

# **Level 3 Advanced Technical Diploma in Architectural Joinery (450) (7906- 31)**

**Version 1.6 (September 2024)**

**Qualification Handbook Technicals**

## Qualification at a glance

<b>Industry area</b>	Construction
<b>City &amp; Guilds qualification number</b>	7906-31
<b>Age group</b>	16-19 (Key Stage 5), 19+
<b>Entry requirements</b>	Centres must ensure that any prerequisites stated in the <i>What is this qualification about?</i> section are met.
<b>Assessment</b>	To gain this qualification, candidates must successfully achieve the following assessments: <ul style="list-style-type: none"> <li>• one externally set, externally moderated assignment</li> <li>• one externally set, externally marked exam, sat under examination conditions.</li> </ul>
<b>Additional requirements to gain this qualification</b>	Employer involvement in the delivery and/or assessment of this qualification is essential for all candidates and will be externally quality assured.
<b>Grading</b>	This qualification is graded Pass/Merit/Distinction/Distinction* For more information on grading, please see Section 7: Grading.
<b>Approvals</b>	These qualifications require full centre and qualification approval.
<b>Support materials</b>	Sample assessments Guidance for delivery Guidance on use of marking grids
<b>Registration and certification</b>	Registration and certification of this qualification is through the Walled Garden, and is subject to end dates.
<b>External quality assurance</b>	This qualification is externally quality assured by City & Guilds, and its internally marked assignments are subject to external moderation. There is no direct claim status available for this qualification.

Title and level	GLH	TQT	City & Guilds qualification number	Ofqual accreditation number
Level 3 Advanced Technical Diploma in Architectural Joinery (450)	450	720	7906-31	601/7419/5

Version and date	Change detail	Section
May 2016 V1.2	Small typographical errors	Throughout
	TQT added for qualifications	1. Introduction
	Assessment component titles amended	
	Employer involvement guidance updated throughout	4. Employer involvement
	Summary of assessment methods and conditions	5. Assessment
	Moderation and standardisation of assessment updated throughout	6. Moderation and standardisation of assessment
	Awarding individual assessments	7. Grading
	Awarding grades and reporting results	
June 2017 V1.3	Enquiries about results	8. Administration
	Re-sits and shelf-life of assessment results	
	Malpractice	
	Access arrangements and special consideration	
	Addition of the examination paper based module number	1. Introduction – Assessment requirements and employer involvement 5. Assessment 5. Assessment – exam Specification 7. Grading – Awarding grades and reporting results
	Removal of AO 6-8 from Synoptic Assignments	5. Assessment – Assessment Objectives
	Addition of Provisional Grade Boundaries for the Synoptic Assignment	7. Grading
	Revised Exam Specification and AO weightings	5. Assessment – Exam Specification
	Branding Changes	Throughout
	Range added	Unit 306 LO 2.1

Version and date	Change detail	Section
November 2017 V1.4	AO weightings amended.	5. Assessment – Exam Specification
May 2019 V1.5	Wording changed regarding retakes	5. Assessment – Summary of assessment methods and conditions  8. Administration – Re-sits and shelf-life of assessment results
September 2024 V1.6	Removal of evolve onscreen exam option (003)	Assessment requirements and employer involvement

# Contents

<b>1</b>	<b>Introduction</b>	<b>7</b>
	What is this qualification about?	7
	Qualification structure	9
	Total qualification time (TQT)	9
	Assessment requirements and employer involvement	10
<b>2</b>	<b>Centre requirements</b>	<b>11</b>
	Approval	11
	Resource requirements	11
	Learner entry requirements	11
<b>3</b>	<b>Delivering technical qualifications</b>	<b>12</b>
	Initial assessment and induction	12
	Employer involvement	12
	Support materials	12
<b>4</b>	<b>Employer involvement</b>	<b>13</b>
	Qualification approval	13
	Monitoring and reporting learner engagement	13
	Types of involvement	14
	Types of evidence	16
	Quality assurance process	16
	Sufficiency of involvement for each learner	16
	Live involvement	16
	Timing	16
<b>5</b>	<b>Assessment</b>	<b>17</b>
	Summary of assessment methods and conditions	17
	What is synoptic assessment?	18
	How the assignment is synoptic for this qualification	18
	External exam for stretch, challenge and integration	18
	Assessment objectives	19
	Exam specification	21
<b>6</b>	<b>Moderation and standardisation of assessment</b>	<b>22</b>
	Supervision and authentication of internally assessed work	22
	Internal standardisation	22
	Provision for reworking evidence after submission for marking by the tutor	22
	Internal appeal	23
	Moderation	23
	Post-moderation procedures	23
	Centres retaining evidence	24
<b>7</b>	<b>Grading</b>	<b>25</b>
	Grade descriptors	25

<b>8</b>	<b>Administration</b>	<b>28</b>
	External quality assurance	28
	Enquiries about results	28
	Re-sits and shelf-life of assessment results	29
	Factors affecting individual learners	29
	Malpractice	29
	Access arrangements and special consideration	29
<b>Unit 301</b>	<b>Principles of organising, planning and pricing construction work</b>	<b>31</b>
<b>Unit 306</b>	<b>Set up and use fixed and transportable machinery</b>	<b>40</b>
<b>Unit 307</b>	<b>Manufacture curved joinery</b>	<b>47</b>
<b>Unit 308</b>	<b>Manufacture stairs with turns</b>	<b>55</b>
<b>Appendix 1</b>	<b>Sources of general information</b>	<b>60</b>

# 1 Introduction

## What is this qualification about?

The following purpose is for the **Level 3 Advanced Technical Diploma in Architectural Joinery (450) (601/7419/5)**

Area	Description
OVERVIEW	
Who is this qualification for?	<p>This qualification is aimed at you if you are looking to work in the construction industry specifically in architectural joinery. It will provide you with a range of specialist technical practical skills and knowledge, which will equip you to seek employment or further training in architectural joinery.</p> <p>While there are no formal entry requirements, a Level 2 Diploma in Architectural Joinery, or equivalent industry experience is recommended.</p> <p>This qualification is suitable for anyone over the age of 16 years.</p>
What does this qualification cover?	<p>This one year full time qualification covers a wide range of skills and knowledge required for working as an advanced craft architectural joiner. You will learn about the industry, including the principles of constructing buildings, and about the types of information used in building design and construction. You will learn about health, safety and environmental issues faced on construction sites, and how to communicate with others on the job, including supervisory skills such as planning, organising and pricing work. You will also learn practical skills specific to specialist architectural joinery.</p> <p>You will take four compulsory units in:</p> <ul style="list-style-type: none"><li>• Principles of organising, planning and pricing construction work</li><li>• Set up and use fixed and transportable machinery</li><li>• Manufacture curved joinery</li><li>• Manufacture stairs with turns</li></ul> <p>Centres and providers where you do your training, work with local employers who will contribute to the knowledge and delivery of this training. Employers will provide demonstrations and talks on the industry and where possible work placements will also be provided by the employers.</p>

## WHAT COULD THIS QUALIFICATION LEAD TO?

Will the qualification lead to employment, and if so, in which job role and at what level?

This qualification prepares you with the knowledge and practical skills required to become an advanced craftsperson in architectural joinery. This means you will be able to complete specialist, complex tasks and also work in a supervisory capacity in your chosen trade.

If you complete this qualification you will have an advantage over those who have not done it when seeking employment, either on a construction site or commercial or domestic premises. You may also become self-employed working as a joiner on new build, domestic repair and refurbishment projects.

Why choose this qualification over similar qualifications?

This particular qualification is intended and designed specifically for persons who have not gained employment in the construction industry, but wish to embark on career as an advanced craft architectural joiner within the industry.

Will the qualification lead to further learning?

It can lead to a construction apprenticeship programme or a Level 3 NVQ Diploma in Wood Occupations (Construction). On completion of the apprenticeship you will be competent as an advanced craft architectural joiner.

If you wish to progress to become a supervisor working on site, you may wish to study any of the following qualifications:

- Level 4 NVQ Diploma in Construction Site Supervision (Construction)
- Level 6 NVQ Diploma in Construction Site Management (Construction)

## WHO SUPPORTS THIS QUALIFICATION?

Employer/Higher Education Institutions

This qualification is supported by the Federation of Master Builders.



## Qualification structure

For the **Level 3 Advanced Technical Diploma in Architectural Joinery (450)** the teaching programme must cover the content detailed in the structure below:

Level 3 Advanced Technical Diploma in Architectural Joinery (450)		
Unit number	Unit title	GLH
<b>Mandatory</b>		
301	Principles of organising, planning and pricing construction work	90
306	Set up and use fixed and transportable machinery	90
307	Manufacture curved joinery	150
308	Manufacture stairs with turns	120

## Total qualification time (TQT)

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 Advanced Technical Diploma in Architectural Joinery (450)	450	720

## Assessment requirements and employer involvement

To achieve the **Level 3 Advanced Technical Diploma in Architectural Joinery (450)** candidates must successfully complete **all** the mandatory assessment components.

### Level 3 Advanced Technical Diploma in Architectural Joinery (450)

Component number	Title
<b>Mandatory</b>	
503	Level 3 Architectural Joinery - Theory exam (1)*
004	Level 3 Architectural Joinery - Synoptic assignment (1)*

**Note** – from 1 September 2023, centres may only enter candidates for the Level 3 Architectural Joinery - Theory exam assessment through the paper-based component (503). There is no option to take this assessment as an onscreen (evolve) exam.

Where candidates have previously successfully achieved an onscreen exam - the result will continue to count towards the Rules of Combination for this qualification.

In addition, candidates **must** achieve the mandatory employer involvement requirement for this qualification **before** they can be awarded a qualification grade. For more information, please see guidance in *Section 4: Employer involvement*.

### Employer involvement

Component number	Title
<b>Mandatory</b>	
831	Employer involvement

*\*Number of mandatory assessments per assessment type*

## 2 Centre requirements

### Approval

New centres will need to gain centre approval. Existing centres who wish to offer this qualification must go through City & Guilds' **full** Qualification Approval Process. There is no fast track approval for this qualification. Please refer to the City & Guilds website for further information on the approval process: [www.cityandguilds.com](http://www.cityandguilds.com)

### Resource requirements

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualification before designing a course programme.

#### Centre staffing

Staff delivering these qualifications must be able to demonstrate that they meet the following requirements:

- be technically competent in the areas in which they are delivering
- be able to deliver across the breadth and depth of the content of the qualification being taught
- have recent relevant teaching and assessment experience in the specific area they will be teaching, or be working towards this
- demonstrate continuing CPD.

#### Physical resources

Centres must be able to demonstrate that they have access to the equipment and technical resources required to deliver this qualification and its assessments.

#### Internal Quality Assurance

Internal quality assurance is key to ensuring accuracy and consistency of tutors and markers. Internal Quality Assurers (IQAs) monitor the work of all tutors involved with a qualification to ensure they are applying standards consistently throughout assessment activities. IQAs must have, and maintain, an appropriate level of technical competence and be qualified to make both marking and quality assurance decisions through a teaching qualification or recent, relevant experience.

### Learner entry requirements

Centres must ensure that all learners have the opportunity to gain the qualification through appropriate study and training, and that any prerequisites stated in the *What is this qualification about?* section are met when registering on this qualification.

#### Age restrictions

This qualification is approved for learners aged 16 – 19, 19+.

## 3 Delivering technical qualifications

### 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 learning or training needs,
- support and guidance they may need when working towards their qualification,
- the appropriate type and level of qualification.

We recommend that centres provide an introduction so that learners fully understand 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.

### Employer involvement

Employer involvement is essential to maximise the value of each learner's experience. Centres are required to involve employers in the delivery of technical qualifications at Key Stage 5 and/or their assessment, for every learner. This must be in place or planned before delivery programmes begin in order to gain qualification approval. See *Section 4: Employer involvement* for more detail.

### Support materials

The following resources are available for this qualification:

Description	How to access
Sample assessments	
Guidance for delivery	Available 2016 on the qualification pages on the City & Guilds website: <a href="http://www.cityandguilds.com">www.cityandguilds.com</a>
Guidance on use of marking grids	

## 4 Employer involvement

Employer involvement is a formal component of Key Stage 5 Technical qualifications. It does not contribute to the overall qualification grading, but is a mandatory requirement that all learners must meet. As such it is subject to external quality assurance by City & Guilds.

Department for Education (DfE) requirements state:

*Employer involvement in the delivery and/or assessment of technical qualifications provides a clear 'line of sight' to work, enriches learning, raises the credibility of the qualification in the eyes of employers, parents and students and furthers collaboration between the learning and skills sector and industry.*

*[Technical qualifications] must:*

- *require all students to undertake meaningful activity involving employers during their study; and*
- *be governed by quality assurance procedures run by the awarding organisation to confirm that education providers have secured employer involvement for every student.*

Extract from: ***Vocational qualifications for 16 to 19 year olds 2017 and 2018 performance tables: technical guidance for awarding organisations, DfE (2015) paragraphs 89-90.***

City & Guilds will provide support, guidance and quality assurance of employer involvement.

### Qualification approval

To be approved to offer City & Guilds technicals, centres must provide an Employer Involvement planner and tracker showing how every learner will be able to experience meaningful employer involvement, and from where sufficient and suitable employer representatives are expected to be sourced.

Centres must include in their planner a sufficient range of activities throughout the learning programme that provide a range of employer interactions for learners. Centres must also plan contingencies for learners who may be absent for employer involvement activities, so that they are not disadvantaged.

As part of the approval process, City & Guilds will review this planner and tracker. Centres which cannot show sufficient commitment from employers and/or a credible planner and tracker plan will be given an action for improvement with a realistic timescale for completion. **Approval will not be given** if employer involvement cannot be assured either at the start of the qualification, or through an appropriate plan of action to address this requirement before the learner is certificated.

### Monitoring and reporting learner engagement

Employer involvement is a formal component of this qualification and is subject to quality assurance monitoring. Centres must record evidence that demonstrates that each learner has been involved in meaningful employer based activities against the mandatory content before claiming the employer involvement component for learners.

Centres must record the range and type of employer involvement each learner has experienced and submit confirmation that all learners have met the requirements to City & Guilds. If a centre cannot provide evidence that learners have met the requirements to achieve the component, then the learner will not be able to achieve the overall Technical Qualification.

### **Types of involvement**

Centres should note that to be eligible, employer involvement activities **must** relate to one or more elements of the mandatory content of this qualification.

As the aim of employer involvement is to enrich learning and to give learners a taste of the expectations of employers in the industry area they are studying, centres are encouraged to work creatively with local employers.

Employers can identify the areas of skills and knowledge in their particular industry that they would wish to see emphasised for learners who may apply to work with them in the future. Centres and employers can then establish the type of input, and which employer representative might be able to best support these aims.

To be of most benefit this must add to, rather than replace the centre's programme of learning. Some examples of meaningful employer involvement are listed below. Employer involvement not related to the mandatory element of the qualification, although valuable in other ways, does not count towards this element of the qualification.

The DfE has provided examples of what does and does not count as meaningful employer involvement, as follows<sup>1,2</sup>:

#### ***The following activities meet the requirement for meaningful employer involvement:***

- *students undertake structured work-experience or work-placements that develop skills and knowledge relevant to the qualification<sup>3</sup>;*
- *students undertake project(s), exercises(s) and/or assessments/examination(s) set with input from industry practitioner(s);*
- *students take one or more units delivered or co-delivered by an industry practitioner(s). This could take the form of master classes or guest lectures;*
- *industry practitioners operate as 'expert witnesses' that contribute to the assessment of a student's work or practice, operating within a specified assessment framework. This may be a specific project(s), exercise(s) or examination(s), or all assessments for a qualification.*

*In all cases participating industry practitioners and employers must be relevant to the industry sector or occupation/occupational group to which the qualification relates.*

#### ***The following activities, whilst valuable, do not meet the requirement for meaningful employer involvement:***

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<sup>1</sup> As extracted from: Vocational qualifications for 16 to 19 year olds 2017 and 2018 performance tables: technical guidance for awarding organisations

<sup>2</sup> This list has been informed by a call for examples of good practice in employer involvement in the delivery and assessment of technical qualifications - **Employer involvement in the delivery and assessment of vocational qualifications**

<sup>3</sup> DfE work experience guidance

- *employers' or industry practitioners' input to the initial design and content of a qualification;*
- *employers hosting visits, providing premises, facilities or equipment;*
- *employers or industry practitioners providing talks or contributing to delivery on employability, general careers advice, CV writing, interview training etc;*
- *student attendance at career fairs, events or other networking opportunities;*
- *simulated or provider-based working environments eg hairdressing salons, florists, restaurants, travel agents, small manufacturing units, car servicing facilities;*
- *employers providing students with job references.*

### **Types of evidence**

For each employer involvement activity, centres are required to provide evidence of which learners undertook it, e.g. a candidate attendance register. The types of additional evidence required to support a claim for this component will vary depending on the nature of the involvement. Eg for a guest lecture it is expected that a synopsis of the lecture and register would be taken which each learner and the guest speaker will have signed; expert witnesses will be identified and will have signed the relevant assessment paperwork for each learner they have been involved in assessing; evidence of contribution from employers to the development of locally set or adapted assignments.

### **Quality assurance process**

As the employer involvement component is a requirement for achieving the KS5 Technical qualifications, it is subject to external quality assurance by City & Guilds at the approval stage and when centres wish to claim certification for learners.

Evidence will be validated by City & Guilds before learners can achieve the employer involvement component. Where employer involvement is not judged to be sufficient, certificates cannot be claimed for learners.

### **Sufficiency of involvement for each learner**

It is expected that the centre will plan a range of activities that provide sufficient opportunities for each learner to interact directly with a range of individuals employed in the related industry. Centres must also provide contingencies for learners who may be absent for part of their teaching, so they are not disadvantaged. Any absence that results in a learner missing arranged activities must be documented. Where learners are unable to undertake all employer involvement activities due to temporary illness, temporary injury or other indisposition, centres should contact City & Guilds for further guidance.

### **Live involvement**

Learners will gain most benefit from direct interaction with employers and/or their staff; however the use of technology (eg the use of live webinars) is encouraged to maximise the range of interactions. Where learners are able to interact in real time with employers, including through the use of technology, this will be classed as 'live involvement'.

It is considered good practice to record learning activities, where possible, to allow learners to revisit their experience and to provide a contingency for absent learners. This is not classed as live involvement however, and any involvement of this type for a learner must be identified as contingency.

### **Timing**

A learner who has not met the minimum requirements cannot be awarded the component, and will therefore not achieve the qualification. It is therefore important that centres give consideration to scheduling employer involvement activities, and that enough time is allotted throughout delivery and assessment of the qualification to ensure that requirements are fully met.



## 5 Assessment

### Summary of assessment methods and conditions

Component numbers	Assessment method	Description and conditions
503	Externally marked exam	<p>The exam is <b>externally set and externally marked</b>, and will be taken as a paper based test (503).</p> <p>The exam is designed to assess the candidate's depth and breadth of understanding across content in the qualification at the end of the period of learning, using a range of question types and will be sat under invigilated examination conditions. See JCQ requirements for details: <a href="http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations">http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations</a></p> <p>The exam specification shows the coverage of the exam across the qualification content.</p> <p>Candidates who fail the exam at the first sitting will have a maximum of two opportunities to retake. If the candidate fails the exam three times then they will fail the qualification. (Note: the third and final retake opportunity applies to Level 3 only.) For exam dates, please refer to the Assessment and Examination timetable</p>
004	Synoptic assignment	<p>The synoptic assignment is <b>externally set, internally marked and externally moderated</b>. The assignment requires candidates to identify and use effectively in an integrated way an appropriate selection of skills, techniques, concepts, theories, and knowledge from across the content area. Candidates will be judged against the assessment objectives.</p> <p>Assignments will be released to centres as per dates indicated in the Assessment and Examination timetable published on our website.</p> <p>Centres will be required to maintain the security of all live assessment materials. Assignments will be password protected and released to centres through a secure method.</p> <p>There will be one opportunity within each academic year to sit the assignment. Candidates who fail the assignment will have one re-sit opportunity. The re-sit opportunity will be in the next academic year, and will be the assignment set for that academic year once released to centres. If the re-sit is failed, the candidate will fail the qualification.</p> <p>Please note that for externally set assignments City &amp; Guilds provides guidance and support to centres on the marking and moderation process.</p>

## **What is synoptic assessment?**

Technical qualifications are based around the development of a toolkit of knowledge, understanding and skills that an individual needs in order to have the capability to work in a particular industry or occupational area. Individuals in all technical areas are expected to be able to apply their knowledge, understanding and skills in decision making to solve problems and achieve given outcomes independently and confidently.

City & Guilds technical qualifications require candidates to draw together their learning from across the qualification to solve problems or achieve specific outcomes by explicitly assessing this through the synoptic assignment component.

In this externally set, internally marked and externally moderated assessment the focus is on bringing together, selecting and applying learning from across the qualification rather than demonstrating achievement against units or subsets of the qualification content. The candidate will be given an appropriately levelled, substantial, occupationally relevant problem to solve or outcome to achieve. For example this might be in the form of a briefing from a client, leaving the candidate with the scope to select and carry out the processes required to achieve the client's wishes, as they would in the workplace.

Candidates will be marked against assessment objectives (AOs) such as their breadth and accuracy of knowledge, understanding of concepts, and the quality of their technical skills as well as their ability to use what they have learned in an integrated way to achieve a considered and high quality outcome.

## **How the assignment is synoptic for this qualification**

The typical assignment brief could be to design and build a new bespoke staircase for an executive style home. This will require the candidate to draw on their knowledge and skills from across the qualification to prepare and interpret drawings and client specifications, set out quarter turn of tapered steps, cut joist and fit components accurately and assemble a stair case. Candidates will demonstrate they are following Health and Safety regulations at all times which will draw upon their knowledge of legislation and regulations.

## **External exam for stretch, challenge and integration**

The external assessment will draw from across the mandatory content of the qualification, using a range of shorter questions to confirm breadth of knowledge and understanding. Extended response questions are included, giving candidates the opportunity to demonstrate higher level understanding and integration through discussion, analysis and evaluation, and ensuring the assessment can differentiate between 'just able' and higher achieving candidates.

## Assessment objectives

The assessments for this qualification are set against a set of assessment objectives (AOs) which are used across all City & Guilds Technicals to promote consistency among qualifications of a similar purpose. They are designed to allow judgement of the candidate to be made across a number of different categories of performance.

Each assessment for the qualification has been allocated a set number of marks against these AOs based on weightings recommended by stakeholders of the qualification. This mark allocation remains the same for all versions of the assessments, ensuring consistency across assessment versions and over time.

The following table explains all AOs in detail, including weightings for the synoptic assignments. In some cases, due to the nature of a qualification's content, it is not appropriate to award marks for some AOs. Where this is the case these have been marked as N/A. Weightings for exams (AOs 1, 2 and 4 only) can be found with the exam specification.

Assessment Objective	Level 3 Advanced Technical Diploma in Architectural Joinery (450) Typical expected evidence of knowledge, understanding and skills	Approximate weighting (Assignment)
<b>AO1</b> Recalls knowledge from across the breadth of the qualification.	Interpreting diagrams, selection of tools and equipment, awareness of health and safety, knowledge of technical processes, effective use of materials, knowledge of formulas and calculations, related building regulations.	10%
<b>AO2</b> Demonstrates understanding of concepts, theories and processes from across the breadth of the qualification.	Terminology used in the various aspects of joinery work, building regulations, methods of work, setting out and marking out, practical assembly techniques, Health and Safety legislation, risk management, components, formulas, drawings, materials, inspection of tools, machinery and equipment, safety aids and features and extractions, workpiece support.  Understand and interpret a material lists, understand how to calculate quantities to produce the product as specified in the brief.	20%
<b>AO3</b> Demonstrates technical skills from across the breadth of the qualification.	Accurate setting out, dimensionally accurate for the finish product in comparison to the setting out, cutting and assembling components accurately, overall quality of the finished item.	40%
<b>AO4</b> Applies knowledge, understanding and skills from across the breadth of the qualification in an integrated and holistic way to achieve specified purposes.	The expected evidence is the finished product completed by the candidate meeting the given specification.	10%
<b>AO5</b> Demonstrates perseverance in achieving high standards and attention to	The expected evidence is the finished product meeting the given specification, neat and clean finishes, no gaps in finished product, worked	20%

detail while showing an understanding of wider impact of their actions.

checked after finishing to ensure all requirements are met.

## Exam specification

Assessment Objective weightings per exam.

Assessment Objective	Exam 503 weighting (approx. %)
AO1 Recalls knowledge from across the breadth of the qualification.	44
AO2 Demonstrates understanding of concepts, theories and processes from across the breadth of the qualification.	39
AO4 Applies knowledge, understanding and skills from across the breadth of the qualification in an integrated and holistic way to achieve specified purposes.	17

The way the exam covers the content of the qualification is laid out in the table below:

**Assessment type:** Examiner marked, written exam \*

**Assessment conditions:** Invigilated examination conditions\*

**Grading:** D/M/P/X

Exam 503	Duration: 2 hours, 30 minutes		
Unit number	Unit title	Number of marks	%
301	Principles of organising, planning and pricing construction work	25	36
306	Set up and use fixed and transportable machinery	33	47
N/A Integration across the units		12	17
<b>Total</b>		<b>70</b>	<b>100</b>

\*These exams are sat under invigilated examination conditions, as defined by the JCQ: <http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations>.

Entry for exams can be made through the City & Guilds Walled Garden.

## 6 Moderation and standardisation of assessment

City & Guilds' externally set assignments for technical qualifications are designed to draw from across the qualifications' content, and to contribute a significant proportion towards the learner's final qualification grade. They are subject to a rigorous external quality assurance process known as external moderation. This process is outlined below. For more detailed information, please refer to 'Marking and moderation - Technicals centre guidance' available to download on the City & Guilds website.

It is vital that centres familiarise themselves with this process, and how it impacts on their delivery plan within the academic year.

### **Supervision and authentication of internally assessed work**

The Head of Centre is responsible for ensuring that internally assessed work is conducted in accordance with City & Guilds' requirements.

City & Guilds requires both tutors and candidates to sign declarations of authenticity. If the tutor is unable to sign the authentication statement for a particular candidate, then the candidate's work cannot be accepted for assessment.

### **Internal standardisation**

For internally marked work<sup>4</sup> the centre is required to conduct internal standardisation to ensure that all work at the centre has been marked to the same standard. It is the Internal Quality Assurer's (IQA's) responsibility to ensure that standardisation has taken place, and that the training includes the use of reference and archive materials such as work from previous years as appropriate.

### **Provision for reworking evidence after submission for marking by the tutor**

It is expected that in many cases a candidate who is struggling with a specific piece of work may themselves choose to restart and rectify the situation during their normal allocated time, and before it gets to the stage of it being handed in for final marking by the tutor.

In exceptional circumstances however, where a candidate has completed the assignment in the required timescales, and has handed it in for marking by the tutor but is judged to have significantly underperformed, may be allowed to rework or supplement their original evidence for remarking prior to submission for moderation. For this to be allowed, the centre must be confident that the candidate will be able to improve their performance without additional feedback from their tutor and within the required timescales ie the candidate has shown they can perform sufficiently better previously in formative assessments.

The reworked and/or supplemented original evidence must be remarked by the tutor in advance of the original moderation deadline and the moderator informed of any candidates who have been allowed to resubmit evidence.

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<sup>4</sup> For any internally assessed optional unit assignments, the same process must be followed where assessors must standardise their interpretation of the assessment and grading criteria.

The process must be managed through the IQA. The justification for allowing a resubmission should be recorded and made available on request. The use of this provision will be monitored by City & Guilds.

### **Internal appeal**

Centres must have an internal process in place for candidates to appeal the marking of internally marked components, ie the synoptic assignment and any optional unit assignments. This must take place before the submission of marks for moderation. The internal process must include candidates being informed of the marks (or grades) the centre has given for internally assessed components, as they will need these to make the decision about whether or not to appeal.

Centres cannot appeal the outcome of moderation for individual candidates, only the moderation process itself. A request for a review of the moderation process should be made to [appeals@cityandguilds.com](mailto:appeals@cityandguilds.com).

### **Moderation**

Moderation is the process where external markers are standardised to a national standard in order to review centre marking of internally marked assessments. These markers are referred to as 'moderators'. Moderators will mark a representative sample of candidates' work from every centre. Their marks act as a benchmark to inform City & Guilds whether centre marking is in line with the City & Guilds' standard.

Where moderation shows that the centre is applying the marking criteria correctly, centre marks for the whole cohort will be accepted.

Where moderation shows that the centre is either consistently too lenient or consistently too harsh in comparison to the national standard, an appropriate adjustment will be made to the marks of the whole cohort, retaining the centre's rank ordering.

Where centre application of the marking criteria is inconsistent, an appropriate adjustment for the whole cohort may not be possible on the basis of the sample of candidate work. In these instances a complete remark of the candidate work may be necessary. This may be carried out by the centre based on feedback provided by the moderator, or carried out by the moderator directly.

Moderation applies to all internally marked assignments. Following standardisation and marking, the centre submits all marks and candidate work to City & Guilds via the moderation platform. The deadline for submission of evidence will be available on Walled Garden. See the *Marking and moderation - Technicals Centre Guidance* document for full details of the requirements and process.

In most cases candidate work will be submitted directly to the moderator for moderation,. This includes written work, photographic and pictorial evidence, or video and audio evidence. For some qualifications there will be a requirement for moderators to visit centres to observe practical assessments being undertaken. This will be for qualifications where the assessment of essential learner skills can only be demonstrated through live observation. The purpose of these visits is to ensure that the centre is assessing the practical skills to the required standards, and to provide the moderators with additional evidence to be used during moderation. These visits will be planned in advance with the centre for all relevant qualifications.

### **Post-moderation procedures**

Once the moderation process has been completed, the confirmed marks for the cohort are provided to the centre along with feedback from the moderator on the standard of marking at the centre,

highlighting areas of good practice, and potential areas for improvement. This will inform future marking and internal standardisation activities.

City & Guilds will then carry out awarding, the process by which grade boundaries are set with reference to the candidate evidence available on the platform.

### **Centres retaining evidence**

Centres must retain assessment records for each candidate for a minimum of three years. To help prevent plagiarism or unfair advantage in future versions, candidate work may not be returned to candidates. Samples may however be retained by the centre as examples for future standardisation of marking.



## 7 Grading

### Awarding individual assessments

Individual assessments will be graded, by City & Guilds, as pass/merit/distinction where relevant. The grade boundaries for pass and distinction for each assessment will be set through a process of professional judgement by technical experts. Merit will usually be set at the midpoint between pass and distinction. The grade descriptors for pass and distinction, and other relevant information (eg archived samples of candidate work and statistical evidence) will be used to determine the mark at which candidate performance in the assessment best aligns with the grade descriptor in the context of the qualification's purpose. Boundaries will be set for each version of each assessment to take into account relative difficulty.

Please note that as the Merit grade will usually be set at the arithmetical midpoint between pass and distinction, there are no descriptors for the Merit grade for the qualification overall.

### Grade descriptors

#### To achieve a pass, a candidate will be able to

- Demonstrate the knowledge and understanding required to work in the occupational area, its principles, practices and legislation.
- Describe some of the main factors impacting on the occupation to show good understanding of how work tasks are shaped by the broader social, environmental and business environment it operates within.
- Use the technical industry specific terminology used in the industry accurately.
- Demonstrate the application of relevant theory and understanding to solve non-routine problems.
- Interpret a brief for complex work related tasks, identifying the key aspects, and showing a secure understanding of the application of concepts to specific work related tasks.
- Carry out planning which shows an ability to identify and analyse the relevant information in the brief and use knowledge and understanding from across the qualification (including complex technical information) to interpret what a fit for purpose outcome would be and develop a plausible plan to achieve it.
- Achieve an outcome which successfully meets the key requirements of the brief.
- Identify and reflect on the most obvious measures of success for the task and evaluate how successful they have been in meeting the intentions of the plan.
- Work safely throughout, independently carrying out tasks and procedures, and having some confidence in attempting the more complex tasks.

#### To achieve a distinction, a candidate will be able to

- Demonstrate the excellent knowledge and understanding required to work to a high level in the occupational area, its principles, practices and legislation.
- Analyse the impact of different factors on the occupation to show deep understanding of how work tasks are shaped by the broader social, environmental, and business environment it operates within.
- Demonstrate the application of relevant theory and understanding to provide efficient and effective solutions to complex and non-routine problems.
- Analyse the brief in detail, showing confident understanding of concepts and themes from across the qualification content, bringing these together to develop a clear and stretching plan, that would credibly achieve an outcome that is highly fit for purpose.

- Achieve an outcome which shows an attention to detail in its planning, development and completion, so that it completely meets or exceeds the expectations of the brief to a high standard.
- Carry out an evaluation in a systematic way, focussing on relevant quality points, identifying areas of development/ improvement as well as assessing the fitness for purpose of the outcome.

### Awarding grades and reporting results

The overall qualification grade will be calculated based on aggregation of the candidate's achievement in each of the assessments for the mandatory units, taking into account the assessments' weighting.

**The Level 3 Advanced Technical Diploma in Architectural Joinery (450)** will be reported on a four grade scale: Pass, Merit, Distinction, Distinction\*.

All assessments **must** be achieved at a minimum of Pass for the qualification to be awarded.

Candidates who fail to reach the minimum standard for grade Pass for an assessment(s) will not have a qualification grade awarded and will not receive a qualification certificate.

The approximate pass grade boundary(ies) for the synoptic assignment(s) in this qualification are:

Synoptic Assignment	Pass Mark (%)
004	43

Please note that each synoptic assignment is subject to an awarding process before final grade boundaries are confirmed.

The contribution of assessments towards the overall qualification grade is as follows:

Assessment method	Grade scale	% contribution
Theory exam (503)	X/P/M/D	40%
Synoptic assignment (004)	X/P/M/D	60%

Both synoptic assignments and exams are awarded (see 'Awarding individual assessments', at the start of Section 7, above), and candidates' grades converted to points. The minimum points available for each assessment grade is listed in the table below. A range of points between the Pass, Merit and Distinction boundaries will be accessible to candidates. For example a candidate that achieves a middle to high Pass in an assessment will receive between 8 and 10 points, a candidate that achieves a low to middle Merit in an assessment will receive between 12 and 14 points. The points above the minimum for the grade for each assessment are calculated based on the candidate's score in that assessment.

	Pass	Merit	Distinction
Theory exam: 40%	6	12	18
Synoptic assignment: 60%	6	12	18

The candidate's points for each assessment are multiplied by the % contribution of the assessment and then aggregated. The minimum points required for each qualification grade are as follows:

<b>Qualification Grade</b>	<b>Minimum points</b>
Distinction*	20.5
Distinction	17
Merit	11
Pass	6

Candidates achieving Distinction\* will be the highest achieving of the Distinction candidates.

## 8 Administration

Approved centres must have effective quality assurance systems to ensure valid and reliable delivery and assessment of qualifications. Quality assurance includes initial centre registration by City & Guilds and the centre's own internal procedures for monitoring quality assurance procedures.

Consistent quality assurance requires City & Guilds and its associated centres to work together closely; our Quality Assurance Model encompasses both internal quality assurance (activities and processes undertaken within centres) and external quality assurance (activities and processes undertaken by City & Guilds).

For this qualification, standards and rigorous quality assurance are maintained by the use of:

- internal quality assurance
- City & Guilds external moderation.

In order to carry out the quality assurance role, Internal Quality Assurers (IQAs) must have and maintain an appropriate level of technical competence and have recent relevant assessment experience. For more information on the requirements, refer to *Section 2: Centre requirements* in this handbook.

To meet the quality assurance criteria for this qualification, the centre must ensure that the following procedures are followed:

- suitable training of staff involved in the assessment of the qualification to ensure they understand the process of marking and standardisation
- completion by the person responsible for internal standardisation of the Centre Declaration Sheet to confirm that internal standardisation has taken place
- the completion by candidates and supervisors/tutors of the record form for each candidate's work.

### External quality assurance

City & Guilds will undertake external moderation activities to ensure that the quality assurance criteria for this qualification are being met. Centres must ensure that they co-operate with City & Guilds staff and representatives when undertaking these activities.

City & Guilds requires the Head of Centre to

- facilitate any inspection of the centre which is undertaken on behalf of City & Guilds
- make arrangements to receive, check and keep assessment material secure at all times,
- maintain the security of City & Guilds confidential material from receipt to the time when it is no longer confidential and
- keep completed assignment work and examination scripts secure from the time they are collected from the candidates to their dispatch to City & Guilds.

### Enquiries about results

The services available for enquiries about results include a review of marking for exam results and review of moderation for internally marked assessments.

For further details on enquiries and appeals process and for copies of the application forms, please visit the **appeals page** of the City & Guilds website at **www.cityandguilds.com**.

### **Re-sits and shelf-life of assessment results**

Candidates who have failed an exam or wish to re-take it in an attempt to improve their grade, can do so **twice**. The best result will count towards the final qualification. See guidance on individual assessment types in Section 5.

### **Factors affecting individual learners**

If work is lost, City & Guilds should be notified immediately of the date of the loss, how it occurred, and who was responsible for the loss. Centres should use the JCQ form, JCQ/LCW, to inform City & Guilds Customer Services of the circumstances.

Learners who move from one centre to another during the course may require individual attention. Possible courses of action depend on the stage at which the move takes place. Centres should contact City & Guilds at the earliest possible stage for advice about appropriate arrangements in individual cases.

### **Malpractice**

Please refer to the City & Guilds guidance notes *Managing cases of suspected malpractice in examinations and assessments*. This document sets out the procedures to be followed in identifying and reporting malpractice by candidates and/or centre staff and the actions which City & Guilds may subsequently take. The document includes examples of candidate and centre malpractice and explains the responsibilities of centre staff to report actual or suspected malpractice. Centres can access this document on the City & Guilds website.

Examples of candidate malpractice are detailed below (please note that this is not an exhaustive list):

- falsification of assessment evidence or results documentation
- plagiarism of any nature
- collusion with others
- copying from another candidate (including the use of ICT to aid copying), or allowing work to be copied
- deliberate destruction of another's work
- false declaration of authenticity in relation to assessments
- impersonation.

These actions constitute malpractice, for which a penalty (eg disqualification from the assessment) will be applied.

Where suspected malpractice is identified by a centre after the candidate has signed the declaration of authentication, the Head of Centre must submit full details of the case to City & Guilds at the earliest opportunity. Please refer to the form in the document *Managing cases of suspected malpractice in examinations and assessments*.

### **Access arrangements and special consideration**

Access arrangements are adjustments that allow candidates with disabilities, special educational needs and temporary injuries to access the assessment and demonstrate their skills and knowledge without changing the demands of the assessment. These arrangements must be made before assessment takes place.

It is the responsibility of the centre to ensure at the start of a programme of learning that candidates will be able to access the requirements of the qualification.

Please refer to the *JCQ access arrangements and reasonable adjustments and Access arrangements - when and how applications need to be made to City & Guilds* for more information. Both are available on the City & Guilds website: <http://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library/policies-and-procedures/access-arrangements-reasonable-adjustments>

### **Special consideration**

We can give special consideration to candidates who have had a temporary illness, injury or indisposition at the time of the examination. Where we do this, it is given after the examination.

Applications for either access arrangements or special consideration should be submitted to City & Guilds by the Examinations Officer at the centre. For more information please consult the current version of the JCQ document, *A guide to the special consideration process*. This document is available on the City & Guilds website: <http://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library/policies-and-procedures/access-arrangements-reasonable-adjustments>

## Unit 301

## Principles of organising, planning and pricing construction work

<b>UAN:</b>	J/507/3230
<b>Level:</b>	3
<b>GLH:</b>	90

### What is this unit about?

The purpose of this unit is to introduce the learner to the wider construction industry, to give a broader context to the trade they are studying. The construction industry is a vital part of the economy and plays an important role in all our lives. It affects where we live, where we study, where we work, how we travel and how we spend our leisure time. This unit provides learners with an understanding of the way the building process is managed.

Development of a safe, secure and sustainable built environment is essential. Nowadays, this development must take place without harming the natural environment. Care for the environment and the use of sustainable technology is implicit in the content of this unit. The unit will enable learners to gain an overview of the way a construction site is run, completed and occupied efficiently, safely and with a minimal impact to the environment. This is tightly controlled by regulations and a team of inspectors who ensure these regulations are carried out. Additionally, any construction project will have its own management structure to ensure the construction project runs smoothly. This involves communicating efficiently, and there are many ways of ensuring information is passed from person to person using traditional and modern electronic means.

No prior knowledge of the built environment sector is required but learners should possess basic numeracy and literacy skills in order to understand the content properly.

### Learning outcomes

In this unit, learners will

1. understand the way the construction industry is regulated
2. understand energy efficiency and sustainable materials for construction
3. understand how to estimate quantities and price work for construction
4. understand how to plan work activities for construction
5. understand how to communicate effectively in the workplace
6. understand and use drawings and associated software.

## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

**Learning outcome 1:** Understand the way the construction industry is regulated

**Topic 1.1:** Health and safety regulations

**Topic 1.2:** Planning permission and building control

### Topic 1.1

Learners must be aware of the different health and safety regulations that apply to the construction industry. The focus of this topic **isn't** about the practical application of carrying out health and safety but how these regulations affect all aspects of risk management from the initial design phase through to its eventual demolition.

#### Regulations

- 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)

### Topic 1.2

Learners must be aware that construction is tightly controlled by Building and Planning Regulations and how these affect the building process. The learner will have an overview of the building regulations and the area they refer to. An in-depth knowledge of the content of the building regulations is **not** a requirement at this stage.

The learner will be aware of the planning process and how this affects the construction industry. An in-depth knowledge of planning is **not** required, but they should be aware of permitted development, outline and detailed planning permission, and listed building consent.



**Learning outcome 2:** Understand energy efficiency and sustainable materials for construction

**Topic 2.1:** Sustainable development

**Topic 2.2:** Thermally insulated materials

**Topic 2.3:** Construction methods for insulation

**Topic 2.4:** Energy saving measures

### **Topic 2.1**

Learners will need to have a basic understanding of current guidance on sustainable building.

- Code for sustainable homes – Building Research Establishment Environmental Assessment Methodology (BREEAM)
- Voluntary standards eg Passive house
- Building regulations

### **Topic 2.2**

Learners must develop an understanding of the properties of thermally insulating materials and be able to compare them in relation to cost, environmental impact and performance (eg U-values).

Materials such as Polyisocyanurate (PIR), expanded polystyrene (EP) fibre glass, sheep wool, mineral wool, double/triple/secondary glazed units, multi-foil insulation, phenolic insulation board

### **Topic 2.3**

Learners must develop an understanding on the uses of insulation, where they are placed and how buildings are designed to incorporate insulation (within new and existing buildings).

- Correct selection of insulating materials
- Positioning of insulation

### **Topic 2.4**

Learners will need to have a basic understanding of methods for reducing energy use and the environmental impact of a building.

- Renewable energy sources (eg solar, photovoltaic, ground or air source, wind turbines)
- Design features such as air tightness, lighting, water harvesting
- Local and sustainable materials
- Energy Performance Certificates (EPCs)

**Learning outcome 3:** Understand how to estimate quantities and price work for construction

**Topic 3.1:** Tendering process

**Topic 3.2:** Calculate quantities of building materials

**Topic 3.3:** Prepare a quote

### **Topic 3.1**

Learners must understand the process of tendering for work. The learner should be able to explain the difference between quoting and estimating. Learners should also understand the types of tenders

- open
- closed.

As part of the tendering process, learners should have an understanding of penalty clauses and retention payments.

### **Topic 3.2**

Learners must understand the process of calculating quantities of materials for building work. The processes should include

- specifications/drawings
- preparing a material list using a schedule
- bill of quantities
- calculations (percentages for waste, linear, area and volume)
- selection of suppliers (preferred, nominated, locally sourced).

### **Topic 3.3**

Learners will be able to prepare a quote for a given building project including

- labour
- materials
- overheads
- plant and equipment
- profits
- VAT.

**Learning outcome 4:** Understand how to plan work activities for construction

**Topic 4.1:** Planning construction works

**Topic 4.2:** Statutory safety documentation

#### **Topic 4.1**

Learners must develop an understanding of the reasons and methods for planning construction work activities. The learner must understand why the planning of work activities is vital to efficient use of materials, cost and completing within the contracted time.

- Planning methods to include: bar charts (Gantt chart) and critical path analysis
- Timing of labour, plant and material requirements

Learners must understand how to produce a programme of works in relation to planning a small building project.

#### **Topic 4.2**

Learners must understand the reasons for completing a risk assessment and a method statement and be able to apply them to a work activity. At this level they should be able to guide others through the completion of a risk assessment.

Learners must understand the purpose of a permit to work.

**Learning outcome 5:** Understand how to communicate effectively in the workplace

**Topic 5.1:** Written and oral communication

#### **Topic 5.1**

Learners must develop an understanding of the different methods used to convey information between members of the building team. These may be verbal, on paper or electronic. The nature of communication is rapidly changing and an emphasis must be placed upon keeping up to date with such developments. Learners will be able to

- produce a written communication for a client
- prepare a toolbox talk
- coordinate a work activity
- prepare an agenda for a meeting.

**Learning outcome 6:** Understand and use drawings and associated software

**Topic 6.1:** Manual drafting

**Topic 6.2:** Computer Aided Design (CAD)

**Topic 6.3:** Building Information Modelling (BIM)

### **Topic 6.1**

Learners must develop a range of the skills required to produce appropriate construction drawings. This will include drawing practice to develop specific skills and the application of these skills to produce a range of drawings in accordance with British Standards and other standard conventions.

Learners will have an awareness of the use of orthographic and isometric projections. Learners will be able to produce a drawing to scale using appropriate symbols and hatchings and elevations and plans.

### **Topic 6.2**

Learners should be aware of the range of computer drawing software packages available, and the hardware required to run them. They do not need an in-depth working knowledge of each system, but they do need to know that there is a range of options, and that these vary considerable in complexity and cost.

Learners will be able to compare advantages and disadvantages of Computer Aided Design (CAD) programs to traditional drawing methods.

It would be an advantage for learners to develop CAD software skills however this will not be assessed.

### **Topic 6.3**

Learners need to be aware of Building Information Modelling (BIM) and how it is used in the built environment today. BIM is not a software package, a computer-generated 3D model of a building, or even a method of simulation, communication or sharing data. It is a collaborative integrated approach to building design, construction and management through the whole lifecycle. Learners should know the advantages of BIM and how it is used on projects. This should consider

- 3D Modelling
- change management
- building simulation
- data management
- building operation.

Learners should be aware of requirements for the integration of BIM being driven by the government. They also need to be aware of the different software packages used and how these integrate with each other and the different stages of the process.

### Guidance for delivery

This unit should be one of the first units delivered in this qualification because it informs much of the content of the other units. Tutors delivering this unit have opportunities to use a wide range of techniques. Lectures, discussions, seminar presentations, site visits, research using the internet and/or library resources and the use of personal and/or industrial experience will all be valuable. Delivery should stimulate, motivate and educate the learner. Structured site visits will prove enjoyable and useful, as would guest speakers drawn from local employers, trade unions and professional associations. Such guest speakers will bring up-to-date experience of working in today's built environment sector.

The unit has a broad content, covering how the construction industry is regulated in both safety, quality and environmental areas, how work is tendered for, estimated and priced, how work is planned and how communications take place.

Teaching and learning strategies must help learners to develop a clear and simple understanding of how the construction industry functions. This can be done by examining the industry from a variety of perspectives, breaking the knowledge down into bite-sized pieces and then asking the learners to work out how they fit together to form a united whole. This should be based on real-life case studies.

Health, safety and welfare issues are paramount and should be strictly reinforced through close supervision of all activities and risk assessments must be undertaken prior to any visits to sites, or any other places of interest.

### Employer engagement

Employer engagement is an excellent way to maximise the learners' experience. A partnership approach should be adopted wherever possible, using employers with whom the centre has links to provide work experience placements. Employers could also contribute to learners' progress by acting as guest speakers.

Useful support for links with industry is given below:

- National Education and Business Partnership Network – [www.nebpn.org](http://www.nebpn.org)
- Work Experience/Workplace Learning Frameworks – Centre for Education and Industry (CEI University of Warwick) - [www.warwick.ac.uk/wie/ce](http://www.warwick.ac.uk/wie/ce)
- Construction Industry Joint Council - Working rule agreement for the construction Industry UK [www.builders.org.uk/resources/nfb/000/322/301/May\\_2013\\_WRA\\_Final\\_Version.pdf](http://www.builders.org.uk/resources/nfb/000/322/301/May_2013_WRA_Final_Version.pdf)
- Born to build - [www.borntobuild.org.uk](http://www.borntobuild.org.uk)
- The UK Contractors Group - [www.ukcg.org.uk/representing-industry/open-doors-weekend](http://www.ukcg.org.uk/representing-industry/open-doors-weekend)

## Suggested learning resources

### Books

Construction Technology Published by: Heinemann, 2011 ISBN: 0-435-04682-9	Greeno R, Chudley R, Topliss S, Hurst M
Sustainable Practices in the Built Environment Published by: Butterworth-Heinemann, 2001 ISBN: 0-750-65153-9	Langston C A
Introduction to Building Published by: Pearson, 1997 ISBN: 0-582-30200-5	Osbourn D, Greeno R
Construction and the Built Environment: Level 2 Higher Diploma Published by: Heinemann, 2008 ISBN: 0-435-49991-2	Manley S, Charters M, Francis C, Topliss S, Doyle M
Level 3 Diploma in Bricklaying Published by: City and Guilds ISBN-13: 978-0851933030	Beattie, J; Tucker, T; Burdfield, M & Fearn, C
Level 3 Diploma in Site Carpentry & Bench Joinery Published by: City and Guilds ISBN: 978-0-85193-304-7	Burdfield, M; Redfern, S. Fearn, C

### Journals

- Building Construction News
- Architects' Journal - AJ
- Building Design
- Housebuilder
- Property Week
- New Civil Engineer
- CIBSE Journal

### Websites

Construction Industry Training Board	<a href="http://www.citb.co.uk">www.citb.co.uk</a>
Construction Industry Research and Information Association	<a href="http://www.ciria.co.uk">www.ciria.co.uk</a>
The Health and Safety Executive	<a href="http://www.hse.gov.uk">www.hse.gov.uk</a>
National House Building Council	<a href="http://www.nhbc.co.uk">www.nhbc.co.uk</a>
Chartered Institute of Building	<a href="http://www.ciob.org.uk">www.ciob.org.uk</a>
Green Building	<a href="http://www.greenbuilding.co.uk">www.greenbuilding.co.uk</a>
BREEAM	<a href="http://www.breeam.org">www.breeam.org</a>
Building Research Establishment Group	<a href="http://www.bre.co.uk">www.bre.co.uk</a>



## Unit 306

## Set up and use fixed and transportable machinery

<b>UAN:</b>	H/507/3252
<b>Level:</b>	3
<b>GLH:</b>	90

### What is this unit about?

The purpose of this unit is to have a thorough understanding of wood machining processes commonly undertaken within our industry. Whether working in a joiner shop or on site, machinery is used to enable cutting processes to be carried out efficiently and accurately. It is essential therefore that future operatives are trained how to set them up and use them safely and know their limitations.

This unit provides learners with the knowledge required to inspect, carry out basic maintenance, set up and use sawing, planing and mortice machines safely.

### Learning outcomes

In this unit, learners will

1. understand and use legislation and documentation relating to the safe use of woodworking machinery
2. carry out the inspection and maintenance of fixed and transportable machinery
3. use sawing machines
4. use planing machines
5. use a morticing machine.



## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

**Learning outcome 1:** Understand and use legislation and documentation relating to the safe use of woodworking machinery

**Topic 1.1:** Legislation

**Topic 1.2:** Manufacturer's literature and maintenance schedules

**Topic 1.3:** Supervision and training records

**Topic 1.4:** Risk assessments

### Topic 1.1

Learners must understand the legislation relating to the safe use of woodworking machinery.

- Provision and Use of Work Equipment Regulations (PUWER)
- Approved Code of Practice safe use of woodworking machinery (ACOP)
- The Control of Noise at Work Regulations
- Control of Substances Hazardous to Health (COSHH)
- Additional guidance including HSE Woodwork information sheets and British Woodworking Federation(BWF) machine safety cards

### Topic 1.2

Learners must understand the importance of manufacturer's information and the information it contains in relation to the safe adjustment, use and maintenance of the machine.

Learners must also understand the requirement and use of maintenance schedules and how the frequency and nature of the maintenance is determined through risk assessment in accordance with PUWER.

Learners must be able to consult, use and complete documentation where required, prior to carrying out inspection, maintenance and changing tooling activities on woodworking machinery.

### Topic 1.3

Learners must understand the requirement of supervision and training and how poor supervision and inadequate training are the two main causes of accidents. Learners must understand to who and when training should be given in accordance with PUWER.

### Topic 1.4

Learners must understand the nature of risks associated with using woodworking machines and the environment that the work is carried out in. This should also include:

- good housekeeping
- training
- guarding
- tooling
- raking
- manual handling.

Learners must be able to produce a risk assessment in relation to inspection, maintenance and operating woodworking machinery.

**Learning outcome 2:** Understand and carry out the inspection and maintenance of fixed and transportable machinery

**Topic 2.1:** Inspection, fault diagnosis and maintenance

**Topic 2.2:** Change tooling

### **Topic 2.1**

Learners must understand the requirement for fault diagnosis and maintenance of machinery ensuring that they are safe prior to use and are kept in efficient working order and good repair. The learner must also be aware of the required action to take if a machine is found to be unsafe.

- change tooling, maintenance log

Learners must be able to carry out inspection and maintenance activities on woodworking machinery using appropriate supporting documentation and appropriate tools. The learner must be able to leave the machine in a safe condition having carried out pre-start checks.

In-depth machine maintenance is not a requirement and should be limited to condition based maintenance of moving parts.

#### **Fixed or transportable machines**

- Rip, crosscut and narrow bandsaws, wallsaw, dimension saw
- Surface planer, thicknesser and combination planers
- Morticer

#### **Maintenance**

- Moving parts
- Adjustments
- Change tooling

### **Topic 2.2**

Learners must be able to select appropriate hand tools and equipment to change machine tooling. Learners must follow the risk assessment and consult the manufacturer's literature. Pre-start checks must be carried out and the machine left in an isolated and safe condition. Learners must have an understanding of how tooling cuts for the machines listed.

#### **Tooling**

- Circular saw blades (rip and crosscut)
- Band saw blade
- Planing knives
- Mortice chisel and auger

### **Learning outcome 3:** Use sawing machines

**Topic 3.1:** Saw materials to size and shape

**Topic 3.2:** Use safety aids, features and extraction

**Topic 3.3:** Use workpiece support

#### **Topic 3.1**

Learners must understand how to select and safely set up sawing machinery to carry out ripping, cross, and curved cutting to produce sawn components to given sizes and shapes as required. They must be able to produce risk assessments enabling these operations to be carried out safely. The work should be limited to that which the machine was designed to perform safely and within the requirements of legislation.

Learners must understand how to set the guarding on machinery to carry out operations safely conforming to the ACOP. Learners must understand the requirement for extraction whether fixed or portable and its benefits to health and safety and the quality of the finished product. Learners must also understand the requirement for correct tension and guide assembly positioning when using a band saw. They must also understand how good housekeeping will impact on minimising operating risks.

#### **Cutting operations**

- Softwood sawn to width and thickness
- Manufactured board cut to given dimensions
- Tapered firings/wedges
- Arris rail/glue blocks
- Shaped components (bandsaw)
- Tenons (bandsaw)

#### **Topic 3.2**

Learners must be able to make and use safety aids facilitating safe machining operations conforming to ACOP.

#### **Safety aids**

- Push sticks
- Push blocks
- Wedge jigs
- Beveling/ glue block saddles

Learners must also be able to use manufacturers' safety features and use extraction to conform with COSHH.

#### **Topic 3.3**

The learner must understand the requirements and be able to use operational support while carrying out machining processes.

#### **Operational Support**

- Infeed/outfeed rollers/support
- Support tables
- Additional manual support

## Learning outcome 4: Use planing machines

**Topic 4.1:** Plane timber to size and shape

**Topic 4.2:** Use safety aids and features

**Topic 4.3:** Use workpiece support

### Topic 4.1

Learners must understand how to select and safely set up planing machinery to produce planed components straight and to given sizes. The work should be limited to that which the machine was designed to perform safely and within the requirements of legislation. Learners must be able to produce risk assessments enabling these operations to be carried out safely.

Learners must understand how to set the guarding on machinery to carry out operations safely conforming to the ACOP. Learners must understand the requirement for extraction whether fixed or portable and its benefits to health and safety and the quality of the finished product.

The learner must also understand how good housekeeping will impact on minimising operating risks.

#### Planed Components

- Faced and edged timber
- Timber brought to width and thickness
- Beveled timber

### Topic 4.2

Learners must understand and be able to use push blocks to safely plane the face of short lengths of timber. They must also understand the limitations set by the ACOP to carry out operations when using a surface planer.

### Topic 4.3

The learner must understand the requirement and be able to use operational support while carrying out planing operations.

#### Operational Support

- Infeed/outfeed rollers/support
- Additional manual support

## Learning outcome 5: Use a morticing machine

**Topic 5.1:** Cut mortices

**Topic 5.2:** Use workpiece support

### Topic 5.1

Learners must understand how to select and safely set up morticing machinery to produce a range of morticed components to given sizes and shapes as required. The work should be limited to that which the machine was designed to perform safely and within the requirements of legislation.

Learners must be able to produce risk assessments enabling these operations to be carried out safely. They must also understand how good housekeeping will impact on minimising operating risks.

The morticing machinery should be limited to hollow square chisel morticers and not include chain morticers.

### **Morticed Components**

- Through mortices/bridles
- Stub/blind mortices
- Haunched mortices

### **Topic 5.2**

The learner must understand the requirements and be able to use end support while carrying out morticing operations on long lengths of timber.

### **Guidance for delivery**

This unit should be one of the first delivered practically in this qualification as it will facilitate all training and tasks undertaken in all the other practical units. Tutors delivering this unit will have opportunities to use a wide range of techniques. Lectures, discussions, research, visits to exhibitions and workshop visits. Delivery should stimulate, motivate and educate the learner.

This unit covers the use of classical machinery found in the workshop or lighter transportable models commonly used and found on site. It will form a natural extension to portable power tool training. Training and use of the machines should make the best use of naturally occurring training activities.

Health, safety and welfare issues are paramount and should be strictly reinforced through close supervision of all activities and risk assessments must be undertaken prior to any activities taking place.

### **Employer engagement**

Employer engagement is an excellent way to maximise the learners' experience. A partnership approach should be adopted wherever possible, using employers with whom the centre has links to provide work experience placements. Employers could also contribute to learners' progress by acting as guest speakers.

Seeing wood machining processes carried out in an industrial context will reinforce the significant production advantages that machines offer in work related output and reduced hand operations.

Useful support for links with industry is given below:

- National Education and Business Partnership Network – [www.nebpn.org](http://www.nebpn.org)
- Work Experience/Workplace Learning Frameworks – Centre for Education and Industry (CEI University of Warwick) - [www.warwick.ac.uk/wie/ce](http://www.warwick.ac.uk/wie/ce)
- Construction Industry Joint Council - Working rule agreement for the construction Industry UK [www.builders.org.uk/resources/nfb/000/322/301/May\\_2013\\_WRA\\_Final\\_Version.pdf](http://www.builders.org.uk/resources/nfb/000/322/301/May_2013_WRA_Final_Version.pdf)
- Born to build - [www.borntobuild.org.uk](http://www.borntobuild.org.uk)
- The UK Contractors Group - [www.ukcg.org.uk/representing-industry/open-doors-weekend](http://www.ukcg.org.uk/representing-industry/open-doors-weekend)

## Suggested learning resources

### Books

Level 3 Diploma in Site Carpentry & Bench Joinery

Published by City and Guilds, 2015

ISBN-10: 0851933041

ISBN-13: 978-0851933047

Burdfield, M, Redfern, S, Fearn C et al

Level 2 Diploma in Site Carpentry & Bench Joinery

Published by City and Guilds, 2014

ISBN-10: 085193269X

ISBN-13: 978-0851932699

Fearn C, Raine, S, Taylor, T & Burdfield, M

### Websites

Health and Safety Executive

Building regulations

<http://www.hse.gov.uk>

<http://www.planningportal.gov.uk>

<b>UAN:</b>	K/507/3253
<b>Level:</b>	3
<b>GLH:</b>	150

**What is this unit about?**

The purpose of this unit is for learners to be able to set out, mark out and manufacture a range of joinery components, incorporating complex profiles of single curvature, with elements of double curvature if required for specific jobs according to customer need.

This unit will require the learner to understand and manufacture joinery products typical of most domestic situations and where required, commercial application. In addition to this, there will also be an understanding of typical methods of traditional manufacture, and where appropriate, identify and use modern manufacturing methods. Applied product design will also be considered for heritage, restoration and conservation.

Manufacturing techniques will be considered with best methods used where needed, while being sympathetic towards traditional production and understanding the use of modern methods where possible.

This unit will prepare the learner for a variety of situations that may be encountered in a work environment. You may be working for a medium sized company, who produce items for commercial purposes where hand skills are not vital, but knowledge and understanding of machine tools are required. Another scenario may require the learner to produce complex items of joinery for smaller companies who are bespoke in what is manufactured due to high expectations of clients, and the quality of work required.

Whichever work environment is encountered, a range of skills must be demonstrated to fulfil the requirements of this type of work. You may wish to ask yourself the following:

- Can I provide professional guidance/advice to my client on design elements?
- What if I came across an unusual piece of joinery that requires replicating?
- Am I able to plan and organise the production of this type of joinery?
- Can I apply standard joinery manufacturing techniques?
- Can I produce the product meeting the needs of my client, industry and others?

**Learning outcomes**

In this unit, learners will

1. prepare and set out curved joinery
2. mark out curved joinery
3. manufacture curved joinery.

## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved.

**Learning outcome 1:** Prepare and set out curved joinery

- Topic 1.1:** Information sources
- Topic 1.2:** Types of equipment
- Topic 1.3:** Production details
- Topic 1.4:** Producing jigs, templates and formers
- Topic 1.5:** Use a range of machines and power tools

### Topic 1.1

Learners will need to have an understanding of the various types of documentation used, identifying client need, design elements and manufacturing design.

This information will include

- environmental policy - national and local (sourcing of materials and disposal of waste)
- safe systems of work
- scale drawings - hand drawn and CAD
- specifications of work
- building regulations
- detailed sizes and shapes, profiles of existing work, images/ photographs, templates
- profiles - Rebates, grooves, mouldings (ovolo, chamfer).

Learners must be able to interpret working drawing and double check details before work commences.

### Topic 1.2

Learners will identify a range of equipment used in the setting out process.

### Equipment

Steel rules, scale rules, mechanical pencil, set squares, trammel heads and beam, dividers, trammel frame, compasses, drawing board, Computer Aided Design (CAD), plotter, tee-square, protractor

### Topic 1.3

Learners must understand how curved components are formed

- solid
- built-up
- laminated.

In addition learners must understand the jointing methods used when jointing 'curved to curved' and 'straight to curved' components.

Jointing details must be demonstrated to show an understanding of standard joint proportions.

The following jointing methods must be used

- hammer headed tenon/ key joint
- loose tenons
- dovetail key joint
- bridle joints



- machine cut joints – comb, drawbore and pin.

Learners must produce setting out details using full size rods for a range of curved products

- windows
- doors
- stair parts.

This will include the following geometrical shapes

- gothic
- semi-circular
- elliptical
- pseudo-elliptical
- segmental.

Learners will have an understanding of construction details of various items of joinery. These include: curve head frames (door, window), bay windows (square, canted and curved) traditional windows (casement and sliding sash including corded and sprung).

#### **Topic 1.4**

Learners must be able to set out and produce jigs, templates and formers.

#### **Sheet material**

MDF, plywood, natural timber

#### **Adhesives**

Cyanoacrylate, activator, polyurethane, PVA(fast/standard), synthetic resin, toggle clamps

Learners will need to produce cutting lists and order requisitions to support the production of the joinery items.

#### **Topic 1.5**

Learners will understand and demonstrate the safe set up and use of machines and power tools complying with The Health and Safety at Work Act, Provision and Use of Work Equipment Regulation, and Approved Code of Practice.

Manufacture curved joinery components – curved head frames (door, window) traditional and high performance with Euro Groove using a selection of machines from the list below according to centre availability.

#### **Machines**

Radial arm saw, table rip saw, panel saw, surface planer/ thicknesser, two/ four cutter, re-saw, narrow band saw, spindle moulder, router table, tenoner, hollow chisel morticer, dust extraction.

Complete Risk assessment and method statements for machines that are used.

## Learning outcome 2: Mark out curved joinery

**Topic 2.1:** Tools and equipment

**Topic 2.2:** Select and use materials

### Topic 2.1

Learners must be able to identify and use a range of equipment in the marking out process to include: standard joiners marking out equipment, jigs/templates/formers.

### Topic 2.2

Learners must understand, select and use materials to construct curved components, taking into consideration their properties. They must be able to minimise excessive wastage, natural and man-made defects and short grain where possible.

### Materials

Hardwood, softwood and man-made materials, including engineered wood.

## Learning outcome 3: Manufacture curved joinery

**Topic 3.1:** Methods of forming curved components

**Topic 3.2:** Manufacturing joinery components

**Topic 3.3:** Assembly and finishing methods

### Topic 3.1

Learners will understand and use methods to form various curved components for a range of joinery products.

The learner will use jigs to produce curved or straight profiles to ensure the safe and accurate manufacture of the components being made.

### Topic 3.2

Learners will manufacture a range of joinery components to include multiple forms of standard, complex machine and hand cut joints from the following

- hammer headed tenon/ key joint
- loose tenons
- dovetail key joint
- mortice and tenon joints
- bridle joints
- machine cut joint – comb, drawbore and pin.

Learners must consider the environment, disposal of waste material complying with current regulations.

### Topic 3.3

Learners will assemble and finish a range of joinery components, checking the following during the latter stage of production; dry fitting prior to assembly; correct cramping techniques; process of assembling.

Manufacture curved joinery components (all compliant to Part L)

- curve head frames (door, window)

- traditional window.

This will include the following to complete the projects

- strap and ratchet
- jigs and cramps
- draw-bore pins and dowels
- cramping heads
- vacuum bags
- compressed air cramping
- electronic glue curing.

Finishing products can include the following

- power feed speed sander
- belt sander
- random orbit sander
- hand sanding
- other specialist finishes.

### **Guidance for delivery**

This unit will be delivered during or after completion of Unit 308, due to the complex nature of joinery components requiring manufacture.

Tutors delivering this unit will have opportunities to use a wide range of techniques. Demonstration should be an integral part to knowledge input; however, lectures, discussions, research, visits to exhibitions and workshop visits can also be included. Delivery should stimulate, motivate and educate the learner, particularly during practical input.

This unit covers the use of classical hand tools, power tools and machinery found in the workshop; or lighter transportable models commonly used and found on site. It will form a natural extension to portable power tool training.

To achieve this unit, the manufacture of curved joinery will facilitate the best use of naturally occurring training activities for a range of other units.

Health, safety and welfare issues are an important factor to consider during this unit; therefore, strict safe working methods should be demonstrated and reinforced through close supervision of all activities, and risk assessments must be undertaken prior to any activities taking place.

## Employer engagement

Employer engagement can be beneficial in order to maximise the value of learners' experience; however, learner autonomy, problem solving and logic can also be demonstrated. A partnership approach should be adopted where possible with employers with whom the company has links, and with employers used for work experience placements.

It would be helpful for teachers to develop a method of maintaining contact with a range of employers in the sector. This may help with keeping the examples of legislation, policies and codes of practice used in the taught content, up to date.

Reviewing wood machining processes in an industrial context, will reinforce the significant production advantages that machines offer in work related output and reduced hand operations.

## Suggested learning resources

### Books

Level 3 Diploma in Site Carpentry & Bench Joinery Published by City and Guilds, 2015 ISBN-10: 0851933041 ISBN-13: 978-0851933047	Burdfield, M, Redfern, S, Fearn C et al
Level 2 Diploma in Site Carpentry & Bench Joinery Published by City and Guilds, 2014 ISBN-10: 085193269X ISBN-13: 978-0851932699	Fearn C, Raine, S, Taylor, T & Burdfield, M
Carpentry and Joinery: Book 1 Job Knowledge 2nd Ed Published by Nelson Thornes; 2005 ISBN: 978-0748785018	Brett, P
Carpentry and Joinery Book 2 Practical Activities Practical Activities Bk.2 Published by: Nelson Thornes, 2004 ISBN: 978-0748785025	Brett, P
Circular Work in Carpentry and Joinery Published by Linden Publishing, 1992 ASIN:B00AA9W7PC	Collings, G
Advanced Carpentry & Joinery Published by Longmans 1965 ASIN: B0000CLV7V	Hilton, F
Building Geometry and Drawing Published by Longman, 1973 ISBN-13: 978-0582410794	Hilton, F
Geometrical Drawing for Carpentry and Joinery	

Published by Gill & Macmillan Ltd, 2009  
ISBN-13:978-0717144488

O'connor, John, J

## **Journals and magazines**

<http://www.hsebooks.co.uk>

Provision and Use of Work Equipment Regulations 1998  
(as applied to woodworking machinery). Approved Code of Practice and guidance  
<http://www.hse.gov.uk/pubns/books/l114.htm>

Provision and Use of Work Equipment Regulations 1998 (PUWER)  
<http://www.hse.gov.uk/work-equipment-machinery/puwer.htm>

## **Websites**

The British Woodworking Federation	<a href="http://www.bwf.org.uk/">http://www.bwf.org.uk/</a>
The Timber Research and Development Association	<a href="http://www.trada.co.uk/">http://www.trada.co.uk/</a>
Woodworking News	<a href="http://www.woodworkingnews.co.uk/">http://www.woodworkingnews.co.uk/</a>

The Health & Safety Executive – Woodworking National Interest Group  
<http://www.hse.gov.uk/woodworking/woodnig/>  
<http://www.hse.gov.uk/woodworking/index.htm>

<b>UAN:</b>	T/507/3255
<b>Level:</b>	3
<b>GLH:</b>	120

**What is this unit about?**

The aim of this unit is to provide the learner with the knowledge and skills required to carry out a site survey, set out, manufacture and assemble a variety of stairs incorporating turns. Stairs incorporating turns can be as simple as two straight flights connected by a quarter or half space landing, or as complex as a geometrical stair. The stair could be designed and constructed with newels at the change of direction or they could be more complex and incorporate continuous strings. Stairs of this nature are normally the domain of the most experienced joiners in the workshop and provide a rewarding experience.

**Learning outcomes**

In this unit, learners will

1. set out stairs with turns
2. manufacture stairs with turns
3. assemble stairs with turns.

## Scope of content

This section gives details of the scope of content to be covered in the teaching of the unit to ensure that all the learning outcomes can be achieved

### Learning outcome 1: Set out stairs with turns

- Topic 1.1:** Turning stair arrangements and types of stair with turns
- Topic 1.2:** Turning stair component terms and their sectional sizes
- Topic 1.3:** Information required to set out stairs from a site survey
- Topic 1.4:** Calculate rise and going to conform to Building Regulations
- Topic 1.5:** Set out stairs

#### Topic 1.1

Learners must understand the types of turning stair arrangement possible and how the chosen arrangement is dependent on the space available for the stair to fit in.

#### Turning stair arrangements

Quarter and half space landings, open well and dog leg arrangements, quarter and half space of winders/tapered steps, closed and cut string, geometrical stairs with continuous strings (non-newel stairs)

In addition learners must understand that while the use of winders can minimise the requirement of the 'total available going' but add to the complexity of its manufacture and fixing.

#### Topic 1.2

Learners must understand the additional component terms required for stairs with turns along with their appropriate sectional sizes.

#### Components

Balusters, balustrade, brackets, cap, carriage piece, cover fillet, bullnose step, commode step, curtail step, drop newel, easing, finial, flier, flight, glue blocks, going, handrail, newel post, nosing, rise, riser, scotia, shaped bottom step, spandrel, splayed step, staircase, step, string capping, baluster spacers, strings, tread, winders/tapered steps, wreathed handrail and wreathed string

Learners must also be aware of the minimum newel size required to satisfy Building Regulations in relation to minimum going allowed for tapered treads.

#### Topic 1.3

Learners must understand and be able to use the information required when carrying out a site survey and planning the manufacture of a stair to fit to a stair well.

#### Information

Architects drawings, specifications, manufacturers' catalogues, building regulations (approved document K), total rise and floor levels, available going, headroom, position of joisting and door openings, accessibility.

Learners must also understand the requirement for clearance allowances.

#### Topic 1.4

Learners must understand and be able to calculate the rise and going for a staircase incorporating turning stairs and ensuring that the end result conforms to the requirements of Approved document K with regards to



- rise
- going
- pitch
- headroom.

In addition the must understand how to calculate the 'Normal relationship check' ( $2r + g = 550 - 700$ ). They must also understand how a full size plan of the newel showing the riser positions is essential when determining the going of the straight flights either side of a set of winders/tapered steps.

### Topic 1.5

The learner must understand and be able to set out a full sized plan, and the sectional details required to manufacture a turning stair. In addition the learner must be able to produce scale elevations to ascertain there is sufficient headroom and to obtain the lengths of newels and strings as required. They must also be able to produce cutting lists and order requisitions.

Learners must also be able to draw to scale the surface developments required for geometrical strings.

## Learning outcome 2: Manufacture stairs with turns

- Topic 2.1:** Mark out stair components
- Topic 2.2:** Component jointing methods used for turning stairs with newels
- Topic 2.3:** Component jointing methods used for turning stairs with geometrical strings
- Topic 2.4:** Construct steps
- Topic 2.5:** Construct handrails and balustrades

### Topic 2.1

Learners must understand and be able to produce templets required and mark out a straight of stairs incorporating a quarter turn of winders.

- Templets
- Pitch board
- Wedge
- Margin

### Topic 2.2

Learners must understand and be able to carry out jointing processes by hand and with power tools/fixed machinery as appropriate to manufacture cut and closed strings and newels.

- Mortices
- Tenons
- Housings/recesses

### Topic 2.3

Learners must understand the jointing processes used in the construction of turning stairs with geometrical strings. This must include cut and closed strings of large and small radii.

- Staved construction
- Laminated construction

### Topic 2.4

Learners must understand how to, and be able to construct parallel steps and winder/tapered steps to straight and geometrical strings (closed and cut). They must also understand and be able to construct shaped bottom steps.

### **Topic 2.5**

Learners must understand how and be able to joint continuous handrail components and straight handrails to newels. They also need to understand the terms and types of continuous handrail parts.

#### **Continuous handrail parts**

Knee, ramp, swan neck, goose neck, level bend, wreath, horizontal and vertical scroll, easings

#### **Joints**

Draw bored tenon, handrail bolt/connector

### **Learning outcome 3: Assemble stairs with turns**

**Topic 3.1:** Dry fitting and preparing surfaces

**Topic 3.2:** Assemble stairs and carry out quality checks

#### **Topic 3.1**

Learners must understand and be able to dry fit, number joints, make any adjustments and carry out temporary jointing processes where required. They must also be able to prepare the component surfaces for the intended surface finish.

#### **Topic 3.2**

Learners must understand how to, and be able to assemble a stair with quarter turn of winders. They must be able to carry out relevant quality checks

- square
- wind
- size.

They will also need to know how to label up the stair components that are being sent to site loose to ensure they are not lost in transit.

This unit covers the use of traditional setting out methods commonly used and found on site. Health, safety and welfare issues are paramount and should be strictly reinforced through close supervision of all activities and risk assessments must be undertaken prior to any activities taking place.

## Guidance for delivery

Tutors delivering this unit will have opportunities to use a wide range of techniques. Demonstration should be an integral part to knowledge input; however, lectures, discussions, research, visits to exhibitions and workshop visits can also be included. Delivery should stimulate, motivate and educate the learner, particularly during practical input.

Health, safety and welfare issues are an important factor to consider during this unit; therefore, strict safe working methods should be demonstrated and reinforced through close supervision of all activities, and risk assessments must be undertaken prior to any activities taking place.

## Suggested learning resources

### Books

- |   |   |
|---|---|
| Level 3 Diploma in Site Carpentry & Bench Joinery<br>Published by City and Guilds, 2015<br>ISBN-10: 0851933041<br>ISBN-13: 978-0851933047 | Burdfield, M, Redfern, S, Fearn C et al     |
| Level 2 Diploma in Site Carpentry & Bench Joinery<br>Published by City and Guilds, 2014<br>ISBN-10: 085193269X<br>ISBN-13: 978-0851932699 | Fearn C, Raine, S, Taylor, T & Burdfield, M |

### Journals and magazines

Provision and Use of Work Equipment Regulations 1998  
(as applied to woodworking machinery). Approved Code of Practice and guidance  
<http://www.hse.gov.uk/pubns/books/l114.htm>

Provision and Use of Work Equipment Regulations 1998 (PUWER)  
<http://www.hse.gov.uk/work-equipment-machinery/puwer.htm>

### Websites

The British Woodworking Federation	<a href="http://www.bwf.org.uk/">http://www.bwf.org.uk/</a>
The Timber Research and Development Association	<a href="http://www.trada.co.uk/">http://www.trada.co.uk/</a>
Woodworking News	<a href="http://www.woodworkingnews.co.uk/">http://www.woodworkingnews.co.uk/</a>

The Health & Safety Executive – Woodworking National Interest Group  
<http://www.hse.gov.uk/woodworking/woodnig/>  
<http://www.hse.gov.uk/woodworking/index.htm>

## 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](http://www.cityandguilds.com).

### **City & Guilds Centre Manual**

This document provides guidance for organisations wishing to become City & Guilds approved centres, as well as information for approved centres delivering City & Guilds qualifications. It covers the centre and qualification approval process as well as providing guidance on delivery, assessment and quality assurance for approved centres.

It also details the City & Guilds requirements for ongoing centre and qualification approval, and provides examples of best practice for centres. 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 and malpractice
- complaints and appeals
- equal opportunities
- data protection
- management systems
- maintaining records
- internal quality assurance
- external quality assurance.

### **Our Quality Assurance Requirements**

This document explains the requirements for the delivery, assessment and awarding of our qualifications. All centres working with City & Guilds must adopt and implement these requirements across all of their qualification provision. Specifically, this document:

- specifies the quality assurance and control requirements that apply to all centres
- sets out the basis for securing high standards, for all our qualifications and/or assessments
- details the impact on centres of non-compliance.

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

**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

<b>UK learners</b> General qualification information	<b>E: <a href="mailto:learnersupport@cityandguilds.com">learnersupport@cityandguilds.com</a></b>
<b>International learners</b> General qualification information	<b>E: <a href="mailto:intcg@cityandguilds.com">intcg@cityandguilds.com</a></b>
<b>Centres</b> Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results	<b>E: <a href="mailto:centresupport@cityandguilds.com">centresupport@cityandguilds.com</a></b>
<b>Single subject qualifications</b> Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	<b>E: <a href="mailto:singlesubjects@cityandguilds.com">singlesubjects@cityandguilds.com</a></b>
<b>International awards</b> Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports	<b>E: <a href="mailto:intops@cityandguilds.com">intops@cityandguilds.com</a></b>
<b>Walled Garden</b> Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems	<b>E: <a href="mailto:walledgarden@cityandguilds.com">walledgarden@cityandguilds.com</a></b>
<b>Employer</b> Employer solutions, Mapping, Accreditation, Development Skills, Consultancy	<b>E: <a href="mailto:business@cityandguilds.com">business@cityandguilds.com</a></b>

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

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## **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. 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 is a leader in global skills development. Our purpose is to help people and organisations to develop their skills for personal and economic growth. Made up of City & Guilds, City & Guilds Kineo, The Oxford Group and ILM, we work with education providers, businesses and governments in over 100 countries.

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