



## National Unit Specification: general information

**UNIT**      Carpentry and Joinery: Window Construction (SCQF level 6)

**CODE**      F6N0 12

### SUMMARY

This Unit is suitable for candidates working towards a Modern Apprenticeship in Carpentry and Joinery and will develop the candidates craft skills in window construction. This Unit is designed to provide candidates with competence in producing a cutting list on the construction of windows and in manufacturing a window with an opening sash and the ability to apply these skills in the workplace. It is also designed to enable candidates to develop their skills and understanding in carpentry and joinery terminology; techniques and practices associated with window construction.

### OUTCOMES

- 1 Demonstrate knowledge and understanding of terminology, function of components and forms of construction associated with window construction.
- 2 Produce a cutting list for window manufacture.
- 3 Manufacture a window with an opening sash to a given specification.

### RECOMMENDED ENTRY

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

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#### Administrative Information

**Superclass:**      TG

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## **National Unit Specification: general information (cont)**

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### **CREDIT VALUE**

1 credit at SCQF level 6 (6 SCQF credit 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.*

### **CORE SKILLS**

There is no automatic certification of Core Skills or Core Skill components in this Unit.

Opportunities for developing aspects of the following Core Skills are highlighted in Support Notes of this Unit:

- ◆ Problem Solving at SCQF level 4
- ◆ Working with Others at SCQF level 4
- ◆ Information and Communication Technology at SCQF level 3
- ◆ Numeracy at SCQF level 4
- ◆ Communication at SCQF level 4

## **National Unit Specification: statement of standards**

### **UNIT      Carpentry and Joinery: Window Construction (SCQF level 6)**

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 terminology, function of components and forms of construction associated with window construction.

##### **Performance Criteria**

- (a) Correctly define window construction terminology.
- (b) Correctly identify types of windows and their components.
- (c) Correctly identify profiled components for different window types.
- (d) Correctly identify joints for specific use in accordance with recognised practice.

#### **OUTCOME 2**

Produce a cutting list for window manufacture.

##### **Performance Criteria**

- (a) Accurately compile a legible cutting list.
- (b) Accurately calculate material quantities from given specification.
- (c) Correctly allow for wastage.

#### **OUTCOME 3**

Manufacture a window with an opening sash to a given specification.

##### **Performance Criteria**

- (a) Accurately produce a setting out rod for use in window production.
- (b) Accurately mark out components from setting out rod.
- (c) Accurately shape and joint components.
- (d) Accurately assemble window.
- (e) Accurately fit and hang opening sash with relevant ironmongery.

## **National Unit Specification: statement of standards (cont)**

### **UNIT          Carpentry and Joinery: Window Construction (SCQF level 6)**

#### **EVIDENCE REQUIREMENTS FOR THIS UNIT**

Evidence is required to demonstrate that the candidates have achieved this Unit to the standard specified in all the Outcomes and Performance Criteria. All working practices must be in line with relevant and current Health and Safety legislation and regulations. A Risk Assessment and Method Statement must be completed prior to any practical activities taking place.

Written and/or oral evidence is required which demonstrates that the candidate has achieved Outcome 1 to the standards specified in the Performance Criteria. Candidates will be required demonstrate knowledge and understanding of terminology, function of components and forms of construction associated with window construction. Assessment will be with objective test questions under closed-book, controlled, supervised conditions.

Product evidence is required to demonstrate that the candidate has achieved Outcome 2 to the standards specified in the Performance Criteria in the form of a cutting list to show that the candidate can compile an accurate legible list using the correct terminology. The cutting list must accurately cover materials, components, ironmongery and wastage.

Product and performance evidence is required to demonstrate that the candidate has achieved Outcome 3 to the standards specified in the Performance Criteria. Candidates will need to accurately produce a setting out rod from the given specification before marking out and manufacturing one of the following window types with an opening sash in a safe and organised manner:

- ◆ traditional casement
- ◆ stormproof casement

All timber needed to produce the window will be given to the candidate in the sawn or dressed square stock. Candidates will then have to mark out and machine, in teams, their own rebates and bevels. They will also have to fully assemble their window and fit and hang an opening sash, together with its relevant ironmongery.

#### **Summary of standards (working towards industrial tolerances)**

##### **Setting out and marking out:**

- ◆ products set out and marked to correct size  $\pm 0.5$  mm
- ◆ product components correctly positioned and proportioned  $\pm 0.5$  mm
- ◆ joints correctly positioned and proportioned  $\pm 0.5$  mm
- ◆ dimensions and details clearly and correctly labelled
- ◆ cutting list for all components correct for all items
- ◆ ironmongery schedule correct for all items

## **National Unit Specification: statement of standards (cont)**

### **UNIT       Carpentry and Joinery: Window Construction (SCQF level 6)**

#### **Assembling components to form window frames:**

- ◆ frame to size as rod  $\pm 2\text{mm}$
- ◆ joints tight fitting, no gaps exceeding 0.5mm
- ◆ frame square across diagonals  $\pm 2\text{mm}$
- ◆ frame free from twist
- ◆ hinged sashes hung with parallel gap governed by type of hinge and free from binding
- ◆ surface of frame suitable for applied finish

These Evidence Requirements will be met by the completion of the Carpentry and Joinery Training and Assessment Programme (TAP). The TAP provides detailed assessment material for this Unit.

## National Unit Specification: support notes

### UNIT      Carpentry and Joinery: Window Construction (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 40 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 Carpentry and Joinery at SCQF level 6, which is a mandatory component of the Modern Apprenticeship.

The Unit will be offered to candidates from the construction and related services 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.

The Unit deals with theory and practice of window construction and is complemented by Units dealing with related work in the Carpentry and Joinery TAP. It should be delivered as part of a structured programme of training and oriented to the context of the candidate's work and area of responsibility. Manufacture of the window will include the use of woodworking machinery, portable power tools, hand tools, equipment and jigs and it is anticipated that aspects of this Unit could be integrated with *Carpentry and Joinery: Woodworking Machines* and *Carpentry and Joinery: Woodworking Power Tool Skills* and *Building Craft Science and Mechanics*.

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.

The following additional range of information will prove useful for all Outcomes:

#### Outcome 1

Capillary action and surface tension should be discussed at the appropriate time within the Unit's delivery. Reference to British Standards and Codes of Practice should be relayed to the candidate to provide an awareness of correct practices.

Components could include: jambs; heads; sills; transoms; mullions; stiles; rail; counter-checks; astragles; drip moulds; pulley stiles; inside facings; outside facings; baton rods; parting beads; glazing beads glass.

## **National Unit Specification: support notes (cont)**

### **UNIT      Carpentry and Joinery: Window Construction (SCQF level 6)**

#### **Outcome 2**

The cutting list is completed with materials calculated correctly from the summary of standards allowing for wastage; it is consistent in its use of measurement units; and is compiled accurately and legibly using terminology that is technically correct throughout. The tutor/trainer could introduce the candidate to the factors involved in taking-off materials from working drawings. There is no requirement to illustrate profiled components, although this may provide clarity to students, and only sawn timber sizes and dressed timber sizes need be included.

All activity should comply with current health and safety and building regulations. At the time of writing these include: HSW (Health and Safety at Work etc) Act; COSHH (Control of Substances Hazardous to Health) Regulations; PUWER (Provision and Use of Work Equipment Regulations).

#### **GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT**

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.

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

- ◆ Conform to Efficient Working Practices
- ◆ Conform to General Workplace Safety
- ◆ Move and Handle Resources
- ◆ Confirm Work Activities and Resources for the Work
- ◆ Develop and Maintain Good Working Relationships
- ◆ Confirm the Occupational Method of Work

The candidate should be given the opportunity to further develop their skills through oral or written instructions; sketches; drawings; schedules; specifications; technical literature; manufacturers' data; codes of practice; building standards; statutory regulations; slides; videos; DVD's; power point presentations; e-learning; use of library/reference books; classroom exercises and group discussions using peer experience.

The function of each component should be thoroughly demonstrated and practised by each candidate through, elevations, sections, plans and detailed drawings.

Tutors/trainers should demonstrate practical elements step-by-step until the candidate feels confident enough to attempt them on their own. The use of pre-made practical components, and electronic visual aids should be adopted/encouraged where practical. The requirement to adopt safe working practices and comply with safety legislation should be emphasised throughout.

Supervisors and employers could also play an important part in assisting candidates to generate evidence.

## National Unit Specification: support notes (cont)

### UNIT      Carpentry and Joinery: Window Construction (SCQF level 6)

#### Outcome 1

The tutor/trainer could briefly introduce the candidate to a broad range of windows by means of audio visual presentations and then focus on the range of windows covered in this Outcome. Group discussion, using the candidate's previous knowledge, could focus on the identification of components and the reasons for their specific profiling when the tutor/trainer could reinforce the candidate's knowledge by clearly explaining the principles involved in determining section profiles and sizes. A presentation of a range of joints could be used to introduce design principles.

#### Outcome 2

This Outcome could be used to give the candidates the opportunity to develop IT skills through the use of spreadsheets to compile cutting lists.

#### Outcome 3

The candidate should be provided with a workshop drawing and a specification for a window outlining the demands of the practical exercise and summary of standards. As one of a group, the candidate should be guided in general terms on the necessity to work accurately and to the content required in a workshop rod for a window. On satisfactory completion of a workshop rod the tutor/trainer should present the candidate with sufficient materials to manufacture the window. The marking out of the window from the workshop rod will be checked by tutor/trainer prior to student embarking on manufacture of component. The hinging of the sash can be done using traditional hinging methods or by use of friction hinges.

Group discussion on manufacturing and assembly procedures with particular emphasis on safe working practices should assist the candidate in gaining the necessary competences. It is anticipated that this Outcome could be integrated with Section three of the *Carpentry and Joinery TAP*.

Overall dimensions of the window could be re-negotiated during formative assessment if the window, when assembled, would not meet the dimensional tolerances stated in the specification. The re-negotiated overall dimension is suggested to be at least 20mm less than the original dimension. It should be noted that a re-negotiated dimension must be consistently applied within delivering centre.

### OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

The Core Skill of *Problem Solving* at SCQF level 4 could 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.

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, and in the use of spread sheets to produce cutting lists, and for the use of E-Learning/Assessments.



## National Unit Specification: support notes (cont)

### UNIT      Carpentry and Joinery: Window Construction (SCQF level 6)

The Core Skill of *Numeracy* at SCQF level 4 could be developed through the interpretation of information from 3-dimensional working drawings and the practical use of calculation and measuring required for teaching and learning assessments for Outcomes 2 and 3.

Candidates will have opportunities to develop the Core Skill of *Working with Others* at SCQF level 4, particularly in Outcome 2 during the ‘breaking out’ of material required for the manufacture of the window. Whilst carrying out machine operations in teams, candidates must conform to a safe system of work within machine shop at all times.

Candidates will have the opportunity to develop the Core Skill of *Communication* skills at SCQF level 4. Candidates, with peer and lecturer assistance, will interpret specifications, workshop drawings and the workshop rod effectively communicating component sizes and joint details required for product manufacture. As candidates complete practical tasks, they should be expected to communicate with others using the correct terminology, tone and style suited to the workplace.

#### **GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT**

The Carpentry and Joinery Training and Assessment Programme (TAP) provides detailed assessment material for this Unit, drawing knowledge and evidence from the tasks and tests within the TAP Units 5, 6, 7 and 9. It is 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 through prior verification. It is expected that candidates will be given as much practice as possible, prior to being set assessment tasks.

The candidates’ knowledge and understanding of terminology, components in relation to window construction will be assessed through a question paper and conducted under controlled, supervised conditions.

Candidates will be required to produce a cutting list to meet the requirements of Outcome 2.

Evidence will be gathered for Outcome 3 by the production of a window to a given specification. An assessor observation checklist/record can be used to record this evidence. Assessment should be conducted under controlled, supervised conditions.

#### **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 communications technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. 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)*.

#### **CANDIDATES WITH DISABILITIES AND/OR ADDITIONAL SUPPORT NEEDS**

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs (www.sqa.org.uk)*.