



## Higher National Unit specification

### General information for centres

**Unit title:** Architectural Conservation: Substructure, Geology and Structures

**Unit code:** F4S1 35

**Unit purpose:** This Unit is designed to enable candidates to develop an understanding and knowledge of geology, repair techniques for the substructure of traditional buildings and structural support of traditional buildings.

On completion of the Unit the candidate should be able to:

- 1 Describe principles of geology affecting traditional buildings.
- 2 Appraise appropriate techniques for repairing a building's substructure.
- 3 Explain structural support principles of elementary structures.

**Credit points and level:** 1 HN credit at SCQF level 8: (8 SCQF credit points at SCQF level 8\*)

*\*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

**Recommended prior knowledge and skills:** It is advised that candidates should complete *Architectural Conservation: Repair of Walls, Floors and Roofs* and *Architectural Conservation: Construction of Walls, Floors and Roofs* before undertaking this Unit.

**Core Skills:** There are opportunities to develop the component Written Communication of the Core Skill *Communication*, the components Critical Thinking and Planning and Organising of the Core Skill *Problem Solving*, and the Core Skill of *Information Technology*, all at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

**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.

**Assessment:** It is possible to assess candidates either on an individual Outcome basis, combinations of Outcomes or by a single holistic assessment combining all Outcomes.

A single holistic assessment covering all Outcomes should not exceed three hours in duration.

## **Higher National Unit specification: statement of standards**

**Unit title:** Architectural Conservation: Substructure, Geology and Structures

**Unit code:** F4S1 35

The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

### **Outcome 1**

Describe principles of geology affecting traditional buildings

#### **Knowledge and/or Skills**

- ◆ The principles of geology affecting traditional buildings:
  - Types of strata
  - Bearing capacity of strata
  - Affects of geology on foundations
  - Use of stone in construction

#### **Evidence Requirements**

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ describe principles of geology affecting traditional buildings:
  - types of strata
  - bearing capacity of strata
  - affects of geology on foundations
  - use of stone in construction

#### **Assessment Guidelines**

The assessment could be carried out under supervised, open-book conditions where candidates have access to their own materials gathered as a result of investigating geology and how it affects traditional buildings.

The assessment could be by extended response questions. Alternatively, the assessment could be combined with Outcomes 2 and 3 in a single holistic assessment in the form of a case study.

## **Higher National Unit specification: statement of standards (cont)**

**Unit title:** Architectural Conservation: Substructure, Geology and Structures

### **Outcome 2**

Appraise appropriate techniques for repairing a building's substructure

#### **Knowledge and/or Skills**

- ◆ Knowledge of the appropriate techniques for repairing a building's substructure:
  - Assessment of above-ground movement
  - Sub soil investigation
  - Underpinning
  - Complete foundation re building

#### **Evidence Requirements**

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ appraise appropriate techniques for repairing a building's substructure:
  - assessment of above-ground movement
  - sub soil investigation
  - underpinning
  - complete foundation re building

#### **Assessment Guidelines**

The assessment could be carried out under supervised, open-book conditions where candidates have access to their own materials gathered as a result of investigating repair techniques for substructures of traditional buildings.

The assessment could be by extended response questions. Alternatively, the assessment could be combined with Outcomes 1 and 3 in a single holistic assessment in the form of a case study.

## **Higher National Unit specification: statement of standards (cont)**

**Unit title:** Architectural Conservation: Substructure, Geology and Structures

### **Outcome 3**

Explain structural support principles of elementary structures

#### **Knowledge and/or Skills**

- ◆ Knowledge of the structural support principles of elementary structures:
  - Arches
  - Vaults
  - Domes
  - Buttresses
  - Simple framed structures

#### **Evidence Requirements**

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ explain the structural support principles of elementary structures:
  - arches
  - vaults
  - domes
  - buttresses
  - simple framed structures

#### **Assessment Guidelines**

The assessment could be carried out under supervised, open-book conditions where candidates have access to their own materials gathered as a result of investigating repair techniques for substructures of traditional buildings.

The assessment could be by extended response questions. Alternatively, the assessment could be combined with Outcomes 1 and 2 in a single holistic assessment in the form of a case study.

## Administrative Information

**Unit code:** F4S1 35

**Unit title:** Architectural Conservation: Substructure, Geology and Structures

**Superclass category:** TD

**Original date of publication:** August 2008

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### History of changes:

Version	Description of change	Date

**Source:** SQA

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## Higher National Unit specification: support notes

### Unit title: Architectural Conservation: Substructure, Geology and Structures

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 is at SCQF level 8 and is a mandatory Unit within the G059 15 HNC Architectural Conservation and G1KR 16 HND Architectural Conservation. It is also suitable for delivery as a freestanding Unit. If this Unit is delivered as part of another Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

It is primarily intended for candidates who expect to work in the building surveying and building control areas of the construction industry.

This Unit has been written in order to allow candidates to develop knowledge, understanding and skills in the following areas:

- ◆ the principles of geology affecting traditional buildings
- ◆ appropriate techniques for repairing a building's substructure
- ◆ the structural support principles of elementary structures

Whilst it is not mandatory for a centre to use this list of topics it is strongly recommended that it does so to ensure continuity of teaching and learning across the Units and because the assessment exemplar pack for this Unit is based on the Knowledge and/or Skills and list of topics in each of the Outcomes.

The list of topics is given below. Lecturers are advised to study this list of topics in conjunction with the assessment exemplar pack so that they can get a clear indication of the standard of achievement expected of candidates in this Unit.

#### Outcome 1

- ◆ the principles of geology affecting traditional buildings:
  - types of strata
  - bearing capacity of strata
  - affects of geology on foundations
  - use of stone in construction

## Higher National Unit specification: support notes (cont)

**Unit title:** Architectural Conservation: Substructure, Geology and Structures

### Outcome 2

- ◆ appropriate techniques for repairing a building's substructure:
  - assessment of above-ground movement
  - sub soil investigation
  - underpinning
  - complete foundation re building

### Outcome 3

- ◆ the structural support principles of elementary structures:
  - arches
  - vaults
  - domes
  - buttresses
  - simple framed structures

Throughout this Unit tutors could encourage a conservative approach of minimal intervention, repair and disturbance to the fabric and finishes of a traditional building in line with the underlying principles and philosophy of architectural conservation.

This means that no building or part of it should be repaired before such repair is strictly necessary.

Consideration could be given to the presumption against restoration, if this is possible, sustaining sources of materials and workmanship, matching (or not) with age. This philosophy is covered in the Unit F4MW 34 *Architectural Conservation; Principles*.

The following information gives further clarification regarding the content of the Unit.

The tutor shall use the current guidelines given in BS 7913 *Guide to the principles of the conservation of historic buildings* 1998 and any updates.

### Definitions:

**Conservation:** Action to secure the survival or preservation of buildings, cultural artefacts, natural resources, energy or any other thing of acknowledged value for the future. NOTE: Where buildings or artefacts are involved, such actions should avoid significant loss of authenticity or essential qualities.

**Repair:** Work beyond the scope of regular maintenance to remedy defects, significant decay or damage caused deliberately or by accident, neglect, normal weathering or wear and tear, the object of which is to return the building or artefact to good order, without alteration or restoration. NOTE: Most repair work should be anticipated and planned but occasionally it can be required in response to a specific event, such as a storm or accident.

## Higher National Unit specification: support notes (cont)

### Unit title: Architectural Conservation: Substructure, Geology and Structures

**Restoration:** Alteration of a building, part of a building or artefact which has decayed, been lost or damaged or is thought to have been inappropriately repaired or altered in the past, the objective of which is to make it conform again to its design or appearance at a previous date. NOTE: the accuracy of any restoration depends on the extent to which the original design or appearance at a previous date is known, or can be established by research.

(Definitions from BS 7913 *Guide to the principles of the conservation of historic building* 1998 and updates).

### Guidance on the delivery and assessment of this Unit

Details on approaches to assessment are given under Evidence Requirements and Assessment Guidelines under each Outcome in the Higher National Unit specification: statement of standards section. It is recommended that these sections be read carefully before proceeding with assessment of candidates.

Throughout the Unit emphasis will be placed where appropriate on the application of Health and Safety and Sustainability. Safe working practises should be looked at in accordance with current safety codes of practise and regulations. Sustainability should include reference to criteria affecting sustainability, impact of not implementing sustainability on the environment and the legislation promoting sustainability.

#### *Opportunities for developing Core Skills*

There are opportunities to develop aspects of the following Core Skills.

*Communication* at SCQF level 5 — Candidates will be required to read materials relating to the construction and repair of conservation work and the provision of services in traditional buildings. If candidates produce written reports or essays this will provide opportunities to develop the component Written Communication. Lecturers might use class discussions to deliver parts of the Unit and this would provide opportunities to develop the component Oral Communication.

*Information Technology* at SCQF level 5 — This Unit offers candidates the opportunity to research, source information, and produce evidence using ICT.

*Problem Solving* — Candidates will be required to carry out descriptions of repair techniques of conservation work and the provision of services in traditional buildings, which will provide opportunities to develop the component Critical Thinking.



## Higher National Unit specification: support notes (cont)

**Unit title:** Architectural Conservation: Substructure, Geology and Structures

The following grid provides a general guide to opportunities for the development of Core Skills in this Unit. Opportunities for the development of Core Skills at the output level are more fully identified in the Core Skills Sign Posting Grid.

Core Skill		Outcome 1	Outcome 2	Outcome 3
<b>1. Communication</b>				
Written Communication	(Reading) (Writing)	SCQF level 5	SCQF level 5	SCQF level 5
Oral Communication				
<b>2. Numeracy</b>				
Using Number				
Using Graphical Information				
<b>3. Information Technology</b>				
Using Information Technology		SCQF level 5	SCQF level 5	SCQF level 5
<b>4. Problem Solving</b>				
Critical Thinking		SCQF level 5	SCQF level 5	SCQF level 5
Planning and Organising		SCQF level 5	SCQF level 5	SCQF level 5
Reviewing and Evaluating				
<b>5. Working with Others</b>				
Working with Others				

## **Higher National Unit specification: support notes (cont)**

**Unit title:** Architectural Conservation: Substructure, Geology and Structures

### **Open learning**

This Unit could be delivered by distance learning, which may incorporate some degree of on-line support. However, with regards to assessment, planning would be required by the centre concerned to ensure sufficiency and authenticity of candidate evidence. Arrangement would be required to be put in place to ensure that the assessment, which is required to be at a single event, was conducted under controlled, supervised conditions.

### **Candidates with disabilities and/or additional support needs**

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* ([www.sqa.org.uk](http://www.sqa.org.uk)).

## General information for candidates

### Unit title: Architectural Conservation: Substructure, Geology and Structures

This Unit is designed to prepare you for a career in the building surveying or building control area of the construction industry where conserving buildings correctly is important. This Unit is suited to building surveyors and building control officers, architects and client advisers, who are involved in building conservation projects from their inception through to completion on site and long term use.

In Outcome 1 you will study the following with the intention of being able to describe:

- ◆ the principles of geology affecting traditional buildings:
  - types of strata
  - bearing capacity of strata
  - affects of geology on foundations
  - use of stone in construction

In Outcome 2 you will study the following with a view to being able to select and justify:

- ◆ appropriate techniques for repairing a building's substructure:
  - assessment of above-ground movement
  - sub soil investigation
  - underpinning
  - complete foundation re building

In Outcome 3 you will:

- ◆ the structural support principles of elementary structures:
  - arches
  - vaults
  - domes
  - buttresses
  - simple framed structures

It is possible to assess you either on an individual Outcome basis, combinations of Outcomes or by a single holistic assessment combining all Outcomes such as a single case study.

A single holistic assessment covering all Outcomes should not exceed three hours in duration. You must achieve all the minimum evidence specified for each Outcome in order to pass this Unit.

There are opportunities for you to develop the Core Skills of *Communication* (Writing), *Information Technology* (Using IT) and *Problem Solving* (Critical Thinking and Planning and Organising) all at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.