



## **National Unit specification: general information**

**Unit title:** Planning, Organisation and Control of Resources in Construction (SCQF level 6)

**Unit code:** F1AS 12

**Superclass:** VF

**Publication date:** July 2011

**Source:** Scottish Qualifications Authority

**Version:** 02

## **Summary**

This Unit will be suitable for candidates who have limited or no experience of a Construction or Building Services engineer's role in the Planning, Organisation and Control of Resources in the Construction industry.

This Unit is intended to develop an understanding of the importance of the structured planning and organisation of building services projects, a knowledge of the resources required for such projects and how such projects are successfully managed. The Unit focuses on low-rise domestic and commercial buildings.

## **Outcomes**

- 1 Describe the roles and responsibilities of the Construction or Building Services Engineer and others involved in the planning, organisation and control of resources within the Construction industry.
- 2 Explain the physical, human, financial and planning resource requirements for a low-rise domestic or commercial Construction or Building Services Engineering project.

## **Recommended entry**

Entry is at the discretion of the centre.

## **General information (cont)**

**Unit title:** Planning, Organisation and Control of Resources in Construction (SCQF level 6)

### **Credit points and level**

1 National Unit credit at SCQF level 6: (6 SCQF credit points at SCQF level 5\*)

*\*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.*

6 credit points, indicates a notional Unit design length of 40 hours of contact and 20 hours of self-directed learning.

### **Core Skills**

There is no automatic certification of Core Skills or Core Skill components in this Unit.

The Unit provides opportunities for candidates to develop aspects of the following Core Skills:

- ◆ Problem Solving (SCQF level 5)

These opportunities are highlighted in the support notes of this Unit specification.

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

**Unit title:** Planning, Organisation and Control of Resources in Construction (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. The Appendix forms a part of this statement of standards.

### **Outcome 1**

Describe the roles and responsibilities of the Construction or Building Services Engineer and others involved in the planning, organisation and control of resources within the Construction industry.

#### **Performance Criteria**

- (a) Describe the main stages in the development of a Construction or Building Services Engineering project from conception to completion.
- (b) Describe the key planning and organisational roles of those involved in the construction process.
- (c) Explain the main inter-relationships within the building team involved in the construction process.
- (d) Describe the key functions of management in a Construction or Building Services Engineering project in relation to forecasting, planning, organising, co-ordinating, monitoring and controlling.

### **Outcome 2**

Explain the physical, human, financial and planning resource requirements for a low-rise domestic or commercial Construction or Building Services Engineering project.

#### **Performance Criteria**

- (a) Explain the main physical, human and financial resource requirements in a Construction or Building Services Engineering project.
- (b) Explain the relevant resource planning documentation including bar charts, network diagrams and schedules in relation to a Construction or Building Services Engineering project.

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

**Unit title:** Planning, Organisation and Control of Resources in Construction (SCQF level 6)

### **Evidence Requirements for this Unit**

The Appendix to this Unit details the mandatory content for each Outcome.

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

In any assessment of Outcomes 1 and 2 **all** items of content must be assessed.

For Outcomes 1 and 2 written and/or oral evidence must be produced in open-book conditions. In this Unit an appropriate Instrument of Assessment could be a question paper consisting of a balance of multiple-choice, short answer, restricted response and structured questions. Candidates must not bring notes, textbooks or handouts to the assessment.

Assessments must be manageable and practicable for centres and candidates and a single assessment covering all Outcomes should not exceed 2 hours in duration.

## National Unit specification: support notes

**Unit title:** Planning, Organisation and Control of Resources in Construction (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

The Appendix to this Unit details the mandatory content for each Outcome.

This Unit is an optional Unit within the National Certificate in Building Services Engineering (SCQF level 6).

This Unit is intended to develop an understanding of the importance of structured planning and organisation of building services projects, a knowledge of the resources required for such projects and how such projects are successfully managed. The Unit focuses on low-rise domestic and commercial buildings.

Health and Safety and Sustainability are integral and key to the Building Services Engineering industry therefore 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.

### Guidance on learning and teaching approaches for this Unit

Emphasis in the delivery of the Unit should be on familiarisation with terminology and basic concepts.

If delivered within the National Certificate in Building Services Engineering (SCQF level 6) it would be beneficial for this Unit to be delivered after or in parallel with the following Units:

- ◆ *Air Conditioning and Ventilation Technology* (SCQF level 6)
- ◆ *Refrigeration Technology* (SCQF level 6)
- ◆ *Heating and Plumbing Technology* (SCQF level 6)
- ◆ *Building Services Engineering Technology* (SCQF level 5)

The use of case study material is particularly recommended for both the learning and assessment components of this Unit. The learning environment for this Unit will be mainly classroom based however where possible opportunities to enhance learning may include workshop and industrial visits.

Suggested teaching and learning methods for this Unit could include: the use of visual aids, ICT, group lectures and discussion, practical demonstrations, question and answer sessions, directed study, industrial/site visits. Emphasis in the delivery of the Unit should be on familiarisation with terminology and basic concepts.

## National Unit specification: support notes (cont)

**Unit title:** Planning, Organisation and Control of Resources in Construction (SCQF level 6)

### Guidance on approaches to assessment for this Unit

To be read in conjunction with the **Evidence Requirements**.

Candidates may be assessed on an Outcome by Outcome basis, combinations of Outcomes or by a single, holistic assessment. In this Unit an appropriate Instrument of Assessment could be a question paper consisting of a balance of short answer, restricted response and structured questions based on case study material.

Preparation for assessment should include formative work with opportunities for constructive feedback. Well planned assignments and project work will also be useful preparation.

Where the Unit is taken as part of the National Certificate in Building Services Engineering (SCQF level 6), there may be opportunities to integrate the assessments for this Unit with other appropriate Units. For example:

- ◆ *Air Conditioning and Ventilation Technology* (SCQF level 6)
- ◆ *Refrigeration Technology* (SCQF level 6)
- ◆ *Heating and Plumbing Technology* (SCQF level 6)
- ◆ *Building Services Engineering Technology* (SCQF level 5)

Planning should allow time for re-assessment. Given that assessment for this Unit must be conducted in controlled conditions, centres should ensure that a different assessment is given for re-assessment purposes and that similar controlled conditions apply.

### 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

Elements of the Core Skill of Problem Solving, such as, planning and organising, critical thinking, and reviewing and evaluating, could be developed and enhanced in the Unit, which requires the application of knowledge to a practical building services project. Candidates are assessed on their understanding of roles and responsibilities in construction and resource management. Identifying and considering relevant factors in requirements for a building services project, and interpreting documentation will involve a high level of critical thinking. It is recommended that evidence is achieved through well-planned course work, assignments and projects. Although assessments must be focused on the individual achievement of each candidate, group work and role-play activities may contribute to the assessment. Group discussion on ways of maximising available resources in order to achieve project aims may be useful and candidates would benefit from discussions to reinforce evaluative approaches to case studies which could be provided.

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

**Unit title:** Planning, Organisation and Control of Resources in Construction (SCQF level 6)

### **Open learning**

Where appropriate materials and facilities are available, this Unit could be delivered by distance learning which might include some degree of online support. Centres must ensure that for all modes of delivery the same assessment conditions, standards and quality assurance procedures apply to all candidates.

### **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](http://www.sqa.org.uk/assessmentarrangements).

### National Unit specification: statement of standards

**Unit title:** Planning, Organisation and Control of Resources in Construction (SCQF level 6)

### Appendix — Content and Context for this Unit

This Appendix is within the statement of standards, ie the mandatory requirements of the Unit.

Recommended time allocations for each Outcome are given as guidance on the depth of treatment which might be applied to each topic and are inclusive of time for teaching and assessment. This guidance has been used in the design of Assessment Support Pack material provided with the Unit.

- 1 Describe the roles and responsibilities of the Construction or Building Services Engineer and others involved in the planning, organisation and control of resources within the Construction industry (15 hours).
  - ◆ **Job roles**  
Director or site manager; buyer; estimator; architect; quantity surveyor; structural/services engineer; craft roles; supervisory; etc.
  - ◆ **Component parts of construction team**  
Design, production, control.
  - ◆ **Construction process**  
In terms of feasibility, design, tendering, production, maintenance, repair, refurbishment, renovation, etc.
  - ◆ **Team working**  
Group dynamics, organisational charts, interaction and communication in terms of people's position within the structure, their job roles and their corporate responsibilities and accountability.
  - ◆ **Broad functions**  
Forecasting, planning, organising, monitoring, controlling, co-ordinating, motivating, communicating, reviewing and improving.
  - ◆ **Processes and procedures**
    - site layout planning including movement of labour, materials,
    - plant, access, accommodation, security and health and safety, method statements,
    - planning charts and schedules, monitoring of progress by meetings, diaries,
    - programmes of work, inspections, scheduling, time sheets, delivery records, utilisation factors, stock control, delivery notes and invoices.
  - ◆ **Variables, unknowns and the unforeseeable**  
Weather, difficult access to site, changes in design, lack of resources, poor initial planning and costing, extensions of time, rescheduling of activities and resources, need for extra resources or different resources.



### National Unit specification: statement of standards

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2 Explain the physical, human, financial and planning resource requirements for a low-rise domestic or commercial Construction or Building Services Engineering project (25 hours).

◆ **Types**

Materials, labour, plant.

◆ **Factors**

Materials factors including cost, availability and fitness for purpose, labour factors including costs per hour and suitability of skills, plant factors including rate of output, suitability and ease of use.

◆ **Context**

Finance, site organisation (the 'temporary factory'), industrialisation, productivity, health, safety and welfare.

◆ **Procurement**

Materials management techniques including scheduling of requirements, requisitioning, ordering, receiving, checking and handling, storage and security, issuing and controlling stock, labour management techniques including work study, scheduling of requirements, control and organisation, plant management techniques including decisions on whether to hire, lease or buy, utilisation and control, calculations associated with the above.

◆ **Resource allocation documentation**

Use of bar charts, networks, schedules and other stock control (as appropriate) to plan, organise, monitor and control resources, documentation of changes made, evaluation of documentation used for resource planning and management.

## History of changes to Unit

Version	Description of change	Date
02	Update from 'closed-book' assessment to 'open-book' assessment.	14/07/2011

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