



Higher National Unit specification

General information for centres

Unit title: Roofing: Advanced Slating

Unit code: F8N2 34

Unit purpose: This Unit is designed to enable candidates to develop knowledge, understanding and skills of advanced slating and form specialised features to different pitched roofs. The Unit begins with the preliminary stages of roof preparation for the application of slates to complex roof shapes. Candidates will then be expected to carry out practical installation of slates to conical and hipped turret roofs including slating to a swept valley detail.

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

- 1 Explain theoretical details associated with complex roofs.
- 2 Produce scale drawings and determine quantities of materials for complex roof shapes.
- 3 Produce a slate finish to complex roof details.
- 4 Specify the methods used for maintaining Health and Safety requirements for roof work.

Credit points and level: 2 HN credit at SCQF level 7: (16 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 will be at the discretion of the centre. It would be beneficial if candidates have successfully completed the Professional Development Award (PDA) in Roof Slating, Tiling and Cement Work at SCQF level 6 (G9GG 46) or have the equivalent level of industrial experience and prior learning.

Core Skills: There are opportunities to develop the Core Skills of *Problem Solving, Numeracy, Working with Others, Communication* 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.

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 Roof Slating and Tiling at SCQF level 7 and is aimed at candidates following a career in Roofing and receiving complementary industrial experience.

Unit title: Roofing: Advanced Slating

General information for centres (cont)

Assessment: It is possible to assess candidates either on an individual Outcome basis or combinations of Outcomes. The candidates should explain theoretical details, produce scale drawings and calculate materials required for complex roofs and demonstrate knowledge and understanding of preparatory work, setting out, slating techniques. Candidates should demonstrate knowledge and understanding of Health and Safety requirements when working at height.

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. Centres may use the instruments of assessment which they consider to be most appropriate but are advised to use the Roof Slating and Tiling Training and Assessment Programme (TAP) SCQF level 7 which has been developed centrally by SQA. Any other instruments of assessment used must be comparable to the TAP 7.

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

Outcome 1, 2 and 4

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

Outcome 3

The assessment for this Outcome involves the preparation and groundwork for installing underlay and natural slates to a conical turret roof, a hipped turret roof and a swept valley detail. Candidates should correctly determine angle of cuts and demonstrate knowledge and understanding for checking, marking and squared-off roof surfaces.

Higher National Unit specification: statement of standards

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Unit code: F8N2 34

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

Outcome 1

Explain theoretical details associated with complex roofs

Knowledge and/or Skills

- ◆ Roof inspection
- ◆ Groundwork including waterproofing membrane
- ◆ Setting out
- ◆ Fixing methods
- ◆ Slating techniques
- ◆ Conical turrets, hipped turrets and swept valley details

Evidence Requirements

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

- ◆ explain correctly groundwork for turret and swept valley details
- ◆ explain construction methods and techniques used to slate complex roofs
- ◆ produce annotated sketches of a conical turret, a hipped turret and a swept valley detail

In any assessment of this Outcome all knowledge and/or skill items should be included. Candidates must provide a satisfactory response to all items which must be in accordance with current British Standards and Codes of Practice.

Evidence must be gathered under open-book controlled, supervised conditions. Candidates may bring to the event any notes that they have made personally. They must have access to the relevant manufacturer guidelines and information for the product to be used on the roof.

Assessment Guidelines

Evidence for the knowledge and skills in this Outcome should be composed of projects to which complex roofs are to be covered in natural slates. The slating work must include conical turrets, hipped turrets and a swept valley detail.

The assessment for this Outcome might be combined with that for Outcomes 2 and 4 and conducted under open-book conditions not exceeding three hours.

Higher National Unit specification: statement of standards (cont)

Unit title: Roofing: Advanced Slating

Outcome 2

Produce scale drawings and determine quantities of materials for complex roof shapes

Knowledge and/or Skills

- ◆ Orthographic drawings, plan, elevations, development of roof surfaces
- ◆ Determination of true rafter lengths
- ◆ Calculation methods for complex surface areas
- ◆ Material estimating

Evidence Requirements

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

- ◆ produce scale orthographic drawings of a conical turret and a hipped turret
- ◆ determine the true length of common, hip and valley rafters from scale drawings
- ◆ calculate surface areas and true rafter lengths of a conical turret, a hipped turret and a valley roof
- ◆ estimate roofing materials for a a conical turret, a hipped turret and a valley roof

In any assessment of this Outcome all Knowledge and/or Skills items should be included. Candidates must provide a satisfactory response to all items.

All calculations must be within 5% of a correctly worked answer.

Evidence must be gathered under open-book, supervised conditions.

Assessment Guidelines

Questions used to elicit candidate's evidence should take the form of an appropriate balance of scale drawings, annotated sketches, short answer, restricted response, structured questions.

The assessment for this Outcome might be combined with that for Outcomes 1 and 4.

Higher National Unit specification: statement of standards (cont)

Unit title: Roofing: Advanced Slating

Outcome 3

Produce a slate finish to complex roof details

Knowledge and/or Skills

- ◆ Interpretation of manufactures instructions
- ◆ Roof structure suitability
- ◆ Fixing methods
- ◆ Installation of waterproofing membrane
- ◆ Forming slate templates
- ◆ Soaker production
- ◆ Setting out a conical roof turret for natural slate
- ◆ Setting out a hipped roof turret for natural slate
- ◆ Setting out a swept valley for natural slate
- ◆ Installation of roof coverings to complex roof details
- ◆ Squaring and checking tail lines
- ◆ Current Health and Safety controls
- ◆ Sustainability considerations

Evidence Requirements

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

Planning

- ◆ interpret given information from manufactures instructions
- ◆ confirm roof structure suitability
- ◆ confirm fixing methods for underlay and slates
- ◆ ensure health and safety controls are appropriate

Preparation

- ◆ correctly set out a conical roof turret for natural slate
- ◆ correctly set out a hipped roof turret for natural slate
- ◆ correctly set out a swept valley for natural slate
- ◆ correctly form slate and soaker templates
- ◆ cut and form slates and soakers for turrets
- ◆ check equipment and tools

Install roof covering

- ◆ install roof coverings to complex roof details
- ◆ check and ensure slating is squared off and check tail line level around turret
- ◆ check and adjust slate gauge and side lap
- ◆ check for roof damage

Higher National Unit specification: statement of standards (cont)

Unit title: Roofing: Advanced Slating

All Knowledge and/or Skills items must be evidenced. An assessor observation checklist should be completed to ensure that the candidate has met the required specification and manufacturer guidelines and this observation checklist should be retained as evidence. Evidence must be gathered under controlled, supervised conditions.

Higher National Unit specification: statement of standards (cont)

Unit title: Roofing: Advanced Slating

Assessment Guidelines

The assessment of this Outcome is based on planning, preparing and slating a complex roof surface. Candidates should be observed and assessed against the standard identified in the Evidence Requirements.

Outcome 4

Specify the methods used for maintaining Health and Safety requirements for roof work

Knowledge and/or Skills

- ◆ Working at height
- ◆ Risk assessment
- ◆ Method statements
- ◆ Manual handling
- ◆ Current Health and Safety regulations

Evidence Requirements

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

- ◆ correctly adhere to current health and safety methods and activities in terms of working at height
- ◆ undertake a risk assessment
- ◆ explain requirements for a method statement
- ◆ correctly adhere to current health and safety methods and activities in terms of manual handling
- ◆ correctly adhere to current health and safety methods and activities in terms of controlling substances hazardous to health

In any assessment of this Outcome all Knowledge and/or Skills items should be included. Candidates must provide a satisfactory response to all items.

Evidence must be gathered under open-book, supervised conditions.

Assessment Guidelines

Questions used to elicit candidate's evidence should take the form of an appropriate balance of annotated sketches, short answer, restricted response, structured questions and completion of a Risk Assessment.

The assessment for this Outcome might be combined with that for Outcomes 1 and 2.

Administrative Information

Unit code: F8N2 34
Unit title: Roofing: Advanced Slating
Superclass category: TG
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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: Roofing: Advanced Slating

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 80 hours.

Guidance on the content and context for this Unit

This Unit has been developed as a mandatory Unit in the Professional Development Award (PDA) in Roof Slating and Tiling at SCQF level 7.

This Unit is intended to equip candidates with all necessary underpinning knowledge and skills related to advanced slating methods and techniques required for complex roofs.

At the time of writing the following applies, although centres must ensure the most up to date standards and legislation are adhered to:

- ◆ BS 5534: the British Standard Code of practice for slating and tiling
- ◆ BS 8000: Part 6: the British Standard Code of practice for workmanship on building sites.
- ◆ Working at Height Regulations 2005
- ◆ Manual Handling Operations Regulations 1992
- ◆ COSHH 2002
- ◆ Reference should also be made to the Control of Lead at Work (third edition) Control of Lead at Work Regulations 2002 Approved Code of Practice and Guidance (ISBN 0-7176-2565-6)

The following information may be helpful in relation to specific Outcomes:

Outcome 1: Explain theoretical details associated with complex roofs (Recommended 4 hours)

- ◆ **Roof inspection**
 - Condition of supporting timbers (rafters and joists) and roof covering
 - Roof pitch (Determine the roof inclination by pitch indicator and calculation)
 - Roof measurement
 - Condition of roof boarding
- ◆ **Groundwork including waterproofing membrane**
 - Timber work repair
 - Forming, positioning and fixing tilting fillet to eave line
 - Position and fixing underlay
- ◆ **Setting out**
 - Setting of centre pivot for string line
 - Setting out perpend lines for bond
 - Setting out square lines

Higher National Unit specification: support notes (cont)

Unit title: Roofing: Advanced Slating

- ◆ **Fixing methods**
 - Head nailing method
 - Centre nailing method
 - Hook fixing

- ◆ **Slating techniques**
 - Methods used to form, cut and fixing square slate pattern
 - Methods used to form, cut fish scale slate pattern
 - Methods used to form, cut bullnose slate pattern

- ◆ **Conical turrets, hipped turrets and swept valley details**
 - Methods used for pre-striking gauge lines prior to installation of slates for curved surfaces
 - Methods used to maintain tail line around turret surfaces
 - Methods used to form close mitre detail to hips
 - Methods used to form soaker templates
 - Methods used to form slate templates
 - Methods used to form swept valley details

Outcome 2: Produce scale drawings and determine quantities of materials for complex roof shapes (Recommended 6 hours)

- ◆ **Orthographic drawings, plan, elevations, development of roof surfaces**
 - Set out and draw to scale complex roof shapes, including conical, hipped turret roofs
 - Use of a scale rule to determine of true rafter lengths
 - Calculation methods for complex surface areas
 - Estimating methods used to determine roof materials

Outcome 3: Produce a slate finish to complex roof details (Recommended 60 hours)

- ◆ **Interpretation of manufactures instructions**
 - Use of manufactures data sheets and web pages to verify constructional details, head laps
- ◆ **Roof structure suitability**
 - Inspection and verification of roof timber condition
 - Reporting of defects
 - Recommendation of remedial work methods
- ◆ **Fixing methods**
 - Inspection and verification of specifications and drawings for material fixing
 - Position and fix timber fillets
- ◆ **Install Waterproofing membrane**
 - Position and fix roof underlay to specification
- ◆ **Form slate template**
 - Set out and form a slate template

Higher National Unit specification: support notes (cont)

Unit title: Roofing: Advanced Slating

- ◆ **Set out a conical roof turret for natural slate**
 - Set out pivot at top of turret
 - Set out slate under eave to given overhang
 - Set out square lines around conical surface
- ◆ **Set out a hipped roof turret for natural slate**
 - Set out square lines around hipped turret
 - Set out slate under eave to given overhang
- ◆ **Set out a swept valley for natural slate**
 - Position and valley board for swept detail to specification
- ◆ **Install Roof coverings to complex roof details**
 - Cut and form soakers from a template
 - Cut and form a slate from a template
 - Fix slates to given specification
 - Square and check tail lines
 - Check and adjust slate gauge and side lap
 - Check for roof damage
 - Repair damaged or broken slates
- ◆ **Health and Safety controls**
 - Safe use of Personal Protective Equipment (PPE)
 - Safe systems of work and maintaining a clean working environment

Candidates should be encouraged to work in teams for the initial planning, preparation, setting out and slating. The final roof inspection could be peer assessed and verified with assessor.

Outcome 4: Specify the methods used for maintaining Health and Safety requirements for roof work (Recommended 10 hours)

- ◆ **Health and Safety requirements**
 - Current Work at Height Regulations
 - Requirements for existing places of work or means of access or egress
 - Guard-rails, toe-boards, barriers or similar collective means of protection.
 - Requirements for working platforms
 - Requirements for collective safeguards for arresting falls
 - Requirements for personal fall protection system
 - Requirements for ladders
 - Particulars to be included in a report of inspection
- ◆ **Risk Assessment**
 - What is a Risk Assessment?
 - Completion of a Risk Assessment: Task description, location, completion date, review date, persons affected individuals or groups, hazards/consequences, identifying existing control procedures, risk ranking
- ◆ **Method Statements**
 - What is a Method Statements?
 - Requirements of a Method Statements: Task description, preparation, installation, information sources

Higher National Unit specification: support notes (cont)

Unit title: Roofing: Advanced Slating

- ◆ **Manual Handling**
 - avoiding hazards
 - assessing hazards
 - reducing the risk of injury
- ◆ **Control of Substances Hazardous to Health (COSHH)**
 - What is covered?
 - What are the main obligations?
 - Define good control practices

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. Safe 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.

Emphasis should be placed on appropriate areas such as waste management and effective sourcing and use of materials.

Where feasible, centres should also incorporate modern methods of construction used in industry. Candidates should be made aware of current industry practice and emerging practice or technology which may become conventional in the future.

Guidance on the delivery and assessment of this Unit

As part of the Professional Development Award (PDA) in Roof Slating and Tiling at SCQF level 7, this Unit may be delivered in a sequence suitable to individual candidates and centres. When completing this Unit as part of the PDA it is recommended that, where possible, opportunity is taken to integrate aspects of Constructional Technical Communication Skills (DW4D 34). This Unit could also be delivered as a free standing Unit.

This Unit builds on the knowledge and understanding of roofing skills gained in the Roof Slating, Tiling and Cement Work PDA at SCQF level 6. It is recommended that evidence for the 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 in the Roof Slating and Tiling PDA at SCQF level 7.

If feasible, site visits or information about of traditional and modern construction would be beneficial. This approach could be used to enhance the candidate's experience and understanding of how their skills and knowledge might be applied in real industry situations.

Higher National Unit specification: support notes (cont)

Unit title: Roofing: Advanced Slating

Centres may use the instruments of assessment which they consider to be the most appropriate but are advised to use the Roof Slating and Tiling Training and Assessment Programme at SCQF level 7 (TAP 7) which has been developed centrally by SQA. Any other instruments of assessment used must be comparable to the TAP.

Details on approaches to assessment are given under Evidence Requirements and Assessment guidelines under each Outcome in the Higher National Unit specification: statement of standards section. It is essential that these sections be read carefully before proceeding with assessment of candidates.

Opportunities for developing Core Skills

Problem Solving at SCQF level 5 could be developed for Outcomes 1, 2, 3 and 4 through analysing a range of factors in order to work efficiently and safely, such as the suitability and condition of the roof, choice of tools and equipment, appropriate materials, safety issues, safety equipment and sustainability. Individual discussions with assessors and the use of role play will enhance the evaluation of efficient working practices.

Numeracy at SCQF level 5 could be developed for Outcomes 2 and 3 through roofing calculations for area and material estimating.

There are opportunities for candidates to develop the Core Skill of *Working with Others* at SCQF level 5 through working in pairs for Outcomes 3. Candidates can agree responsibilities and provide support and information to each other during the practical group activities.

Candidates will have the opportunity to develop *Communication* at SCQF level 5 throughout practical tasks, as they should be expected to communicate with others using the correct terminology, tone and style suited to the workplace.

Opportunities also arise for candidates to develop the Core Skill of *Information and Communication Technology* at SCQF level 4 for Outcome 1, 2 and 4 through researching traditional roofing terminology and techniques used on the internet, spreadsheets for materials information, e-learning and e-assessment.

Higher National Unit specification: support notes (cont)

Unit title: Roofing: Advanced Slating

Core Skills Signposting

Core Skill	Outcome 1	Outcome 2	Outcome 3	Outcome 4
1 Communication				
Reading	SCQF 5		SCQF 5	
Writing	SCQF 5		SCQF 5	
Oral	SCQF 5		SCQF 5	
2 Numeracy				
Using Number		SCQF 5	SCQF 5	
Using Graphical Information		SCQF 5	SCQF 5	
3 ICT				
Using Information Technology	SCQF 4	SCQF 4		SCQF 4
4 Problem Solving				
Critical Thinking	SCQF 5	SCQF 5	SCQF 5	SCQF 5
Planning and Organising	SCQF 5	SCQF 5	SCQF 5	SCQF 5
Reviewing and Evaluating	SCQF 5	SCQF 5	SCQF 5	SCQF 5
5 Working with Others			SCQF 5	

Open learning

Although this Unit could be delivered by distance learning, it would require a considerable degree of planning by the centre to ensure the sufficiency and authenticity of candidate evidence. Arrangements would have to be made to ensure that:

- ◆ candidates have access to a suitable workshop with suitable equipment and tools
- ◆ health and safety considerations are fully taken into account
- ◆ the practical activities are supervised by a responsible person and clearly recorded (using an assessment checklist for the assessor)
- ◆ the assessor is, at some point, able to question the candidate on that performance
- ◆ assessment is carried out under the stated conditions

For information on open learning arrangements, please refer to the SQA guide *Assessment and Quality Assurance of Open and Distance Learning* (www.sqa.org.uk)

Disabled candidates and/or those with additional support needs

The Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. 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: Roofing: Advanced Slating

This Unit has been designed to further your career in the construction industry by developing your competence and improving your knowledge of traditional roofing, with a particular focus on slating complex roofs. It has been written as part of the Professional Development Award (PDA) in Roof Slating and Tiling at SCQF level 7, and is for experienced crafts persons working in the construction industry as roofers.

The Unit will help develop your underpinning knowledge and skills related to traditional roofing skills, natural slating to conical and hipped turret roofs including the slating to a swept valley detail. You will also focus on Health and Safety considerations when working at height.

On completion of the Unit you should be able to:

- 1 explain theoretical details associated with complex roofs
- 2 produce scale drawings and determine quantities of materials for complex roof shapes
- 3 produce a slate finish to complex roof details
- 4 specify the methods used for maintaining health and safety requirements for roof work

You will be assessed on your knowledge and understanding through open-book, supervised assignments and projects when you will need to refer to textbooks, handouts, manufacturer data sheets and instruction manuals.

You will also be assessed on your practical ability to prepare and fix natural slates to conical and hipped turret roofs including the slating to a swept valley detail. Your assessor will observe what you do and how well you demonstrate traditional roofing skills.

There are opportunities for you to develop the Core Skills of *Problem Solving, Numeracy, Working with Others, Communication* 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.

If you successfully complete this Unit and the full PDA at SCQF level 7, you will not only have advanced your craft skills, but will automatically receive some credit if you progress on to the HNC Construction.