



Higher National Unit specification

General information for centres

Unit title: Architectural Conservation: Factors Affecting Building Decay

Unit code: F4Y9 34

Unit purpose: This Unit has been designed to introduce candidates to the processes of decay of materials and the identification of these decay features on a building of architectural conservation interest.

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

- 1 Explain the process of manufacture and the mechanisms of decay which can contribute to the deterioration process.
- 2 Analyse the decay mechanism for a material defect.
- 3 Identify material decay in relation to a building of Architectural Conservation interest.

Credit points and level: 1 HN credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**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 would be beneficial if candidates had a basic knowledge of construction technology and architectural terminology, would be an advantage although not essential. Possession of basic knowledge and understanding may be evidenced by possession of an appropriate Higher or HN Units.

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

General information for centres (cont)

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, or by combining Outcomes 2 and 3 together such as a single case study on a building of architectural conservation interest.

Higher National Unit specification: statement of standards

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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

Explain the process of manufacture and the mechanisms of decay which can contribute to the deterioration process

Knowledge and/or Skills

- ◆ Material decay mechanisms
- ◆ Material properties
- ◆ Extraction methods
- ◆ Conversion methods
- ◆ Manufacture methods

Evidence Requirements

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

- ◆ explain the process of stone and metal extraction (sandstone, iron, lead, copper), timber conversion and the manufacturing methods used to produce these building materials
- ◆ explain the mechanisms of decay for one of these source materials; the explanation should contain the environmental factors (physical, chemical) that would accelerate the decay process

Assessment Guidelines

This Outcome could be assessed by presentation or by an individual report.

Higher National Unit specification: statement of standards (cont)

Unit title: Architectural Conservation: Factors Affecting Building Decay

Outcome 2

Analyse the decay mechanism for a material defect

Knowledge and/or Skills

- ◆ Material defects — physical and chemical changes to stone, metals and timber

Evidence Requirements

Candidates will be required to demonstrate their knowledge and skills by showing they can:

- ◆ select material defects and analyse the decay mechanisms for these materials. This analysis must include the causes of failure.

Assessment Guidelines

The student should research the causes of material failure to Stone (cracking, contour scaling, sulphated skin, salt contamination), Metals (cast/iron, wrought iron, lead, copper — oxidation process), timber (rot).

The assessment of the Outcome might be combined with Outcome 3.

Outcome 3

Identify material decay in relation to a building of Architectural Conservation interest

Knowledge and/or Skills

- ◆ Identification and cause of material decay
- ◆ Fabric survey

Evidence Requirements

Candidates will be required to demonstrate their knowledge and skills/ by showing they can:

- ◆ select an elevation (façade) from a building of Architectural Conservation interest and identify material defects. Prepare a sketch of the façade, and indicate on the sketch the position of the material defects. Establish causes of failure which must be relevant and appropriate to the material and prepare a Fabric survey.

Assessment Guidelines

An external façade should be selected, and sketches prepared, the position and nature of the defects should be highlighted on the sketch. The defects listed should have accompanying notes stating the failure and how it has occurred.

The assessment for this Outcome can be combined with Outcome 2 and could be evidence of findings.

Administrative Information

Unit code: F4Y9 34

Unit title: Architectural Conservation: Factors Affecting Building Decay

Superclass category: TD

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Higher National Unit specification: support notes

Unit title: Architectural Conservation: Factors Affecting Building Decay

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

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

- ◆ explain the process of manufacture and the mechanisms of decay which can contribute to the deterioration process
- ◆ analyse the decay mechanism for a material defect
- ◆ preparing an external fabric survey

This Unit is at SCQF level 7 and is a mandatory Unit within the new HNC and HND Architectural Conservation. It is also suitable for delivery as a freestanding Unit.

The list of topics is given below.

Outcome 1

Explain the mechanisms of decay and additional factors which can contribute to the deterioration process.

The purpose of this Unit is to enable candidates to develop an understanding of:

- ◆ mechanisms: physical breakdown, chemical changes
- ◆ properties: strength, durability appearance, dimensional stability, porosity
- ◆ problems: atmospheric conditions, reduction in protection, inappropriate remedial measures
- ◆ factors: impact damage, orientation, use of material

Throughout this Unit tutors should encourage a conservation 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 should 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 *Principles of Architectural Conservation*.

Students should discuss the big question of ‘sustainable development’. It should be argued that by producing the skills that could rehabilitate or refurbish a sound building from the recent past it can prolong its life contributing to saving energy, money and materials. Besides saving energy it will reduce the production of carbon dioxide and hence the coming greenhouse effect.

Higher National Unit specification: support notes (cont)

Unit title: Architectural Conservation: Factors Affecting Building Decay

This Unit should be covered from a material conservation awareness principle especially with regard to existing traditional buildings and conservation.

The tutor shall use the guidelines given in BS 7913 Guide **to the principles of the conservation of historic building** 1998.

Outcome 2

Analyse possible causes of particular material defects.

- ◆ defects: cracking, spalling, contour, scaling, sulphated skin, composition changes, discolouration
- ◆ difficulties: inaccuracy, circumstances, known facts, conditions

The candidate may select a traditional building for which it is suitable to give guidance on material failure.

Outcome 3

Identify material decay in relation to buildings of architectural conservation interest.

- ◆ problems: thermal movement, moisture movement, physical breakdown, chemical changes

Guidance on the delivery and assessment of this Unit

Since it is important that the candidate has a sound understanding of the principles that underpin the mechanism of material decay to traditional buildings, this Unit should be studied early in the first year of a two year programme.

The main material to be studied should include:

- ◆ stone, metals (wrought iron/cast iron, lead, copper), timber

Candidates will present an individual presentation on materials of their own selection, but it is anticipated that they should be encouraged to work in groups for the fabric survey. Although this must be an individual submission.

The fabric survey for convenience should be directed and concentrated on the exterior of the building.

Higher National Unit specification: support notes (cont)

Unit title: Architectural Conservation: Factors Affecting Building Decay

Opportunities for developing Core Skills

This Unit provides opportunities for the development of Core Skills in *Communications, Numeracy* and Working with Others. 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 Guide.

Core Skill	Outcome 1	Outcome 2	Outcome 3
1 Communication			
Written	X	X	
Oral	X		
2 Numeracy			
Using Numbers			
Using Graphical Information			
3 IT			
Using Information Technology			
4 Problem Solving			
Critical Thinking	X	X	X
Planning and Organising			
Reviewing and Evaluating			
5 Working with Others			

Higher National Unit specification: support notes (cont)

Unit title: Architectural Conservation: Factors Affecting Building Decay

Open learning

It may be possible for candidates to access source information and complete assessments electronically. It would be necessary for candidates to be given a secure user account where they could send their responses.

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).

General information for candidates

Unit title: Architectural Conservation: Factors Affecting Building Decay

This Unit is designed to introduce you to the deterioration of materials commonly found in older buildings.

The main sources of information are:

- ◆ Practical Building Conservation Volumes 1 to 3
- ◆ John Ashurst, English Heritage
- ◆ The Care and Conservation of Georgian Houses, Edinburgh, 1979
- ◆ Edinburgh New Town Conservation Committee
- ◆ Dictionary of Architectural terms
- ◆ Historic Scotland Technical Advice Notes
- ◆ West End Conservation Manual
- ◆ Journal of Architectural Conservation

In Outcome 1, through lectures and tutorials you will be introduced to the decay mechanisms of the following materials: stone, metals (cast iron/wrought iron, lead, copper), timber, historic glass, ceramics and concrete, to enable you to recognise individual material failure.

You will select one of these materials and prepare an individual presentation on the following: material properties, manufacturing techniques, use, decay mechanisms.

Outcome 2 and 3 after lectures and tutorials you will be asked to prepare an external fabric/condition report on a specified building, this will include you providing sketches and photographs of the exterior of the building, highlighting material defects and providing solutions or remedial treatment for at least two of the major defects.