QUALIFICATION HANDBOOK

Level 3 Diploma in Bench Joinery (6706-36)

September 2017 Version 2.3

City & Guilds

Qualification at a glance

Subject area	Construction
City & Guilds number	6706-36
Age group approved	16-18, 19+
Entry requirements	None
Assessment	Multiple choice/assignment
Support materials	Centre handbook Assessor guidance Task manual
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates

Title and level	GLH	TQT	City & Guilds number	Accreditation number
Level 3 Diploma in Bench Joinery	457	510	6706-36	600/8050/4

Version and date	Change detail	Section
1.1 Aug 2013	Correct AC 3.4 – Unit 301/701	Units
2.0 January 2014	Entry requirement information added	Centre requirements
2.1 July 2014	Centre staffing amended	Centre requirements
2.2 December 2015	Updated range for LO 1, 3 and 4 in unit 201/601	5. Units
2.3 September 2017	Added GLH and TQT details Deleted QCF	Qualification at a Glance, Structure Appendix

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1 Introduction

This document tells you what you need to do to deliver the qualification:

Area	Description
Who is the qualification for?	It is for candidates who work or want to work as a Bench Joiner in the construction sector.
What does the qualification cover?	It allows candidates to learn, develop and practise the skills required for employment and/or career progression in Bench Joinery. It covers the following skills: • Set up and use fixed and transportable machinery • Manufacture shaped doors and frames • Manufacture stairs with turns
Is the qualification part of a framework or initiative?	The qualification forms the technical certificate for the Construction Building Apprenticeship Framework.
What opportunities for progression are there?	It allows candidates to progress into employment or to the following City & Guilds qualifications: • Level 3 NVQ Diploma in Wood Occupations

Structure

To achieve the **Level 3 Diploma in Bench Joinery**, learners must achieve **51** credits from the mandatory units. Total GLH - 457

Unit accreditation number	City & Guilds unit number	Unit title	Credit value	GLH
Mandatory				
A/504/6719	Unit 201/601	Health, safety and welfare in construction	7	70
F/504/7029	Unit 301/701	Principles of organising, planning and pricing construction work	7	67
T/504/6766	Unit 308	Set up and use fixed and transportable machinery	13	110
A/504/6770	Unit 309	Manufacture shaped doors and frames	12	103
L/504/6773	Unit 310	Manufacture stairs with turns	12	107

Total Qualification Time

Total Qualification Time (TQT) is the total amount of time, in hours, expected to be spent by a Learner to achieve a qualification. It includes both guided learning hours (which are listed separately) and hours spent in preparation, study and assessment.

Title and level	GLH	TQT
Level 3 Diploma in Bench Joinery	457	510

2 Centre requirements

Approval

The approval process for Construction qualifications is available at our website. Please visit **www.cityandguilds.com/construction** for further information.

Physical resources and site agreements

Centres will have well equipped workshops with a comprehensive range of hand and portable power tools that meet current industry standards. All powered equipment should be well maintained and PAT certified. A Bench Vice will be available to each candidate. Facilities for grinding and sharpening hand tools will be available. Centres are required to have a morticer, bandsaw, crosscut saw, rip saw, surface planer, thicknesser, (may be a combined machine) spindle moulding machine and router (may be inverted) together with suitable tooling, allowing candidates to practise the requirements of the units and carry out the Practical Assignments. All machinery shall be to industrial standards and comply with current regulations.

Centre staffing

All staff who assess (tutor/deliver) these qualifications must:

- have recent relevant experience in the specific area they will be teaching;
- be technically competent in the area for which they are delivering training and/or have experience of providing training;
- have a CV available demonstrating relevant experience and any qualifications held.

All staff who quality assure these qualifications must:

- have a good working knowledge and experience within the construction industry;
- have an established strategy and documentary audit trail of internal quality assurance;
- have a good working knowledge of quality assurance procedures;
- have a CV available demonstrating relevant experience and any qualifications held.

While the Assessor/Verifier (A/V) units/TAQA are valued as qualifications for centre staff, they are not currently a requirement for these qualifications. However, we encourage trainers and assessors to qualify to the current TAQA standard.

Continuing professional development (CPD)

Centres must support their staff to ensure that they have current knowledge of the occupational area, that delivery, mentoring, training, assessment and verification is in line with best practice, and that it takes account of any national or legislative developments.

Candidate entry requirements

Whilst there are no formal entry requirements for this qualification, learners are advised to take the Level 1 and Level 2 Diplomas in order to ensure they have the right skills and knowledge for Level 3. Alternatively, the learner should provide evidence of significant industry experience, at the centres discretion.

Age restrictions

City & Guilds cannot accept any registrations for candidates under 16 as these qualifications are not approved for under 16s.

3 Delivering the qualification

Initial assessment and induction

An initial assessment of each learner should be made before the start of their programme to identify:

- if the learner has any specific training needs;
- support and guidance they may need when working towards their qualification;
- any units they have already completed, or credit they have accumulated, which are relevant to the qualification;
- the appropriate type and level of qualification.

We recommend that centres provide an induction programme so the learner fully understands the requirements of the qualification, their responsibilities as a learner and the responsibilities of the centre. This information can be recorded on a learning contract.

Support materials

The following resources are available for this qualification:

Description	How to access
Assessor guidance	www.cityandguilds.com
Task manual	www.cityandguilds.com
Qualification approval form	www.cityandguilds.com/construction
SmartScreen	www.smartscreen.co.uk

4 Assessment

Unit	Title	Assessment method	Where to obtain assessment materials
201/ 601	Health, safety and welfare in construction	City & Guilds e-volve multiple choice test or on demand externally marked paper. The test covers all of the knowledge in the unit.	Examinations provided on e-volve, or question papers ordered via Walled Garden.
301/ 701	Principles of organising, planning and pricing construction work	City & Guilds e-volve multiple choice test or on demand externally marked paper. The test covers all of the knowledge in the unit.	Examinations provided on e-volve, or question papers ordered via Walled Garden.
308	Set up and use fixed and transportable machinery	Multiple choice question paper, covering knowledge outcomes. Practical assignment, covering performance outcomes. Both assessments are set by City & Guilds, delivered and marked by the tutor/assessor, and will be externally verified by City & Guilds to make sure they are properly carried out.	www.cityandguilds.com

Unit	Title	Assessment method	Where to obtain assessment materials
309	Manufacture shaped doors and frames	Multiple choice question paper, covering knowledge outcomes. Practical assignment , covering performance outcomes. Both assessments are set by City & Guilds, delivered and marked by the tutor/assessor, and will be externally verified by City & Guilds to make sure they are properly carried out.	www.cityandguilds.com
310	Manufacture stairs with turns	Multiple choice question paper, covering knowledge outcomes. Practical assignment , covering performance outcomes. Both assessments are set by City & Guilds, delivered and marked by the tutor/assessor, and will be externally verified by City & Guilds to make sure they are properly carried out.	www.cityandguilds.com

Test specifications

The way the knowledge is covered by each test is laid out in the tables below:

Test 1: Unit 201/601 Health, safety and welfare in construction
Duration: 60 minutes

Unit	Outcome	Number of questions	%
201/601	1 Know the health and safety regulations, roles and responsibilities	7	17.5
	2 Know accident and emergency reporting procedures and documentation	5	12.5
	3 Know how to identify hazards in the workplace	7	17.5
	4 Know about health and welfare in the workplace	3	7.5
	5 Know how to handle materials and equipment safely	2	5
	6 Know about access equipment and working at heights	3	7.5
	7 Know how to work with electrical equipment in the workplace	4	10
	8 Know how to use personal protective equipment (PPE)	5	12.5
	9 Know the cause of fire and fire emergency procedures	4	10
	Total	40	100

Test 2: Unit 301/701 Principles of organising, planning and pricing construction work
Duration: 60 minutes

Unit	Outcome	Number of questions	%
301/ 701	1 Understand different types of drawn information in construction	7	17.5
	2 Understand energy efficiency and sustainable materials for construction	8	20
	3 Understand how to estimate quantities and price work for construction	10	25
	4 Understand how to plan work activities for construction	6	15
	5 Understand how to communicate effectively in the workplace	9	22.5
	Total	40	100

Test 3: Unit 308 Set up and use fixed and transportable machinery

Duration: 40 minutes

Unit	Outcome	Number of questions	%
308	1 Understand how to inspect and maintain fixed and transportable machinery	13	52
	3 Understand how to use fixed and transportable machinery efficiently and safely	12	48
	Total	25	100

Test 4: Unit 309 Manufacture shaped doors and frames

Duration: 40 minutes

Unit	Outcome	Number of questions	%
309	1 Understand how to set out shaped doors and frames	12	48
	3 Understand how to manufacture shaped doors and frames	8	32
	5 Understand how to assemble and finish shaped doors and frames	5	20
	Total	25	100

Test 5: Unit 310 Manufacture stairs with turns

Duration: 45 minutes

Unit	Outcome	Number of questions	%
310	1 Understand how to set out stairs with turns	17	56
	3 Understand how to manufacture stairs with turns	8	27
	5 Understand how to assemble and finish stairs with turns	5	17
	Total	30	100

5 Units

Availability of units

The following units can also be obtained from The Register of Regulated Qualifications: **http://register.ofqual.gov.uk/Unit**

Structure of units

These units each have the following:

- City & Guilds reference number
- unit accreditation number (UAN)
- title
- level
- credit value
- guided learning hours
- unit aim
- learning outcomes which are comprised of a number of assessment criteria.

Range explained

Range gives further scope on what areas within assessment criteria must be covered. The range in a unit **must** be taught to learners and parts of the range will be assessed.

Glossary of terms

Term	Definition
Approved Document K	Section of the Building Regulations that covers protection from falling.
Balustrade	Collective name for the complete assembly of handrails, baserails, newels, spindles, infill and newel caps.
Close couple roof	This roof incorporates a main tie which is secured to the feet of each rafter and spans the width of the building.
Closed stair strings	A staircase in which the ends of the treads are routed or housed so that they are not visible outside the stair.
Collared roof	A collar roof incorporates a horizontal roof member positioned approximately two thirds of the distance down from the ridge to the wall plate line.
Cut stair string	A string with the upper part of the string cut away to follow the shape of the treads

Draw-bore pins	Holes are drilled through a mortise and tenon about 3mm out of line so that a tapered steel pin (Draw-bore pins) are driven through the holes draws the joint together.
Elliptical arch	An arch having the shape of half an ellipse; in its construction, the ellipse is often approximated by three adjoining circular arcs.
French doors	Two adjoining doors that have glass panes from top to bottom and are hinged at opposite sides of a doorway so that they open in the middle
Geometrical stairs	A geometrical stairway is a winding stairway and is so designed that the tread at the line of travel of all steps is the same width. Commonly known (incorrectly) as a “spiral” staircase. A curved stair of regular shape, eg circular or elliptical in plan.
Gothic arch	A Gothic arch is a sharp-pointed arch, formed of two arc segments
Hammer headed key joint	Is used where there is no straight member to form the tenon. Two mortise sockets are formed one in each piece and a separate tenon piece called a key is formed to fit. For example a door with a shaped head.
Hammer headed tenon	Is used to join a curved member to a straight member such as a curved head member to a jamb.
Handrail bolts	A metal rod with threads and a nut at each end; used to bolt together two surfaces in a butt joint.
Jack rafters	Jack rafters are the short rafters that run from the hip or valley rafter to the wall plate. It is these rafters that form the lower portion of a hip or a valley.
Joiners dogs	A small "staple" shaped device, designed to straddle a joint, and pull the joint tightly together during the glue up process, also called a 'Pinch Dog'.
Kerfed	Saw cuts to one side of a piece of wood and bending it towards that side, a convenient way curving the risers of a bullnose step
Mortice latch/rebate kit	Allows a mortise lock to be fitted to double doors that have been rebated at their meeting stiles.

Purlins	A purlin is a strong large sectioned timber member which is fixed to the common rafters midway between the ridge and the wall plate and runs parallel to the wall and the ridge.
Raking mouldings	An inclined moulding with horizontal returns
Sprocketed eaves	A wedge-shaped piece of wood nailed to the top of the rafters to reduce the pitch of the roof at the eaves.
Trammel	A lath or batten used to mark out a circular or curve by being pivoted at one end.
Trimmer	These are used to construct a well suitable for the opening of the staircase. The top step fits over a trimmer joist.
Vapour barrier	Is often used to refer to any material for damp proofing, typically a plastic or foil sheet
Wall string	The string of a staircase that is fixed flush with a wall.
Winder tread	Tread with a greater run on one side than the other. Used on circular, spiral or winder staircases.
Wreathed stair string	A curved string or handrail.

Unit 201/601 Health, safety and welfare in construction

UAN:	A/504/6719
Level:	2
Credit value:	7
GLH:	70
Endorsement by a sector or regulatory body:	This unit is endorsed by Construction Skills, the Sector Skills Council for the construction industry.
Aim:	The aim of this unit is to provide the learner with the knowledge to carry out safe working practices in construction, in relation to sourcing relevant safety information and using the relevant safety procedures at work

Learning outcome
The learner will: 1. know the health and safety regulations, roles and responsibilities
Assessment criteria
The learner can: 1.1 identify **health and safety legislation** relevant to and used in the construction environment 1.2 state **employer and employee responsibilities** under the Health and Safety at Work Act (HASWA) 1.3 state **roles and responsibilities** of the Health and Safety Executive (HSE) 1.4 identify **organisations** providing relevant health and safety information 1.5 state the importance of holding on-site safety inductions and toolbox talks.

Range
Health and safety legislation Health and Safety at Work Act, Reporting Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR), Control of Substances Hazardous to Health (COSHH), Construction, Design and Management (CDM) regulations , Provision and Use of Work Equipment Regulations (PUWER), manual handling operations Regulations, Personal Protective Equipment (PPE) at Work Regulations, Work at Height Regulations, Control of Noise at Work Regulations, Control of Vibration at Work Regulations , Electricity at Work Regulations, Lifting operations and Lifting Equipment Regulations (LOLER) **Employer responsibilities** Safe working environment, adequate staff training, health and safety information, site inductions, toolbox talks, risk assessment, supervision, PPE, reporting hazards, accidents and near misses, sections 2 to 9 of Health and Safety at Work Act, CDM reg's, construction phase plans, welfare, display public liability Insurance and health and safety law poster. **Employee responsibilities** Working safely, working in partnership with the employer, reporting hazards, accidents and near misses, following organisational procedures as per Sections 2 to 9 of Health and Safety at Work Act. **Roles and responsibilities:** Enforcement (including fees for intervention), legislation and advice, inspection, investigation eg site investigations. **Organisations** Health and Safety Executive (HSE) website, Institute of Occupational Safety and Health, British Safety Council, 'manufacturer', ROSPA.

Learning outcome
The learner will: 2. know accident and emergency reporting procedures and documentation
Assessment criteria
The learner can: 2.1 state legislation used for reporting accidents 2.2 state major **types of emergencies** that could occur in the workplace 2.3 identify reportable injuries, diseases and dangerous occurrences as per RIDDOR 2.4 state main types of **records** used in the event of an accident, emergency and near miss and reasons for reporting them

2.5	identify **authorised personnel** involved in dealing with accident and emergency situations
2.6	state **actions** to take when discovering an accident.

Range
Types of emergencies Fires, security incidents, gas leaks. Records: Accident book, first aid records, organisational records and documentation. Authorised personnel First aiders, supervisors/managers, health and safety executive, emergency services, safety officer. Actions Area made safe, call for help, emergency services.

Learning outcome
The learner will: 3. know how to identify hazards in the workplace
Assessment criteria
The learner can: 3.1 state the importance of **good housekeeping** 3.2 state reasons for risk assessments and method statements 3.3 identify **types of hazards** in the workplace 3.4 state the importance of the correct storage of combustibles and chemicals on site 3.5 identify different **signs and safety notices** used in the workplace.

Range
Good housekeeping: Cleanliness, tidiness, use of skips and chutes, segregation of materials, clear access to fire escapes, clear access to fire extinguishers. Types of hazards: Fires, slips, trips and falls, hazardous substances (relating to inhalation, absorption, exposure, ingestion, cross-contamination), electrical, asbestos, manual handling, plant and vehicle movement, adverse weather. Signs and safety notices: Prohibition, mandatory, warning, safe condition, supplementary.

Learning outcome
The learner will: 4. know about health and welfare in the workplace
Assessment criteria
The learner can: 4.1 identify requirements for welfare facilities in the workplace as per Construction Design Management (CDM) 4.2 state health effects of noise and **precautions** that can be taken 4.3 state **risks** associated with drugs, alcohol and medication which could affect performance in the workplace.

Range
Precautions Reducing noise at source, PPE, isolation, exposure time. Risks Reduced risk perception, loss of concentration, balance problems, absenteeism and reduced productivity.

Learning outcome
The learner will: 5. know how to handle materials and equipment safely
Assessment criteria
The learner can: 5.1 identify legislation relating to safe handling of materials and equipment 5.2 state procedures for safe lifting and manual handling activities in accordance with guidance and legislation 5.3 state the importance of using **lifting aids** when handling materials and equipment.

Range
Lifting aids Wheelbarrow, sack barrow, mechanical lifting aids, pallet truck.

Learning outcome
The learner will: 6. know about access equipment and working at heights
Assessment criteria
The learner can: 6.1 identify legislation relating to working at heights 6.2 identify types of **access equipment**

6.3 state **safe methods** of use for **access equipment** 6.4 identify **dangers** of working at height.

Range
Access equipment: Stepladders, ladders (pole, extension), trestles, hop-ups, proprietary scaffolding, podium, stilts Safe methods Regular inspection, check for broken, damaged or missing components, responsible use, consideration of adverse weather conditions, good housekeeping Dangers Falling tools, falling equipment, falling materials, persons falling from height (injuries to themselves and others).

Learning outcome
The learner will: 7. know how to work with electrical equipment in the workplace
Assessment criteria
The learner can: 7.1 state **precautions** to take to avoid risks to self and others when working with electrical equipment 7.2 state **dangers** of using electrical equipment 7.3 identify **voltages** and voltage colour coding that are used in the workplace 7.4 state **methods** of storing electrical equipment.

Range
Precautions Check leads, check plugs, use of cable hangers, check tools and equipment, current valid PAT certificate Dangers: Burns, electrocution, fire. Voltages Battery powered, 110/115 volts, 230/240 volts and 415 volts. Methods Components present, equipment cleaned, checked for damage, stored in a clean and secure location.

Learning outcome

The learner will: 8. know how to use Personal Protective Equipment (PPE)
Assessment criteria
The learner can: 8.1 state the legislation governing use of Personal Protective Equipment (PPE) 8.2 state **types of PPE** used in the workplace 8.3 state the importance of PPE 8.4 state why it is important to store, maintain and use PPE correctly 8.5 state the importance of checking and reporting damaged PPE.

Range
PPE: Head protection, eye protection, ear protection, face/dust masks, breathing apparatus, high visibility clothing, safety footwear, gloves, sun protection, barrier cream, water proofs, knee pads, overalls/disposable clothing

Learning outcome
The learner will: 9. know the cause of fire and fire emergency procedures
Assessment criteria
The learner can: 9.1 state **elements** essential to creating a fire 9.2 identify methods of fire prevention 9.3 state actions to be taken on discovering a fire 9.4 state **types of fire extinguishers** and their uses.

Range
Elements Oxygen, fuel, heat. Types of fire extinguishers: Water, foam, CO2, dry powder.

Unit 301/701 Principles of organising, planning and pricing construction work

UAN:	F/504/7029
Level:	3
Credit value:	7
GLH:	67
Endorsement by a sector or regulatory body:	This unit is endorsed by ConstructionSkills
Aim:	The aim of this unit is to provide the learner with the knowledge of building methods and construction technology in relation to: • understanding a range of building materials used within the construction industry and their suitability to the construction of modern buildings. • organise the building process and communicate the design to work colleagues and others.

Learning outcome
The learner will: 10. understand different types of drawn information in construction
Assessment criteria
The learner can: 10.1 compare advantages and disadvantages of computer-aided design (CAD) programs to traditional drawing methods 10.2 explain **information** required to produce orthographic projection drawings 10.3 explain the process and purpose of producing a schedule from a drawing 10.4 explain the **benefits** of isometric projection drawings 10.5 explain **information** required to produce isometric projection drawings.

Range
Information (AC1.2) Room dimensions, heights, width, sizes, heights and positions of walls, doors and window specifications, building regulations Benefits Pictorial view of an object, assembly or design. Helps the client, customer, supplier or non-technical person understand how the finished product will look or what is required. Information (AC1.5) Isometric axis, positioning and required view of the object, lines or surfaces relative to isometric axis. Object dimensions and scale.

Learning outcome
The learner will: 11. understand energy efficiency and sustainable materials for construction
Assessment criteria
The learner can: 11.1 evaluate the uses of thermally insulated **materials** 11.2 describe **construction methods** used to insulate against heat loss and gain 11.3 compare thermal values of **wall construction** 11.4 explain the purpose of an Energy Performance Certificate (EPC) 11.5 describe **sustainable materials** and their use in construction.

Range
Materials Polyisocyanurate (PIR), expanded polystyrene (EP) fibre glass, sheep wool, mineral wool, double glazed units, multi-foil insulation. construction methods location of insulation, selection of materials, compliance with Building Regulations Wall construction Cavity, solid and timber frame Sustainable materials Locally sourced, managed timber (FSC), recycled materials.

Learning outcome
The learner will:

12. understand how to estimate quantities and price work for construction
Assessment criteria
The learner can: 12.1 describe how to estimate quantities of construction materials 12.2 describe **information required** to prepare a materials list using a schedule 12.3 explain the purpose of preferred suppliers lists when ordering materials 12.4 explain the purpose of the Bill of quantities 12.5 explain the purpose of the tendering process 12.6 explain the difference between quoting and estimating 12.7 calculate waste percentages for a construction task 12.8 describe the **information required** to prepare a quote.

Range
information required (AC3.2) Quantity, quality, colour, dimensions, location, installation details Information required (AC3.8) Labour, operational costs, VAT, material cost

Learning outcome
The learner will: 13. understand how to plan work activities for construction
Assessment criteria
The learner can: 13.1 outline the benefits of **planning** the sequence of material and labour requirements 13.2 outline advantages and disadvantages of purchasing or hiring plant and equipment 13.3 identify **planning methods** 13.4 identify information required to produce a GANTT chart for a building project.

Range
Planning Programmes of work, stock systems, critical path analysis, lead times, schedules, Gantt chart. Planning methods GANTT chart, critical path analysis.

Learning outcome
The learner will: 14. understand how to communicate effectively in the workplace

Assessment criteria
The learner can: 14.1 explain the purpose of **site documentation** 14.2 identify information to create an agenda for a meeting 14.3 explain information required to prepare a toolbox talk and site induction 14.4 explain the purpose of a site survey and the information required to prepare a **defects** list 14.5 describe information required to prepare written communications to resolve **problems.**

Range
Site documentation Organisation chart, method statement, risk assessment, manufacturers' technical information, delivery notes, variation orders, permits to work, diaries, minutes, memos. Defects Poor standard of work, poor quality of materials, damaged materials, human error Problems: Delivery, materials, quality, human resources.

Unit 308 Set up and use fixed and transportable machinery

UAN:	T/504/6766
Level:	3
Credit value:	13
GLH:	110
Endorsement by a sector or regulatory body:	This unit is endorsed by ConstructionSkills
Aim:	The aim of this unit is to provide the learner with the skills to: • set up, perform basic maintenance on, and use fixed and transportable machinery • make checks before start-up to ensure efficiency and safety. The skills developed by the learner include the ability to: • use circular saws, planers, thicknessers, bandsaws, morticers • use associated safety aids • produce joinery components.

Learning outcome
The learner will: 1. understand how to inspect and maintain fixed and transportable machinery
Assessment criteria
The learner can: 1.1 describe the **components** of fixed and transportable machinery 1.2 interpret **information** relating to fixed and transportable **machinery** 1.3 describe the process of inspecting for **faults** and **maintaining** fixed and transportable **machinery** 1.4 explain the procedures for changing fixed and transportable machinery **tooling** safely 1.5 explain **actions** taken upon finding **faults** to fixed and transportable **machinery**.

Range
Components

Rip saws: guards, extraction points, fences, riving knife, bed, blade, information plate, mouth and packing piece, on/off button, adjusting mechanisms

Crosscut saws: guards, fence, length stops, bed, retracting and adjusting mechanisms, information plate, blade, on/off button, extraction points,

Surface planer: infeed, outfeed table, fence, guarding, adjustment mechanism, cutter block, information plate, on/off button, extraction points

Thicknesser: infeed, offeed rollers, anti-kickback fingers, pressure bar, cutter block, extraction points, on/off button, adjustment mechanism, feed speed adjustment

Narrow bandsaws: bed, throat, thrust wheel, guides, guards, tracking and tensioning adjustment mechanism, information plate, on/off button, extraction points,

Morticers: bed, cramp, adjustment, depth stop, collar, chuck, collet, lever handle,

Machinery

Saws (crosscut, rip), surface planer and thicknesser, narrow bandsaws, morticers

Information

Manufacturers' literature, schedules, regulations

Faults

Damage, DIY repair, missing riving knife, badly fitting or missing guards, poor wiring, lack of maintenance, inadequate or blocked extraction, unsafe work area, inadequate braking, blunt tooling

Maintaining

Grease points, moving parts, tensions, belts, tooling

Tooling

Bandsaw and circular saw blades, knives, mortice chisel and auger bits

Actions

Isolate, record, take the appropriate action, repair if appropriate.

Learning outcome
The learner will: 2. be able to inspect and maintain fixed and transportable machinery
Assessment criteria
The learner can: 2.1 carry out risk assessment for inspecting and maintaining fixed and transportable **machinery** 2.2 inspect machinery and ensure it is in good running order 2.3 follow the appropriate **actions** on identification of **faults** in machinery

2.4	**maintain** machinery in accordance with manufacturers' instructions and regulations
2.5	change **tooling** and adjust **components** on fixed and transportable machinery
2.6	follow current environmental and relevant health and safety **regulations** relating to inspecting and maintaining fixed and transportable machinery.

Range
Machinery Saws (crosscut, rip), surface planer and thicknesser, narrow bandsaws, morticers Actions Isolate, record, inform the appropriate people, repair if appropriate Faults Damage, DIY repair, missing riving knife, badly fitting or missing guards, poor wiring, lack of maintenance, inadequate or blocked extraction, unsafe work area, inadequate braking, blunt or inappropriate tooling Maintain Grease points, moving parts, tensions, belts Tooling Bandsaw and circular saw blades, knives, mortice chisel and auger bits Components Rip saw: guards, riving knife, mouth and packing piece Crosscut saw: guards Surface planer: infeed, outfeed table, guarding, cutter block Thicknesser, cutter block, narrow bandsaws, thrust wheel, guides, guards, tracking and tensioning adjustment mechanism Morticers: collar, chuck, collet Regulations Provision and Use of Work Equipment Regulations (PUWER), Approved Code of Practice (ACoP), Personal Protective Equipment at Work (PPE), Control of Substances Hazardous to Health (COSHH), Vibration at Work Regulations, Control of Noise at Work Regulations, current environmental.

Learning outcome
The learner will: 3. understand how to use fixed and transportable machinery efficiently and safely
Assessment criteria
The learner can: 3.1 describe fixed and transportable machinery **tooling** 3.2 describe potential **hazards** when using fixed and transportable machinery 3.3 describe methods of using **fixed** and **transportable machinery** safely 3.4 describe **methods** of supporting materials when using fixed and transportable machinery.

Range
Tooling Bandsaw and circular saw blades, knives, mortice chisel and auger bits **Hazards** Missing, faulty or incorrectly set guarding, blunt or incorrectly fitted tooling, untidy work environments (dust, off cuts) **Machinery** **Fixed** - saws (crosscut, rip), surface planer and thicknesser, narrow bandsaws, morticers **Transportable** - saws (chop, hand held circular and jigsaw), planer, router, drills, sanders **Methods** Use of the outfeed table, rollers, additional manual support.

Learning outcome
The learner will: 4. be able to use fixed and transportable machinery efficiently and safely
Assessment criteria
The learner can: 4.1 carry out risk assessment for using fixed and transportable machinery 4.2 **cut** material using a narrow bandsaw 4.3 **cut** material using a crosscut saw 4.4 **cut** material using a rip saw 4.5 **cut** material using a surface planer 4.6 **cut** material using a thicknesser 4.7 **cut** material using a morticer 4.8 follow current environmental and relevant health and safety **regulations** relating to using fixed and transportable machinery efficiently and safely.

Range
Cut (4.2) Straight, curved, angled Cut (4.3) Straight Cut (4.4) Straight, bevel, taper using push sticks, jigs (saddle, wedge) Cut (4.5) Face side, face edge Cut (4.6) Width, thickness, bevel, taper Cut (4.7) Through, stub, haunched mortice Regulations Provision and Use of Work Equipment Regulations (PUWER), Approved Code of Practice (ACoP), Personal Protective Equipment at Work (PPE), Control of Substances Hazardous to Health (COSHH), Vibration at Work Regulations, Control of Noise at Work Regulations, current environmental.

Unit 309 Manufacture shaped doors and frames

UAN:	A/504/6770
Level:	3
Credit value:	12
GLH:	103
Endorsement by a sector or regulatory body:	This unit is endorsed by ConstructionSkills
Aim:	The aim of this unit is to provide the learner with the skills to set out, manufacture, assemble and finish shaped doors and frames.

Learning outcome
The learner will: 1. understand how to set out shaped doors and frames
Assessment criteria
The learner can: 1.1 interpret **information** used for setting out **shaped** doors and frames 1.2 explain what **information** is collected from a site survey 1.3 describe **tools and equipment** used for setting out shaped doors and frames 1.4 describe **methods** used to set out shaped doors and frames 1.5 describe different construction **methods** of forming curved components 1.6 describe **jointing details** required for shaped doors and frames 1.7 describe information required to produce a cutting list 1.8 explain how to record and rectify **discrepancies** in information.

Range
Information (1.1) Scale drawings, job sheets, specifications, schedules, Building Regulations, manufacturer's catalogues **Shaped** (single curvature) In elevation: arches, gothic, semi-circular, elliptical (true, pseudo), segmental

In plan: segmental

Information (1.2)
Detailed sizes and shapes, profiles of existing work, images, templates

Tools and equipment
Set squares, trammel heads and beam, dividers, trammel frame, string, drawing board, computer aided design (CAD), plotter

Methods (1.4)
Full size geometrical drawing, patterns, CAD

Methods (1.5)
Built up, laminated, solid

Jointing details
Built up, laminated, hammer headed tenon and key joint, loose tenons, handrail bolts, dovetail key joint

Discrepancies
Between information sources in 1.1 and 1.2.

Learning outcome
The learner will: 2. be able to set out shaped doors and frames
Assessment criteria
The learner can: 2.1 carry out risk assessment for setting out **shaped** doors and frames 2.2 set out shaped doors and frames 2.3 produce templates for curved components 2.4 produce a cutting list 2.5 follow current environmental and relevant health and safety **regulations** in relation to setting out shaped doors and frames.

Range
Shaped (single curvature) Arches: Gothic, semi-circular, elliptical (true, pseudo) In plan: segmental Regulations Provision and Use of Work Equipment Regulations (PUWER), Personal Protective Equipment at Work (PPE), Building Regulations, Vibration at Work Regulations, Control of Noise at Work Regulations, Manual Handling Regulations, Working at Height Regulations, current environmental.

Learning outcome
The learner will: 3. understand how to manufacture shaped doors and frames
Assessment criteria
The learner can: 3.1 describe how materials are **selected** when manufacturing shaped doors and frames 3.2 explain the process of setting up and using **machines** to produce materials from cutting list 3.3 explain the process of forming spindle moulder jigs from templates to meet current regulations 3.4 explain the process of setting up and using machines to form joints 3.5 explain the process of setting up and using spindle moulder and router to profile materials.

Range
Selected Avoid defects, consider grain characteristics Machines Crosscut and rip saw, surface planer and thicknesser, Current regulations PUWER, ACoP Machines Morticer, band saw.

Learning outcome
The learner will: 4. be able to manufacture shaped doors and frames
Assessment criteria
The learner can: 4.1 carry out risk assessment for manufacturing shaped doors and frames 4.2 **select** materials for manufacturing shaped doors and frames 4.3 use **machines** to produce materials from cutting list 4.4 mark out materials from setting out details 4.5 form spindle moulder jigs from templates 4.6 use **machines** to form joints 4.7 use spindle moulder and router to profile materials 4.8 follow current environmental and relevant health and safety **regulations** in relation to manufacturing shaped doors and frames.

Range
Select Avoid defects, consider grain characteristics Machines (4.3) Crosscut and rip saw, surface planer and thicknesser Machines (4.6) Morticer, band saw Regulations Provision and Use of Work Equipment Regulations (PUWER), Personal Protective Equipment at Work (PPE), Building Regulations, Vibration at Work Regulations, Control of Noise at Work Regulations, Manual Handling Regulations, Working at Height Regulations, current environmental.

Learning outcome
The learner will: 5. understand how to assemble and finish shaped doors and frames
Assessment criteria
The learner can: 5.1 explain the **reasons** for dry fitting **products** prior to assembly 5.2 describe **cramping techniques** 5.3 describe the process of assembling and finishing products.

Range
Reasons Check the joints, finished size and shape Products Shaped doors and frames Cramping techniques Strap and ratchet, jigs and cramps, draw-bore pins and dowels, cramping heads, joiners dogs, vacuum bags.

Learning outcome
The learner will: 6. be able to assemble and finish shaped doors and frames
Assessment criteria
The learner can: 6.1 carry out risk assessment for assembling and finishing shaped doors and frames 6.2 dry fit to check the joints, finished size and shape 6.3 clean up the inside edges of components 6.4 select and set up appropriate **cramping techniques**

6.5	assemble with adhesive and cramp
6.6	carry out **quality checks**
6.7	prepare products to receive finishes as in given specifications
6.8	follow current environmental and relevant health and safety **regulations** in relation to assembling and finishing shaped doors and frames.

Range
Cramping techniques Strap and ratchet, jigs and cramps, draw-bore pins and dowels, cramping heads, joiners dogs, vacuum bags Quality checks Square, wind, size, shape Regulations Provision and Use of Work Equipment Regulations (PUWER), Personal Protective Equipment at Work (PPE), Building Regulations, Vibration at Work Regulations, Control of Noise at Work Regulations, Manual Handling Regulations, Working at Height Regulations, current environmental.

Unit 309 Manufacture shaped doors and frames

Supporting information

Additional guidance for the delivery of woodworking machine training covered in this unit

Before any group of learners is allowed to use woodworking machinery a risk assessment should be carried out to help identify learner suitability, maturity and supervision ratios.

While learning and training is in its early stages it is expected that the supervision level would be high and group demonstration and practice would be used.

The trainer must be someone who knows the machining process, its risks and the safe working practices that should be used.

As the learners begin to demonstrate safe working practices and show confidence in using the machines involved within the training program then a gradual move away from group leaning should be allowed.

All wood machining training schemes, including those as part of a joinery qualification, should include the following elements:

- General skills
- Machine-specific skills
- Machine familiarisation
- Demonstrating competence
- Competence checklist
- Record keeping

General skills

General health and safety skills include an awareness of the health and safety risks and how to control them by:

- current regulations and approved codes of practice
- extraction
- noise
- correct use of lifting aids
- correct use of protective equipment for eyes ears and hands etc.
- keeping the workshop safe and tidy
- sensible behaviour
- awareness of other operators.

Machine-specific skills

Operators need practical and theoretical instruction in the safe operation of all machines covered within the training programme, including:

- main causes of accidents

- responsibility for their own safety, and others who may be affected by their working practices
- importance of reporting defects to responsible people
- dangers and limitations of working practices and ancillary equipment, for example:
    - safety aides like push stick and blocks
    - the risks from delivery and taking off material
    - dropping on
    - kickback
    - jigs
    - types and correct use of tooling
    - timber selection
    - curved working
- knowledge and demonstration of safe working practices for each stage of the process, for example:
    - machine isolation, emergency stops, interlocks and speed controls
    - purpose, use, limitation and adjustment of guards
    - setting up, correct tool section and changing/replacing tooling
    - selecting and fitting correct guarding for machining process
    - prestart safety procedures including extraction, ear protection and safety glasses
    - operation the machine for the different machining process
    - maintenance and fault reporting procedures

Machine familiarisation

All learners should be familiar with the machine, its ancillary equipment and machining processes including on-the-job training under close supervision.

Demonstrating competence

After the training has taken place the operator's competence should be assessed to see if the training has been successful. The assessor must be someone who knows the machining process, its risks and the safe working practices that should be used.

Operators can only be classed as competent when they can demonstrate that they use the required knowledge and safe working practice at all times.

Competence checklist

A competent worker should be able to demonstrate:

- that they can select the correct machine, tooling and protection devices
- the ability and confidence to say 'this is the wrong machine for this job; it can be done more safely on…'
- what the guards do and how to use and adjust them properly, as well as any other protection devices. For example
    - on a circular saw, why a riving knife is needed and how to set it and adjust the top guard

    - on a spindle, why end stops are needed for “dropping on”, how are they set, how to fit and use guards while using end stops
- knowledge of safe methods of working including appropriate selection of jigs, holders, push-sticks and similar protection appliances
- their understanding of the legal requirements for the guards to be used correctly
- knowledge of the nature of the wood and the hazards that this can cause, such as kickback, snatching, short grain and ejection.

Keeping records

While undergoing training it is good practice to keep written records for each learner on the types of training they have received. Once the learner has received the necessary training and has demonstrated their competence, it is good practice to authorise them in writing for the machines and operations that they can use.

Unit 310 Manufacture stairs with turns

UAN:	L/504/6773
Level:	3
Credit value:	12
GLH:	107
Endorsement by a sector or regulatory body:	This unit is endorsed by ConstructionSkills
Aim:	The aim of this unit is to provide the learner with the skills to set out, manufacture, assemble and finish stairs with turns

Learning outcome
The learner will: 1. understand how to set out stairs with turns
Assessment criteria
The learner can: 1.1 interpret **information** used for setting out **stairs** 1.2 explain what **information** is collected from a site survey 1.3 describe **tools and equipment** used for setting out stairs 1.4 describe the requirements of current **Building Regulations** in relation to stairs 1.5 describe stair **calculations** required to comply with **Building Regulations** 1.6 describe **methods** used to set out stairs 1.7 describe different construction **methods** of forming turning stairs 1.8 describe **jointing details** required for **stairs** and **handrails** 1.9 describe turning stair **components** 1.10 describe information required to produce a cutting list 1.11 explain how to record and rectify **discrepancies** in information.

Range
Information (1.1) Scale drawings, job sheets, specifications, schedules, Building Regulations, manufacturer's catalogues **Stairs** Geometrical, winding, landing

Information (1.2)
Accessibility, openings, head room, finish floor levels, available going, total rise, landing clearance, dimensions,

Tools and equipment
Set squares, trammel heads and beam, dividers , CAD, roofing square and fence

Building regulations
Approved document K

Calculations
Rise, going, pitch

Methods (1.6)
Full size geometrical drawing, templates, Pythagoras' theorem

Methods (1.7)
Built up (staved), laminated, solid

Jointing details
Stairs
Mortice and tenon, housing, housing joints, widening joints, fixings, dowels, handrail bolt, counter cramp, bareface tenon
Handrails
Shaped in plan or elevation only

Components
Strings (Wall, well, wreathed, closed, cut), carriage and bracketing, handrail, newels, riser (open, closed), decorative bracket, tread, glue block, wedges, spindles/baluster, bull nose, semi-circular ending, curtail, commode steps, apron, nosing, scotia

Discrepancies
Between information sources in 1.1 and 1.2.

Learning outcome
The learner will: 2. be able to set out stairs with turns
Assessment criteria
The learner can: 2.1 carry out risk assessment for setting out stairs with **turns** 2.2 set out stairs with turns 2.3 produce templates for stairs with turns 2.4 produce a cutting list 2.5 follow current environmental and relevant health and safety **regulations** in relation to setting out stairs with turns.

Range
Turns Quarter and half turn landings, geometrical, winding Regulations Provision and Use of Work Equipment Regulations (PUWER), Personal Protective Equipment at Work (PPE), Building Regulations, Vibration at Work Regulations, Control of Noise at Work Regulations, Manual Handling Regulations, Working at Height Regulations, current environmental.

Learning outcome
The learner will: 3. understand how to manufacture stairs with turns
Assessment criteria
The learner can: 3.1 describe how materials are **selected** when manufacturing stairs with turns 3.2 explain the process of setting up and using **machines** to produce materials from cutting list 3.3 explain the process of forming and using stair jigs for string housings 3.4 explain the process of setting up and using a morticer to form joints 3.5 explain the process of manufacturing **strings** 3.6 explain the process of manufacturing **steps**.

Range
Selected Avoid defects, consider grain characteristics Machines Crosscut and rip saw, surface planer and thicknesser, morticer, bandsaw Strings Wall, well, wreathed, closed, cut Steps Treads (straight and tapered), risers (open and closed).

Learning outcome
The learner will: 4. be able to manufacture stairs with turns
Assessment criteria

The learner can:

4.1 carry out risk assessment for manufacturing stairs with turns

4.2 select materials for manufacturing stairs with turns

4.3 set up and use **machines** to produce materials from cutting list

4.4 mark out materials from setting out details

4.5 manufacture stair **components** to given specifications

4.6 follow current environmental and relevant health and safety **regulations** in relation to manufacturing stairs with turns.

Range
Machines Crosscut and rip saw, surface planer, thicknesser and morticer, bandsaw Components Bull nosed, parallel and tapered steps, bottom newel, eased wall and well strings Regulations Provision and Use of Work Equipment Regulations (PUWER), Personal Protective Equipment at Work (PPE), Building Regulations, Vibration at Work Regulations, Control of Noise at Work Regulations, Manual Handling Regulations, Working at Height Regulations, current environmental, ACoP

Learning outcome
The learner will: 5. understand how to assemble and finish stairs with turns
Assessment criteria
The learner can: 5.1 explain the **reasons** for dry fitting stairs prior to assembly 5.2 describe **cramping techniques** 5.3 describe the process of assembling and finishing stairs with turns 5.4 state which stair components are left loose for site assembly.

Range
Reasons Check the joints, finished size and shape Cramping techniques Cramps, draw-bore pins and dowels.

Learning outcome
The learner will: 6. be able to assemble and finish stairs with turns
Assessment criteria
The learner can: 6.1 carry out risk assessment for assembling and finishing stairs with turns 6.2 dry fit to check the joints, finished size and shape 6.3 clean up the inside edges of components 6.4 select and set up appropriate **cramping techniques** 6.5 assemble with adhesive, cramp and wedge 6.6 carry out **quality checks** 6.7 prepare products to receive finishes as in given specification 6.8 follow current environmental and relevant health and safety **regulations** in relation to assembling and finishing stairs with turns.

Range
Cramping techniques Cramps, draw-bore pins and dowels Quality checks Square, wind, size, shape Regulations Provision and Use of Work Equipment Regulations (PUWER), Personal Protective Equipment at Work (PPE), Building Regulations, Vibration at Work Regulations, Control of Noise at Work Regulations, Manual Handling Regulations, Working at Height Regulations, current environmental, ACoP

Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centres and Training Providers homepage** on **www.cityandguilds.com**.

Centre Manual - Supporting Customer Excellence contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues. Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

Our Quality Assurance Requirements encompasses all of the relevant requirements of key regulatory documents such as:

- Regulatory Arrangements for the Qualifications and Credit Framework (2008)
- SQA Awarding Body Criteria (2007)

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

Access to Assessment & Qualifications provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information on such things as:

- **Walled Garden:** how to register and certificate candidates on line
- **Events**: dates and information on the latest Centre events
- **Online assessment**: how to register for e-assessments.

Useful contacts

UK learners General qualification information	T: +44 (0)844 543 0033 E: learnersupport@cityandguilds.com
International learners General qualification information	T: +44 (0)844 543 0033 F: +44 (0)20 7294 2413 E: intcg@cityandguilds.com
Centres Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: centresupport@cityandguilds.com
Single subject qualifications Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 F: +44 (0)20 7294 2404 (BB forms) E: singlesubjects@cityandguilds.com
International awards Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: intops@cityandguilds.com
Walled Garden Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: walledgarden@cityandguilds.com
Employer Employer solutions, Mapping, Accreditation, Development Skills, Consultancy	T: +44 (0)121 503 8993 E: business@cityandguilds.com
Publications Logbooks, Centre documents, Forms, Free literature	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413

If you have a complaint, or any suggestions for improvement about any of the services that we provide, email: feedbackandcomplaints@cityandguilds.com

About City & Guilds

As the UK's leading vocational education organisation, City & Guilds is leading the talent revolution by inspiring people to unlock their potential and develop their skills. We offer over 500 qualifications across 28 industries through 8500 centres worldwide and award around two million certificates every year. City & Guilds is recognised and respected by employers across the world as a sign of quality and exceptional training.

City & Guilds Group

The City & Guilds Group operates from three major hubs: London (servicing Europe, the Caribbean and Americas), Johannesburg (servicing Africa), and Singapore (servicing Asia, Australia and New Zealand). The Group also includes the Institute of Leadership & Management (management and leadership qualifications), City & Guilds Licence to Practice (land-based qualifications), the Centre for Skills Development (CSD works to improve the policy and practice of vocational education and training worldwide) and Learning Assistant (an online e-portfolio).

Published by City & Guilds, a registered charity established to promote education and training

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HB-05-6706