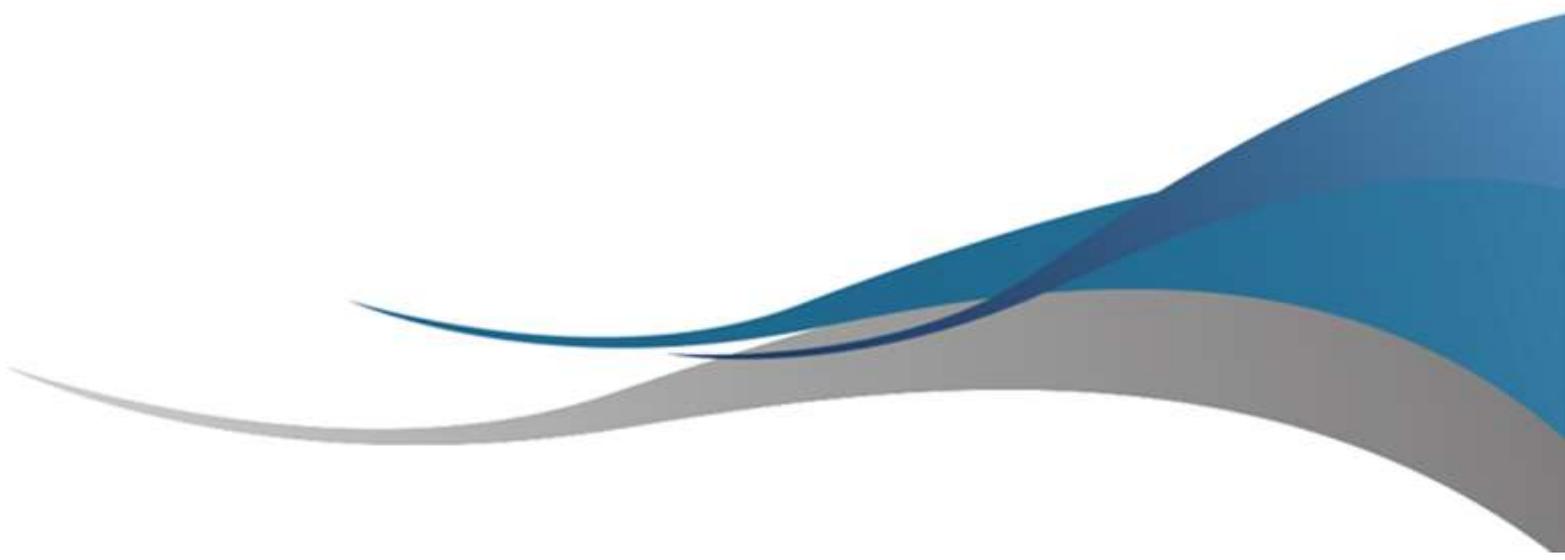


British Automatic Fire Sprinkler Association

**bafsa**

# Inspection and Commissioning of Commercial Fire Sprinkler Systems





# Inspection, Commissioning of Commercial Fire Sprinkler Systems

This course reflects the contents of  
The LPC Rules for Automatic Sprinkler Installations  
Inc BS EN 12845: 2015

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## Course objectives

This course relates to the Inspection, Commissioning of Commercial Fire Sprinkler Systems design in accordance with the LPC Rules inc BS EN 12845. However, in order to deliver the learning outcomes designed into the course, the course aim is to address the knowledge and skills required to determine the sprinkler design in relation to; the storage configurations, inspection of the system during and at the end of the installation, the commissioning of the system and an understanding of the required ongoing maintenance of the system.

The course is split into the following modules and specifically covers the following outcomes:

### Inspection, Commissioning and Maintenance of Commercial Fire Sprinkler systems

#### Inspection

- How to read and understand sprinkler drawings and what to look for.
- How to check basic storage configurations and their height relating to the design density.
- The importance of signage and documentation.
- How to inspect pumphouse configuration and approved components.
- How to inspect pumphouse configuration and components for High Rise buildings.
- How to inspect underground mains pipework and flushing valves.
- How to inspect an installation control valve configuration for wet & dry valves.
- How to inspect the zone valve configurations and components.
- How to inspect pipework configuration against the “as installed” Drawings.
- How to inspect bracket positions.
- How to inspect Drain and Flushing Valve locations.
- How to inspect sprinkler head positions.

#### Commissioning

- How to flush a sprinkler system at the incoming main.
- Understand the air pressure test requirements.
- Understand the hydrostatic pressure test requirements.
- How to carry out a trip test on a dry sprinkler system
- What to do when initially filling the sprinkler system.
- How to carry out a hydrostatic pressure test on a sprinkler system.
- How to compile a check sheet for the monitoring devices of a fire sprinkler system.

- Gain an understanding of how a pump initiation panel works and how to determine the cut in / cut out pressures.
- Understand how multistage pumps for high rise system.
- Gain an understanding of how a pump initiation panel works and how to determine the cut in / cut out pressures.
- Be able to carry out the pre / post checks on a diesel pump inc 6 Attempt Start.
- How to carry out a flow test on a pump set.
- How to carry out a flow test on a multistage pump set.
- Gain an understanding of what is required when commissioning a set of Wet Installation control valves.
- Gain an understanding of what is required when commissioning a set of Dry Installation control valves.
- Gain an understanding of what is required when commissioning a set of Pre-Action Installation control valves.
- How to carry out a bell test on a wet, dry and pre-action Installation control valve set.
- How to carry out the commissioning of zone valves.
- How to check the monitoring panel
- Final Sign off against the commissioning sheet.

#### Maintenance (theory only)

- The importance of maintenance and why you should inform the client of his duties during the handover of the system.
- Gain an understanding of what maintenance is required on a weekly basis.
- Gain an understanding of what maintenance is required on a Monthly basis.
- Gain an understanding of what maintenance is required on a Quarterly basis.
- Gain an understanding of what maintenance is required on a Six-Monthly basis.
- Gain an understanding of what maintenance is required on a Yearly basis.
- Gain an understanding of what maintenance is required on a 2 Yearly basis.
- Gain an understanding of what maintenance is required on a 3 yearly basis.
- Gain an understanding of what maintenance is required on a 5 yearly basis.
- Gain an understanding of what maintenance is required on a 10 yearly basis.
- Gain an understanding of what maintenance is required on a 25 yearly basis.

**It is important to note this section is only an understanding of what is required for ongoing maintenance and not the physical act of carrying out a maintenance.**

By the end of the course you will be able to demonstrate the course objectives which are to:

- Assess the storage configuration of the property does not overwhelm the sprinkler system design parameters.
- Gain an understanding of how to carry out a full inspection of a fire sprinkler system during and at the end of the installation of the project.
- Have a complete understanding of the commissioning process and be able to demonstrate that you can carry this out.
- Demonstrate an understanding of the need to carry out maintenance on a fire sprinkler system and what is required to be carried out over the period of 12 months.

## Structure

This training course is designed to provide an improvement in employment related skills through,

- Interactive / facilitated learning assessments.
- Participative exercises
- Test
- Self-delivered learning
- Submission of a video demonstrating a commissioning of a Sprinkler Pumphouse, Valveset and Monitoring System.

## Competence to Capability

It is intended that the learning outcomes designed in the course will enable you to become competent in,

- Identifying storage types and identifying potential issues with storage heights
- You will gain a basic understanding of categorisation of goods.
- Be able to identify different types of systems and their limitations.
- Reading drawings to inspect the installed system.
- Identifying issues with head spacing.
- Identify issues associated with types and locations of hangers.
- Identify signage and documentation requirements.
- Identify the pressure test requirements of different types of systems.
- Identify control settings and work out what is required.
- Understand the process of carrying out a bell test for both Wet, Dry and Pre-Action Systems.
- Understand the process of carrying out an end of line test on a dry system.
- How to work out the infill requirements of a reduced capacity tank.
- Understand the process of carrying out the flow test on a reduced capacity tank.
- Understand the process of carrying out the required pump cut in / out pressures.

- Understand the process of carrying out the required pump flow test.
- Understand the process of carrying out the required checks on the monitoring system.
- You will have the knowledge of what ongoing / post maintenance regimes are required for different types of fire sprinkler systems.

The above learning outcomes are all theory, these skills will need to be put into practice on building sites and when commissioning the sprinkler system.

The knowledge of the inspection and commissioning process with additional knowledge of what maintenance regimes are required post contract. With sufficient application of this knowledge, your skills and capability as a fire sprinkler engineer in commercial systems will develop, taking you to various levels of qualifications, i.e., team member, supervisor, designer or project manager.

With further training, the knowledge gained on this course could be transferable into the design of full commercial sprinkler systems.

Over the duration of the course, you will gain a general appreciation of auditing that, like any other acquired skill, requires practise. The best place to practise and extend your experience is carrying out inspections & commissioning under the guidance of a qualified and experienced member of the team.

**The course does not cover Health and safety and the candidate will need to have some basic Health and Safety training; you will need to get your SMSTS Card before applying for your CSCS Card .**

## Successful completion criteria

There are four independent elements in the assessment of delegates, each of which must be satisfied if the delegate is to successfully complete the course: -

- 100% attendance and completion of all elements of the course.
- Pass the continuous assessments of the attitude and performance of the delegate.
- Pass the exam at the end of the course.
- Submission of post course work submit a completed site inspection report, a video showing the carrying out testing of an electric / diesel pumpset, commissioning at an installation valveset and signal testing.

## Continuous Assessment Criteria

Criteria will include:-

- Punctuality in time keeping programming and full attendance.
- Participation in theory and discussion session including sharing of experience, questioning and feedback.
- Completing the assessments at the end of each section of the course.

## Course work

There will be a written test at the end of the 3<sup>rd</sup> day which the candidate will have a Achieve 70% pass rate.

Furthermore the candidate will have to submit a completed site inspection report, a video showing the carrying out testing of an electric / diesel pumpset, commissioning at an installation valveset and signal testing, this should be clear with an explanation on what the candidate is doing and why in the videos submitted.

## Section 1 (Day 1/2)

### Inspection

- How to read and understand sprinkler drawings and what to look for.
- How to check basic storage configurations and their height relating of the design density.
- The importance of signage and documentation.
- How to work out water supplies for tanks dependant on infill.
- How to inspect pumphouse configuration and components.
- How to inspect pumphouse configuration and components for High Rise buildings.
- How to inspect underground mains pipework and flushing valves.
- How to inspect an installation control valve configuration for wet, dry and pre-action valves.
- How to inspect the zone valve configurations and components.
- How to inspect pipework configuration against the “as installed” drawings.
- How to inspect bracket positions.
- How to inspect drain and flushing valve locations.
- How to inspect sprinkler head positions.

## Section 2 (Day 2)

### Commissioning

- How to carry out a test on the incoming main on a tank dependant on infill.
- How to flush a sprinkler system at the incoming main.
- How to carry out a hydrostatic pressure test on underground mains pipework.
- How to carry out an air test.
- How to carry out a trip test on a dry sprinkler system
- What to do when initially filling the sprinkler system.
- How to carry out a hydrostatic pressure test on a sprinkler system.
- How to compile a check sheet for the monitoring devices of a fire sprinkler system.
- Gain an understanding of how a pump initiation panel works and how to determine the cut in / cut out pressures.
- Understand how multistage pumps for high rise system work and how an pump initiation panel works and how to determine the cut in / cut out pressures.
- Be able to carry out the pre / post checks on a diesel pump inc 6 Attempt Start.
- How to carry out a fire in pump house test.
- How to carry out a flow test on a pump set.
- How to carry out a flow test on a multistage pump set.
- Gain an understanding of what is required when commissioning a set of Wet Installation control valves.
- Gain an understanding of what is required when commissioning a set of Dry Installation control valves.
- Gain an understanding of what is required when commissioning a set of Pre-Action Installation control valves.
- How to carry out a bell test on a wet, dry and pre-action Installation control valve set.
- How to carry out the commissioning of Zone Valves.
- How to check the monitoring panel
- Final Sign off against the commissioning sheet.

## Section 3 (Day 3 - AM)

### Maintenance

- The importance of maintenance and why you should inform the client of his duties during the handover of the system.
- Gain an understanding of what maintenance is required on a Weekly basis.
- Gain an understanding of what maintenance is required on a Monthly basis.
- Gain an understanding of what maintenance is required on a Quarterly basis.
- Gain an understanding of what maintenance is required on a Six-Monthly basis.
- Gain an understanding of what maintenance is required on a Yearly basis.
- Gain an understanding of what maintenance is required on a 2 Yearly basis.
- Gain an understanding of what maintenance is required on a 3 yearly basis.
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- Gain an understanding of what maintenance is required on a 10 yearly basis.
- Gain an understanding of what maintenance is required on a 25 yearly basis.

## Exam (Day 3 - PM)

The exam will mostly be multiple choice and cover all of the items delivered over the 3 days and will be set for a period of 2 hours.

You are allowed to have a copy of the LPC Rules Incorporating BSEN 12845 : 2015.

The book can be marked up with references and book marks, you are not allowed your notes or any worked examples during the test.

Calculator, pens Pencils etc...

## Post Course Video submission

To Demonstrate that you have taken on board what has been taught on the course we will require the following information submitted after the Exam.

1. A video of you commissioning a pump set with commentary on what you are doing
2. A video of you commissioning a wet or dry valveset with commentary on what you are doing
3. A video of you commissioning a Monitoring system with commentary on what you are doing
4. A copy of your final inspection / commissioning sheet