

# Fire Service

Fire safety training courses





## Contents

Introduction	1
Fire Safety Courses	2
Appendix A - BS 9999:2008	3
Appendix B – BS 9251:2005 Residential & Domestic Sprinklers	4
Appendix C – BS EN 12845:2004 Commercial Sprinklers	5
Appendix D – Fire Engineering Principles	6
Appendix E – Smoke Control	7
Appendix F – Building Regulations - Approved Document B	8
Appendix G – Approved Document B (2006) update and refresher	9
Appendix H – Auditing Premises and Fire Risk Assessment Reports	10
Appendix I - Costs	12
Appendix J – Course support information	13
Appendix K – Teaching facilities for courses	17
Appendix L – Enquiry form	18
Appendix M – Company details	19

## Introduction

This document has been developed as a result of our extensive experience providing training for UK Fire & Rescue Services.

It is designed to help brigades inform their training procurement decisions by presenting the standard courses we offer currently, their content, costs and our flexible methods of delivery.

We start by listing existing courses before offering details of their content (Appendices A to H). Information about course costs can be found in Appendix I.

Our aim is to give customers what they want. That means we are happy to adapt any aspect of our courses to meet their requirements in terms of duration, content, assessment, venue, delivery and date.

We also welcome the opportunity to design courses from scratch, tailor-made to suit any need that falls within our field of fire safety.

So, whether you are interested in an existing course or would like a training programme created especially for your organisation, please get in touch with Xact. (See Appendix M for contact details).

You can also register your interest by completing and submitting our enquiry form (See Appendix L). We guarantee a prompt response and look forward to hearing from you.

## Courses for Fire Safety Advisors, Managers and Engineers

### Standard courses

See Appendices A to H for information about the courses below:

- A) BS 9999:2008 fire safety in the design, management and use of buildings
- B) BS 9251:2005 Residential & Domestic Sprinkler
- C) BS EN 12845:2004 Commercial Sprinklers
- D) Fire Engineering Principles
- E) Smoke Control
- F) Building Regulations - Approved Document B
- G) Approved Document B (2006) update and refresher
- H) Auditing Premises and Fire Risk Assessment Reports

### Target audience

Fire Safety Officers, Fire Safety Advisors, Fire Safety Managers, Fire Engineers and Inspectors.

Courses are also suitable for Building Control, Approved Inspectors, Fire Risk Assessors and Fire Safety Professionals.

## BS 9999:2008 Fire safety in design, management & use of buildings

### Aim

To provide delegates with an understanding of BS 9999, a risk-based approach to the fire safety design, management and use of buildings and enable them to assess a design submission and offer advice

### Outcomes

To enable delegates to understand:

- ASET - time-based analysis
- Risk profiling
- Minimum fire protection measures
- Additional measures, their limits - sprinklers, AFD, ceiling height
- Levels of management
- Staircase options
- Ventilation factors effecting levels of fire resistance
- Functional design freedoms
- Options for a flexible design approach
- Situations for cost effective solutions

Delegates will also learn to:

- Apply the standard using a number of exercises
- Offer advice
- Design a building
- Assess a buildings design

### Course duration

2 days

## BS 9251 Residential and domestic sprinkler systems

### Aim

To enable delegates to check designs and installations for residential and domestic sprinkler systems to BS 9251:2005

### Outcomes and content

On completion, delegates should have an understanding of:

- Codes of practice
- Water supply requirements
- Types and positioning of sprinkler heads
- System components
- Alarm requirements
- Documentation
- Purpose and advantages of sprinklers
- Functional design freedoms and trade-off

They will also learn to:

- Offer advice
- Assess a design submission

### Course duration

1 day

## BS EN 12845 Commercial sprinkler systems

### Aim

To enable delegates to check designs and installations for commercial sprinkler systems to BS EN 12845:2004

### Outcomes and content

On completion, delegates should have an understanding of:

- Legislation and codes of practice
- Requirements and options for water-supply
- Appropriate hazard classification of system
- Types of sprinkler installations
- Design principles
- Sprinkler head types, uses, selection, positioning and spacing
- Pipe sizing and layouts
- Principles of hydraulic calculations and pre-calculations
- Sprinkler system components
- Life safety systems
- System maintenance

They will also learn to:

- Offer advice
- Assess a design submission

### Course duration

2 days

# Fire Engineering Principles

## Aim

To apply fire safety engineering principles to the design of buildings

## Course content

### Day 1

1. BS 7974 and source documents: Introduction to the most common source documents and requirements for references
2. Design fires: The analysis of the design fire used; some common misconceptions and why worst case is not always preferred. Researching given data.
3. Fire Dynamics: The behaviour and growth of fires; fire growth rates, time-based growth calculations

### Day 2

4. Radiated heat and fire separation: Boltzmann Law; configuration factor; tenable limits for escape and ignition. Application in shopping mall loads
5. Heat transfer and thermo-fluids: Examples of heat transfer; convective portions and Archimedes principle.
6. Human factors, occupant evacuation, behaviour and condition: Studies in human behaviour; historically, its place in evacuation analysis; introduction to evacuation models and interpretations

### Day 3

7. Development of a Fire Strategy: The analysis of the building; its fire safety provision and the occupants in a fire situation; understanding designed in strategies
8. Modelling fire growth, smoke movement and evacuation: Combination of skills to evaluate a fire-engineered solution based on prior learning and associated principles

## Course duration

3 days

## Smoke control

### Aim

To apply principles of smoke control to the design of buildings

### Course content

#### Day 1

1. Smoke spread beyond room of origin; mass flow rates within compartments; mass flow rates from compartments; openings etc. The selection/analysis of the appropriate models
2. Properties of smoke, i.e. temperature, visibility and concentration of toxic products. Tenability limits, their origins and interpretation

#### Day 2

3. Calculating time to untenable conditions; calculation of available safe egress time (ASET) for differing criteria
4. Natural and mechanical smoke control systems; SHEVS systems and their performance assessment; analysis of design and principles of function

### Course duration

2 days

## The Building Regulations - Approved Document B

### Aim

To enable delegates to assess building regulation submissions

### Course content

Approved Document B has been divided into module subject areas:

#### Module ADB-A (2 days)

- Use of guidance
- Introduction to management, alternative approaches, sprinklers and fire safety engineering
- **B1 - design of horizontal escape** in buildings other than flats

#### Module ADB-B (2 days)

- **Vertical escape** – Width of stairs, number of stairs, discounting, calculations, protection levels, small premises and basements

#### Module ADB-C (2 days)

- **B3 – internal fire spread** (structure)
- **B4 – external fire spread**
- **Compartmentation** - general principles, purpose groups
- **Space separation** – enclosing rectangles - tables for small premises

#### Module ADB-D (2 days)

- **B5 – Access and facilities for the fire service**
- Fire mains
- Shafts
- Lifts
- Access

### Module format

Modules can be delivered concurrently or staged over a longer period

### Course duration

Each module is 2 days in duration. Total for all modules, 8 days

## Approved Document B (2006) update and refresher

### Aim

To enable delegates to assess building regulation submissions

For those who have used and are familiar with ADB but require an update and refresher

### Course content

#### Day 1

- Main changes in ADB 2006 version and reference changes
- Regulation 16B and Fire Safety Order
- Management
- Sprinkler Systems – BAFSA (ARUP) Report
- Sprinkler water supplies - closing the loophole
- Material alteration - conflict with Fire Safety Order
- References to BS 5588 series – implications
- Small premises
- Horizontal escape
- Residential care homes - Sprinklers

#### Day 2

- Vertical escape
- Discounting rules
- Small premises
- Compartmentation
- Sprinklers in Flats
- Storage Volume – Local Acts clarifications
- B5 Access and Facilities
- Fire mains
- Shafts
- Lifts
- Access

### Course duration

2 days

## Auditing premises and fire risk assessment reports

### Aim

To enable delegates to audit premises and fire risk assessment reports

### Outcomes

To enable delegates to understand:

- Their role and responsibilities under the Regulatory Reform (Fire Safety) Order
- How to protect a building in the event of fire
- How to ensure the safety of people in the event of fire
- The fundamentals of fire risk assessments

Delegates will also learn to:

- Audit premises and fire risk assessment reports

### Premises

The course includes auditing two types of premises, such as an office and sleeping risk

### Course format

The course consists of 3 parts, as follows:

- Part A: Regulatory Reform (Fire Safety) Order 2005**
- Part B: Principles of fire risk assessment auditing**
- Part C: Auditing premises and fire risk assessment reports**

## Part A: Regulatory Reform (Fire Safety) Order 2005

Delegates should gain a working knowledge of:

- Background and layout of Order
- How relevant sections apply
- Offences, defences and appeals
- Enforcement
- Applying Order to premises
- Duties under Order
- Role of Fire Authority, Fire & Rescue Service and Inspecting Officers

## Part B: Principles of fire risk assessment auditing

Delegates should gain a working knowledge of:

- Fire risk assessment methodologies and applications
- PAS 79
- Understanding the fundamentals of fire risk assessment
- Customer's audit policy
- Fire safety audit procedures and application
- Auditing premises and fire risk assessment reports
- Audit reports

## Part C - Auditing premises and fire risk assessment reports

The practical application of Part A + B, including:

- Auditing premises
- Interviewing occupants
- Auditing reports
- Syndicate practical exercise
- Practical exercise (assessed)

### Prior learning

Delegates should have experience in:

- Applying fire safety principles
- Assessing risk and management levels – BS 9999:2008 fire safety in the design, management and use of buildings

### Course duration

5 days

## In house course costs

Please note that costs are based on customer provision of teaching facilities as outlined in Appendix K

Appendix	Course	Duration	Cost <sup>1</sup>
A	BS 9999:2008	2 days	£2,800 <sup>2</sup>
B	BS 9251: Residential + Domestic Sprinklers	1 day	£1,400
C	BS EN 12845: Commercial Sprinklers	2 days	£2,800
D	Fire Engineering	3 days	£4,200
E	Smoke Control	2 days	£2,800
F	Building Regulations - Approved Document B	8 days	£11,400 <sup>3</sup>
G	Approved Document B update and refresher	2 days	£2,800
H	Auditing Premises and Fire Risk Assessments	5 days	£6,900 <sup>4</sup>

### Notes:

<sup>1</sup> Inclusive cost for each course of 12-20 delegates. E.g. tutor travelling and accommodation. VAT will be added at the current rate

<sup>2</sup> Does not include delegate copy of BS 9999:2008

<sup>3</sup> Includes delegate copy of Building Regulations Approved Document B - Volume 2

<sup>4</sup> Includes assessment costs

Payment terms: Within 30 days of invoice date

## Course support information

Find out here about how courses conform to national standards; qualifications offered; continuing professional development hours and professional recognition.

Learn also what customers can expect from Xact in terms of course support.

Our delivery method - when, where, how - is also described, along with information about our team of tutors/facilitators, background and experience:

### National Occupational Standards and IPDS modules

Courses are designed so that they are cross-mapped with the relevant National Occupational Standard for Watch, Station and Group Managers

Courses are designed to fit the appropriate role map for Fire Safety Advisors, Fire Safety Managers and Fire Safety Advisors Engineers, such as units FSA1, FSA1, FSB2, FSB3, FSB4, FSB5, FSB7, FSB8, FSB9, FSC1, FSC2 + FSC3

### BTEC Qualifications

Xact is developing a number of BTECs for courses. Please contact us to discuss details

### Continual Professional Development

Xact is a member of the Continual Professional Development (CPD) Certification



Service. Courses are independently assessed by the CPD Certification Service and comply with their professional standards. CPD Certification Service "branded" certificates are issued to delegates for 6-7 hours per day

### Professionally recognised

The following professional bodies recognise Xact's courses:

- BAFSA – British Automatic Fire Sprinkler Association
- FIRAS – Third party accreditation scheme by Warrington Fire
- BRC – British Fire Consortium

## Courses

Courses consist of three phases:

- Learning – acquiring knowledge, understanding and skills
- Practising learning – using real-life reconstructions designed to replicate workplace activities of delegates
- Comprehensive debrief – to confirm learning

## Delivery method

Sessions will be delivered using PowerPoint presentations, flipchart explanation, group discussion, individual tuition, practical examples and plan-based exercises to reinforce outcomes

## Site visits

Some training may require site visits to premises to enable learning outcomes to be achieved e.g. auditing premises and fire risk assessments. Xact will work with the customer in partnership to identify suitable training locations

## Delegate numbers

Xact restricts delegate numbers to allow an optimal level of interaction between delegates and tutor. This provides delegates with the best learning opportunity to achieve learning outcomes

Courses are normally suitable for a maximum of 20 delegates

## Assessment

All courses can be assessed, if required.

Assessment standards are based on delegates National Occupational Standard workplace role

## Xact provision

On courses, Xact provides:

- Tutor with experience and expertise of course subject areas
- Specialist teaching staff such as lawyers, magistrates and trained actors
- Course design

- Comprehensive delegate manuals
- Delegate exercises to practise learning outcomes
- Specialist equipment
- Course assessment
- Course evaluation and report

### Additional provision

In addition, Xact will provide at customers request:

- Training venues
- Meals and refreshments
- Delegate accommodation
- Joining instructions
- Copies of relevant British/National Standard. The customer is normally able to provide delegates with a copy through its own facilities such as Barbour Index, IHS (formally Technical Indices), BSI etc. If customer is unable to provide a delegate copy, Xact will provide them at reduced rate of £165 in addition to course costs. A copy of BS 9999:2008 normally costs £270

### Customer provision

Costs are based on customer providing teaching facilities as outlined in Appendix K

### Location

At a location to suit customer

### Dates

To suit customer. Please call to confirm dates

### Tutors/facilitators

With a highly experienced and authoritative teaching force, Xact has provided training to over 45 Fire Services in the UK and Ireland.

Each member of our team is available to provide dedicated training services to our customers. Their work is informed by extensive experience at operational level, combined with higher educational and teaching qualifications.

They have providing training to watch, station and group managers and recognise the knowledge, understanding and skills these groups require to function in the workplace and to ensure competency.

A number of Xact's tutors have a Fire Service background, being former watch, station and group managers themselves. Many have taught at the Fire Service College. They all possess the essential teaching quality of sound communication skills.

### **Qualifications - Tutors/facilitators**

Qualifications of tutors relevant to Fire Safety include:

- Fire engineering (B Eng hons)
- Graduate and Members of the IFE
- Fire investigation
- Fire Safety Officers Course Modules A, B, C, D + E FSC
- Fire safety & fire risk assessment (NIFSP)
- NEBOSH Fire Safety & Risk Management Certificate
- NEBOSH General Certificate in Health & Safety
- NVQ Assessors
- B.Sc. Building Fire Studies
- A range of teaching qualifications

### **Enquiries**

Please call us on 08545 0941 885 or complete enquiry form (Appendix L) and fax, email or post form to Xact

## Teaching facilities for 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

### Additional requirements for specific courses:

#### Principles of fire risk assessment auditing

- Customer's policies and procedures relevant to Regulatory Reform (Fire Safety) Order 2005, enforcement, auditing and fire risk assessments
- Venues for practical exercises - premise audits <sup>1</sup>
- Transport to exercise venues
- Fire Risk Assessments of premises used for auditing exercises

<sup>1</sup> **Note 3:** Premises include: Office, Shop, Block of flats/HMO, Residential care, Factory/warehouse and Place of assembly

#### BS 9999:2008

- Copy of BS 9999:2008 for each delegate <sup>2</sup>

<sup>2</sup> **Note 1:** Alternatively Xact can provide delegates with a copy to keep at a reduced rate of £165 (normally £270)

## Enquiry form

**Your contact details:**

Fire Service:

Name:

Role:

Telephone:

Email address:

**Course details:**

Course subjects:

Require training designed to meet a specific need? Please state subject areas:

How many delegates for each course?

Preferred training dates?

Message:

Please complete and:

- Fax to 0845 0941 887, *or*
- Scan and email to [courses@xact.org.uk](mailto:courses@xact.org.uk), *or*
- Post to Xact Consultancy & Training Limited, PO Box 42, Chipping Campden, Gloucestershire GL55 6WL

## 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

Xact are insured for:

Public and Employers Liability  
Professional Indemnity

### Office

Telephone: 0845 0941 885  
Fax: 0845 0941 887  
Address: PO Box 42  
Chipping Campden  
Gloucestershire  
GL55 6WL

### Contact

Trevor Norwood: 0845 0941 885  
Email: [trevor.norwood@xact.org.uk](mailto:trevor.norwood@xact.org.uk)