

## Loss Prevention Standard

LPS 1048: Issue 5.0

Requirements for the approval of sprinkler system contractors 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 will be revised by issue of revised editions or amendments. Details will be posted on our website at [www.redbooklive.com](http://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 27.)

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 / 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;

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@breglobal.co.uk](mailto:enquiries@breglobal.co.uk).

The BRE Trust, a registered charity, owns BRE and BRE Global. 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@breglobal.co.uk](mailto:enquiries@breglobal.co.uk).

Listed products and services appear in the LPCB “List of Approved Products and Services” which may be viewed on our website: [www.redbooklive.com](http://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).

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## INTRODUCTION

### 1.1 Benefits of the LPS 1048 scheme

Automatic sprinkler systems 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 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 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 BS EN 12845 and the LPCB Rules for Automatic Sprinkler Installations, incorporating BS EN 12845.

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

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 supervision by LPCB.

Key terms are defined in the glossary.

### 1.3 LPCB Listing

All Contractors approved by LPCB to carry out the design, installation, commissioning and servicing of fire sprinkler systems will be listed in the LPCB *List of Approved Fire and Security Products and Services* (Red Book), together with details of their approved scope.

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## 2. SCOPE

### 2.1 Scope

The base scope of the LPS 1048 scheme is the design, installation and commissioning of industrial & commercial fire sprinkler systems.

Additionally, a Contractor may add to the base scope the design, installation and commissioning of residential & domestic fire sprinkler systems and servicing. Note that a Contractor cannot be approved for just servicing and/or the design, installation and commissioning of residential and domestic fire sprinkler systems, they must also be approved for the design, installation and commissioning of industrial & commercial fire sprinkler systems (base scope).

Servicing will only be added if the Contractor uses competent staff and can offer a complete service package fully in accordance with the LPC Sprinkler Rules and LPCB Guidance Note GN12 and has servicing included in their BS EN ISO 9001 certification scope. 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

Four levels of approval are available as shown in Table 1 below.

**TABLE 1 – Industrial & commercial fire sprinkler systems**

Category of Work		Approval level			
		1	2	3	4
<b>A</b>	Pre-calculated ordinary hazard systems, installations, extensions and alterations (excluding water supplies)	ü•	ü ,	ü ,	ü f
<b>B</b>	Town's main water supplies	ü •	ü ,	ü ,	ü f
<b>C</b>	Pumped water supplies	ü •	ü ,	ü ,	ü f
<b>D</b>	Base build contracts (pre-calculated design principles)	X	ü ,	ü ,	ü f
<b>E</b>	Systems, installations, extension and alterations involving FHC design principles	X	X	ü •	ü f

**ü •** - Allowed to undertake this Category of Work under supervision.

**ü ,** - Allowed to undertake this Category of Work, supervision may be required depending on whether the Contractor has been granted self-certification for this Category of Work.

**ü f** - Allowed to undertake this Category of Work, Contractor can self-certificate this Category of Work.

**X** - Not allowed to tender for or undertake this Category of Work.

For approval details for a particular Contractor refer to [www.redbooklive.com](http://www.redbooklive.com).

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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, supervision 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 may enter the scheme at any level, subject to meeting the appropriate requirements. Approval will be granted following successful assessment by LPCB.

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 wishing to gain approval at a higher level in the scheme, or to self-certify additional Categories of Work, 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 work 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.

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### 3. REQUIREMENTS FOR APPROVAL OF ALL CONTRACTORS

#### 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.

#### 3.2 Management System Requirements

In order to ensure that automatic fire sprinkler 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 sprinkler 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 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. Additionally, servicing shall also be included in the scope if servicing is included in the Contractor's LPS 1048 approval.

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 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.

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'.

If a Contractor's LPS 1048 scope does not include servicing, their LPCB BS EN ISO 9001 certification or Factory Production Control approval scope cannot include the servicing of fire sprinkler systems. In any case, a Contractor cannot be listed for servicing unless they carry it out.

#### 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.

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### **Level 1**

The Contractor shall have a minimum of 2 completed supervised pre-calculated sprinkler contracts and shall have the requisite LPCB qualified staff as specified in Table 2.

### **Level 2**

In addition to the requirements of Level 1, the Contractor shall have a further 8 completed supervised pre-calculated sprinkler contracts and shall have the requisite LPCB qualified staff as specified in Table 2.

At least one supervised sprinkler contract with town's main water supplies, one with pumped water supplies and one base build contract must be satisfactorily completed before the firm can self-certificate these specific types of contracts. (This condition may have been partially satisfied at Level 1.)

Contractors may gain approval at Level 2 even if they cannot demonstrate their capability to undertake the full range of designs allowed under this level. The Contractor will be allowed to self-certificate work that they can prove their capability to undertake, but other work allowed under Level 2 must be fully supervised and their engineers must meet the qualification requirements of Table 2 by passing the relevant LPCB Competence Reviews.

### **Level 3**

In addition to the requirements of Level 2, the Contractor's management system shall meet the requirements of LPCB Guidance Note GN2 and the Contractor shall have the requisite LPCB qualified staff as specified in Table 2.

### **Level 4**

In addition to the requirements of Level 3, the Contractor shall have the requisite LPCB qualified staff as specified in Table 2 and had the following contracts supervised:

- 4 high hazard classification (\*)
- 4 with superior or duplicate water supplies (\*)
- 4 using fully hydraulically calculated design principles supervised by LPCB of which a minimum of two contracts must include intermediate in-rack protection (\*)

(\*) A minimum of 2 contracts of each type should be designed by currently employed designers. If this is not possible due to staff changes then evidence will be required that they have been replaced by other suitably qualified and experienced designers that meet the requirements of Table 2.

## **3.4 Supervision**

Level 1-3 Contractors may, depending on their approval, require supervision of their design and install contracts by LPCB. Contractors subject to supervision shall enter into a supervision agreement (SUP.F5) with LPCB.

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The supervision process will be carried out in accordance with LPCB supervision procedure SUP.03. Table 2 gives details of the types of contracts that can be carried out and the supervision requirements for each approval level. LPCB Guidance Note GN5 gives details of which contracts require supervision.

A Contractor that requires supervision shall maintain a Supervision Tracking Log BF663.

Where a contract comprises work that requires supervision and work that the Contractor can self-certificate, the complete contract must be fully supervised.

Contractors with no self-certification that are approved within the LPS 1048 scheme for residential and domestic fire sprinkler systems, shall have these types of systems supervised by LPCB in accordance with LPCB Guidance Note GN5.

### **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.

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**TABLE 2**

Approval Level	Allowed to tender for and undertake the following Categories of Work	Supervision and issue of LPS 1048 Certificate of Conformity	Minimum number of LPCB qualified staff		Required qualifications (LPCB Competence Reviews)	Minimum LPCB Surveillance audits (see Appendix 2(b) and Appendix 3)			
			Supervised	Self-Certification		Supervised		Self-certification	
						Duration <sup>(2)</sup>	Per year	Duration <sup>(2)</sup>	Per year
1	A-C	Supervision by LPCB.	1	2	Basic Design	½	2	N/A	N/A
2	A-D	At least one supervised sprinkler contract with town's main water supplies, one with pumped water supplies and one Base Build contract must be satisfactorily completed (as assessed by LPCB) before the Contractor can self-certify these specific types of contracts. Supervision by LPCB may not be required, depending on the level of self-certification granted.	1 1 0	2 2 2	Basic Design Intermediate Design Inspection <sup>(1)</sup>	½	2	1	3
3	All	At least one supervised sprinkler contract with town's main water supplies, one with pumped water supplies and one Base Build contract must be satisfactorily completed (as assessed by LPCB) before the Contractor can self-certify these specific types of contracts. Supervision by LPCB may not be required, depending on the level of self-certification granted. All FHC contracts are to be supervised.	1 1 1 0	2 2 2 2	Basic Design Intermediate Design FHC Design Inspection <sup>(1)</sup>	½	2	1	3
4	All	Supervision is not required, issue of LPS 1048 Certificates of Conformity by Contractor.	2 2 2 2	2 2 2 2	Basic Design Intermediate Design FHC Design Inspection	N/A	N/A	2	2
		<b><u>Issue of LPS 1048 Certificate of Conformity</u></b> When a contract is supervised, the LPS 1048 Certificate of Conformity will be issued by LPCB. If the Contractor has been granted self-certification, the LPS 1048 Certificate of Conformity is to be issued by the Contractor.			(1) Required for self-certification of Category C and above work	(2) Duration is in days			

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### 3.6 Competency Reviews

Depending on their approval in the scheme, the Contractor is expected to ensure that all designs are verified, all extensions, alterations, installations and systems are inspected and all testing and commissioning is carried out by LPCB qualified technical staff. The minimum number of LPCB qualified staff required is given in Table 2. The scope of LPCB Competence Reviews is as follows:

<b>Qualification:</b>	<b>Covers:</b>
Basic Design Review	Pre-calculated work including water supplies
Intermediate Design Review	Base build designs
FHC Design Review	Full hydraulically calculated designs
Inspection Review (Module 1)	Inspection of contracts involving pre-calculated and FHC designs
Inspection Review (Module 2)	Testing and commissioning of contracts involving pre-calculated and FHC designs
Service Inspection	Review of Hazard

Competence Reviews examinations are operated by LPCB. Syllabuses, Marking Regimes, Programmes and Marking Summaries can be found on the BRE LPS 1048 extranet site.

### 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 protection/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 protection 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, shall be carried out only by staff directly employed by Contractor that has the appropriate LPCB qualifications.

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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 GN11, unless the sub-contractor is another LPS 1048 approved Contractor that has servicing in their LPS 1048 scope.
- If service work is sub-contracted to another LPS 1048 approved Contractor that does not have servicing included in their LPS 1048 scope, competency records of individual service engineers is required.
- 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 for industrial & commercial sprinkler protection/systems that they are not allowed to undertake at their current approval level 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.

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### 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 standard.

### 3.11 Emergency Service

The 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).

### 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.

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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 1<sup>st</sup> January to 31<sup>st</sup> December each year. Annual returns shall be made by 30<sup>th</sup> April of each following year.

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

**A1.1 Installation 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, incorporating BS EN 12845 - Fixed fire fighting systems – Automatic sprinkler systems – Design, installation and maintenance, with LPC Technical Bulletins that are in force at the time, or
- b) For sprinkler systems intended to comply with Approved Document B (ADB) and Annex F of BS EN 12845, these can be designed to BS EN 12845 and LPC Technical Bulletins 201 and 233, providing no other technical bulletins are used to carry out the design, or
- c) BS 9251 - Sprinkler systems for residential and domestic occupancies – Code of practice, or
- d) NFPA 13 (excluding 13D and 13R), or
- e) FM Global Property Loss Prevention Data Sheets (excluding Residential Data sheets).

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.

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## **A1.2 Publications**

### Standards

BS 9251 - Sprinkler systems for residential and domestic occupancies – Code of practice  
BS EN 12845 - Fixed fire fighting systems – Automatic sprinkler systems – Design, installation and maintenance  
BS EN ISO 9001 Quality management systems – Requirements  
LPC Rules for Automatic Sprinkler Installations, incorporating BS EN 12845, and all Technical Bulletins

### Scheme documents

Management Systems - SD003

### Publications

PN 100 Complaints and Appeals Procedure  
PN 101 BRE Global Terms and Conditions for Listing and Certification  
PN 103 Use of Certification Marks  
PN 111 Factory Production Control  
PN 159 Change in ownership

### Procedures

SUP.03 LPS 1048 Supervision procedure for supervised Contractors

### Guidance notes

GN3 Completion of LPS 1048 Certificates of Conformity  
GN4 Issue of LPS 1048 Certificates of Conformity  
GN5 Supervision requirements  
GN10 Control of Departures  
GN11 Quality management system requirements  
GN12 Service and Maintenance Requirements

### Forms

ASI7 Annual Returns  
BF663 Supervision Tracking Log  
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  
SUP.F5 Supervision Agreement (pro forma)

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## **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 and if they are supervised, as set out in Table 2.

#### Contract Log F543

The Contractor shall maintain a Contract Log F543 from which LPCB will select the requisite number of contracts to sample at each surveillance audit in accordance with item 2 and (b) below. Where a Contractor's LPS 1048 approval does not include residential & domestic fire sprinkler systems, these types of contracts should not be listed on their log. Service contracts and contracts involving only remedial work with no design work should not be included on the log.

Each surveillance audit will address 2 distinct areas:

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 12 month continuous rolling programme.

2. Compliance with technical standard (and specification) applicable to individual contracts

The Contractor shall arrange for the LPCB to inspect the requisite number of completed sprinkler contracts, selected by LPCB, against the installation standard, design and layout drawings, at each surveillance audit.

Should a Contractor not have completed sufficient contracts to enable LPCB to sample the minimum number of contracts as detailed above for two successive surveillance visits (no more than a period of 12 months), their LPS 1048 approval may be adjusted or withdrawn.

### **(b) Sampling rates**

Contracts designed to LPC Rules, BS EN 12845 and BS 9251, if residential and domestic sprinkler systems are included in the Contractors LPS 1048 approval scope:

The minimum number of un-supervised design and install contracts sampled during surveillance audits shall be 10% of contracts involving systems, which includes Base Build and FHC designs, and 5% of contracts involving extensions/alterations with 10 sprinkler heads or more, or as specified in Table 3, whichever is the greater. The number of contracts to be sampled will be determined from the Contractor's Contract Log F543. The rates will be rounded up or down to the nearest whole number.

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Table 3

Approval level	Minimum no. of un-supervised contracts to be sampled per annum
2	3
3	3
4	4

Depending on the number of design and install contracts designed to the LPC Rules, BS EN 12845 and BS 9251, if residential and domestic sprinkler systems are included in the Contractors LPS 1048 approval scope, carried out by the Contractor, additional audit days may be required over and above the number specified in Table 2. These will be charged for in accordance with Fee Sheet P0027.

Some supervised contract will also be sampled during surveillance audits.

Service contracts:

The number of service contracts sampled per annum will be  $\sqrt{n}$ , where n is the number of service engineers used by the Contractor, rounded up or down to the nearest whole number.

10% of emergency call-outs will also be sampled.

**(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 (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 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 installation contract within the LPS 1048 scheme, or service contract, if servicing is included in the Contractor's LPS 1048 scope, and there is a prima facie case, then they will be investigated. Such complaints will be drawn to the attention of the

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Contractor. Contractors will be liable for reasonable costs incurred by LPCB investigating complaints, if found to be at fault.

**(e) Non-Compliances Policy**

Approval of Contractors is conditional on their satisfactory initial assessment and continued technical audits 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.
- If the necessary corrective actions are not completed within the agreed time, the Contractor's certification will be suspended or withdrawn.

**(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 PN101.

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.

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### Appendix 3 – Approval of Multisite Organisations

#### Established offices

Table 4 below sets out the criteria for established offices.

Table 4

Activities				Established office
Sales	Design	Project management of design and install contracts	Servicing	
Y or N	Y or N	N	N	No
Y or N	Y or N	Y		Yes
Y or N	Y or N		Y	Yes

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

There will be a single approval level and level of self-certification for the entire organisation. This will be the approval level and level of self-certification of the organisation's head office.

#### 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.

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### 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 for a Level 4 company.

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.

### Sampling rates

The minimum number of un-supervised design and install contracts designed to the LPC Rules, BS EN 12845 and BS 9251, if approval for residential & domestic sprinkler systems is included in the Contractor's LPS 1048 scope, sampled during surveillance audits shall be 10% of systems, which includes Base Build and FHC designs, and 5% of extensions/alterations with 10 sprinkler heads or more, or as specified in Table 5, whichever is the greater. The number of contracts to be sampled will be determined from the Contractor's Contract Log F543.

Table 5

Approval level	Minimum no. of un-supervised contracts to be sampled
2	3
3	3
4	4

If some categories of work are supervised, some supervised contract will also be sampled during surveillance audits.

### Auditing frequency and duration

The minimum frequency and duration of surveillance audits carried out to the Contractor's head office will be as specified in Table 2. The frequency of surveillance audits carried out to other established offices will be in accordance with Table 2 and the duration of surveillance audits will be determined by LPCB and will be based on the number of design and install and service contracts carried out at each established office.

If the only activity an established office undertakes is servicing, a 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.

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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.

LPS 1048 Certificates of Conformity

LPS 1048 Certificates of Conformity shall be issued by the office that undertakes the project management for the contract.

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.

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## **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 servicing, if undertaken.

### **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]

### **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 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 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 and testing, commissioning, service and maintenance.

### **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]

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## **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]

## **Sprinkler Contract**

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

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### **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.

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Amendments Issued Since Publication

DOCUMENT NO.	AMENDMENT DETAILS	SIGNATURE	DATE
LPS 1048-4.1	Amendments to clauses: 1.2 1.3 2.1 3.2 3.4 3.5 3.7 3.9 3.10 3.13 Appendix 1 Appendix 2 Glossary of definitions used	CJA	05/07
LPS 1048-4.2	1. New front cover 2. Title added to header 3. Contents page moved to Page 1 4. Notes amended on Page 3 5. 1.2 paragraph 6,7: content amended and moved to notes on page 3 6. 1.3 paragraph 2:content amended and moved to notes on page 3 7. Table of amendments added to last page 8. Repagination 9. Change to copyright information 10. Update to references to ISO standards	SJP	Jan.2014
LPS 1048-5.0	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	EJM	April 2016

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DOCUMENT NO.	AMENDMENT DETAILS	SIGNATURE	DATE
	<p>staff added. Level 3 approval requirements revised.</p> <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. 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. 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. Base Build definition revised. Definition for LPCB added. 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. Definition for Technical Staff deleted as term no longer used.</p>		