

## **SQA Advanced Unit specification**

### **General information**

**Unit title:** Construction Industry Fundamentals (SCQF level 7)

**Unit code:** HR4F 47

**Superclass:** TE

**Publication date:** August 2017

**Source:** Scottish Qualifications Authority

**Version:** 01

### **Unit purpose**

The purpose of this Unit is to provide learners with the Knowledge and Skills to understand the structure of the construction industry, the relationships therein, the variety of methods of communication used in the procurement of a project and how the industry addresses key contemporary issues.

The Unit is aimed at learners commencing SQA Advanced Certificate/SQA Advanced Diploma in Architectural Technology, SQA Advanced Certificate/SQA Advanced Diploma in Construction Management, SQA Advanced Certificate/SQA Advanced Diploma in Quantity Surveying, and SQA Advanced Certificate/SQA Advanced Diploma in Building Surveying. The subject matter may also be appropriate in underpinning competencies within a vocational award.

### **Outcomes**

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

- 1 Describe the roles and responsibilities of the groups involved in project design and procurement.
- 2 Demonstrate ways in which members of the groups communicate.
- 3 Explain the different terminologies and concepts found within the RIBA Plan of Work.
- 4 Describe how key issues within the Construction Industry are addressed.

## **SQA Advanced Unit Specification**

### **Credit points and level**

1 SQA Credit at SCQF level 7: (8 SCQF credit points at SCQF level 7)

### **Recommended entry to the Unit**

Entry is at the discretion of the centre.

### **Core Skills**

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

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

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

### Unit specification: Statement of standards

**Unit title:** Construction Industry Fundamentals (SCQF level 7)

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.

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. Learners 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

Describe the roles and responsibilities of the groups involved in project design and procurement

##### Knowledge and/or Skills

- ◆ Overview of the construction industry
- ◆ Project brief
- ◆ The client
- ◆ Consultants
- ◆ Contracting organisations
- ◆ Relationships
- ◆ Methods of procurement
- ◆ Statutory bodies

#### Outcome 2

Demonstrate ways in which members of the groups communicate.

##### Knowledge and/or Skills

- ◆ Meetings: as the vehicle to communication
- ◆ Written
- ◆ Electronic
- ◆ Contractual
- ◆ Pitfalls
- ◆ Graphical communications

## **SQA Advanced Unit Specification**

### **Outcome 3**

Explain the different terminologies and concepts found within the RIBA Plan of Work.

#### **Knowledge and/or Skills**

- ◆ Briefing
- ◆ Design work
- ◆ Project roles table
- ◆ Contractual tree
- ◆ Design responsibility matrix
- ◆ Building Information Modelling (BIM) information exchanges

### **Outcome 4**

Describe how key issues within the Construction Industry are addressed.

- ◆ Sustainable design
- ◆ Integrating BIM processes
- ◆ Planning processes
- ◆ Building use and aftercare
- ◆ Health and Safety

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

Learners will need to provide evidence to demonstrate their Knowledge and/or Skills across all Outcomes by showing that they can:

- ◆ describe the relationships between the various parties involved in building design and building procurement and the input each has to the process.
- ◆ explain the variety of ways parties communicate within the construction industry.
- ◆ explain the key functions of the RIBA plan of work and how it is implemented on a building project.
- ◆ demonstrate how key issues within the Construction Industry are addressed.

An assessment paper covering Outcomes 1, 3 and 4 should be taken as a single closed-book assessment lasting 1.5 hours and carried out under supervised, controlled conditions. Such papers should be composed of an appropriate balance of short answer, restricted response and structured questions sampling a range of Knowledge and Skills items. When sampling, the first stated item for each Outcome must be assessed along with at least one other item from the list.

Should a second assessment attempt be required, the first stated items should still be used as the testing basis but the other items must be different to those used in the first paper.

## **SQA Advanced Unit Specification**

Outcome 2; evidence for the Knowledge and/or Skills in this Outcome will be generated by the participation in a simulated formal meeting. Learners will be required to produce an individual record of this meeting in the form of minutes. Audio-visual evidence should also be collected for this assessment by ensuring a recording is made of the meeting.

Should a second assessment attempt be required, this can be carried out on an individual basis with the learner but must be recorded and written evidence produced of the second meeting.

### Unit Support Notes

**Unit title:** Construction Industry Fundamentals (SCQF level 7)

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

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

- 1 the roles and responsibilities of the various parties involved in a construction project.
- 2 the type and variety of communications employed within the industry.
- 3 the terminologies and concepts found in the RIBA Plan of Work.
- 4 the key issues which need to be addressed in the construction industry.

In these notes the writer has suggested a range of topics which might be expected to be covered by lecturers. There is also recommendation as to how much time should be spent on each Outcome. This has been done to help lecturers to decide what depth of treatment to give the topics chosen for each of the Outcomes. While it is not mandatory for a centre to use this specific list of topics it is strongly recommended that it does so, on the basis that it meets Unit specification requirements and that the Assessment Support Pack is based on this list.

#### Outcome 1: (16 hours)

##### **Describe the roles and responsibilities of the parties involved in building design and building procurement.**

The learner is introduced to the concept of a building design project and the various parties who comprise this team, their relationships within this process and the various types of procurement routes open to the client. All activities should be discussed in the context of the project from inception through to completion.

#### **Knowledge and/or Skills**

- ◆ **Overview of the construction industry:**
  - Structure of the industry
  - Economic importance
  - Role of designers
  - Role of contractors

## SQA Advanced Unit Specification

- ◆ **Project brief:**
  - The purpose of the brief
  - The format of the brief
  - Role of professionals and client in the production of the design brief
  - User requirements for a project
  - Budget constraints
  
- ◆ **The client:**
  - Client bodies defined
  - Duties of the client
  - Project types
  - Industry sectors — public/private/commercial/civil engineering/PPP
  
- ◆ **The consultants:**
  - Duties of the architect
  - Duties of the quantity surveyor
  - Duties of the structural and mechanical services engineers
  - Duties of the project manager
  - Duties of the Principal Designer
  
- ◆ **Contracting Organisations:**
  - Duties of contractors and principal contractor
  - Type/size of organisation
  
- ◆ **Relationships:**
  - Project lead
  - How parties communicate
  - Communication frequency
  - Consultant/client relationships
  
- ◆ **Methods of Procurement:**
  - Describe various methods of procurement
  - Advantages and limitations of each

### Outcome 2: (8 hours)

#### Demonstrate ways in which the parties communicate.

The need for good communication skills and management of communications is key to a successful project. Learners will be introduced to the variety of communication types, the importance of clear, concise communication and its legal relevance within a building contract.

#### Knowledge and/or Skills

- ◆ **Meetings:** as the vehicle to communication
  - Brief development meetings
  - Technical meetings
  - Progress meetings
  - Statutory control
  - Project evaluation

## SQA Advanced Unit Specification

### Written:

- Minutes
  - Standard forms of construction contract
  - Drawings, schedules and specifications and their use
  - BIM implementation
- ◆ **Electronic:**
- E-mails
  - Social media
  - Site intranets
- ◆ **Contractual:**
- Legal obligations
  - Disputes

### Outcome 3: (8 hours)

#### Explain the different terminologies and concepts found within the RIBA Plan of Work.

Learners will be introduced to the RIBA Plan of Work and its use as a management tool within a project. They will develop an appreciation of the terminology and the capabilities of the plan for use with all consultants.

#### Knowledge and/or Skills

- ◆ **Briefing:**
- Develop project objectives
  - Budget
  - Programme
- ◆ **Design work:**
- Concept design
  - Developed design
  - Technical design
- ◆ **Project Roles Table:**
- Use of the plan of work to define the roles of each member of team
- ◆ **Contractual tree:**
- Explore the various procurement routes and the roles of each team member in these
- ◆ **Design responsibility matrix:**
- Define each consultant's responsibilities
- ◆ **BIM information exchanges:**
- Integration of BIM technology at key stages within the plan



## SQA Advanced Unit Specification

### Outcome 4: (8 hours)

#### Demonstrate how key issues within the Construction Industry are addressed

This Outcome addresses some of the key issues faced by the building design team in the procurement of a project. It will develop an awareness of the statutory obligations imposed on designing a building, acknowledge the need for sustainable design and consider a building in use thorough out its whole life.

- ◆ **Sustainable design:**
  - Consider materials to be used in construction
  - Responsible sourcing of materials
  - Socio-economic factors
  - Recycling
  - Waste management
  
- ◆ **Integrating BIM processes:**
  - Introduction to BIM principles and processes
  - CAD and BIM
  
- ◆ **Planning processes:**
  - Planning control structure
  - Planning legislation outlined
  - Planning application process
  
- ◆ **Building Control Processes:**
  - Building control structure
  - The building regulations explained
  
- ◆ **Health and Safety**  
CDM regulations- duties of all parties
  
- ◆ **Building use and aftercare:**
  - As-built drawings
  - Health and Safety Files and/or-
  - Operations and Maintenance (O&M) Manuals
  - Whole life costs

#### Guidance on approaches to delivery of this Unit

This Unit provides the learner with knowledge and understanding of fundamental principles and practices commonly found within the construction industry. There will be exploration of design organisations, contracting, the procedure and practice used in design and in procurement processes. The structure of this specification is tailored towards a sequential delivery pattern starting with an industry overview and concluding with buildings in use. There is nothing, however, to prevent a different delivery model should this be preferred by the centre.

## **SQA Advanced Unit Specification**

Dealing with an introductory understanding of industry systems and structures, the Unit is appropriate for learners starting a Built Environment or Civil Engineering award and it is suggested that the Unit would be best accommodated at the commencement of any programme.

Centres are asked to consider imaginative ways in which to contextualise learning when delivering this Unit and of supporting the learner in developing an embedded understanding of fundamental principles inherent in the construction sector. The aim should be to encourage the use of learning and teaching approaches that are varied and appropriate to the purpose of the Unit. This might be facilitated by visiting construction/civil engineering sites or construction management organisations where relevant work is carried out. Learners might also be encouraged to carry out assessor structured internet based investigation into basic aspects of the construction industry. There is also perhaps opportunity of integrating or developing knowledge within other components of the programme or when generating evidence within the first year Graded Unit when, for example, undertaking group activity or participating in brief development.

### **Guidance on approaches to assessment of this Unit**

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

It is recommended that the Outcomes be completed in the sequence presented. This does not preclude integration of the diverse subject matter during teaching, tutorials and assessment.

Learners should achieve the level of competence required of technician staff employed in the construction industry in such areas as architectural technology, building inspection and maintenance, construction management, project management and quantity surveying.

Centres are reminded that prior verification of centre-devised assessments would help 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.

### **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](http://www.sqa.org.uk/e-assessment).

### Opportunities for developing Core and other essential skills

There are opportunities to develop aspects in the Core Skills of *Communication*.

The evidence produced through undertaking all four Outcomes will require the learner to demonstrate competency in using and writing architectural and business language and of showing a proper understanding when reading the task requirements.

The participation of a learner within a simulated design team meeting and the production of a written record of this event will involve the learner in key areas of communication.

Assessment responses required throughout will demand of the learner an ability to analyse managerial systems and to reach sound conclusions based on the application of knowledge to a question. Participation in a simulated site meeting will develop skills in communication with others and *Problem Solving*.

Sustainability aspects are available to be explored by the learner, for example, in determining project sustainability aspirations, reviewing construction strategies, use and aftercare, etc. These should be contextualised into the assessment instrument produced by the centre.

## SQA Advanced Unit Specification

### History of changes to Unit

Version	Description of change	Date

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SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of SQA Advanced Qualifications.

**FURTHER INFORMATION:** Call SQA's Customer Contact Centre on 44 (0) 141 500 5030 or 0345 279 1000. Alternatively, complete our [Centre Feedback Form](#).

### General information for learners

#### Unit title: Construction Industry Fundamentals (SCQF level 7)

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 will provide you with an appreciation of the composition and interactions of the construction project team, the mechanisms behind project procurement and how key contemporary issues within the Construction Industry are addressed. This work is specifically required to reflect and embrace the recent Government initiatives in Building Information Modelling (BIM) and the current RIBA Plan of Work.

You will develop an understanding of the complexity of the industry and the inter-relationships within it whilst appreciating the important role of communication between all parties involved in a building project.

You will learn about the statutory controls which must be considered when procuring a building.

At the end of the Unit you will have developed knowledge and skills in the following areas:

- ◆ the relationships and roles of all parties to a construction project.
- ◆ the various methods of communication employed within the industry and their importance.
- ◆ the terminology employed in the current RIBA plan of Work and its use as a management tool.
- ◆ the key issues which must be addressed within the construction industry.

There are opportunities to develop aspects in the Core Skills of *Communication* and *Problem Solving*.

The evidence produced through undertaking all four Outcomes will require you to demonstrate competency in using and writing architectural and business language and of showing a proper understanding when reading the task requirements.