

LPCB[®]

Issues 5 to 8

LPCB guide to changes to LPS 1175

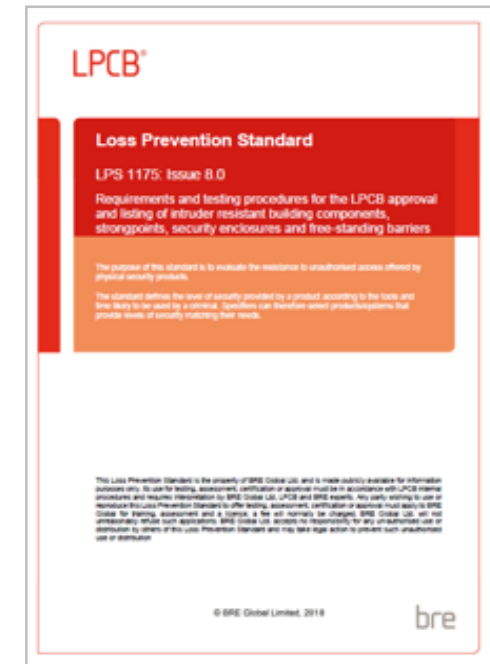
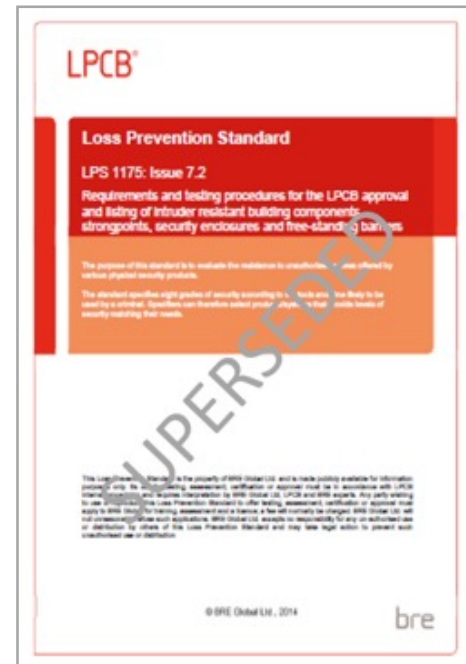
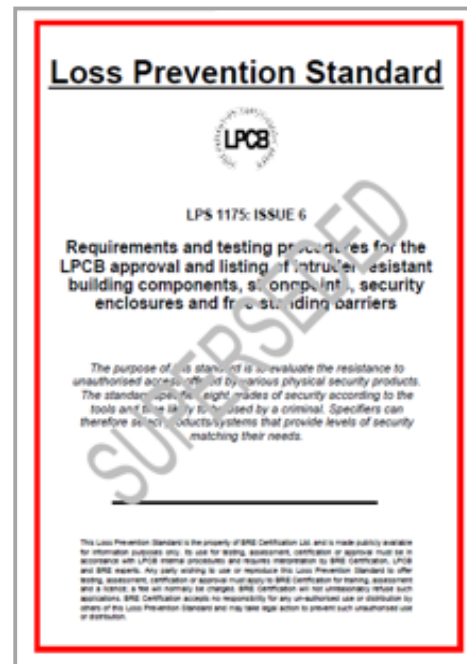
FEBRUARY 2024



Introduction

LPS 1175 was first published over 25 years ago. Although originally developed for UK insurers as a means for verifying the delay to forced entry provided by physical security equipment, LPS 1175 has since become widely used by specifiers and regulators around the world. The predominant reason for this is that it addresses current and emerging threats of manual forced entry faced across a wide range of sectors and situations – in particular, it covers a broad scope of tools and attack methods that criminals, terrorists and other hostile actors wishing to access a protected asset or space may use.

LPS 1175 is continually reviewed and adapted to address emerging and developing threats; not least the increasingly effective scope of tools available to hostile actors and range of entry methods hostile actors may employ. This ensures LPS 1175 continues to provide an effective means of measuring products' resistance to manual forced entry. It has resulted in the standard being reissued several times since it was first published. This document describes the changes introduced to LPS 1175, since Issue 5 was published in June 2000, and confirms the likely effect of those changes on the performance provided by products approved by LPCB to those revisions.





BRE Policy on LPCB Approval of Products to Previous Versions of LPS 1175

Achieving a Security Rating to LPS 1175 is no mean feat, considering 95% of products submitted fail to achieve their manufacturers' target Security Ratings. A product's resulting approval to LPS 1175 not only recognises the resistance to manual attack exhibited by that product, it also recognises the manufacturer's investment in achieving and maintaining a product capable of delivering that level of protection.

Forcing manufacturers to resubmit their products that are approved to LPS 1175 for evaluation to the latest version of that standard would lead to an unnecessary financial burden; especially considering the significant levels of protection those products have been demonstrated to deliver and comparing that with the performance provided by the 95% of products that do not achieve manufacturers' target Security Ratings. BRE therefore permits manufacturers to maintain their existing LPCB approvals to previous versions of LPS 1175 but requires manufacturers to advertise which issue of the standard (e.g. Issue 7) those existing products are approved to.

Nonetheless, BRE recognises specifiers are faced with the fact that criminals continue to have access to increasingly effective tools and a broader knowledge of attack techniques. That is why BRE continues to develop and periodically revise LPS 1175 and ensure new products submitted for approval to LPS 1175 are evaluated to the latest version of the standard. Furthermore, BRE recommend specifications and regulations refer to the latest version of the standard unless specifiers and regulators are satisfied products approved to previous versions will deliver appropriate levels of protection.

To help specifiers determine whether products approved to previous versions of LPS 1175 offer the protection required, BRE has produced Table 1 (pages 3 onwards). This summarises the changes introduced in each issue.

New Performance Classification System (LPS 1175: Issue 8)

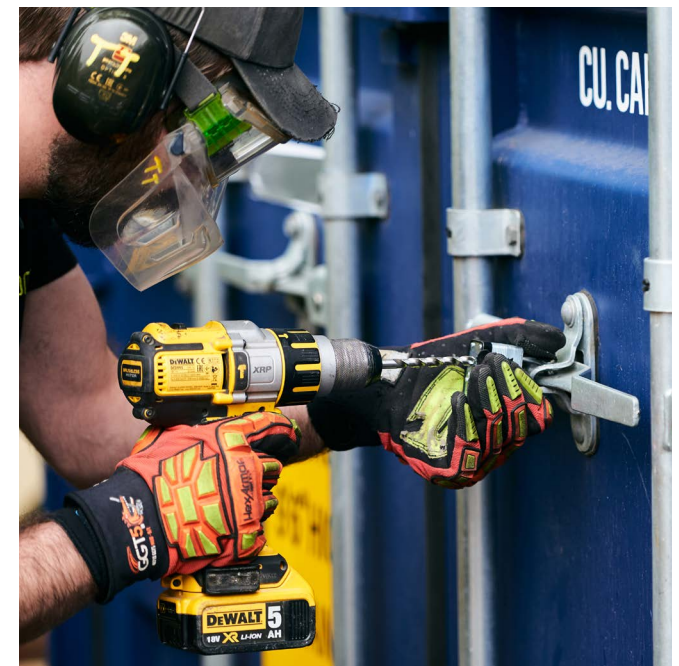
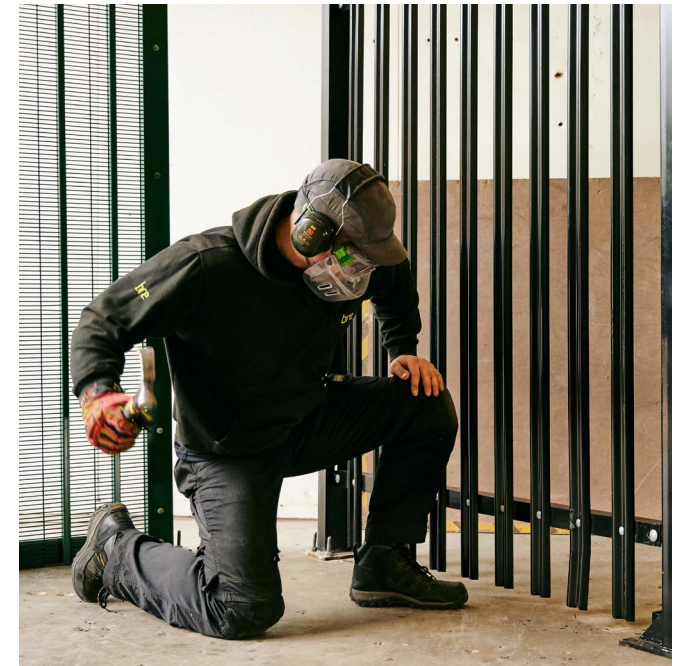
Standards for forced entry protection used around the world (e.g. EN 1627 and LPS 1175) have historically defined performance classification systems that assume there is a linear relationship between the size and scope of tools and the duration of the attacks hostile actors are willing to conduct with their perceived value (monetary or otherwise) of successfully completing an attack. It has however become increasingly evident that a hostile actor's choice of tools does not only depend on their perceived value (the return on their investment in conducting an attack); it depends on the environment in which they plan to conduct their attack (will they be seen or heard before and during their attack) and how quickly they wish to complete their attack (due to their perception of the likely response and other risks they face).

For example, criminals targeting jewellery shops typically spend no more than a few minutes attempting to achieve entry and use increasingly powerful tools (e.g. sledgehammers and mauls) to do so. However, LPS 1175 (prior to Issue 8) required products to resist attacks using a sledgehammer for at least 10 minutes, while EN 1627 required products to resist attacks with a sledgehammer for at least 20 minutes. Such levels of resistance are no longer proportionate to the threats increasingly faced by jewellers and other types of facility.

LPS 1175: Issue 8 defines a new performance classification system that recognises the increasingly diverse relationships between the tools a hostile actor is likely to use and the time they are likely to spend completing their attack depending on the nature of the facility they are targeting and the reason they are targeting it. Instead of being based on a relatively linear relationship between tools and attack duration (working time), as noted earlier, LPS 1175: Issue 8 defines a matrix style classification system formed of two digits. Those digits indicate the following:

- The category of tools a product is designed to resist (i.e. A to H).
- The minimum delay (minutes) a product achieved when evaluated using tools selected from that tool category (i.e. 1, 3, 5, 10, 15 or 20).

That said, the existing references (SR1 to SR5) will continue to exist in Issue 8 for relevant combinations of tools and time (i.e. A1, B3, C5, D10 and E10 respectively), allowing LPS 1175 to continue supporting existing regulations which refer to it.



Benefits of Specifying Products to LPS 1175: Issue 8

The performance classification system introduced in Issue 8 provides the following significant benefits over the classification system used in previous versions of LPS 1175 and other standards for forced entry protection available at the time Issue 8 was published:

LPS 1175: Issue 8 delivers more proportionate and cost-effective levels of security

The performance classification system defined in LPS 1175: Issue 8 recognises the fact that hostile actors may not be willing to conduct attacks for as long as the duration previously defined in LPS 1175 and other standards such as EN 1627. Rather than stating a product must resist attacks conducted using tools selected from a particular tool category for a specific duration (e.g. SR4, which equates to 10 minutes using category D tools such as a sledgehammer); LPS 1175: Issue 8 acknowledges a product's ability to resist attack using those tools for at least 1 minute and classifies its performance according to the minimum delay it achieves in 1, 3, 5, 10, 15 and 20 minute denominations. This enables specifiers to select products according to the contribution they provide to delaying attacks conducted using tools of a specific category.

LPS 1175: Issue 8 therefore facilitates far more economical specification of forced entry protection in situations where criminals typically spend far less time attempting to achieve entry than was previously recognised in LPS 1175.

An example of this is the provision of security to store fronts and entrance doors on jewellery shops. Evidence suggests criminals are unlikely to spend greater than a few minutes attempting to enter jewellers, especially if fogging or other active delay devices are deployed within the protected area. LPS 1175: Issue 8 recognises this by enabling specifiers to select products that achieve, for example, a D1 or D3 Security Rating (i.e. 1 minute or 3 minutes delay against attacks conducted with category D tools such as a sledgehammer).

LPS 1175: Issue 8 supports a layered approach to security specification

Specifiers can consider what tools they believe intruders may realistically use to penetrate the security measures on that site by considering:

- the approach routes available to intruders;
- the strength and stamina required to carry the tools to the target feature(s) and use those tools to overcome the protective security measures in place;
- whether an intruder needs to conceal the tools when approaching the feature(s) to be attacked; and
- whether they are likely to be willing to use tools likely to generate significant levels of noise, smoke, dust, light and other triggers likely to lead to their detection.

Police, intelligence services and other sources may also be consulted about typical modus operandi and tools used by hostile actors when determining which

category of tools needs to be resisted and for how long to successfully mitigate the threat identified.

Once determined, the performance classification system defined in LPS 1175: Issue 8 enables specifiers to select products to construct defensive layers that each provide a known delay against entry attempts using tools selected from the tool category deemed to reflect the threat.

For example, products approved to LPS 1175: Issue 8 Security Ratings F1 to F20 may be considered for each layer of protective security on a site considered to be at threat from Category F tools. In this example:

- Fencing delivering at least 1 minute of delay (F1 Security Rating) may be specified for the first layer of a site's protection while products delivering 3 minutes (F3) and 10 minutes (F10) may be specified for use in that site's secondary and tertiary layers.
- The total delay provided by the site's three layers of protection is at least 14 minutes (1 + 3 + 10).

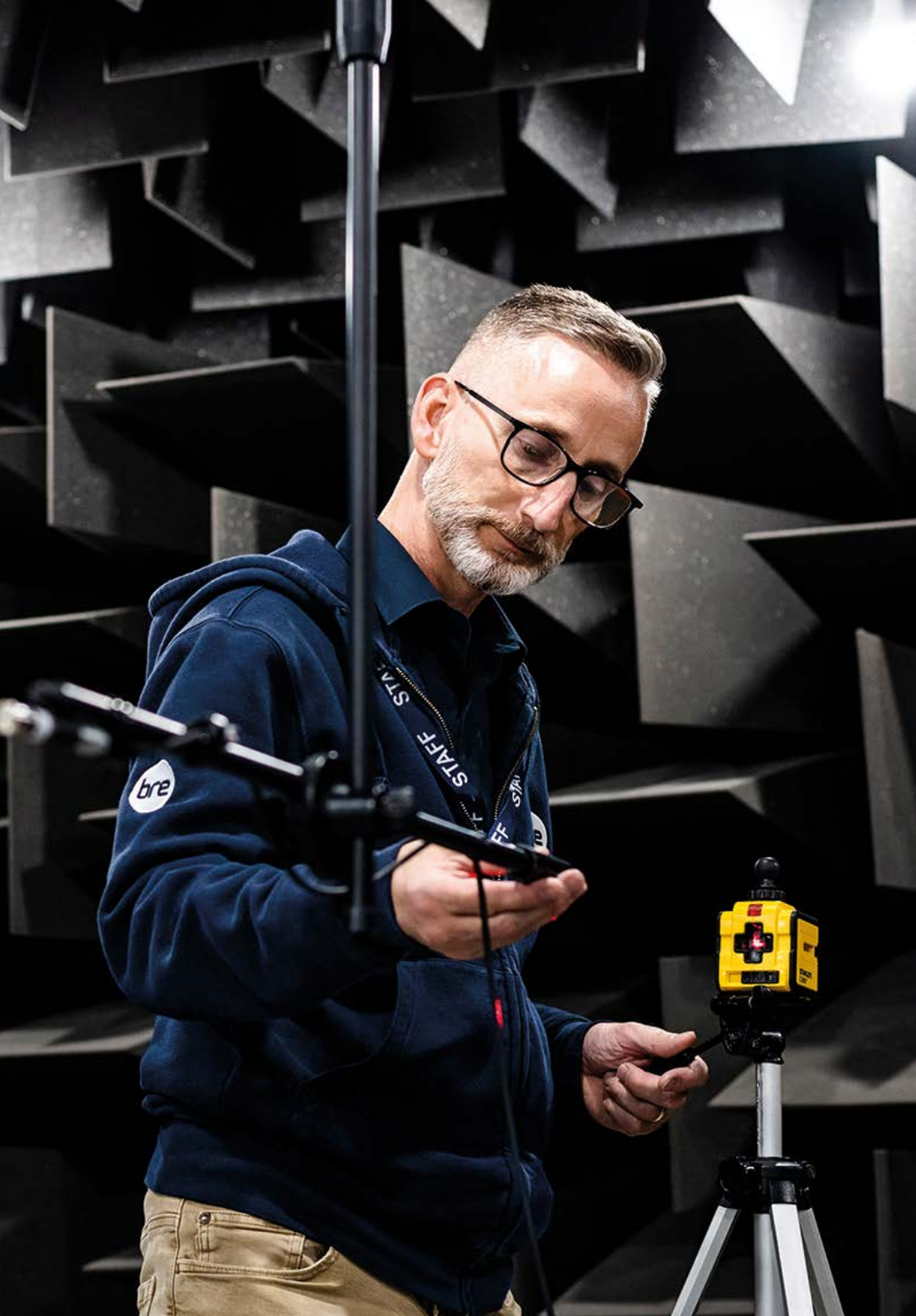
Prior to LPS1175: Issue 8, each layer would have had to resist at least 10 minutes for its resistance to those tools to be approved to LPS 1175. Such levels of performance are often not proportionate to the threat nor economic to achieve, particularly when considering the threat posed by tools within the higher tool categories.

LPS 1175: Issue 8 potentially reduces the costs incurred by manufacturers when developing new products

Manufacturers whose product fails to achieve their target Security Rating (e.g. D10) can opt for that product to be attributed a lower Security Rating (e.g. D1, D3 or D5), the value of which depends on the minimum delay achieved when tested using tools selected from that tool category. This avoids the need for manufacturers whose products fail to achieve their desired Security Rating to opt for one of the following, as was the case for previous versions of LPS 1175 and is the case for other standards such as EN 1627:

- Accept a lower Security Rating. However, that option typically results in products being over-engineered and costly compared with others attributed the same Security Rating because that rating relates to tools of a lower category compared with those the manufacturer originally designed the product to resist.
- Reengineering their product and resubmitting it for evaluation to the original target classification.





About BRE

BRE Group is an international, multi-disciplinary, building science organisation with a mission to improve the built environment through research and knowledge generation, and their application. BRE employs over 600 people in the UK, China, India, the Middle East and the USA who are committed to building a better world together.

Our products, services, standards and qualifications are applied in over 80 countries enabling our customers to make a positive difference to the built environment. We are owned by a charity called the BRE Trust, which delivers one of the largest programmes of built environment education and research for the public good.

BRE Global Limited is an independent third-party certification body for fire, security and sustainability products and services. BRE Global's product testing and certifications are carried out by recognised experts in our world-renowned testing laboratories. BRE Global is custodian of several world leading brands including:

- **LPCB** for the certification of fire and security products and services, listed on www.redbooklive.com.
- **BREEAM** the world's leading environmental assessment method for buildings, sets the standard for best practice in sustainable design and has become the de-facto measure of a building's environmental performance. All our environmental certifications are listed on www.greenbooklive.com.
- **SABRE** is a security assessment and certification scheme for buildings, infrastructure and managed space.

Table 1

Summary of changes introduced in each issue of LPS 1175

Change	Issue 5 to Issue 6	Issue 6 to Issue 7	Issue 7 to Issue 8
Padlocks	Padlocks treated as an integral part of the product being evaluated.	-	-
Lock manipulation	Minimum differ/code requirements introduced for locks.	'+' Security Rating classifications introduced to indicate which products incorporating cylinders offer some resistance to 'bumping'.	-
Locked conditions	The requirement that no intermediate/ minimum locked conditions existed on Security Rating 5 and Security Rating 6 products was removed. Definitions of locked conditions modified to address electronically operated hardware.	Definition of minimum and optimum locked conditions expanded to more accurately define those locked conditions.	-
Tamper resistant fixings	The requirement to use tamper resistant fixings, contained in clause 3.3.3 (security features), was replaced with a note.	-	-
Free-standing barriers	Added to scope and associated design requirements relating to minimum heights introduced.	Minimum heights specified in Table 3 remain identical but fences achieving at least Security Rating 2 may provide more than one level of intruder resistance providing the fence exhibits resistance commensurate with the attributed rating to a height of at least 2 m (fences attributed a Security Rating 2 classification) and 2.25 m (fences attributed Security Rating 3 to 8 classifications).	Minimum heights linked to the delay provided by the free-standing barrier. The resultant minimum heights defined in Issue 8 for Security Ratings #1 to #20 reflected those previously defined in Issue 7 for Security Rating 1 (1.8 m) to Security Rating 6 (5.0 m).
Security containers	Requirement that containers of an un-laden weight below 1000 kg be anchored introduced.	-	-
Static load requirements	Static load requirements removed because it was found that they did not affect the classifications attributed during the manual attack tests.	-	-

Change	Issue 5 to Issue 6	Issue 6 to Issue 7	Issue 7 to Issue 8
Dynamic load requirements	Dynamic load requirements removed because it was found that they did not affect the classifications attributed based on the results of the manual attack tests.	-	-
Test blocks (Failure criteria)	Alternative test blocks introduced for products that are not designed to prevent a person passing completely through the product (e.g. display case) or for threats associated with the creation of an aperture of a smaller cross-sectional area represented by the 400 mm by 225 mm elliptical test block.	-	-
Number of active attackers	-	-	Number of test operatives permitted to attack a product at the same time increased to 2 during tests conducted to Security Ratings F#, G# and H#.
Tool Category A	<p>The following tools were introduced:</p> <ul style="list-style-type: none"> - 1 Cable cutter - 150 mm long. - Fishing line (e.g. polypropylene multi fibre). 	<p>The following tools were introduced:</p> <ul style="list-style-type: none"> - One scribe. - 150 mm long ratchet arm socket / screwdriver set. - Traction screws, max 5.5 mm x 60 mm. - WD40. 	<p>The maximum length of the following tools was increased to 200 mm:</p> <ul style="list-style-type: none"> - Cable cutter. - Hexagon wrenches. - Screwdriver. <p>The following equipment was introduced:</p> <ul style="list-style-type: none"> - Electric cable (single core) - 1.2 mm diameter / 1 m long. - Firefighter's key. - Cargo strap - 25 mm wide with cam mechanism. <p>Maximum total weight of tools permitted for each individual attack test restricted to 2.5 kg.</p>

Change	Issue 5 to Issue 6	Issue 6 to Issue 7	Issue 7 to Issue 8
Tool Category B	<p>The following tools were introduced:</p> <ul style="list-style-type: none"> - 1 Bolt cutter - 350 mm long. - 1 Metal plate shears - 200 mm long. - Pliers (including self-gripping) - selection 250 mm long. 	<p>The following tools were introduced:</p> <ul style="list-style-type: none"> - 250 mm long ratchet arm socket/screwdriver set. 	<p>Hand drill replaced by a 3.6 V drill / driver with a single battery.</p> <p>Carbide tipped metal working drill bit replaced by a masonry drill bit of equivalent maximum diameter.</p> <p>Claw hammer's maximum mass increased to 1 kg.</p> <p>The following equipment was introduced:</p> <ul style="list-style-type: none"> - Electric cable (single core) - 2.1 mm diameter / 1 m long. - Ratchet strap - 25 mm wide / 200 mm long mechanism. <p>Maximum total weight of tools permitted for each individual attack test restricted to 5 kg.</p>
Tool Category C	-	<p>The following tools were introduced:</p> <ul style="list-style-type: none"> - 400 mm long bolt cutters. - 400 ml fluorocarbon-based freeze spray. <p>The capacity of the scissor jack was increased to 1500kg.</p>	<p>7.2 V drill replaced by a 12 V drill with rotary action only and a single battery.</p> <p>Carbide tipped metal working drill bits replaced by masonry drill bits of equivalent diameters.</p> <p>Club hammer's maximum length reduced from 400 mm to 300 mm and weight increased from 1.5 kg to 1.8 kg.</p> <p>Option of bimetal padsaw/hacksaw blades introduced.</p> <p>Maximum total weight of tools permitted for each individual attack test restricted to 10 kg.</p>

Change	Issue 5 to Issue 6	Issue 6 to Issue 7	Issue 7 to Issue 8
Tool Category D	<p>The following tools were introduced:</p> <ul style="list-style-type: none"> - 1 "A-tool" lock puller - 500 mm long. - 1 Hooligan bar - 760 mm long. - 1 "K-tool" lock remover. 	-	<p>Masonry drill bits introduced.</p> <p>Felling axe's maximum length increased to 900 mm in line with that of the sledgehammer.</p> <p>Felling axe's and sledgehammer's maximum mass increased to 4.5 kg.</p> <p>Maximum total weight of tools permitted for each individual attack test restricted to 20 kg.</p>
Tool Category D+	<p>This category was introduced and became the tool kit used on 'Security Rating 5' products.</p> <p>The tool kit included all Category D manual tools plus the following battery powered tools in place of the battery powered tools included in Category D:</p> <ul style="list-style-type: none"> - 1 Circular saw (cordless) - 18 V / 200 mm diameter with 3 blades. - 1 Disc grinder (cordless) - 18 V with 3 cutting discs. - 1 Drill (cordless with rotary action only) - 18 V. - 1 Jigsaw (cordless) - 18 V with 3 HSS / HSCO / Carbide blades. - 1 Reciprocating saw - 18 V with 3 HSS / HSCO / Carbide blades. 	-	Tool Category D+ replaced by Tool Category E.

Change	Issue 5 to Issue 6	Issue 6 to Issue 7	Issue 7 to Issue 8
<p>Tool Category E</p>	<p>This category was switched from relating to Security Rating 5 to relating to Security Rating 6.</p> <p>The following tools were introduced:</p> <ul style="list-style-type: none"> - 1 Tube - 75 mm diameter x 1000 mm long. - 1 "Glasmaster" saw. 	<p>-</p>	<p>Tools replaced by those previously in Tool Category D+.</p> <p>Changes to tools within Tool Category D also introduced to tools within this Tool Category.</p> <p>Bimetal blades introduced as an option on the reciprocating saw.</p> <p>Maximum total weight of tools permitted for each individual attack test restricted to 25 kg.</p>
<p>Tool Category F</p>	<p>This category was switched from relating to Security Rating 6 to relating to Security Rating 7.</p> <p>The following tools were introduced:</p> <ul style="list-style-type: none"> - 1 Enforcer - 450 mm long / 12 kg. - 1 Hooligan bar - 910 mm long. <p>Flow of oxygen on 'Saphire. Portapak' restricted to 50 l/ min.</p>	<p>-</p>	<p>Manual tools replaced by those previously in Tool Category E.</p> <p>Mains powered tools (i.e. circular saw, disc grinder, drill and reciprocating saw) replaced by 36 V versions with a spare battery.</p> <p>The following tools were introduced:</p> <ul style="list-style-type: none"> - Cone-cutter, masonry, SDS-Plus, step and tile/glass drill bits. - Maul - 1200 mm long / 5 kg. - Pickaxe - 1200 mm long / 4 kg. - Steel wedges - 300 mm long. <p>Sledgehammer's length increased from 900 mm to 1200 mm.</p> <p>Maximum total weight of tools permitted for each operative during each individual attack test restricted to 25 kg.</p>

Change	Issue 5 to Issue 6	Issue 6 to Issue 7	Issue 7 to Issue 8
<p>Tool Category G</p>	<p>This category was introduced and related to Security Rating 8 products, which were required to offer 20 minutes of resistance to each attack method.</p> <p>The tool kit included the following:</p> <ul style="list-style-type: none"> - 1 Breaker - 1900 W / 15 kg plus up to 3 bits. - 1 Concrete chainsaw (2-stroke) - 15 kg / 300 mm maximum cut depth. - 1 Cut-off ("Stihl") saw - 5 kW / 450 mm diameter / 15 kg with three blades. - 1 Diamond core drill bit - 125 mm diameter. - 1 Enforcer - 600 mm long / 15 kg. - 1 Hydraulic head and toe jack ("Rabbit tool") - 15 kg / 5 tonne (S.W.L) output / 180 mm spread. - 1 Oxyacetylene cutting kit – 250 l/min oxygen consumption. - 1 Pneumatic impact tool (self-contained with one spare air cartridge) - 600 blows per minute / 48.263301052 kPa pressure. 	<p>-</p>	<p>Manual tools replaced by those previously in Tool Category F.</p> <p>Mains powered tools (i.e. circular saw, disc grinder, drill and reciprocating saw) replaced by 54 V versions.</p> <p>The following tools were introduced:</p> <ul style="list-style-type: none"> - Chisel bits for SDS-Plus chuck. - Chainsaw - 3 kW / 2-stroke. - Grinder - 3.7 kW / 2-stroke. - Oxyacetylene "Saffire Portapak" thermal cutting kit. - Trolley jack - 4 Tonne. <p>Maximum total weight of tools permitted for each operative during each individual attack test restricted to 25 kg.</p>

Change	Issue 5 to Issue 6	Issue 6 to Issue 7	Issue 7 to Issue 8
Tool Category H	-	-	<p>The following tools were introduced, some of which were previously included in Tool Category G:</p> <ul style="list-style-type: none"> - Arcair thermal cutting kit complete with rods up to 1200 mm long. - Concrete chainsaw - 5 kW / 2-stroke. - Grinder - 5 kW / 2-stroke. - Diamond core drill bit - 125 mm diameter. - Enforcer - 600 mm long / 18 kg. - Hydraulic head and toe jack - 5 Tonne / 160 mm spread. - Oxyacetylene cutting kit - 250 l/min oxygen flow rate. - Rescue chainsaw - 4.5 kW / 510 mm bar length, single chain. - Ring saw - 5 kW / 2-stroke with 400 mm diameter blades. <p>Maximum total weight of tools permitted for each operative during each individual attack test restricted to 25 kg.</p>
Performance Classification System	Security Ratings (SR) 1 to 8	Security Ratings (SR) 1 to 8	<p>Two-part Security Ratings introduced. These were formed from:</p> <ul style="list-style-type: none"> - The tool category used (i.e. A to H) - The minimum delay achieved in minutes (i.e. 1, 3, 5, 10, 15 or 20). <p>Example: A "D5" Security Rating indicates a product resists entry by a single attacker using Category D tools for at least 5 minutes.</p> <p>Previous Security Ratings were retained as an option to support regulations and specifications in which those ratings were referenced, i.e.: SR1 (A1); SR2 (B3); SR3 (C5); SR4 (D10); SR5 (E10); SR6 (F10); SR7 (G10) and SR8 (H20).</p>

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