



National Unit specification

General information

Unit title: Simple Arch Construction (SCQF level 5)

Unit code: F1K3 11

Superclass: TG

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Unit purpose

This Unit is suitable for learners who have some brickwork experience. The Unit requires the learner to measure and set out arch brickwork, select and maintain tools, demonstrate the basic knowledge required and build a simple arch. Underpinning knowledge will be required to build simple arch construction. Learners who achieve this Unit should feel confident in progressing further in the Construction Craft Industry.

Outcomes

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

- 1 Demonstrate the knowledge and understanding required to build basic arches.
- 2 Set up an arch centre in position.
- 3 Build a semi-circular double ring arch.
- 4 Strike an arch centre on completion of the work.
- 5 Build a soldier arch.

Credit points and level

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

Recommended entry to the Unit

Whilst entry is at the discretion of the centre, it would be beneficial for learners to have attained the following or equivalent:

One Brick Walling: An Introduction (SCQF level 5)

National Unit specification: General information (cont)

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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.

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

Demonstrate the knowledge and understanding required to build basic arches.

Performance Criteria

- (a) Identify the correct sequence to measure and set out the first course of bricks incorporating an arch opening.
- (b) Identify the techniques, terminology and sequences used in building arches.

Outcome 2

Set up an arch centre in position.

Performance Criteria

- (a) Measure and check that the opening size can accommodate the centre.
- (b) Assemble the centre supports to the required height.
- (c) Check that the supports are stable.
- (d) Locate the centre in the correct position to receive the arch.

Outcome 3

Build a semi-circular double ring arch.

Performance Criteria

- (a) The arch is built to the given working drawings.
- (b) The arch is built to the prescribed standards and tolerances.

Outcome 4

Strike an arch centre on completion of the work.

Performance Criteria

- (a) The arch centre is dropped safely from the brickwork.
- (b) The arch centre is removed safely from the arch.
- (c) The supports are dismantled safely.
- (d) The area is cleared safely.

National Unit specification: Statement of standards

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Outcome 5

Build a soldier arch.

Performance Criteria

- (a) The arch is built to the given working drawings.
- (b) The arch is built to the prescribed standards and tolerances.

Evidence Requirements for this Unit

Learners must adhere to relevant Health and Safety regulations and legislation relating both to working practices within the construction environment, as well as those specific to any practical task they are requested to carry out (such as emphasising the importance of selecting and using the correct PPE at all times).

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

Written and/or oral evidence is required which demonstrates that the learner has achieved Outcome 1 to the standards specified in the Outcome and Performance Criteria. The evidence for this Outcome should be obtained under controlled, supervised conditions. The assessment will be closed-book and should last no more than 45 minutes.

Performance evidence supplemented with an assessor observation checklist/record should be used to show that the learner has achieved Outcomes 2, 3, 4 and 5 to the standard specified in the Outcomes and Performance Criteria. Each learner will be observed to show that they can achieve the following throughout the delivery of the Unit:

- ◆ measure, set out and build arch openings accurately
- ◆ set up the arch centre correctly
- ◆ build arches working from information given on 3-dimensional drawings
- ◆ Strike the arch centre safely
- ◆ behave in a safe manner at all times

The arch construction will include:

- 1 A semi-circular double ring arch (minimum height eight courses before springing the arch).
- 2 A soldier arch (minimum height eight courses before bridging opening).

It is recommended that learners should work individually to carry out the practical tasks.

Assessment of this Unit should be completed over a period of time and evidence should be gathered at appropriate intervals.



National Unit Support Notes

Unit title: Simple Arch Construction (SCQF level 5)

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 developed as an optional Unit in the National Progression Award in Construction and can also be delivered as a free-standing Unit.

The content and context of this Unit is aimed at learners who are interested in pursuing a career in the craft of bricklaying. Learners will be required to gain an understanding of the correct terminology and sequences of simple arch construction and will gain practical experience of building arches to given tolerances with the use of 3-dimensional drawings.

This Unit is intended to give the learner an interesting experience in building a brick arch. This is also a lead in to the more demanding and difficult construction of arches which forms part of the main SVQ in brickwork. Nevertheless the same fundamental principles apply, and this Unit provides the learner with the opportunity to gain the first experience of this very rewarding skill of the construction brickwork craft. This Unit lends itself to learners working individually.

The learning environment for this Unit will be a combination of classroom and workshop based learning. The knowledge element of this Unit would be taught in a classroom environment and put into practice in the workshop in conjunction with practical Outcomes.

Health and Safety and Sustainability are integral and key to the Construction Industry therefore throughout the Unit emphasis will be placed where appropriate on the application of Health and Safety and Sustainability. Safety working practices should be looked at in accordance with current safety codes of practice 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 approaches to delivery of this Unit

Learners require to be made aware of the simple functions of arch construction in the bridging of openings in walls. The careful preparations required to ensure the success of building an arch must be taught including accurate measurement of opening dimension in relation to the size of the timber centre, establishing the location of bricks in the arch by horizontal setting out, care in setting up and removal of the timber arch centre and the correct brickwork building sequence to be used during arch construction. The correct language and terminology are to be referred to throughout the practical tasks, and this should prepare the learner for the assessment of Outcome 1.

National Unit Support Notes (cont)

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Guidance on approaches to assessment of this Unit

Centres may use the method of assessment which they consider to be most appropriate but are encouraged to use the Training Assessment Programme (TAP) developed centrally by SQA. It is expected that learners will have to demonstrate current knowledge and understanding of safe working practice and risk assessment methods, etc prior to being set the assessment tasks.

Knowledge and Understanding of the processes involved in *Simple Arch Construction (SCQF level 5)* should be assessed before any practical assignments are carried out by learners. This will include assessment of a learner's ability to prepare the work area for laying modular pavement.

Practical assignments should be carried out under supervised conditions and recorded in an assessor observation/operational checklist. Assessments should confirm that a learner has the ability to safely lay modular pavement using designated machinery or equipment correctly and safely, whilst adhering to current statutory Health and Safety regulations and legislation.

Adherence to current statutory working regulations and Health and Safety procedures will be observed during the practical exercise carried out by the learner towards all Outcomes.

Detailed assessment material for this Unit will be found in the relevant Training and Assessment Programme (TAP). Centres may use the instruments of assessment which they consider to be most appropriate but are advised to use the TAP which has been developed centrally by SQA. Any other instruments of assessment used must be comparable to the TAP and have been prior verified.

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.

National Unit Support Notes (cont)

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Opportunities for developing Core and other essential skills

The elements of the Core Skill of *Problem Solving*, such as Planning and Organising, Critical Thinking, and Reviewing and Evaluating will be developed and enhanced as learners undertake this Unit. Learners will need to take account of a range of factors in order to work efficiently and safely, such as the choice of tools, appropriate materials, safety issues, safety equipment and sustainability. Individual discussions with assessors will enhance the evaluation of efficient working practices.

Numeracy skills will be naturally enhanced through the interpretation of information from 3-dimensional working drawings and the practical use of calculation and measuring scales required in Outcomes 2, 3 and 5.

There are opportunities for learners to develop the Core Skill of *Information and Communication Technology (ICT)* by researching Health and Safety legislation affecting their area of work.

Although *Communication* skills are not formally assessed, learners will have the opportunity to develop Written and/or Oral Communication skills for the closed-book assessment for the knowledge part of the Outcome 1 teaching and learning assessment. As learners complete practical tasks, they should be expected to communicate with others using the correct terminology, tone and style suited to the workplace.

History of changes to Unit

Version	Description of change	Date
02	Clarification of Standards and updated to new Unit Specification Standard.	29/04/16

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General information for learners

Unit title: Simple Arch Construction (SCQF level 5)

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 aimed at those who are interested in pursuing a career in the craft of bricklaying. You will gain an understanding of the terminology and sequences of simple arch construction and will gain practical experience of building simple arch's and the use of 3-dimensional drawings.

You will also be provided with the knowledge to allow you to appreciate the reasons for carrying out the practical work in the manner directed and the reasons for using specific tools, materials, components and equipment.

Health and Safety and Sustainability are integral and key to the Construction Industry therefore throughout the Unit emphasis will be placed where appropriate on the application of Health and Safety and Sustainability. Safety working practices will be looked at in accordance with current safety codes of practice and regulations.

There will be a series of training exercises followed by some practical task based assessment and multi choice knowledge assessment. Completion of the Unit will provide you with the basic skills necessary to enable you to progress to more complex aspects of arch construction which in turn will further develop your skills and knowledge.

The elements of the Core Skill of *Problem Solving*, such as Planning and Organising and Critical Thinking will be developed and enhanced as you undertake this Unit. You will need to take account of a range of factors in order to work efficiently and safely, such as the choice of tools, appropriate materials, safety issues, safety equipment and sustainability.

Opportunities also arise to develop the Core Skill of *Information and Communication Technology (ICT)* by researching Health and Safety legislation affecting your area of work.

Numeracy skills will be naturally enhanced through the interpretation of information from 3-dimensional working drawings and the practical use of calculation and measuring scales.

Although *Communication* skills are not formally assessed, you will have the opportunity to develop Written and/or Oral Communication skills.