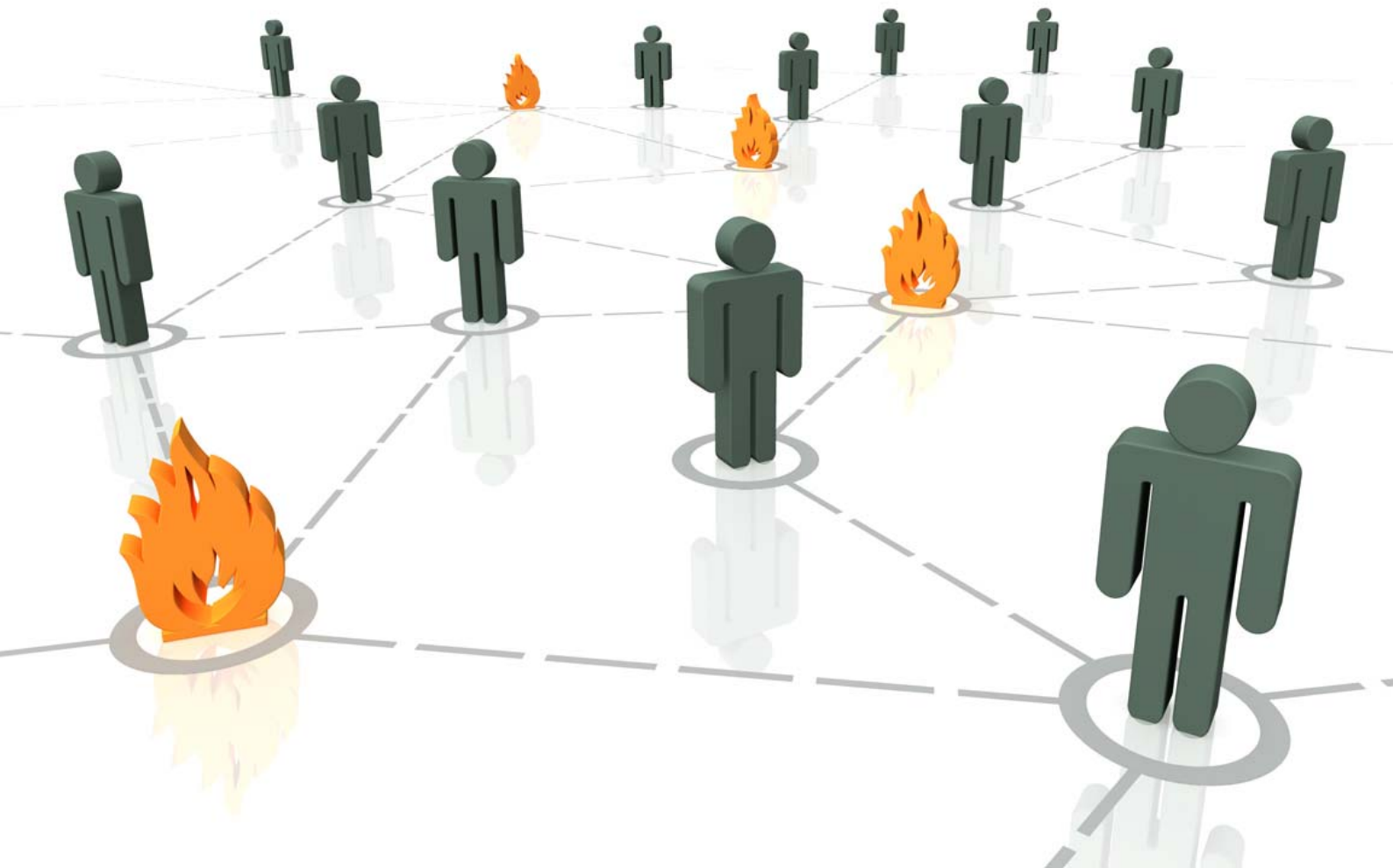


# Fire Sprinkler Courses

**BS 9251: Residential and Domestic Systems**

**BS EN 12845: Commercial Systems**





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# Introduction

This document is designed to help individuals and organisations inform their training decisions about the fire sprinkler courses we offer, their content, costs and methods of delivery.

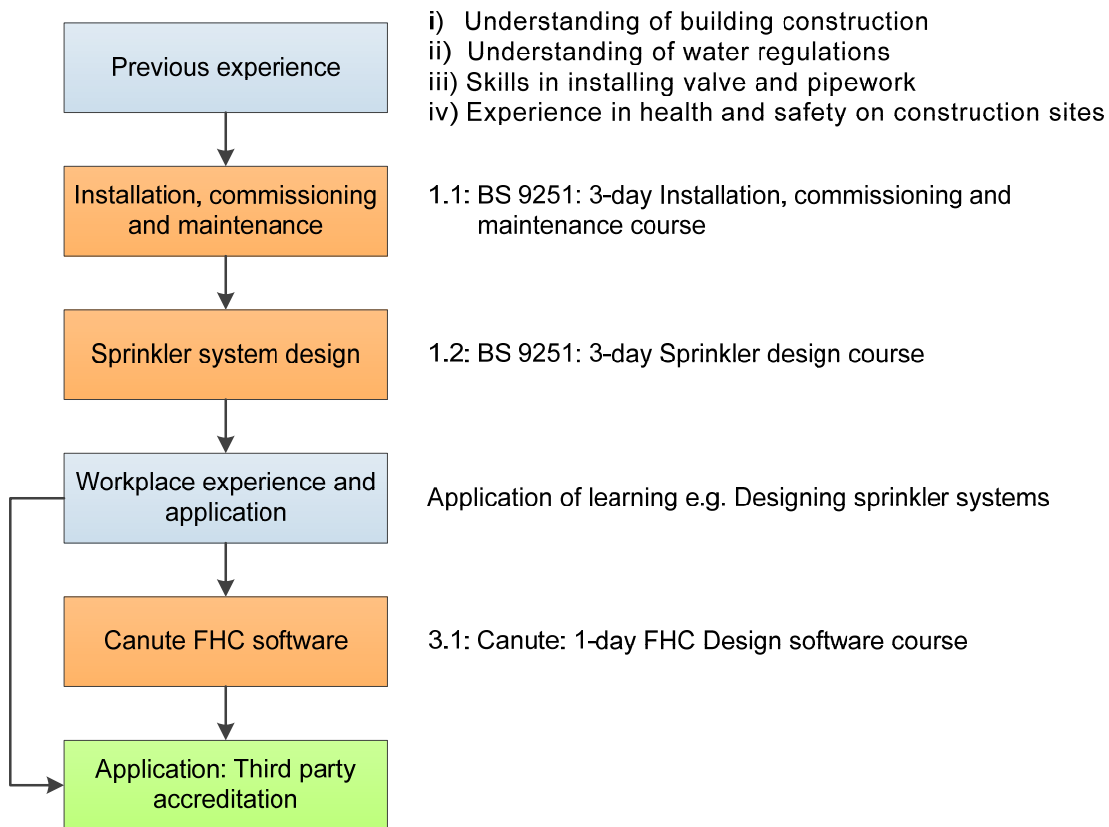
## 1. Target Audience

Our training is designed to meet the needs of:

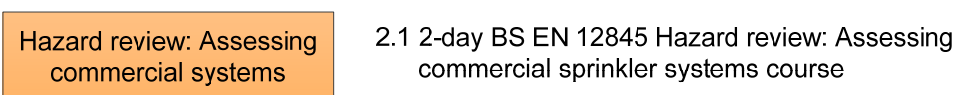
- i) Sprinkler Engineers
- ii) Sprinkler System Assessors

### 1.1 Sprinkler Engineers: Sprinkler installers, designers and engineers, plumbing professionals

#### Sprinkler Engineers: BS 9251: Residential and domestic



#### Sprinkler Engineers: BS EN 12845: Commercial systems



## Introduction

**1.2 Sprinkler Assessors:** Building control officers, approved inspectors, Fire Service, fire risk assessors and fire safety professionals.

### **Sprinkler Assessors:**

Assessing residential  
sprinkler systems

Hazard review: Assessing  
commercial systems

1.3 2-day BS 9251 Residential  
sprinkler system assessor course

2.1 2-day BS EN 12845 Hazard  
review: Assessing commercial  
sprinkler systems course

## **2. Delegate numbers: In-house courses**

A maximum of 10 delegates on BS 9251 sprinkler design and Canute FHC design software courses is recommended, with a maximum of 16 delegates on other courses.

## **3. Location and dates**

**In-house courses:** Premises arranged by customer. Dates to be agreed.

**Open-courses:** Yarnfield Park. See Appendix D. See website for dates

## **4. Booking**

**In-house courses:** Contact Xact on: [qualifications@xact.org.uk](mailto:qualifications@xact.org.uk)

**Open-courses:** On-line booking form: <http://www.xact.org.uk/open-course-dates-and-costs/>

## BS 9251: Installation, commissioning and maintenance

### Target Audience

Plumbing professionals, sprinkler engineers and installers, professionals responsible for inspecting and testing sprinkler systems.

### Aim

To enable delegates to install, commission and maintain residential and domestic sprinkler systems.

### Core content

- Legislation, codes of practice and guidance documents
- Identifying occupancy category and requirements
- Principles of sprinkler system designs
- Requirements of installing systems:
  - Water supplies; towns mains, tanks and pumps
  - Sprinkler head types, suitability and positioning
  - Pipework and valve configuration
  - Frost protection options
  - Alarm and warning requirements and configuration
- System commissioning and maintenance requirements
- Certification and documentation

### Duration

3 days

### Course assessment

Delegates will be assessed on their ability to install, commission and maintain residential and domestic sprinkler systems.

### Prior learning

Delegates should have:

- Understanding of building construction
- Understanding of water regulations
- Skills in installing valve and pipework
- Experience in health and safety on construction sites

## BS 9251: Sprinkler system design

### Target audience

Sprinkler design engineers and installers and plumbing professionals

### Aim

To enable delegates to design residential and domestic sprinkler systems.

### Core content

- ASET – time based analysis
- Legislation, codes of practice and guidance documents
- Identifying occupancy category and requirements
- Vulnerable persons and compensatory features
- Special circumstances and fire strategies
- Sprinkler head suitability, positioning and design densities
- Water supplies, towns mains, tanks and pumps
- Pipework and valve configuration
- Designing sprinkler systems:
  - Loss calculations; K factor, Hazen Williams
  - Calculating most hydraulically unfavourable area
  - Selecting water supply
  - Calculating most hydraulically favourable area
  - Pump curves and tank calculations
- Frost protection options
- Alarm requirements and configuration
- Certification and documentation

### Duration

3 days

### Course assessment

Delegates will be assessed on their ability to design a sprinkler system to BS 9251.

### Prior learning

Delegates must have prior to attending this course,:

- Attended Xact installation course, *or*
- Attended an equivalent course, *or*
- Previous experience installing sprinkler systems

## BS 9251: Assessing residential sprinkler systems

### **Target audience**

Building control officers, approved inspectors, Fire Service, fire risk assessors and fire safety professionals.

### **Aim**

To enable delegates to assess whether a residential sprinkler system complies with requirements of BS 9251.

### **Core topic areas**

On completion, delegates should have an understanding of:

- Legislation and codes of practice
- Category of system
- Discharge densities, number of design heads and supply duration
- Sprinkler head requirements
- Head coverage and positioning
- Pipework and valve arrangements
- Water supply options and requirements
- System design requirements

Delegates will also learn to assess suitability of:

- Compensatory features
- Special circumstances
- Vulnerable persons.

### **Duration**

2 days

### **Prior learning**

Experience in assessing fire safety, an understanding of the advantages of sprinkler systems and their operation is required.

### **Course assessment**

Delegates assess sprinkler system compliance with BS 9251.



## BS 12845: Hazard review: Assessing commercial systems

### **Target audience**

Sprinkler engineers, fire risk assessors, building control officers, fire service auditors, sprinkler system assessors and fire safety professionals.

### **Aim**

To enable delegates to assess whether a commercial sprinkler system complies with requirements of BS EN 12845 and the Sprinkler Rules.

### **Core topic areas**

On completion, delegates should have an understanding of:

- Water supply options
- Hazard classification
- Design principles
- Sprinkler head positioning and spacing
- Pipe sizing and layout
- Principles of hydraulic calculations
- Assessing sprinkler designs

### **Core Reference Documents**

- BS EN 12845: Commercial Sprinkler Systems
- LPC Rules for Automatic Sprinkler Installations

### **Duration**

2 days

### **Prior learning**

Experience in assessing fire safety, an understanding of the advantages of sprinkler systems and their operation is required.

### **Course assessment**

Delegates assess sprinkler system compliance with BS EN 12845 and the Sprinkler Rules.

## Canute FHC (Full Hydraulic Calculations) Design Software

### Canute FHC design software for sprinkler and water mist systems

#### Target audience

Existing suppression system designers.

Those seeking to enhance their skills using Canute FHC software from beginners to advanced level practitioners.

#### Aim

To enable delegates to apply Canute FHC software from data entry to more advanced concepts in the design of sprinkler and water mist systems.

#### Core topic areas

On course completion, delegates should have an understanding of:

- Basic concepts of computerised hydraulic modelling
- Hydraulic formulas to calculate flow through heads and pressure loss in pipes
- Apply node references to a hydraulic model
- Entering relevant data into FHC
- Optimising hydraulic models
- Advanced FHC commands

Delegates also learn to:

- Undertake automatic sizing to pipework
- Enter water supplier data
- Make global changes to system
- Conduct copy commands
- Produce reports for checking and submitting to AHJ

#### Duration

1 day

#### Prior Learning

This course assumes that delegates are familiar with manual hydraulic calculations and principles of applying hydraulic calculations to fire system designs.

Delegates will be expected to have a sound understanding of design standard to which they intend to apply FHC and hydraulic calculations e.g. BS 9251, BS EN 12845, NFPA 13 or NFPA 750.

## Third Party Accreditation

### Fire Sprinkler third party accreditation schemes

The organisations below provide third party accreditation schemes for sprinkler systems.

#### 1. FIRAS

a) **BS 9251: Residential and domestic systems**

<http://www.firas-database.co.uk/registers/residential-and-domesticsprinkler-systems.html>

b) **BS EN 12845: Commercial systems**

<http://www.firas-database.co.uk/registers/commercial-and-industrialsprinkler-systems.html>

#### 2. IFC Certification

a) **BS 9251: Residential and domestic systems**

<http://www.ifccertification.com/certification/certified-installers.html>

b) **BS EN 12845: Commercial systems**

<http://www.ifccertification.com/certification/certified-installers.html>

#### 3. LPCB: Loss Prevention Certification Board

a) **LPS 1301: BS 9251: Residential and domestic systems**

<http://www.redbooklive.com/download/pdf/LPS1301.pdf>

c) **LPS 1048: BS EN 12845: Commercial systems**

<https://www.redbooklive.com/download/pdf/LPS-1048-Requirements-forthe-approval-of-sprinkler-system-contractors-in-the-UK-and-Ireland.pdf>

## In-house and open course costs

Please note that in-house course costs are based on customer provision of teaching facilities as outlined in Appendix C

Page	Course	Duration	In-house	Open
3	1.1: BS 9251: Installation, commissioning and maintenance	3 days	4,500	695
4	1.2: BS 9251: Sprinkler system design	3 days	4,500	695
5	1.3: BS 9251: Assessing residential sprinkler systems	2 days	2,900	300
6	2.1: BS EN 12845 Hazard review: Assessing commercial systems	2 days	2,900	310
7	3.1: Canute FHC Design software	1 day	1,700	250

### Notes:

**Note 1: In-house courses** - Inclusive cost for course e.g. notes, guidance documents, exercises, tutor travelling and accommodation. Does not include teaching facilities provided by customer. See Appendix C. Any charges for car parking and tutor refreshments during each teaching day will be added at cost

**Note 2: Delegate numbers** –Maximum of 10 delegates on BS 9251 sprinkler design and Canute FHC design software courses is recommended, with a maximum of 16 delegates on other courses.

**Note 3: Open courses** - cost includes teaching facilities, refreshments and lunch during teaching day. Additional charge for bed, breakfast and evening meal – see below.

**Note 4: VAT** will be added at the current rate.

**Note 5: Payment terms:** Within 30 days of invoice date.

**Note 6: Open courses** are normally located at Yarnfield Park Training and Conference Centre, Yarnfield Lane, Yarnfield, Stone, Staffordshire ST15 0NL.

**Note 7: Overnight accommodation** with en-suite facilities is available at Yarnfield Park at £59 for bed, breakfast and evening meal. **Note** Sunday night rate is £47 because no evening meal is available. Snacks such as soup, sandwiches and pies are available to purchase from the bar between 6-9 pm.

**Note 8: Open courses** are also provided at other locations. Accommodation charges at these venues will differ from those quoted above

## Teaching facilities for in-house courses

### **All courses:**

Require a main teaching room with following facilities:

- Delegate chairs and desks (minimum 0.75m x 0.75m per delegate)
- Tutor table and chair
- Whiteboard, dry marker pens and eraser (or flipchart)
- Data projector for PowerPoint with either:
  - Computer which can upload PowerPoint from a memory stick, *or*
  - Connection for laptop
- Projection screen for data projector
- 240v electrical supply for laptop
- Tutor and teaching staff refreshments during teaching day

## Stone conference centre – open courses

### Address

Yarnfield Park Training and Conference Centre, Yarnfield, Stone, Staffordshire ST15 0NL



### Meals

Breakfast, lunch and evening meals are provided in the restaurant



### Overnight accommodation

This includes:

- Evening meal
- En-suite bedroom
- Breakfast



## Xact Consultancy and Training Limited

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VAT Registration No: 855 4570 04  
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Email: [info@xact.org.uk](mailto:info@xact.org.uk)

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Public and Employers Liability  
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