

SQA Advanced Unit specification

General information for centres

Unit title: Architectural Procedures (SCQF level 7)

Unit code: HR4C 47

Superclass: TD

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Version: 01

Unit purpose

This Unit develops the learner's knowledge of the structure and operation of architectural design organisations; the procedure and practice used in building design and in building procurement processes. It is suitable for learners wishing to follow a design technician career in the construction industry or to facilitate progression onto degree level study.

Outcomes

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

- 1 Explain the main architectural activities within the RIBA. Plan of Work stages.
- 2 Explain the main roles and relationships of the project team members.
- 3 Explain procedures to control construction costs and costs in use during the design stages.
- 4 Describe the architectural appointment process and the changing nature of the profession.

Credit points and level

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

SQA Advanced Unit Specification

Recommended entry to the Unit

While entry will be at the discretion of the centre, it would be advantageous if learners had an understanding of the nature and form of the construction industry generally. Such understanding might be gained through possession of appropriate NC Units or a related SQA Advanced Unit such as *Construction Industry Fundamentals* or in having suitable vocational experience. It would also be useful to have some awareness of the architect's various relationships with other members of the design team.

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 Unit is a mandatory credit within the SQA Advanced Certificate and SQA Advanced Diploma in Architectural Technology qualifications and an option within the SQA Advanced Diploma in Building Surveying.

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.

SQA Advanced Unit specification: Statement of standards

Unit title: Architectural Procedures (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 certain different items should be sampled on each assessment occasion.

Outcome 1

Explain the main architectural activities within the RIBA. Plan of Work stages.

Knowledge and/or skills

- ◆ Stage 1 — Preparation
- ◆ Stage 2 — Concept design
- ◆ Stage 3 — Developed design
- ◆ Stage 4 — Technical design and production information
- ◆ Stage 5 — Specialist design
- ◆ Stage 6 — Construction
- ◆ Stage 7 — Use and aftercare

Outcome 2

Explain the main roles and relationships of the project team members.

Knowledge and/or skills

- ◆ roles and responsibilities of project team members
- ◆ lines and types of communication
- ◆ traditional project information management and Building Information Modelling
- ◆ construction (design and management) regulations
- ◆ statutory controls
- ◆ contract administration

Outcome 3

Explain procedures to control construction costs and costs in use during the design stages.

Knowledge and/or skills

- ◆ budgetary control and cost planning
- ◆ QS consultation and reports
- ◆ analysing whole life costs
- ◆ Building Information Modelling

SQA Advanced Unit Specification

Outcome 4

Describe the architectural appointment process and the changing nature of the profession.

Knowledge and/or skills

- ◆ Standard Form of Agreement
- ◆ professional bodies
- ◆ employment legislation
- ◆ marketing and practice-promotion
- ◆ practice resources, management and profitability
- ◆ CPD and role adaptation
- ◆ technological change and opportunity

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 current RIBA Plan of Work and explain its main functions within a building project
- ◆ explain the duties and responsibilities of the project team and its composite membership within a building project
- ◆ outline the procedures adopted to establish and control costs during the design stages
- ◆ define the business conditions and environment to support architectural practice and development

An assessment paper covering Outcomes 1 and 2 should be taken at a single closed-book assessment event lasting 1 hour and carried out under supervised, controlled conditions. Outcomes 3 and 4 should be similarly assessed. All four Outcomes need to be achieved. 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.

Alternatively, should a second assessment attempt be required, centres might consider using evidence generated by the learner when undertaking, for example, *Standard Forms of Construction Contracts* or the *Graded Unit*, providing it fully meets the assessment criteria.

SQA Advanced Unit support notes

Unit title: Architectural Procedures (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 structure and application of the RIBA Plan of Work
- 2 members of the project team, their function and duties
- 3 design stage cost control techniques
- 4 architectural practice and business management

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.

Lecturers are advised to study this list of topics in conjunction with the ASP so that they can get a clear indication of the standard of achievement expected of learners in this Unit.

Outcome 1: (16 hours)

Explain the main architectural activities within the RIBA. Plan of Work stages.

This Outcome describes the importance of a structured and standardised management system currently in place to guide the design, construction and use of buildings. The object of the system is to provide clear and accepted guidance on design procedures — a standardised modus operandi for administering projects based on sequential work stages. The RIBA Plan of Work has been the definitive UK model for the building design and construction process, and has also exercised significant influence internationally.

The Plan of Work framework has served both the architects' profession and the wider construction industry well and its recent update reflects radical change in design team organisation and alternative procurement arrangements. Opportunity has also been taken to align the new Plan of Work with equivalent process models published by other professional bodies such as RICS, ICE, CIOB and with supporting documents such as the Construction Industry Council Scope of Services.

Knowledge and/or skills preparation

- ◆ identify project objectives
- ◆ client's business case
- ◆ project sustainability aspirations
- ◆ development of the project design brief — user requirements, budget, programme

SQA Advanced Unit Specification

- ◆ site, legal and environmental criteria including surveys
- ◆ feasibility studies and options analysis to inform the client's decision making
- ◆ client risk profile and preliminary procurement strategy
- ◆ project team assembly, appointments, scope of services
- ◆ develop Building Information Modelling and management strategies
- ◆ information exchange 1

Concept design

- ◆ outline building and site design proposals
- ◆ outline specifications
- ◆ environmental and energy audits
- ◆ complete project design brief
- ◆ review procurement strategy and finalise design responsibilities
- ◆ prepare project manual including software strategy and BIM execution
- ◆ prepare construction strategy including pre-fabrication, site factors, H & S
- ◆ consider planning application
- ◆ information exchange 2

Developed design

- ◆ co-ordinate and update proposals for structural design, services, landscaping, specifications, sustainability compliance
- ◆ prepare and submit planning application
- ◆ implement change control procedures
- ◆ implement procurement strategy actions
- ◆ review construction strategy including H & S aspects
- ◆ information exchange 3

Technical design and production information

- ◆ prepare and sign off all technical information associated with the architectural and structural forms of the proposals, mechanical services installation and all relevant specifications
- ◆ performance specified work to be developed
- ◆ implement procurement strategy actions
- ◆ prepare and submit building warrant application
- ◆ review construction strategy including H & S aspects

Specialist design

- ◆ progression of specialised element design by specialist subcontractors including integration and approvals as set out in document on design responsibilities
- ◆ review construction strategy including sequencing and critical path
- ◆ implement procurement strategy actions or building contract administration

Construction

- ◆ offsite manufacture and onsite construction in accordance with programme
- ◆ review progress against programme
- ◆ carry out quality assurance procedures

SQA Advanced Unit Specification

- ◆ administer building contract
- ◆ resolve design queries
- ◆ implementing soft landing strategy preparatory to handover, all information required for commissioning, maintenance, as constructed records, asset management, etc
- ◆ information exchange 6

Use and aftercare

- ◆ implementing soft landing strategy following handover
- ◆ undertake post-occupation evaluation
- ◆ conclude administration of building contract
- ◆ review project performance and analyse project information for future reference
- ◆ update information in response to feedback and modifications
- ◆ information exchange as required

Outcome 2: (8 hours)

Explain the main roles and relationships of the project team members.

The learner is introduced to the main roles and duties of the different members of the project team, to the inter-relationships within the team and the lines of communication and decision making processes. All activities will be directly related to the procurement route from inception through the designing and construction stages to building use and aftercare and under the overarching structure of the Plan of Work.

Knowledge and/or skills

Roles and responsibilities of project team members

- ◆ duties of the client
- ◆ duties of the architect
- ◆ duties of the architectural technologist
- ◆ duties of the quantity surveyor
- ◆ duties of the structural and mechanical services engineers
- ◆ duties of the project manager
- ◆ duties of the CDM co-ordinator
- ◆ duties of the building contractor and principal contractor
- ◆ duties of the specialist subcontractor

Lines and types of communication

- ◆ communications monitoring and control
- ◆ design, technical and progress meetings
- ◆ digital communication systems
- ◆ recording information
- ◆ standard forms of instruction
- ◆ consultant reports — quantity surveyor, structural engineer, services engineer

Traditional project information management and BIM

- ◆ drawings, schedules, specification and their issue
- ◆ information exchange stages

SQA Advanced Unit Specification

- ◆ information manager
- ◆ design requirements and contractual requirements
- ◆ consultant's production information
- ◆ product manufacturers

Construction (design and management) regulations

- ◆ Health and Safety issues considered in the design process
- ◆ duties of the different parties under the legislation
- ◆ Health and Safety issues in the construction process
- ◆ construction phase Health and Safety plan
- ◆ Health and Safety file
- ◆ commissioning manuals and building users documentation

Statutory controls

- ◆ planning permission
- ◆ building warrant
- ◆ environmental compliance
- ◆ service utilities

Contract administration

- ◆ standard forms of construction contracts requirements
- ◆ pre-construction, construction, completion, possession, use, maintenance
- ◆ contractual difficulties, claims, mediation, determination, dispute resolution
- ◆ feedback and performance of the parties

Outcome 3: (8 hours)

Explain procedures to control construction costs and costs in use during the design stages.

The need for financial stringency and accountability is explained through the inter-action of the client, project manager, architect, quantity surveyor and building contractor. There are a range of financial control systems to ensure that costs are constantly monitored and devices to bring costs in line with the client's budget.

Knowledge and/or skills

Budgetary control and cost planning

- ◆ preliminary cost plan for outline proposals and outline specification
- ◆ developed design cost plan
- ◆ preparation of Bills of Quantities
- ◆ estimating and forecasting techniques
- ◆ performance specified work/subcontractor design costs

SQA Advanced Unit support notes

Unit title: Architectural Procedures (SCQF level 7)

QS consultation and reports

- ◆ feasibility studies
- ◆ preliminary procurement strategy and stage reviews
- ◆ preliminary construction strategy and stage reviews
- ◆ development and update meetings
- ◆ development reports as requested — systems costs, materials and labour costs, etc
- ◆ information requirements
- ◆ NBS

Analysing whole-life costs

- ◆ whole-life cost elements
- ◆ value for money over the life of the asset
- ◆ higher quality products at lower whole-life costs
- ◆ developing client understanding of budget
- ◆ operational, maintenance and disposal costs
- ◆ risk allowance
- ◆ cost management and reporting

Building Information Modelling

- ◆ BIM protocol responsibilities for cost control
- ◆ electronic data exchange for cost control
- ◆ model use and data-rich environment
- ◆ MPDL — model production and delivery table requirements
- ◆ reducing waste in procurement, process and material

Outcome 4: (8 hours)

Describe the architectural appointment process and the changing nature of the profession.

This Outcome covers the contract of employment between the client and the architect and various aspects of employment legislation that architectural practices must comply with. The range of architectural services which might be required by a client is considered and formalised within the Standard Form of Agreement for the appointment of an architect. In response to the vicissitudes of the construction industry and the practice of design the importance of investing in new opportunities and technology is explored along with the need for lifelong learning, competency updating and continuous professional development as required under professional body membership terms.

Knowledge and/or skills

Standard Form of Agreement

- ◆ Standard Form of Agreement for the appointment of an architect
- ◆ schedule of architect's services

SQA Advanced Unit Specification

- ◆ architects fees and tendering
- ◆ Plan of Work stages to be serviced
- ◆ client information requirements
- ◆ negotiating the appointment and recording

Professional bodies

- ◆ Construction Industry Council
- ◆ Royal Institute of British Architects
- ◆ Chartered Institute of Architectural Technologists
- ◆ Association of Consultant Architects
- ◆ Chartered Institute of Building
- ◆ Royal Institution of Chartered Surveyors

Employment legislation

- ◆ ACAS (Advisory, Conciliation and Arbitration Service) — dismissal, dispute resolution
- ◆ employee relations
- ◆ employment law
- ◆ employment law features
- ◆ employment tribunals, equality and diversity
- ◆ family friendly working
- ◆ family-friendly benefits
- ◆ HR practice
- ◆ information and consultation
- ◆ latest news
- ◆ maternity
- ◆ mediation
- ◆ minimum wage
- ◆ paternity
- ◆ pay and benefits
- ◆ redundancy
- ◆ terms and conditions of employment
- ◆ TUPE, unfair dismissal
- ◆ work-life balance

Marketing and practice-promotion

- ◆ establishing practice culture and philosophy
- ◆ USP — unique selling proposition
- ◆ identifying, anticipating and satisfying customer requirements profitably
- ◆ selling architectural services
- ◆ developing the marketing plan
- ◆ RIBA market research unit
- ◆ competition

Practice resources, management and profitability

- ◆ human resource management
- ◆ acquiring staff
- ◆ skills/knowledge audits

SQA Advanced Unit Specification

- ◆ supportive of USP
- ◆ team building and support
- ◆ record keeping and cost analysis
- ◆ services monitoring and feedback

CPD and role adaptation

- ◆ updating competencies
- ◆ acquiring new skill sets
- ◆ investigating new market opportunities and growth areas
- ◆ information management

Technological change and opportunity

- ◆ Building Information Modelling
- ◆ 3-D and 4-D CAD developments
- ◆ multimedia products
- ◆ intelligent buildings and digitised control
- ◆ green building
- ◆ environmental sustainability

Guidance on approaches to delivery of this Unit

This Unit provides the learner with knowledge and understanding of the structure and operation of architectural design organisations; the procedure and practice used in building design and in building procurement processes. The structure of this specification is tailored towards a sequential delivery pattern commencing with the RIBA Plan of Work and developing themes found therein.

Dealing with some complex architectural practice and management theory the Unit is unlikely to be appropriate for those starting an architectural technology award and it is suggested that the Unit would be best accommodated well in to the programme but prior to, or in support of, the second year *Graded Unit*.

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 practice of architecture. The aim should be to encourage the use of learning and teaching approaches that are varied and appropriate to the aims of the Unit. This might be facilitated by visiting architectural or project management organisations where relevant work is carried out or by carrying out assessor structured internet based investigation into specific aspects of project administration. There is also perhaps opportunity of integrating or developing knowledge within other components of the programme such as in the use of BIM or when generating evidence within the second year *Graded Unit*.

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.

SQA Advanced Unit Specification

It is possible that assessment components for this Unit might be integrated into other appropriate Units, for example, *Standard Forms of Construction Contracts*, *Statutory Control of Buildings* or *Architectural Technology: Graded Unit*. This might involve the learner's phased commentary on the architectural procedures utilised at different stages within a project timeframe ensuring proper building procurement.

The Unit could be presented in the context of design and procurement procedures for a proposed housing, commercial or industrial development following a traditional procurement route. It is important that the learner acquires an appreciation of the authority and responsibilities of the professionals involved and the strategies and methods adopted to ensure the success of the project. Case studies, site visits, practice visits and discussions with visiting professionals may be used to enhance and illustrate the various elements of the Unit content.

The use of texts and manuals from profession lead bodies and other technical sources may provide the basis of information around which assessment is based.

Learners might be encouraged to expand knowledge through involvement with an architectural practice. Such experience would allow an appreciation of the range of skills and the variety of solutions to design, management and contractual matters which can be found in such organisations. They might also be encouraged to expand knowledge by referring to publications produced or recommended by the RIBA, RIAS, CIAT, CIOB, RICS, etc.

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.

Opportunities for developing Core and other essential skills

There are opportunities to develop aspects in the Core Skills of *Communication*, *Information and Communication Technology (ICT)* and *Problem Solving*.

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.

SQA Advanced Unit Specification

The use of IT (CAD) may be found to be appropriate in contextualising and developing the learner's knowledge and understanding of the BIM components should centres find this to be an appropriate teaching vehicle.

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, postulation or hypothesis. A range of practical systems management solutions will be required in response to the assessment tasks.

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.

History of changes

| Version | Description of change | Date |
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General information for learners

Unit title: Architectural Procedures (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.

Prior to undertaking this Unit it is recommended that you have a good basic understanding of the structure of the construction industry in the United Kingdom and the different technical specialisms which support it.

You will be provided with knowledge and understanding of the architectural profession, the way that it functions within the construction industry and its relationship to all the other consultancies.

You are made aware of the various formal systems that exist to cope with the complexities of a building design project and the realisation of that design into an actual building. These systems are generally based upon a planning arrangement for administering projects based on sequential work stages and called the 'RIBA Plan of Work'.

The timeframe considered over the Unit's delivery is from the first point of contact between the client and the architect through the various design stages to the client's making use of the completed building.

On completion of the Unit you will have developed knowledge and skills in the following areas:

- ◆ The current RIBA Plan of Work and its main functions within a building project.
- ◆ The duties and responsibilities of the project team and its composite membership within a building project.
- ◆ The procedures adopted to establish and control costs during the design stages.
- ◆ The business conditions and environment to support architectural practice and professional development.

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