



Domestic & Residential Fire Sprinkler Design

**Sprinktec**

Fire sprinkler design, training & Consultancy

...Expertise in fire protection.

Domestic & Residential Fire Sprinkler Design

This course reflects the contents of BS 9251: 2021

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Course Objectives

This course relates to the design, commissioning and maintenance of domestic and residential fire sprinkler systems' design in accordance with BS 9251 & 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 category of a system and develop a full design that can be used in the installation of a fire sprinkler system.

The course covers the following outcomes:

Residential and Domestic Occupancies:

- Understand how a fire sprinkler system works.
- Gain knowledge of its components and approvals.
- How to classify a sprinkler system in line with BS 9251:2021.
- How to space sprinkler heads.
- How to route, bracket and size sprinkler pipework.
- Understand basic hydraulics of a sprinkler system.
- How to carry out a hydraulic calculation and how to analyse the figures.
- Basic understanding of the Canute hydraulic calculation package.
- How to design a sprinkler pumphouse/water supply.
- The requirements on the commissioning of a system including documentation and inspection.
- Understanding the requirements and need to maintain a sprinkler system.
- How to estimate the cost of a contract.

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

- Assess the fire risk of a building and its occupants, classify a building's fire sprinkler system and be able to write a basic specification in line with BS 9251: 2021
- Analyse the building's construction and determine the extent of protection required within a building.
- Demonstrate that you can space sprinkler heads in accordance with BS 9251: 2021 and manufacturers' guidelines.
- Demonstrate the ability to run pipework complete with supports in line with the building construction, and coordinate with other building services within the building.
- Demonstrate an understanding of basic hydraulic calculations and carry out a design using the Canute FHC Programme.
- Analyse the results of the system calculations and understand where to adjust the system to suit the building's requirements.
- Analyse pump datasheets and compile a design to suit the system requirements and pump and tank details.
- Demonstrate a basic understanding of the electrical requirements for sprinkler pumps and the monitoring of the sprinkler system.
- Have the skills required to produce a full set of fire sprinkler system drawings and calculations that are fit for site installation and also be sufficient for third-party approval (this can be insurance companies or third-party approval bodies).

- Explain the documentation and commissioning process of a fire sprinkler system.
- Explain the requirements of ongoing maintenance of a fire sprinkler installation.

Structure

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

- Interactive/facilitated learning assessments.
- Participative exercises.
- Learning outcomes.
- Self-delivered learning.
- Online interview (recorded).

Competence to Capability

It is intended that the learning outcomes designed in the course will enable you to become competent in the knowledge of the design process and associated activities. With sufficient application of this knowledge, your skills and capability as a fire sprinkler designer in residential and domestic systems will develop, taking you to various levels of qualifications, i.e., team member, team leader, design manager.

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

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

Successful Completion Criteria

There are five 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 aptitude and performance of the delegate.
- Pass the formal assessment work (Appendix E) within 12 months of the course.
- Submit one of the post-coursework designs within 12 months of the course.
- Undertake a recorded interview on the post-course design submitted.

Continuous Assessment Criteria

Criteria will include:

- Punctuality in timekeeping to programme and full attendance.
- Participation in theory and discussion sessions including sharing of experience, questioning and feedback.
- Completing the assessments (Appendix D) set out within the course

Appendix E should be completed and uploaded on to your student portal through the Sprinktec Moodle website.

Coursework

The course will be set out during the initial five-day online virtual classroom. The course will be set out on block release basis online over one week.

Agenda

The formal assessments are detailed in Appendix E issued prior to the start of the course; these will be discussed during the five-day virtual classroom and should be completed in the timescales previously set out.

Post-coursework will require two full sprinkler designs to be submitted.

Design No 1 is detailed in Appendix 'E' coursework 2,3,5 & 6 which is checked against the Residential & Domestic Sprinkler Design Checklist (which is issued to the candidate during the course).

Design No 2 is a sprinkler design selected by the candidate (done for their workplace). Once complete the design will be checked against the Residential & Domestic Sprinkler Design Checklist (which is issued to the candidate during the course).

Subsequently, the candidate will be interviewed on the design to ensure they fully understand the process and for us to confirm they have carried out the work themselves. This interview will be recorded and saved on file.

Complaints/Appeals

Any complaints or appeals in relation to this course should be emailed to :
Training@sprinktec.co.uk.

Complaints will be addressed by the Managing Director and appeals will follow the Appeal Process.

Residential And Domestic Sprinkler Design Agenda.

Each day will run from 9.00 am till 4.30 pm.

Section 1 (Day 1)

- Legislation.
- Introduction to BS 9251:2021 & BS EN 12845.
- Introduction to sprinkler systems and their operation.
- Components and accreditation.
- How to classify a system.

Section 2 (Day 2)

- Residential & domestic head spacing.
- Understanding manufacturers' datasheets.
- How different types of heads affect the performance of the system.
- Running pipework and bracketry positions.

Section 3 (Day 3)

- Hazen Williams formula.
- Basic hydraulics (manually).
- Flow correction calculations.
- Loop calculations.
- Flow from sprinkler heads (required and actual).
- Conduct various manual calculations.

Section 4 (Day 4)

- How to use Canute.
- Conduct a calculation for residential systems and analyse the result.
- How to select a sprinkler pump to suit the calculation.
- How to size a tank to suit the sprinkler system calculations.

Section 5 (Day 5)

- How to select a sprinkler pump to suit the calculation.
- How to size a tank to suit the sprinkler system calculations.

Section 6 (Day 5)

- How to commission a sprinkler system.
- Understanding the maintenance requirements of a sprinkler system.
- How to estimate a sprinkler system installation.