National Unit specification

General information

Unit title: Built Environment Project (SCQF level 6)

Unit code: H65S 46

Superclass: TD

Publication date: April 2014

Source: Scottish Qualifications Authority

Version: 02

Unit purpose

This Unit is suitable for learners with limited experience in the construction industry aiming for a career as a technician, technologist or other construction professional.

This Unit is designed to develop the learner's ability to apply the knowledge and skills gained through study of other NC Built Environment components to solve real or hypothetical building design issues. The gathering, organisation and use of factual and theoretical information should lead to sound conclusions and solutions to design problems.

Outcomes

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

1 Plan and monitor design proposals for a small construction project.
2 Produce a site survey report and environmental appraisal.
3 Develop design proposals in response to a given client brief.
4 Evaluate the completed project.

Credit points and level

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

National Unit specification: General information (cont)

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Recommended entry to the Unit

While entry is at the discretion of the centre, learners would be expected to have achieved or be undertaking the mandatory Units in the National Certificate in Built Environment.

Core Skills

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill Problem Solving at SCQF level 6

Core Skill component None

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of the Unit Specifications for this Course.

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**.

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

Plan and monitor design proposals for a small construction project.

Performance Criteria

(a) Explain the project activities to be carried out in response to briefing requirements.
(b) Programme identified activities in sequence over the project period.
(c) Monitor and update the programme over the project period.

Outcome 2

Produce a site survey report and environmental appraisal.

Performance Criteria

(a) Prepare an accurate linear and levelling survey of a selected site.
(b) Produce an illustrated site survey report.
(c) Produce an environmental appraisal of the site.

Outcome 3

Develop design proposals in response to a given client brief.

Performance Criteria

(a) Prepare outline sketch designs to satisfy the design brief.
(b) Produce drawings to scale, showing plans, sections, elevations and details of design proposals.
(c) Identify sustainable materials, components and technology for the proposals.

Outcome 4

Evaluate the completed project.

Performance Criteria

(a) Summarise the design process and the learning experience.
(b) Evaluate the design proposals against the client brief.
(c) Evaluate sustainable materials, components and technology for the proposals.

National Unit specification: Statement of standards (cont)

Unit title: Built Environment Project (SCQF level 6)

Evidence Requirements for this Unit

The following evidence is required to demonstrate that learners have achieved all Outcomes and Performance Criteria:

Written, graphical and/or oral and product evidence is required which demonstrates that the learner has achieved all Outcomes in this Unit and all Performance Criteria within the Outcomes. This should include:

(a) Project programme
(b) Linear and levelling survey data
(c) Site appraisal report and site survey drawings to scale
(d) Sketch design proposals — plan, section, elevation
(e) Scale drawings showing construction technology proposals
(f) Project evaluation report
(g) Portfolio of learner evidence

The assessment for this Unit may be a combination of practical and knowledge-based activities. While it is possible to assess each Outcome on an individual basis, it is recommended that the assessment for this Unit will be carried out as a fully integrated assignment with evidence presented in a portfolio.

The portfolio of work is a collection of evidence including the planning of the project, investigative studies, the physical survey of an appropriate site, all sketch design proposals, the required construction drawings along with an evaluation of the completed project. The production of the folio of work will be carried out in open-book, supervised conditions. Learners may work in small teams for surveying work and individually for associated indoor computation and graphical work using shared data.

During this assessment learners are free to co-operate with colleagues in the researching of technical information and construction technology details. Learners may also confer with one another regarding design factors and concepts. Assessors must, nevertheless, satisfy themselves that learners' portfolios contain their own work.

National Unit Support Notes

Unit title: Built Environment Project (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

The design of buildings is a highly complex operation demanding a wide range of skills. Not least of those is the ability to understand precisely what is being asked of the designer and to take the appropriate action. This Unit is concerned with the learners' ability to demonstrate understanding of the design process through managing a design project. Information will be gathered, assessed and utilised to underpin all aspects of the design, the success of which will be related to meeting stated requirements and identified design criteria.

This Unit is set in the context of domestic scale development using, for example, a single residential Unit. The overall aim of the project is to allow learners to demonstrate their ability to complete a number of tasks which are essential to the design process for a small building site and domestic property. The tasks are grouped under the following Outcomes:

1 Plan and monitor design proposals for a small construction project.
2 Produce a site survey report and environmental appraisal.
3 Develop design proposals in response to a given client brief.
4 Evaluate the completed project

It is expected that a suitable site, in the vicinity of or within easy reach of the centre, be selected for the project and that a design proposal be developed for the site, considering topography and access.

The project devised by the centre should set design brief parameters within which each individual learner can investigate and develop design and construction options.

Learners may work in small teams for surveying work and individually for associated indoor computation and graphical work, using shared data.

To ensure reliability and credibility, all assessment work should be carried out under controlled conditions. With project work, this means that the assessor must closely monitor the progress of each learners work to ensure that evidence submitted is the learner's own work.

Learners should be required to prepare a portfolio of evidence containing the project plan, survey data, computations and reports, drawings, the project evaluation and any other relevant information.

National Unit Support Notes (cont)

Unit title: Built Environment Project (SCQF level 6)

In undertaking the project, learners will develop a range of skills appropriate to the undertaking of a Higher National or vocational qualification. Through undertaking a range of analytical tasks within a structured design process, a deeper understanding of the relationship between briefing, design and technology will be gained. A requirement to meet deadlines in the production of portfolio evidence will test organisational and presentational capability and will be indicative of potential to progress to a higher level of qualification or open up employment opportunity.

Guidance on approaches to delivery of this Unit

It is intended that this Unit will integrate the skills and knowledge gained from other Units within the NC Built Environment framework. As a result, the learner should be introduced to the case study at a very early stage in the course.

It is likely that the tutor/lecturer may have to recapitulate some of the content of the other Units in order to reinforce the learning and knowledge of the learner in specific areas. This recap of previous work would be entirely appropriate, but must be left to the discretion of the assessor to decide to what extent any review would be required.

To begin this Unit, the learner should be given a design case study for a given site. The project can be based on a single house development. A design brief or list of client requirements should be included along with a statement of space standards.

Once the learner has reviewed the client's brief, the given site and the requirements of the assignment, the learner should consider the tasks that need to be carried out in order to complete the assignment. The learner will produce a feasible project plan which will identify the sequence of activities, set clear time scales for the completion of the stages of the project and provide a method of recording progress. This helps to develop skills in analysing, prioritising, planning and setting of goals. Once the planning phase is complete, the learner should be encouraged to follow the planned activities in a logical manner.

One of the priorities will be to carry out the site surveys and appraisal. A site should be selected on which the learner, perhaps working as a member of a small group, will carry out a linear survey to gather the necessary data for preparation of the detailed site plan and a levelling survey for the purpose of establishing site contours. The site should be no less than 0.10 hectares, possible access routes should be considered and the project devised by the Centre should specify the minimum level of accuracy stated in the Unit F3JM 12 *Construction Site Surveying: An Introduction.* All booking and fieldwork notes should be retained.

The learner will prepare a range of sketches and drawings, some manually and others using a commercial Computer Aided Drafting system. A site location plan and a site layout plan should be prepared along with general arrangement drawings and typical construction details.

The learner will be required to write a brief evaluation report on the completed project. This should include a summary of what has been learned by undertaking the project and an appraisal of the building proposal to identify deficiencies and suggest refinements and improvements.

National Unit Support Notes (cont)

Unit title: Built Environment Project (SCQF level 6)

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.

Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of instruments 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 is recommended 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.

This Unit gives learners experience of the activities of planning, research, land surveying, designing, sketching and drawing. Although learners will further develop their knowledge and understanding of these activities, Unit assessment is focused on the application of this knowledge and understanding.

Each Outcome may be assessed individually in a logical sequence, or the whole may be assessed as an integrated case study. In either circumstance, the learner is required to satisfy all conditions laid down in the statement of Evidence Requirements.

It is anticipated that Outcomes 1, 2, 3, and 4 be assessed using a single, integrated case study.

Planning for the presentation of this Unit should allow some time for remediation and re-assessment. Given the nature of the assessment of this Unit, where a learner just fails to achieve the required performance for a pass, re-assessment of one or more of the sub-tasks may be all that is required to bring the learner's performance up to the required standard. However, if the learner's performance is substantially below that required for a pass, centres should consider that a different assessment is given for re-assessment purposes.

Centres must be satisfied that the evidence submitted is the work of individual learners. Assessors should maintain a record of discussions with each learner at programmed intervals during the evolution and production of the portfolio. The timing of such discussions should be agreed with the learner that dates be incorporated into the planning process.

A significant part of the project work will be undertaken without close supervision although the assessor may provide guidance and support. While time constraints are relaxed, project work must be carried out within an agreed, set timeframe with pre-determined sanctions in operation where deadlines are not met. Assessors must ensure the project requirements and brief are clearly defined and agreed with learners to allow accurate planning of the work. A checklist should be developed defining assessment work to be covered and the standards expected in the project evidence.

National Unit Support Notes (cont)

Unit title: Built Environment Project (SCQF level 6)

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.

Opportunities for developing Core and other essential skills

In this Unit learners will be:

- applying theoretical knowledge to the planning of an building design project.
- interpreting and presenting complex graphic information.
- calculating and applying complex numerical data.
- working with others when carrying out survey work.

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

- *Problem Solving*
- *Information and Communication Technology (ICT)*
- *Numeracy*
- *Working with Others*

The project may allow the learner to develop a variety of supplementary skills and attributes which enhance life skills and the educational experience. Such skills, tied to enterprise, employability, sustainable development and citizenship, are deemed essential to success in learning and life and work. They should be nurtured and developed wherever possible. The wide range of work to be completed within the project will provide the learner with opportunity to reflect upon collateral soft skills found, for example, in career development, developing self-confidence, team working, problem solving, understanding rights and responsibilities, interdependence, etc.

This Unit has the Core Skill of Problem Solving embedded in it, so when candidates achieve this Unit their Core Skills profile will be updated to show that they have achieved Problem Solving at SCQF Level 6.

History of changes to Unit

Version	Description of change	Date
02	Core Skill Problem Solving at SCQF level 6 embedded.	09/04/2014

General information for learners

Unit title: Built Environment Project (SCQF level 6)

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.

This Unit is suitable for learners with limited experience in the construction industry aiming for a career as a technician, technologist or other construction professional. The Unit is likely to form part of a Group Award designed to provide learners with technical or professional knowledge and skills when working within the built environment arena.

The aim of the Unit is to develop your ability to apply knowledge and skills, gained through study of other component parts of the NC Built Environment course, to the solution of real or hypothetical building design problems. These will mimic real life scenarios where designers have to respond positively to a range of factors and provide valid and coherent solutions to a range of challenges.

You will investigate the planning and design strategies for a construction project based on a low-rise domestic building. Site surveys will be carried out and a site appraisal will be compiled. You will produce sketch designs and construction drawings of the proposed design solution. Opportunity exists to support design proposals with technical investigations on the environmental impact of the project. An evaluation stage towards the end of the project will allow you to reflect on project development and to provide a written/oral explanation of performance, progress and product.

On completion, you will have gained knowledge and understanding of a complex managerial process similar in scope and structure to that undertaken at Higher National level when working with Graded Units.

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