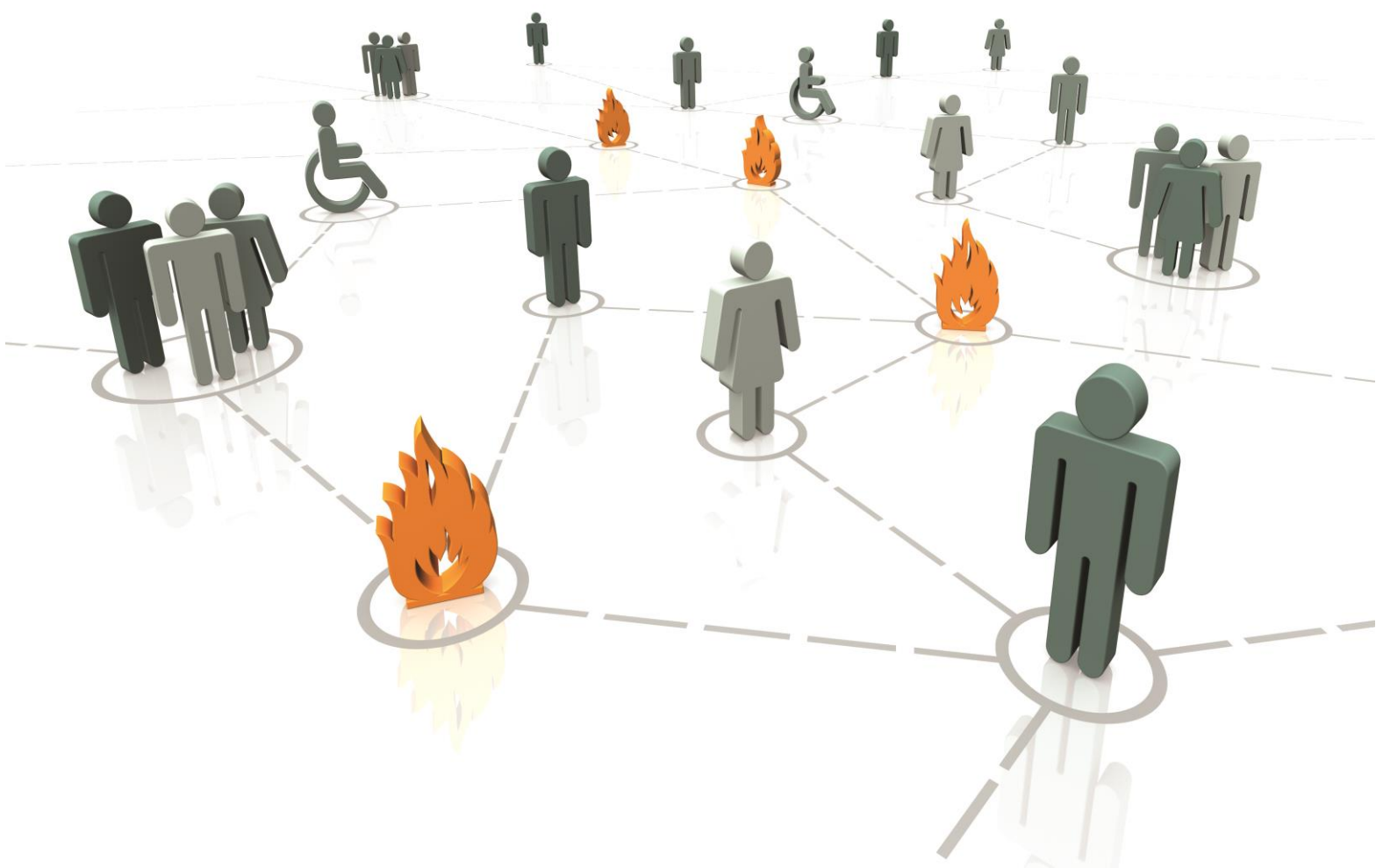


# Sprinkler System Design

Fire sprinkler design courses





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## 1. Introduction

This document is designed to help individuals and organisations inform their training decisions by explaining course options available in designing sprinkler systems.

### 1.1 Target audience

Individuals who design, or plan to design residential sprinkler systems.

### 1.2 Sprinkler standards

The following sprinkler standards apply to these courses:

- a) Installation and design courses: BS 9251, BS EN 16925
- b) Canute FHC course: BS 9251, BS EN 16925, BS EN 12845, NFPA 13D, 13R and 13

### 1.3 Courses

See Section 2 for more details about the sprinkler courses available.

#### 1.4.1 Entry requirements

Delegates should:

- a) have ability to work at Level 3 or above
- b) be proficient in use of English Language
- c) be able to use a scientific calculator

#### 1.4.2 Installation course

There is no requirement to attend the installation course if individuals can demonstrate that they have sufficient competence in the areas covered by this course e.g. they have:

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

#### 1.4.3 Delivery

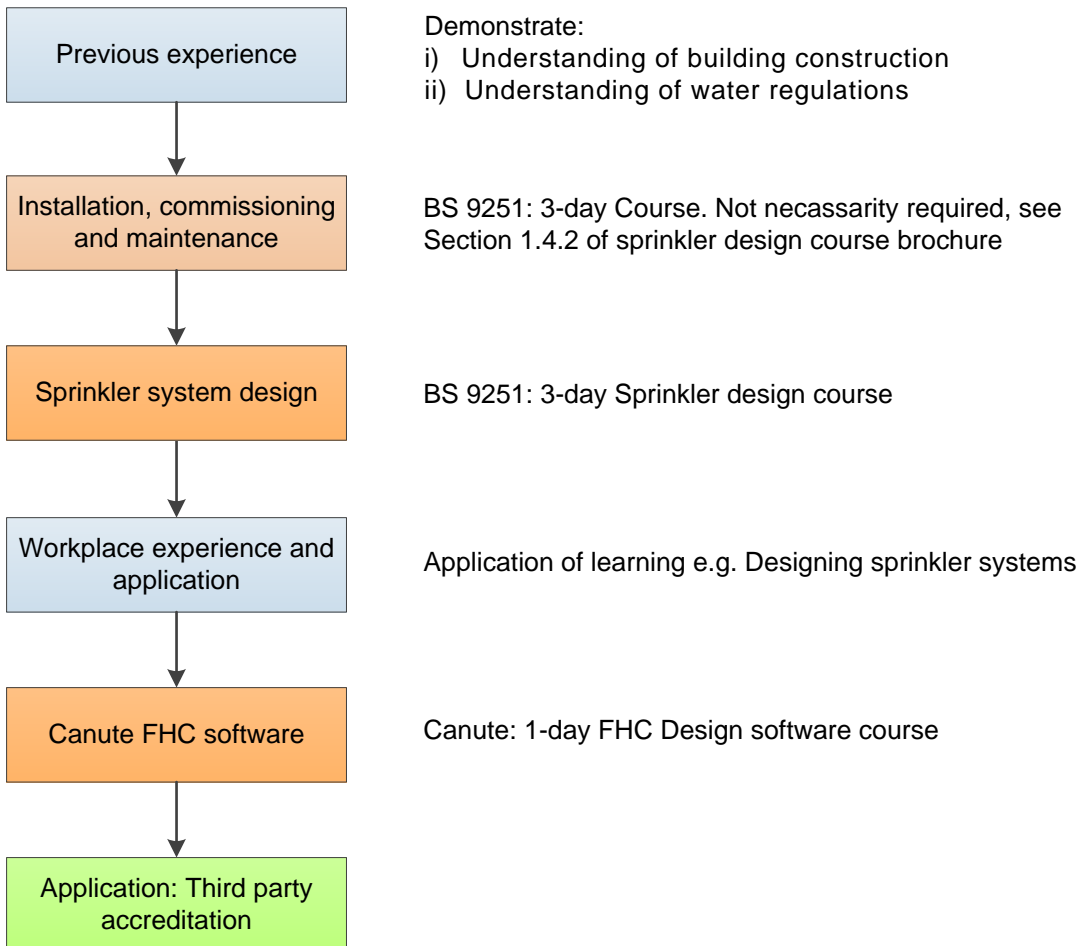
Sessions will be delivered using: PowerPoint presentations, flipchart explanation, group discussion, individual tuition, practical activities e.g. CPVC practical pipework, plan based exercises and software programmes (Canute).

## 1. Introduction

### 1.5 Sprinkler design flowchart

The flowchart below illustrates the progression of activities from start to finish.

#### Residential sprinkler design



### 1.6 Course costs

See Section 3 for more details.

### 1.7 Open course locations and dates

See Section 4 for location options.

### 1.8 Open course dates

See website link for [sprinkler courses](#). Dates are located on the right side of each course page

## 1. Introduction

### 1.9 Booking

Once you have selected the required [sprinkler course](#), use “Book course” icon on webpage for online booking.

### 1.10 Terms and conditions

Terms and conditions apply. Please follow our website [link](#) for a copy of our Terms and Conditions or contact us on [courses@xact.org.uk](mailto:courses@xact.org.uk) to request a copy. All orders and bookings made will be subject to our terms and conditions.

## 2.1 Residential sprinkler system installation

### Target Audience

Plumbing professionals, sprinkler engineers and installers, professionals responsible for inspecting and testing sprinkler systems. **Note:** Does not include commercial 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
- Practical session: CPVC Blazemaster pipework

### Duration

3 days

### Prior learning

Delegates should be able to demonstrate:

- Understanding of building construction
- Understanding of water regulations

### Attendance

There is no requirement to attend the installation course if individuals can demonstrate that they have sufficient competence in the areas covered by this course e.g.:

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

## 2.2 Residential sprinkler system design

**Target audience**

Individuals who design, or plan to design residential sprinkler systems.

**Aim**

To enable delegates to design residential and domestic sprinkler systems.

**Core content**

- 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**

Before attending this course, delegates are required to have:

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



### 2.3 Canute: FHC (Full Hydraulic Calculations) Design Software

#### Target audience

Existing suppression system designers and 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

### 3. Open course costs

## 3. Open course costs

<b>Page</b>	<b>Activity</b>	<b>Duration</b>	<b>Open</b>
4	Residential sprinkler system installation	3 days	695
5	Residential sprinkler system design	3 days	695
6	Canute FHC (Full Hydraulic Calculations) Design Software	1 day	250

**Notes:**

**Note 1:** **Open courses** are normally located at conference centres in Stone, Staffordshire. See Section 4 for venue details.

**Costs include** teaching facilities, refreshments and lunch during teaching day. Additional charge for bed, breakfast and evening meal – see below.

**Overnight accommodation** with en-suite facilities is available at £60 for bed, breakfast and evening meal. **Note** Sunday night rate is £48 because it does not include an evening meal. Individuals can purchase meals from the restaurant if required.

**Note 2:** **VAT** will be added at the current rate.

**Note 3:** **Payment terms:** Invoices must be paid in advance of commencement of activity.

**Note 4:** **In-house course** options are also available on request.

## 4. Open course venues

### 4. Open course venues

#### **Yarnfield Park Conference Centre**

Reception: 01785 762605

Yarnfield, Stone, Staffordshire  
ST15 0NL

Free on-site parking

**Booking enquiries:** Xact Training

01386 277980 [courses@xact.org.uk](mailto:courses@xact.org.uk)



Each venues includes

Restaurant and cafeteria

Large screen TV in common area

Gym offering a range of cardiovascular and weight machines

A range of walks

Lounge and bar areas

Bedrooms:

Ensuite bathroom

Multi-channel TV

Free Wi-Fi

Tea/Coffee and Biscuits

Study desk

Hairdryer

**Note:** More venue details are provided on our website and in Joining Instructions.

## 5. Xact Consultancy and Training Limited

Company Registration No: 05295715  
VAT Registration No: 855 4570 04  
Web site: [www.xact.org.uk](http://www.xact.org.uk)  
Email: [info@xact.org.uk](mailto:info@xact.org.uk)

### **Insurance**

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Public and Employers Liability  
Professional Indemnity

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