



Loss Prevention Standard

**LPS 1301: ISSUE 1:
June 2007**

**Requirements for the approval of Sprinkler Installers in
the UK and Ireland for Residential and Domestic Sprinkler
Systems**

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PARTICIPATING ORGANISATIONS

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

Association of British Insurers
 Association of Building Engineers
 Association of Chief Police Officers
 Association for Specialist Fire Protection
 British Automatic Fire Sprinkler Association
 British Fire Protection Systems Association
 British Security Industry Association
 BT
 Chief Fire Officers Association
 CBI
 Door & Hardware Federation
 Electrical Contractors Association
 European Fire Sprinkler Network
 Health & Safety Executive
 Home Office
 Metronet
 NICEIC
 Risk Engineering Data Exchange Group
 Royal and Sun Alliance
 Royal Institution of Chartered Surveyors

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FOREWORD

This standard identifies the evaluation and/or testing practices undertaken by LPCB for the purposes of approval and listing of products and services. LPCB listing and approval of products and services is based on evidence acceptable to LPCB:-

- that the product or service meets the standard
- that the manufacturer or service provider has staff, processes and systems in place to ensure that the product or service delivered meets the standard

and on:-

- periodic audits of the manufacturer or service provider including testing as appropriate
- compliance with the contract for LPCB listing and approval including agreement to rectify faults as appropriate

NOTES:- Compliance with this LPS standard does not of itself confer immunity from legal obligations. Users of Loss Prevention Standards should ensure that they possess the latest issue and all amendments.

NOTE: BRE and BRE Global are owned by the BRE Trust which is a registered charity. The LPCB is part of BRE Global and tests, assesses, certificates and lists products and services within the fire and security sectors. For further information on our services please contact BRE Global, Garston, Watford, Herts. WD25 9XX or e-mail to enquiries@breglobal.co.uk

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.

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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1 INTRODUCTION

1.1 Benefits of the LPS 1301 scheme

Automatic sprinklers are installed in residential and domestic premises to safeguard life, property and the environment. Equipment designs and system configurations are continuously evolving. In order to ensure adequate protection, sprinkler system installers (hereinafter called the Firm) need an appropriate level of technical competency in both design and installation.

This scheme has been prepared by an Expert Group drawn from installers, local government, insurers and clients to help:

- Clients select Firms.
- Ensure that sprinkler systems are appropriate for the occupancy and/or hazard class of the premises in which they are installed, and will operate reliably in the event of a fire.

It has been approved by the LPC (Fire & Security) Board.

1.2 Technical Requirements

The technical requirements for residential and domestic sprinkler systems are set out in BS 9251.

This document sets out the basis for the approval of Firms under this scheme.

Key terms are defined in the glossary.

The LPCB is constantly seeking to improve the schemes it operates, not just technically but also in providing an excellent service and value to all of the scheme stakeholders. If you have any suggestions for improving this scheme please contact:

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1.3 LPCB Listing

All Firms approved by the LPCB to carry out the design, installation and servicing of residential and domestic sprinkler systems will be listed in the LPCB *List of Approved Fire and Security Products and Services* known as the Red Book.

This publication is available printed or on CD-ROM from the above address or on our web-site: www.redbooklive.com.

Any listing awarded by LPCB remains valid only whilst the Firm continues to meet the scheme requirements as defined in this and related documents.

Where a Firm operates design and installation work from more than one location, then separate approvals must be obtained for each. Offices undertaking only sales and/or emergency service work are not covered by this scheme.

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1.4 Use of LPCB Marks

Details of how the mark may be used can be found in LPCB publication PN 103.

1.5 Change of Company Identity or Particulars

The Firm should promptly notify the LPCB of any changes relating to their compliance with this scheme, including a change of company identity, legal entity, company registration and/or location. The Firm shall notify any changes using LPCB publication PN 112.

1.6 Costs

All costs associated with LPS 1301 assessments, surveillance visits, special visits and certification are borne by the Firm. Charges will be made in accordance with the LPCB Schedule of Fees current at the time.

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2 REQUIREMENTS

2.1 Application and Assessment

The Firm shall submit a completed application form. If the application is acceptable the Firm will be invoiced for the application fee. On payment of the application fee, the LPCB will contact the Firm to arrange an assessment audit. On completion of a satisfactory assessment and the close out of any resulting reports (non-compliance or observations) the Firm will be issued with a certificate and their details included in the LPCB Red Book.

The Firm shall provide a completed Contract Log BF665 listing all residential and domestic sprinkler contracts completed in the 12 month period prior to the date of application. The LPCB will select a number of contracts to sample which will include a review of the design and an inspection of the installed system, including a review of the testing and commissioning records. The assessment will include a review of the Firm's management system for compliance with clause 2.2 below and their capability to manage contracts to ensure that the quality and technical compliance with the system standard are ensured.

2.2 Management System Requirements

The Firm shall have a documented and operating management system to ensure that the processes of design, installation, commissioning and servicing are adequately controlled. The management system shall comply with LPCB publication PN 160.

2.3 Single Point Responsibility

The Firm shall be responsible for the entire works of the sprinkler system, i.e. design, supply, installation and commissioning, even if the installation and supply of piping and hanging materials is by others.

2.4 Design Supervisor

The Firm shall designate one or more of their design engineers to be a Design Supervisor who shall have technical responsibility for the work carried out by the Firm.

A Firm shall have a sufficient number of Design Supervisors to ensure that all designs are verified by a Design Supervisor to ensure full compliance with the system standard.

A Design Supervisor shall be able to demonstrate that they have adequate knowledge and experience in the design of residential and domestic sprinkler systems to the system standard.

Design Supervisors shall be permanent employees of the Firm.

[Note - a Design Supervisor can also be an Installation Supervisor]

2.5 Installation Supervisor

The Firm shall designate one or more of their engineers to be an Installation Supervisor who shall be responsible for inspecting and testing installed systems for compliance with the system standard and to ensure that the quality of workmanship is acceptable and that the correct materials have been used.

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A Firm shall have a sufficient number of Installation Supervisors to ensure that all sites are inspected and tested by an Installation Supervisor to ensure full compliance with the system standard.

An Installation Supervisor shall demonstrate that they have adequate knowledge and experience in the design and installation of residential and domestic sprinkler systems to the system standard.

Installation Supervisors shall be permanent employees of the Firm.

[Note - an Installation Supervisor can also be a Design Supervisor]

2.6 Installation of Sprinkler Systems

Irrespective of whether the installation is carried out by staff of the Firm or is sub-contracted or is carried out by the Client of the Firm, the Firm shall ensure that the installation personnel are adequately trained and experienced to install the sprinkler system using the correct materials and in compliance with the design drawings and system standard.

During the installation process, should a problem arise whereby the system cannot be installed in accordance with the design drawings, the Design Supervisor shall be contacted to decide what appropriate action should be taken to ensure that the installed system complies with the system standard. The use of additional fittings will have an adverse effect on the hydraulic characteristics of the system and it is therefore important that record drawings reflect the as built condition of the system so that accurate hydraulic calculations are carried out to ensure that the sprinkler heads have adequate pressure and flow available to distribute the correct amount of water.

2.7 Design Verifications

Designs shall be verified by a Design Supervisor. Records of all design verifications shall be maintained. The records shall include the identification of all deviations to the contract specification and their re-inspection and sign off.

2.8 Site Inspections

Site inspections shall be carried out to check that the system has been installed in accordance with the verified design by an Installation Supervisor. Records of all site inspections (either interim or final) shall be maintained. The records shall include details of any outstanding snagging items identified during inspections and their re-inspection and sign off.

2.9 Testing and Commissioning

All systems shall be tested and commissioned in accordance with the system standard by an Installation Supervisor. Records shall be produced as required by the system standard and retained.

2.10 Control of Deviations to the System Standard

Deviations to the system standard shall be controlled in accordance with LPCB Guidance Note GN01.

2.11 LPCB Certificates of Conformity

For each sprinkler system installed, except as specified in LPCB Guidance Note GN01, the Firm shall provide to their customer an LPCB Certificate of Conformity to confirm that the system is in full compliance with the system standard unless otherwise noted in the list of minor deviations, regardless of whether the customer has asked for a certificate to be issued.

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Before the Firm issues a certificate to their client, a draft copy of the certificate together with copies of the design, testing and commissioning records and the schedule of deviations (if applicable) shall be provided to the LPCB for record purposes.

2.12 Competency

The Firm shall maintain competency and training records to demonstrate that all technical staff are competent to carry out their nominated tasks. Any training courses attended must include an evaluation of the individual's knowledge of the relevant part(s) of the system standard.

2.13 Sub-contracting

The Firm shall be fully responsible for the work carried out by their sub-contractors.

Where sub-contractors are used:

- The quality of their designs, materials, equipment or workmanship is to be to the same standard as that of the LPS 1301 approved Firm.
- Service and maintenance activities including emergency call-outs shall be carried out by directly employed personnel, or be sub-contracted to other LPS 1301 approved Firms. Where specialist equipment is involved e.g. fire pumps, suction tanks, trace heating, alarm/indicating systems, the service and maintenance may be carried out by the manufacturer, their authorised agents or specialist companies.
- All work undertaken by such sub-contractors is to be reviewed and verified by qualified staff directly employed by the Firm to ensure that the requirements of the scheme are met. Records are to be maintained for all work sub-contracted.

2.14 System Standards

The following system standards are acceptable for certification under this scheme:
BS 9251 - Sprinkler systems for residential and domestic occupancies - code of practice

For the purpose of certification, although the system standard is only a code of practice and not a standard, its requirements and recommendations are to be considered as mandatory.

2.15 Specialist Sprinkler Equipment

Shall be approved by an independent third party test laboratory or certification body acceptable to LPCB and shall be used, without conflicting with system standard, in accordance with the manufacturer's instructions.

Sprinkler heads shall be approved to UL 1626 or DD 252 until DD 252 is withdrawn and replaced by BS 9252 and sprinkler heads approved to BS 9252 become available, at which time only sprinkler heads approved to BS 9252 will be acceptable.

2.16 Technical Data

The Firm shall:

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- maintain current technical data, including specifications, fitting, commissioning and service/maintenance instructions from all manufacturers of specialist fire protection equipment installed or serviced.
- make this information readily available to all necessary personnel, especially field operations staff.
- maintain computer software packages for hydraulic calculations to the version compliant with the system standard in use.
- carry out and record standardisation checks for hydraulic calculation packages on each workstation, where terminals are independent of a central server.

2.17 Records

Records shall be retrievable and retained for at least 7 years.

2.18 Sprinkler Systems Inspection and Maintenance

The Firm shall provide an inspection and maintenance service to customers in accordance with the system standard. The results of such inspections shall be recorded and a copy provided to the building owner and/or occupier or agent.

The results of periodic flow tests shall be compared with the original system requirements and for compliance with the system standard.

In the event that test results are found to be inadequate, for example water pressure is below minimum system requirements, or there is a major non-compliance with the sprinkler protection, the Firm shall notify the building owner and/or occupier or agent within 7 days.

2.19 Emergency Service

The Firm will provide an effective 24-hour emergency service for customers to ensure that appropriate remedial action can be undertaken on site within 24 hours.

Service and maintenance engineers are to have access to a sufficient range of approved spare parts to resolve emergency call-out situations.

2.20 Annual Returns

The Firm is to provide to LPCB details of the numbers of sprinkler heads and alarm valves it has installed between 1 January to 31 December each year. Annual returns to be made by 31 July of each following year.

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APPENDIX A

Surveillance Audits

(a) LPCB Technical Surveillance Audits

Firms will be audited every six months for continued compliance with the requirements of this scheme document, the system standards and their general standards of design, installation, testing, commissioning and servicing.

Each surveillance audit will address 2 distinct areas:

1. Compliance with the relevant individual clauses of LPS 1301
All clauses of the standard, identified on the planning matrix, will be audited over a 12 month continuous rolling programme.
2. Compliance with technical standard (and specification) applicable to individual contracts
The Firm shall arrange for the LPCB to inspect not less than one completed sprinkler contract, selected by the LPCB, against the system standard and design and layout drawings, at each surveillance audit.

(b) Audit findings

Where an audit has identified non-compliances with the scheme requirements or system standard, they will be documented by the assessor as non-compliance reports (NCR) or observation reports (Obs). Written evidence is to be provided by the Firm, in an agreed time-scale, of completion of the necessary corrective/preventative measures.

(c) Surveillance Audit Frequency - Unsatisfactory Performance

Where the LPCB technical surveillance audit reveals significant non-compliances, additional surveillance visits may be required until the matters of concern have been satisfactorily resolved. See paragraph (d) below for Non-Compliances Policy.

Some examples of the areas that may cause an increase in the frequency of audits would be:

- Design standards falling below acceptable levels
- Breaches of management systems procedures
- Poor execution of site work resulting in complaints to LPCB

When written complaints with supporting evidence are received by LPCB concerning the execution of any installation contract within the LPS 1301 scheme, and there is a prima facie case, then they will be investigated. Such complaints will be drawn to the attention of the listed installing Firm who will be expected to take reasonable action to resolve the complaint. Should the Firm fail to take reasonable action to resolve the complaint, their LPS 1301 approval may be suspended or withdrawn. Firms will also be liable for reasonable costs incurred by LPCB investigating complaints, if found to be at fault.

(d) Non-Compliances Policy

Approval of Firms is conditional on their satisfactory initial assessment and continued technical audits by LPCB according to the requirements of the scheme.

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A Firm who incurs a small number of minor non-compliances at each LPCB visit and completes effective corrective and preventative actions in the required time will continue to be approved under the scheme. If a Firm fails to comply with the requirements of the scheme by incurring a large number of minor non-compliances and/or a major non-compliance, one or more of the following actions will be taken by LPCB:

- A special visit will be carried out on the Firm, normally within 30 days or at an agreed time after the non-compliances were raised, to verify that the necessary corrective actions have been completed. This visit will be at the cost of the Firm.
- If the necessary corrective actions are not completed within the agreed time, the Firm's certification will be suspended or withdrawn.

(e) Withdrawal of Approval

The conditions under which LPCB may suspend or withdraw approval are set out in BRE Global Limited Terms and Conditions, publication PN101.

A Firm may appeal against a decision by LPCB to suspend or withdraw approval using the procedure described in LPCB publication PN 100, Complaints and Appeals Procedure. During the appeal period, the approval remains suspended/withdrawn.

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GLOSSARY OF DEFINITIONS USED

Install

Install as referred to in this scheme document will be deemed to include the following responsibilities and activities, carried out by the Firm in respect of each sprinkler contract.

- a. The in-house day-to-day management and progressing of the contract including design, procurement, site erection, commissioning and hand-over, including co-ordination with the client, authorities having jurisdiction and other trades where applicable.
- b. Purchasing of equipment, materials and labour, and inspection and storage of equipment and materials.
- c. Control by the Firm of on-site erection teams, whether directly employed or sub-contracted by the Firm, and regular inspections of the work as it progresses on site, final inspection and testing, commissioning, service and maintenance.

Non-compliance

(a) Listed on LPS 1301 Certificates of Conformity

A departure from the system standard listed on the LPS 1301 Certificate of Conformity as a non-compliance. The definitions of minor and major are as follows:

Minor - A departure from the system standard that will not reduce the effectiveness of the sprinkler protection to control or extinguish a fire.

Major - A departure from the system standard that will significantly reduce the effectiveness of the sprinkler protection to control or extinguish a fire.

[Major non-compliances/departures are items such as, but not confined to, water supplies, areas to be protected, areas of sprinkler operation, fire separation, use of approved equipment, sprinkler spacing, densities of water discharge, sprinkler pressure, etc., which are not in accordance with the system or product standard as defined.]

Note – a number of minor non-compliances may when taken together constitute a major non-compliance.

If the Firm is unsure if a non-compliance is either minor or major, they should consult with LPCB before a commitment is made to issue an LPCB Certificate of Conformity.

(b) Raised during audits

Non-compliance (sometimes referred to as non-conformity) is used to cover instances where, either during assessment or surveillance audits, the Firm has not complied with the scheme requirements or the system standard. Definitions for minor and major non-compliance are described in LPCB quality document QP5-3.

(c) Observation notes

Are reports, which highlight areas where there is insufficient objective evidence to raise a non-conformity report, yet there appears to be the suggestion that, if left unattended, a situation

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could arise which could lead to a non-conformity. Observations are also used to highlight minor errors and omissions in areas and for items that do not materially affect the delivery of a conforming product. Objective evidence is not required to be sent to close out observations, however the reports will be reviewed at the next surveillance visit.

Sprinkler Contract

For the purposes of this document, Sprinkler Contract means a contract undertaken by a Firm to design, procure, fabricate, install and commission an alteration or extension to an existing sprinkler system or a new sprinkler system, and completed to the requirements of the system standard.

Sprinkler System

The entire means of providing sprinkler protection in the premises comprising the water supplies, control valves, downstream piping and sprinkler heads including any frost protection in accordance with the requirements of the system standard.

Sprinkler System Alteration

Modifications to an existing sprinkler system.

Sprinkler Systems Firm

A Company established and registered in the UK or Ireland whose principal business, or that of a properly established division of the company, is the design, installation and servicing of residential and domestic sprinkler systems.

Sprinkler System Extension

A sprinkler system extension comprises additional sprinkler protection connected to an existing sprinkler system.

Technical Staff

Personnel employed by the Firm who have the appropriate qualifications and experience for one or more of the functions of design, installation, commissioning, inspection and maintenance.

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PUBLICATIONS REFERRED TO:

BS 9251 :	Sprinkler systems for residential and domestic occupancies – code of practice
BS 9252 :	Components for residential sprinkler systems. Specification and test methods for residential sprinklers
DD 252: 2001:	Components for residential sprinkler systems – Specification and test methods for residential sprinklers.
GN01:	LPS 1301 Certificates of Conformity
PN100:	Complaints and Appeals Procedure
PN101:	Terms & Conditions
PN103:	Use of the BRE Global Mark
PN 112:	Notification of change of particulars
PN 160:	FPC Requirements for LPS 1301
QP5-3:	Non-conformities and observations
UL 1626:	Residential Sprinklers for Fire-Protection Service

For undated references please refer to the latest published issue.

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Amendments Issued Since Publication

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