



National Unit specification

General information

Unit title: Stonemasonry: Raking Out and Repointing (SCQF level 5)

Unit code: HA2V 45

Superclass: TG

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Unit purpose

This Unit is suitable for learners with no experience in the subject area and introduces learners to raking out and repointing of masonry walling. Designed to develop the learner's ability to undertake raking out of defective pointing and repointing in lime to traditionally built rubble stone walling and ashlar masonry. It also develops knowledge and awareness of the various materials, tools and equipment used in the stonemasonry craft.

Throughout this Unit, learners will develop the skills to identify any potential hazards and will adhere to health and safety, sustainability and waste management regulations and legislation at all times.

Outcomes

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

- 1 Understand basic mortars and repair techniques used in stonemasonry.
- 2 Remove defective pointing in rubble stone walling and repoint.
- 3 Remove defective pointing in ashlar masonry and repoint.

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

While entry is at the discretion of the centre, basic numeracy, communication and problem solving would be beneficial.

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.

Achievement of this unit gives automatic certification of the following Core Skills component:

Complete Core Skill	None
Core Skill component	Critical Thinking at SCQF level 5

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

Understand basic mortars and repair techniques used in stonemasonry.

Performance Criteria

- (a) Demonstrate knowledge and understanding of mortars used in new build and repair stonemasonry.
- (b) Demonstrate knowledge and understanding of repair techniques and mortars used in repair of stonemasonry.
- (c) Select and use equipment appropriate to the task.
- (d) Select and measure hydraulic and non-hydraulic limes and aggregates correctly.
- (e) Mix and gauge mortars accurately in accordance with the given specification for Rubble Masonry and Ashlar Walling.
- (f) Identify different techniques, styles, methods and finishes to traditional lime pointing and mortar repairs.

Outcome 2

Remove defective pointing in rubble stone walling and repoint

Performance Criteria

- (a) Identify and remove defective mortar in rubble and local vernacular masonry walling correctly.
- (b) Store stone pinning's to be rebuilt as found in the wall.
- (c) Build in missing and salvaged stonework pinning's to match existing.
- (d) Point joints and beds to rubble masonry to match existing walling.
- (e) Undertake different types of pointing finishes to stone rubble walling.
- (f) Protect and tend all finished mortar works.
- (g) Identify, select, use, clean and store appropriately all tools used in the task.

National Unit specification: Statement of standards (cont)

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Outcome 3

Remove defective pointing in ashlar masonry and repoint.

Performance Criteria

- (a) Remove defective pointing from ashlar walling correctly without damage to adjacent stone.
- (b) Prepare joints and beds to receive lime pointing.
- (c) Point ashlar joints and beds to match existing ashlar finish.
- (d) Clean surplus mortar from the face of ashlar and protect completed works correctly.
- (e) Complete all works without damaging adjacent walling.
- (f) Protect and tend all finished mortar works.
- (g) Identify, select, use, clean and store appropriately all tools used in the task.

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.

For Outcome 1 written and/or oral recorded evidence is required to demonstrate learners' knowledge of terminology, construction practices, tools, equipment and work methods relating to basic mortars and repair techniques used in stonemasonry. Assessment will be conducted under controlled, closed-book, supervised conditions.

Learners will also be required to select, prepare and produce a range of lime mortar mixes for stonemasonry. Assessment of this will be evidenced through observation of work processes and assessment of completed work model. Learners must meet the given standards and tolerances during the practical assessments. An assessor observation checklist must be used to record this evidence. Assessment should be conducted under controlled, supervised conditions.

An example of the standards required for the observation checklist for Outcome 1 are listed but can be devised by the centre based on the work model, materials specification and health and safety requirements:

National Unit specification: Statement of standards (cont)

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Summary of standards (working towards industrial tolerances)	
Item	Measurement of standard
Correct lime and aggregate selected and measured	Yes/No
Mortar free from lumps of unmixed binder not exceeding 2 mm	Yes/No
Water content	Minimum addition so mortar is just workable.
Workable stiff sticky mortar	Yes/No
Health and safety	Complies at all times.

For Outcomes 2 and 3 Product and performance evidence is required to demonstrate that the learner has achieved all Outcomes to the standards specified or given by centres and in the Performance Criteria. Learners will be required to remove defective pointing from ashlar and rubble walling then select and use the range of lime mortar mixes prepared in Outcome 1, use the mix for the pointing task and protect and cure the applied mortar. Assessment of these Outcomes will be evidenced through observation of work processes and assessment of completed work model. Learners must meet the given standards and tolerances during the practical assessments. An assessor observation checklist must be used to record this evidence. Assessment should be conducted under controlled, supervised conditions.

An example of the standards required for the observation checklist in Outcome 2 and 3 are listed but can be devised by the centre based on the work model, materials specification and health and safety requirements:

Summary of standards (working towards industrial tolerances)	
Item	Measurement of standard
Defective mortar selected and marked out	Yes/No
Tools and equipment properly selected	Yes/No
Defective mortar removed without damage to surrounding masonry	Yes/No
Raked out to sufficient depth	25 mm+
Walling prepared and dampened	Yes/No
Select and use suitable mortar for pointing works (Ashlar and Rubble)	Yes/No
Mortar well packed and flush to face	Yes/No
Surface finished to aid curing	Yes/No
Walling and Mortar works protected and tended (dampened hessian)	5 days
Health and Safety	Complies at all times.

At all times learners must comply with current health, safety and welfare, sustainability and waste management requirements and legislation. This includes the selection and use of appropriate personal protective equipment.



National Unit Support Notes

Unit title: Stonemasonry: Raking Out and Repointing (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

The content and context of this Unit is aimed at learners who are interested in pursuing a career in the craft of Stonemasonry.

The learner successfully completing this Unit will be given knowledge and understanding of terminology, construction practice in the use of tools and equipment for working with a range of lime mortars. Learners will also carry out selecting and batching (mixing) of mortars for different walling types and projects, pointing of rubble and ashlar masonry using these mixes and how to cure, tend and protect the work.

Learners will be required to gain an understanding of the correct terminology and methods of making pointing mortar mixes including the use of Sharp sands, Building sands and other fine aggregates like crushed chalk and silica sand. The different types of lime available including Hydraulic and Non-Hydraulic and where these should be used on different stone types, walling styles and the role the environment plays on their selection. The surface finishes that should be applied to aid curing, and the importance of protecting the works from the environment while in the curing process will be fully understood.

Failure to select the appropriate mortar will have a detrimental effect on the performance of the mortar and may accelerate decay mechanisms. Delivery centres therefore should also have a full understanding of Lime binders and Aggregates used in Stonemasonry.

Learners will gain a basic understanding of construction stonemasonry numeracy while gauging or batching mortars and that strict observation of the specification will result in a successful and accurate mortar that can be replicated at any time.

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.

The content of the Unit is set at an introductory level so that learners can develop basic knowledge and understanding of mortars used in stonemasonry and the ability to rake out and repoint in a construction environment and can be used as a progression pathway into a Vocational Qualification in Stonemasonry.

National Unit Support Notes (cont)

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Health and safety, sustainability and waste management are vital to working practices within the construction industry. Wherever appropriate during the delivery of this Unit, an emphasis will be placed on the correct application of health and safety, sustainability and waste management principals and processes, in accordance with current codes of practice and legislation.

This Unit does not fully comply with the following National Occupational Standard although does contain elements of:

COSVR548 — Prepare and mix lime mortars.

Guidance on approaches to delivery of this Unit

The training for this Unit should take place in a separate training area independent of the productive work environment and using dedicated equipment and resources. This should cover theoretical and practical principles of using and working with mortars before the learner carries out any practical application of knowledge.

For all Outcomes, delivery should be set at introductory level and note that most students may be inexperienced to workplace or hazardous environments, so Health and Safety should be strictly adhered to. Any potential hazards, risks and the control methods should be conveyed to all learners/learners.

All knowledge element Outcomes can be delivered in a classroom environment with quality and up to date resources. A site visit to look at a variety of building showing decayed stone and mortars would be beneficial.

For all practical based activities a learner centred learning and teaching approaches are encouraged with learners actively participating in practical activities after lecturer demonstration of key construction practices and principles. Emphasis should be placed on the importance of being able to read and use measuring instruments for batching, interpreting information provided, health and safety procedures of using caustic lime binders, maintaining a clean work environment, and the safe handling of tools and equipment during any practical activities and assessments.

The use of natural stone can be substituted for pre-cast stone Units, should source or supply be an issue with centres in providing a wall for assessment purposes.

National Unit Support Notes (cont)

Unit title: Stonemasonry: Raking Out and Repointing (SCQF level 5)

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 *Stonemasonry: Raking Out and Repointing (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.

Opportunities for developing Core and other essential skills

Components of the Core Skill of *Problem Solving* at SCQF level 5, Critical Thinking and Planning and Organising, may be developed 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 interpretation of drawings, choice of tools and appropriate materials, application of scientific principles, risk assessments, health, safety and welfare and a sustainable approach. Individual discussions with tutors may enhance the evaluation of productive work practices.

National Unit Support Notes (cont)

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There are opportunities to develop the Core Skill of *Working with Others* at SCQF level 5, particularly in Outcomes 1, as this practical assessment should ideally be carried out in pairs. Learners can agree responsibilities and provide support and information to each other during the practical group activities.

There are opportunities for learners to develop the Core Skill of *Numeracy* at SCQF level 5 could be enhanced through the knowledge evidence in the calculation of materials and equipment and measuring scales.

There are opportunities for learners to develop the Core Skill of *Communication* at SCQF level 5. As learners complete practical tasks they need to communicate effectively 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 learners achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 5.

History of changes to Unit

Version	Description of change	Date

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General information for learners

Unit title: Stonemasonry: Raking Out and Repointing (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 an introduction to Raking out and Repointing in the craft of Stonemasonry, the craft of being able to build and repair natural stone and work natural stone into geometric shapes typically undertaken in the Construction and Repair and Maintenance sectors.

This Unit will develop your ability to undertake raking out of defective pointing and repointing in lime to traditionally built rubble stone walling and ashlar masonry. It also develops knowledge and awareness of the various materials, tools and equipment used in the stonemasonry craft.

This Unit is suitable if you wish to gain a basic understanding and knowledge of stonemasonry work in repairing and maintaining stone structures through knowledge and understanding and practical tasks and assessments.

On completion of this Unit you will be able to:

- 1 Understand basic mortars and repair techniques used in stonemasonry.
- 2 Remove defective pointing in rubble stone walling and repoint.
- 3 Remove defective pointing in ashlar masonry and repoint.

Assessment is through closed-book multiple-choice questions and in the completion of practical assignments.

Elements of Core Skills; *Problem Solving, Working with Others, Numeracy and Communication* will be developed in successful completion of this Unit, but they will not be assessed or certified.

This Unit is valuable in the potential for development of employability and citizenship in the new build and repair and maintenance constructions sectors. Employers are actively seeking learners that can demonstrate relevant knowledge, understanding and competency, which can be gained in the completion of this Unit.

This unit has the Critical Thinking component of Problem Solving embedded in it. This means that when you achieve the Unit, your Core Skills profile will also be updated to show you have achieved Critical Thinking at SCQF level 5.