



National Unit specification:

General information

Unit title: Building Services Engineering: Health and Safety
(SCQF level 5)

Unit code: HF2E 45

Superclass: PL

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Version: 01

Unit purpose

This Unit will be suitable for learners with little or no previous engineering, technical or employment experience. The learner will learn to identify and explain health and safety legislation, hazardous situations and electrical safety requirements. The learner will also learn to identify and explain safety requirements for working with gases and heat producing equipment, for using access equipment and for working safely in excavations and confined spaces in the building services engineering industry.

Outcomes

On successful completion of the Unit the learner will be able to:

- 1 Identify the requirements of health and safety legislation, hazardous situations and electrical safety.
- 2 Identify safety requirements for working at heights and in confined spaces.

Credit points and level

0.5 National Unit credit at SCQF level 5: (3 SCQF credit points at SCQF level 5)

Recommended entry to the Unit

Entry is at the discretion of the centre.

National Unit specification: General information (cont)

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Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

There is no automatic certification of Core Skills or Core Skill components in this Unit.

Equality and inclusion

This Unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

National Unit specification: Statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Outcome 1

Identify the requirements of health and safety legislation, hazardous situations and electrical safety.

Performance Criteria

- (a) Identify the requirements of the health and safety legislation.
- (b) Identify hazardous situations.
- (c) Identify electrical safety requirements.

Outcome 2

Identify safety requirements for working at heights and in confined spaces.

Performance Criteria

- (a) Identify the safety requirements for working at heights.
- (b) Identify the safety requirements for working in confined spaces.

Evidence Requirements of this Unit

Evidence is required to demonstrate that learners have achieved all Outcomes and Performance Criteria.

Outcome 1

Written and/or oral evidence

Learners must be able to identify the requirements of health and safety legislation, hazardous situations and electrical safety including the following:

- ◆ Health and Safety at Work Act 1974
- ◆ Roles of the HSE and Local Authority
- ◆ Roles and responsibilities of employers and employees
- ◆ Improvement and prohibition notices issued by HSE inspectorate
- ◆ General site hazards that maybe encountered while at work
- ◆ Mandatory signs and prohibition signs
- ◆ Manual handling procedures and working at heights
- ◆ Potential dangers to workforce and public on construction sites and other types of premises

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- ◆ Identify PPE requirements which cover a minimum of two of the following substances: lead, solvents and lubricants, fluxes, jointing compounds, sealants, gases and cleaning agents
- ◆ Tripping/slipping hazards, defective equipment, inadequate personal protective equipment
- ◆ Risk assessments and method statements used to prevent accidents or dangerous situations
- ◆ COSHH legislation and precautions to be taken while working with those substances
- ◆ Actions to be taken when asbestos is encountered while undertaking work activities — Control of Asbestos Regulations 2012
- ◆ The inspection and safe use of power tools used at work and identifying PAT tested product
- ◆ The electrical industry safe isolation procedure that should be applied to building services equipment
- ◆ One electrical danger from the following — faulty electrical equipment, damaged or worn cables and position of cable in relation to pipework services
- ◆ Temporary continuity bonding

Outcome 2

Learners must be able to identify safety requirements for working at heights and in confined spaces for the following:

- ◆ Situations where working at height would be required
- ◆ Type of equipment used and appropriate selection for working at height
- ◆ Safety checks of equipment used for working at height and how to assemble
- ◆ Preparation of excavation for safe working
- ◆ Safety measures implemented for working in excavations
- ◆ Two potential dangers of working in confined spaces from the following: drainage systems, plant rooms, tanks/cisterns, under suspended timber floors, roof spaces



National Unit Support Notes

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Unit Support Notes are offered as guidance and are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 20 hours.

Guidance on the content and context for this Unit

The content and context of this Unit is at a basic, introductory but industrially meaningful level. The main purpose of the Unit is to make learners aware of, and prepare for employment within the building services engineering industry. There is a strong emphasis on safety throughout the Unit.

Outcome 1 covers general health and safety, responsibilities of employers and employees under health and safety legislation, roles of enforcing authorities under health and safety legislation and powers of inspectors under health and safety legislation, general site hazards that maybe encountered while at work and potential dangers to the workforce and members of the public when work is carried out, methods that can be used to prevent accidents or dangerous situations occurring during work activities, hazardous substance legislation classifying substances and direct precautions to be taken while working with those substances, general precautions necessary for working with commonly encountered substances and actions to be taken when asbestos is encountered while undertaking work activities, common electrical dangers encountered on construction sites and in dwellings, methods of safely using electrical tools and equipment on site and conduct a visual inspection of a power tool for safe condition before use and procedures that should be applied for tools and equipment that fail safety checks, the electrical industry safe isolation procedure that should be applied to building services equipment before carrying out work on them and the use of temporary continuity bonding when working on pipework components.

The learner will develop an understanding of the types of health and safety legislation and those specific to the building services industry, roles of the HSE and Local Authority, improvement and prohibition notices issued by HSE inspectorate, tripping/slipping hazards, defective equipment, inadequate personal protective equipment, manual handling procedures and working at heights, potential dangers to workforce and public on construction sites and other types of premises, risk assessments, permit to work and method statements.

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The learner will also develop an understanding of mandatory signs, prohibition signs, hazard signs, firefighting signs and safe condition signs; precautions for working with lead, solvents and lubricants, fluxes, jointing compounds, sealants, gases and cleaning agents; procedures to be taken when working with asbestos cement based material and action to be taken when encountering asbestos during work activity, common electrical dangers — faulty electrical equipment, damaged or worn cables and position of cable in relation to pipework services; battery powered, 110V and 230V electrical supplies used for electrical tools, inspecting power tools for general condition and identifying PAT tested products, procedures applied for tools and equipment that fail electrical safety checks, electrical industry safe isolation procedure and the need to work on electrical equipment 'dead' and why temporary continuity bonding is used when working or removing pipework and/or associated components.

Outcome 2 covers situations where working at height would be required, the type of equipment used and appropriate selection for working at height, safety checks of equipment used for working at height and how to assemble, preparation of excavation for safe working, safety measures implemented for working in excavations and potential dangers when working in confined spaces.

Learners will also develop an understanding of safety checks to be carried out on step ladders, ladders, mobile towers; safe access into excavations and trench support systems, potential dangers of working in confined spaces — drainage systems, plant rooms, tanks/cisterns, under suspended timber floors and roof spaces.

Guidance on approaches to delivery of this Unit

Learners should be given opportunities to work towards Outcomes in an integrated way whenever possible.

Theoretical classroom activities should be teacher/lecturer-led in that all equipment, techniques and processes should be explained, demonstrated and thoroughly understood before (learner) commencement. Demonstrations should be clear, logically sequenced and reflect current safe working practices to ensure learner understanding.

An integrated approach to learning and teaching across the Outcomes in this Unit, and relevant others, is suggested.

Guidance on approaches to assessment of this Unit

Centres may use the method of assessment which they consider to be most appropriate but are encouraged to use the Assessment Support Pack (ASP) developed centrally by SQA. It is expected that learners will have to demonstrate current knowledge and understanding of safe working practice and risk assessment methods, etc prior to being set the assessment tasks.

Knowledge and Understanding of the processes involved in Building Services Engineering: Health and Safety (SCQF level 5) should be assessed before any practical assignments are carried out by learners.

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Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at www.sqa.org.uk/e-assessment.

Opportunities for developing Core and other essential skills

There may be opportunities to develop the following Core Skills if this Unit is delivered as part of a Group Award and is holistically assessed with practical Units.

- ◆ *Communications*
- ◆ *Working with Others*
- ◆ *Problem Solving*
- ◆ *Numeracy*
- ◆ *Information and Communication Technology (ICT)*

History of changes to Unit

Version	Description of change	Date

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General information for learners

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This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

This Unit is designed to introduce you to skills required within the Building Services Engineering industry. The Unit will focus on health and safety. Little or no experience is required of working in the industry.

Health and Safety is integral and key to the industry therefore throughout the Unit emphasis will be placed where appropriate on the application of health and safety working practices.

There will be a series of training exercises followed by multi choice knowledge assessment.

Completion of the Unit will provide you with basic knowledge necessary to progress to more complex aspects of Building Services Engineering which in turn will further develop your skills and knowledge.

There may be opportunities to develop the following Core Skills if this Unit is delivered as part of a Group Award and is holistically assessed with practical Units.

- ◆ *Communication*
- ◆ *Working with Others*
- ◆ *Problem Solving*
- ◆ *Numeracy*
- ◆ *Information and Communication Technology (ICT)*