DESIGN of FIRE ALARM SYSTEMS

COURSE 460: 2 DAYS: Max 8 Candidates

It is the responsibility of the designer to ensure that a modern fire alarm system is fully compliant with both statutory and non-statutory regulations and standards, that false alarms are infrequent and that a real fire is detected quickly without damage to property or loss of life. This course provides delegates with the knowledge and skills necessary to design these systems competently. Candidates who attend this course may also like to attend course 470: Installation & Maintenance of Fire Alarms. Candidates who attend both of the fire alarm courses would be able to commission a fire alarm system.

PARTICIPANTS

The course is designed for those who have an electrical background (for example installation/maintenance electricians) or for those who have successfully completed course 110: Electrical Maintenance Skills.

COURSE PRESENTATION

The course is structured to follow the same logical decision making processes used in the design of a fire detection and alarm system. Each candidate is loaned a copy of the latest standards for reference during the course. The use of on-going assessments and a complete design project ensure that the candidates are able to meet the objectives of the course. Comprehensive course notes are provided.

COURSE OBJECTIVES

On completion of the course, participants will be able to:

- understand the way in which a large fire alarm system would be designed and zoned
- specify the import of the British Standards and Regulations relating to fire alarm systems
- identify the advantages and disadvantages of 4 wire, 2 wire and analogue systems
- state the defining features of the three categories of fire alarm system
- identify the advantages and disadvantages of the various types of detectors, beacons and sounders used in fire alarm systems
- understand the requirements of BS5839 with regard to the positioning of components
- identify the cabling requirements for mains supplies and detectors etc
- perform the necessary battery capacity calculations
- produce the required drawings, documents and certificates.

Successful completion of the course leads to the award of the Technical Training Solutions Certificate of Competence 460: Design of Fire Alarm Systems.

# What do candidates on the Design of Fire Alarms course actually do?

The Design of Fire Alarms course begins by looking at the Legislation, British Standards and Codes of Practice applicable to Fire Alarm Systems. The various requirements are explained, in particular the requirements of BS 5839-1 and BS5839-6. The issues affecting the decision whether or not to install a fire protection system and if so, which type to install, are then discussed. Candidates then learn about the three categories of system ie: M, P and L (Manual, Property and Life). The process of designating detector and sounder zones is then examined. We than explore the advantages and disadvantages of the three most commonly used fire alarm systems ie: 4 wire, 2 wire and analogue addressable, and the types of dwellings or premises to which each system is best suited.
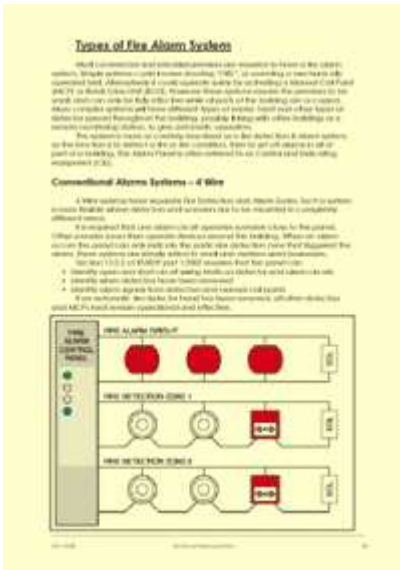
Page 35 of the course notes for the Design of Fire Alarms course, describing the 4-Wire types of fire alarm panel
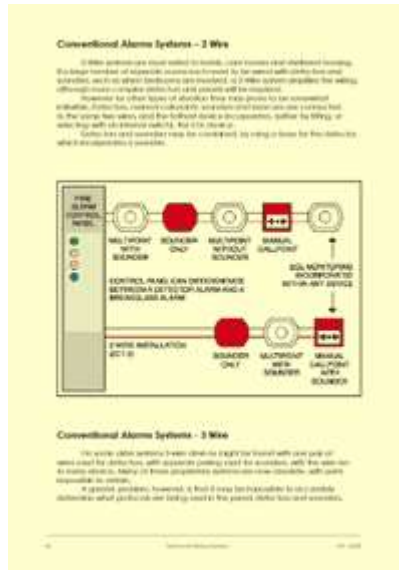
Page 36 of the course notes for the Design of Fire Alarms course, describing the 2-Wire types of fire alarm panel
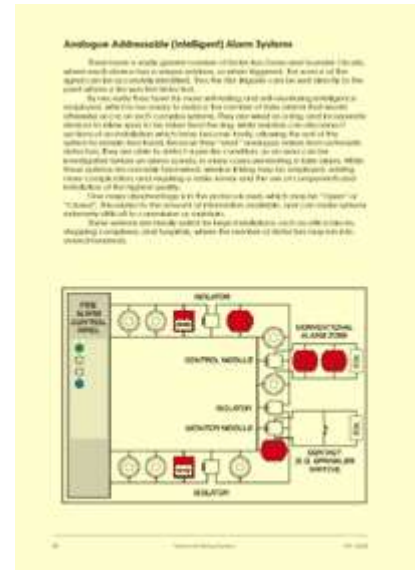
Page 38 of the course notes for the Design of Fire Alarms course, describing the analogue addressable types of fire alarm panel

We then examine the commonly used components of fire alarm systems, looking carefully at their advantages and disadvantages. We provide the candidates with a wide range of Manual Call Points, Detectors and Sounders as demonstration pieces.

Some of the detector bases, MCPs and sounders used on the design of fire alarms training course

We then analyse the requirements of BS5839 with respect to the positioning of MCPs, detectors, sounders and CIEs: Candidates on the Design of Fire Alarms course then look at how to perform the important battery capacity calculations and they practice doing these calculations on real systems. We also look at the certification requirements and practice completing the required paperwork, taken from appropriate parts of BS5839. In the practical exercises the candidates complete the relevant certificates as they go along.

Page 77 of the course notes for the Fire Alarms course, describing how sound intensities vary within a room and beyond a door etc

Page 116 of the course notes for the Fire Alarms course, where we use practical exercises to investigate methods of calculating the required battery capacities

Page 111 of the course notes for the Fire Alarms course, presenting an example of one of the certificates. On the course the candidates look at all the certificates that may be required

Finally, candidates are given a specific category, a set of drawings for a particular type of building and asked to design a fire alarm system, producing all of the relevant drawings, documentation and certificates.

If you would like to see some of the equipment used on the Fire Alarms course for yourself, then please call us to arrange a visit to our offices in Kent. Alternatively, we can visit you anywhere in the British Isles.