



## National Unit specification

### General information

**Unit title:** Sustainable Design for Architecture: An Introduction  
(SCQF level 6)

**Unit code:** H66D 46

**Superclass:** TD

**Publication date:** January 2014

**Source:** Scottish Qualifications Authority

**Version:** 01

### Unit purpose

This Unit is appropriate for learners wishing to embark on a career in the construction Industry within a technician discipline. This Unit aims to illustrate to learners how a design brief is developed before analysing the sustainable design of buildings prior to the utilisation of renewable energy technologies.

On completion of the Unit, learners should be able to interpret a design brief and acknowledge relevant design constraints. Learners will also be able to evaluate and understand the principles of sustainable design through the analysis of case studies and appropriate literature.

### Outcomes

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

- 1 Demonstrate an understanding of design briefs and associated information relating to construction projects.
- 2 Explain how site, land use and building form can be utilised to contribute towards a sustainable construction project.
- 3 Explain how building materials and technology can be utilised and sourced to contribute towards sustainability in a construction project.

## **National Unit specification: General information (cont)**

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### **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.

### **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. The Assessment Support Pack (ASP) for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable instrument of assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website (<http://www.sqa.org.uk/sqa/46233.2769.html>).

### **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](http://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**

Demonstrate an understanding of design briefs and associated information relating to construction projects.

#### **Performance Criteria**

- (a) Explain the importance of producing a design brief for a building project.
- (b) Identify the main contents of the design brief correctly.
- (c) Explain the importance of information gathering during the design phase.
- (d) Identify design factors and constraints for a given development site.
- (e) Explain forms of statutory, legal and technological constraint.

### **Outcome 2**

Explain how site, land use and building form can be utilised to contribute towards a sustainable construction project.

#### **Performance Criteria**

- (a) Describe how site and land use can contribute towards a sustainable building design.
- (b) Identify building forms which contribute towards sustainable building design.
- (c) Describe how the internal arrangement of a building can contribute towards a sustainable building design.

### **Outcome 3**

Explain how building materials and technology can be utilised and sourced to contribute towards sustainability in a construction project.

#### **Performance Criteria**

- (a) Explain how raw materials and technology can be obtained, refined and transported sustainably.
- (b) Identify the difficulties and benefits of using recycled materials.
- (c) Identify the advantages and disadvantages of onsite and offsite methods of construction in terms of energy use.

## **National Unit specification: Statement of standards**

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### **Evidence Requirements for this Unit**

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

For Outcome 1, written and/or recorded oral evidence is required to demonstrate that the learner has achieved the Outcome to the standard specified in the Performance Criteria.

Evidence must be produced in controlled, supervised closed-book conditions. In this Unit an appropriate instrument of assessment would be a question paper consisting of a balance of short answer, restricted response and structured questions covering the Performance Criteria. Learners must not bring notes, textbooks or handouts to the assessment.

Evidence will be conducted at an appropriate point throughout the delivery of the Unit. Assessment must be manageable and practicable for centres and should not exceed 1 hour.

For Outcomes 2 and 3, learners will be required to produce reports and/or desk top published pieces to demonstrate that the Outcome has been completed to the standards set in the Performance Criteria. Learners may use notes, textbooks, handouts and internet material in producing the assessment responses, but must provide appropriate bibliographies and references. All case study buildings must have pictorial/drawing references to illustrate the analysis. Submissions may be produced as hard copies, digital/e-portfolio.

The assessor must ensure that evidence is authenticated as the learners own work under these assessment conditions particularly in the use of digitised materials.



## National Unit Support Notes

**Unit title:** Sustainable Design for Architecture: An Introduction  
(SCQF level 6)

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 has been developed as a mandatory Unit within the National Certificate Built Environment at SCQF level 6 and can also be delivered as a free-standing Unit.

#### Outcome 1

Requires the learner to demonstrate an understanding of the importance of a Design Brief. A successful building project relies on an accurate and comprehensive brief. The relevance and contextual use of the document during the design phase and the information therein should be described. Knowledge of difficulties arising out of improper briefing should be conveyed. Competency might be evidenced through learner production of a Design Brief or through analysis of a given document.

In addition learners will also be required to provide appropriate responses to a range of factors constraining design and/or construction. An ability to derive information from different sources will be shown. Statutory and regulatory responsibilities and controls will be considered with the emphasis on Building Control, Planning, Environmental Protection and British/European Standards.

#### Outcome 2

Requires the learner to demonstrate, through analysis of two case studies, an understanding of the impact the following issues have on a sustainable building/development:

- ◆ Positioning and orientation
- ◆ Transport
- ◆ Passive solar gain/control
- ◆ Buffer zones
- ◆ Building form
- ◆ Landscaping and eco systems
- ◆ Living standards
- ◆ Rest and recreation provision

## National Unit Support Notes (cont)

**Unit title:** Sustainable Design for Architecture: An Introduction  
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### Outcome 3

Requires the learner to demonstrate, through analysis of two case studies, an understanding of the impact the following issues have on a sustainable building/development:

- ◆ Use of Low Carbon Technologies
- ◆ Use of Modern Methods of Construction
- ◆ Passive values of materials
- ◆ Life cycle costing
- ◆ Recycling/reclamation

### Guidance on approaches to delivery of this Unit

Learning and teaching of this Unit would be amplified using site visits and case studies which would allow the learners to document and photographically record key elements pertaining to the Outcome aims.

In-class activities should be based on the evaluation of a number of domestic case studies by the tutor to allow the learner to understand the key aspects of the evaluation process. This could include the research of materials, construction details and basic design principles.

Learners should choose their own case studies but assessors may wish to approve of these beforehand to ensure that the core themes of the Unit are delivered and assessed effectively.

Where possible learners should be encouraged to access relevant industry websites such as manufacturers/architectural literature for access to the most accurate information on technology/materials, etc.

### Guidance on approaches to assessment of this Unit

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.

Learners may be assessed on an Outcome by Outcome basis. Alternatively, there may be an opportunity to combine Outcomes 2 and 3 as a single submission covering all Performance Criteria for both Outcomes.

For Outcome 1 an appropriate instrument of assessment could be a question paper consisting of a balance of short answer, restricted response and structured questions based covering the Performance Criteria. Assessments should be conducted under supervised, closed-book conditions and should not exceed 60 minutes.

## National Unit Support Notes (cont)

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For Outcomes 2 and 3, learners should analyse at least two case studies per Outcome, ensuring that the Performance Criteria is fully met. Learners may use notes, textbooks, handouts and internet material in producing the assessment responses, but must provide appropriate bibliographies and references. All case study buildings must have pictorial/drawing references to illustrate the analysis. Submissions may be produced as hard copies, digital/e-portfolio.

The assessor must ensure that evidence is authenticated as the learners own work under these assessment conditions particularly in the use of digitised materials.

Preparation for all assessments could include formative work and/or project work. Planning should allow time for re-assessment.

Where appropriate materials and facilities are available, Outcome 2 and 3 could be delivered by distance learning which might include some degree of on-line support.

The Assessment Support Pack for this Unit provides appropriate sample assessment materials. Where centres wish to develop their own assessment materials they should refer to the Assessment Support Pack to ensure a comparable standard.

### 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](http://www.sqa.org.uk/e-assessment).

### Opportunities for developing Core and other essential skills

In this Unit learners will have the opportunity to develop a range of Core Skills including *Communication*, *ICT* and *Problem Solving*.

*Communication* through written and/verbal reporting throughout the Unit, opportunity to develop report writing skills.

ICT through the nature of the research and investigation.

*Numeracy*, through use of numbers by interpreting energy saving of materials, etc.

*Problem Solving* through all Outcomes where the learners will be assigned specific tasks that will require a certain level Planning, Evaluating and Critical Thinking.

## **National Unit Support Notes (cont)**

**Unit title:** Sustainable Design for Architecture: An Introduction  
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Assessments will require learners to demonstrate knowledge of sustainable development and citizenship by analysing good practice in design and responsible sourcing of materials.

Employability skills will be enhanced through the production of reports and appropriate referencing as well as demonstrating knowledge of current issues in the construction industry.



## 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.

Prior to partaking in this Unit, learners would benefit from having experience of the design process in a variety of contexts such as standard grade craft and design for example.

This Unit will take you through the early stages of the construction process where interpretation of a design brief and understanding of constraints and statutory requirements in order for a construction project to proceed. Following this, you will be required to evaluate principles of sustainable building design and layout culminating in an appreciation in the sourcing of materials.

For this Unit, a variety of learning and teaching styles can take place in a range of settings such as site visits, classroom and private study.

In this Unit you will have the opportunity to develop a range of Core Skills including *Communication*, *ICT* and *Problem Solving*.

*Communication* through written and/or verbal reporting throughout the Unit, opportunity to develop report writing skills.

*ICT* through the nature of the research and investigation.

*Numeracy*, through use of numbers by interpreting energy saving of materials, etc.

*Problem Solving* through all Outcomes where the learners will be assigned specific tasks that will require a certain level of Planning, Evaluating and Critical Thinking.

Assessments will require you to demonstrate knowledge of sustainable development and citizenship by analysing good practice in design and responsible sourcing of materials.

Employability skills will be enhanced through the production of reports and appropriate referencing as well as demonstrating knowledge of current issues in the construction industry.

You will be assessed through a combination of a closed-book examination and project work.