



National Unit Specification: general information

UNIT Building Construction Project (SCQF level 6)

CODE F3JF 12

SUMMARY

This Unit is suitable for candidates who have experience of building construction and the many factors impacting upon this process.

Candidates will complete a project which will allow them to demonstrate their knowledge and understanding of domestic building construction through the production of drawings and associated technical material.

The candidate will research and investigate traditional forms of house construction through a study of different forms of building, develop an understanding of the application of different materials, technologies and methodologies and gain an appreciation of functional and statutory requirements. Candidates will investigate a range of building regulations and standards in relation to this project.

OUTCOMES

- 1 Produce detail drawings of structural elements of domestic construction.
- 2 Produce a report on how functional and statutory requirements can affect the construction of a specific building.
- 3 Demonstrate an understanding of components, materials and finishes needed for the specific building project.

Administrative Information

Superclass: TG

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National Unit Specification: general information (cont)

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RECOMMENDED ENTRY

Whilst entry is at the discretion of centres, candidates would normally be expected to have attained the following NC Units or their equivalents:

F3JN 11	<i>Drawing for Construction (SCQF level 5)</i>
F3J8 12	<i>Computer Aided Drawing for Construction (SCQF level 6)</i>
F3JE 12	<i>Building Design and Technology (SCQF level 6)</i>
F3JB 12	<i>Introduction to Construction Materials (SCQF level 5)</i>
F3J9 12	<i>Construction Materials: Properties and Testing (SCQF level 6)</i>
F3JS 12	<i>Sustainability and Building Performance (SCQF level 6)</i>

CREDIT VALUE

1 credit at SQA Higher level (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

There is no automatic certification of Core Skills or Core Skill components in this Unit. Opportunities for developing aspects of Core Skills are highlighted in *Guidance on Learning and Teaching Approaches*.

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

Produce detail drawings of structural elements of domestic construction.

Performance Criteria

- (a) Identify different types of foundation, wall, floor and roof correctly.
- (b) Sketch different types of foundation, wall, floor and roof correctly.
- (c) Produce accurate detail drawings based on these sketches.

OUTCOME 2

Produce a report on how functional and statutory requirements can affect the construction of a specific building.

Performance Criteria

- (a) Identify and explain the functional requirements for walls, floors and roofs.
- (b) Explain current statutory requirements for the specific building.
- (c) Evaluate how the functional requirements and the statutory requirements can be met.

OUTCOME 3

Demonstrate an understanding of components, materials and finishes needed for the specific building project.

Performance Criteria

- (a) Describe different door and window types used in domestic construction.
- (b) Describe different walling, flooring and roofing materials used in domestic construction.
- (c) Explain how these components, materials and finishes are correctly fitted and fixed.
- (d) Identify the benefits and disadvantages of using these in a specific building.
- (e) Identify the appropriate components, materials and finishes for the given project.

EVIDENCE REQUIREMENTS FOR THIS UNIT

Candidates should be assessed on an Outcome by Outcome basis in numerical sequence with satisfactory completion of each required before graduating to the next. All evidence will be collated into a portfolio to form an extended appreciation of domestic building construction. The format and quality requirements for this document should be clarified at an early stage.

Assessment will be effected through the undertaking of a series of drawing exercises, investigations and report writing. Drawings may be instrument aided or sketched or a CAD production.

National Unit Specification: statement of standards (cont)

UNIT Building Construction Project (SCQF level 6)

While the portfolio will be individually produced, opportunity exists within the project for group working through survey or investigation and is to be encouraged. The tutor/lecturer should take care to ensure that in such eventuality each member of the group is actively involved and individual output duly recognised.

Any formative assessment to amplify understanding should be recorded within the portfolio through the use of a development appendix.

Written and/or recorded oral evidence is required to demonstrate that the candidate has achieved all Outcomes to the standard set in the performance criteria. Evidence will be gathered at appropriate points throughout the delivery of the Unit. All evidence must be the candidates own work and should be gathered in the form of a portfolio.

Candidates should be given a clear brief detailing what their portfolio should contain:

Outcome 1 — minimum of four sketched, one of each component. Four detail drawings, fully annotated and labelled, one of each component.

Outcome 2 — Report on a given case study including both Scottish and UK current statutory requirements and functional requirements of components. The report should contain an evaluation in the form of a structured report which will be collated into a portfolio.

Outcome 3 — Report on the use of components, materials and finishes including the benefits and disadvantages of their use. A minimum of four doors and four windows

Evidence will demonstrate the candidate's competency in outlining and specifying a range of technical aspects supporting sound domestic building construction. In particular, the following elements should be covered:

- ◆ strip and raft foundation types
- ◆ cavity wall and timber frame construction
- ◆ suspended and ground supported floors - timber and concrete
- ◆ closed coupled and trussed roofs
- ◆ functional requirements for walls, floors, roofs, eg strength and stability, water resistance, appearance, environmental integrity, thermal insulation, etc.
- ◆ current statutory requirements
- ◆ flush, lined and panelled doors and their installation
- ◆ sash and case, casement and pivot windows and their installation
- ◆ cement and plaster based wall finishes and application
- ◆ sheet and tile floor finishes and application

National Unit Specification: support notes

UNIT Building Construction Project (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

This Unit has been developed as an optional Unit in the National Certificate in Civil Engineering and the Built Environment at SCQF level 6 and can also be taken as a freestanding Unit.

The candidate undertaking this Unit will be exploring and applying basic construction technology found in domestic buildings. It is vital that a sound level of understanding is gained of the principles underpinning good building practice and of the ways in which construction adapts in response to different factors. Consolidation of these aspects will allow for future expansion of a core of knowledge, either within the workplace or through study.

The project is designed to extend the candidate's ability to apply and adapt knowledge and skills gained through study of associated Units or workplace experience.

The project will be based on domestic building construction only. The candidate should be encouraged to source appropriate information and to carry out structured research into the historical and technical development of house construction. It may prove useful at specific times to consider more general factors affecting construction, for example, social change or urban growth. The scope and framework of the project should be agreed with the candidate at an early stage but should be sufficiently flexible to allow additional areas of interest to be researched.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

The overall aim of the project requires candidates to carry out a defined sequence of tasks to demonstrate sound and embedded understanding of domestic building construction. Evidence generated will be presented in a clearly structured portfolio.

Those undertaking the project should be encouraged to greater awareness through a range of exercises found to be appropriate within delivery centres. A possible approach might be through active consultation with craft operatives within the centre or on a building site, alternatively, a series of structured research activities based upon archival sources may provide the nucleus of the portfolio. Prior to any site visit a risk assessment should be carried out and this should be incorporated within the portfolio.

A programme of work should be set out at the start of the project with timeframes allocated for the three main stages.

The project commences with a comparison of different construction types through investigation and analysis. Alongside such appreciation the candidate should be encouraged to consider some historical development through the study of traditional buildings. Following this broad appreciation a case study building can then be agreed as a focus for further appraisal.

National Unit Specification: support notes (cont)

UNIT Building Construction Project (SCQF level 6)

This preliminary stage relies heavily on analysis of areas of research and survey. This will be based on the gathering of information from a range of sources such as web based investigation, technology textbooks, periodicals and local buildings. To ensure the relevancy of this area of study the assessor should provide a framework of activities to be followed by candidates perhaps in the form of a learner guide. Any external survey work should be carried out under supervision and following risk assessment.

General functionality of primary and secondary elements should be defined and related to the requirements of the Building Regulations and other appropriate standards. The case study building can then be analysed to stated functional requirements with components and finishes encompassed within the scope. Functionality should be related to component specification and installation to ensure that the envelope is appreciated as a coherent whole rather than a series of disparate elements.

It is suggested that the prime reference will be the current Scottish Building Regulations possibly amplified through the use of other stated standards. Technical documentation from component and material manufacturers may also be used in support of this study as well as independent specification sources or testing agencies.

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

In this Unit candidates will be:

- ◆ drawing and sketching structural components
- ◆ analysing and seeking solutions to a range of theoretical and practical problems
- ◆ producing a technically accurate, structured and formally expressed written report

These offer opportunities to develop aspects of the Core Skills of:

- ◆ *Communication*
- ◆ *Problem Solving*

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

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 communications 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)*.

Generation of knowledge and understanding should take place through the investigation and analysis of a case study building(s). This could be a pre-existing dwelling or a design proposal.

An appropriate instrument of assessment would be the production of a portfolio.

National Unit Specification: support notes (cont)

UNIT Building Construction Project (SCQF level 6)

Assessment is carried out through the candidate's production of a construction technology portfolio. The portfolio should show evidence of the separate assignment tasks arranged in a structured format. The technical information gathered should conclude with a report justifying or recommending appropriate structural form, materials, components and finishes for the given case study.

Candidates undertaking, or having previously completed, associated NC Units can integrate relevant assessment work into their project when, for instance, comparing different systems or in clarifying concepts.

XXXX XX	<i>Drawing for Construction (SCQF level 5)</i>
XXXX XX	<i>Computer Aided Drawing for Construction (SCQF level 6)</i>
XXXX XX	<i>Building Design and Technology (SCQF level 6)</i>
XXXX XX	<i>Introduction to Construction Materials (SCQF level 5)</i>
XXXX XX	<i>Construction Materials: Properties and Testing (SCQF level 6)</i>
XXXX XX	<i>Sustainability and Building Performance (SCQF level 6)</i>

Centre must ensure that the evidence in the portfolio is the candidates own work. This could be achieved through interim interviews before submission or submission of drafts

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).