FireQual Level 3 Award in Fire Detection and Alarm Maintenance Theory and Regulatory Requirements

Version Control

The below table displays information relating to when changes were made to this document and what changes have been made.

Please continue to check back with the FireQual website to ensure you are accessing the most recent version.

Date of Update	Name	Description of Update
January 2024	Jackie Morris	Creation of document
January 2024	Steve Skarratt	Addition of Ofqual Qual number

Contents

About Us

FireQual was established in 2020 in response to a need to provide structure and rigour to qualifications that support the strengthening of the competencies of those involved in all aspects of fire safety and the wider building industry.

FireQual provide nationally and internationally recognised qualifications ensuring that wherever an individual achieves the qualification, they have met the same requirements providing confidence in the level of their knowledge and skills.

As a result, industry and employers can be confident in the knowledge and skills of those that work for them and the wider society can have confidence in those that provide services to them.

Qualification Summary

This qualification is intended to provide technicians with the knowledge and skills necessary to work on the maintenance, inspection, and testing of existing systems.

Technicians will understand the specific requirements of current and relevant UK legislation alongside other associated standards, the technologies available through to testing methodology, fault finding, servicing and maintenance, through to certificating the work carried out and record keeping.

This qualification is not linked to any manufacturer of FD&A equipment and will not include specific requirements set by those manufacturers for making connections, programming and testing. It is strongly recommended that technician's complete product specific training from their chosen manufacturer in addition to completing this qualification.

Qualification Details

Title	FireQual Level 3 Award in Fire Detection and Alarm Maintenance Theory and Regulatory Requirements
Regulator	Ofqual
Qualification Reference Number	610/3604/3
Date for First Registrations	22/01/24
Last Date for Registrations	TBC
Grading System	Pass/Fail
Credit Rating	9
Total Qualification Time (hours)	88
Guided Learning (hours)	44
Directed Learning (hours)	38
Assessment Time (hours)	6
Age Ranges	16-18, 19+
Assessment Type	Multi-choice e-Assessment and RPL
Entry Requirements	Candidates should be proficient in core skills literacy, numeracy, and communication. It is recommended that candidates entering this qualification have previously gained field experience either in FD&A and/or appropriate levels of education and/or experience in associated industries

Qualification Structure

This qualification has the following structure:

Those undertaking this qualification must achieve the units listed within this specification

Unit Reference	Unit Title	Mandatory/Optional	RQF Level	RQF Credit
FFDA1	Foundation in Fire Detection and Alarm	Mandatory	3	4
EFST2	Environmental for Field Service Technicians	Mandatory	3	1
HSFST3	Health and Safety for Field Service Technicians	Mandatory	3	1
FDAAM4	Fire Detection and Alarm Advanced Maintenance	Mandatory	4	3

Regulatory Details

The Regulator

Office of Qualifications and Examinations Regulations (Ofqual).

Ofqual maintain standards and confidence in qualifications, examinations, and assessments in England. It is the statutory regulator for GCSEs, A Levels, AS Levels, Vocational and Technical Qualifications and Apprenticeship End-Point Assessments. They are independent of government and report directly to Parliament.

Ofqual was established in April 2010 under the Apprenticeships, Skills, Children and Learning Act 2009 and is also covered by the Education Act 2011. Ofqual have responsibility for making sure that qualifications are a reliable indication of the knowledge, skills and understanding that learners have demonstrated; that assessments and exams show what a learner has achieved; that the public can trust and have confidence in GCSEs, A levels, and Vocational and Technical courses; and that information about exams is available to learners and teachers. Ofqual monitors the activity of Awarding Organisations (AOs) and takes action when there is a risk to quality.

Further details regarding Ofqual can be seen by visiting their website, https://www.gov.uk/government/organisations/Ofqual/about .

The Regulated Qualifications Framework (RQF)

The RQF was launched in 2015 as a framework within England and Wales to support those who undertake qualifications, or otherwise engage with education, understand how a qualification compares to another. Each qualification within the framework will hold a level.

By using two measures, the level of a qualification or learning programme and the number of credit points awarded, the Framework helps you understand and compare various RQF qualifications.

The level of qualification indicates the level of difficulty, and the number of credit points indicates the length of time it takes to complete. One RQF credit point represents an average of 10 hours of learning time.

Qualification Level

The table shows a comparison between qualification levels on the Scottish Credit and Qualifications Framework (SCQF), the Regulated Qualifications Framework (RQF) and Credit and Qualifications Framework (CQFW) in England and Wales, and the European Qualifications Framework (EQF).

RQF	EQF	SCQF	CQFW
8	8	12	8
7	7	11	7
6	6	10/9	6
5/4	5	8/7	5/4
3	4	6	3
2	3	5	2
1	2	4	1
Entry Level 3	1	3	Entry Level 3
Entry Level 2		2	Entry Level 2
Entry Level 1		1	Entry Level 1

The RQF has three entry levels: 1, 2, 3 plus levels 1 to 8. An approximate comparison of levels 1 to 8 to existing qualifications in England is:

1 – GCSEs (grades 3-1: previously D-G)
2 – GCSEs (grades 9-4: previously A*-C), CSE grade 1, O level grade A,B or C
3 – Advanced level (A level) grade A-E, AS level
4 – Vocational Qualification level 4, Cert HE, HNC
5 – Vocational Qualification level 5, Foundation Degree, DipHE, HND
6 – Bachelor's Degree (with or without honours)
7 – Master's Degree, Postgraduate Certificate and Diploma, PGCE
8 – Doctor of Philosophy (DPhil or PhD).

Credit Rating

RQF qualifications will be assigned a credit value to indicate how much learning is involved when undertaking the qualification. One credit is the equivalent of approximately ten learning hours.

Guided Learning is activity that is undertaken by an individual that is taught, instructed by or under the direct supervision of a lecturer, supervisor, tutor or other appropriate provider of education or training whether face to face or through real time electronic means, e.g. video conferences.

Directed Learning is activity that is undertaken by an individual that is not under the direct supervision of a lecturer, supervisor, tutor, or other appropriate provider of education including the accessing of pre-recorded training sessions where there is no real time interaction.

Assessment is activity that the learner undertakes to evidence their competency against the knowledge and/or skills requirements of the qualification in order to achieve the qualification.

Total Qualification Time is calculated by adding together the time that the 'average' learner would take to complete the guided learning, directed learning and assessment activities to achieve the qualification.

Delivery Organisation Requirements

Pre-Approval

Prior to the promotion or delivery of this qualification an organisation is required to successfully apply to join the FireQual network and gain prior approval to deliver this qualification. Until this has been gained, an organisation will not be able to promote or recruit individuals to undertake this qualification.

Delivery of Training

FireQual do not deliver training or resources to aid the training and preparation of individuals in preparation for undertaking assessment of this qualification.

It is the responsibility of the organisation to design, develop and provide training resources to support individuals to develop the necessary knowledge and skills to enable them to demonstrate their competencies with relation to the requirements of this qualification.

FireQual do indicate areas for inclusion within the unit details held within this specification and can provide guidance to organisations as they develop their own materials.

Registration of Individuals

It is the responsibility of organisations to ensure that individuals they are supporting towards the achievement of the qualification are registered in a timely manner and, at the latest, by the last date for new starts as indicated within this specification.

If an individual has not been registered and entered for the relevant assessment by this date, we cannot guarantee that they will be accepted.

Certification of Individuals

It is the responsibility of organisations to ensure that certification claims are made in a timely manner to ensure that individuals are not delayed in receiving their certification.

Where a qualification has expired or withdrawn, there will be a published date for last certification and all certification claims should be submitted by this date as, if they are received late, we cannot guarantee that certification can be provided.

Delivery Staff Requirements

There are no formal fire systems qualification requirements for training to this qualification. However, trainers should hold experience either as a practicing technician in the field or as a contributor to relevant British and/or EU standards.

Although not mandatory, trainers would be demonstrating best practice if they held or were working towards a relevant teaching/training qualification, e.g. PTTLS or equivalent.

Candidate Information

Entry Requirements

Candidates should be proficient in core skills literacy, numeracy, and communication.

It is recommended that candidates entering this qualification have previously gained field experience either in FD&A and/or appropriate levels of education and/or experience in associated industries

Assessment Method

This qualification is assessed through multiple choice e-Assessments using our online system. E-Assessments will contain a series of questions accompanied by a selection of answers of which only one will be correct, unless specifically stated by the question. You should clearly identify the correct answer in the stated manner. E-Assessments are marked to a specific marking template.

Results will be issued by the e-Assessment system, but they will be subject to any moderation actions that may be carried out by FireQual and may therefore be subject to change. Formal results will be confirmed no later than two weeks following completion of the assessment.

Where appropriate, and noted within the details of the individual unit, candidates may use equivalencies to evidence achievement of the unit in line with the published Recognised Prior Learning policy.

Where this is the case, evidence will be submitted to FireQual for verification prior to the authorisation of certification claims.

For the unit Health and Safety for Field Service Technicians, where equivalency cannot be evidenced, the candidate may use RPL and knowledge discussion as evidence. This will be submitted to FireQual for verification prior to the authorisation of certification claims.

Reasonable Adjustments and Special Considerations

A reasonable adjustment is any action that helps to reduce the effect of a disability or access issue that places the candidate at a distinct disadvantage during the completion of an assessment. They are made to an assessment for a qualification to enable a candidate to demonstrate knowledge, skills and understanding of the levels of attainment required by the specification, for the qualification.

In their application a reasonable adjustment must not impact the integrity or validity of the qualification but may include:

1. Allowing extra time to complete assessment
2. Providing assessment materials in specific formats (e.g. Braille)
3. Providing assistance during assessment (e.g. sign language interpreter)
4. Reorganising the assessment room (removal of visual stimuli for autistic learners)
5. Changing assessment method (changing from written to spoken assessment)
6. Using assistive technology
7. Providing coloured transparencies to overlay and view assessment papers.

Reasonable adjustments may be applied to either paper-based or e-Assessment and, in the case of e-Assessment, may be made available through the user settings on the electronic device used for assessment at the time of exam.

In cases where paper-based assessment is carried out, reasonable adjustments are put in place, prior to assessment, through arrangements between the Centre and FireQual.

Reasonable adjustments constitute an arrangement to give the learner fair access to the qualification and must not be used to give any learner an unfair advantage over other learners sitting the same assessment. The use of reasonable adjustments will not be taken into account during the assessment of a candidate's work.

Special considerations may be applied after the assessment if there was a reason the candidate may have been disadvantaged during the assessment. For example, special considerations may be applied if the candidate experienced; illness, injury or another event, outside of their control and has had or is likely to have had, a material impact on the candidate's ability to take an assessment.

Requests for special considerations should be made to FireQual in accordance with the published policy on Reasonable Adjustments and Special Considerations.

Appeals

The organisation providing this qualification will have a published appeals policy detailing how a candidate should appeal any assessment decisions that they have made. If one has not been provided, it can be requested from a member of staff at the organisation who will provide one.

A candidate should follow the organisation's appeals process prior to escalating an appeal to FireQual.

Where a candidate wishes to appeal a decision made by FireQual rather than the delivery organisation, they will have four weeks from the date of notification of the assessment decision. They should submit as much detail to explain the reasons for the appeal and evidence to support the reasoning.

The FireQual appeals process contains multiple escalation stages culminating in an independent review. On completion of the FireQual appeals process, if the appellant is still not satisfied, they can escalate a complaint to Ofqual. The process can be found on their site at https://contact.Ofqual.gov.uk/

Please note that there may be non-refundable charges made to support the costs of processing an appeal where an appeal is not upheld.

Complaints

The organisation providing this qualification with will have a published complaints policy detailing how a candidate should submit a complaint if they feel they have not received a satisfactory service in the delivery of this qualification. If a copy has not been provided, it can be requested from a member of staff at the organisation who will provide one.

A candidate should follow the organisation's complaints process prior to escalating a complaint to FireQual.

Where a candidate wishes to complain about the service provided by FireQual rather than the delivery organisation, they should submit as much detail to explain the reasons for the complaint and evidence to support the reasoning.

We do understand that a candidate may wish to make a complaint anonymously and we will attempt to process these complaints in the normal manner. There may however be occasions where an anonymous submission can cause any subsequent investigation to be hindered and so it may not be possible to reach a comprehensive outcome.

If a candidate does not agree with the outcome of the FireQual complaints investigation process, they can access our appeals process to challenge this.

Due to the nature of complaints and the outcomes that these can lead to, we may be unable to provide full details of remedial actions taken as a result of a complaint being upheld, for example where an action relates to personnel.

In these instances, we will provide information as to whether the complaint has been upheld and, where the candidate has been adversely affected in the progress or achievement of this qualification, the actions that will be taken to remedy this.

Where the candidate may not be happy with the outcome of the complaints process, and all FireQual stages have been exhausted, they can submit their complaint to https://contact.Ofqual.gov.uk/ .

Ofqual Accreditation will consider an escalated complaint with regards to:

- Customer service issues such as how the AO has handled a complaint
- Concerns that an AO has not followed its' procedures properly
- Concerns that an AO is in breach of Ofqual rules

You can complain to Ofqual if:

- You are complaining within 12 months of the issue arising
- The awarding organisation or qualification are regulated by Ofqual – check on the Register of Regulated Qualifications
- The complaint is about:
  - an awarding organisation not complying with our regulations
  - the awarding of a regulated qualification
  - an issue that could undermine public confidence in regulated qualifications

You cannot complain to Ofqual if:

- You are complaining about an issue that they have already fully investigated using this procedure
- You are unhappy with your grade and the qualification has its own appeals procedure (for instance, GCSEs and A levels have their own process)

- The complaint is about a school, college or training provider, or about the quality of teaching or training – you should complain directly to the school or college
- The matter is, or has been, the subject of legal or on-going regulatory action, or potential action'

Ofqual do not have the power to change grades awarded. These can only be changed by the relevant awarding organisation. If you are seeking financial compensation, you may wish to seek independent legal advice. Ofqual is unable to award compensation and cannot provide this outcome.

https://www.gov.uk/government/organisations/ofqual/about/complaints-procedure

Please note that there may be non-refundable charges made to support the costs of processing a complaint and subsequent appeal where a complaint or subsequent appeal is not upheld.

Units

The following pages contain details of the unit(s) contained within this qualification and the relevant information that must be followed to support achievement of the qualification.

Foundation in Fire Detection and Alarm

Reference Number	FFDA1		
Unit Status	Mandatory		
Unit Level	3	Unit Credit	4
Guided Learning (hours)	16		
Directed Learning (hours)	24		
Assessment Time (hours)	1		
Grading System	Pass/Fail		
Assessment Method	Multi-choice e-Assessment		

Unit Overview

This unit provides foundation level knowledge and understanding of the legislative requirements, codes of practice and guidance for FD&A systems. Candidates will also gain knowledge and understanding of working in the FD&A sector common to all the advanced units including working with third parties, documentation, fire event, passive systems, FD&A technology, simple design principles, false alarms, and unwanted fire signals.

This unit does not provide a qualification for technicians/engineers to work in any associated specialised field and must be completed as part of a suite of units fulfilling the requirements of a published qualification.

Unit Detail

Subject Area	**Assessment Criteria**	
Legislation	Candidates will have knowledge and understanding of: 1. Current UK fire law a. UK fire law according to the relevant UK country in which they are working b. Variations to fire legislation across UK national boundaries c. Personal responsibilities, as prescribed by current legislation, relevant to their region 2. EU directives pertaining to fire law and fire safety products with specific reference to: a. Directive 2014/34/EU (ATEX) b. Directive 2014/35/EC (LVD)	Candidates will understand how to: 1. Explain current applicable UK fire law applicable to the UK country in which the candidate works within a. List key roles defined in current UK fire law and explain the responsibilities defined for each role b. State and explain variations in UK fire law between countries other than that in which the

	c. Directive 2014/30/EU (EMC) d. Directive 2011/65/EU (RoHS) e. Directive 2012/19/EU (WEEE) 3. The Construction Products Regulation (CPR) a. How CPR relates to products used in fire safety systems and their relationship to other EU regulations b. Recognised/approved CE markings c. The difference between CE markings and third-party approval, self-declaration d. Declarations of performance e. Use of non-CE marked equipment	candidate is based/employed 2. Explain the relationship between EU directives and UK fire law a. Explain the purpose of specific directives, providing a brief explanation of the area covered and the intent of the directive 3. Explain the purpose of the Construction Products Regulation

Explanatory Notes:

Compliance with fire law is mandatory and ignorance of requirements laid down does not serve as a defence in court.

Candidates will not only be required to have knowledge and understanding of fire law pertinent to their own country in which they will be working, but also of difference in fire law for other countries of the UK. Candidates will also be required to demonstrate awareness and understanding of the variations in building regulations between the UK countries.

Legal requirements on fire systems are not restricted solely to specific fire law, but other forms of legislation will also apply, such as EU regulations requiring that equipment be fit for its designed purpose and having been tested as compliant. Knowledge and understanding of other regulations will raise awareness of legal requirements placed for FD&A systems and assist the candidate in their prevention of the use of either the wrong or inappropriate equipment and/or practices in the FD&A systems for which they hold a responsibility.

Candidates are to be aware that legislative requirements take precedence over published guidance and third-party requirements such as insurance.

Subject Area	**Assessment Criteria**	
Standards, Codes of Practice, Guidance and Technical Notes	Candidates will have knowledge and understanding of: 1. Standards, codes of practice, guidance documents and technical notes a. Definition of a standard and its purpose b. Definition of a code of practice and its purpose	Candidates will understand how to: 1. Explain in general terms: a. The titles and aims of a range of standards, codes of practice and guidance documents related to the FD&A sector b. A general definition for standards, codes of practice and guidance

	c. Definition of a guidance document and its purpose d. Definition of a technical note and its purpose e. How a code of practice, guidance document and a technical note relate to fire law and their use in fire safety systems f. Awareness of different standards outside of the UK g. What standards, codes of practice and guidance documents are currently available for FD&A systems and their purpose 2. British Standard 5839 a. The structure of BS 5839 and the function of the different sections within them, ie. normative, commentary b. The different parts to the standard and the specific fields covered, eg. for BS 5839 with reference to parts 1, 6, 8 and 9 3. Categories of system and the fundamental differences between them according to parts 1 and 6 4. Zoning requirements and of the zone plan according to parts 1 and 6 5. Defined roles, Premises Manager (PM) and Competent Person (CP), and their definitions 6. Requirements for and the need to certificate work carried out: design certificate, installation certificate, commissioning certificate, modification certificate, and maintenance certificate 7. End user documentation, ie logbook	documents and their aims c. How standards, codes of practice and guidance documents related to UK fire law d. Awareness and understanding of different standards used outside of the UK 2. With specific reference to BS 5839 a. Provide an outline of the structure of standards and the purpose of each element b. Explain the parts included and state the area of system covered 3. Provide a brief explanation of system categories and outline the levels of coverage provided by each 4. State the purpose of zone planning and explain the main requirements for defining a zone 5. State the specific roles defined within the standards and the function carried out accordingly 6. State the certificates required, the purpose of the certificate at each stage and who should complete and issue them 7. State the requirements for and purpose of end user documentation 8. Explain the purpose, use and recording requirements for approved variations

	8. The use, purpose and recording of agreed variations	

Explanatory Notes:

Standards, codes of practice, guidance and technical documents help to facilitate compliance with fire law. Candidates will understand where each publication sits in relation to fire law, along with their intended purpose and use.

With knowledge and understanding of what standards, codes of practice, guidance documents, eg. healthcare technical memorandums, and technical notes are and how they are used, candidates will focus their knowledge and understanding on BS 5839, with specific reference to the structure of the standard, what each part specifically covers and the generally stated requirements, ie. general requirements not otherwise covered under technology or simply design principles.

Subject Area	**Assessment Criteria**	
Working with third parties	Candidates will have knowledge and understanding of: 1. Agreements/contracts between the client and service providers 2. Third-Party Certification Schemes a. The aims and purpose of Third-Party Certification Schemes b. How they apply to products and services c. Scheme providers and scheme names d. Key considerations required to gain approval for Third-Party Certification 3. Insurance requirements and their influence on the FD&A System	Candidates will understand how to: 1. Demonstrate awareness and understanding of the need for and use of an agreement or contract between a service provider and their client 2. Provide an explanation of Third-Party Certification Schemes and the scheme providers a. Provide a summary description of Third-Party Certification Schemes, their purpose and aims b. Explain how Third-Party Certification Schemes apply to products and services and be able to explain the stated aims and scope of a certificate c. List the main providers of Third-Party Certification Schemes for the FD&A sector and the scheme numbers d. Explain the difference between modular certification and all-inclusive and give examples of the relative benefits to each

		e. Explain key considerations to gain approval 3. Describe the potential effect that requirements set by insurers can have on an FD&A system

Explanatory Notes:

Throughout their lifetime, FD&A systems will not only involve the Premises Manager/Responsible Person, but also various other operators and specialist persons to ensure they are fit for purpose and functioning according to their specified roles.

It is important to be aware of the contractual obligations between all parties involved. Whether that be additional or specific requirements laid down for insurance purposes or enforcement bodies or ensuring that service providers have the necessary and relevant demonstrable competence to carry out the work.

Subject Area	**Assessment Criteria**	
Documentation	Candidates will have knowledge and understanding of: 1. Documentation required for an FD&A system a. Regulation 38 b. Fire strategy c. Evacuation strategy d. Fire risk assessment e. Zone plan f. System drawings (design plan, as fitted and as wired drawings) g. System certificates (design, installation, commissioning, inspection and servicing and Third-Party system certificates) h. Logbook(s) i. Manuals 2. Documentation for which the Premises Manager/Responsible Person is responsible a. The log books b. Fire risk assessment c. Zone plans d. Certificates e. System drawings, as fitted/as wired diagrams	Candidates will understand how to: 1. List the documents required for the fire safety systems of a building a. Provide a brief overview of the purpose of each document b. State the person(s) responsible for producing and maintaining each document c. Provide an overview of the purpose of the fire risk assessment, who is responsible for its production and upkeep d. State and provide an outline description of the 5 steps to a fire risk assessment, as published in the government guides e. Provide a brief overview of the purpose of a Zone Plan, where its should be displayed and responsibility for its production and upkeep f. Provide a brief overview of the

		purpose of and responsibility for system drawings and provide example drawings for each g. Provide a brief overview of the purpose and the responsibility for system certificates h. Provide a brief overview of the purpose of Third-Party Certification for an FD&A system i. Provide an overview of the purpose of a logbook, the information that should be included within it and who is responsible for its upkeep j. Provide an overview of system manuals, their purpose and the responsibilities for their production and maintenance 2. Explain the responsibilities of the Premises Manager/Responsible Person for system documentation

Explanatory Notes:

Understanding the documentation required and the responsibilities for their retention and upkeep will help candidates to assist customers in complying with their legal requirements.

Awareness of all documents included as part of a fire safety file for the building will be supplemented with deeper levels of knowledge and understanding of documents most applicable to the FD&A technician. For candidates returning to complete the advanced specialist units, understanding the requirements and responsibilities for documentation will serve as a prerequisite in their preparation for final assessment.

Subject Area	**Assessment Criteria**	
Fire Event	Candidates will have knowledge and understanding of: 1. The basic scientific principles of fire including: a. The Fire Triangle and Pyrolysis b. Flammable materials and	Candidates will understand how to: 1. Provide an explanation of the science of fire and extinguishing a. Explain the fire triangle and the process of pyrolysis b. List the different types of flammable material providing examples of each

	sources of ignition c. Extinguishing methodology d. Fire spread, flashover, and backdraught e. Fire stopping and compartmentation 2. Procedures to confirm a fire event a. Alarm confirmation b. Coincidence, double knock automatic alarm c. Visual confirmation 3. Policies and procedures in the event of a fire a. Pre-alarm b. Stay put policy c. Phased evacuation d. Disability and equalities legislation applicable according to the UK country where the candidate will be employed (evacuation of persons with mobility difficulties, refuges, assistive equipment) e. Fire marshals f. Fire safety and building security	c. Explain the basic principles of extinguishing and how selected extinguishing media work (starvation, asphyxiation, cooling) d. Explain the stages of fire spread with an overview of conduction, convection, radiation, flashover, and backdraught e. Explain the importance of speed in detecting fire in relation to life and property f. Explain the principles of fire stopping and compartmentation 2. Explain why it may be necessary to carry out fire confirmation and the common processes used a. Explain the relative benefits and pitfalls of automated confirmation of a fire versus manual confirmation, ie. confirmation through automated fire detection against human investigation/confirmation 3. Explain the purpose and principles of different fire strategies, giving basic examples of where they may be necessary and the limitations to use a. Provide examples and a brief explanation of what measures may be necessary to aid the evacuation of persons with limited mobility b. Explain the purpose of a fire marshal c. Explain the implications and risks to both fire safety and to building security in the event of a fire

Explanatory Notes:

Knowledge of fire science and strategies for handling a fire incident provides a comprehensive background understanding of the need for and influence of an FD&A System. Enabling the candidate to clearly explain how the installation of an FD&A system will assist and contribute to the overall fire safety of a building.

Candidates will also be able to explain basic requirements for fire safety of persons covered by disability legislation pertaining to UK country in which they will be working. This will include any legal requirements for compliance with prevailing legislation the equipment available to assist in

raising alarm and for safe evacuation. Candidates will also demonstrate understanding on building security and provisions for enabling safe evacuation where security is of concern, eg. BS 7273-4

Subject Area	Assessment Criteria	
Passive Fire Protection	Candidates will have knowledge and understanding of: 1. Common structural materials, their reaction to fire and their fire-resistant properties 2. Processes and materials that may be used to increase fire resistance a. Covering materials b. Intumescent coatings and seals 3. The implications to fire safety/fire stopping when passive fire protection materials and coatings are damaged or breached a. Penetrations through fire compartmentation and fire rated materials b. Impact damage to fire resistant coatings c. Damage to fire resistant covering	Candidates will understand how to: 1. Provide a brief explanation of the term 'passive fire protection' and how they affect building structure and materials 2. Be able to state what additional materials/methods can be used to increase fire resistance 3. Explain how fire-resistant properties can be compromised and what should be done to mitigate this

Explanatory Notes:

Touching on passive fire protection, candidates will develop understanding of the materials used in a building and the implications of any damage that may result. They will develop an appreciation for and understanding of the implications of penetrations through fire compartmentation, along with an appreciation of the materials and measures available to reinstate fire stopping.

Subject Area	Assessment Criteria	
FD&A systems technology	Candidates will have knowledge and understanding of: 1. The technologies available within the FD&A sector, including current, emerging, and legacy technology still found in the field. This will include but is not limited to: a. Self-contained/combined devices b. Detection technology i. Point type detectors	Candidates will understand how to: 1. Provide a brief explanation of: a. Different types of detection technology available and give a brief description of how they work b. Alarm technologies available and give a brined description of how they work, any restrictions on their usage, ie. sound pressure levels/strobe

	ii. Linear cable iii. Beam detectors iv. Aspirating detection v. Video smoke and flame detection c. Types of alarm technology i. Bells ii. Sounders iii. Voice alarm iv. Visual alarm v. Tactile devices d. System communications i. Hard wired ii. Wireless e. Communications with Alarm Receiving Centres (ARC) f. Analogue systems i. Open and closed protocol g. Conventional systems i. 2 and 4 wire 2. The relative advantages and disadvantages of each technology against its peers and considerations for best usage	effect, and the relative benefits of each c. Communication technologies within the FD&A system for both hard wired and wireless systems d. Technologies for communication with the Alarm Receiving Centres (ARC) e. The practice of utilising the security system for communications with ARC and the relative risks and benefits f. Communications within the FD&A system 2. Provide a summary and brief explanation of the relative advantages and disadvantages to using any of the technologies, in comparison to its technological peers, eg. the beneficial difference between point and linear detectors or addressable and non-addressable

Explanatory Notes:

Understanding the technologies available will enable the candidate to identify which technologies suit any situation. They will be able to advise what technology will work in the space available and the relative benefits of each.

Subject Area	**Assessment Criteria**	
System Design (requirements as per BS 5839 parts 1 and 6)	Candidates will have knowledge and understanding of: 1. System categories and the requirements placed upon system design a. Life protection, categories L1 – L5, LD b. Property protection, categories P1 – P2, PD c. Manual protection, category M d. Multiple categories, eg. L3/P2	Candidates will understand how to: 1. Provide an overview of system categories and their requirements for coverage a. Life, property and manual protection categories and considerations to be made when selecting the right category b. Protection grades for dwellings 2. Explain what is meant by the terms Detection Zone and Alarm Zone and how they apply to system design

	e. Dwellings protection, grades 2. Zones a. Detection zones b. Alarm zones 3. Positioning, including awareness of special considerations for voids, ducts, and pitched roofs as applicable a. Detection coverage for point, linear and beam detectors b. Manual Call Points, including a definition of final exit and travel distance c. Audibility and positioning of audible alarms d. Visibility and positioning of visual alarms e. Control and Indicating Equipment (CIE) 4. Cabling a. Grades of cable, standard or enhanced b. Cable paths c. Cable fixings d. Cable limitations 5. System cause and effect 6. Awareness of Construction Design Management (CDM) regulations and considerations to be made in system design	3. Explain the design considerations for a. Correct placement of devices i. Point and linear detectors ii. Audible and visual alarms iii. Manual Call Points b. The additional recommendations that would apply for i. Pitched roofs ii. Voids iii. Ducts 4. State the considerations for cable selection and the requirements for cable fixings, cable paths, type, size, and colour 5. State the principle of cause and effect in system design a. State the difference between cause and effect programming and cause and effect through hard wiring, giving relative benefits of each 6. State what considerations would be given for compliance with CDM regulations and how system design can help compliance 7. Set out very simple design plans against example rooms and/or zones provided

Explanatory Notes:

Understanding simple design principles enables the candidate to recognise when a design plan or an installed system needs to be referred to the designer for review

It should be noted that the aim of this module is not to empower a candidate as a system designer but to recognise where design may need to be amended by a competent designer or where a fitted system may need changes made.

Subject Area	**Assessment Criteria**	
Explosive Environments	Candidates will have knowledge and understanding of: 1. Explosive environments a. The type of environment that	Candidates will understand how to: 1. Recognise a. Classification, types, and nature of explosive environments

	would be considered explosive b. Hazards leading to explosion 2. The measures that should be taken to mitigate the risk of explosion a. Working in an explosive environment b. Equipment and system components available for explosive environments	b. Hazards when working in an explosive environment 2. Provide a brief explanation of measures that may be made to reduce or mitigate risk a. Changes to the environment b. Provisions for equipment and system devices for explosive environments

Explanatory Notes:

Having an awareness of explosive environments and the risks associated with them is a key to life safety when progressing to more advanced units. Awareness of explosive environments at this stage adds an awareness of special considerations for FD&A systems at all stages of the system life.

This subject is not intended to develop competency to work in or design systems for explosive environments, further training will be required for technicians intending to do so.

Subject Area	**Assessment Criteria**	
False Alarms and Unwanted Fire Signals	Candidates will have knowledge and understanding of: 1. False alarms and unwanted fire signals and their management a. Definition of and differences between a false alarm and an unwanted fire signal b. Recording of false alarms and unwanted fire signals c. Investigation 2. Causes of false alarm that may lead to an unwanted fire signal a. Equipment false alarms b. Unwanted alarms c. Malicious false alarms d. False alarms with good intent 3. Management of a system for the reduction of false alarms and unwanted fire signals a. Management/soft measures for the	Candidates will understand how to: 1. Provide an explanation of: a. False alarms and unwanted fire signals and the difference between them b. Reasons for recording false alarms and the information required c. Principles of investigation and points for consideration in identifying the causes of false alarms 2. Explain the causes of false alarms including: a. Equipment false alarms, their causes and prevention b. Examples of unwanted alarms c. Malicious false alarms d. False alarms with good intent 3. Explain the principles of false alarm management a. Management controls

	reduction of false alarms b. Physical measures for the reduction of false alarms 4. Steps that may be taken by the Fire and Rescue Service (FRS) to counter the effect of unwanted fire signals 5. Steps that may be taken for the reduction and/or prevention of unwanted fire alarm signals	b. Technical controls c. Soak testing 4. Explain the steps that FRS's may currently take to counter the effect of unwanted fire signals 5. State suggested actions that reduce or prevent unwanted fire signals

Explanatory Notes:

Unwanted fire signals lead to significant cost in terms of lost production for the business, staff time wasted, and, in some cases, costs associated with the deployment of the Fire and Rescue Service. Understanding the causes of false alarms and unwanted fire signals and the measures that can be put in place may counter any negative impact to business through disruption or to staff and residents through complacency in the system.

Fire Detection and Alarm Advanced Maintenance

Reference Number	FDAAM4		
Unit Status	Mandatory		
Unit Level	4	Unit Credit Value	3
Guided Learning (hours)	16		
Directed Learning (hours)	8		
Assessment Time (hours)	2		
Grading System	Pass/Fail		
Assessment Method	Multi-choice e-Assessment		

Unit Overview

This unit provides advanced knowledge and understanding of the legislative requirements, codes of practice and guidance for system maintainers in the FD&A sector of the fire industry. Candidates will also have gained best practice methodology, maintenance methodology, false alarm management, communication, and documentation.

Unit Detail

Subject Area	**Assessment Criteria**	
BS 5839/IS 3218	Candidates will have knowledge and understanding of: 1. The code of practice applicable 2. Requirements for routine inspections and servicing with respect to: a. Types of detector b. Siting of detectors c. Inspection/test of detectors d. Inspection/test of call points e. Inspection/test of alarm devices f. Inspection/test of power supplies g. Inspection/test of part 6 systems	Candidates will understand how to: 1. Recognise and apply the relevant, applicable, sections of the code of practice according to: a. Type of system b. Country/region 2. Recognise and apply schedules for service visits a. Routine inspection and servicing i. Types ii. Frequency b. Non-routine attention i. Types ii. Necessity 3. Identify and apply the requirements for routine inspections and servicing a. Suitability of detector type b. Siting of detectors

	h. Inspection/test of the CIE i. Inspection/test of connections to ARC j. Inspection/test of cabling k. Verification of cause and effect programming l. Radio signal strength tests m. Analogue detector signal levels 3. Requirements for non-routine attention: a. A new site/contract b. Arrangements for repair of faults or damage c. System modifications d. Unacceptable rate of false alarms e. Following a fire f. Following a long period of disconnection	c. Routine inspection and performance testing of detection devices as applicable i. Appropriate to detector/system ii. Selection of suitable tools and equipment iii. Appropriate/correct use of test equipment d. Manual call points e. Alarm devices i. Audible devices ii. Visual alarms iii. Tactile f. Power supplies i. Normal supply ii. Chargers iii. Standby supply iv. Labelling and marking v. Appropriate/correct use of tools and equipment vi. Safe working practices g. Part 6systems h. CIE i. Connections to ARC j. Cabling k. Cause and effect programming l. Radio signal strength on wireless and/or hybrid systems m. Analogue detector levels 4. Identify and apply requirements for non-routine attention a. Type of non-routine inspection i. A new site/contract ii. Arrangements for repair of faults or damage iii. Modifications iv. Unacceptable rate of false alarms v. Following a fire vi. Long period of disconnection b. Selection and use of suitable tools and equipment
Explanatory Notes: Maintenance technicians might have several different levels of skill within a typical company. This means that some might only be able to carry out regular servicing, whereas others might be able to conduct special inspections and even modifications.		

It is important that all maintenance technicians have an understanding of those skill levels so that the technician knows when they are competent to carry out certain tests and when they need to pass the work to a colleague.		
Subject Area	**Assessment Criteria**	
Documentation	Candidates will have knowledge and understanding of: 1. Logbook 2. As fitted drawings 3. Operation and Maintenance (O&M) manuals 4. Zone plans 5. Completing maintenance documentation 6. Non-compliance of documentation	Candidates will understand how to: 1. Review, interpret and complete the logbook a. Understand and interpret previous activity b. Identify any areas/parts of the system where a fault may be present c. Calculate the level and record false alarms/unwanted fire signals for the system and identify further investigation if required d. Update the logbook to record the results of the service visit 2. Review and understand the as-fitted drawings as applicable for type of maintenance visit 3. Review and understand the O&M manuals as applicable for the type of maintenance visit 4. Confirm accurate and appropriate provision of zone plan(s) a. Requirements for provision of the zone plan b. Interpret the zone plan as appropriate for the maintenance visit 5. Complete maintenance documentation as appropriate to the maintenance visit a. Identify any/which documentation requires completion b. Enter appropriate information as required following the maintenance visit c. Identify and report any outstanding issues making suitable record where required

		6. Recommend remedial actions to be taken following non-compliance of documentation

Explanatory Notes:

Maintenance technicians need to appreciate the importance of accurate documentation, to them, to their colleagues and to their customers. They will need to use and understand the documentation to get essential information and to be able to record what they have done on site, so that other technicians will be able to pick up where they left off, or at least know what has been tested already and what still needs to be done.

It is unlikely that all technicians will have been trained on all of the equipment that they will be required to operate, therefore, they will need to be able to get the information necessary for the system documentation.

Subject Area	**Assessment Criteria**	
Maintenance Methodology	Candidates will have knowledge and understanding of: 1. System inspection and testing methods 2. Selection and operation of test equipment 3. Interpreting inspection and test results 4. Fault finding, remedial actions, repair and recommendations 5. Modifications 6. Records	Candidates will understand how to: 1. Identify and recognise the inspection and testing requirements according to equipment or device under test a. Preparing the system for inspection and test b. Provide an explanation of the inspection and/or test being carried out c. Provide an explanation of any potential risks to operational effectiveness equipment and/or device and any actions required for mitigation d. Restoring the system for use following inspection and test 2. Selection and use of appropriate tools and equipment for inspection and test a. Correct tools/equipment for the task b. Calibration c. Pre-use inspections d. Safe operation 3. Recognise, interpret and verify inspection and test results as applicable a. Recognise inspection and test results as being in line with expectations b. Understand inspection and test results c. Verify inspection and test results against pre-

		defined limits if applicable d. Identify when further/remedial steps are required following verifications of inspection and test results 4. Recognise and identify system, equipment and device faults and any remedial actions/repairs required a. Recognise and identify faults in systems, equipment and devices b. Recommend any remedial actions required including escalation/referral c. Provide an explanation of/describe any repairs that may be carried out 5. Recognise where a modification is required and make recommendations if applicable a. Recognise and identify the type of modification required b. Recognise and make recommendations for escalation and referral if required c. Recognise and understand the inspection and testing requirements following completion of modifications 6. Identify the need for accurate recording of work completed during maintenance visits a. Recognise and record activity required for completion of documentation b. Recognise and record activities as best practice over and above that required by the code of practice

Explanatory Notes:

Understanding how to carry out suitable and applicable inspection and testing of the system is a requirement of maintenance and in order to do this the maintenance technician must understand the inspection and test being conducted, how it should be completed, the equipment and tools required and actions to be taken following interpretation of any results.

After completion of inspection and testing maintenance technicians will be required to demonstrate what remedial actions may be required and where such remedial actions will need escalation and/or referral to other persons or where such remedial actions are within the skills and scope of the maintenance technician.

Subject Area	**Assessment Criteria**	
False Alarm Management	Candidates will have knowledge and understanding of: 1. Categories of false alarms 2. Reviewing false alarm records and calculating false alarm rates 3. Typical causes of false alarms 4. Investigating false alarms 5. Measures to limit false alarms and unwanted fire signals	Candidates will understand how to: 1. Identify and list the categories of false alarms 2. Understand and interpret false alarm records and carry out calculations for false alarm rate a. Obtain appropriate records of false alarms b. Using records carry out calculations for false alarm rate c. Identify when the false alarm rate is outside of acceptable levels d. Identify when the number of false alarms ,excluded from calculations for false alarm rate, or unwanted fire signals are outside of acceptable levels 3. Recognise and identify typical causes of false alarms according to category and local environmental conditions a. Identify the cause of false alarms from symptoms presented b. Identify the causes of false alarms that may be presented according to detector type 4. Recognise and identify the requirements for false alarm investigations and provide an explanation of the requirements for and process of investigation a. With reference to false alarm records identify the requirement for and

		level of investigation if applicable b. Identify and provide a description of the steps required when carrying out an investigation c. Understand and interpret the results of a false alarm investigation 5. Identify and make recommendations for actions which may be taken, to reduce false alarms and prevent unwanted fire signals a. Selection of detector type b. Siting of detectors c. Filtering d. Management and maintenance e. Escalation and referral

Explanatory Notes:

False alarms waste money and resource, but they also cause complacency which can put lives and property at risk. It is essential that false alarms are recorded and reviewed and reduced to acceptable levels.

Subject Area	**Assessment Criteria**	
Premises Management	Candidates will have knowledge and understanding of: 1. The duties of the premises manager, with respect to legislation, testing and keeping the fire alarm system in good order 2. Training the premisses manger in the operation of the fire alarm system 3. Communicating non-compliances and faults in the fire alarm system and suggesting/recommending remedial actions 4. Assisting the premises manager in the reduction of false alarms and unwanted fire signals 5. Communicating system status during and following inspection and testing	Candidates will understand how to: 1. Provide an overview and explanation of the duties of the premises manager, as defined in the applicable code of practice 2. Provide an overview and explanation of system functionality a. Confirm the operation and functionality of the CIE b. Confirm the process for completion of user responsibilities, eg. weekly testing, completion of the logbook c. User replacement of consumables 3. Provide an explanation of identified non-compliances and faults in a system a. How they might affect the overall

		performance of the system b. Critical failure of the whole or part of the system c. Suggestions for remedial actions d. Preparing premises management for further works 4. Provide an explanation of false alarms, possible causes and recommendations for remedial actions a. Possible causes identified following investigation b. Recommended preventative action c. Recommended remedial action if appropriate 5. Provide an explanation of the information required by premises management and occupants before, during and after system inspection and test

Explanatory Notes:

Premises managers can vary considerably with respect to their knowledge, ability and attitude to safety of employees. The maintenance technician must therefore be skills in communication so that they are able to effectively relate to all types of manager, to ensure that appropriate understanding is achieved and that appropriate action is being taken.

This unit is not linked to any specific manufacturer and therefore descriptions of functions or features of FD&A systems will be generic and concentrate largely on those commonly available.

Subject Area	**Assessment Criteria**	
Waste Management	Candidates will have knowledge and understanding of: 1. Legal and environmental disposal of equipment, materials and packaging 2. Equipment and materials requiring disposal in accordance with environmental legislation 3. Requirements for transport of hazardous waste to point of disposal 4. Requirements for disposal of hazardous waste	Candidates will understand how to: 1. Identify and explain the requirement for disposal of equipment, materials and packaging according to legislation and environmental impact a. Identify the environmental legislation according to equipment/materials requiring disposal

		b. Explain the implications of improper disposal 2. Recognise and identify equipment and materials requiring disposal according to environmental legislation and guidance 3. Recognise special requirements that are applicable for the transport of hazardous waste 4. Recognise special requirements for the disposal of hazardous waste and sources of further information/disposal instructions if required

Explanatory Notes:

Some items of equipment are classed as hazardous, such as ionisation detectors and lead acid batteries. There are specific regulations relating to the disposal of such items at end of life, other equipment such as optical detectors and CIE come under the general WEEE directive.

Candidates will understand general requirements for safe disposal of equipment and packaging and, where specific, disposal requirements for equipment and materials classed as hazardous.

Environmental for Field Service Technicians

Reference Number	EFST2		
Unit Status	Mandatory		
Unit Level	3	Unit Credit	1
Guided Learning (hours)	4		
Directed Learning (hours)	4		
Assessment Time (hours)	1		
Grading System	Pass/Fail		
Assessment Method	Multi-choice e-Assessment or RPL		

Unit Overview

This unit provides knowledge and understanding of environmental law and specific requirements relating to the candidate's role as a technician within the FD&A sector of the fire industry. In particular, candidates will develop foundation level knowledge and understanding of environmental law, waste electrical and electronic equipment (WEEE), energy consumption, F-Gas and Ozone Depleting Substances (ODS).

Equivalency has been recognised for the following qualifications meaning that holders of the units/qualifications listed will not be required to complete this unit. Centres should refer to the Recognised Prior Learning policy for details on how to evidence prior learning against this unit.

- NEBOSH Certificate in Environmental Management Plus
- FIA F-Gas Certification for Service Technicians
- FIA Critical Use of Halon

For those candidates that do not hold one of the qualifications listed above, they may complete the multi-choice e-Assessment to evidence their meeting of the unit requirements.

Unit Detail

Subject Area	**Assessment Criteria**	
Environmental Law	Candidates will have knowledge and understanding of: 1. Definition of what is covered under the term 'environment' in the UK a. Air b. Water c. Land 2. Who is responsible for legislation and enforcement	Candidates will understand how to: 1. Explain what is meant by the term 'environment' and the overarching legislation for the protection of the environment a. Air b. Water c. Land 2. Name the agencies responsible for

	for the protection of the environment in the UK: a. EU b. Department for Environment, Farming and Rural Affairs (DEFRA) c. Environment Agency (EA) d. Natural resources Wales (NRW) e. Scottish Environmental Protection Agency (SEPA) f. Department of Agriculture, Environment and Rural Affairs (DAERA – Northern Ireland) g. Local Authorities 3. Environmental Management Systems for compliance with environmental legislation	regulating/enforcing environmental law and provide a brief overview of their areas of responsibility 3. Provide an outline description of Environmental Management Systems, their benefits and how they apply to an organisation's compliance with environmental legislation

Explanatory Notes:

This unit is not only intended to provide awareness of environmental law, which will serve to maintain regulatory compliance for both the fire business (the employer) and their clients, but will also provide a general understanding of the scale of regulations that are covered by the term 'environmental law'.

Further sections in this unit will highlight regulations that are specific application and interest to FD&A technicians/ this section is intended to provide a broad awareness and understanding of the legislation and the regulatory bodies that enforce environmental law.

Subject Area	**Assessment Criteria**	
Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)	Candidates will have knowledge and understanding of: 1. UK law (UK 2012 No. 3032) 2. The scope of coverage by the regulations 3. Compliance a. Self-declaration b. 3rd party declaration 4. Exempted applications 5. Enforcement authority	Candidates will understand how to: 1. Name current UK legislation and provide a brief overview of its intent, with reference to the overarching European directive 2. Identify and list the substances covered by the legislation 3. Explain the role of the manufacturers, importers, and distributors to ensure compliance and the options available to the technician for ensuring use of compliant equipment and materials 4. Identify and list examples of exempted applications for

		substances restricted by the regulations 5. Name the enforcement authority

Explanatory Notes:

It is not generally the responsibility of the technician to ensure compliance with the RoHS regulations within components, as that will be covered by the manufacturer. However, awareness of the regulations and understanding of the necessity for compliance will help to ensure that compliant equipment is sourced and used. Candidates will also have understanding of circumstance in which non-compliant equipment is identified, and the appropriate steps to be taken, either for its replacement with compliant components or if necessary, for continued legitimate use.

Subject Area	**Assessment Criteria**	
Waste electrical and Electronic Equipment (WEEE)	Candidates will have knowledge and understanding of: 1. The WEEE regulations and their intent 2. Outline requirements of the regulators a. Producer b. Distributor 3. Required markings on electrical and electronic equipment (EEE) 4. The scope of coverage by the regulations 5. Enforcement bodies	Candidates will understand how to: 1. Name and provide a brief overview of the WEEE regulations 2. Provide a summary of the distinction between producers and distributors and the requirements placed on them for compliance 3. Identify and describe the markings on electrical and electronic equipment (EEE) 4. Provide, with examples, a brief explanation of EEE covered by the regulations and where appropriate, any exemptions 5. Name/identify the enforcement authorities for each of the UK countries, and a brief overview of their powers

Explanatory Notes:

It is not generally the responsibility of the technician to ensure that a company is compliant with WEEE, however they may be required to facilitate the return of Electrical and Electronic Equipment (EEE), to ensure that a producer or distributor fulfil their regulatory requirement. Understanding the regulations and a general awareness of the requirements they place on producers and distributors will ensure their part in maintaining compliance.

Subject Area	**Assessment Criteria**	
Waste Framework Directive and Applicable UK Legislation	Candidates will have knowledge and understanding of: 1. Applicable UK legislation a. England and Wales b. Northern Ireland c. Scotland	Candidates will understand how to: 1. Name and provide a brief overview of the scope of UK legislation applicable to the Waste Framework Directive 2. Define what is meant by the term ‘producer’ and provide

	2. The producer and requirements placed upon them for the disposal of waste 3. The Waste Hierarchy 4. Waste licencing and documentation (controlled, hazardous, and non-hazardous)	a summary of the requirements placed upon them 3. Provide an explanation of the waste hierarchy and the processes for appropriate handling and treatment of waste 4. Provide, with examples, an explanation of the licensing and documentation required for the compliant handling, storage, and processing of waste materials by organisations and persons working in the fire safety technical services sector
Explanatory Notes: The technician will understand the requirements for effective and compliant waste management, disposal, and recovery so that their own activities and waste management ensures regulatory compliance for both the employer and the client		
Subject Area	**Assessment Criteria**	
Energy Consumption	Candidates will have knowledge and understanding of: 1. Energy consumption and energy demand reduction 2. Benefits of energy reduction a. Financial b. Environmental 3. Measures currently available that will enable organisations to reduce energy demand a. Low energy equipment b. Renewable energy generation c. Energy efficient buildings d. Energy efficiency schemes e. logistics	Candidates will understand how to: 1. Provide an outline overview of the terms ‘energy consumption’ and ‘energy demand reduction’ 2. Explain the benefits to the company for energy usage reduction a. Financial b. Environmental 3. List measures that may be implemented and how they can be used to reduce energy consumption
Explanatory Notes: While not specifically covered by legislation, there are several EU and UK Government requirements for the reduction of energy use. To that end, there are also a range of measures and technologies available that are intended to aid businesses and the consumer in energy reduction measures.		

Subject Area	Assessment Criteria	
Ionising Radiation	Candidates will have knowledge and understanding of: 1. The title and main principles regulations pertaining to ionising radiation within the fire safety sector 2. The responsible authorities for enforcement of the ionising radiation regulations pertaining to the fire safety sector 3. Application and impact to fire safety systems 4. Handling, transportation, storage, and disposal of equipment containing ionising radiation materials	Candidates will understand how to: 1. Name and provide a brief overview of applicable regulations 2. Name the UK authorities for enforcement 3. Recognise and provide an outline summary of the sources of ionising radiation used within fire safety systems 4. Provide an explanation of requirements for handling, transportation, and safe disposal
Explanatory Notes: The use of ionising radiation within the fire safety sector is limited however candidates should have an understanding of its use and the applicable controls regarding its use, handling, transportation, storage, and disposal.		

Subject Area	Assessment Criteria	
F-Gas (Fluorinated Gas)	Candidates will have knowledge and understanding of: 1. The Kyoto Protocol and its intent 2. Legislation and its application and use across the EU 3. Regulating authorities 4. Available guidance and standards 5. What F-Gases are and their use in fire protection 6. Individual responsibilities under the regulation 7. Record keeping, labelling and certification 8. Alternative agents to F-Gases 9. Treatment of F-Gases	Candidates will understand how to: 1. Explain the intent of the Kyoto Protocol 2. Name and provide a brief overview of the EU regulation 3. Identify the enforcement bodies across the UK a. Explain the penalties that may be imposed for non-compliance within the UK 4. Name the guidance documents available for F-Gas systems 5. Explain what F-Gases are and list the F-Gases used for the fire protection sector 6. Explain the individual responsibilities defined in the regulation 7. Explain the requirements for record keeping and certification of the system 8. Name and provide a brief description of the alternative agents to F-Gases 9. Provide an explanation of the terms:

		a. Recovery b. Recycling c. Reclamation

Explanatory Notes:

F-Gas is an effective and commonly used extinguishing agent used in both total flood and local applications. Technicians from both the FD&A and Portables sectors of the fire industry may be called upon to test and service systems containing F-Gases and are required by law to hold the appropriate qualification to carry out installation, servicing and decommissioning while preventing leakage.

Subject Area	**Assessment Criteria**	
Ozone Depleting Substances (ODS) (Halon)	Candidates will have knowledge and understanding of: 1. The Montreal Protocol and its intent 2. Legislation and its application and use across the EU 3. Regulating authorities 4. Ozone Depleting Substances (ODS) and their use 5. Treatment of halon gases	Candidates will understand how to: 1. Name and provide a brief overview of the Montreal Protocol 2. Name the title of the current legislation and provide a brief overview 3. Name and provide a brief overview of the regulating authorities and penalties that may be imposed 4. Provide a brief explanation of ODS and their provisions for critical use 5. Provide an explanation of the terms: a. Recovery b. Recycling c. Reclamation d. Destruction

Explanatory Notes:

Halon gas is still used, all be it under very strict controls. Technicians are required, by legislation, to ensure that halon is only used where it is approved for critical users and that all measures are taken to prevent unnecessary leakage. It is also important that recovered halon gases are treated accordingly to prevent unnecessary leakage to atmosphere of these Ozone Depleting Substances (ODS).

Health and Safety for Field Service Technicians

Reference Number	HSFST3		
Unit Status	Mandatory		
Unit Level	3	Unit Credit	1
Guided Learning (hours)	8		
Directed Learning (hours)	2		
Assessment Time (hours)	2		
Grading System	Pass/Fail		
Assessment Method	RPL or knowledge discussion		

Unit Overview

This unit provides knowledge and understanding of the responsibilities and duties placed on the employer and on themselves by the Health and Safety at work Act 1974 or by the Health and Safety at Work Order 1978 (Northern Ireland) with specific focus on those regulations likely to affect them as technicians working the FD&A sector.

In particular, candidates will gain basic knowledge and understanding of health and safety legislation, manual handling, working at heights, lone working, Provision and Use of Work Equipment Regulations (PUWER), personal protection equipment (PPE), asbestos and control of substances hazardous to health (COSHH).

This unit is not intended to establish the candidate as a health and safety advisor or health and safety representative but instead to ensure that the candidate understands the requirements and duties of the act and how to work in a safe manner.

Equivalency has been recognised for the following qualifications meaning that holders of the qualifications listed will not be required to complete this unit. Centres should refer to the Recognised Prior Learning policy for details on how to evidence prior learning against this unit.

- NEBOSH National General Certificate in Occupational Health and Safety
- NEBOSH National Certificate in Construction Health and Safety
- City and Guilds Level 3 Diplomas in Electrotechnical Technology (2357)
- NEBOSH National Certificate in Construction Health and Safety
- NEBOSH International Certificate in Construction Health and Safety

The following qualification has also been recognised as providing equivalency. Unlike those listed above, this qualification has a 2-year expiry date and so candidates wishing to use this qualification to prove equivalency must ensure that their ECS Health and Safety assessment is current by the time that the claim is made for the final FireQual qualification certification.

- ECS Health and Safety assessment issued either by JIB or SJIB

For those candidates who are not able to use one of the listed qualifications above to demonstrate equivalency, they can prove their meeting of the unit requirements through the use of both RPL and a

knowledge discussion conducted and recorded by the Trainer/Assessor where the candidate will be required to demonstrate their knowledge of the subject matters covered within the unit.

Both RPL and the knowledge discussion will be submitted to FireQual for verification prior to the authorisation of certification claims in line with the RPL policy.

A knowledge discussion should be planned and conducted by the Trainer/Assessor with the candidate where careful thought has been completed to provide thoughtful responses to the questions posed. The questions should be based on the standards within this unit to allow the candidate to fully demonstrate their knowledge of the subject matters indicated below.

If appropriate, and where possible, the candidate can use examples of their working practice to help in their demonstration of their knowledge.

The discussion should ensure that the candidate does demonstrate their knowledge and so it is not just enough to evidence that the candidate has done something, they should demonstrate they understand what they did and why they did it in the context of the subject matters covered within this unit.

Unit Detail

Subject Area	**Assessment Criteria**	
H&SAW Act 1974, H&SAW Order (NI) 1978	Candidates will have knowledge and understanding of: 1. Health and safety law 2. The provision of regulations supporting legislation and their status in law 3. The responsibilities defined by the legislation a. The responsibilities of the employer b. The responsibilities of the employee c. The responsibilities of everyone else 4. Responsibilities for health and safety when working at third party premises 5. Hierarchy of controls 6. Risk assessments 7. Method statements 8. Permit to work	Candidates will understand how to: 1. Name and provide a brief overview of current applicable legislation for health and safety across all nations of the UK 2. Name and provide a brief overview of selected regulations applicable, according to health and safety law 3. Provide a brief overview of the responsibilities according to legislation of the: a. Employer b. Employee c. Everyone else 4. Explain the requirement to comply with both the employer's health and safety and those specified by other persons for premises under their control 5. Explain the term 'hierarchy of controls' with examples 6. Explain what a risk assessment is and who is responsible for producing one, with reference to: a. Formal and dynamic risk assessments b. Requirements for review and revision

		7. Explain what a method statement is and the: a. Responsibilities for their production b. Requirements for review and revision 8. Provide an explanation of permits to work and their application

Explanatory Notes:

Compliance with Health and Safety is not only common sense but also a legal responsibility. Candidates will understand aspects of Health and Safety law according to UK nation in which they will be employed and pertinent to their role in the fire detection and alarm sector. Intended as a common subject for technicians progressing to the more advanced units, this Health and Safety unit will be required to cover the tasks performed by technicians in general. Included within will be requirement to comply with the Health and Safety policies and method statements of the employer as well as compliance with the Health and Safety Policy of the site in which they are working. and the hierarchy of controls (Eliminate, substitute/replace, engineering controls, administrative controls, PPE).

This unit is not intended to train the technician as a Health and Safety Manager or Advisor, rather to cover the responsibilities for the technician as an employee and to bring about safe practice in the workplace.

Some of the aspects covered within this unit will be limited to awareness of the requirements and candidates should be able to recognise where further training and/or advice should be sought.

Subject Area	**Assessment Criteria**	
Manual Handling	Candidates will have knowledge and understanding of: 1. Manual handling regulations 2. Structure, function, and operation of the spine 3. Risk factors for back pain 4. Application of efficiency movement principles to: a. Routine loads b. Non-routine loads c. Pulling d. Pushing e. Team handling 5. Application of the hierarchy of controls for manual handling	Candidates will understand how to: 1. Name and provide a brief overview of current regulations for manual handling 2. Provide a brief overview of the spine and how it operates 3. Explain the risk factors for back pain and how manual handling techniques can prevent injuries 4. Describe efficient manual handling techniques and the considerations necessary for manual handling of routine loads, non-routine loads, pulling, pushing and team handling 5. Explain how the hierarchy of controls can be applied to manual handling

Explanatory Notes:

The most common causes of back injuries are the result of bad manual handling techniques. Tailored for the field service technician, candidates will understand the reasons for efficient manual handling techniques, the implications of not employing such techniques and the nature of injuries

that can be incurred. Candidates will also cover the correct manual handling techniques for a range of manual handling tasks pertinent to the FD&A technician.

Some of the aspects covered within this unit will be limited to awareness of the requirements and candidates should be able to recognise where further training and/or advice should be sought

Subject Area	**Assessment Criteria**	
Working at Height	Candidates will have knowledge and understanding of: 1. Work at Height Regulations 2. The risks involved when working at height 3. Alternatives to working at height 4. Different methods of working at heigh, eg. scaffold (mobile/static), mobile elevated working platform, steps, and ladders 5. Appropriate PPE and its correct use for working at height 6. Application of the hierarchy of controls to working at heigh	Candidates will understand how to: 1. Name and provide a brief overview of current regulations for work at heigh 2. Explain the risks involved when working at height 3. Explain and provide examples of alternative methods to working at heigh 4. Explain the different methods for working at heigh and the safety measures that can be applied 5. Explain what PPE is available for working at height, its correct use, limitations, and the checks required before use 6. Explain how the hierarchy of controls can be applied to working at height

Explanatory Notes:

Many technicians will at times be required to work at height, be it standing on a ladder, installing a detector head or alarm sounder or running cabling through a ceiling void or roof space. Some tasks have been made safer through the development of specialised tools, such as a long reach equipment, but others still require a direct approach.

This section will detail to the candidate what it means to be working at height and develops understanding, which may lead to safer working practices and the application of risk reducing equipment. For technicians involved in design, this may also lead to design consideration of physical access for installation and maintenance.

Some of the aspects covered within this unit will be limited to awareness of the requirements and candidates should be able to recognise where further training and/or advice should be sought

Subject Area	**Assessment Criteria**	
Lone Workers and Working in Confined Spaces	Candidates will have knowledge and understanding of: 1. Confined Spaces Regulations, health and safety guidance on the risks of lone working 2. The risks of lone working, including road risk 3. Working in confined spaces 4. Control measures	Candidates will understand how to: 1. Name and provide a brief overview of current regulations, approved codes of practice and guidance for lone workers and working in confined spaces 2. Define what is meant by lone working and provide a brief overview of the risks

	5. Compliance with site safety regulations 6. Application of the hierarchy of controls to lone workers and working in confined spaces 7. Working Time Regulations	3. Define what is meant by 'confined spaces' and provide a brief overview of the risks to persons 4. Explain the need for applicable control measures 5. Explain the need for compliance with onsite safety regulations 6. Explain how the hierarchy of controls can be applied to lone workers and working in confined spaces 7. Provide a brief explanation of the Working Time Regulations

Explanatory Notes:

Technicians will often find themselves working alone or in positions where a working partner is removed from their own direct contact. As a result, candidates must develop knowledge and understanding of how to safeguard themselves and the importance of safeguarding others, the permit to work process and the importance of its implementation in conjunction with compliance with onsite Health and Safety Policy.

Some of the aspects covered within this unit will be limited to awareness of the requirements and candidates should be able to recognise where further training and/or advice should be sought

Subject Area	**Assessment Criteria**	
Provision and Use of Work Equipment Regulations (PUWER)	Candidates will have knowledge and understanding of: 1. PUWER regulations 2. Scope of equipment covered by PUWER 3. Ensuring that equipment used is suitable, maintained and inspected 4. Use of safety guards and PPE	Candidates will understand how to: 1. Name and provide a brief overview of current regulations for the provision and use of work equipment 2. Provide an explanation of the equipment included within the requirements of current regulations 3. Explain the importance of a comprehensive inspection and maintenance regime and what inspections should be completed before using work equipment 4. Explain the importance of ensuring correct installation/fitting and the use of safety guards and of PPE

Explanatory Notes:

Work equipment is not simply limited to power tools but will also cover other construction tools such as hammers, manual screwdriver, test meters and long reach testing equipment. Ensuring that the technician is safe in their correct use of any work equipment is a key aspect of the legislation in protecting the health and safety of both the technician and all persons in the area.

Some of the aspects covered within this unit will be limited to awareness of the requirements and candidates should be able to recognise where further training and/or advice should be sought		
Subject Area	**Assessment Criteria**	
Personal Protective Equipment (PPE)	Candidates will have knowledge and understanding of: 1. Why is PPE important and its role as a control measure 2. Types of PPE available 3. Selection and use of PPE 4. Maintenance	Candidates will understand how to: 1. Explain the reasons for using PPE and its role as a control measure 2. List the types of PPE available and explain the protection provided 3. Explain the considerations when selecting the correct PPE according and appropriate to the hazard 4. Explain the importance of maintenance and the checks required to ensure PPE is still serviceable
Explanatory Notes: PPE should only be implemented to supplement other protection measures or as a last resort. However, where it is required and provided by the employer the initial issue at least, must be made free of charge. Ensuring that the technician has the correct PPE and that it is in good serviceable condition is not only the responsibility of the employer, but also of the technician. Understanding these requirements will ensure correct and appropriate use of PPE. Some of the aspects covered within this unit will be limited to awareness of the requirements and candidates should be able to recognise where further training and/or advice should be sought.		
Subject Area	**Assessment Criteria**	
Asbestos Awareness	Candidates will have knowledge and understanding of: 1. Control of Asbestos regulations 2. What asbestos is and where it was commonly used 3. Limiting exposure to asbestos and the asbestos register 4. Licenced or unlicenced work 5. Requirements for asbestos training	Candidates will understand how to: 1. Name and provide a brief overview of current regulations for the control of asbestos 2. Explain what asbestos is, the different types of asbestos and where it has commonly been used in buildings 3. List the serious illnesses that can result from exposure to asbestos 4. Provide an outline description of recommendations to limit exposure to asbestos and the use of an asbestos register and its limitations 5. Explain the difference between work involving asbestos that

		requires licencing and work that may be carried out without a licence 6. State the requirements for provision of formal training in the handling of asbestos

Explanatory Notes:

The health risks to Asbestos are significant and usually do not become apparent until many years after exposure. Asbestos was a common constituent of a range of building materials until as recently as 2000 and so it remains vitally important that the hazards and the danger posed, are managed effectively.

This section is awareness only and is not intended to replace formal asbestos training. Candidates working in any building liable to contain asbestos should carry out formal training appropriate to the work environment.

Subject Area	Assessment Criteria	
Control of Substances Hazardous to Health (COSHH)	Candidates will have knowledge and understanding of: 1. COSGG regulations 2. Definitions of substances hazardous to health 3. Substances not covered by COSHH and their associated regulations a. Lead (Control of Lead at Work Regulation) b. Asbestos (Control of Asbestos Regulation) c. Radioactive Substances (Ionising Radiation Regulation) 4. Safety data sheets 5. Hierarchy of controls 6. emergencies	Candidates will understand how to: 1. Name and provide a brief overview of current COSHH regulations 2. Explain what is meant by 'substances hazardous to health' and provide examples with their health hazards 3. List the substances not covered by COSHH and name the regulations for each 4. Explain the requirements for safety data sheets with examples of the information contained within them 5. State the methods of risk assessment and measures available to eliminate/reduce risk according to the hierarchy of controls 6. Explain what facilities should be in place for dealing with emergencies
Explanatory Notes: Substances covered by COSHH have significant risks to personal health and safety through both immediate injury and ill health. Such effects on personal health may not become apparent for numerous years. The effective application of the COSHH regulations will reduce those risks to manageable levels. Candidates will have sufficient knowledge and understanding of the COSHH regulations to apply defined controls to their working role and practices. Some of the aspects covered within this unit will be limited to awareness of the requirements and candidates should be able to recognise where further training and/or advice should be sought		
Subject Area	**Assessment Criteria**	
General Safety Awareness	Candidates will have knowledge and understanding of: 1. Fire safety 2. Safety signs and signals regulations 3. Electrical safety 4. Health and hygiene	Candidates will understand how to: 1. Provide an explanation of fire safety systems and procedures when working on site including: a. Identification of portable extinguishers b. Site evacuation c. Appropriate measures when carrying out high risk activities, hot water testing 2. Provide an outline description of the safety signs and signals regulations including the identification of signs by shape and colour and their application

		3. Provide an explanation of requirements for electrical safety and safe isolation of low voltage systems 4. Provide an explanation of requirements for personal health and hygiene including: a. Provision of first aid and individual responsibilities b. Accident reporting and RIDDOR reporting c. Preventing the spread of infectious diseases d. Preventative first aid measures e. Drugs and alcohol
Explanatory Notes: Candidates should have general awareness of elements of health and safety that will influence their place of work or others, whether working at employers' premises or on site at a third party. This section is intended to cover subject areas not included elsewhere within this unit but will have an impact or influence on their work and working environment.		