



National Unit specification

General information

Unit title: Principles of energy efficient building (SCQF level 6)

Unit code: HD71 46

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 principles of building in an energy efficient way. It will develop candidates' understanding of work sequencing and the importance of accurate scheduling to ensure building work is carried out efficiently. The Unit will also introduce candidates to ways of working effectively on site, to minimise the use of resources and water and how they can be conserved.

Outcomes

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

1. Explain the importance of correct sequencing of work and information sharing to ensure energy efficiency.
2. Identify and explain methods of reducing waste, energy and water on site.

Credit points and level

1 National Unit credit at SCQF level 6: (6 SCQF credit points at SCQF level 6*).

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.

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

Explain the importance of correct sequencing of work and information sharing to ensure energy efficiency.

Performance Criteria

- (a) Explain what is meant by a 'whole build' approach in the context of energy efficiency.
- (b) Explain why work should be carried out in the correct sequence to ensure energy efficiency.
- (c) Identify the different methods of scheduling building work to ensure it is carried out in the correct sequence.
- (d) Explain the importance of sharing information with appropriate people to enable efficient working.
- (e) Identify the types of standards used by planners and builders in green building.

Outcome 2

Identify and explain methods of reducing waste, energy and water on site

Performance Criteria

- (a) Identify ways of reducing energy used by on site plant and equipment.
- (b) Identify ways of reducing materials consumption and wastage on site.
- (c) Identify methods of reducing the demand for water and how water might be conserved on site.

National Unit specification: Statement of standards (cont)

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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 1–2 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:

- ◆ what is meant by a ‘whole build’ approach: design and construction incorporating integrated building design; collaborative working methods.
- ◆ why work should be carried out in the correct sequence to ensure energy efficiency: improving building fabric and insulation to prevent heat loss before implementing internal measures.
- ◆ the importance of sharing information with appropriate people to enable efficient working; why other trades should be kept up to date on work progress; promptly informing colleagues when problems or mistakes occur.

Candidates must be able to identify:

- ◆ the different methods of scheduling building: bar charts; construction critical path; Gantt charts.
- ◆ the types of standards used by planners and builders in green building: Standard Assessment Procedure (SAP); BREEAM; Section L of the Building Regulations; Passivhaus Standards.

Outcome 2: Written and/or oral evidence

Candidates must be able to explain:

- ◆ ways of reducing energy used by plant and equipment: switching off equipment when not in use; not leaving plant and vehicle engines idling; selecting plant and equipment with appropriate capacity.
- ◆ ways of reducing materials consumption and wastage: accurate measuring of materials; re-use; avoiding damage and breakage; appropriate storage.
- ◆ ways of conserving and reducing demand for water: switching off water supplies when not in use; fixing drips and leakage; re-using grey water.



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 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 adopting energy efficient working practices.

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

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 'The importance of energy efficiency'*; *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:

- ◆ Structured questioning under closed-book conditions
- ◆ Developing case studies
- ◆ Individual or group project
- ◆ Research-based assignment

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.

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 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 Skill 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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