



National Unit specification: general information

Unit title: Technology for Architecture: An Introduction
(SCQF level 6)

Unit code: H2V3 12

Superclass: TD

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Summary

This Unit introduces candidates to the technology used to construct residential, commercial and industrial buildings. Candidates will also be introduced to materials and basic structural concepts through the compilation of a portfolio, based on a series of case studies.

This Unit will be useful for candidates who later articulate to Construction Technology Units at SCQF levels 7 and 8.

This is an optional Unit in the National Certificate (NC) in Architecture and Art at SCQF level 6 and the NC in Architecture and Interior Design at SCQF level 6, but is also available as a freestanding Unit.

Outcomes

- 1 Create a portfolio piece which presents the technology used in domestic construction.
- 2 Create a portfolio piece which presents the technology used in industrial/commercial buildings.
- 3 Create a portfolio piece which presents a photographic record and production of instrument aided drawings of structural elements.
- 4 Demonstrate technical knowledge.

Recommended entry

While entry is at the discretion of the centre, it would be beneficial for candidates to have some prior knowledge of construction and literacy skills appropriate for compilation of an audit of buildings.

General information (cont)

Unit title: Technology for Architecture: An Introduction
(SCQF level 6)

Credit points and level

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

**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.*

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 components in this Unit.

National Unit specification: statement of standards

Unit title: Technology for Architecture: An Introduction
(SCQF level 6)

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

Create a portfolio piece which presents the technology used in domestic construction.

Performance Criteria

- (a) Observe and create a photographic folio piece of two different structural elements used in domestic construction.
- (b) Observe and create a photographic folio piece of cladding technologies used in domestic construction.
- (c) Observe and create a photographic folio piece of various materials used in domestic construction.

Outcome 2

Create a portfolio piece which presents the technology used in industrial/commercial buildings.

Performance Criteria

- (a) Observe and create a photographic folio piece of structural elements used in industrial/commercial buildings.
- (b) Observe and create a photographic folio piece of cladding technologies used in industrial/commercial buildings.
- (c) Observe and create a photographic folio piece of various materials used in industrial/commercial buildings.

Outcome 3

Create a portfolio piece which presents a photographic record and production of instrument aided drawings of structural elements.

Performance Criteria

- (a) Photograph and produce an annotated sketch for a portfolio of a joint between two structural elements in domestic construction.
- (b) Photograph and produce an annotated sketch for a portfolio of a joint between two structural elements in industrial/commercial construction.

National Unit specification: statement of standards (cont)

Unit title: Technology for Architecture: An Introduction
(SCQF level 6)

Outcome 4

Demonstrate technical knowledge.

Performance Criteria

- (a) Demonstrate knowledge of materials, structural elements and technologies for domestic and industrial/commercial case studies.
- (b) Respond to technical questioning of case studies.

Evidence Requirements for this Unit

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

For Outcome 1, candidates will be required to create a portfolio piece which presents the technology used in domestic construction from two case studies, covering the following:

- ◆ a photographic folio piece of two different structural elements used in domestic construction
- ◆ a photographic folio piece of cladding technologies used in domestic construction
- ◆ a photographic folio piece of various materials used in domestic construction

For Outcome 2, candidates will be required to create a portfolio piece which presents the technology used in industrial/commercial buildings from two case studies, covering the following:

- ◆ a photographic folio piece of structural elements used in industrial/commercial buildings
- ◆ a photographic folio piece of cladding technologies used in industrial/commercial buildings
- ◆ a photographic folio piece of various materials used in industrial/commercial buildings

For Outcome 3, candidates will be required to create a portfolio piece which presents a photographic record and production of instrument aided drawings of structural elements relevant to two case studies, providing:

- ◆ photograph and produce an annotated sketch for a portfolio of a joint between two structural elements in domestic construction
- ◆ photograph and produce an annotated sketch for a portfolio of a joint between two structural elements in industrial/commercial construction

For Outcome 4, using two case studies, candidates will be required to demonstrate:

- ◆ knowledge of materials
- ◆ knowledge of structural elements
- ◆ knowledge of technologies for domestic and industrial/commercial construction

Portfolios evidence will be produced under supervised, open-book conditions.

National Unit specification: support notes

Unit title: Technology for Architecture: An Introduction
(SCQF level 6)

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

For the purpose of this Unit, the main categories of domestic construction to be considered are:

- ◆ Traditional Solid Block
- ◆ Timber Kit
- ◆ Brick/Block
- ◆ SIPS/Panelised systems
- ◆ ICF
- ◆ Modular/Volumetric

Within each system, candidates must present structural elements including wall, upper floor and roof structures as well as methods of externally cladding as appropriate to the case studies. Candidates are only required to demonstrate knowledge of two different categories of domestic construction.

For the purposes of this Unit, the main categories of framing for industrial/commercial construction to be considered are:

- ◆ Steel frame
 - Box frame
 - Portal frame
- ◆ Concrete frame
 - Insitu frames
 - Precast frames
- ◆ Modular/volumetric systems

Within each system, candidates must present structural elements including wall, upper floor (mezzanine if portal frame) and roof structures as well as methods of externally cladding as appropriate to the case studies. Suggestions for methods of cladding include:

- ◆ Curtain walling
- ◆ Sandwich panel
- ◆ Rainscreen cladding
- ◆ Precast concrete cladding

However, this list is not exhaustive. Candidates are only required to demonstrate knowledge of two different categories of industrial/commercial structures.

National Unit specification: support notes (cont)

Unit title: Technology for Architecture: An Introduction
(SCQF level 6)

Guidance on learning and teaching approaches for this Unit

Learning and teaching of this Unit may be enhanced site visits and case studies which allow candidates to record, sketch and photograph appropriate construction details, materials, etc as necessary for the compilation of portfolios. In addition, sketching tasks may be simplified by having access to the relevant site drawing register.

There are active sites where internet access can provide regular updates on progress if actual site visits are not practicable. Following site visits, construction details can be highlighted and discussed in a classroom environment, and used as exemplars, and group sketching used to reinforce points.

Site visits may not always be available. In this instance, candidates may opt for completed or concept buildings through research which could allow the assessor to dictate the methods of construction and materials the class could research. Candidates can choose their own case studies but assessors may wish to restrict these to ensure the core themes of the Unit are delivered effectively.

Teaching approaches should be related to individual site visits or case studies selected for use by centres. Each case study should be used to reinforce learning and teaching in relation to each Outcome. It is recommended that a minimum of two domestic builds and two industrial/commercial builds should be covered in respect of technology, materials, methods, etc.

The selection of teaching approaches will depend upon the selection and timing of site visits and case studies. At site visits and with case studies, candidates should be encouraged to sketch details and take photographic evidence and notes where permissible. Reinforcement should follow each visit with structured learning in the classroom where the study of individual learning Outcomes can be extracted from the 'holistic materials'.

Where possible, candidates 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 for this Unit

Outcomes 1, 2 and 3 are assessed by candidates' creation of a portfolio. Outcome 4 is intended to be assessed by delivery of an oral presentation, demonstrating competence in the identification of construction technology from case study buildings. The portfolio may be produced as a hard copy or digital/e-portfolio.

Centres may wish to deliver Outcomes 1 and 2 in the order best suited to the availability of case studies and resources, with Outcomes 3 and 4 delivered at appropriate points throughout the Unit. Centres may opt to use a single assessment paper for all Outcomes. Given the wealth of researching involved, candidates should have access to the necessary books, journals and resources required for the compilation of portfolio pieces. The compilation of portfolio should be conducted in class time and be supervised under open-book conditions.

National Unit specification: support notes (cont)

Unit title: Technology for Architecture: An Introduction
(SCQF level 6)

Candidates should have access to the necessary resources and equipment for Outcome 3. If candidates are producing a digital folio piece it may be appropriate to scan sketches in order to keep with the digital theme but sketches can also be presented as paper copies in this instance.

Outcome 4 is intended to be assessed by means of an oral presentation, covering two case studies. Candidates should use appropriate media/visuals and orally respond to technical questioning of case studies. Innovative practices may incorporate camcorder or video conferencing facilities to keep with an e-portfolio/digital theme.

Opportunities for the use of 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 e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Opportunities for developing Core Skills

In this Unit candidates may have opportunities to develop aspects of the Core Skills of *Information and Communication Technology* and *Communication*.

Aspects of *Information and Communication Technology* may be developed through the research and investigation with relation to the creation of portfolios.

Communication may be developed through production of portfolios and in oral presentations which may be used for assessment of Outcome 4.

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

History of changes to Unit

Version	Description of change	Date

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