



British Automatic Fire Sprinkler Association

bafsa

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 – Experienced Designer

5-DAY VIRTUAL CLASSROOM, FOLLOWED BY POST-COURSE WORK SUBMISSION

This guide explains what your qualification involves, the 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>

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Delivered and assessed by: The Fire Systems Academy, a BAFSA Preferred Provider

Enrolment via: The British Automatic Fire Sprinkler Association

Read this guide before you begin. The submission deadlines in Section 2 are strict, and late work cannot be resubmitted.

1 Your details

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

Candidate name:

Candidate company:

ABBE ID number:

Course date attended:

2 Overview of your qualification

Duration:

5 days virtual classroom with coursework, followed by regular submission of formal coursework to be completed and uploaded within 12 months from the end of the virtual classroom.

Qualification size and credit:

The size of a qualification is indicated by the terms award, certificate or diploma. These reflect the size of the qualification rather than its difficulty. The qualification level indicates its complexity.

Size	Total Qualification Time (TQT)
Award	A TQT value of 120 hours or less
Certificate	A TQT value in the range of 121–369
Diploma	A TQT value of 370 or more

Submission deadlines:

Item	Deadline
Coursework A – Essay	To be uploaded within 2 months of the start of the course.
Coursework B – Specification	To be uploaded within 3 months of the start of the course.
Coursework C – Head Spacing	To be uploaded within 4 months of the start of the course.
Coursework D – Pipework Sizing	To be uploaded within 5 months of the start of the course.
Coursework E – Design Submission	To be uploaded within 7 months of the start of the course.

Item	Deadline
Coursework F – Design Submission	To be uploaded within 9 months of the start of the course.
Coursework G – P&ID Drawing	To be uploaded within 11 months of the start of the course.
Coursework H – Technical Interview	You will be invited once the coursework is complete.
Coursework J – Exam	To be sat within 18 months of the start of the course.
Exam resits	To be completed within 18 months of the start of the course. Resit results will be uploaded to your learning portal within 4 weeks of taking the exam.

ASSESSMENT TIMESCALES

Your assessor requires 4–6 weeks to assess your work from the date of submission. Therefore we require your work to be uploaded in the timescales. If your submission is late there is no opportunity 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.

Note: You only have one opportunity to resubmit your work. If your work falls short of the minimal requirements you will need to retake the course.

Please note:

- The exam is sat in person under exam conditions, at either East Kilbride or the BRE offices in Garston.
- If you fail 1 section you can resit that section. If you fail 2 sections or more you must resit the full exam.
- You will only be allowed one resit, to be completed within 18 months of the start of the course.

NO PARTIAL COMPLETION

No qualification certification can be awarded for partial completion.

3 What this qualification covers

- Classification of sprinkler systems in accordance with the LPC Rules incorporating 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 systems in accordance with the LPC Rules incorporating 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 at all 5 days of the virtual classroom.
- Completion of the 7 items of formal coursework.
- Sitting and passing the exam.
- Attending a technical interview (which will be recorded).

MISSED CLASSROOM DAYS

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 — guidance can only be given through the monthly open forums, which are available for 12 months from the start of the course.

4 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.
- Submission of the formal coursework onto the BAFSA portal.
- The exam, as detailed in Annex 'A'.
- A technical interview.

Your tutor does not check your work. This is carried out by an independent assessor. One in every 5 assessments is 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.

5 Formal coursework requirements

Coursework 'A' – Essay

Prepare a 1,500–1,600 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 reference to the relevant clauses of the LPC Rules incorporating BS EN 12845. This document must be uploaded in Microsoft Word.

Coursework 'B' – Specification

1.0 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.

2.0 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.

Coursework 'C' – Head Spacing

Space the sprinklers on the provided AutoCAD drawing.

Coursework 'D' – Pipework Sizing

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. All pipework is to be sized downstream of the control valve.

Coursework 'E' – Design Submission

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.

Coursework 'F' – Design Submission

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

PUMPHOUSE DESIGNS

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

Coursework 'G' – P&ID Drawing

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

Coursework 'H' – Technical Interview

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

Coursework 'J' – Exam

An in-person exam sat under exam conditions at either East Kilbride or the BRE offices in Garston. The exam is split into six sections — full detail is given in Annex 'A'.

6 Course pass criteria

Requirement	Criteria
Attendance	All 5 days of the virtual classroom.
Formal assessments	Pass mark: 70%.
Exam	Pass mark: 70%. Results uploaded to your learning portal within 4 weeks.
Technical interview	Attendance required.
Video evidence	Post-course video evidence is mandatory and must be uploaded via the BAFSA e-portal.

7 Required uploads

Reference	Document or drawing
A	Essay – high school sprinkler specification (Microsoft Word)
B	Outline specifications – office block and storage warehouse
C	Sprinkler head spacing on the provided AutoCAD drawing
D	Pipework sizing on “Drawing D”
E	Pre-calculated design – control valve, false ceiling and void protection
F	Pre-calculated design – water supplies and pumphouse
G	P&ID drawing for the design exercise
Video	Post-course video evidence (mandatory)

The uploading of coursework is detailed in the Candidate User Guide, which can be accessed on the home page of the learning portal.

8 Role of the staff team

Role	Responsibilities
Course Manager – Alan Crichton	Oversees quality assurance. Issues deadlines. Manages certification approval.
Tutor	Delivers the 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 and ensures marking consistency.
BAFSA	Manages the e-portal and CRM system, providing a platform for evidence submission storage and recording training activity. Manages bookings, 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 from your tutor:

You will be invited to a monthly open forum, one hour per month, where you can ask technical questions and seek guidance. This runs for 12 months from the start of the course.

Support and 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).

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

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):

- An automatic monthly reminder email will be issued via the e-portal.
- Candidates must demonstrate progress by meeting the post-course work submission dates.
- Extension requests must be submitted via the BAFSA e-portal 4 weeks before the programme end date.

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.

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.

The user guide on the home page:

If you are new to the portal, or you want step-by-step guidance on registering, enrolling, navigating your courses and uploading your coursework, the Candidate and User Guide covers everything you need to get started. You can download it at any time using the 'Download User Guide' button on the home page of the e-portal. It is worth downloading this before you begin, as it answers most of the everyday questions candidates have about using the portal, including how to upload your evidence.

12 What you need for the course

Have you received your course book and workbooks?

You will receive a link providing access to your electronic workbook, provided as part of the course. If any materials are missing, notify the administrator immediately.

HARD COPIES

Hard copies can be purchased through The Fire Systems Academy shop at <https://www.firesystemsacademy.co.uk/product-category/workbooks/>

Do you understand the additional material you require for the course?

You must have access to:

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

Do you understand the computer programmes required to complete the course?

You must have:

- Microsoft Word or equivalent.
- Excel or equivalent.
- AutoCAD or another drawing program.
- A webcam, 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:

- Marking timeframe: 4 to 6 weeks from submission.
- 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 issue.
- 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 a company's 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:

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

- The workbook may not be distributed.
- The virtual classroom may not be recorded.
- Screenshots may not be taken.
- Materials may not be shared with third parties.
- Any breach of the above may result in removal from the 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.

Do you understand the requirement of the formal course submissions?

You will have to submit the seven items of formal coursework listed in Section 7, sit and pass the in-person exam, and attend a recorded technical interview. All evidence is to be provided within the timescales provided.

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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:

A Annex 'A' – Final exam

BAFSA Unit 3 – Classification and pre-calculated system design. Delivered and assessed by The Fire Systems Academy.

This exam is one of the formal assessments on the course. Once you pass it and have completed all of the required coursework, a completion certificate will be issued through ABBE as a national award. The qualification is awarded to the individual designer.

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

The candidate must demonstrate a good understanding of the LPC Sprinkler Rules (BS EN 12845) applicable to pre-calculated designs and water supplies, by performing 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.

What you may bring into the exam:

- A hard copy of the current LPC Rules for Automatic Sprinkler Installations. The Rules may have bookmarks and annotations, but annotations must not include training material, calculation formulae or worked examples. No extra pages may be added to the Rules.
- Blank hydraulic calculation sheets, which do not guide the calculation process.
- A pen or pencil, a ruler and a calculator (not part of a phone).

UNFAIR PRACTICE

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

Exam timings:

Sections	Timing
Sections 1 to 4	09:30 – 12:30
Sections 5 and 6	13:30 – 16:30

RESITS

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.

A Annex 'A' – Exam scope

1. Principles of sprinkler installation design

Determination of hazard classes: 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 type, size, temperature rating and sensitivity.

Scope

Understanding of available sprinkler types and codes

Hydraulic flow and 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 valve types and uses

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

Scope

Wet type definitions, use and limitations

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

Scope

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 concealed spaces.

Scope

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

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

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

Permitted and non-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, use of pipe sizing tables, design point location, static gain and basic hydraulic calculation.

Scope

Range, distribution, riser and arm pipe definitions

Suitable pipe array layouts for pre-calculated installations

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

Design point location and distribution pipe hydraulic calculation sizing requirements

Understanding of static gain and its 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
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