

National Unit Specification: general information

UNIT Preparing and Using Basic Lime Mixes (Intermediate 2)

NUMBER D3VG 11

COURSE

SUMMARY

On completion of this unit, the candidate will be competent in distinguishing between lime and sand types, mixing a variety of lime mortars, raking out and repairing joints in traditional rubble masonry.

OUTCOMES

- 1 Mix basic lime mortar.
- 2 Knock up pre-mixed lime mortars.
- 3 Repoint joints in traditional rubble masonry using basic lime mortars.

RECOMMENDED ENTRY

There is no access statement for this unit but it is designed to compliment the units that form the SVQs in construction. Candidate would normally be expected to be receiving complimentary industrial experience in a relevant field.

CREDIT VALUE

1 Credit at Intermediate 2.

CORE SKILLS

Information on the automatic certification of any core skills in this unit is published in *Automatic Certification of Core Skills in National Qualifications* (SQA, 1999).

Administrative Information

Superclass: TG

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National Unit Specification: statement of standards

UNIT Preparing and Using Basic Lime mixes (Intermediate 2)

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 the Scottish Qualifications Authority.

OUTCOME 1

Mix basic lime mortar.

Performance criteria

- a) Tools and equipment for the given task are selected correctly.
- b) Limes and aggregates are selected correctly according to the specification of given mix.
- c) Correct mixing techniques are applied according to the specification of the given mix.
- d) Demonstrate an awareness of the key features of handling lime mortar safely including a basic knowledge of first aid treatments when working with lime.
- e) Lime materials and aggregates are handled and stored in accordance with current practice and relevant health and safety legislation.
- f) Work area and equipment are appropriately cleaned and equipment stored safely in accordance with current practice.

Note on range for the outcome

Limes: non-hydraulic lime putty.

Aggregates: coarse sands; fine sands; soft sands.

Equipment: hand tools; powered mixer; safety wear.

First Aid Treatments: skin contact; eye contact; inhalation; ingestion.

Evidence requirements

Please refer to *Evidence requirements for the unit* at the end of the Statement of Standards

OUTCOME 2

Knock up pre-mixed lime mortars.

Performance criteria

- a) Equipment and mix materials are correctly selected to the specification of the given mix.
- b) Techniques for knocking-up are correctly applied.
- c) Demonstrate an awareness of the key features of handling lime mortar safely.
- d) Lime materials and aggregates are handled and stored in accordance with current practice and relevant health and safety legislation.
- e) Work area and equipment are appropriately cleaned and equipment stored safely in accordance with current practice.

National Unit Specification: statement of standards (cont)

UNIT Preparing and Using Basic Lime Mixes (Intermediate 2)

Note on range for the outcome

Mixes: pre-mixed coarse stuff; pre-mixed fine stuff.

Equipment: hand tools; powered mixer; safety wear.

Applications: mortar for harling; mortar for building; mortar for repointing.

Evidence requirements

Please refer to *Evidence requirements for the unit* at the end of the Statement of Standards.

OUTCOME 3

Repoint joints in traditional rubble masonry using basic lime mortars.

Performance criteria

- a) Basic hand tools are correctly selected for the given task.
- b) Joints which were previously filled are adequately cleaned and prepared to receive traditional lime mortars.
- c) Mortars are applied in accordance with the given specification and are appropriate to the type and condition of the masonry joints.
- d) Repointing is completed correctly in accordance with the given specification.
- e) Adequate measures are taken to protect the works and control the curing rate.

Note on range for the outcome

Basic hand tools: pointing trowels and keys; chisels – clouner, mel point, dooking iron, lifter, splitter; hawk; churn brush; stipplier; drags and larrys; floats; hammer – brick, club, carvers mel; tile trowel; bricklayers trowel; harling trowel.

Joints in traditional rubble masonry previously filled with: decayed lime mortar and pinnings; cementitious mortar.

Masonry joints: narrow joints; wide joints with pinnings.

Finishing techniques: flush; scraped; washed; recessed.

Controlling curing rate: dampening; protective covers.

Evidence requirements

Please refer to *Evidence requirements for the unit* at the end of the Statement of Standards.

National Unit Specification: statement of standards (cont)

UNIT Preparing and Using Basic Lime Mixes (Intermediate 2)

EVIDENCE REQUIREMENTS FOR THE UNIT

Outcome 1

Performance evidence is needed to show the candidate can work individually to select limes and aggregates and mix non-hydraulic lime mortars using equipment across the range for the purposes of making lime mortars.

The candidate should also provide knowledge of first aid action to be taken in the event of accidents when working with lime mortars.

All working practices must be in accordance with current and relevant health and safety legislation and regulations.

Outcome 2

Performance evidence is needed to show the candidate can use the correct equipment in a safe manner in order to knock up pre-mixed lime mortars. The candidate should also demonstrate and awareness of the differences in knocking up techniques which should be applied to mortars of different types and for different applications.

All working practices must be in accordance with current and relevant health and safety legislation and regulations.

Outcome 3

Performance evidence is needed to show the candidate can repoint rubble masonry described in the Range Statement using lime mortars and finish and protect the work against a variety of weather conditions using the approaches described in the Range Statement.

All working practices must be in accordance with current and relevant health and safety legislation and regulations.

All the performance criteria must be met and all items in the Range Statement covered.

National Unit Specification: support notes

UNIT Preparing and Using Basic Lime Mixes (Intermediate 2)

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 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

The candidate successfully completing this unit will be given underpinning knowledge relating to practical applications and use of tools and equipment for lime mortars using putty or powders, knocking up of previously mixed lime mortars and repointing of rubble masonry using these mixes.

The unit will be offered to candidates from the construction and related service industries and trades. The skills are transferable within different working environments but the unit is aimed at candidates whose normal place of work would be a site, a conservation project or a similar working environment.

The range statement is applicable to all areas of construction or other related industries but specifically includes the safe working practices associated with the hazard represented by working with lime based mortars.

The unit deals specifically in the mixing of lime-mortars and their use in repointing traditional rubble masonry but is complimented by other building units in Stonemasonry.

With regard to specific outcomes, the underpinning knowledge delivered in the unit will cover:

Outcome 1

The candidate should produce 15 litres of lime mortar which should be 90% free of lumps of unmixed putty greater than 3mm. Sand should be 100% blended with the putty and no additional water should be added.

The basic lime cycle; the characteristics and applications of raw materials in lime mortars; the specific hazards associated with working with lime and the precautionary measures to be taken; first aid and remedial action to be taken in the event of accidents when working with lime; the characteristics of different limes and sands and the implications for mixing and applying; recognition of standards labelling systems for proprietary pre-mixed lime based products.

The following safety requirements apply: HSW (Health and Safety at Work etc) Act; COSHH (Control of Substances Hazardous to Health) Regulations; Manual Handling Operations. In addition, candidates will be made aware of the terms of The Stirling Charter (for the Conservation of Scotland's Built Heritage).

Outcome 2

The candidate should produce 15 litres of lime mortar. The mortar should be 100% free of dry, crumbly residue and is plastic and workable ready for use.

Variations in knocking up techniques for different applications; harling and building as well as repointing rubble masonry walling; the basic mechanics of lime based mortar. Recognition of standard labelling systems for proprietary pre-mixed lime based products.

National Unit Specification: support notes (Contd)

UNIT Preparing and Using Basic Lime Mixes (Intermediate 2)

The following safety requirements apply: HSW (Health and Safety at Work etc) Act; COSHH (Control of Substances Hazardous to Health) Regulations; Manual Handling Operations. In addition, candidates will be made aware of the terms of The Stirling Charter (for the Conservation of Scotland's Built Heritage).

Outcome 3

The candidate should assess and repoint a half a square meter of traditional rubble masonry or varying joints widths (<75mm and >5mm). Joints wider than 15mm and/or deeper than 25mm should be appropriately pinned.

Industry standard practice in repointing using basic hand tools; essential information on the building and decay of lime bound masonry; the use of pinnings; the effects of weather, vegetation and inadequate maintenance in the decay of lime mortars: standard finishing techniques; standard techniques of protection and curing when working with lime mortars; traditional finishing techniques; the principle of "minimal intervention"; the principle of "like for like".

The following safety requirements apply: HSW (Health and Safety at Work etc) Act; COSHH (Control of Substances hazardous to Health) Regulations; Manual Handling Operations. In addition, candidates will be made aware of the terms of The Stirling Charter (for the Conservation of Scotland's Built Heritage).

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 provision of information sources in the form of: oral and/or written instructions; graphic and photographic materials; technical information and examples from manufacturers of limes, sands and pre-mixed mortars; codes of practice; building standards; statutory regulations; hands-on examination of sound and decayed lime-based mortars in rubble masonry construction; hands-on exercises in mixing and using lime mortars correctly and safely.

Tutors will demonstrate practical elements step-by-step until the candidate feels competent enough to attempt them on his/her own. The requirement to adopt safe working practices and comply with safety legislation must be emphasised throughout.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Outcome 1 PC(a – e) Practical exercise and structured questions

The candidate will be presented with a practical exercise to test competence in using hand tools and a powered mixer in order to mix basic lime mortar.

Satisfactory performance will be demonstrated by the candidate meeting the performance criteria and evidence requirements including compliance with the manufacturer's recommendation for making basic lime mortar.

Where evidence of underpinning knowledge cannot be inferred from the candidate's performance in the practical exercise, structured questions could be used to allow the candidate to cover gaps.

National Unit Specification: support notes (Contd)

UNIT Preparing and Using Basic Lime Mixes (Intermediate 2)

Outcome 2 PC(a – e) Practical exercise and structured questions

The candidate will be presented with a practical exercise to test competence in using standard tools and powered mixer in order to knock-up pre-mixed lime mortar.

Satisfactory performance will be demonstrated by the candidate meeting the performance criteria and evidence requirements including compliance with a predetermined specification for the consistency of the mortar (dependent on condition of raw materials, weather and state of soundness/decay recognised in the application) for the purposes of building, repointing and harling rubble masonry walling.

Where evidence of underpinning knowledge cannot be inferred from the candidate's performance in the practical exercise, structured questions could be used to allow the candidate to cover gaps.

Outcome 3 PC(a – e) Practical exercise and structured questions

The candidate will be presented with a practical exercise to test competence in using hand tools and the lime mortar already mixed by the candidate in order to repoint a section of rubble masonry walling.

Satisfactory performance will be demonstrated by the candidate meeting the performance criteria and evidence requirements including compliance with a predetermined specification for type and method of working/application. This specification will be determined by the candidate and his/her assessor after inspection of the degree of soundness/decay of the rubble masonry walling to be repointed, the nature of its construction, prevailing weather conditions and the type of finish and protection required.

Where evidence of underpinning knowledge cannot be inferred from the candidate's performance in the practical exercise, structured questions could be used to allow the candidate to cover gaps. It is expected that the candidate will be able to identify 6 out of 8 of the small hand tools.

SPECIAL NEEDS

This unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering special alternative outcomes for units. For information on these, please refer to the SQA document *Guidance on Special Assessment and Certification Arrangements for Candidates with Special Needs/Candidates whose First Language is not English* (SQA, 1998).