



National Unit specification

General information

Unit title: The importance of energy efficiency (SCQF Level 5)

Unit code: HD6Y 45

Superclass: TH

Publication date: April 2016

Source: Scottish Qualifications Authority

Version: 01

Unit purpose

This Unit will provide candidates with knowledge and understanding of the importance of energy efficiency in the built environment. The Unit will introduce candidates to the concept of climate change, its effects and how this influences demand for energy. The candidate will learn the terminology used when talking about climate change, as well as the ways in which energy is used and can be made more efficient. Candidates will also develop an understanding of the benefits to consumers and the environment of using energy efficiently.

Outcomes

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

1. Identify and explain the effects of and responses to climate change
2. Identify how health and comfort are affected by building design and construction
3. Explain and identify the roles of building users in creating building energy demand
4. Explain the benefits of energy efficiency

Credit points and level

1 National Unit credit at SCQF level 5: (6 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 of this Unit specification.

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

Context for delivery

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

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 and explain the effects of and responses to climate change.

Performance Criteria

- (a) Explain the key terminology used when talking about climate change.
- (b) Identify the main factors that cause climate change.
- (c) Explain the environmental impacts of climate change.
- (d) Identify how climate change can affect global demand for energy.

Outcome 2

Identify how health and comfort are affected by building design and construction.

Performance Criteria

- (a) Identify the aspects of building design and construction that can affect their energy efficiency and comfort.
- (b) Identify how health can be affected by the ways in which buildings are designed and built.

Outcome 3

Explain and identify and explain the roles of building users in creating building energy demand.

Performance Criteria

- (a) Identify the main sources of energy consumption in buildings.
- (b) Identify the methods and factors used to control demand for heating and cooling in buildings.
- (c) Identify how energy can be lost in buildings.
- (d) Identify how energy efficiency in buildings is classified and recorded.

National Unit specification: Statement of standards (cont)

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Outcome 4

Explain the benefits of energy efficiency.

Performance Criteria

- (a) Explain how building use affects energy efficiency.
- (b) Explain the consumer benefits of reducing energy use in buildings.
- (c) Explain the environmental benefits of reducing energy use in buildings.

Evidence Requirements for this Unit

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

The evidence may be produced by one or more than one assessment covering all Outcomes.

Written and/or oral evidence should be produced for Outcomes 1–4 to demonstrate that the candidate has achieved all the Outcomes and Performance Criteria.

In terms of the specific Outcomes of this Unit:

Outcome 1: Written and/or oral evidence

Candidates must be able to explain:

- ◆ the key terminology used when talking about energy efficiency, including: 'greenhouse effect'; 'greenhouse gases'; 'global warming'; 'sustainability'.
- ◆ ways in which energy efficiency in buildings is recorded, including: energy ratings, energy performance certificates.
- ◆ the environmental impacts of climate change, including: rising sea levels; flooding; rising temperatures; global warming.

Candidates must be able to identify:

- ◆ how climate change can affect global demand for energy: less heating in winter due to temperature increases; more demand for cooling in summer.
- ◆ the main factors that cause climate change, including: the burning of fossil fuels; mass deforestation.

National Unit specification: Statement of standards (cont)

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Outcome 2: Written and/or oral evidence

Candidates must be able to identify:

- ◆ the factors and characteristics of buildings that affect energy efficiency and comfort including: age, location, design, building materials, state of repair, heating/cooling systems used.
- ◆ identify the aspects of building design and construction that can affect the health of building users, including: access to natural light; ventilation; warmth; types of building materials used.

Outcome 3: Written and/or oral evidence

Candidates must be able to identify:

- ◆ the main sources of energy consumption in buildings, including: space heating; cooling; water heating.
- ◆ the methods and factors used to regulate demand for heating and cooling in buildings, including: thermostats; clothing; opening doors and windows; level of activity.
- ◆ ways in which energy can be lost in buildings, including: leaving doors and windows open; draughts; leaving on lights; heating empty rooms; lack of adequate insulation; insufficient glazing in windows; inefficient heating systems.
- ◆ ways in which energy efficiency in buildings is classified and recorded, including: energy ratings; energy performance certificates.

Outcome 4: Written and/or oral evidence

Candidates must be able to explain:

- ◆ how building use affects energy efficiency (the behaviour of occupants)
- ◆ the benefits to consumers of reducing energy use in buildings, including: saving energy in the home; tackling fuel poverty; reducing heating and cooling costs; energy security.
- ◆ the environmental benefits of reducing energy use in buildings, including: less reliance on fossil fuels; reduced emissions from burning fuel, (eg carbon dioxide); reduced local air pollution.



National Unit specifications: Support Notes

Unit title: The importance of energy efficiency (SCQF Level 5)

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This Unit should be considered an introduction to energy efficiency. It introduces candidates to the concept of energy efficiency and the importance of using energy efficiently in buildings.

It has been designed to provide underpinning knowledge which can be applied in a range of contexts in the built environment and by a range of trades.

The Unit can be delivered in combination with the development of key occupational skills and practical experience in various built environment contexts. The subject could be introduced by emphasising the importance of energy efficiency to sustainability and low carbon, and emphasising the benefits to the consumer, and the environment, of minimising energy consumption.

Delivery could incorporate a variety of teaching and learning approaches, including:

- ◆ Online delivery
- ◆ Tutor presentations
- ◆ Group work and discussions
- ◆ Tutor demonstration
- ◆ Simulated activities
- ◆ Visits to construction sites
- ◆ Video presentations
- ◆ Visiting speakers
- ◆ Handouts
- ◆ Individual and group research
- ◆ Reflection

National Unit specifications: Support Notes (cont)

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Guidance on approaches to delivery of this Unit

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

Practical activities should be teacher/lecturer-led in that all equipment, techniques and processes should be explained, demonstrated and thoroughly understood before (candidate) commencement.

An integrated approach to learning and teaching across the Outcomes in this Unit, and relevant others, is suggested. Particularly with unit xxx 'Energy efficiency in the built environment'; unit xxx 'Energy efficiency in the built environment'.

Guidance on approaches to assessment of this Unit

In order to achieve this Unit, candidates are required to present sufficient evidence that they have met all the Performance Criteria for each Outcome within the range specified. Details of these requirements are given for each Outcome. The assessment instruments used should follow the general guidance offered by the SQA assessment model and an integrated approach to assessment is encouraged.

A holistic approach should be employed where appropriate. Links with other Units should be highlighted where possible.

A variety of assessment methods could be used, such as:

Outcome 1

Assessment could include a combination of multiple-choice testing and structured questioning under closed-book conditions.

Outcomes 2 and 3

A written assignment is recommended for the assessment of these Outcomes.

Outcome 4

Assessment could take the form of written or verbal evidence in the form of an oral presentation, or development of a written presentation and handouts.

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

National Unit specifications: Support Notes (cont)

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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.

National Unit specifications: Support Notes (cont)

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Opportunities for developing Core and other essential skills

Throughout this Unit there may be opportunities for candidates to develop the Core Skills of *Communication* at SCQF level 5. This may be possible whilst the candidate is describing and explaining the responses during the assessment process.

History of changes to Unit

| Version | Description of change | Date |
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