

## Loss Prevention Standard

### LPS 1148: Issue 1.1

Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems

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Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 1 of 25

<b>CONTENTS</b>	<b>Page</b>
<b>PARTICIPATING ORGANISATIONS</b>	2
<b>REVISION OF LOSS PREVENTION STANDARDS</b>	2
<b>FOREWORD</b>	3
<b>1 INTRODUCTION</b>	
1.1 Benefits of the LPS 1148 scheme	4
1.2 Technical Requirements	4
1.3 LPCB Listing	4
<b>2 SCOPE</b>	
2.1 Scheme Structure	5
2.2 Application and Assessment	6
2.3 Use of the LPCB Marks	6
2.4 Change of Company Identity and Particulars	6
<b>3 REQUIREMENTS FOR APPROVAL OF ALL CONTRACTORS</b>	
3.1 Installation Standards	7
3.2 Management System Requirements	7
3.3 Contract Requirements	7
3.4 Supervision	11
3.5 Personnel, Training and Competency	11
3.6 Competency Reviews	12
3.7 Sub-contracting	12
3.8 Equipment	12
3.9 Technical Data	13
3.10 Sprinkler Systems Inspection and Maintenance	13
3.11 Emergency Service	13
3.12 Maintenance of Certification	13
3.13 LPS 1148 Certificates of Conformity	13
3.14 Distribution of LPS 1148 Certificates of Conformity	14
<b>Appendix 1 – List of acceptable installation standards and publications referred to</b>	
A1.1 Installation Standards	15
A1.2 Publications	16
<b>Appendix 2 – Surveillance Audits</b>	17
<b>Appendix 3 – Approval of Multisite Organisations</b>	19
<b>GLOSSARY OF DEFINITIONS USED</b>	23
<b>Table of amendments issued since publication</b>	26

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 2 of 25

## **PARTICIPATING ORGANISATIONS**

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

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

## **REVISION OF LOSS PREVENTION STANDARDS**

Loss Prevention Standards (LPSs) 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 25)

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 LPSs should ensure that they possess the latest issue and all amendments.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 3 of 25

## 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).

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 4 of 25

## 1 INTRODUCTION

### 1.1 Benefits of the LPS 1148 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 both design and installation.

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

- Clients select 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 the LPC (Fire & Security) Board.

### 1.2 Technical Requirements

The technical requirements for sprinkler systems are set out in organisational and national standards. For sprinkler systems to be eligible for certification under the LPS 1148 scheme, only installation standards listed in Appendix 1 are acceptable. Should an LPS 1148 approved Contractor wish to certificate to other installation standards, they should contact the LPCB prior to making any commitment to issue a certificate.

This document sets out the basis for approval of Contractors under this scheme including the levels of competence required for different classes of contract. It also defines the circumstances under which Contractors require supervision provided by an approved and listed Supervising body.

Key terms are defined in the glossary.

### 1.3 LPCB Listing

All Contractors approved by the LPCB to carry out the design, installation, commissioning and servicing of automatic sprinkler systems will be listed in the LPCB "List of approved products and services", together with details of their approval level and self-certification.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 5 of 25

## 2. SCOPE

The scope of the LPS 1148 scheme is the design, installation, commissioning and servicing of automatic sprinkler systems.

### 2.1 Scheme Structure

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

TABLE 1

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

- ✓ ① - Allowed to undertake this Category of Work under supervision.
- ✓ ② - 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.
- ✓ ③ - 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).

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 a third party 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.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 6 of 25

## 2.2 Application and Assessment

This scheme is open to all Contractors operating anywhere in the World except the UK & Ireland and The Netherlands where LPCB operates different schemes for installers of automatic sprinkler systems.

Application forms F360A are available from the LPCB at [enquiries@breglobal.co.uk](mailto:enquiries@breglobal.co.uk) or by telephoning +44 (0) 1923 664100.

Contractors may enter the scheme at any level, subject to meeting the appropriate requirements. Approval will be granted following successful assessment by the 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 form BF688 to LPCB, pay the appropriate fees and undergo an assessment.

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

## 2.3 Use of LPCB Marks

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

## 2.4 Change of Company Identity or Particulars

The Contractor should promptly notify the LPCB of any changes relating to their compliance with this scheme. Where the change involves a change of company identity, legal entity, company registration or location, the Contractor shall notify LPCB by completing form BF053. For a change in ownership, detail can be found in publication PN 159. Changes to qualified staff shall also be promptly notified to LPCB.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 7 of 25

### **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 1148 Certificate of Conformity.

#### **3.2 Management System Requirements**

In order to ensure that Automatic Sprinkler Installations 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 maintenance processes through a management system audited by LPCB.

If the Contractor requires LPCB ISO 9001 certification and listing, the management system will be audited against the requirements of ISO 9001 and Guidance Note GN11. However, if the Contractor does not require LPCB ISO 9001 certification and listing, they will be audited against the requirements of LPCB Publication PN111 – Generic Factory Production Control Requirement, and Guidance Note GN11.

Contractors applying for Level 1 approval shall have a fully documented and operational quality management system meeting the requirements of ISO 9001 and GN11. To maintain LPS 1148 approval, they shall obtain LPCB certification for their quality management system within 12 months from issue of an LPS 1148 approval certificate.

Full details of our ISO 9001 certification process are set out in publication SD003 'Quality Management System Certification Scheme'.

The duration and frequency of the Management System audit visits is typically one day twice per year. However, the actual frequency and duration depends on a number of factors including size of company and scope of activities.

#### **3.3 Contract Requirements**

Contractors will have satisfactorily completed a minimum number of projects or contracts in order to enable LPCB to carry out a full technical review and site inspection of a sample of these contracts. The minimum numbers 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.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 8 of 25

### **Level 1**

A minimum of 2 completed supervised pre-calculated sprinkler contracts.

### **Level 2**

In addition to the requirements of Level 1, a further 8 completed supervised pre-calculated sprinkler contracts.

At least one supervised sprinkler contract with high hazard protection, one with town's main water supplies, one with pumped water supplies and one base build contract must be satisfactorily completed before the Contractor 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 competence reviews.

### **Level 3**

In addition to the requirements of Level 2, a minimum of 2 completed supervised FHC sprinkler contracts.

### **Level 4**

In addition to the requirements of Level 3 the following contracts are required:

- 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 designers that meet the requirements of Table 2.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 9 of 25

**TABLE 2**

Approval Level	Allowed to undertake the following Categories of Work	Supervision and issue of LPS 1148 Certificate of Conformity	Minimum number of technical staff		Qualifications (LPCB Competence Reviews)	LPCB Surveillance audits			
			Supervised	Self-cert		Supervised		Self-cert	
						Duration <sup>(2)</sup>	Per year	Duration <sup>(2)</sup>	Per year
1	A-D	Supervision by LPCB Supervisory Service or Supervising Body.	1	N/A	Basic Design	½	2	N/A	N/A
2	A-E	At least one supervised sprinkler contract with high hazard protection, one with town's main water supplies, one with pumped water supplies and one Base Build must be satisfactorily completed (as assessed by LPCB) before the Contractor can self-certificate these specific types of contracts. Supervision by LPCB Supervisory Service or Supervising Body 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 high hazard protection, one with town's main water supplies, one with pumped water supplies and one Base Build must be satisfactorily completed (as assessed by LPCB) before the Contractor can self-certificate these specific types of contracts. Supervision by LPCB Supervisory Service or Supervising Body 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 not required, issue of LPS 1148 Certificate 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>Issue of LPS 1148 Certificate of Conformity</b> When a contract is supervised, the LPS 1148 Certificate of Conformity will be issued by the LPCB Supervisory Service or the Supervising Body. If the Contractor has been granted self-certification, the LPS 1148 Certificate of Conformity is to be issued by the Contractor.							

<sup>(1)</sup> Required for self-certification of Category C and above work

<sup>(2)</sup> Duration is in days

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 10 of 25

### 3.4 Supervision

Approval to Levels 1-3 requires third party supervision where specified and the Contractor is required to enter into a supervision agreement (SUP.F5) with one or more Supervising Bodies and/or the LPCB Supervisory Service (refer to Table 2).

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. Guidance note GN5/LPS 1148 gives details of which contracts require supervision.

A Contractor that requires supervision shall maintain an Installer 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.

### 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 carry 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.

### Design verification and validation

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

#### Qualification:

Basic Design Review  
Intermediate Design Review  
FHC Design Review  
Inspection Review

#### Covers:

Pre-calculated work including water supplies  
Base build designs  
Full hydraulically calculated designs  
Inspection, testing and commissioning of contracts involving pre-calculated and FHC designs

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 11 of 25

### **3.6 Competency Reviews**

The competence review process, together with its associated examination formats, examination questions, model answers and marking regime are overseen by an LPCB examination panel.

Should engineers require sprinkler training, this can be arranged by BRE.

### **3.7 Sub-contracting**

A Contractor cannot sub-contract work that they are not allowed to undertake at their current approval level in the LPS 1148 scheme.

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

Where sub-contractors are used:

- The quality of their designs, materials, equipment or workmanship is to be to the same standard as that of the LPS 1148 approved Contractor.
- Service and maintenance activities will be carried out by directly employed personnel, or be sub-contracted to other LPS 1148 approved Contractors. 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.
- All work undertaken by such 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.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 12 of 25

### **3.9 Technical 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.
- 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**

The Contractor will offer an inspection and maintenance service to customers in accordance with the appropriate installation standard and Guidance Note GN12.

### **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 1148 Certificates of Conformity**

An LPS 1148 Certificate of Conformity shall be issued for each extension, alteration, installation and system carried out in accordance with the LPS 1148 scheme requirements and Guidance Note GN4.

Where a Contractor has been given self-certification, i.e. they can issue LPCB LPS 1148 Certificates of Conformity on behalf of LPCB without needing to have the contract supervised by LPCB, the Contractor can only issue certificates for sprinkler work installed in the country of residence as detailed in their Red Book listing. For systems installed outside the country of domicile, in order for sprinkler work to be certificated it must be supervised by LPCB.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 13 of 25

### **3.14 Distribution of LPS 1148 Certificates of Conformity**

LPS 1148 Certificates of Conformity will be issued to the following:

- The building owner/occupier (requiring their representative's signature)
- 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. The Supervising Body / LPCB Supervisory Service

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 14 of 25

**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) EN 12845, or
- b) LPC Rules for Automatic Sprinkler Installations, incorporating BS EN 12845, or
- c) BS 9251 - Sprinkler systems for residential and domestic occupancies – Code of practice, or
- d) NFPA 13, or
- e) FM Global Property Loss Prevention 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.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 15 of 25

## A1.2 Publications

### Standards

EN 12845 - Fixed fire fighting systems – Automatic sprinkler systems – Design, installation and maintenance

LPC Rules for Automatic Sprinkler Installations, incorporating BS EN 12845, and all Technical Bulletins

BS 9251 - Sprinkler systems for residential and domestic occupancies – Code of practice

ISO 9001 - Quality management systems – Requirements

NFPA 13 – Installation of Sprinkler Systems

FM Global Property Loss Prevention Data Sheets

### Scheme documents

Quality Management Systems Certification Scheme - 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 Generic Factory Production Control Requirements

PN 159 Change in ownership

### Procedures

QP5-3 Non-conformities and observations

SUP.03 LPS 1148 Supervision procedure for supervised Contractors

### Guidance Notes

GN3 Completion of LPS 1148 Certificates of Conformity

GN4 Issue of LPS 1148 Certificates of Conformity

GN5 Supervision requirements

GN10 Control of Departures

GN11 Quality management system requirements

GN12 Service and Maintenance Requirements

### Forms

BF663 Supervision Tracking Log

BF668 Application form for new approval

F015 Application for Management Systems Certification and Red Book Listing

F360A Application for LPS 1148 Certification and Red Book Listing

F543 Contract Log

SUP.F5 Supervision Agreement (pro forma)

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 16 of 25

## 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. The frequency and duration of the audits are dependent on the level in the scheme and whether supervision is provided by a Supervising Body or by the LPCB Supervision Service and are set out in Table 2.

The Contractor shall maintain a Contract Log F543 from which the LPCB will select the requisite number of contracts to sample at each surveillance audit in accordance with item 2 below.

Each surveillance audit will address 2 distinct areas:

1. Compliance with the relevant individual clauses of LPS 1148

All relevant clauses of the standard, identified on the planning matrix, will be audited over an 18 month continuous rolling programme.

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

Level 1 to 3 Contractors:

The Contractor shall arrange for the LPCB to inspect at least one completed sprinkler contract, selected by the LPCB, against the installation standard and design and layout drawings, at each surveillance audit.

Level 4 Contractors:

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

Should a Contractor not have completed sufficient contracts to enable the 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 1148 approval may be withdrawn.

### (b) 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 installer, in an agreed time-scale, of completion of the necessary corrective/preventative measures.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 17 of 25

**(c) Surveillance Audit Frequency - Unsatisfactory Performance**

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

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

- Design standards falling below acceptable levels
- Breaches of management systems and ISO 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 LPS1148 scheme, and there is a prima facie case, then they will be investigated. Such complaints will be drawn to the attention of the listed installing Contractor and where involved the Supervising Body. Contractors will be liable for reasonable costs incurred by LPCB investigating complaints, if found to be at fault.

**(d) 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.

**(e) Suspension or Withdrawal of Approval**

The conditions under which LPCB may suspend or withdraw approval are set out in BRE Certification 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.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 18 of 25

## **Appendix 3 – Approval of Multisite Organisations**

### **Introduction**

The following procedure shall only apply to organisations that have more than one site approved in the LPS 1148 scheme and that meet the criteria set out in the entry criteria below, in addition to the appropriate requirements in other parts of the LPS 1148 scheme document.

### **Application**

Organisations that wish to be approved to this procedure shall complete and submit an application form to LPCB and pay the appropriate fee.

### **Entry criteria**

An organisation shall meet the following criteria to be eligible for consideration under this procedure.

It shall:

1. All sites shall belong to the same legal entity and be based in the same country.
2. Have all sites undertaking sprinkler systems installation and/or servicing approved in the LPS 1148 scheme.
3. Have a minimum of two approved sites in the LPS 1148 scheme.
4. The organisation shall have the requisite number of qualified staff to ensure that all designs are verified and all sites are validated by qualified staff.
5. Have quality management system certification from LPCB complying with ISO 9001 and LPCB Guidance Note GN11 for all sites approved in the LPS 1148 scheme as a multisite organisation in accordance with ISO/IEC Guide 62, Annex 3. The same methods and procedures shall be used at all sites for the design, design verification, supply, pipe fabrication, installation, site inspection, testing and commissioning and servicing of fire sprinkler systems to ensure that all contracts are carried out in a consistent manner. The methods and procedures shall ensure conformity to the contract specification and installation standard. The quality management system must ensure that only appropriately trained and experienced personnel carry out functions that affect the quality and compliance of sprinkler systems.
6. Nominate one of its sites as the central office, at which quality and technical matters are planned, controlled and managed. The central office shall have the necessary processes and records to effectively monitor the compliance of all sites, and have the necessary authority to enforce close out of non-compliances within agreed timescales.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 19 of 25

7. Nominate a responsible person, or persons, with adequate authority, to act as a representative(s) of the whole organisation in all matters relating to the LPS 1148 scheme. The representative(s) shall be responsible for ensuring that the organisation takes effective corrective action to close out non-compliances raised during LPS 1148 audits within the agreed timescales.

**IMPORTANT NOTE** - The organisation shall understand that all its sites will be treated as a single organisation and that if due to the performance of one site, LPCB decide to suspend or withdraw LPS 1148 approval, this would result in the suspension or withdrawal of LPS 1148 approval for the whole organisation.

### **Surveillance programme**

The interval between surveillance audits to each site will be 9 months, subject to the satisfactory performance of the organisation. The frequency may be adjusted depending on the performance of the individual sites. In no case will the interval for each site exceed 12 months.

The audit frequency will not be changed from the requirements of Appendix 2, section (a) 2, until a full audit programme has been carried out to all sites to confirm compliance with the requirements for multisite approval.

The sampling of all Categories of Work allowed at each site should be covered over a three year period.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 20 of 25

Clauses covered at central office and at each site carrying out installation and service contracts:

Clause	Description	Covered at	
		Central office (system requirements)	Sites (sampling jobs)
3.1	Installation Standards		✓
3.2	Management System Requirements	✓	
3.4	Supervision		✓
3.5	Personnel, Training and Competency	✓	✓
3.7	Sub-contracting		✓
3.8	Equipment		✓
3.9	Technical Data		✓
3.10	Sprinkler System Inspection and Maintenance		✓
3.11	Emergency Service		✓
3.13	LPS 1148 Certificates of Conformity		✓
3.14	Distribution of LPS 1148 Certificates of Conformity		✓
3.15	Annual Returns	✓	
Appendix 1	Design		✓
	Design verification		✓
	Site inspection		✓
	Testing & commissioning		✓

Note - If the central office also undertakes installation and/or servicing work, the appropriate clauses listed in column 4 of the table above will also be covered.

### Six-monthly meetings

At intervals of approximately six-months, there shall be a meeting, either at the LPCB offices in Garston or at one of the organisation sites, between the organisation's nominated representative(s) and the LPCB LPS 1148 Scheme Manager, to review the performance of the organisation in the LPS 1148 scheme during the previous period. A representative of the LPCB Quality department may also be present, if required. In the case of the first meeting, the review shall deal with the results of audits carried out from the time the multisite approval was granted.

At the meeting the organisation shall demonstrate that it has taken appropriate and effective corrective and preventive action to close out all non-conformance and observation reports issued during audits to sites carried out since the previous management meeting, or in the case of a first meeting, from when multisite approval was granted. When non-conformities are found at any individual site, either through the organisation's internal auditing or from LPCB audits, the organisation shall carry out an investigation to determine whether other sites may be affected. The organisation shall review the non-conformities to determine whether they indicate an overall system deficiency or not. If they are found to do so, corrective action should be performed both at the central office and at the individual sites. If they are found not to do so, the organisation shall demonstrate the justification for limiting its follow-up action.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 21 of 25

The meeting shall follow a set agenda to ensure that the meeting is structured and covers all necessary items. A review of Customer Complaints received by the organisation during the review period shall be carried out. An audit of the LPS 1148 system clauses will also be carried out. Records of the meeting shall be produced by LPCB and issued to the organisation. The records shall identify any actions required by the organisation or the LPCB.

A decision will be made by LPCB at the meeting whether the current audit frequency should be adjusted, up or down, depending on the performance of the organisation in the LPS 1148 scheme. The surveillance programme may vary for each site depending on its performance. It is expected that the meeting would last no more than half a day.

### **Approval Certificate**

A single LPS 1148 approval certificate will be issued to the organisation with the name and address of the central office and a list of LPS 1148 approved sites. The approval level of each office will be shown for each site.

### **Listing**

The listing of the organisation in the Red Book will follow a similar format to that of the approval certificate. Listing fees will be based on the current schedule of fees P0027 for multisite organisations.

### **Adding sites to the existing multisite approved organisations**

Prior to the LPS 1148 assessment, a new office of an existing LPS 1148 company, approved as a multisite organisation, shall be LPCB ISO 9001 certificated. In addition, the organisation shall provide confirmation that the requirements of GN11 have been fully addressed and the requisite records are available at the new office.

The assessment audit of the new office will consist of a review of records to ensure that the LPS 1148 scheme requirements have been met and sampling (design check and site inspection) of a number of contracts carried out by the new office. The number of contracts sampled will depend on the approval level being applied for by the new office.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 22 of 25

## **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 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 section/zone valves for each floor or floor section and sprinkler protection to landing and amenity areas.

### **Fully calculated**

Term applied to an installation in which all the pipework is sized by hydraulic calculation. [definition taken from EN 12845: 2004 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, and 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 EN 12845: 2004: clause 3.34]

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 23 of 25

### **Life safety systems**

Term applied to sprinkler systems forming an integral part of measures required for the protection of life. [definition taken from EN 12845: 2004: clause 3.39]

### **Non-compliance**

#### **(a) Listed on LPS 1148 Certificates of Conformity**

A departure from the installation standard listed on the LPS 1148 Certificate of Conformity as a non-compliance. 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. Definitions for minor and major non-compliance are described in QP5-3.

### **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 EN 12845: 2004: 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.

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 24 of 25

### **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 EN 12845: 2004 clause 3.72]. 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 Systems 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.

### **Sprinkler System Extension**

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

### **Technical Staff**

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

Issue 1.1	LOSS PREVENTION STANDARD	LPS 1148
Date Jan.2014	Requirements for contractors engaged in the design installation, commissioning and servicing of automatic sprinkler systems	Page 25 of 25

Amendments Issued Since Publication

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LPS 1148-1.1	<ol style="list-style-type: none"> <li>1. Changes to copyright information</li> <li>2. New front cover</li> <li>3. Title added to header</li> <li>4. Participating Organisations; Revision of Loss Prevention Standards &amp; Foreword added to Contents page</li> <li>5. Repagination</li> </ol>	DC	Jan. 2014