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Façade security standards

Specifiers' guide



Protecting people and property is critical

It is important that those specifying physical security products understand the various product performance standards available to them and are able to determine which standard best suits the potential threats they face.

This guide explains the differences between the standards for forced entry delay provided by façade and other building components (such as doors and windows).



Threat of forced entry

The standards covered by this guide relate to protection against the threat of forced entry by a criminal. However, the nature of the forced entry threat covered by each standard differs greatly. It is therefore worthwhile understanding the three predominant types of forced entry threat covered by the standards referred to within this guide:

Forced entry by stealth

The threat of this type of forced entry tends to exist in situations where a criminal is concerned about detection resulting from natural surveillance. Burglary attempts within a residential setting are probably the most common example of this. Other examples include theft from hotel rooms, sports changing rooms, or commercial and retail premises during working hours. Standards PAS 24¹, LPS 2081² and EN 1627³ (RC1 to RC3) are particularly suited to this type of threat. LPS 1175⁴ and EN 1627 (RC4 to 6) may also be used in such situations. Although they are more onerous, it is advisable to specify them if there is the possibility of forced entry using stealth. This is because those standards are also suited to situations where criminals may decide to use techniques likely to generate a far greater amount of noise or may be willing to use more powerful and less concealable tools in order to achieve their objective.



References

- (1) PAS 24: 2016 Enhanced security performance requirements for doorsets and windows in the UK – Doorsets and windows intended to offer a level of security suitable for dwellings and other buildings exposed to comparable risk. BSI, 2016.
- (2) LPS 2081: Issue 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. BRE Global, 2016.
- (3) EN 1627: 2011 Pedestrian doorsets, windows, curtain walling, grilles and shutters – Burglar resistance – Requirements and classification. CEN, 2011.
- (4) LPS 1175: Issue 8 Requirements and testing procedures for the LPCB approval and listing of intruder resistant building components, strongpoints, security enclosures and free-standing barriers. BRE Global, 2019.
- (5) F 2781-15 Standard practice for testing forced entry, ballistic and low impact resistance of security fence systems. ATSM, 2015.
- (6) F 3038-14 Standard test method for timed evaluation of forced-entry-resistant systems. ASTM, 2014.

Forced entry without fear of making noise

This threat tends to exist in situations where the criminal; be they a burglar, terrorist or protestor; is either alert to the likelihood detection technologies that have been deployed, or is less concerned about using tools and techniques likely to generate significant levels of noise. Standards LPS 1175, EN 1627 (RC4 to 6) and F 2781⁵ are most suited to this type of threat. The actual performance classifications (e.g. security ratings) sought should reflect the level of investment it is considered the criminal is likely to make in order to achieve their objective - i.e. what tools a criminal is likely to use and how long they are likely to spend attempting to gain entry.

Although the higher performance classifications within some standards require the product to provide resistance to sustained attacks using very powerful tools, such as thermal cutting and petrol driven tools, it is important to consider whether the threat of such tools being used is a realistic one before specifying those classifications. Inappropriate specification of higher performance classifications can lead to significantly greater cost being incurred, while the products installed may be relatively impractical to use and costly to maintain.

Mob attack

This threat most commonly exists in a riot or protest situation. It is far less common than the other types of attack. Attacks of this type are highly likely to involve numerous people attempting entry in an unplanned manner using readily available tools and attack techniques that generate noise. Products meeting LPS 1175 or EN 1627 (RC4 to 6) are likely to afford a far greater delay to entry in these situations than those meeting PAS 24, LPS 2081 and EN 1627 (RC1 to RC3). However, most of these standards currently only cover entry attempts by a single attacker. That is with the exception of LPS 1175 (Security Ratings F to H), which covers attempts by pairs of attackers using a wide selection of tools including battery powered tools, petrol driven tools and thermal cutting equipment.

Alternatively, specifiers wishing to mitigate the threat of mob attack may consider specifying products meeting F 3038⁶. That standard includes 15 minute and 60 minute performance classifications associated with the threat of forced entry by six attackers using a selection of manually operated tools.



Scope of application of physical security standards

Before specifying a physical security product, it is important to ensure the standard specified is appropriate to the type of product being selected. Failing to do so could result in an artificial level of assurance because the test measures defined within the standard specified are unlikely to have been developed with that specific type of product in mind. The standard may therefore not cover the tools and techniques a criminal may use to overcome that type of product.

The table below summarises the types of product included within the scope of each of the façade and perimeter security standards covered in this guide.

LPS 1175 and LPS 2081 have the broadest scope of application of all physical security standards covering forced entry with and without noise respectively. These standards can be applied to products used within all layers of a site's protection, including its outer perimeter, external façade and internal compartmentation. These standards also cover other types of product that may be deployed on and around a site, including cabinets and enclosures. Meanwhile, EN 1627 and PAS 24 cover relatively few types of product. This greatly restricts their use for specifying the physical security of critical sites and assets.

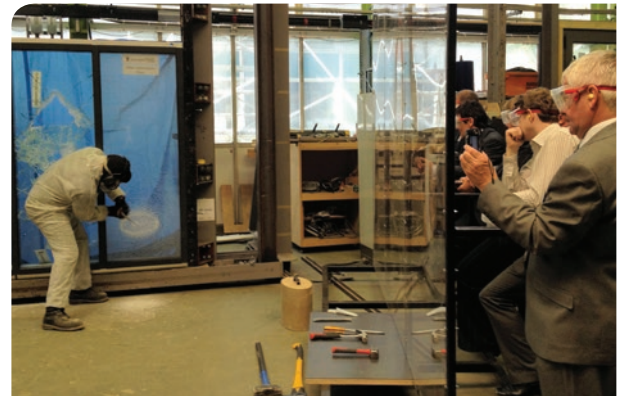
	Access covers and hatches	Cabinets and enclosures	Cladding systems	Curtain walling systems	Doorsets (cantilevered)	Doorsets (folding)	Doorsets (hinged)	Doorsets (pivoting)	Doorsets (revolving)	Doorsets (sliding)	Fencing	Gates	Partitioning systems	Roofing systems	Roof lights and skylights	Secondary glazing systems	Security grilles	Security screens	Security shutters	Temporary buildings	Turnstiles	Void protection screens	Walls and ceilings	Windows	
EN 1627: 2011			✓	✓	✓	✓	✓	✓		✓						✓	✓	✓	✓			✓		✓	
F 2781-15											✓														
F 3038-14	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
LPS 1175: Issue 8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LPS 2081: Issue 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PAS 24: 2016						✓	✓	✓		✓														✓	

Scope of physical security standards



Comparison of forced entry resistance

The following chart illustrates the potential security rating classifications that products classified to EN 1627, LPS 2081 and PAS 24 may achieve if tested to LPS 1175. The tips of each arrow illustrate the optimum and minimum security ratings a product may achieve to LPS 1175. This has been based on a detailed comparison of the requirements contained within each standard. It takes into account the various issues summarised within this guide and the results of the extensive testing BRE Global has conducted to these standards over many years.



Comparison of forced entry resistance

Level of security provided by approved products	LPS1175 and LPS 2081 Glazed and Unglazed Products		EN 1627 and PAS 24 Glazed Products		EN 1627 and PAS 24 Unglazed Products		LPS 1175																
	SR1	SR2	SR3	SR4	SR5	SR6	SR7	SR8	RC1	RC2	RC3	RC4	RC5	RC6	PAS	RC1	RC2	RC3	RC4	RC5	RC6	PAS	Classification
VERY HIGH RISK																							SR8
																							SR7
																							SR6
																							SR5
																							SR4
																							SR3
																							SR2
																							SR1
VERY LOW RISK																							Unclassified
																							Classification

BRE Global advises against basing any decisions purely on the content of this chart. This is because a product's security rating can only be accurately determined by completing a detailed review of that product's construction and the results of tests conducted on that product.

Factors affecting performance classifications

It is not possible to attribute a specific security rating/grade to a product in accordance with one physical security standard simply based on the rating/grade that product may have achieved to an alternative physical security standard. This is due to differences between the requirements contained within each standard, and the way the tests are conducted affect the performance classifications attributed to each product. Such differences include, but are not limited to:

Tools used to conduct the attack tests

LPS 1175 continues to adapt to reflect the scope of tools available to criminals and terrorists. Meanwhile, the tools used for testing to EN 1627 have seen relatively little change since its predecessor (ENV 1627) was first published in the late 1990's. EN 1627 continues to cater for threats relating to the use of a fairly restricted selection of common hand tools, particularly at the lower levels (RC1 to RC3), while retaining the use of mains powered tools at the higher levels (RC5 and RC6). This is despite mains tools being significantly less likely to be used by intruders compared with the battery powered and petrol driven tools catered for within LPS 1175 (Security Ratings B to H). EN 1627 is therefore less likely to be suited to the capabilities of a current criminals and terrorists.

Methods by which the tools may be used

EN 1627 (up to RC3) assumes burglars will use stealth, i.e. they will avoid making noise. It therefore restricts which tools may be used and whether they may be used to impact the product. This significantly reduces the tester's ability to replicate the damage that will be sustained by a product if the intruder chooses to make noise when attempting to force entry. Specifiers should therefore avoid specifying EN 1627 (up to RC3) for situations in which they envisage an intruder may be willing to make noise when attempting to force entry. Due to this difference in approach, it is generally considered that EN 1627 resistance classes RC1 to RC4 are NOT equivalent to LPS 1175 security ratings SR1 to SR4.

Whether, and how, glazing is targeted during manual attack tests

EN 1627 (RC1 to RC3) currently assumes intruders will avoid attempting to penetrate the glass by repeatedly impacting it using the tools used to attack other features of the product. This is because the standard assumes those attackers are concerned about generating a level of noise that is likely to attract attention. EN 1627 currently prohibits manual attacks on the glazing during tests up to and including resistance class RC3. Likewise, LPS 2081 and PAS 24 assume intruders will avoid attempting to penetrate the glass by impacting it repeatedly using the full array of tools defined within that standard. Meanwhile, LPS 1175 recognises intruders may target the glass by repeatedly impacting it using any of the tools available to them. Glazed products rated to EN 1627 (RC1 to RC3) are therefore highly unlikely to achieve an equivalent delay to forced entry compared with those products that achieve a numerically equivalent security rating to LPS 1175.

Failure criteria used

The size and shape of the test block used to determine whether entry has been achieved varies between the standards. For example, the criteria defined in EN 1627 assumes an intruder is much larger than that catered for in LPS 1175, LPS 2081 and PAS 24. Furthermore, while EN 1627 and PAS 24 only consider a product's resistance to a person passing through the product, LPS 1175 and LPS 2081 include criteria for evaluating a product's resistance to attempts at accessing an asset through a smaller aperture than that required for a person to pass through (e.g. a hand hole for accessing jewellery protected by a shop window).

Alternative locked conditions

Testing conducted to EN 1627 and PAS 24 generally only considers a product's resistance to forced entry when the product is fully closed and all locks are engaged. Meanwhile, LPS 1175 and LPS 2081 include criteria for evaluating a product's resistance to forced entry when alternative locks are engaged, such as daytime and night time locking modes on doorsets, and vented modes on windows, etc..

The manner in which physical security tests are conducted can also greatly affect the quality and reliability of the results achieved and the performance classifications attributed to a product. It is therefore important to consider the following when commissioning testing or acknowledging the classifications attributed to a product based on manual attack testing:

The strength and stamina of those conducting the tests

Experience, skill and motivation of the test team

BRE Global ensures the laboratories whose testing they recognise do not have conflicts of interest. BRE Global only recognises testing conducted by laboratories driven by quality and willingness to ensure due diligence in all the work they undertake.

Interpretation of the requirements defined within the standard

BRE Global has played a key role in developing interpretation rules for EN 1627 testing in the UK to ensure members of the Test House Studies Group (THSG) conduct tests to EN 1627 in a consistent manner. However, anyone can conduct testing to EN 1627, and the rules developed by THSG are certainly not applied across all organisations testing products to EN 1627.

Extrapolation of results to cover extended scopes of application

It is imperative a product approved on the basis of extrapolated data delivers the performance attributed to it. BRE Global has been testing physical security products for over 25 years, and its engineers have tested well over 5000 security products during that time. The extrapolation of test results on which BRE Global's LPCB approvals are founded draw on that vast experience, and are based on sound scientific and technical argument.

Third party certification

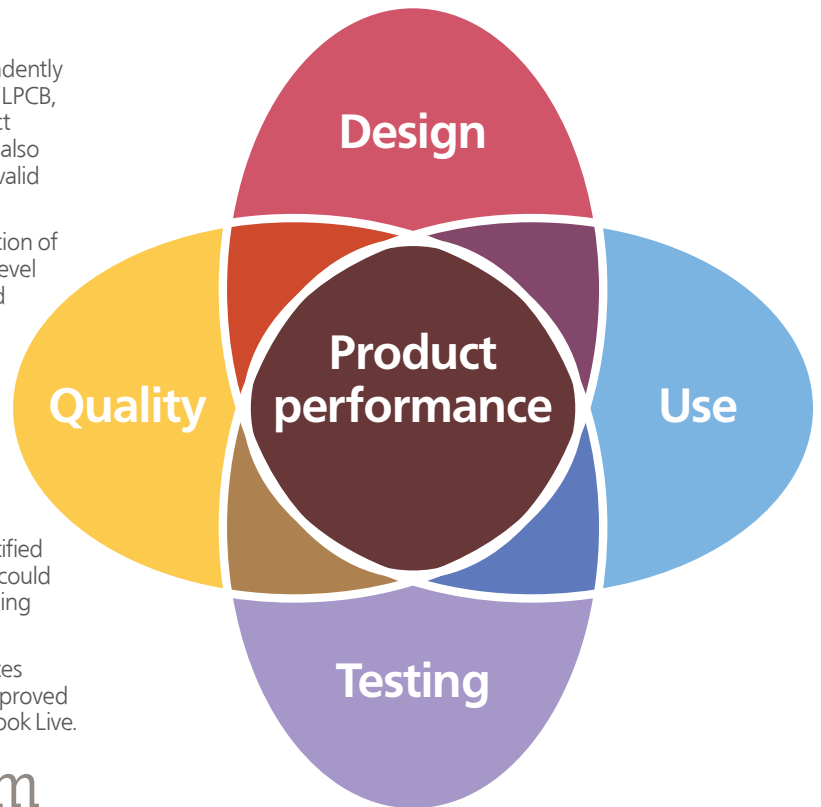
It is important to select products on the basis they are independently certified by a recognised third party certification body, such as LPCB, rather than on the basis of tests alone. Claims such as a product 'is designed to', 'complies with' or 'exceeds' a standard should also be avoided, unless those claims are themselves supported by valid third party certification to that standard.

Third party certification issued by LPCB is based on a combination of testing and ongoing surveillance audits. It provides a far higher level of assurance that a product will deliver the performance stated compared with that provided by a type test. This is because the certification process underpinning LPCB certification includes a series of initial and ongoing checks that enable the certifier to verify whether the factors that affect a products performance; such as its design, quality and associated user instructions; are suitably managed and maintained.

Specifiers should ensure the products/options they specify fall within the scope of the approval certificate issued by the certification body. Products and options that fall outside the certified scope may not offer equivalent resistance to forced entry and could therefore compromise the level of security offered to the building or asset protected by that product.

The scope of LPCB certification can be viewed on the certificates issued to the manufacturer and on LPCB's online register of approved products and services, available to view free-of-charge at RedBook Live.

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Verifying claims of conformity

There is no central authority responsible for controlling the quality of testing and certification to EN 1627. Nor is there a central authority responsible for policing claims of compliance made in relation to EN 1627. This potentially leaves those specifying EN 1627 vulnerable to false and misleading claims of compliance to that standard. It is therefore important to verify all claims of certification with the associated certification body, and check that certification body holds valid accreditation through its national accreditation body (e.g. UKAS in United Kingdom).

All claims of approval to LPS standards, such as LPS 1175 and LPS 2081, can be verified free-of-charge using LPCB's up-to-date online register of approved products and services, RedBook Live. Furthermore, 'LPS', 'LPCB' and the associated certification marks are registered trademarks owned by the BRE group of companies. BRE challenges and takes appropriate action against all unauthorised and misleading claims of conformity with LPS standards.

Further information

For further information, please contact the team:

+44 (0)1923 665120
 physicaalsecurity@bregroup.com
www.bregroup.com
www.redbooklive.com

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www.bregroup.com/sabre

BRE
Watford, UK
WD25 9XX
+44 (0)333 321 88 11
enquiries@bregroup.com
www.bregroup.com

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