



National Unit specification: general information

Unit title: Carpentry and Joinery: Door Construction (SCQF level 6)

Unit code: H0RG 12

Superclass: TG

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Version: 01

Summary

This Unit is suitable for candidates working towards a Modern Apprenticeship in Carpentry and Joinery and will develop the candidates craft skills in door construction. This Unit is designed to provide candidates with competence in the use of tools and equipment to produce a cutting list and manufacturing a door to the given drawing, it is also designed to enable candidates to develop their knowledge and understanding in carpentry and joinery terminology; techniques; practices and the ability to apply these skills in the workplace.

Outcomes

- 1 Demonstrate knowledge and understanding of terminology and construction practices used in door construction.
- 2 Produce a cutting list and calculate quantities for door manufacture.
- 3 Manufacture a door to a given specification.

Recommended entry

While entry to this Unit 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 Apprentices which include being employed in the relevant craft industry.

Credit points and level

1 National Unit 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.*

General information (cont)

Unit title: Carpentry and Joinery: Door Construction (SCQF level 6)

Core Skills

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill None

Core Skill component Critical Thinking @ SCQF level 5

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit Specification.

National Unit specification: statement of standards

Unit title: Carpentry and Joinery: Door 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 and construction practices used in door construction.

Performance Criteria

- (a) Define door construction terminology correctly.
- (b) Identify types of doors and their components correctly.
- (c) Identify profiled components for different door types correctly.
- (d) Identify joints for specific use correctly in accordance with recognised practice.

Outcome 2

Produce a cutting list and calculate quantities for door manufacture.

Performance Criteria

- (a) Compile an accurate and legible cutting list including types of materials and components from the drawing given.
- (b) Calculate material quantities accurately from given specification allowing for wastage.
- (c) Use appropriate and consistent terminology throughout.
- (e) Comply with current Health and Safety and sustainability requirements during all work methods and activities.

Outcome 3

Manufacture a door to a given specification.

Performance Criteria

- (a) Produce a setting out rod for use in door production.
- (b) Mark out components accurately with setting out rod.
- (c) Shape and joint components accurately to given specification.
- (d) Assemble door to given specification.
- (e) Comply with current health and safety and building regulations throughout activity.
- (f) Comply with current Health and Safety and Sustainability requirements during all work methods and activities.

National Unit specification: statement of standards (cont)

Unit title: Carpentry and Joinery: Door Construction (SCQF level 6)

Evidence Requirements for this Unit

These Evidence Requirements will be met by the completion of the Carpentry and Joinery Training and Assessment Programme (TAP).

Evidence is required to demonstrate that the candidates have achieved this Unit to the standard specified in 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 recorded evidence is required to demonstrate that the candidate has achieved Outcome 1 to the standard specified in the Performance Criteria. Candidates will be required to demonstrate their knowledge of terminology, components, functions and door construction by identifying various forms of door construction including joint detailing, components, ironmongery, and design factors which affect door construction. Candidates should also be able to interoperate door schedules, requisition sheets and take off sheets by successful completion of a question paper relating to Door Construction. This assessment will be conducted under controlled, closed-book supervised conditions.

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

Summary of standards (working towards industrial tolerances)	
Item	Measurement of standard
Translation of graphical information into written quantities.	
Cutting list for all components	Accurate and detailed list- correctly for door type.
Material quantities	Including specified allowances (cutting and waste)
Ironmongery schedule	Suitable for door type and correct for all items.

Product and performance evidence is required to demonstrate that the candidate has achieved Outcomes 3 to the standards specified in the Performance Criteria in the form of a setting out rod accurately measured to the given specification. Product and performance evidence supplemented with an assessor observation checklist should be used to show that the candidate has achieved Outcome 3 to the standard specified in the Performance Criteria.

Candidates will be observed to show that they can mark out and manufacture a door, from a given specification, in a safe and organised manner. All solid timber needed to produce the door will be given to the candidate in the sawn or dressed square state. Candidates will then have to mark out and machine their own rebates, bevels grooves etc. They will also have to fully assemble their door.

National Unit specification: statement of standards (cont)

Unit title: Carpentry and Joinery: Door Construction (SCQF level 6)

Assessment of this Outcome will be evidenced through observation of work processes and assessment of the completed work. Candidates must meet the given standards during the practical assessment. An assessor observation checklist must be used to record this evidence. Assessment should be conducted under controlled, supervised conditions.

Candidates will set out and manufacture one of the following door types:

- ◆ Panelled door
- ◆ Framed ledged and braced door
- ◆ Semi-glazed door with astragals

Summary of standards (working towards industrial tolerances)	
Item	Measurement of standard
Setting out and marking out	
Products set out and marked to correct size	±1 mm
Product components correctly positioned and proportioned	±1 mm
Joints correctly positioned and proportioned	±1 mm
Dimensions and details	Clearly and correctly labelled
Assembling components to form door	
Height to size as rod	±3 mm
Width to size as rod	±5 mm
75% of Joints tight fitting	No gaps exceeding 1 mm
25% of Joints tight fitting	No gaps exceeding 2 mm
Frame square across diagonals	±4 mm
Out of wind diagonal above plane	±10 mm
Hinged sashes hung with parallel gap	Governed by type of hinge and free from binding
Surface of frame	Suitable for applied finish
Risk assessment	
Safety boots	Worn at all times
Hard hat	As risk assessed
High visibility vest	As risk assessed
Gloves	As risk assessed
All other PPE	As risk assessed
Method statement	
Working area	Kept clear at all times
Materials	Stacked safely at all times
Tools (during working)	Handled correctly at all times
Tools (after work)	Cleaned and stored safely
Sustainability	
Waste	Kept to a minimum at all times.
Recycling	Materials recycled whenever possible.
Waste disposal	Waste disposed correctly/appropriately

National Unit specification: support notes

Unit title: Carpentry and Joinery: Door 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.

The successful completion of this Unit will provide candidates with the required underpinning knowledge and skills relating to the construction of a range of doors including, detailing, producing cutting lists, profiling components and detailing joints. Drawings including sectional views, detailing components should be encompassed within the teaching/learning.

This Unit would be offered to candidates working towards a Modern Apprenticeship in Carpentry and Joinery and will develop the candidate's skills in setting out and manufacturing a door. The skills, 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.

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 comply 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.

Door types could include: matchboarded; framed, ledged and braced; panelled; glazed; semi-glazed; louvred; flush doors.

Components could include: jambs; stiles, rails, muntins, braces, astragals, louvres, panels, mouldings, beads, matchboarding, core types, lippings, lock blocks.

Format of cutting list: job title; name of components; number of components; type of material; length of material; sawn dimensions; finished dimensions; comments; signature and date.

National Unit specification: support notes (cont)

Unit title: Carpentry and Joinery: Door Construction (SCQF level 6)

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.

Outcome 1

The tutor/trainer could briefly introduce the candidate to a broad range of doors by means of audio visual presentations and then focus on the range of doors 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.

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.

Outcome 2

The cutting list should be completed with materials calculated correctly from the summary of standards allowing for wastage; it should be consistent in its use of measurement Units; and 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. This Outcome is primarily based on the candidate taking-off materials and components. 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. This Outcome can be used to give the candidates the opportunity to develop IT skills through the use of spreadsheets.

Outcome 3

The candidate should be provided with a workshop drawing and a specification for a door 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 door. On satisfactory completion of a workshop rod the tutor/trainer should present the candidate with sufficient materials to manufacture the door. The marking out of the door from the workshop rod will be checked by tutor/trainer prior to student embarking on manufacture of component.

The door and components should be selected from:

Doors: framed ledged and braced; panelled; semi-glazed.

Components: stiles; rails; braces; muntins; panels; matchboarding; astragals and beads.

National Unit specification: support notes (cont)

Unit title: Carpentry and Joinery: Door Construction (SCQF level 6)

Group discussion on manufacturing and assembly procedures with particular emphasis on safe working practices should assist the candidate in gaining the necessary competences. Manufacture of the door will include the use of woodworking machinery, portable power tools, hand tools, equipment and jigs and it is anticipated that this Outcome will be integrated with Carpentry and Joinery: Woodworking Machine Skills and Woodworking Power Tool Skills from the Carpentry and Joinery PDA at SCQF level 6.

Work methods and activities must be correct in terms of:

- ◆ Sequencing operations
- ◆ Methods of assembly
- ◆ Minimising wastage of materials
- ◆ Satisfying current safety regulations

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 Productive Working Practices*
- ◆ *Conform to General Workplace Health, Safety and Welfare*
- ◆ *Move, Handle and Store 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; DVDs; electronic 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 and 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.

Candidate centred learning and teaching approach are encouraged with candidates actively participating in practical activities after lecturer demonstration of key construction practices and principles.

The use of effective questioning techniques to confirm understanding of salient learning objectives should be central to learning and teaching approaches used in classrooms or workshops.

National Unit specification: support notes (cont)

Unit title: Carpentry and Joinery: Door Construction (SCQF level 6)

Candidates should be encouraged to learn at their own pace with e-learning opportunities available to suit their preferred learning style.

The use of e-learning as a teaching tool should be adopted by lecturers wherever possible to enable candidates to develop at their own pace using preferred learning styles.

Learning and Teaching approaches should ensure that candidates are acquiring the underpinning knowledge required for the Unit in tandem with undertaking practical workshop activities.

Guidance on approaches to assessment for this Unit

Detailed assessment material for this Unit will be found in the Carpentry and Joinery 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 Carpentry and Joinery 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.

The candidates' knowledge and understanding of terminology and construction practices of door construction will be assessed through a question paper in Outcomes 1 and 2.

Candidates should be given as much practise as possible in marking out, setting out and manufacturing techniques, prior to being set the assessment. Evidence will be gathered for Outcome 3 through observation that the candidates have met the given standards and tolerances during the practical assessment. An assessor observation checklist should be used to record this evidence.

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 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 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)*.

Opportunities for developing Core Skills

Components of the Core Skill of *Problem Solving*, such as Planning and Organising and Critical Thinking will 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 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 assessors will enhance the evaluation of productive work practices.

National Unit specification: support notes (cont)

Unit title: Carpentry and Joinery: Door Construction (SCQF level 6)

Opportunities also arise for candidates to develop the Core Skill of *Information and Communication Technology (ICT)* at SCQF level 3 by researching Health and Safety legislation affecting their area of work, manufacturer's instructions and specifications, interpretation of drawings and also in the use of spread sheets to produce cutting list, and for the use of E-Learning/Assessments.

Working with Others at SCQF level 4 could be developed during Outcome 2 during the breaking out of material required for the manufacture of the door. Candidates require to have a safe system of work within machine shop at all times including the use of machines, storage and stacking of materials.

Numeracy at SCQF level 4 could be enhanced through the knowledge evidence attained in the cutting lists in Outcome 2 and the practical use of calculation and measuring scales required for teaching and learning assessments for Outcomes 2 and 3.

There will be opportunities for candidates to develop the Core Skills of *Communications* at SCQF level 4 through the knowledge part of the assessment for Outcomes 1 and 2. As candidates complete practical task in Outcomes 2 and 3 the 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.

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

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

History of changes to Unit

Version	Description of change	Date

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