



Higher National Unit specification

General information for centres

Unit title: Plastering: Barrel and Vaulted Plasterwork

Unit code: F8R0 34

Unit purpose: This Unit is designed to enable candidates to develop their knowledge, understanding and skills relevant to barrel and vaulted plasterwork. The candidate will demonstrate their understanding by outlining work methods, carrying out calculations and producing scale drawings. The candidate will also be required to demonstrate their plastering skills by constructing barrel and vaulted plasterwork to a given specification.

On completion of the Unit the candidate should be able to:

- 1 Outline methods of producing reverse drums and barrel and vaulted ceilings.
- 2 Produce scale drawings of reverse drum and lunette.
- 3 Construct a reverse drum incorporating a lunette.
- 4 Cast fibrous barrel ceiling incorporating a lunette from reverse.

Credit points and level: 1 HN credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**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.*

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre. However it is recommended that candidates have completed the Professional Development Award in Plastering at SQF level 6 or have the equivalent level of industrial experience and prior learning.

Core Skills: There are opportunities to develop the Core Skill(s) of *Communication, Numeracy* and *Problem Solving* all at SCQF level 5 and *Information and Communications Technology* at SCQF level 4 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.⁷

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. This Unit was developed as part of the Professional Development Award in Plastering at SCQF level 7 and is aimed at candidates following a career in Plastering and receiving complementary industrial experience.

General information for centres (cont)

Assessment: The candidate will be given the opportunity to enhance their skills and knowledge in plastering by learning about barrel and vaulted plasterwork. Techniques and practices used to construct a reverse mould for the production of a barrel ceiling and lunette should be integrated in the practical tasks undertaken. The principles and techniques should be explained throughout the practical activities.

This Unit is assessed on the candidates' performance of constructing a reverse mould for the production of a barrel ceiling and lunette and the ability to meet the Evidence Requirements in all Outcomes.

In order to achieve this Unit, candidates are required to present sufficient evidence that they have met all the knowledge and/or skills elements for each Outcome. Details of these requirements are given for each Outcome.

The assessment instruments used should follow the general guidance offered by the Scottish Qualifications Authority (SQA) assessment model and an integrative approach to assessment is encouraged. (See references at the end of support notes).

Evidence will be gathered through observation of work processes and assessment of completed work. Assessment should be carried out under controlled, supervised conditions. Candidates must achieve all of the knowledge and/or skills and Evidence Requirements specified for each Outcome to gain this Unit. Centres may use the instrument of assessment which they consider to be most appropriate but are advised to use the Plastering Training and Assessment Programme (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.

Accurate records should be made of the assessment instruments used showing how evidence is generated for each Outcome and giving marking schemes, checklists and recorded candidate feedback. Records of candidates' achievements should be retained. These records will be made available for external verification.

Outcome 1 and 2

The assessments for these Outcomes should be composed of an appropriate balance of short answer, restricted response and structured questions. Assessment should be conducted under supervised, controlled conditions. Written assessment should not exceed 3 hours in duration.

Outcome 3 and 4

The assessments for these Outcomes require the candidates to construct a reverse drum including a lunette for the purpose of producing a finished cast of a barrel ceiling and lunette and cast a barrel ceiling from the constructed reverse.

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The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Outcome 1

Outline methods of producing reverse drums, barrel and vaulted ceilings

Knowledge and/or Skills

- ◆ Setting out
- ◆ Template production
- ◆ Construction methods
- ◆ Preparation techniques
- ◆ Calculation of surface areas

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ explain the geometrical setting out requirements to produce reverse drums
- ◆ explain the procedures for producing templates
- ◆ explain the construction methods required in the production of reverse drums
- ◆ describe preparation techniques for mould formation
- ◆ describe the preparation requirements of the reverse surface
- ◆ calculate the surface area of domes and barrel ceilings

All the Evidence Requirements must be met and all items in the knowledge and skills covered. Evidence should be gathered through an assignment outlining the setting out, methods and preparation related to producing reverse drums.

The assessment for this Outcome will be open-book and will be carried out in a supervised environment. You will have access to your own notes, that you have prepared personally for your own use from handouts and information sourced from trade literature or internet sites.

Assessment Guidelines

In the assessment candidates will be required to answer question papers explaining and describing the geometrical setting out, procedures, construction, production and preparation of reverse drums. The candidates will also calculate the area of semi-circular and elliptical domes.

This could be conducted as an assignment in a classroom environment lasting up to three hours.

Higher National Unit specification: statement of standards (cont)

Unit title: Plastering: Barrel and Vaulted Plasterwork

Outcome 2

Produce scale drawings of reverse drum and lunette.

Knowledge and/or Skills

- ◆ Interpret specifications
- ◆ Technical drawing equipment
- ◆ Drawing

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ interpret specifications ensuring all dimensions correspond with the specifications
- ◆ select and use appropriate drawing tools and equipment
- ◆ produce an accurate scale drawing containing all relevant information for construction purposes

All the Evidence Requirements must be met and all items in the knowledge and skills covered. Evidence should be gathered through the production of a scale drawing of a reverse drum and lunette. Assessment should be conducted under open-book supervised conditions.

Assessment Guidelines

In the assessment candidates will be required to complete an assignment based on drawings and specifications for an actual work project. This could be conducted as an assignment in a classroom environment lasting up to three hours.

Outcome 3

Construct a reverse drum incorporating a lunette

Knowledge and/or Skills

- ◆ Prepare bench
- ◆ Running mould
- ◆ Set out ribs
- ◆ Form ribs
- ◆ Form surface finish
- ◆ Safe Working Practices.
- ◆ Sustainability/Site Waste Management.
- ◆ Working to specifications/tolerances

Higher National Unit specification: statement of standards (cont)

Unit title: Plastering: Barrel and Vaulted Plasterwork

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ prepare a bench prior to carrying out work
- ◆ prepare and set out running mould
- ◆ set out ribs in accordance with specification
- ◆ run ribs in accordance with specification
- ◆ follow current safe working practices
- ◆ minimise the waste of materials throughout practical work.
- ◆ work to specified tolerances identified in the specification

The following will assist the assessor in judging the candidate performance against the Evidence Requirements.

Bench Preparation	
Bench preparation	Work surface cleaned, checked for flatness +/- 2mm and any faults rectified
Bench sealed	Minimum of 3 coats of shellac each coat touch dry before the application of the next coat
Setting out from working drawings	Location of centre point, radius of rib, cutting points and securing points +/- 2mm
Securing points	At 300mm centres +/- 2mm
Securing points	Points covered with clay, no locking
Bench greased	Fully with no misses
Rib construction	
Scrim ropes formed	Tightly formed, two per rib and minimum 50mm oversized
Materials	Correct materials selected and on hand
Tools	Correct tools selected and on hand
Mixing of materials	Mixed to a consistency of single cream and free from lumps and dry material
Scrim ropes	Placed to give maximum strength and fully covered
Ribs run over size	Fully formed, maximum 50mm
Ribs cut	Cut at 90° and to radius size +/- 2mm
Fixing ribs	
Ribs fixed	At 500mm centres
Ribs plumb	Plumb +/- 2mm
Rib alignment	Lined through +/- 2mm
Ribs braced individually	Lath and wads placed as to give maximum strength, preventing movement and interference with fences
Ribs braced together	Lath and wads placed as to give maximum strength, preventing movement and interference with fences
Forming Barrel	
Bruised plasterboard	Measured and cut to fit reverse +/- 2mm
Bruised plasterboard	Fixed securely to ribs
Reinforcement	Hessian cut to size +/- 2mm and placed correctly

Higher National Unit specification: statement of standards (cont)

Unit title: Plastering: Barrel and Vaulted Plasterwork

Straightening plaster	Select appropriate plaster, straighten +/- 2mm and provide key for finish
Finishing plaster	Applied to straightening coat to a polished finish with no more than 3% blemishes
Lunette Ribs	
Scrim ropes formed	Tightly formed, two per rib and minimum 50mm oversized
Materials	Correct materials selected and on hand
Tools	Correct tools selected and on hand
Mixing of materials	Mixed to a consistency of single cream and free from lumps and dry material
Scrim ropes	Placed to give maximum strength and fully covered
Ribs run over size	Fully formed, maximum 50mm
Ribs cut	Cut at 90° and to radius size +/- 2mm
Fixing ribs	
Ribs fixed	To centre of drum +/- 2mm
Ribs plumb	Plumb +/- 2mm
Rib alignment	Lined through +/- 2mm
Ribs braced individually	Lath and wads placed as to give maximum strength, preventing movement and interference with fences
Ribs braced together	Lath and wads placed as to give maximum strength, preventing movement and interference with fences
Forming lunette	
Bruised plasterboard	Measured and cut to fit reverse +/- 2mm
Bruised plasterboard	Fixed securely to ribs
Reinforcement	Hessian cut to given size +/- 2mm and placed correctly
Straightening plaster	Select appropriate plaster, straighten +/- 2mm and provide key for finish
Finishing plaster	Applied to finishing coat to a polished finish with no more than 3% blemishes
Health and safety	Complies at all times
Risk assessment	Safety boots worn at all times Hard hat 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 safely at all times Tools handled correctly at all times Tools cleaned and stored safely at end of working day

Evidence will be gathered through observation of work processes and assessment of the completed work. Assessment should be carried out under controlled, supervised conditions. In order to achieve this Outcome, candidates are required to present sufficient evidence that they have met all the knowledge and/or skills elements. An assessor observation checklist should be completed to ensure that the candidate has met the required specification and tolerances and this observation checklist should be retained as evidence.

Higher National Unit specification: statement of standards (cont)

Unit title: Plastering: Barrel and Vaulted Plasterwork

Assessment Guidelines

This Outcome is assessed on the candidates' actual performance of setting out and constructing a reverse drum incorporating a lunette to given specification and required tolerances. Candidates should use a produced drawings and specifications for the practical task. Assessment should be carried out in a suitable workshop environment. Timing for this assessment should be determined prior to commencement. An observation checklist should be completed to ensure the candidate has evidenced all the knowledge and skills included in this Outcome to the specifications and tolerances

Outcome 4

Cast a fibrous barrel ceiling incorporating a lunette from a reverse drum mould

Knowledge and/or Skills

- ◆ Prepare mould
- ◆ Prepare material
- ◆ Casting
- ◆ Safe Working Practices.
- ◆ Sustainability/Site Waste Management.
- ◆ Working to specifications/tolerances

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ prepare the reverse drum for casting
- ◆ reinforce mould in preparation for casting
- ◆ select and prepare appropriate casting materials
- ◆ cast fibrous barrel ceiling to given specifications
- ◆ finish cast to given specifications
- ◆ follow current safe working practices
- ◆ minimise the waste of materials throughout practical work.
- ◆ work to specified tolerances identified in the specification

Higher National Unit specification: statement of standards (cont)

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The following will assist the assessor in judging the candidate performance against the Evidence Requirements.

Preparation	
Stop ends formed for barrel	To allow 25mm coverage of casting plaster +/-2mm
Stop end for lunette	To allow 25mm coverage of casting plaster +/-2mm
Timber fences cut to size	To allow 25mm coverage of casting plaster +/-2mm
Stop ends fixed	To prevent movement
Fences fixed	To prevent movement
Reverse sealed	Minimum of 3 coats of shellac each coat touch dry before the application of the next coat
Reverse greased	Fully without misses
Reinforcement	
Barrel reinforcement	Two layers of hessian cut to given size to fit barrel with 100mm overlap at each end +/- 10mm
Lunette reinforcement	Two layers of hessian cut to given size to fit barrel with 100mm overlap at each end +/- 10mm
Bruised lath for stop ends	Cut to given size to fit +/- 10mm
Lath for top and flange	Cut to given size to fit +/- 10mm
Barrel braces	Cut to given size to fit +/- 10mm
Lunette braces	Cut to given size to fit +/- 10mm

Higher National Unit specification: statement of standards (cont)

Unit title: Plastering: Barrel and Vaulted Plasterwork

Cast Production	
Casting materials	Correct materials selected and on hand
Tools	Correct tools selected and on hand
Mixing of material	Mixed to a consistency of single cream and free from lumps and dry material
Firstling's	Full coverage of drum and lunette, no misses
Dusting	Full coverage of drum and lunette, no misses
Hessian placement	Correct positioning
Lath placement	Correct positioning
Second's	Full coverage of drum and lunette, no misses and height of strike offs
Hessian placement	Correct positioning and fully enclosed
Barrel brace	Cut to given size to fit +/- 10mm
Lunette bracing	Cut to given size to fit +/- 10mm
Finished Cast	
Cast removal	Removed without damage to cast or reverse
Finished cast	Cast face true with misses and blemishes not exceeding 5% and free from visible reinforcement
Groin lines	True and free from wavering
Health and safety	Complies at all times
Risk assessment	Safety boots worn at all times Hard hat 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 safely at all times Tools handled correctly at all times Tools cleaned and stored safely at end of working day

Evidence will be gathered through observation of work processes and assessment of the completed work. Assessment should be carried out under controlled, supervised conditions. In order to achieve this Outcome, candidates are required to present sufficient evidence that they have met all the knowledge and/or skills elements. An assessor observation checklist should be completed to ensure that the candidate has met the required specification and tolerances and this observation checklist should be retained as evidence.

Assessment Guidelines

This Outcome is assessed on the candidates' actual performance of casting a fibrous barrel ceiling to given specification and required tolerances.

Assessment should be carried out in a suitable workshop environment. Timing for this assessment should be determined prior to commencement. An observation checklist should be completed to ensure the candidate has evidenced all the knowledge and skills included in this Outcome to the specifications and tolerances required.

Administrative Information

Unit code: F8R0 34

Unit title: Plastering: Barrel and Vaulted Plasterwork

Superclass category: TG

Original date of publication: August 2010

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History of changes:

Version	Description of change	Date

Source: SQA

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Higher National Unit specification: support notes

Unit title: Plasterwork: Barrel and Vaulted Plasterwork

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

This Unit has been developed to allow candidate to gain knowledge, understanding and skills in the following areas:

- 1 Correctly explain the Geometrical setting out.
- 2 Correctly explain the construction methods.
- 3 Accurately describe preparation for mould formation.
- 4 Correctly describe the preparation of the reverse surface.

This Unit is at SCQF level 7 and is an optional Unit within the Professional Development Award in Plastering at SCQF level 7. It is also suitable for delivery as a freestanding Unit.

Guidance on the delivery and assessment of this Unit

The content of this Unit builds on the knowledge and understanding of plastering skills gained in the Professional Development Award in Plastering at SCQA Level 6. It is recommended that evidence for learning Outcomes is achieved through well-planned course work, assignments and projects. Assessment may be formative and summative and both may feature as part of the process. Although assessments must be focused on the individual achievement of each candidate, group work may contribute to the assessment. Integrative assignments and project work will help to link this Unit with other units.

The volume of evidence required for each assessment should take into account the overall number of assessments being contemplated within this Unit and the design of the overall teaching programme. In designing the assessment instrument/s, opportunities should be taken to generate appropriate evidence to contribute to the assessment of Core Skills units.

Throughout the Unit emphasis will be placed where appropriate on the application of Health and Safety and Sustainability. Sustainability should include reference to criteria affecting sustainability, impact of not implementing sustainability on the environment and the legislation promoting sustainability.

Opportunities for developing Core Skills

Communication skills at SCQF level 5 may be developed by the completion of the assessment in Outcomes 1 and 2. Candidates are required to produce a written assignment to outline methods of producing reverse drums, barrel and vaulted ceilings

Information and Communication Technology at SCQF level 4 may be developed by the candidates' carrying out individual research of modern and traditional barrel and vaulted work, health and safety legislation and sustainability relating to the task.

Higher National Unit specification: support notes (cont)

Unit title: Plasterwork: Barrel and Vaulted Plasterwork

Problem Solving at SCQF level 5 could be developed as candidates compare and contrast modern and traditional techniques. 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.

Numeracy could be developed at SCQF level 5 when taking off dimensions from working drawings, measuring, calculating and setting out.

Open learning

This Unit could be delivered through distance learning, which may incorporate some degree of on-line support. However, with regard to assessment, planning would be required by the centre concerned to ensure the sufficiency and authenticity of candidate evidence. Arrangements would be required to be put in place to ensure that assessment/s were conducted under controlled, supervised conditions.

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

General information for candidates

Unit title: Plasterwork: Barrel and Vaulted Plasterwork

This Unit is designed to develop your practical skills and knowledge of barrel and vaulted plasterwork. You will develop your understanding of modern and traditional practices and techniques and comply with sustainability issues and current Health and Safety legislation throughout the Unit.

You will have to demonstrate your knowledge and understanding of work methods, carry out calculations and produce scale drawings. You will also be required to demonstrate your plastering skills by constructing a reverse barrel and lunette mould and be able to take a cast from the reverse to given specifications.

You will learn about sustainability issues and how new materials, techniques and systems can have an impact on improving the sustainability in general and you will comply with current Health and Safety regulations and legislation throughout.

Outcome 1: outline methods of producing reverse drums, barrel and vaulted ceilings.

In the assessment you will be required to answer question papers explaining and describing the geometrical setting out, procedures, construction, production and preparation of reverse drums. You will also be required to calculate the area of semi-circular and elliptical domes.

This could be conducted as an assignment in a classroom environment lasting up to three hours.

The assessment for this Outcome will be open-book and will be carried out in a supervised environment. You will have access to your own notes, that you have prepared personally for your own use from handouts and information sourced from trade literature or internet sites.

Outcome 2: Produce scale drawings of reverse drum and lunette.

In this assessment you will be required to interpret specifications ensuring all dimensions correspond with the specifications. Select and use appropriate drawing tools and equipment to produce scale drawings containing all relevant information for construction purposes.

Outcome 3: Construct a reverse drum incorporating a lunette

You will be assessed in your ability to:

- ◆ prepare bench
- ◆ running mould
- ◆ set out ribs
- ◆ form ribs
- ◆ form surface finish
- ◆ safe working practices
- ◆ sustainability/site waste management
- ◆ working to specifications/tolerances

You will be assessed in supervised workshop conditions to specified tolerances contained in an observation checklist. These tolerances should be fully explained and available prior to you commencing the assessment. You will be required to work individually for the assessment and where required in pairs. You will receive both oral and written feedback on your performance from the assessor.

General information for candidates (cont)

Unit title: Plasterwork: Barrel and Vaulted Plasterwork

Outcome 4:

You will be assessed in your ability to:

- ◆ prepare mould
- ◆ prepare material
- ◆ casting
- ◆ safe working practices
- ◆ sustainability/site waste management
- ◆ working to specifications/tolerances

You will be assessed in supervised workshop conditions to specified tolerances contained in an observation checklist. These tolerances should be fully explained and available prior to you commencing the assessment. You will be required to work individually for the assessment and where required in pairs. You will receive both oral and written feedback on your performance from the assessor

There are opportunities for you to develop your Core Skills of *Communication*, *Numeracy* and *Problem Solving* all at SCQF level 5 and *Information and Communication Technology* at SCQF level 4 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.