.

The security rating shall only be confirmed when all the requirements for the anticipated security rating are met.

#### 4.1.2 Data

All information and drawings supplied shall be reviewed to ensure suitability for test and certification purposes.

Provision of a suitable lock(s) on all opening elements through which the test blocks defined in Clause 4.3 may be passed shall be verified and the design / attachment of the lock(s) reviewed to identify possible weakness that may be exploited during testing.

The instructions and recommendations for secure installation shall be reviewed in order to assess potential weaknesses for test purposes and to ensure that where applicable the strength of the structural opening materials are consistent with the security rating of a building component or access cover.

#### 4.1.3 Conformity between specimen and documentation

The test specimen(s) shall be visually examined for conformity with the details supplied by the applicant prior to testing.

*Note: A lack of conformity identified at this stage or during testing may prevent the issue of a test report and subsequent approval / certification unless promptly corrected.*

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#### 4.2 Manual intervention attack tests

Undertake a series of manual intervention attack tests on the product using tools from the tool category appropriate to the applicant's anticipated security rating (as defined in Table 3), with a view to passing the appropriate test blocks specified in Clause 4.3 through the product and/or removing the product from the supporting substrate.

The working time (resistance time) shall be recorded in order to determine whether the product is capable of meeting the desired security rating.

The security rating is determined in the minimum and optimum locked conditions. The product must meet the attack resistance requirements of at least security rating A in both locked conditions in order to be classified to this standard.

All aspects of the product shall withstand attack from the attack side, irrespective of height constraints<sup>§</sup>, such that data demonstrates all aspects of the product provide the minimum resistance to attack defined for that security rating.

All infill materials (e.g. glazing) shall be treated as an integral part of the product and attack tested accordingly. All hardware shall also be treated as an integral part of the product and attack tested accordingly.

Any exposed fixings that can be reached from the attack side may be exploited as part of the manual intervention attack tests.

#### 4.3 Test block

The test block used to determine whether a person could pass through the barrier shall have an elliptical cross section 400 mm (-0 mm/+3 mm) major axis by 225 mm (-0 mm/+3 mm) minor axis and be at least 300 mm long.

If the product is not designed to prevent a person passing completely through the product (e.g. display case), or is of a smaller cross-sectional area than the above test block, either of the following test blocks shall be used to determine the product's resistance to forced entry:

- (i) Circular test block 150 mm (-0 mm/+2 mm) long by 125 mm (-0 mm/+2 mm) diameter.
- (ii) An item representative of that which the enclosure is designed to protect.

<sup>§</sup> The height of the surface on which the tester is supported for each individual attack test (e.g. floor level) shall be defined and may not be varied during that individual attack test unless the tester is able to safely use features of the specimen to reach areas of the specimen otherwise inaccessible when working from that datum.

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Security containers shall be deemed to have failed to achieve the desired security rating if during any attack test:

- (i) The relevant test blocks defined above can be passed into the container.
- (ii) An item, of defined dimensions, representative of that which the container is designed to protect can be removed from the container.
- (iii) The security container can be removed within the specified time using the tools defined for that classification, and its un-laden mass is less than 1000 kg.

The test block used to determine the products security rating shall be recorded within the test report.

#### 4.4 Testing methods

##### 4.4.1 General

General laboratory procedures, confidential handling of specimens, event record requirements and presentation of the test report shall be in accordance with the requirements specified in BS EN ISO/IEC 17025 *General Requirements for the competence of testing and calibration laboratories*.

##### 4.4.2 Manual intervention attack test procedures

Mount the product in accordance with the manufacturer's installation instructions with the attack side confronting the test operative.

Secure all opening elements in the minimum or optimum locked condition, as appropriate.

Complete a full series of attack tests on the product using tools of the appropriate category relative to the security rating expectation.

Continue each individual attack test until either:

- the objective is achieved; or
- the maximum test duration is exceeded; or
- the team leader decides that the attack is ineffective for classification purposes.

Undertake additional attack tests as necessary to demonstrate all aspects of the product offer resistance to attack from the defined attack side(s), irrespective of

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height constraints, commensurate with the minimum resistance to attack defined for that security rating in Table 3.

Attack tests shall only be aimed at areas or features which, in the opinion of the team leader, have not been weakened by previous tests. Where necessary, the manufacturer shall provide additional samples so that the laboratory can complete any necessary additional tests on those areas or features.

The timing device used to measure test duration shall remain activated during each individual attack test. The resolution of this device shall be at least 1 second. The timing devices(s) used to record working time shall have a resolution of at least 0.01 second. At the conclusion of the test the working time shall be rounded to the next full second.

#### 4.4.2.1 Manual intervention attack test team

The test team shall comprise a team leader whose function is to direct, time, compile an event record and control the testing work on a product specimen and a test operative whose prime function is to carry out the testing work on the specimen as directed by the team leader.

The team leader may substitute himself for the test operative at any time during testing, the operative assuming the role of time keeper whilst maintaining the event record.

A different test operative may be used for different styles of attack but only one operative (other than the team leader) shall partake in any individual test.

#### 4.4.2.2 Manual intervention attack test facility

The apparatus for testing building components shall consist of a rigid frame suitable for mounting the building component in its normal attitude with fixings specified by the manufacturer. The frame shall prevent excessive movement of the specimen during testing.

Free-standing strongpoints and security enclosures shall be mounted on substrates representative of those referred to within the installation instructions and using the normal anchorage provided with the product. The configuration and supporting substrate shall be noted within the test report.

Free standing barriers shall be mounted on substrates representative of those on which the device is to be fitted in normal use, and using foundations/fixing methods defined in the product instructions. The configuration and local ground conditions shall be noted within the test report.

The apparatus shall also comprise attack tools of the appropriate category as specified in clause 4.4.2.3.

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#### 4.4.2.3 Manual intervention attack test tools

The tool manifest for the manual intervention attack tests and ascribed tool category is described below.

All dimensions are the maximum permitted unless otherwise specified.

No alterations shall be made to the tools other than those required to maintain the tools in good working order. Likewise, tool safety devices such as guards, fuses and other current limiting features and/or maximum speed controls, shall not be removed or altered.

The test team and anyone else present during the tests shall wear appropriate personal protective equipment.

None of the tools listed, other than the rubber hammer, may be used to strike other tools (e.g. in order to chisel the specimen) or strike the specimen itself.

*Note: The above restrictions on impacting the tools against each other or impacting the specimen are to ensure the tools are used in a manner replicating stealth attacks, i.e. attacks during which an intruder will aim to avoid making significant noise likely to draw attention to themselves.*

#### **Tool Category a**

Adhesive tape

1 Cable cutter - 150 mm long

Fishing line (e.g. polypropylene multi-fibre)

Flexible plastic coupon

1 Glass cutter

Hexagon wrenches - selection 120 mm long

Hooks

1 Knife - blade 125 mm long by 3 mm thick

1 Lever (including nail pullers, prybars and utility bars) - 0.7 kg / 300 mm long

Pliers (including self-gripping and cutting) - selection 200 mm long

Punches

Rope

1 Rubber hammer - 280 mm long / 0.12 kg (head) and 0.165 kg (total) / 100 shore hardness

1 Screwdriver - 6.5 mm diameter/square by 150 mm long

1 Scriber

Socket/screwdriver set - 150 mm long ratchet arm

Spanners - selection 150 mm long

Traction screws (*otherwise known as 'self-tapping' screws or 'self-drilling' screws*) - selection 5.5 mm diameter x 60 mm long (carbon steel, single and twin start versions with choice of two varieties of thread/tip: deep thread and gimlet point; and self-tapping thread with drill point)

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Tweezers  
Wire  
WD40  
Wood/plastic wedges

*Note: The tools of this category are selected in order to simulate an opportunist attack by a combination of bodily physical force and stealth using minimal tools that are easily concealed about the person.*

### **Tool Category b**

Tool Category a plus:

1 Bolt cutter - 350 mm long  
1 Claw hammer - 350 mm long / 0.7kg  
1 Drill bit (6 mm diameter jobber - HSS / HSCO / Carbide)  
1 Hand drill - 400 mm long / 1.5kg  
1 Junior hacksaw plus 2 HSS blades  
1 Metal plate shears - 200 mm long  
1 Multiple slip joint pliers - 250 mm long  
1 Pipe wrench - 250 mm long  
Pliers (including self-gripping) - selection 250 mm long  
1 Screwdriver - 7 mm diameter/square by 250 mm long  
1 Screwdriver - 14 mm diameter/square by 400 mm long  
Socket/screwdriver set - 250 mm long ratchet arm  
1 Tube - 38 mm diameter by 300 mm long

*Note: The tools of this category are selected in order to simulate an opportunist attack by a combination of bodily physical force and stealth using tools providing a greater mechanical advantage that are fairly easy to conceal about the person.*

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## 5 CLASSIFICATION AND DESIGNATION

### 5.1 Security rating

Products are attributed a security rating as detailed in Table 3 when the product meets all the requirements defined in Sections 3 and 4.

**Table 3** Security rating requirements for each manual intervention attack test

| Security rating classification | Tool category | Maximum working time (minutes) | Maximum test duration (minutes) |
|--------------------------------|---------------|--------------------------------|---------------------------------|
| A                              | a             | 1                              | 10                              |
| B                              | b             | 3                              | 15                              |

### 5.2 Cylinder manipulation rating

A '+' may be placed adjacent to the product's security rating if the product meets the requirements of clause 3.3.3.5.

*Note: The '+' rating signifies the mechanical cylinders fitted to the product offer resistance to the manipulation methods defined within Annex A of BS 3621: 2007 + A2:2012 and LPS 1242: Issue 2.*

## 6 MARKING

All specimens submitted for test shall be marked with the manufacturer/ supplier's name or trademark, product type designation and either a batch number or date of manufacture. The sample shall also be marked to indicate the attack face.

## 7 PUBLICATIONS REFERRED TO

|                           |  |
|---------------------------|--|
| BS 3621: 2007 + A2:2012   | Thief resistant lock assemblies - key egress   |
| BS 8621: 2007 + A2:2012   | Thief resistant lock assemblies. Keyless egress  |
| BS EN ISO/IEC 17025: 2005 | General requirements for the competence of testing and calibration laboratories                                    |
| LPS 1214                  | Specification for testing and classifying physical protection devices for personal computers and similar equipment |

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LPS 1175

Requirements and testing procedures for the LPCB approval and listing of intruder resistant building components, strongpoints, security enclosures and free-standing barriers

LPS 1242: Issue 2

Requirements and testing procedures for the LPCB approval and listing of cylinders for locks

SD118

LPCB scheme document – Intruder resistant building components, strongpoints, security enclosures and free standing barriers

For undated references please refer to the latest published issue.

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Amendments Issued Since Publication

| DOCUMENT NO. | AMENDMENT DETAILS   | SIGNATURE | DATE      |
|--------------|---|-----------|-----------|
| 1.1          | Table 2 (minimum height of free-standing barriers) corrected to reflect the requirements contained in LPS 1175. | RF        | 25/1/2016 |
|              |   |           |           |
|              |   |           |           |