

Loss Prevention Standard

LPS 1132: Issue 4.2

Requirements and tests for LPCB approval of wall and floor penetration and linear gap seals

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PARTICIPATING ORGANISATIONS

This standard was prepared by Technical Panel D of the Loss Prevention Certification Board. The following organisations participated:

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| Association for Specialist Fire Protection | ASFP |
| Association of British Insurers | ABI |
| British Rigid Urethane Foam Manufacturers' Association | BRUFMA |
| Confederation of British Industry | CBI |
| Chief and Assistant Chief Fire Officers Association | CACFOA |
| Department of the Environment, Transport and The Regions | DETR |
| Door and Shutter Manufacturers Association | DSMA |
| Glass and Glazing Federation | GGF |
| Heating, Ventilating and Air Conditioning Manufacturers Association | HEVAC |
| Intumescent Fire Seals Association | IFSA |
| Local Government Association | LGA |
| National Council of Building Material Producers | BMP |
| National Prefabricated Building Association | NPBA |
| Smoke Ventilation Association | SVA |
| UK Mineral Wool Association | EURISOL |

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 9)

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

Loss Prevention Council Approval Schemes are supported by the Association of British Insurers (ABI) and Lloyd's.

This Loss Prevention Standard (LPS) identifies the evaluation and testing practices for the listing and certification of suitable products.

Certification is based on the following criteria:

- a) Satisfactory performance of the product, in accordance with the requirements of The Loss Prevention Certification Board.
- b) Verification by the LPCB of the establishment and maintenance of the manufacturer's quality management systems in accordance with ISO 9001: Quality management systems - Requirements.

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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1. SCOPE

This document stipulates the constructional, test and performance requirements for Penetration and Linear Gap Seals installed in nominally static steel, masonry or reinforced concrete walls, floors, ceilings, roofs, bulkheads and decks having a fire resistance rating of not less than two hours. Approved Penetration / Linear Gap Seal systems satisfy insurance requirements for firebreak walls as defined in the "The Design Guide for the Fire Protection of Buildings".

This document does not cover aspects of load bearing capacity.

2. DEFINITIONS

2.1 Penetration

For the purposes of this document the term "Penetration" means an aperture through a wall of floor for the passage of services.

2.2 Linear Gap

The linear void, not greater than 100mm in width, between or within juxtaposed elements of construction (walls, floors, ceilings, roofs, bulkheads and decks).

2.3 Penetration Seal

A system used to seal a Penetration to maintain the wall or floors fire resistance (with or without services).

2.3 Linear Gap Seal

A system used to seal a Linear Gap to maintain the fire resistance of the associated elements of construction.

2.3 Masonry

For the purposes of this document, the term "Masonry" comprises bricks or concrete blocks having dense or lightweight aggregate.

2.4 Reinforced Concrete

For the purposes of this document, the term "Reinforced concrete" comprises concrete reinforced in accordance with the requirements given in Eurocode 2: BS EN 1992-1-1:2004; "Design of concrete structures. General rules and rules for buildings" or equivalent standard.

2.5 Bulkheads and Decks

Bulkheads and decks as specified in IMO Procedures (see IMO Resolution A.517(3)).

2.6 Partitions

A proprietary or standard partition design having the appropriate fire resistance for the test.

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3. INFORMATION TO BE SUPPLIED BY THE APPLICANT

3.1 General

Prior to examination and testing, an applicant shall furnish the LPCB with comprehensive information about the product for their consideration. All documents shall be dated and given a reference number and issue status.

3.2 Data

The applicant shall supply the following detailed information relating to the product to be tested.

- a) Specifications and where applicable, drawings accurately detailing the Penetration / Linear Gap Seal.
- b) Instructions and specifications for use of the Penetration / Linear Gap Seal including limitations.

4. SPECIMENS TO BE SUPPLIED FOR TESTING

Subsequent to the LPCB's acceptance of an application for certification, the following shall be observed:

- a) The applicant shall supply the specimens required for testing. *At the discretion of the LPCB, a representative of the LPCB shall select samples taken from production.*
- b) All specimens shall be supplied complete with associated instructions.

5. EXAMINATION

5.1 Data

All information and drawings supplied will be reviewed to ensure suitability for testing and approval purposes.

5.2 Conformity between specimen and documentation

Prior to testing, the test specimens shall be examined for conformity with the details supplied by the applicant. A lack of conformity identified at this stage or during testing may, unless promptly corrected, delay testing or prevent granting of certification.

5.3 Instructions

The instructions and recommendations for installation and maintenance of the product shall be reviewed for adequacy of information, to include limitations of use.

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6. REQUIREMENTS

The Penetration / Linear Gap Seals shall be installed in the wall or floor with or without services passing through them. All services or linear gaps shall be continuous through the wall or floor. The Penetration / Linear Gap Seal system shall comply with the following requirements:

6.1 Electrical Services

Where the Penetration Seal system exceeds 0.1m² in cross sectional area four hours fire resistance is required.

6.2 Pipework

Pipework shall not exceed 250mm diameter (except if carrying water or steam).

6.3 Fire Resistance

All tests shall be undertaken by the LPCB or agreed with the LPCB prior to testing at an LPCB approved test facility.

Historical data may be considered acceptable provided it can be demonstrated that the test method used is acceptable and the test information obtained is adequate.

6.3.1 For Penetration Seals

The Penetration Seals shall be tested in accordance with EN 1366: Part 3, IMO Resolution A.517(3) (or equivalent) and shall be given a rating with respect to Integrity and Insulation.

The design installation and condition of the tested sample 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 LPCB, will give rise to the most onerous test configuration. Where such a situation cannot be identified, more than one test may be required by the LPCB.

The following must be satisfactorily tested:

- 1) Blank.
- 2) Largest proposed service.
- 3) Smallest proposed service.
- 4) Maximum size of penetration seal system.
- 5) Other system configurations may be required.

Note. Further guidance will be included in the next issue of LPS 1132.

6.3.2 For Linear Gap Seals

The Linear Gap Seals shall be subjected to a fire test using the procedures and criteria of EN 1366: Part 4 and shall be given a rating with respect to Integrity and Insulation. The test construction shall comprise adjacent discrete members and be representative of use. The thermocouples shall be fixed to the test construction as follows:

- a) Three thermocouples shall be fixed along the length of the seal, one at the centre and the others equidistant between the centre and the end of the seal.
- b) Three thermocouples shall be fixed along the length of each supporting construction member one at the centre and the others equidistant between the centre and the end of the seal.
- c) One thermocouple to be fixed on any join between lengths of the sealing system.

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- d) One thermocouple on each seal / supporting construction member boundary.
- e) Additional thermocouples can be used at the discretion of the test facility.

Where the Linear Gap Seals is manufactured in lengths and is joined to form long runs, this joint detail shall be included in the test specimen (see c above). Where design alternatives exist within the proposed specification, the test shall be undertaken on a specimen incorporating those features, which in the opinion of LPCB, will give rise to the most onerous test configuration. Where such a situation cannot be identified, more than one test may be required by the LPCB.

6.4 Smoke

In the absence of any accurate method of determining smoke emission, subjective notes and photographic records will be made. Excessive smoke emission will be considered a system failure.

6.5 Scope of Approval

The approval will be limited to the orientation, type of service and maximum size of Penetration / Linear Gap Seal tested and the element of construction material with which the sample has been verified.

7. PRODUCT AUDIT

The LPCB will take samples of the penetration seal materials used during their surveillances and arrange for the samples to be tested, as appropriate. Surveillances shall be undertaken at intervals decided by LPCB but not exceeding one year.

8. MARKING

All LPCB approved products shall be marked with LPCB logo, approval reference number, manufacturer's name and date of manufacture. Where it is not practical for the product to be marked, then the marking shall be present on the product packaging.

9. QUALITY

The manufacturer shall demonstrate to the satisfaction of LPCB that the quality management system under which the products are manufactured is in accordance with ISO 9001. An appropriate number of surveillances shall be carried out by the LPCB every year.

In addition to the surveillance visits required for the maintenance of the ISO 9001 quality system, annual product audits shall be carried out for the duration of certification.

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10. COMPLAINTS

Complaints about LPCB approved products may be investigated by LPCB. Where complaints are not resolved to the satisfaction of the LPCB, the LPCB may withdraw approval.

11. CERTIFICATE

The manufacturer shall be issued with an LPCB approval certificate stating the scope of approved products and their approval reference numbers.

12. LISTING

Approved products will be listed in the annual "LPCB List of Approved Products and Services".

13. PUBLICATIONS REFERRED TO

- | | |
|---|--|
| BS 8110 : 1985 | Structural Use of Concrete |
| EN 1366 : Part 3 | Fire resistance tests for service installations – Penetration Seals |
| EN 1366 : Part 4 | Fire resistance tests for service installations – Linear Joint Seals |
| IMO Resolution A.517(3) | |
| LPC Code of Practice of the Construction of Buildings | |
| ISO 9001 | Quality management systems - Requirements. |

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Amendments Issued Since Publication

| DOCUMENT NO. | AMENDMENT DETAILS | SIGNATURE | DATE |
|--------------|--|-----------|-----------|
| LPS 1132-4 | Copyright and address change | CJA | 24/10/01 |
| LPS 1132-4 | Further copyright changes | CJA | 29/07/02 |
| LPS 1132-4.1 | Further copyright changes | CJA | 16/09/05 |
| LPS 132-4.2 | <ol style="list-style-type: none"> 1. New front cover 2. Title added to header 3. Contents page moved to Page 1. 4. Added Revision of Loss Prevention Standards to Page 2 5. Notes added on Page 3 6. Update of ISO 9001 standards in the Foreword and in Clauses 9 and 13 7. References to ISO 9002 deleted - this standard has been withdrawn and is replaced by ISO 9001. 8. Update of references to standards in Clauses 6.3.1 and 6.3.2 and Clause 13 9. Replace reference to BS 8110 in clause 2.4 and Clause 13 - BS 8110 has been withdrawn and is replaced by Eurocode 2: BS EN1992-1-1 or equivalent 10. Repagination 11. Update of copyright information | DC | Jan. 2014 |

This standard was prepared by the Loss Prevention Certification Board