Loss Prevention Standard

LPS 1056: Issue 6.2

Requirements for the LPCB approval and listing of fire doorsets, lift landing doors and shutters

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PARTICIPATING ORGANISATIONS

This standard was prepared by Expert Group D. and approved by the LPC Fire and Security Board of BRE Global Ltd. The following organisations participated in the preparation of this standard:-

Association of British Insurers / Lloyd’s  
Association of Chief Police Officers  
Association for Specialist Fire Protection  
British Fire Protection Systems Association  
British Rigid Urethane Foam Manufacturers’ Association  
British Security Industry Association  
Chief Fire Officers’ Association  
Door & Hardware Federation  
Electrical Contractors Association  
EURISOL UK Mineral Wool Association  
Glass and Glazing Federation  
Health & Safety Executive  
Heating, Ventilating and Air Conditioning Manufacturers’ Association  
Intumescent Fire Seals Association  
Modular & Portable Building Association  
National Council of Building Material Producers  
Office of the Deputy Prime Minister  
Risk Engineering Data Exchange Group  
Royal Institution of Chartered Surveyors

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

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 14.)

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 of life safety products for inclusion in the “Red Book” is based on the following:

i. Satisfactory product performance during testing and audit testing by LPCB
ii. Satisfactory product construction
iii. Satisfactory system installation
iv. Satisfactory manufacturing processes
v. Satisfactory product service experience.

This revision separates the certification of the doorset or shutter from its installation and maintenance. The requirement for LPCB approval for the latter two functions are dealt with in other LPCB schemes under LPS 1271 for installation and LPS 1197 for maintenance and repair. This revision also incorporates the new EN standards for fire testing and durability testing.

The detailed certification procedures for LPCB Approval of fire doorsets, lift landing doors and shutters are given in Scheme Document SD 044 which is provided to new applicants to the scheme and to the manufacturers of existing certificated products.

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.

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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 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).
1 SCOPE

This document specifies the test requirements necessary to enable a satisfactory performance from fire resisting and/or smoke control doorsets and shutter assemblies, to meet the requirements of LPS 1056 when they are installed in accordance with the manufacturers instructions to supporting constructions which comply with the LPC Design Guide for the Fire Protection of Buildings.

2 DEFINITIONS

2.1 Fire Door

For the purposes of this document, the term fire door comprises any doorset or shutter assembly including any frame or guide, door leaf or leaves, rolling or folding curtain, etc., which is designed to give a fire resisting capability when used for closing off permanent openings in separating elements of construction, including apertures for lift landing doors. This includes any side panels, vision panels, or transom panels together with the door hardware and any seals (whether provided for the purpose of fire resistance and/or smoke control, or for other purposes such as draught or acoustic reduction) which form the assembly.

2.2 Smoke Control Door

For the purpose of this document the term smoke control door comprises any doorset or shutter assembly, including any frame or guide, door leaf or leaves, rolling or folding curtain, etc., which is provided to give a smoke control capability when used for closing off permanent openings in separating elements of construction, including apertures for lift landing doors. This includes any side panels, vision panels, or transom panels together with door hardware and any seals (whether provided for the purpose of smoke control and / or fire resistance or for other purposes such as draught or acoustic reduction) which form part of the assembly.

2.3 Smoke Barrier (Active)

A doorset or shutter assembly to meet the requirements of prEN12101-1 “Smoke and heat control systems. Part 1:Specification for smoke barriers”, which may or may not be fire resisting, which prevents the free spread of smoke.

2.4 Supporting Construction

For the purposes of this document, the term supporting construction comprises load bearing walls, panel walls and fire resisting partitions having suitable mechanical and fire resistant / smoke control properties as appropriate for the intended door type.
3 REQUIREMENTS

3.1 Documentation

Prior to examination and testing, the applicant shall furnish the certifying authority with comprehensive information regarding the product. All documents shall be dated and issue status controlled.

The applicant shall provide at least the following detailed information relating to the product, across the range of sizes, for which certification is sought.

a) General assembly drawings, including size, type and pitch of any fixings.
b) Component drawings.
c) Material specifications.
d) Specification of all locks, latches, handles and closers.
e) Details of any finishes.
f) Information regarding fixing techniques for alternative supporting constructions.
g) Any other relevant information.
h) Installation instructions.
i) Maintenance instructions.

All drawings should include tolerances.

3.2 Testing methods

3.2.1 The supporting construction requirements for fire doorsets to be correctly attached to openings in walls, floors, etc. shall be as given in the "The LPC Design Guide for the Fire Protection of Buildings-2000".

3.2.2 Constructional requirements deviating from the requirements set out in the "The LPC Design Guide for the Fire Protection of Buildings-2000" shall have been tested to the satisfaction of the certifying authority. Details of these permissible deviations shall be included in the specification for each certificated fire doorset.

3.2.3 The fire doorsets shall be fixed either to the face of the supporting construction or shall be recessed within the structural opening.

3.2.4 Details of acceptable alternative supporting constructions, including protected steelwork and/or flexible partitioning, to that tested with the fire doorset shall be identified in the specification for each certificated fire doorset.

3.3 Fire resistance

3.3.1 Fire doorsets incorporating loose or friable material shall be subjected to 5000 cycles of operation prior to the fire test in accordance with the requirements of prEN 14600 "Fire resisting and /or smoke control doorsets and operable windows – Requirements and classification".
3.3.2 Fire doors shall be tested in accordance with BS 476: Part 22 “Fire test on building materials and structures” or BS EN 1634-1 “Fire resistance test for doors and shutter assemblies- Part 1: Fire doors and shutters” or BS EN 81-58 “Landing doors fire resistance test” , to determine the fire resistance performance with respect to integrity and where required insulation or radiation. The test shall normally be under the control of the certifying authority at an approved test facility.

3.3.3 The fire resistance of a certificated fire door shall be stated in terms of the classifications given against BS 476 Part 22, BS EN 81-58 or BS EN 13501-2."Fire Classification of construction products and building elements. Part 2 classification using data from fire resistance tests".

3.3.4 Unless certification is being sought for fire doorsets of smaller dimensions, the dimensions of the tested fire doorset shall be the maximum that can be accommodated in the test furnace.

3.3.5 The orientation of the fire doorset being tested shall be that, which according to BS EN 1634-1 or in the opinion of the certifying authority will give rise to the most onerous test situation. Where such a situation cannot be identified, the certifying authority may require more than one test to be undertaken. In the case of lift-landing doors this will normally be so that the landing side faces the furnace.

3.3.6 The design, installation, and condition of the tested fire doorset shall be representative of that likely to occur in practice. Where design alternatives exist within the proposed specification, the test shall be undertaken on a specimen incorporating those features, which, in the opinion of the certifying authority, will give rise to the most onerous test situation. Where such a situation cannot be identified, the certifying authority may require that more than one test to be undertaken.

Note: (a) Lift landing door test specimens shall include all appropriate door operators, interlocks, indicators, switches, and wiring.

(b) Hinged fire doorsets shall incorporate door closers (fixed to the unexposed face).

The operability of the fire test specimen shall be demonstrated by 25 cycles of operation prior to the fire test and shall be completed in accordance with the requirements of prEN 14600.

3.3.7 Fire doorsets shall be supplied within the limits of the Field of Direct Application given in BS EN 1634-1, or additionally for larger sizes or differing arrangements shall conform to the requirements of Appendix A. The details of the product tested and/or assessed shall be identified in the product certificate.

3.4 Smoke leakage control

3.4.1 Smoke control doorsets, which may or may not be fire resisting, shall be tested in accordance with BS EN 1634-3 “Fire resistance tests for door and shutter assemblies – Part 3:Smoke control” to determine the smoke leakage performance. The test shall normally be under the control of certifying authority at an approved facility.
3.4.2 Unless certification is being sought for fire doorsets of smaller dimensions, the dimensions of the tested specimen shall be the maximum that can be accommodated in the test apparatus.

3.4.3 The orientation of smoke leakage control doorsets shall follow the principles defined in BS EN 1634-3.

3.4.4 The design, installation, and condition of the test specimen shall be representative of that likely to occur in practice. Where alternative design options exist within the proposed specification, the test shall be undertaken on a specimen incorporating those features which, in the opinion of the certifying authority, will give rise to the most onerous test situation. Where a most onerous situation is not evident, the certifying authority may require that additional testing be undertaken.

3.5 Smoke barriers

Where fire resisting doorsets, or shutter assemblies in particular, are required to provide the additional characteristics of active smoke barriers, they shall also be tested in accordance with the requirements of LPS 1182 - Requirements for LPCB approval of fixed fabric smoke curtains, fixed metal smoke curtains and powered smoke curtains.

3.6 Reliability

3.6.1 Fire and smoke control doorsets can only provide their performance characteristics when in the closed position. In order to demonstrate acceptable closing characteristics to cover a design life prescribed in the LPC Design Guide each certificated product shall be designed and tested to demonstrate suitability for use in one or more of the following types of operation;

   a) normally maintained closed but used regularly (i.e. doors with self closing devices); or

   b) normally held open during periods when buildings are occupied but closed for fire safety and/or security reasons outside of occupied periods (e.g. operated daily but fitted with a release mechanism to permit operation of the door closing device by release of a fusible link or remote electrical signal); or

   c) Permanently open or partially open but fitted with a release mechanism which is primed to permit operation of the door closing device on receipt of knowledge of a fire (e.g. permanently held open by a local heat detector ); or

   d) normally closed and locked into the closed position (e.g. secure room doors which are not self-closing).

3.6.2 The number of self-closing durability test cycles necessary to demonstrate acceptable reliability of operation and frequency of the intended use shall be determined from the following table.
<table>
<thead>
<tr>
<th>Intended use</th>
<th>Type of operation</th>
<th>Number of test cycles to be performed</th>
<th>Class</th>
</tr>
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<tbody>
<tr>
<td>Severe duty</td>
<td>(a)</td>
<td>200,000</td>
<td>C5</td>
</tr>
<tr>
<td>Heavy duty</td>
<td>(a)</td>
<td>100,000</td>
<td>C4</td>
</tr>
<tr>
<td>Medium duty</td>
<td>(a)</td>
<td>50,000</td>
<td>C3</td>
</tr>
<tr>
<td>Light duty</td>
<td>(a) or (b)</td>
<td>10,000</td>
<td>C2</td>
</tr>
<tr>
<td>Permanently held open / locked</td>
<td>(c) or (d)</td>
<td>500</td>
<td>C1</td>
</tr>
</tbody>
</table>

Note 1:
Severe duty - Subject to very frequent usage
Heavy duty - High frequency of use by public with little incentive to exercise care
Medium duty - Medium frequency of use primarily by those with some incentive to exercise care
Light duty - Low frequency of use for those with a high incentive to exercise care such as doors to private residences and large industrial and commercial doors.

Note 2:
In the case of double side-hung doorsets with overlapping leading edges, the correct sequence of closing shall be ensured (e.g. by the incorporation of a door co-ordinating device to BS EN 1158 "Building hardware. Door coordinator devices. Requirements and test methods). Note 3:
Self-closing durability tests shall be completed in accordance with the requirements of prEN 14600. The test shall normally be under the control of the certifying authority at an approved test facility, although in some circumstances it may be completed under the control of the certifying authority at a manufacturer's facilities.

Wherever possible the largest intended dimensions of the product type shall be submitted for the self-closing durability cyclic testing.

It is not necessary to demonstrate the self-closing durability on the specimen provided for the fire resistance or smoke control tests.

Note 4:
Where doorsets or shutter assemblies in particular are to be held in the open position by release mechanisms, such mechanisms shall be tested by 25 operations either on the fire test specimen or the smoke control test specimen. Alternative mechanisms may be subjected to a similar test on a similar specimen, which shall be witnessed by the certifying authority.
3.7 Materials

3.7.1 Glazing shall not be used in the assembly unless it has been included in the specimen fire doorset subjected to the fire resistance test and/or smoke control test as appropriate. The type of glazing shall be identifiable on the test specimen and on parts used for normal production.

3.7.2 Combustible and low-melting materials shall not be used in the assembly of fire resisting doorsets unless these have been included in the specimen fire doorset subjected to the fire resistance test, or on a similarly produced alternative full size specimen test, or in the case of hardware on a small scale test in accordance with prEN 1634-2 “Fire resistance tests for door and shutter assemblies. Part 2. Fire door hardware. Building hardware for fire resisting doorsets and openable windows” and the appropriate product conformity tests as prescribed in prEN 14600.

3.7.3 Materials susceptible to corrosion, which are used in the assembly of the fire doorset, shall be protected.

3.8 Hinged fire doors

3.8.1 Fire doors may incorporate a single,double/triple latching/bolting arrangement or no latching bolting arrangement provided it can be shown to the satisfaction of the certifying authority that the doorset has been designed to perform successfully in the fire resistance test and that the leaf-frame gap tolerances recorded in the fire resistance test report can be reproduced in practice.

3.8.2 Double swing fire doorsets are acceptable provided they have passed the fire resistance test and/or smoke control test as appropriate, and that the leaf-frame tolerances recorded in the test are reproduced in practice.

3.8.3 The operation of the latching/bolting arrangement shall be by means of a lever handled system or push bar.

3.8.4 The first closing leaf of horizontally latched/bolted double leaf fire doorsets shall be provided with a suitable proven shootbolt arrangement into the frame and/or floor.

3.9 Sliding Doors

Sliding doorsets shall be capable of being manually opened and closed. Though not normally permitted on escape routes, when dispensation has been given, a notice shall be displayed stating ‘Slide to Open’ and indicating the direction of opening.

3.10 Folding Shutters

Folding shutters shall be capable of being manually opened and closed. Though not normally permitted on escape routes, when dispensation has been given, a notice shall be displayed stating ‘Slide to Open’ and indicating the direction of opening.
3.11 Rolling Shutters

3.11.1 Except where mechanical or powered operation is provided, two steel lifting handles shall be fixed to the bottom rail on each side of the curtain, and such doorsets shall be capable of manual operation.

3.11.2 Double shutters shall operate simultaneously.

3.11.3 Hand chains provided for emergency operation of power operated drive units, must automatically disengage when not in use. They must not rotate when shutters are powered opened or closed or when they close due to fire.

3.11.4 Externally mounted drive units which have not been submitted as part of a fire resistance test specimen may be added to the tested assembly providing that the unit is approved by the certifying authority and is detailed in the product certificate.

3.11.5 Where drive units, such as tubular motors, may have a serious effect on the fire resistance performance of the assembly, they shall not be added to tested assemblies unless covered by a full-size fire resistance test on a similar product.

3.12 Lift Landing Doors

Lift landing doors shall be constructed to comply with BS EN 81: Parts 1 and 2 “Safety rules for the construction and installation of lifts”, and shall meet the test requirements of BS 476-22, BSEN 1634-1 or BS EN 81-58 as appropriate (passenger and goods passenger lifts).

3.13 Closures for conveyors

Where doorsets or shutters are provided for the protection of openings in firebreak walls or floors, which are provided specifically for the passage of conveyor systems, they shall be tested in accordance with the requirements of BS 476-22 or prEN 1366-7 “Fire resistance tests for service installations. Conveyor systems and their closures”.

3.14 Door Furniture

3.14.1 The certified fire doorsets shall have specified door furniture. Details of the tested door furniture together with any approved alternative options shall be included in the specification for each certificated fire doorset.

3.14.2 Door furniture other than the items included on the test specimen must be evaluated by the certifying authority. This evaluation shall include the submission of samples and/or test reports demonstrating the suitability of the product either by a small scale test to prEN 1634-2 or by a full size doorset test on a similar doorset type, e.g. elements tested on timber doorsets may not necessarily be acceptable for steel doorset applications.

3.14.3 Intumescent sealed air transfer grilles shall be tested in accordance with draft LPS 1256 and shall be tested to their maximum size in full size doorset specimens in both positive and negative pressure zones.
3.15 Release Mechanisms

Any release mechanism or linkage used to retain a fire resisting or smoke control doorset in the open position must be proven by 25 release operations in accordance with clause 3.6.2 Note 4.

3.16 Closing Devices

All fire and smoke control doorsets that are not locked shut shall have a means of closing in the event of a fire. Fire doors that cannot close under gravity and are to be powered shut shall meet the requirements for power operation detailed in prEN 14600. Their self-closing feature shall be proven in accordance with clause 3.6.2 Note 3.

Rising butt hinges or spring hinges shall not be used as the only means of closing hinged fire doorsets.

3.17 Requirements for Safe Operation and Use

All fire and smoke control doorsets shall meet with the requirements for safe operation and use given in prEN 14600.

3.18 Decorative Finishes

3.18.1 Where a paint finish is not expected to contribute to the fire resistance of the doorset, alternative paints to that which was tested are acceptable and such types of paint may be added to door leaves or frames/guides for which unfinished specimens were tested.

3.18.2 Where products incorporate the use of paint finishes which may contribute to the fire resistance capability, such as intumescent paints, then alternative finishes are not permitted without additional supporting test evidence.

3.18.3 Decorative laminates and timber veneers up to 1.5mm thickness may be added to or exchanged for the faces but not the edges of doors which satisfy the insulation criteria. All other decorative laminates shall be tested as part of the specimen and may only be exchanged for similar types/thickness of material.

4 CLASSIFICATION AND DESIGNATION

Where fire doorsets and shutters have been tested using BS EN standards, they shall be classified in accordance with BS EN 13501-2.

5 INSTALLATION

All LPCB approved fire doorsets and shutters must be installed in accordance with the manufacturer’s instructions to supporting constructions which comply with the LPC Design Guide for the Fire Protection of Buildings. See LPS 1271 For further guidance.
6 MARKING AND LABELLING

All LPCB approved fire doorsets and shutters shall bear a label which shall remain in place during a fire and be legible after a fire. It shall state that the doorset/shutter is LPCB approved and quote the relevant LPCB reference number. The label shall be visible during the normal operation of the fire doorset. For full details of the label and it’s design please see the appropriate scheme document SD 044.

(Note: For details of the requirements for labels attached by the LPCB certificated installer, please see SD 047).

7 PUBLICATIONS REFERRED TO:


BS EN 81-1 Safety rules for the construction and installation of lifts – Part 1: Electric lifts.


BS EN 81-58 Safety rules for the construction and installation of lifts – Examination and tests. Part 58: Landing door fire resistance tests.

BS EN 1158 Building hardware. Door coordinator devices. Requirements and test methods.

BS EN 1634-1 Fire resistance tests for door and shutter assemblies - Part 1: Fire doors and shutters.

prEN 1634-2 Fire resistance tests for door and shutter assemblies - Part 2: Characterisation testing of items of building hardware for use on fire doors and windows.

BS EN 1634-3 Fire resistance tests for door and shutter assemblies - Part 3: Smoke control doors and shutters.

prEN 12101-1 Smoke and heat control systems – Part 1: Specifications for smoke curtains. Requirements and test methods.
Test and evaluation requirements for the LPCB approval and listing of fire doorsets, lift landing doors and shutters

| BS EN 13501-2 | Fire classification of construction products and building elements. Part 2 Classification using data from fire resistance tests (excluding products for use in ventilation systems). |
| LPS 1182 | Requirements and Tests for LPCB Approval of Fixed Fabric Smoke Curtains, Fixed Metal Smoke Curtains and Powered Smoke Curtains. |
| LPS 1271 | Requirements for companies installing fire and security doorsets, shutters and fire/smoke barriers. |
| prEN 14600 | Fire resisting and/or smoke control doorsets and openable windows – Requirements and classification. |
| BS EN 1366-7 | Fire resistance test for closures for conveyors. |
| SD 044 | Certification scheme for fire doorsets, lift landing doors and shutters. |
| SD 047 | Certification scheme for maintenance and repair of doorsets, shutters, smoke barriers and smoke/fire barriers. |
| SD 088 | Certification scheme for installation of fire and security doorsets, shutters and smoke/fire barriers. |

For undated references please refer to the latest published issue.
**Amendments Issued Since Publication**

<table>
<thead>
<tr>
<th>DOCUMENT NO.</th>
<th>AMENDMENT DETAILS</th>
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| LPS 1056-6.0 | 1. Changed to latest LPS template  
2. Removed installation assessment requirements (see LPS 1271).  
3. Updated standard references. | TB        | 28/06/05   |
| LPS 1056-6.1 | 1. Reference correction to clauses 3.15 & 3.16 | TB        | 16/09/05   |
| LPS 1056-6.2 | 1. New front cover  
2. Title added to header  
3. Contents page moved to Page 1  
4. ‘Revision of Loss Prevention Standards’ added on page 2  
5. ‘Foreword and Notes amended on Page 3  
6. Repagination  
7. Updated copyright information | DC        | Jan. 2014  |