



BSI Standards Publication

## 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

**Publishing and copyright information**

The BSI copyright notice displayed in this document indicates when the document was last issued.

© The British Standards Institution 2016

Published by BSI Standards Limited 2016

ISBN 978 0 580 91617 5

ICS 13.310; 91.060.50

The following BSI references relate to the work on this document:

Committee reference B/538/1

Draft for comment 15/30330077 DC

**Publication history**

First edition November 2007

Second edition August 2012

Third (present) edition February 2016

**Amendments issued since publication**

<b>Date</b>	<b>Text affected</b>
-------------	----------------------

---

Currently in preview, click buy full version

## Contents

Foreword *iii*

1	Scope	1
2	Normative references	2
3	Terms and definitions	2
4	Enhanced security requirements	5
5	Marking	6
6	Design and general requirements	6

### Annexes

Annex A (normative)	Security hardware and cylinder test and assessment	7
Annex B (normative)	Enhanced security performance requirements for doorsets	17
Annex C (normative)	Specification for enhanced security performance of windows	56

Bibliography 84

### List of figures

Figure A.1	– Typical straight jaw self-gripping pliers	13
Figure A.2	– Typical straight jaw detail	13
Figure A.3	– Typical curved jaw self-gripping pliers	13
Figure A.4	– Typical curved jaw detail	14
Figure A.5	– Typical shallow curve head	14
Figure A.6	– Typical shallow curve head	15
Figure A.7	– Typical hook attachment	16
Figure A.8	– Typical hook attachment	17
Figure B.1	– Flow chart for doorsets	17
Figure B.2	– Cutting test zones	21
Figure B.3	– Parallel-to-plane loading along the edge	31
Figure B.4	– Parallel-to-plane loading at right angles to the edge	32
Figure B.5	– Parallel-to-plane loading at a mullion or transom	33
Figure B.6	– Perpendicular-to-plane loading	34
Figure B.7	– Example of suitable test bracket	35
Figure B.8	– Frame support	36
Figure B.9	– Loading pad for mechanical loading	37
Figure B.10	– Example of loading bridge	38
Figure B.11	– Soft body impact test apparatus	39
Figure B.12	– Hard body impact test apparatus	40
Figure B.13	– Mechanical loading sequence: single and multiple leaf	40
Figure B.14	– Soft and heavy body impact points: single and multiple leaf	41
Figure B.15	– Hard body impact points and sequence: single and multiple leaf	41
Figure B.16	– Example of propping case for folding sliding doors	42
Figure C.1	– Flow chart of test procedures	56
Figure C.2	– Typical test arrangement	64
Figure C.3	– Test sample mounting	65
Figure C.4	– Parallel-to-plane loading: along the edge	66
Figure C.5	– Parallel-to-plane loading: at right angles to the edge	67
Figure C.6	– Parallel-to-plane loading: at a mullion or transom	68
Figure C.7	– Perpendicular-to-plane loading	69
Figure C.8	– Typical test bracket	71
Figure C.9	– Typical outer frame support	72
Figure C.10	– Typical mullion and transom support	73
Figure C.11	– Typical loading pad	74
Figure C.12	– Typical loading bridge	75
Figure C.13	– Typical installation of test window into timber sub-frame	76
Figure C.14	– Typical loading sequences	77
Figure C.15	– Local configuration for a typical vertical sliding window	79

**List of tables**

Table A.1 – List of tools permitted for use in the assessment of the cylinder 12

Table B.1 – Standard loading cases for single-leaf doorsets without integral side panels or fanlights 44

Table B.2 – Standard loading cases for single-leaf doorsets with integral side panels or fanlights 45

Table B.3 – Standard loading cases for all double doors, active and inactive leaf without integral side panels or fanlights 47

Table B.4 – Standard loading cases for all double doors, active and inactive leaf with integral side panels or fanlights 49

Table B.5 – Standard loading cases for folding sliding doors, active and inactive leaf without integral side panels or fanlights 52

Table B.6 – Standard loading cases for horizontal sliding doors, active and inactive leaves without integral side panels or fanlights 54

Table C.1 – Standard loading cases 81

**Summary of pages**

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 84, an inside back cover and a back cover.

## Foreword

### Publishing information

This Product Assessment Specification (PAS) is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 29 February 2016. It was prepared by Subcommittee B/538/1, *Windows and doors*, under the authority of Technical Committee B/538, *Doors, windows, shutters, hardware and curtain walling*. A list of organizations represented on this committee can be obtained on request to its secretary.

### Supersession

This PAS supersedes PAS 24:2012, which is withdrawn.

### Information about this document

This PAS has been produced by BSI to provide a method for testing and assessing the enhanced security performance requirements of doorsets and window types intended to resist the levels and methods of attack experienced in the UK and normally associated with the casual or opportunistic burglar. It is believed that these attacks are the result of an opportunity presenting itself with no particular regard to the likely reward that success might bring. Burglary attempts covered by this document are likely to avoid noise and unnecessary risk. As risk is associated with time, the period spent attempting to gain entry is limited.

For both doorsets and windows it offers two routes to demonstrating suitable security performance.

For doorsets, one route is based on the traditional UK test methods detailed in previous editions of PAS 24 and the other is a European approach based on BS EN 1627. In both cases, cylinder and associated security hardware are subjected to additional assessment against attack methods seen in the UK.

For windows, one method of demonstrating suitable security performance is based on BS 7950. The other method is based on BS EN 1627.

It is recognized that, within a free and open market, the controls that can be applied to such assessments and claims might not be adequate to offer the degree of assurance that is expected of the types of products specified in this PAS. Particularly in view of the security nature of this PAS, users are therefore strongly advised to consider the desirability of third-party certification, inspection and testing. Appropriate conformity attestation arrangements are described in BS EN 45011, for example.

Users seeking assistance in identifying appropriate assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

This PAS is not to be regarded as a British Standard. It will be withdrawn upon publication of its content in, or as, a British Standard.

This PAS covers doorsets and windows of all material types. Products are required to meet the material specific requirements as covered by the product standards for doorsets and windows such as BS 7412, BS 4873, BS 6510, BS 8529 and BS 644. Other characteristics such as weathertightness are covered by the BS 6375 series of standards that also references this document.

The distinction between a doorset and a window is based on the intended use as declared by the manufacturer. Products intended for pedestrian access are declared, tested and classified as doorsets in accordance with 4.4 of this standard.

This is a full revision of the standard, and introduces the following principal changes:

- the scope has been widened;
- text has been amended to allow for easy egress hardware on all doorsets;
- the cutting test has been made more practical;
- the classification has been simplified; and
- more robust requirements have been introduced for letter plates.

#### **Presentational conventions**

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

*Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.*

#### **Contractual and legal considerations**

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

# 1 Scope

This Product Assessment Specification specifies test methods and acceptance criteria relevant to the enhanced security performance of doorsets and windows intended to resist attack normally associated with the casual or opportunistic burglar.

It is applicable to doorsets and windows listed in a) and b) below.

Standard loading cases for use with Annex B and Annex C have been prepared for the following products.

- a) Windows: singular and multilight:
  - 1) top hung, side hung, bottom hung, butt hinged;
  - 2) top and side hung projected;
  - 3) top hung and side hung fully reversible;
  - 4) tilt and turn and turn and tilt;
  - 5) vertical and horizontal sliding;
  - 6) fixed and fixed casements (dummy vents);
  - 7) parallel opening;
  - 8) double opening (French windows);
  - 9) vertical and horizontal pivot.
- b) Doorsets:
  - 1) single and double leaf;
  - 2) single and double swing;
  - 3) hinged;
  - 4) sliding (single and multi-track);
  - 5) pivot;
  - 6) folding sliding (single and multi-track);
  - 7) stable;
  - 8) window without integral side panels and fanlights.

The security performance requirements in this PAS are not material specific.

This PAS is applicable to new window and doorsets as manufactured and prior to installation. It is only applicable to complete window and doorsets or a range thereof.

The ability to gain entry by manipulation of a lock cylinder is addressed in this PAS. Entry by deliberate breaking of the glass, lock picking using tools only available to a locksmith, attack on electrical controls, electronic components and electrical supply or by attack on the frame fixing methods is not addressed. This PAS does include a requirement for the infill medium material.

This PAS is not a test of component performance or installation requirements.