



National Unit specification: general information

Unit title: Stonemasonry: Build Semi-circular Arch (SCQF level 6)

Unit code: H0RT 12

Superclass: TG

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Version: 01

Summary

This Unit is suitable for candidates working towards a Modern Apprenticeship in Stonemasonry and will develop the candidates' craft skills and knowledge in arch construction as the candidates work in pairs to set out, centre, build and point a semi-circular arch. The Unit is designed to provide candidates with competence in the use of tools and enable them to apply these skills in the workplace. It is also designed to enable candidates to develop their understanding and use of components, techniques and practices used in building semi-circular arches.

Outcomes

- 1 Demonstrate knowledge and understanding of arch forms.
- 2 Set out and build a semi-circular arch using prepared voussoirs.
- 3 Remove centre and point finished works.

Recommended entry

While entry is at the discretion of the centre, candidates undertaking the Professional Development Award in Stonemasonry at SCQF level 6 must meet the requirements of the Modern Apprentices which include being employed in the relevant craft industry.

Credit points and level

0.5 credit at SCQF level 6 (3 SCQF points at SCQF level 6*)

**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.*

General information (cont)

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Core Skills

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill None

Core Skill component Critical Thinking @ SCQF level 4

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

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 knowledge and understanding of arch forms.

Performance Criteria

- (a) Identify different types and shapes of arches.
- (b) Identify different types and methods of arch centring.
- (c) Produce scale drawing of arch to given specifications.
- (d) Identify and explain sequence of operations correctly.

Outcome 2

Set out and build a semi-circular arch using prepared voussoirs.

Performance Criteria

- (a) Set out full size arch accurately.
- (b) Set up and position centring in accordance with the specification.
- (c) Build prepared stones in accordance with the specification.
- (d) Comply with current Health and Safety legislation during all work methods and activities.

Outcome 3

Remove centre and point finished works.

Performance Criteria

- (a) Strike centre correctly at an appropriate time.
- (b) Point arch as per specification.
- (c) Comply with current Health and Safety legislation during all work methods and activities.

National Unit specification: statement of standards (cont)

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Evidence Requirements for this Unit

These Evidence Requirements will be met by the completion of the Stonemasonry Training and Assessment Programme (TAP).

Evidence is required to demonstrate that the candidate has achieved this Unit to the standard specified in all the Outcomes and Performance Criteria.

Written and/or oral recorded evidence is required to demonstrate that the candidate has achieved all Outcome 1 to the standard set out in the Performance Criteria. Candidates will be required to demonstrate their knowledge of terminology, techniques and practices used in building of different arch types, shapes and methods of centring, to include Semi-circular, Equilateral, Lancet, Drop, Segmental, Tudor and both timber and metal centring.

Assessment will take the form of a question paper which will be carried out under open-book, controlled, supervised conditions. Product evidence is required in the form of a scale drawing of an arch which meets given specification.

Product and performance evidence supported with an assessor observation checklist must be used to show that the candidate has achieved the Unit to the standard specified in Outcomes 2 and 3. Each candidate will be observed in their ability to carry out given tasks correctly and safely. Candidates must work in pairs, and build the arch on pre-built stoolings on arch centres. Assessment of these Outcomes will be carried out in a workshop under supervised conditions.

Candidates must:

- ◆ Identify different types and shapes of arches
- ◆ Identify different types and methods of arch centring
- ◆ Demonstrate knowledge of arch construction
- ◆ Drawing of arch to proper scale, as per specification
- ◆ Select appropriate tools for the task in hand
- ◆ Maintain these tools to a good standard
- ◆ Adopt the correct sequencing building the arch
- ◆ Remove centre and point works as per specification

Throughout all of the practical elements of this Unit candidates must:

- ◆ Select, use, clean and store appropriately all tools used
- ◆ Work in accordance with the current health and safety legislation

National Unit specification: statement of standards (cont)

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Outcomes 2 and 3

Summary of standards (working towards industrial tolerances)	
Item	Measurement of standard
Erect arch centre plumb and level	+/- 2 mm
Mark joint positions on arch centre	+/- 2 mm
Arch erected plumb	+/- 3 mm
Voussoirs built to radiating joints	+/- 2 mm
Arch stones aligned	+/- 2 mm
Keystone built to radiating joints	+/- 2 mm
Flush point carried out and face of stone clean	Yes/No
Risk Assessment	Safety Boots worn at all times Airstream Helmet worn at all times Boilersuit worn at all times. High Visibility vest worn at all times. All other PPE as risk assessed.
Method Statement	Working area kept clean at all times Materials Stacked correctly at all times Tools handled correctly at all times Tools Cleaned at Stored safely at the end of working day.

National Unit specification: support notes

Unit title: Stonemasonry: Build Semi-circular Arch (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 20 hours.

Guidance on the content and context for this Unit

This Unit has been developed as a mandatory Unit in the Professional Development Award in Stonemasonry at SCQF level 6.

The successful completion of this Unit will provide candidates with the required underpinning knowledge and skills relating to the process of arch construction.

The Unit should be offered to candidates from the construction and related service industries. The skills and knowledge and understanding are transferable within different working environments but the Unit is primarily aimed at Candidates whose normal place of work would be a site, workshop or similar environment.

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 learning and teaching approaches for this Unit

The achievement of skills and underpinning knowledge required for this Unit will be assisted by the use of information sources in the form of:

- ◆ Oral and/or written instructions
- ◆ Graphic and photographic materials and technical information. Hands-on task on the setting out and building of a semi-circular arch using prepared voussoirs

The teaching approach should help ensure the candidate is acquiring the underpinning knowledge for the Unit. Teachers/Lecturers should demonstrate practical elements step by step until the candidate is competent to attempt tasks under assessment conditions. Effective questioning should be encouraged throughout, focusing on skills, Stonemasonry Practices and underpinning knowledge related to setting out and building arches. The requirement to adopt safe working practices and comply with safety legislation must be emphasised throughout.

Candidates can work in pairs during the practical activities within this Unit.

National Unit specification: support notes (cont)

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Opportunities should be taken throughout the delivery of this Unit to meet the requirements of the generic Units of the Training and Assessment Programme including:

- ◆ Conform to General Workplace Health, Safety and Welfare
- ◆ Confirm Work Activities and Resources for the Work
- ◆ Develop and Maintain Good Working Relationships
- ◆ Confirm the Occupational Method of Work
- ◆ Conform to Productive Working Practices
- ◆ Move, Handle or Store Resources

It is recommended that this Unit be delivered in order of Outcomes as the order stated in the Statement of Standards.

Guidance on approaches to assessment for this Unit

Detailed assessment material for this Unit will be found in the Stonemasonry 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 Stonemasonry TAP which has been developed centrally by SQA. Any other instruments of assessment used must be comparable to the TAP and have been through prior verification.

The candidates' knowledge and understanding of terminology, techniques and construction practices of Stonemasonry will be assessed through a question paper.

Candidates should be given as much practice as possible in the use of tools required for arch construction, prior to being set the assessment.

Evidence will be gathered for Outcomes 2 and 3 through observation that the candidates have met the given standards and tolerances during the practical assessment. An assessor observation checklist can be used to record this evidence.

In order to allow candidates to achieve all Outcomes and Performance Criteria candidates should be given a clear brief detailing the nature of exercises involved.

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 social software. 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)*.

National Unit specification: support notes (cont)

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Opportunities for developing Core Skills

Components of the Core Skill of *Problem Solving*, such as Planning and Organisation and Critical Thinking will be developed as candidates undertake this Unit. Candidates 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.

There are opportunities to develop the Core Skill of *Working with Others* at SCQF level 4, particularly in Outcomes 2 and 3 as this practical assessment should be carried out working in pairs. Candidates can agree responsibilities and provide support and information to each other during the assessments. After assessment, they should be encouraged to consider how effectively they supported each other.

Opportunities also arise for candidates to develop the Core Skill of *Information and Communication Technology* at SCQF level 3 by researching Health and Safety legislation affecting their area of work.

Numeracy at SCQF level 4 could be developed through the interpretation of information from working drawings and the practical use of calculation and measuring scales required for assessments for Outcome 1.

There will be opportunities for candidates to develop the Core Skill of *Communication* at SCQF level 4. Candidates will have the opportunity to develop oral communication skills for the knowledge part of the assessment for Outcome 1. As candidates complete practical tasks, they should be expected to communicate with others using the correct terminology, tone and style suited to the workplace.

This Unit has the Critical Thinking component of Problem Solving embedded in it. This means that when candidates achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 4.

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

History of changes to Unit

Version	Description of change	Date

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