

LOSS PREVENTION STANDARD

LPS®1048: Issue 6.1

Requirements for the approval of installers of sprinkler systems and firefighting mains in the UK and Ireland

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Participating Organisations

This standard was approved by the BRE Global Governing Body with input from the BRE Global Standing Panel and the LPS 1048 Advisory Panel. The following organisations participated in the preparation of this standard:-

Association for Specialist Fire Protection (ASFP)
Association of Insurance Surveyors
Heathrow plc
British Automatic Fire Sprinkler Association (BAFSA)
British Property Federation (BPF)
Chief Fire Officers' Association (CFOA)
Construction Industry Council (CIC)
Construction Products Association
Fire Industry Association (FIA)
Home Builders Federation (HBF)
Homes & Communities Agency
NHBC
RICS
Risktech Ltd
Sustainability + Architecture
Sustainable by Design

Revision of Loss Prevention Standards

Loss Prevention Standards (LPS's) 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 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.

Foreword

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

- 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 certification and listing, including agreement to rectify faults as appropriate;

The responsibility for ensuring compliance with the technical and managerial process and requirements for the product or service lies with the manufacturer, service provider or supplier.

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@bregroup.com.

BRE Global and LPCB (part of BRE Global) test, assess, certificate and list products and services within the fire and security sectors. For further information on our services please contact BRE Global, Watford, Herts. WD25 9XX or e-mail to enquiries@bregroup.com.

Certified products and services appear in the LPCB “List of Approved Products and Services” which may be viewed on our website: www.redbooklive.com.

1. Introduction

1.1 Benefits of the LPS 1048 scheme

Automatic sprinkler systems and firefighting mains are installed in industrial, storage, commercial, retail, 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 and firefighting main installers (hereinafter called Contractors) need an appropriate level of technical competency in design, installation, commissioning and servicing.

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

- Clients select Contractors.
- Ensure that sprinkler systems and firefighting mains 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 BRE Global Governing Body.

1.2 Technical Requirements

The technical requirements for industrial, storage, commercial and retail sprinkler systems are set out in EN 12845 and the LPC Rules for Automatic Sprinkler Installations.

The technical requirements for domestic and residential sprinkler systems are set out in BS 9251 and EN 16925.

The insurance requirements for multi-use buildings combining commercial and residential sprinkler systems are set out in LPC Rules for Automatic Sprinkler Installations TB 202.

The technical requirements for firefighting mains are set out in BS9990 and the associated BS sets.

A full list of all the acceptable installation standards is given in Appendix 1.

This document sets out the basis for approval of Contractors under this scheme including the levels of competence required for different categories of work. It also defines the circumstances under which Contractors require validation by LPCB.

Key terms are defined in the glossary.

1.3 LPCB Listing (including Provisional Approval)

All Contractors approved by LPCB to carry out the design, installation, commissioning and servicing of fire sprinkler systems and firefighting mains will be listed in the LPCB *List of Approved Fire and Security Products and Services* (Red Book), together with details of their approved scope. Provisional Approval will be granted to firms at Level 1 status with full supervision by LPCB. Level 1 firms will be listed once they have been issued the assessment report, following a successful assessment audit. Level 1 firms will have 12 months to gain full approval status.

2. Scope

2.1 Scope

A Contractor may be a specialist company in one or more of the following:

- the design, installation and commissioning of commercial and industrial fire sprinkler systems

- the design, installation, commissioning, and servicing of residential & domestic fire sprinkler systems
- the design, installation, commissioning, and servicing of firefighting mains

Servicing of commercial and industrial fire sprinkler systems is a supplementary scope that can be added to any of the design scopes for commercial and industrial sprinkler systems, it cannot be included without approved design capability.

Compliance with clauses 3.10 and 3.11 will only apply if the Contractor has been listed for servicing.

Servicing scope will not be provided if servicing is carried out by a separate legal entity to the LPS 1048 listed design and install company.

2.2 Scheme Structure

Contractors will be required to work within their LPS 1048 agreed scopes, application for additional scopes will be considered but only from level two onwards.

Contractors can be approved at different levels for each scope.

Where a contractor has achieved level 4 in one or more scopes, the listing will have level 3 grading for other existing non-self-certifying scopes.

If a contractor applies to undertake works within an additional scope this will be listed as Level 2 for the initial assessment period. Refer to assessment tables 2 and 3.

TABLE 1 – Scope and Level

| | | | | | | | | | | |
|---------------------|--|-----------------|------------------|-------------------------|------------------------|----------------------------------|-------------|-----------------------|------------|-----------------------|
| Level 4 | third party validation (LPCB) not included for self-certifying scope | | | | | | | | | |
| Level 3 | third party validation (LPCB) provided for non-self-certifying scope | | | | | | | | | |
| Level 2 | third party validation (LPCB) for significant works. Refer to GN 5 | | | | | | | | | |
| Level 1 | third party validation (LPCB) for all works ^① | | | | | | | | | |
| Scope | A | B | C | D | E | F | G | H | I | J |
| Project Type | R&D | FHC Non Storage | Pre-calc designs | Pre-calc Water supplies | Base Build & High Rise | FHC Water supplies – All systems | FHC Storage | Wet Risers & Hydrants | Dry Risers | Service & Maintenance |

^① Assessment level (1 year review period) all projects supervised.

Sample contract validation is required for continued approval at level 4. Inadequate performance shall lead to the removal of self-certification.

Progression from one approval level to the next higher level is by a combination of experience, assessment, review, and examinations. In order to ensure and develop competence, validation of work by LPCB may be required. Table 2 summarises the requirements for approval at each level and further details are given in section 3 of this scheme document.

2.3 Application and Assessment

This scheme is open to all contractors operating in the UK and Ireland.

Application forms are available from LPCB at the address above.

Contractors will enter the scheme with provisional approval at level 1, subject to meeting the appropriate requirements. Approval will be granted following successful assessment by LPCB. Successful contractors at this level will be expected to have demonstrated capability and competence within a period of 1 year.

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

Contractors at level 2 or 3 wishing to gain approval at a higher level for one or more scopes or to add additional scope to their approval must submit an application to LPCB, pay the appropriate fees, undergo an assessment and be issued with a new approval certificate and Red Book listing.

Where a Contractor carries out sprinkler or firefighting main works from more than one location, the requirements of Appendix 3 shall apply.

2.4 Use of the LPCB Marks

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

2.5 Change of Company Identity or Particulars

A Contractor's LPS 1048 approval is assigned to their legal entity, company registration number. The Contractor shall promptly notify the LPCB of any changes relating to their company identity, location and contact details, by completing and returning form BF 053 which can be downloaded from the BRE LPS 1048 extranet site.

LPS 1048 approval cannot normally be transferred to another legal entity. For more information refer to publication PN 159 Change in ownership.

2.6 Costs

All costs associated with LPS 1048 assessments, surveillance visits, special visits, supervision and certification are borne by the Contractor. Charges will be made in accordance with the LPCB schedule of fees current at the time.

3. Requirements

3.1 Installation Standards

Unless otherwise required by the Client, all sprinkler systems must be designed in accordance with the one of the installation standards listed in Appendix 1. Where the client's specification does not meet the minimum requirements of this scheme, the Contractor must not in any way claim or imply that the design or installation meets the requirements of this scheme and must not issue an LPS 1048 Certificate of Conformity. All contracts carried out for a scope shall be subject to the requirements of this LPS irrespective of the installation standard used, any agreed non-compliances to the standard or whether a LPS 1048 Certificate is issued or not.

3.2 Management System Requirements

In order to ensure that fire systems meet and continue to meet the requirements of this scheme, Contractors are required to maintain full control of their design, supply of materials, pre-fabrication of pipework, installation, commissioning, and servicing if undertaken, processes through a management system audited by LPCB.

LPS 1048 approved Contractors shall operate a management system that meets the requirements of LPCB Guidance Note GN11.

Level 1 Contractors shall gain management system certification to BS EN ISO 9001 from an IAF accredited certification body with a scope that includes the design, installation and commissioning of fire sprinkler systems and

/ or firefighting mains within 12 months from being awarded an LPS 1048 approval certificate. Additionally, servicing shall also be included in the scope if servicing is included in the Contractor's LPS 1048 approval.

Level 2 to 4 Contractors shall have management system certification to BS EN ISO 9001 from an IAF accredited certification body with a scope that includes the design, installation, and commissioning of fire sprinkler systems and / or firefighting mains. Additionally, servicing shall also be included in the scope if servicing is included in the Contractor's LPS 1048 approval.

If a Contractor does not have BS EN ISO 9001 certification with LPCB, LPCB will audit the Contractor's quality management system against the requirements of BRE Global Publication PN111 – Factory Production Control (FPC).

Full details of BRE Global BS EN ISO 9001 certification process are set out in publication SD003 'Management Systems'.

A Contractor's LPCB BS EN ISO 9001 or Factory Production Control certification shall match their LPS 1048 scope.

3.3 Contract Requirements

Contractors will have satisfactorily completed a minimum number of contracts in order to enable LPCB to carry out a full technical review and site inspection of a sample of these contracts. The minimum number and types of contract for each level are given below. For approval purposes, each contract must be assessed as satisfactory by LPCB against the requirements of this scheme.

Level 2

The Contractor shall complete to the satisfaction of the LPCB at level 1 a minimum of 2 installation contracts from their agreed scope and shall have the requisite LPCB qualified staff as specified in Table 5.

For Service scope the Contractor shall have completed to the satisfaction of the LPCB at level 1 a minimum of 2 annual service contracts and shall have the requisite LPCB qualified staff as specified in Table 5.

All significant installation works at this level will be validated as per table 1.

A three yearly review of performance will be carried out.

Level 3

In addition to the requirements of Level 2, the Contractor shall have completed further validated contracts as per table 2 and shall have the requisite LPCB qualified staff as specified in Table 5.

Table 2 Level 2 to level 3 satisfactory completed projects.

| Cat | Scope | Satisfactorily Completed projects at Level 2 |
|-----|-------------------------------------|--|
| A | R&D | 6 |
| B | FHC Non Storage | 6 |
| C | Pre-calc designs | 6 |
| D | Pre-calc Water supplies | 2 |
| E | Base Build & High Rise | 2 |
| F | FHC Water supplies – All systems | 2 |
| G | FHC Storage | 4 |
| H | Wet Risers & hydrants | 2 |
| I | Dry Risers | 6 |

All significant works at this level will be validated as per table 4.

A three yearly review of performance will be carried out.

Level 4

In addition to the requirements of Level 3, the Contractor shall have completed further validated contracts as per table 3 and shall have the requisite LPCB qualified staff as specified in Table 5.

A three yearly review of performance will be carried out.

Table 3 Self-certification project requirement

| Cat | Scope | Satisfactorily Completed projects at Level 3 |
|-----|----------------------------------|--|
| A | R&D | 4 |
| B | FHC Non Storage | 4 |
| C | Pre-calc designs | 4 |
| D | Pre-calc Water supplies | 2 |
| E | Base Build & High Rise | 2 |
| F | FHC Water supplies – All systems | 2 |
| G | FHC Storage | 2 |
| H | Wet Risers & hydrants | 4 |
| I | Dry Risers | 4 |

Category J does not qualify for self-certification status, highest level achievable is level 2 which will be assessed through audit as per table 7.

Where a contractor has achieved level 4 in one or more scopes, the listing will have level 3 grading for other existing non-self-certifying scopes.

If a contractor applies to undertake works an additional scope this will be listed as Level 2 for initial assessment period. Refer to assessment tables 2 and 3.

3.4 Validation

All contractors shall maintain a contract log F543.

All Contractors shall enter into a validation agreement (SUP.F5) with LPCB. Sample validation of all self-certification will be in accordance with Table 4. All Contractor's works without self-certification will be subject to validation.

The validation process will be carried out in accordance with LPCB validation procedure SUP.03. Table 4 gives details of the types of contracts that can be carried out and the validation requirements for each scope. LPCB Guidance Note GN5 gives details of which significant contracts require validation. Contractors with self-certification will be required to keep a log of projects they deem GN5 for review by the LPCB.

Companies with self-certification of a scope of works as detailed in table 1 shall enter all significant contracts on the LPCB Validation Portal. Each new project shall be added once the contract or letter of intent has been accepted by the LPCB scheme member.

The sampling process built into the logic of the Validation Portal will determine the contracts to be sampled at the rates as detailed in Table 4.

Where a company has shown significant process control and high installation standards in a scope of works over a year cycle the risk factor associated with table 4 sampling rates can be reduced at the LPCBs discretion, lowering the number of projects selected for verification in that scope.

Where a company has shown unacceptable process control and / or poor installation standards in a scope of works the risk factor associated with table 4 sampling rates will be increased by the LPCB, increasing the number of projects selected for verification in that scope.

Table 4 self-certification sampling rates at (normal) risk factor 2

| Cat | Scope | 3 Year cycle | | |
|-----|----------------------------------|--------------|-----|-----|
| | | 1 | 2 | 3 |
| A | R&D | 5% | 5% | 5% |
| B | FHC Non-storage | 5% | 5% | 5% |
| C | Pre-calc designs | 5% | 5% | 5% |
| D | Pre-calc Water supplies | 10% | 10% | 10% |
| E | Base Build & High Rise | 10% | 10% | 10% |
| F | FHC Water supplies – All systems | 10% | 10% | 10% |
| G | FHC Storage | 10% | 10% | 10% |
| H | Wet Risers & Hydrants | 10% | 10% | 10% |
| I | Dry Risers | 5% | 5% | 5% |

Risk factor 1 will reduce scope selection in table 4 by 25%

Risk factor 2 as per table 4 selection rates

Risk factor 3 will increase scope selection in table 4 by 100%

Risk factor 4 will increase scope selection in table 4 by 300%

Risk factor 5 will increase scope selection in table 4 by 500%

A company can have its self-certification for a scope removed by unacceptable process control and / or poor installation standards at any risk factor or anytime at the discretion of the LPCB.

Rounded to nearest whole number but a minimum of 1 project per agreed scope per year.

Should a company not undertake any work with in a self-certifying scope within the 3 year cycle the company will have the self-certification for that scope withdrawn.

Failure to enter all applicable contracts onto the Validation Portal may lead to self-certification being suspended or withdrawn or the contractor downgraded in level.

3.5 Personnel, Training and Competency

All personnel employed (directly or by sub-contract) must be able to demonstrate that they are fully trained and competent in the disciplines and skills appropriate to their role. Complete records of training and competence skills of personnel must be maintained, in particular:

- Design staff that carries out full hydraulic calculations must be fully trained in the use of in-house computer hydraulic calculation packages.
- All personnel engaged in the installation of pipework are expected to have been assessed for their competency by the installing company.

- All personnel engaged in the installation, testing and maintenance of specialist sprinkler equipment are expected to have been assessed for their competency by the installing company and where available attend the proprietary manufacturer's training.
- All personnel engaged in the maintenance of specialist equipment are expected to have been assessed for their competency by the company and where available attend the proprietary manufacturer's training.

Table 5 Competency requirements

| Cat | Scope | LPCB Competency Exam | Minimum number of LPCB qualified staff per scope | |
|-----|-------------------------------------|---|--|--------------------|
| | | | Full validation | Self-Certification |
| A | R&D | R&D Design R&D Site Inspection | 1 | 2 |
| B | FHC Non-storage | FHC non-storage Commercial Site Inspection | 1 | 2 |
| C | Pre-calc designs | Pre-calc design Commercial Site Inspection | 1 | 2 |
| D | Pre-calc Water supplies | Pre-calc Water supplies Commercial commissioning | 1 | 2 |
| E | Base Build & High Rise | Base Build & High Rise Commercial Site Inspection | 1 | 2 |
| F | FHC Water supplies – All systems | FHC Water supplies Commercial commissioning | 1 | 2 |
| G | FHC Storage / HH | FHC Storage Commercial Site Inspection e | 1 | 2 |
| H | Wet Risers & Hydrants | Dry, Wet Riser & Hydrant Design Dry, Wet Riser & Hydrant Inspection Dry, Wet Riser & Hydrant Commissioning | 1 | 2 |
| I | Dry Risers | Dry, Wet Riser & Hydrant Design Dry, Wet Riser & Hydrant Inspection Dry, Wet Riser & Hydrant Commissioning | 1 | 2 |
| J | Service & Maintenance | Service Theory Service Hazard Review | 1 | NA |

3.6 Competency Reviews

Depending on their approval in the scheme, the Contractor is expected to ensure that all designs and service reports are verified, all extensions, alterations, installations and systems are inspected and all testing and commissioning is carried out by LPCB qualified technical staff. The necessary qualifications are defined in LPCB Guidance Note GN13. The minimum number of LPCB qualified staff required is given in Table 5.

3.7 Sub-contracting

For design and install contracts carried out under the LPS 1048 scheme:

- Project management maybe sub-contracted but the person, or persons, responsible for the technical compliance and quality of the sprinkler and / or firefighting main system shall be directly employed by the Contractor.
- Designs may be sub-contracted providing they are checked by staff directly employed by the Contractor that has the appropriate LPCB qualifications.
- Installation work can be sub-contracted providing the sub-contractor is on the Contractor's approved suppliers/vendors list, and therefore undergo initial and periodic evaluation, and are adequately supervised by the Contractor to ensure that their work is of adequate quality and the work has been installed in accordance with the Contractor's design.
- Inspection shall be carried out only by staff directly employed by the Contractor that has the appropriate LPCB qualifications.
-
- Testing and commissioning, apart from pressure testing of pipework, and zone recommissioning, shall be carried out only by staff directly employed by Contractor that has the appropriate LPCB qualifications.

Where servicing is included in the Contractor's LPS 1048 scope:

- Service engineers can be directly employed by the Contractor or be sub-contractors.
- In either case, the Contractor shall maintain competency records of individual service engineers as required by LPCB Guidance Note GN12, unless the sub-contractor is another LPS 1048 approved Contractor that has servicing in their LPS 1048 scope.
- Whether the service work is carried out by staff directly employed by the Contractor, or by sub-contractors (even other LPS 1048 Contractors), the Contractor's service reports shall be used.
- Where specialist equipment and plant 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.

The Contractor shall be fully responsible for the work of their sub-contractors.

Purchase orders to suppliers for products or services shall include sufficient information to ensure that the product or service being ordered is fully specified, including approval requirements.

A Contractor cannot sub-contract design and install work that they are not allowed to undertake within their current scope in the LPS 1048 scheme.

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 1048 approved Contractor.

All work undertaken by sub-contractors is to be reviewed and verified by qualified staff directly employed by the Contractor to ensure that the requirements of the scheme are met. Records are to be maintained for all work sub-contracted.

3.8 Equipment

Where available, all specialist fire protection equipment used by the Contractor will be LPCB approved and procured directly from the manufacturer or his agent.

Training in the use and service of this equipment will be obtained from the manufacturer or his agent. All equipment will be used fully in accordance with manufacturer's instructions, its LPCB approval conditions, and the installation standard.

The Contractor should, where available, only use spare parts obtained from the manufacturers or their approved agents.

3.9 Data

The Contractor will:

- have access to current technical data, including specifications, installation, 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 installation standard in use and
- carry out and record standardisation checks for hydraulic calculation packages on each workstation, where terminals are independent of a central server.

3.10 Sprinkler Systems Inspection and Maintenance

In order for a Contractor to be listed for servicing, they must offer an inspection and maintenance service to customers fully in accordance with GN12 and the appropriate installation standards.

3.11 Emergency Service

The service approved Contractor 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.

3.12 Maintenance of Certification

Certification of the Contractor is maintained by regular audits by LPCB to ensure that the requirements of the scheme continue to be met (see Appendix 2 for further details).

TABLE 6: Audit requirements

| Highest Approval Level | Audit requirements | Issue of LPS 1048 certificate of conformity per level | Minimum ¹⁾ LPCB Surveillance audits (see Appendix 2(b) and Appendix 3) | | | | Certification review |
|------------------------|--------------------|---|---|-----------------|------------------------|-----------------------|-------------------------------|
| | | | Installation scopes | | Service Scope per year | | All |
| | | | Duration Days | Per year | Office visit days | Site Visit days | Duration per 3-year cycle end |
| 1 | Assessment audit | by LPCB | Assessment audit programme | | | | |
| 2 | Surveillance audit | by LPCB | 1 | 2 ²⁾ | $\frac{1}{2}\sqrt{n}$ | $\frac{1}{2}\sqrt{n}$ | 1 |
| 3 | Surveillance audit | by LPCB | 1 | 2 ²⁾ | $\frac{1}{2}\sqrt{n}$ | $\frac{1}{2}\sqrt{n}$ | 1 |
| 4 | Surveillance audit | by Contractor | 1 | 2 ²⁾ | $\frac{1}{2}\sqrt{n}$ | $\frac{1}{2}\sqrt{n}$ | 1 |

-
- 1) One project per scope required in 3-year period minimum. Additional time may be required. n = number of service engineers
- 2) Each established office of a multi-site contractor will be an additional day.

3.13 LPS 1048 Certificates of Conformity

An LPS 1048 Certificate of Conformity shall be issued for each extension, alteration, installation and system carried out in accordance with the LPS 1048 scheme requirements and Guidance Note GN4.

Certificates shall be completed in accordance with Guidance Note GN3.

3.14 Distribution of LPS 1048 Certificates of Conformity

LPS 1048 Certificates of Conformity will be issued to the following:

- The building owner/occupier
- LPCB

and, where appropriate, secured to the installation control valve assembly.

Where required and agreed by the Client, copies of the certificate may be issued to:

- Building control
- Fire brigade
- Insurance Company

In the case of multi-tenancy buildings:

- a. The facilities management department or
- b. The Centre Manager (for shopping centres)

Copies of the certificate are to be retained by:

- a. The Contractor
- b. LPCB

3.15 Annual Returns

The Contractor is to provide to LPCB details of the numbers of sprinkler heads and alarm valves it has installed between 1st January to 31st December each year. Annual returns shall be made by 30th April of each following year.

Appendix 1 – List of acceptable installation standards and publications referred to:

A1.1 Installations Standards

For the purpose of this scheme document, Installation Standard will mean, as appropriate, the current documents including the latest revisions of:

- a) LPC Rules for Automatic Sprinkler Installations.
- b) EN 12845 - Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance, using the applicable national version of the standard for the country where the contract is installed. LPC Technical Bulletin 201 shall be applied to all such contracts, but no other technical bulletins shall be used except for contracts intended to comply with Approved Document B where TB233 shall also apply.
- c) BS 9251 – Fire sprinkler systems for residential and domestic occupancies – Code of practice.
- d) EN16925 Fixed firefighting systems - Automatic residential sprinkler systems - Design, installation and maintenance, using the applicable national version of the standard for the country where the contract is installed.
- e) NFPA 13 (excluding 13D and 13R).
- f) FM Global Property Loss Prevention Data Sheets (excluding Residential Data sheets).
- g) BS 9990 British standard for non-automatic firefighting systems in buildings - Code of practice.

Note: Hybrid and individualised corporate or institutional specifications are not acceptable to LPCB for the purpose of certification.

If a Contractor wishes to certificate to another standard or set of installation standards, they should contact the LPCB.

A1.2 Publications

Standards

BS 9251 – Fire sprinkler systems and firefighting mains for residential and domestic occupancies – Code of practice
EN 16925 Fixed firefighting systems - Automatic residential sprinkler systems - Design, installation and maintenance
EN 12845 - Fixed firefighting systems – Automatic sprinkler systems – Design, installation and maintenance
LPC Rules for Automatic Sprinkler Installations, incorporating BS EN 12845.
BS 9990 British standard for non-automatic firefighting systems in buildings - Code of practice.
BS EN ISO 9001 Quality management systems – Requirements

Scheme documents

Management Systems - SD003

Publications

PN 100 Complaints and Appeals Procedure
PN 103 Use of Certification Marks
PN 111 Factory Production Control
PN 159 Change in ownership
TC212A BRE Terms and Conditions

Procedures

SUP.03 LPS 1048 Validation procedure for supervised Contractors

Guidance notes

GN2 FHC Contract Management Control Procedures
GN3 Certification of Contracts
GN4 Issue of LPS 1048 Certificates of Conformity
GN5 Validation requirements
GN10 Control of Departures
GN11 Quality management system requirements
GN12 Service and Maintenance Requirements
GN13 LPCB Exam Guidance
GN14 Application Process

Forms

ASI7 Annual Returns
BF668 Application form for new approval
F015 Application for Management Systems Certification and Listing
F360 Application for LPS 1048 Certification and Red Book Listing
F543 Contract Log (Online)
SUP.F5 Validation Agreement (pro forma)

Appendix 2 - Surveillance Audits

(a) LPCB Technical Surveillance Audits

Contractors will be audited regularly for continued compliance with the requirements of this scheme document, the installation standards and their general standards of design, installation, testing, commissioning and servicing, if applicable. The frequency and duration of the audits is dependent on the Contractor's approval level in the scheme as set out in Table 6.

Contract Log F543

The Contractor shall maintain the online Contract Log F543 from which LPCB will select the requisite number of contracts to review at each surveillance audit.

Each surveillance audit will address

1. Compliance with the relevant individual clauses of LPS 1048

All relevant clauses of the standard, identified on the planning matrix, will be audited over a 36 month continuous rolling programme.

2. Compliance with technical standard (and specification)

Applicable to individual contracts and control of deviations as demonstrated through the validation process.

Should a company not undertake any work within a self-certifying scope within the 3 year cycle the company will have the self-certification for that scope withdrawn.

(b) Sampling rates

Shall include as a minimum one completed contract per agreed scope in the 3 year cycle. Some validated contracts may also be sampled during surveillance audits.

Additional audit days may be required over and above the number specified in Table 6. These will be charged for in accordance with Fee Sheet P0027.

Service contracts:

The number of days allocated to review of service contracts will be equal to \sqrt{n} , where n is the number of service engineers used by the Contractor, rounded up or down to the nearest whole number but a minimum of 1 day. This time may be allocated to office and/or site reviews of service activities and documentation.

A sample of emergency callouts will also be reviewed.

(c) Audit findings

Where an audit has identified non-compliances with the scheme requirements or installation 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 Contractor, in an agreed time-scale, of completion of the necessary corrective/preventative measures.

(d) Surveillance Audit Frequency - Unsatisfactory Performance

Where an 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 (e) 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 and ISO 9001 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 contract within the LPS 1048 scheme and there is a prima facie case, then they will be investigated. Such complaints will be drawn to the attention of the Contractor. Contractors will be liable for reasonable costs incurred by LPCB investigating complaints.

(e) Non-Compliances Policy

Approval of Contractors is conditional on their satisfactory initial assessment, continued surveillance audits and 3 yearly recertification review by LPCB according to the requirements of the scheme.

A Contractor 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 Contractor fails to comply with the requirements of the scheme by incurring a large number of minor non-compliances and/or major non-compliance(s), one or more of the following actions will be taken by LPCB:

- A special visit will be carried out on the Contractor, 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 Contractor.
- Removal of self-certification
- Downgrading of approval level
- Withdrawal of scope
- Suspension or withdrawal of certification.

(f) Suspension or Withdrawal of Approval

The conditions under which LPCB may suspend or withdraw approval are set out in BRE Global Limited Terms and Conditions, publication TC212A.

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

Appendix 3 - Approval of Multisite Organisations

Established offices

Premises where project management and / or servicing is carried out will be classed as established offices.

Home workers or site establishments will not be classed as established offices.

Multisite organisation

An organisation that has more than one established office will be approved and listed in the LPS 1048 scheme as a multisite organisation and must adhere to the additional conditions set out in this appendix.

An organisation must have all its established offices approved and listed in the LPS 1048 scheme.

An organisation shall immediately notify LPCB of any changes to the number of established offices.

The organisation shall nominate one of its established offices as its head office.

Approval level and self-certification

Approval levels shall apply for the entire organisation. These will be the approval levels of the organisation's head office. Underperforming offices may be required to submit additional scopes for validation.

Red Book listing

There will be a single Red Book listing for the entire organisation, which will list all established offices along with details of the activities (design & install and/or servicing) carried out at each office.

Offices that undertake only design and/or sales activities will not be listed.

The head office will be the first office listed on the organisation's LPS 1048 approval certificate and in their Red Book listing.

Qualified staff

The Contractor shall have sufficient LPCB qualified staff to ensure that all designs are verified, all sites are inspected and all systems are tested & commissioned by LPCB qualified staff directly employed by the Contractor. LPCB qualified staff from any office in the organisation may be used.

The minimum qualified staff for the whole organisation shall not be less than that required as per table 5.

The Contractor shall provide to LPCB details of how they have determined how many LPCB qualified staff their organisation requires based on the geographic spread of work and anticipated workload.

Validation rates

Validation sample rates for each office will be as per table 4.

Auditing frequency and duration

Audits will be carried out at the head office and at other established offices at the auditor's discretion as per table 6.

If the only activity an established office undertakes is servicing, a minimum one day annual surveillance audit will be carried out.

Contract Log F543

Each established office that carries out project management shall maintain its own Contract Log listing the contracts run from that office.

Quality management system

The same quality management system shall be used throughout the organisation. Each established office shall meet the requirements of clause 3.2.

Contract records

All records (soft or hard copy) relating to a contract shall be available for review by LPCB at the office where the project management for that contract has been carried out, however where soft copies are available at an alternative established offices these may be reviewed at the auditor's discretion.

LPS 1048 Certificates of Conformity

LPS 1048 Certificates of Conformity shall be issued by the office that undertakes the project management for the contract where self-certification is applicable.

Unsatisfactory performance

An established office whose performance falls below the required standard, will be subject to increased surveillance audits and may have its self-certification withdrawn until the standard of its work reaches an acceptable level.

GLOSSARY OF DEFINITIONS USED

Base Build

There are usually two types of base build contract, shopping centres and multi-storey/high rise buildings. For shopping centres, the base build contract includes the provision of water supplies, trunk mains and main distribution pipes up to and including the zone valves, for future fit-out work, and sprinkler protection to the malls (if covered) and Landlord's areas. For multi-storey/high rise buildings, the base build contract includes the provision of the water supplies, trunk mains and main distribution pipes up to and including zone valves for each floor or floor section, for future fit-out work, and sprinkler protection to landing and amenity areas.

Contractor

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 and installation of sprinkler systems and /or firefighting mains and / or servicing.

Fully hydraulically calculated [FHC]

Term applied to an installation in which all the pipework is sized by hydraulic calculation.
[Definition taken from BS EN 12845 clause 3.29]

Firefighting mains

[Definition taken from BS 9990 clause 3.10]

- a. Fire main: Water supply pipe, fitted with an outlet and control valve at specified points, installed in a building for fire-fighting purposes.
- b. Dry fire main: Water supply pipe installed in a building for fire-fighting purposes, fitted with inlet connections at fire service access level and landing valves at specified points, which is normally dry but is capable of being charged with water usually by pumping from fire and rescue service appliances.
- c. Ring system fire main: Water main which encircles a building or series of buildings or other associated fire risks and which feeds fire hydrants, fire mains or other fire-fighting apparatus.
- d. Wet fire main: Water supply pipe installed in a building for fire-fighting purposes and permanently charged with water from a pressurized supply and fitted with landing valves at specified points.

Install

Install as referred to in this scheme document will be deemed to include the following responsibilities and activities, carried out by the Contractor in respect of each 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 contractors where applicable.
- b. Purchasing of equipment, materials and labour, and inspection and storage of equipment and materials.
- c. Control by the Contractor of on-site erection teams, whether directly employed or sub-contracted by the Contractor, and the progressive regular inspection of work, final inspection, testing and commissioning.

Installation Standards

See Appendix 1.

Installation (sprinkler installation)

Part of sprinkler system comprising a control valve set, the associated downstream pipes and sprinklers. [Definition taken from BS EN 12845 clause 3.34]

LPCB

Loss Prevention Certification Board, part of BRE Global Limited, is the brand name used by BRE Global for their fire and security testing and certification activities.

Non-compliance

(a) Listed on LPS 1048 Certificates of Conformity

A departure from the installation standard listed on the LPS 1048 Certificate of Conformity as a non - Compliance/departure. The definitions of minor and major are as follows:

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

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

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

If the Contractor is unsure if a non-compliance is either minor or major, they should consult with LPCB before a commitment is made to issue a 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 Contractor has not complied with the scheme requirements or the installation standard.

Pre-calculated

Term applied to an installation in which the pipes downstream of the design point(s) have been previously sized by hydraulic calculation. Tables of diameters are given. [Definition taken from BS EN 12845 clause 3.48]

Contract

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

Sprinkler System

The entire means of providing sprinkler protection in the premises comprising one or more sprinkler installations, the pipework to the installations and the water supply/supplies. [Definition taken from BS EN 12845: 2004: clause 3.71]. Does not include town mains external to the legal boundary of the premises, inland water courses such as lakes or canals and private reservoirs. Designed to one of the acceptable installation standards listed in Appendix 1.1.

Sprinkler System Alteration

Modifications to an existing sprinkler system or installation.

Sprinkler System Extension

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

Amendments to the publication

| DOCUMENT NO. | AMENDMENT DETAILS | INITIALS | DATE |
|--------------|--|----------|----------|
| 4.1 | <p>Amendments to clauses:</p> <ul style="list-style-type: none"> 1.2 1.3 2.1 3.2 3.4 3.5 3.7 3.9 3.10 3.13 <p>Appendix 1 Appendix 2 Glossary of definitions used</p> | CJA | May 2007 |
| 4.2 | <p>New front cover Title added to header Contents page moved to Page 1 Notes amended on Page 3 1.2 paragraph 6,7: content amended and moved to notes on page 3 1.3 paragraph 2:content amended and moved to notes on page 3 Table of amendments added to last page Repagination Change to copyright information Update to references to ISO standards</p> | SJP | Jan 2014 |
| 5.0 | <p>Scheme re-designated LPS 1048, was LPS 1048-1. LPS 1048-2 covering 3rd party supervising bodies withdrawn. Clause 1.1 – Competency revised to include commissioning and servicing. Clause 1.2 – Reference to LPC Rules (BS 5306-2) removed. Reference to LPC Rules TB14 removed for residential & domestic sprinkler systems. Clause 1.3 – Commissioning and servicing added. Clause 2.1 – Scope for LPS 1048 scheme introduced. Clause 2.2 – High hazard pre-calculated systems deleted, categories now A to E, was A to F. Clause 2.3 – Last paragraph add, reference to Appendix 3. Clause 2.5 – Clause re-written. Clause 3.2 – Requirement for LPCB to audit the Contractors management system clarified. Certification for servicing explained. Clause 3.3 – Reference to Table 2 qualified staff added. Level 3 approval requirements revised.</p> | EJM | Apr 2016 |

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|-----|---|-----|------------|
| | <p>Clause 3.4 – First paragraph revised now that 3rd party supervising bodies are no longer allowed. Supervision requirements for residential and domestic sprinkler systems added.</p> <p>Table 2 – Requirements for LPCB qualified staff clarified.</p> <p>Categories of work revised.</p> <p>Clause 3.6 – Completely revised.</p> <p>Clause 3.7 – Completely revised.</p> <p>Clause 3.10 – Completely revised.</p> <p>Clause 3.14 – Requirement of building owner to sign certificate removed.</p> <p>Clause 3.15 – Dates changed.</p> <p>Appendix A1.1 – BS 5306-2 removed.</p> <p>Term Life Safety removed and replaced by ADB and Annex F.</p> <p>Appendix A1.2 – Updated.</p> <p>Appendix 2(a) – Requirements for Contract Log F535 revised.</p> <p>Appendix 2(a) 2 – Sampling rate revised.</p> <p>Appendix 2(b) – Sampling rates added.</p> <p>Appendix 3 – Totally revised.</p> <p>Glossary of Definitions Used – BS EN 12845 clause references updated.</p> <p>Base Build definition revised.</p> <p>Definition for LPCB added.</p> <p>Definition for Life Safety removed as term no longer used in LPC Rules and BS EN 12845. Definition for Sprinkler System Contractor changed to Contractor.</p> <p>Definition for Technical Staff deleted as term no longer used.</p> | | |
| 5.1 | <p>Transferred to new template.</p> <p>PN100 superseded by XP107E</p> <p>Change of publication – New TC212A BRE Terms and Conditions</p> | SLG | 01/08/2024 |
| 6.0 | <p>LPS1048 scheme revised to EN 12845 draft update with all clauses reviewed and revised as necessary.</p> <p>Transferred to new template.</p> <p>Work scopes revised and additional scopes added to scheme.</p> <p>Scheme levels revised.</p> <p>Supervision terminology revised to verification.</p> <p>Verification scope widened to included level 4 companies on a sampling basis.</p> <p>Verification sampling risk factor included to increase or decrease sampling based on performance.</p> | DF | 24/03/2025 |
| 6.1 | <p>Clause 1.3 updated to add Provisional approval</p> <p>Clause 2.1 updated for Servicing</p> | DF | 29/08/2025 |