



This programme is delivered on behalf of BAFSA by The Fire Systems Academy.

Candidate Induction & Programme Guide

ABBE Level 5 Diploma in Classification & Pre-Calculated
Commercial Fire Sprinkler System Design (New Designer)

15-DAY VIRTUAL CLASSROOM, FOLLOWED BY FORMAL COURSEWORK, EXAM AND TECHNICAL INTERVIEW

This guide explains what your qualification involves, each piece of formal coursework you must submit, the deadlines that apply, how your work is assessed, and where to get help. Complete the details below and the declaration at the end.

Portal: <https://training.bafsa.org.uk>

Version: August 2026

Enrolment via: The British Automatic Fire Sprinkler Association

Read this guide before you begin. Section 4 sets out the deadline for every piece of coursework, and late submissions cannot be resubmitted.

1 Your details

Please complete the fields below. You can type directly into this document and save it.

Candidate name:

Company:

Course date attended:

2 Overview of your qualification

Qualification size and credit:

This course relates to the classification of sprinkler systems and the design of pre-calculated commercial fire sprinkler systems in accordance with the LPC Rules incl. BS EN 12845.

The size of the qualification can also be indicated by the terms award, certificate or diploma. These terms reflect the size of the qualification rather than its difficulty. The qualification levels indicate the complexity of the qualification.

Qualification size	What it indicates
Award	A small-sized qualification that has a TQT value of 120 hours or less.
Certificate	A medium-sized qualification that has a TQT value in the range of 121 to 369.
Diploma	A large-sized qualification that has a TQT value of 370 or more.

Course duration:

15 days (1 day per week) virtual classroom with coursework.

Followed by regular submission of formal course work, to be completed and uploaded within 18 months from the end of the virtual classroom.

3 Formal coursework

Formal Coursework 'A':

Prepare a 1500-to-1600-word essay outlining the steps in preparing a specification for a High School sprinkler system. The essay is to refer to the authorities to be engaged and the considerations to be included, with note to the relevant clauses of The LPC Rules incorporating BS EN 12845. This document must be uploaded in Microsoft Word.

Formal Coursework 'B':

- 1 Prepare an outline specification for a Multi-storey office block sprinkler system. The specification should detail the classification of each different area, in line with The LPC Rules incorporating BS EN 12845.
- 2 Prepare an outline specification for a 16-metre-high storage warehouse sprinkler system. The specification should detail the classification of each different area, in line with The LPC Rules incorporating BS EN 12845.

Formal Coursework 'C':

Space the sprinkler on the provided AutoCAD drawing.

Formal Coursework 'D':

Size the pipework on the provided 'Drawing D'.

This involves sizing the ranges, distribution and mains pipework downstream of the design points.

The pipework may need to be completed before any calculations are carried out.

Formal Coursework 'E':

Submit a pre-calculated sprinkler design incorporating an installation control valve, false ceiling protection, void protection and pressure loss calculations.

This must be a design carried out by yourself. It must be a full design that could be used to install an installation.

Formal Coursework 'F':

Submit a pre-calculated sprinkler design incorporating water supplies (including storage tank, electric and diesel pumps, below ground mains), installation control valve, sprinkler installation and pressure loss calculations.

PUMPHOUSE DESIGN

This must be a design carried out by yourself, incorporating a diesel and electric pumphouse. Prepackage pump houses are NOT permitted. The pumphouse must be completed by yourself.

Formal Coursework 'G':

Submit a P&ID for the previous design exercise, to include a pipework, electrical power and detailed monitoring schematic.

Formal Coursework 'H':

A technical interview will be carried out on one of the designs submitted. This will be by invitation once coursework F and G have been submitted and marked as passed.

Formal Coursework 'J':

Carry out an in-person exam under exam conditions, to be taken at either East Kilbride or the BRE offices in Garston.

The exam is split into 6 sections:

- Section 1 – Sprinkler Installation Design Principles.
- Section 2 – Sprinkler Head Types and Uses.
- Section 3 – Installation Control Valve Types and Uses.
- Section 4 – Sprinkler Head Spacing and Location.
- Section 5 – Pre-Calculated Method of Pipe Sizing.
- Section 6 – Water Supply Requirements.

For more details please refer to Annex 'A' of this document.

ASSESSMENT TIMESCALES

Your assessor requires 4 to 6 weeks to assess your work. Therefore we require your work to be uploaded in the timescales. If your submission is late you will not be given a chance to resubmit your work.

If you submit your work within the timescales, you will have 4 weeks to resubmit your work on the assessor's comments. You only get one chance to resubmit your work. If your work falls short of the minimal requirements you will need to retake the course.

4 Submission deadlines

Coursework	Deadline
'A' Essay	To be uploaded within 4 months of the start of the course.
'B' Specification	To be uploaded within 6 months of the start of the course.
'C' Head Spacing	To be uploaded within 8 months of the start of the course.
'D' Pipework Sizing	To be uploaded within 10 months of the start of the course.
'E' Design Submission	To be uploaded within 14 months of the start of the course.
'F' Design Submission	To be uploaded within 16 months of the start of the course.
'G' P&ID Drawing	To be uploaded within 16 months of the start of the course.
'H' Technical Interview	You shall be invited once the coursework is complete.
'J' Exam	To be uploaded within 24 months of the start of the course.

Exam resits are to be completed within 24 months of the start of the course. Resit results will be uploaded to your learning portal within 4 weeks of taking the exam.

Failure to submit the work within the timescales may affect your ability to successfully complete the course.

All evidence is to be provided within the timescales provided.

NO PARTIAL COMPLETION

No qualification certification can be awarded for partial completion.

5 What this qualification covers

- Classification of sprinkler systems in accordance with LPC Rules inc BS EN 12845.
- Design of sprinkler systems using pre-calculated methods.

The qualification consists of:

Unit	Title
Unit 1	Understanding Sprinkler Systems
Unit 2	System Classification
Unit 3	Sprinkler Head Spacing
Unit 4	Pipework Sizing
Unit 5	Water Supply Design

This course relates to the classification and design of pre-calculated fire sprinkler system's in accordance with the LPC Rules inc BS EN 12845. The course aim is to address the knowledge and skills required to classify and design a pre-calculated sprinkler system.

Successful completion of the programme will require:

- Attendance of at least 13 out of the 15 days during the virtual classroom.
- Completion of the 7off formal course work.
- Sit and pass the exam.
- Attend a technical interview, which will be recorded.

MISSED CLASSROOM DAYS

Note: candidates who miss any of the days from the virtual classroom will need to catch up in their own time. The classroom is not recorded. Only guidance can be given through the monthly 'open forums' that are available for 18 months from the start of the course.

6 Methods of assessment

Assessment is continuous and includes:

- Participation in the virtual classroom, course theory and discussion sessions, including sharing of experience, questioning and feedback.
- Completion of assessment at the end of each section of the course.
- The candidate will have to submit the formal coursework onto the BAFSA portal.
- Exam, as detailed in Annex 'A'.
- Carry out a technical interview.

Your tutor does not check your work. This is carried out by an independent assessor. One in every 5 assessments are verified by a second assessor, and on occasion we may have your work assessed by a third assessor if your submission is not clear.

You may not get feedback if you pass the minimal requirements. However, you will get feedback if you fall short of the minimal requirements.

We will endeavour to check your work as it is submitted. Your assessor will need between 4 and 6 weeks to check your work for each submission.

Therefore we require your work to be uploaded in the timescales. If your submission is late, you will not be given a chance to resubmit your work. If you submit your work on the above within the timescales, you will have 4 weeks to resubmit your work on the tutor's comments. You only get one chance to resubmit your work. If your work falls short of the minimal requirements you will need to retake the course.

7 Course pass criteria

- Attend 13 out of 15 days of the virtual classroom.
- Pass mark for the formal assessments: 70%.
- Pass the exam: 70%.
- Attend a technical interview.

Post-course video evidence is mandatory and must be uploaded via the BAFSA e-portal.

8 Role of the staff team

Role	Responsibilities
Course Manager – Alan Crichton	Oversees quality assurance. Issues deadlines. Manages certification approval.
Tutor	Delivers the in person course.
Assessor	Marks coursework. Provides feedback.
Centre Co-ordinator	Allocates the assessor. Will chase candidates who do not upload coursework in time.
Internal Verifier	Samples 20% of submissions. Ensures marking consistency.
BAFSA	Manages the e-portal and CRM system, providing a platform for evidence submission storage and recording training activity. Manages booking, enrolment, extension and course queries through the e-portal.

CONTACTING BAFSA

Please contact BAFSA using the 'Get in Touch' button on the home page of the e-portal with any query or request you may have concerning your programme.

Support and guidance:

Guidance from your tutor:

You will be invited to a monthly 'Open Forum' for 1 hour per month, where you can ask questions for technical queries and guidance. This will last for 18 months from the start of the course.

Guidance from your assessor:

Once your assessor has marked your work and provided feedback, contact can be arranged for any questions.

9 Enrolment and extensions

Enrolment:

You have enrolled on this course via BAFSA (British Automatic Fire Sprinkler Association).

Your course is delivered and assessed by The Fire Systems Academy, a BAFSA Preferred Provider. BAFSA does not have any active part in the delivery of assessment.

Who do you contact if you need a programme extension?

Extensions to programmes are considered on an individual basis. Your training activity and record will be considered along with your request. Please contact BAFSA using the 'Get in Touch' button on the home page of the e-portal with your request.

FINAL DECISIONS ON EXTENSIONS

Your Course Manager and Assessor will be involved in any final decision. You will be notified in writing of any change agreed to your programme end date.

Progress reviews (monthly):

- A monthly reminder email will be provided.
- Candidates must demonstrate progress by meeting the post course work submission dates.
- Extension requests must be submitted via the BAFSA e-portal at least 4 weeks before the deadline.

10 The BAFSA e-learning portal

The BAFSA e-learning portal (<https://training.bafsa.org.uk/>) is an online platform for training, qualification, and CPD (Continuing Professional Development) in fire sprinkler systems. It provides both members and non-members with access to interactive, industry-specific courses, including free awareness training and paid, accredited qualifications, that can be completed at the learner's own pace.

Key features and details include:

- **Accessibility:** the portal is available 24/7, with content designed for individuals working in the industry or seeking to enter it.
- **Registration:** users must register individually with a personal email address to access content.
- **Support:** the platform serves as a hub for tutors and candidates to manage their learning journeys.

How do I access the e-learning portal?

<https://training.bafsa.org.uk/home.aspx>

What if I forget my password?

Contact BAFSA using the 'Get in Touch' button on the e-portal home page. A new password will be generated and sent to you.

British Automatic Fire Sprinkler Association
bafsa CPD MEMBER The CPD Certification Service

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Basket (0)

Register / Login

Login / Register

Login Register

You must be logged in to access courses. Please login using your account details below:

Email Address:

Password:

Forgotten your password?

Login

DOWNLOAD OUR USER GUIDE - CLICK HERE

REGISTRATION:

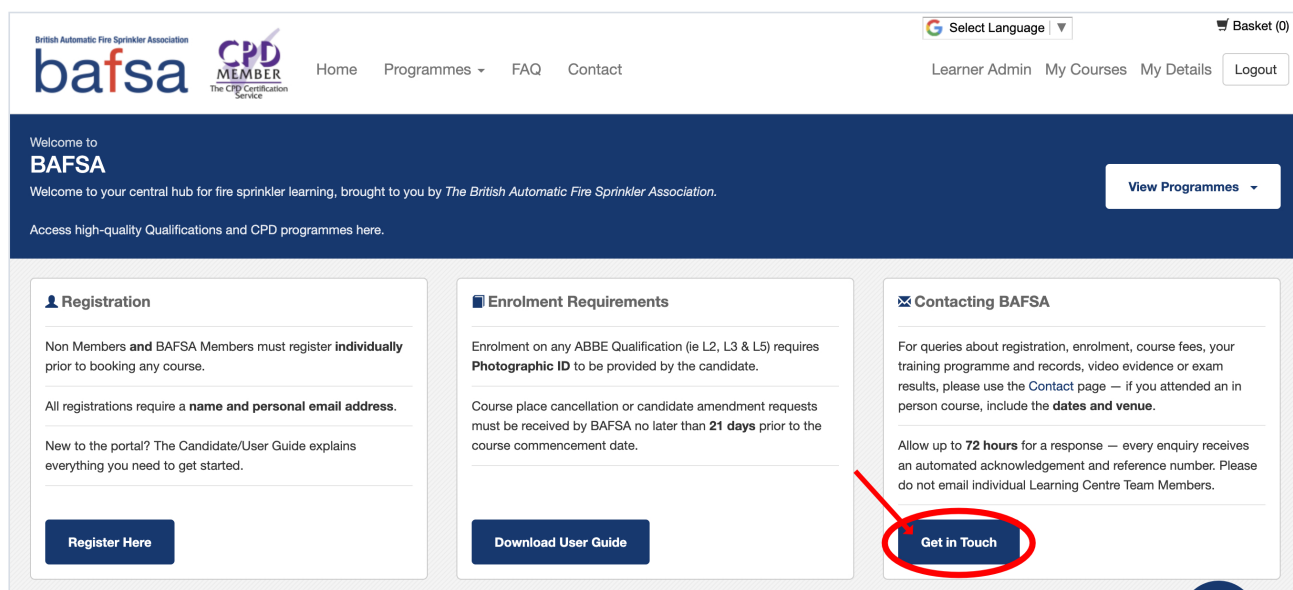
- Complete all areas of this online registration form - candidates must prove they meet relevant entry requirements for each course.
- Each candidate **MUST** be registered individually.
- Each candidate **MUST** provide a personal email address
- Candidates need their own login details and individual portal accounts. These cannot be shared
- Multiple bookings purchasers **MUST** still register all candidates individually.
- Upon successful registration, individual

Login page. The 'Forgotten your password?' link sits directly beneath the password field.

11 Getting help and finding your way around

If you are stuck and need technical assistance:

If you have worked through this guide and are still stuck, or you need technical assistance with the portal, please get in touch with BAFSA rather than contacting individual Learning Centre team members. Use the 'Get in Touch' button on the home page of the e-portal. Every enquiry generates an automated acknowledgement and a reference number, and you should allow up to 72 hours for a response.



Get in Touch. The button sits in the Contacting BAFSA panel on the e-portal home page.

Guidance on how to use the learning portal to upload your course work:

The BAFSA Portal User Guide explains how to register, enrol, navigate your courses and upload your course work. You can download it at any time using the 'Download User Guide' button on the home page of the e-portal.

British Automatic Fire Sprinkler Association
bafsa CPD MEMBER The CPD Certification Service

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Welcome to
BAFSA
Welcome to your central hub for fire sprinkler learning, brought to you by *The British Automatic Fire Sprinkler Association*.
Access high-quality Qualifications and CPD programmes here.

Registration

Non Members **and** BAFSA Members must register **individually** prior to booking any course.

All registrations require a **name and personal email address**.

New to the portal? The Candidate/User Guide explains everything you need to get started.

[Register Here](#)

Enrolment Requirements

Enrolment on any ABBE Qualification (ie L2, L3 & L5) requires **Photographic ID** to be provided by the candidate.

Course place cancellation or candidate amendment requests must be received by BAFSA no later than **21 days** prior to the course commencement date.

[Download User Guide](#)

Contacting BAFSA

For queries about registration, enrolment, course fees, your training programme and records, video evidence or exam results, please use the **Contact** page — if you attended an in person course, include the **dates and venue**.

Allow up to **72 hours** for a response — every enquiry receives an automated acknowledgement and reference number. Please do not email individual Learning Centre Team Members.

[Get in Touch](#)

Download User Guide. The button sits in the Enrolment Requirements panel on the e-portal home page.

12 What you need for the course

Your course book and workbooks:

You will receive a link to an electronic workbook, provided as part of the course.

HARD COPIES

If you would prefer a hard copy, these can be purchased through The Fire Systems Academy's shop:
<https://www.firesystemsacademy.co.uk/product-category/workbooks/>

If any materials are missing, notify the administrator immediately.

Material you require for the course:

You must have access to:

- LPC Rules inc BS EN 12845.
- Up to date LPC Technical Bulletins.
- A good internet connection.
- A quiet space to learn.
- A scientific calculator (not an iPhone).

Computer programmes required to complete the course:

You must have:

- Microsoft Word or equivalent.
- Excel or equivalent.
- AutoCAD or drawing program.
- Web cam, which must be on at all times during the virtual classroom.
- Stable internet connection (minimum recommended 10 Mbps).

13 Assessment arrangements, feedback and complaints

Individual assessment arrangements:

If you require additional time, accessibility adjustments, an alternative submission format, or technical assistance, you must notify the Centre Co-ordinator as early as possible. Reasonable adjustments will be applied where appropriate.

Methods of assessment we will use:

- Your course work will be assessed by your allocated assessor.
- Written feedback will be issued via the BAFSA e-portal.
- If elements are below standard, only failed sections require resubmission.
- Resubmission deadline: 4 weeks from feedback.
- Further reassessment beyond this may require re-enrolment.

Opportunity for you to provide feedback:

Candidates may provide feedback at course completion, during the submission period, or following certification, by email or via the BAFSA Course Evaluation Questionnaire issued automatically following course completion.

Making a complaint and assessment appeals:

The Fire Systems Academy and BAFSA have written individual Complaints and Appeals Policies.

- 1** In the first instance you must talk with your Course Manager, Alan Crichton. Early discussion is advised.
- 2** If you need to raise a formal complaint, you must follow The Fire Systems Academy Complaints and Appeals Policy or the BAFSA Complaints and Appeals Policy, available from the BAFSA e-portal.

The Fire Systems Academy's policies can be issued on request.

14 Authenticity, copyright and your data

Ensuring the authenticity of your work and malpractice procedures:

You must confirm that all submitted work is your own.

PROHIBITED

- Using coursework completed by others.
- Using companies' standard pump house or containerised pumphouse drawings.
- Using AI to generate answers.
- Recording virtual classroom sessions.
- Copying course workbook content.

Malpractice may result in a fail outcome, removal from programme, employer notification, or certification withdrawal.

Course materials and copyright:

I also understand that the workbook shall not be copied at any point. All course materials are copyright protected.

- Workbook may not be copied or distributed.
- Virtual classroom may not be recorded.
- Screenshots may not be taken.
- Materials may not be shared with third parties.
- Breach may result in removal from course and potential legal action.

Any online courses may be recorded at any time by BAFSA or The Fire Systems Academy.

Data management including General Data Protection Regulations (GDPR):

- All personal data is stored securely and retained for 3 years (assessment records) on the BAFSA e-portal.
- Technical interview videos are retained for 12 months.
- Data is processed in accordance with UK GDPR, and you may request access to your data at any time.

15 Candidate declaration

I confirm that I have received, read, and understood the Candidate Induction Guidance Document and the requirements outlined within it.

I understand the assessment requirements, submission deadlines, authenticity requirements, and malpractice policies.

Candidate name:

Candidate company:

Signature:

Date:

16 Annex 'A' – BAFSA Unit 3 final exam

Delivered and assessed by The Fire Systems Academy.

Unit 3 – Classification and pre-calculated system design:

This exam is one of the formal assessments on the course. Once you pass this exam and have completed all of the required course work, a completion certificate shall be issued through ABBE as a national award.

The components of the examination are clearly stated within this prospectus, and the standards required are necessarily high, but consistent with a thorough understanding of the design and basic calculation and construction of a sprinkler system designed using pre-calculated design principles with water supplies.

The qualification is awarded to the individual designer.

The candidate must demonstrate that they have a good understanding of the LPC Sprinkler Rules (BS EN 12845) applicable to pre-calculated designs and water supplies, by demonstrating an ability to perform certain key tasks accurately.

The design of sprinkler protection to Light Hazard is not covered in this exam, as this type of protection is rarely used.

The candidate may bring the following into the exam:

- A hard copy of the current LPC Rules for Automatic Sprinkler Installations. The Rules can have bookmarks and annotations. However, the annotations must not include training material, calculation formulae or worked examples.
- No extra pages are permitted to be added to the Rules.
- Blank hydraulic calculation sheets, which do not guide the calculation process, may also be brought into the examination room and used by the candidate.
- The candidate must bring with them a pen or pencil, ruler and calculator (not part of a phone).

UNFAIR PRACTICE

The Fire Systems Academy reserve the right to disqualify any candidate found to be employing unfair practices, bringing into the examination room any additional material deemed to be unfair, or communicating or colluding with others during the examination.

Exam timings and resits:

- Sections 1 to 4 shall be run from 09.30 till 12.30.
- Sections 5 and 6 shall be run from 13.30 till 16.30.
- If you fail 1 section, you can resit that section.
- If you fail 2 sections or more, you will need to resit the full exam.

- You will only be allowed one resit.

17 Annex 'A' – exam scope

1. Principals of sprinkler installation design:

Determination of hazard classes: understanding of design density, assumed maximum areas of operation, categorisation of storage, storage arrangements and height limitations.

SCOPE

Selection of suitable hazard classification for LH, OH and HHP

Understanding of design density and AMAO principles

Storage categories, listings, special hazards and material factor methodology

Storage methods, arrangements and height limitations

Determination of correct design density and AMAO

2. Sprinkler head types and uses:

Selection for use within relevant hazards with respect to types, size, temperature rating and sensitivity.

SCOPE

Understanding of available sprinkler types and codes

Hydraulic flow/pressure characteristics associated with sprinkler heads

Selection of suitable sprinkler types for property and life safety applications

Temperature rating requirements

Selection and limitations with respect to thermal sensitivity

Limitations with respect to the use of sidewall sprinklers

Spares requirements for one or more installations

3. Installation control valves types and uses:

Selection and limitations of suitable types: principles of operation, testing requirements.

SCOPE

Wet type definitions, use and limitations

SCOPE

Dry and TEAV, (SAV), type definitions, where permitted, limitations, accelerators and exhausters

Pre-action type definitions, use and limitations

Location and alarm facilities

Zoned installation requirements

Additional system measures to improve reliability and availability

Sprinkler system monitoring

Testing and commissioning facilities and requirements

4. Sprinkler head spacing and location:

Spacing limitations of standard and sidewall types for various hazards, building constructions, boundaries, obstructions and requirements for concealed spaces.

SCOPE

Maximum and minimum spacing limitations for LH, OH and HH applications

Distance below differing roof/ceiling types and construction, apex requirements

Obstruction by building elements such as beams, girders, trusses and columns

Permitted and not permitted lower obstructions such as ducting and open cell ceilings

Supplementary protection in roof, intermediate floor and concealed spaces

5. Pre-calculated method of pipe sizing:

Definitions of range and distribution pipes, the use of pipe sizing tables for light, ordinary and high hazards, design point location, principles of static gain and basic hydraulic calculation.

SCOPE

Range, distribution, riser, and arm pipe definitions

Suitable pipe array layouts for pre-calculated installations

Understanding and the use of pipe sizing tables for LH, OH and HH applications

Design point location and distribution pipe hydraulic calculation sizing requirements

SCOPE

Understanding of static gain and relationship with pre-calculated water supply requirements when measured at an installation control valve 'C' gauge.

PRACTICAL EXERCISE of an Ordinary Hazard system to evaluate the delegate's ability to apply pipe sizing downstream of design points, hydraulic calculation of distribution pipe losses, interpretation of static gain and basic water supply requirements.

6. Water supply requirements:

Suitable sources, reliability aspects, pre-calculated flow and pressure requirements for Ordinary Hazards, duration, and testing requirements at installation control valve locations.

SCOPE

Suitable sources of water supply

Understanding of single, superior and duplicate supply arrangements

Grades of Supply for insurance purposes

Suitable combinations of duplicate supplies

Duration of supply for LH, OH and HH

Town's main limitations including connections for other services

Required flow and pressure characteristics at installation control valve 'C' gauge

Interpretation and meaning of 'static head' requirements

Determination of flow and pressure requirements at source

'Off the shelf' fire pump selection

Sizing trunk mains between source and installation control valves

Pump start 'cut-in' pressure settings

Available tank types and suitability

Tank arrangements for superior and duplicate supplies

Determination of required capacity, full and reduced capacities

Full holding capacity filling criteria

Reduced capacity in-flow calculation and arrangements

Suction conditions and vortex prevention options

SCOPE

Suction pipe layouts, valves and sizing

Jockey pump arrangement.

Delivery pipe layout for multiple pumps,

Automatic pump start test assembly

Pump test return facility

Pump house environmental and location requirements.

Pump house protection