8042-03 – 11, 23

City & Guilds Progression in Construction (Level 2)

C00/4169/2

Qualification Handbook

Version 2.1 – June 2022

Contents

Version information

Version and publication date	Changes
v1 June 2021	Original document
v1.1 September 2021	Unit 220 - criteria 3.2 reference to mechanical handling removed
v2 January 2022	Rules of combination clarified (p9) Support materials - website address updated (p19) Approach to assessment - Guided Discussion, and first availability dates for on-screen assessments updated (p22) Pathway J Wall and Floor Tiling - structure and content added (p8, p12, Unit 202 p41-45, p265) Groundworks - Learning outcome titles corrected (p203, 209, 218, 227)
v2.1 June 2022	Unit titles updated in Rules of Combination table - Pathway A: Bricklaying; Pathway E: Painting and Decorating; Pathway F: Solid Plastering; Pathway G: Dry lining - fixing (p9-12)

Qualification purpose

	Description
Who is the qualification for?	The Progression in Construction (Level 2) has been developed as a post-16 qualification for individuals working in or intending to work in the Construction sector. This qualification will enable learners to go on to study other Level 2 or 3 construction courses relevant to a chosen construction trade. The qualification is primarily designed for learners to follow on a full time one-year programme of learning. It is aimed at learners who have achieved the Foundation in Construction and Building Services Engineering (Level 2) but do not yet have an apprenticeship. It is suitable for: • learners aged 16+ currently working in or intending to work in the construction industry • learners who have achieved the Foundation in Construction and Building Services Engineering qualification but do not yet have an employer to continue to an apprenticeship.
What does the qualification cover?	All learners will complete three mandatory core units which holistically cover employment, employability skills and general construction practices in the Construction sector over time. Learners will also need to show the development of their planning and evaluation skills within a construction related area. Learners will be required to choose a trade specialism in the construction sector. Learners will focus on developing the knowledge, skills and understanding contained in the relevant National Occupational Standards for that trade, as well as deepening their understanding of how practice in this trade has changed, and is still changing, over time.
What are the opportunities for progression?	On completion, the qualification will provide learners with the knowledge, understanding and skills to progress into employment within a construction related area or onto further study. This includes progression to the following qualifications: • City & Guilds Construction (Level 3) – Bricklaying (C00/4169/3)

- City & Guilds Construction (Level 3) - Architectural Joinery (C00/4327/5)
- City & Guilds Construction (Level 3) - Site Carpentry (C00/4283/1)
- City & Guilds Construction (Level 3) - Timber Frame Erection (C00/4327/4)
- City & Guilds Construction (Level 3) - Solid Plastering (C00/4327/7)
- City & Guilds Construction (Level 3) - Dry Lining (C00/4327/0)
- City & Guilds Construction (Level 3) - Painting and Decorating (C00/4327/6)
- City & Guilds Construction (Level 3) - Roof Slating and Tiling (C00/4327/1)
- City & Guilds Construction (Level 3) - Wall and Floor Tiling (C00/4327/8)
- City & Guilds Construction (Level 3) - Civil Operations – Groundworks (C00/4327/2)
- EAL Building Services Engineering (Level 3) – Heating and Ventilating Installation (C00/4278/5)
- EAL Building Services Engineering (Level 3) – Heating and Ventilating Craftsperson (C00/4278/6)
- EAL Building Services Engineering (Level 3) – Plumbing and Heating (C00/4278/7)
- EAL Building Services Engineering (Level 3) – Electrotechnical Installation (C00/4278/8)

Who did we develop the qualification with?	The content has been developed by the Consortium[1] in conjunction with stakeholders, tutors, training providers and employers from across the sector.

[1] The consortium consists of The City and Guilds of London Institute and EAL who worked jointly to develop and deliver all of the qualifications in the Construction and BSE suite

Qualification aims and objectives

The Progression in Construction (Level 2) enables learners to develop their:

- understanding of social, economic, and environmental sustainability as appropriate to construction and the built environment
- understanding of aspects of employment and employability in the construction sector
- employability skills and understanding of how these are relevant to contemporary practice in a chosen construction trade
- their knowledge of and ability to apply the health and safety requirements of working on sites, with equipment and with others when working in a chosen construction trade
- understanding of the types of work and projects undertaken in a chosen construction trade, and the interdependencies of this work with work by other tradespeople, at the design, construction, use and maintenance stages
- understanding of the tools, techniques, materials, and technologies used in a chosen construction trade and of how they change, and have changed, over time
- knowledge and understanding required in a chosen trade route, as set out in this document, as set out in the relevant national standards
- practical skills in carrying out a wide range of tasks in a chosen construction trade
- ability to effectively plan and evaluate their performance in carrying out a wide range of tasks in a chosen construction trade.

Qualification structure

Product Code	C/N	City & Guilds Progression in Construction (Level 2)
8042-03	C00/4169/2	City & Guilds Progression in Construction Level 2 – Bricklaying
8042-04	C00/4169/2	City & Guilds Progression in Construction Level 2 – Architectural Joinery
8042-05	C00/4169/2	City & Guilds Progression in Construction Level 2 – Site Carpentry
8042-06	C00/4169/2	City & Guilds Progression in Construction Level 2 – Timber Frame Erection
8042-07	C00/4169/2	City & Guilds Progression in Construction Level 2 – Painting and Decorating
8042-08	C00/4169/2	City & Guilds Progression in Construction Level 2 – Solid Plastering
8042-09	C00/4169/2	City & Guilds Progression in Construction Level 2 – Dry Lining - Fixing
8042-10	C00/4169/2	City & Guilds Progression in Construction Level 2 – Groundworks
8042-11	C00/4169/2	City & Guilds Progression in Construction Level 2 – Roof Slating and Tiling
8042-23*	C00/4169/2	City & Guilds Progression in Construction Level 2 – Wall and Floor Tiling

*Wall and Floor Tiling pathway will be open for registrations from 1 September 2022.

Rules of combination

To achieve the **Progression in Construction (Level 2)** learners must undertake:

- **3 core/mandatory units (201, 202, 203)** and
- **All units from one of the optional trade specific pathways listed below**

achieving a Pass grade or higher in the three assessment methods, totalling 540 GLH.

City & Guilds Progression in Construction (Level 2)		
Unit number	**Unit title**	**GLH**
201	Employment and employability in the construction sector	30
202	Changing practices over time	45
203	Planning and evaluating work in the construction sector in Wales	25
Assessment		
	All Forms of Assessment	62
Pathway A: 8042-03 Bricklaying		
204	Bricklaying core knowledge	50
205	Set out to form masonry structures	135
206	Erect masonry structures	193

Pathway B: 8042-04 Architectural Joinery		
207	Architectural Joinery core knowledge	50
208	Produce setting out details for routine products	50
209	Mark out from setting out details for routine products	50
210	Manufacture routine products	165
211	Set up and use transportable cutting and shaping machines	63

Pathway C: 8042-05 Site Carpentry		
212	Site Carpentry core knowledge	50
213	Install first fixing components	80
214	Install second fixing components	80
215	Erect structural carcassing components	70
216	Maintain non-structural carpentry work	48
217	Set up and use transportable cutting and shaping machines	50

Pathway D: 8042-06 Timber Frame Erection		
218	Timber Frame Erection core knowledge	50
219	Erect timber walls and floors	182
220	Erect timber roof structures	146

Pathway E: 8042-07 Painting and Decorating		
221	Painting and Decorating core knowledge	50
222	Prepare surfaces for painting and/or decorating	100
223	Apply surface coatings by brush and roller	113
224	Hang wallcoverings (standard and foundation papers)	115

Pathway F: 8042-08 Solid Plastering		
225	Solid plastering core knowledge	50
226	Produce internal solid plastering finishes	178
227	Apply solid render to background surfaces and produce finishes	150

Pathway G: 8042-09 Dry lining - fixing		
228	Dry lining core knowledge	50
229	Install dry lining systems	178
230	Install plasterboard mechanically and by direct bond	150

Pathway H: 8042-10 Groundworks		
231	Groundworks core knowledge	50
232	Set out secondary dimensional work control	115
233	Install drainage	120
234	Prepare and mix construction related materials	93

Pathway I: 8042-11 Roof slating and tiling		
235	Roof slating and tiling core knowledge	50
236	Install underlay, battens, and roofing components	40
237	Install single-lap roof tiles to a variable gauge	48
238	Install plain tile roof coverings	62
239	Install pre-formed weathering flashings to roofs	45
240	Install regular sized natural roof slate to standard roof details	83
241	Strip and reclaim roof coverings	50

Pathway J: 8042-23 Wall and Floor Tiling (available from 1 September 2022)		
242	Wall and Floor Tiling core knowledge	50
243	Lay sand and cement screeds	55
244	Prepare backgrounds for tiling	123
245	Tile wall and floor surfaces	150

Guided Learning Hours (GLH) and Total Qualification Time (TQT)

Guided Learning Hours (GLH) gives an indication to centres of the amount of supervised learning and assessment that is required to deliver a unit and can be used for planning purposes.

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 undertaking some formative assessment activities.

Credit is calculated using a formula that equates to the TQT value divided by 10.

The TQT for this qualification is specified below.

Qualification	TQT	Credits
Progression in Construction (Level 2) (all trade pathways)	600	60

Centre requirements

This qualification will require centre and qualification approval. This will include both desk-based and face-to-face activity.

Centre approval is based upon a centre's ability to meet the centre approval criteria. The approval requirements for this qualification can be found in the following documents:

- City & Guilds Centre Manual
- City & Guilds Quality Assurance Requirements

Prospective centres must seek centre and qualification approval, as appropriate, prior to starting to deliver the qualification.

City & Guilds aims to provide the centre and qualification approval decision within 30 working days of the submission of the completed application, with four possible outcomes:

- centre approval and qualification approval granted
- centre approval and qualification approval granted subject to action plan
- centre approval and qualification approval withheld subject to action plan
- centre approval and qualification approval denied.

Centre and qualification approval are deemed to have been granted when City & Guilds confirms the status in writing to the centre, and not before.

Centres will be required to apply for approval for this qualification and to meet the specific centre requirements outlined in this document related to delivery staff and assessor competence. These requirements will be checked and monitored as part of the qualification approval process and on-going monitoring of this qualification.

Registration, results issuing and certification

Please consult the City & Guilds website for details on qualification registration and certification processes, timelines, and procedures.

Quality assurance

Internal quality assurance

The focus of internal quality assurance for this qualification is:

- the quality assurance of assessment procedures, including standardisation of assessment practice across different assessors within the centre in line with the City & Guilds Guidance on Internal Quality Assurance of Qualifications
- internal standardisation of learner marks awarded for the Practical Project and Guided Discussion.

All centres approved to deliver this qualification must have robust internal quality assurance (IQA) processes in place. This will help ensure that Internal Quality Assurance procedures:

- provide accuracy and consistency between Assessors in the use and interpretation of the guidance in the qualification and/or assessment documentation
- maintain validity and reliability of assessment decisions and continue to meet approval criteria.

IQA evidence will be scrutinised as part of City & Guilds' external quality assurance activities. Centres will be expected to retain evidence in-line with the requirements of the City & Guilds centre manual and should be retained for a minimum of three years.

Internal quality assurers

The centre must provide City & Guilds with the details of personnel who they plan to undertake Internal Quality Assurance (IQA), so that they can be approved prior to them carrying out this role. Prior to the first assessments taking place, Internal Quality Assurer's (IQAs) must also complete City & Guilds training. This is to ensure the reliability of assessment at centres over time.

IQAs must:

- prepare for, and participate in relevant City & Guilds meetings and events, such as induction, Continuing Professional Development (CPD)/training and standardisation events
- ensure any personal action/ improvement plans are achieved, within agreed timescales and to the required standards
- have a minimum level of occupational experience evidenced by having a construction related qualification or proven sector competence/experience at least equivalent to the level of the qualification, to enable them to conduct their role as an IQA. This evidence is quality assured by City & Guilds
- be working towards (registered no later than January 2022), or have achieved the following units:
    - Understanding the Principles and Practices of Internally Assuring the Quality of Assessment*
    - Internally Assure the Quality of Assessment*

  * Legacy Qualifications (D32/D32/D34, A1 and V1) will be accepted
- be able to demonstrate evidence of being up to date with the relevant trade/industry. This can be evidenced for example by accessing trade publications, undertaking courses of learning, attending networking events relevant to this qualification and/or attending industry events.

The IQA has a pivotal role in ensuring that centre marked assessment is standardised. They should work with assessors to ensure that the correct procedures are always being followed and ensure that assessment decisions taken by different assessors are consistent, fair, and reliable. Key activities will include:

- meeting with assessors (individually and collectively) throughout the qualification to discuss quality assurance and standardisation issues and provide support and guidance where needed
- observing assessors and giving them feedback to help improve their assessment technique
- sampling evidence across different cohorts to ensure that appropriate standards have been met
- arranging cross-marking of assessments to compare results and agree benchmarks in line with City & Guilds training.

City & Guilds will provide guidance to centre IQAs throughout the change management process.

External quality assurance

The Practical Project and Guided Discussion is internally assessed and externally verified. Our team of technically competent, External Quality Assurers (EQAs) will externally verify centre assessment decisions and internal quality assurance processes to ensure the validity and reliability of results. Our EQAs follow robust verification processes. They monitor centres' assessment systems, practice, and outcomes in line with regulatory requirements. Their sampling strategies are based on 'CAMERA' (ensuring a representative sample of Candidates/Learners, Assessors, Methods of assessment, Evidence, Records, Assessment sites).

City & Guilds will:

- carry out necessary quality assurance of this assessment which can include direct observation, assessment sampling, and feedback from learners
- have a robust appeals procedure in place for learners.

External quality assurers

EQAs are inducted, trained, and standardised to ensure a consistent approach. They are regularly updated on changes to qualifications and subject to ongoing monitoring and sampling of their work. Thorough vetting ensures required knowledge, including attainment of EQA Training Assessment and Quality Assurance (TAQA or equivalent) qualifications. All Construction and Building Services Engineering (BSE) EQAs will be briefed on the Sector Review including the new qualification suite.

External Quality Assurers must:

- be accountable to City & Guilds
- have achieved or be working towards the TAQA award or have achieved V2 or D35 and possess CPD evidence of practicing to the TAQA Standards
- understand the assessment process and apply the marking process consistently
- have no conflict of interest with the assessment centre, in order to maintain objectivity
- have requisite relevant technical/occupational understanding in the qualification(s)/unit(s) being externally quality assured
- be able to provide centres with advice and guidance on assessment and IQA procedures.

City & Guilds will:

- carry out necessary quality assurance of the assessment process which can include direct observation, assessment sampling, and feedback from learners
- have a robust appeals procedure in place for learners.

Roles, responsibilities and quality assurance

Internal assessor profile

The centre must provide City & Guilds with the details of personnel who they plan to undertake assessment, so that they can be approved prior to them carrying out this role. Prior to the first assessments taking place, assessors must also complete City & Guilds training. This is to ensure the reliability of assessment at centres over time.

Assessors must be working towards (registered no later than January 2022) or have achieved the following units:

- Understanding the Principles and Practices of Assessment*
- Assess vocational skills, knowledge and understanding*

and continue to practice to that standard.

* Legacy Qualifications (D32/D32/D34, A1 and V1) will be accepted

Assessors must be occupationally competent. Evidence which supports this is by the assessor holding a relevant NVQ or equivalent* to the full occupational competence threshold of the trade and/or having registration with a relevant trade body or having appropriate recognition which clearly evidences the assessor as competent in the trade.

*Assessors who qualified before NVQs were developed should provide evidence of how they are occupationally competent (such as through a CV or CPD Log together with any relevant references).

Internal assessor requirements

Internal Assessors must:

- carry out and document assessment in line with City & Guilds and regulatory arrangements including:
    - acting in a professional and courteous manner at all times when conducting the assessment
    - marking the assessments, in accordance with grading criteria
- maintain an up-to-date knowledge of assessment policies and procedures
- maintain and document CPD (to be submitted on request)
- understand the sector, the qualification, and the assessment requirements
- be occupationally competent
- produce clear, accurate and concise documentation and relevant records (written and electronic), and ensure they are controlled and administered in accordance with the awarding bodies procedures
- make robust assessment decisions
- handle relevant information in accordance with GDPR requirements
- prepare for and participate in relevant City & Guilds meetings and events – such as induction, CPD/training, and standardisation events, and ensure any personal

action/improvement plans are achieved, within agreed timescales and to required standards
- report to the IQA any suspicion of malpractice or maladministration, including academic misconduct
- declare any conflicts of interest (such as between the assessor and the learner)
- provide access to information and records when requested
- complete and submit all reports within specified timeframes.

External associates/appointees

Associates/Appointees are the terms adopted by City & Guilds to refer to individuals appointed by City & Guilds to undertake specific roles on their behalf, for example, External Quality Assurers (EQAs).

There are criteria set by City & Guilds to ensure all associates/appointees have the right occupational knowledge, experience, and skills to perform the specific role.

City & Guilds will ensure that all Associates/Appointees undertaking a quality assurance role in centre approval, qualification approval and assessment decisions are trained, appropriately qualified and occupationally competent. Training and attendance at standardisation events are mandatory.

All Associates/Appointees are performance managed by staff within City & Guilds. If concerns are identified with an individual, City & Guilds will take corrective action which may include improvement actions and close monitoring or in some instances quality issues in performance may lead to the Awarding Body contract with the Associates/Appointees being terminated.

City & Guilds will ensure that sufficient bilingual Associates/Appointees are recruited to meet the needs of Welsh-medium centres and learners. The level of quality assurance activity will be consistent across provision in both English and Welsh mediums. Provision will be made for monitoring and standardisation to take place for both languages.

Welsh context

For individuals who have not previously conducted assessment activities in Wales, it is suggested that having an awareness of Welsh language and an understanding of Welsh culture, policy and context would be beneficial to support their roles.

Continuing Professional Development

Centres are expected to support their staff in ensuring that their knowledge and competence in the occupational area is current and of best practice in delivery, mentoring, training, assessment, and quality assurance and that it takes account of any national or legislative developments.

Delivering the qualification

Learner entry requirements

There are no set entry requirements for the Progression qualification, City & Guilds recommend that a learner should have achieved the Foundation in Construction (level 2) qualification before they proceed to Progression.

Entries for the qualification can be made via the Walled Garden, see City & Guilds website for further details.

Age restrictions

City & Guilds cannot accept any registrations for learners under 16 years of age as this qualification is not approved for those under 16.

Initial assessment and induction

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

- if the learner has any specific training needs
- support and guidance, they may need when working towards their qualification
- any learning or assessment they have already completed which is relevant to the qualification (e.g. Foundation in Construction and Building Services Engineering (Level 2)
- the appropriate type and level of qualification.

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

Support materials

The following resources are available for this qualification:

Description	How to access
Assessment pack	https://www.skillsforwales.wales/qualifications

Internal quality assurance

Centres must have a written Internal Quality Assurance strategy.

This will help ensure that Internal Quality Assurance procedures:

- provide accuracy and consistency between Assessors in the use and interpretation of the guidance in the qualification and/or assessment documentation
- are efficient and cost effective.

Moderation of internal assessment arrangements

EQA processes are in place for checking the validity and reliability of assessment decisions made by centre staff, as appropriate to this qualification.

The assessment will be internally assessed and subject to risk-based monitoring and sampling by EQAs to ensure the consistency and validity of centre assessment decisions. Quality assurance activities will be undertaken by appropriately qualified and trained assessment associates. In all instances of sampling for quality assurance purposes, formal written feedback will be provided by City & Guilds.

Significant non-compliance or areas of concern identified during external monitoring will be subject to investigation by City & Guilds. As a result of this activity appropriate improvement actions and/or sanctions may be put in place. In some instances, investigations may result in removal of approval for the centre(s) in question.

Internal appeal

Centres must have an internal process in place for learners to appeal the marking of internally marked assessments. The internal process must include learners being informed of the results the centre has given for internally assessed components, as they will need these to make the decision about whether to appeal.

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 learners and/or centre staff and the actions which City & Guilds may subsequently take. The document includes examples of learner 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 learner 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 learner (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.

The above actions constitute malpractice, for which a penalty (for example, disqualification from assessment) will be applied.

Access arrangements

Access arrangements are adjustments that allow individuals with additional 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 learners 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 JCQ website: https://www.jcq.org.uk/exams-office/access-arrangements-and-special-consideration/regulations-and-guidance/

Special consideration

We can give special consideration to learners who have had a temporary illness, injury or indisposition at the time of assessment.

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 JCQ website: https://www.jcq.org.uk/exams-office/access-arrangements-and-special-consideration/regulations-and-guidance/

Summary of assessment

The **Progression in Construction (Level 2)** is assessed using three assessment methods:

Assessment type	Approach to assessment	Weighting (Contribution to overall qualification grade)
On-screen assessment	Externally-set, externally-marked	20%
Practical Project	Externally-set, internally-marked	60%
Guided Discussion	Internally-set, internally-marked	20%

An assessment pack detailing the requirements of the assessment can be downloaded from the Skills for Wales website.

Details of coverage of each assessment can be found in the assessment specifications within the assessment pack.

On-screen assessments will be available from 1 March 2022.

On-screen assessments will be available for Wall and Floor Tiling trade pathway from 3 January 2023.

Assessment timings and phasing

The following must be applied to the assessment of this qualification:

- all required units must be undertaken, and related requirements must be completed and assessed within the learner's period of registration.

Assessments can be taken on-demand, centres must ensure that learners have undertaken all required teaching and learning and are adequately prepared to undertake each assessment.

Learners must have completed the Practical Project assessment prior to undertaking the Guided Discussion assessment.

Result release

On-screen assessment

On-screen assessments are auto-marked and results will be received by the centre on the same day that the assessment is completed. A result release process will be followed by City & Guilds when new assessment versions are released.

Practical Project

Practical Projects are internally marked and externally verified. Provisional marks awarded following internal assessment are translated into grades using the marking and grading tables provided in the assessment pack. Provisional grades are then submitted to City & Guilds via Walled Garden.

The assessor will use the Practical Project grading table within the Assessment Pack to calculate a provisional grade for the learner. Notification of this provisional grade will be given to the learner within one week of completion of the assessment, with guidance given on the provisional nature of the grade. Provisional results will be subject to both internal and external quality assurance.

Guided Discussion

Guided discussions are internally marked and externally verified. Provisional marks awarded following internal assessment are translated into grades using the marking and grading tables provided in the assessment pack, grades are then submitted to City & Guilds via Walled Garden. These provisional grades are then aggregated based on the assessment weighting, in line with the grade aggregation guidance provided within the assessment pack, to provide an overall qualification grade which will be issued by City & Guilds.

Overall qualification results

Provisional grades for the Practical Project and Guided Discussion must be provided to learners within one week of completion of each assessment. Guidance should be given around the provisional nature of these results, with recognition that they will undergo IQA and EQA activities, and final qualification grading by City & Guilds.

Final qualification grades will be notified to centres following completion of EQA activities. This notification will be within eight weeks of centre submission of learner results for both the practical project and Guided Discussion (and following successful completion of the On-screen assessment). More information on this process and timings can be found in the Introduction to Working with City & Guilds - centre administration guide for construction and building services engineering qualifications in Wales.

Resubmission/Re-sit of assessment

If the learner fails to successfully achieve any of the assessments, they are permitted to re-sit/resubmit.
When resitting/resubmitting learners can achieve the full range of marks and grades available.

If a learner is required to re-sit or resubmit any of the assessments, appropriate feedback and support must be provided to enable the learner to do so within an appropriate timeframe.

If a learner does not meet the required marking criteria, the centre must work with the learner to address criteria failed and opportunities for improvement to support them in preparing to reach the standard required.

If learners are unhappy with their assessment outcomes, they should be informed of their right to appeal.

Centres must record any actions taken and/or any additional support given to the learner. There will be no limit on the number of resits or resubmissions which can take place.

For further information on the approach to resubmitting/resitting any specific assessments, please see information within the Assessment pack.

Assessment specifications

On-screen assessment

On-screen assessment specifications can be found in the Appendix 1 of the Assessment Pack.

Practical Project

The Practical Project covers all content from the trade specific units. Please refer to the Assessment Pack.

Guided Discussion

The discussion covers **two** content areas as shown below.

Knowledge, Skills and Understanding of:	
Core content (assessment criteria)	**Unit Ref**
1 Discussion area: Planning and evaluation	
3.1 The importance of effective and appropriate communication with others 3.2 The importance of emotional intelligence in effective communication. 3.3 How to plan and manage one's own time. 3.4 How to set targets and success criteria. 3.5 The importance of reflective practice. 4.1 Recognise problems that may occur within construction projects. 4.2 How to identify solutions to problems. 4.3 How to test and evaluate solutions.	201 (LO3, LO4)
1.1 The main techniques used for estimating jobs/projects in construction 1.2 How to identify resource requirements 1.3 How to estimate time requirements 2.1 Identify resources required to complete the task 2.2 Plan the activities and the ordering/phasing of work to complete the task 2.3 Identify success Criteria for the task 3.1 Evaluate completed work against the task brief and success criteria	203 (LO1, LO2, LO3)
2 Discussion area: Self-employment	
1.1 The trade bodies and organisations within the construction sector 1.2 The role of trade bodies and organisations within the construction sector	201 (LO1, LO2)

2.1 The characteristics of self-employment 2.2 The advantages and disadvantages of self-employment 2.3 The responsibilities of being self-employed 2.4 Patterns in employment and rises and falls in demand 2.5 The duty of care in ensuring products and work are safe for end users	

Qualification grading

This qualification is graded **Pass, Merit, Distinction.** If a learner fails, they will not receive a certificate.

Details of how these grades can be achieved and are calculated can be found in the Assessment pack.

Content key

Organisational procedures are referenced within the **knowledge units** of this qualification. Within the context of this qualification, these should be considered as typical/common procedures that exist within organisations, for example, those that would be found in the majority of organisations and/or on the majority of building sites/workplaces. Guidance on and examples of procedures that should be covered can be found in the delivery outcomes (depth of content) within units.

Where **organisational procedures** are referenced in relation to any **skills-based content** these are the policies and procedures of the learning provider/college and the workshop in which the assessment is taking place, e.g. Health & Safety, safe storage of tools and equipment, disposal of waste, etc.

The information below aims to provide an overview of how unit content is structured and how the areas of content relate to each other as well as qualification delivery and assessment.

Learning outcomes

Learning outcomes group together chunks of related practical skills and/or knowledge and are presented as the result of the learning process i.e. what learners must understand or be able to do following teaching and learning. All learning outcomes are supported by a number of assessment criteria. In the below for example, this learning outcome is about the different processes for stacking, storing, and preparing.

Learning outcome:

2. *Understand the processes of* ***stacking, storing, and preparing materials*** *for building brick, block, and stone walls.*

Criteria

Criteria break down the learning outcome into smaller areas to be covered. These criteria are what will be assessed in connection with the learning outcome. In the below for example, criteria 2.1 is about the reasons for stacking and storing materials, which has been written and will be assessed against the learning outcome.

Criteria

2.1 Reasons for ***stacking and storing*** *materials*

Range

Range contains information about the breadth required for a specific assessment criterion, for example, the actual reasons for stacking and storing materials. The range is not an exhaustive list, there may be other examples that could fit within that topic area, however those that are listed in the range are key for the delivery of the unit content – **all elements listed in the range must be covered as part of the delivery of the unit.**

Range: *protection, efficiency, security*

Depth of content

Depth of content outlines the depth of coverage that needs to be covered. This allows the teaching to be focused at the right level in order for the learner to be ready for assessment. For example, 'learners should recognise the reasons' highlights that learners need to have some understanding of the 'how' or 'why' in relation to the range.

Delivery outcomes (depth of content)

*2.1 Learners will recognise the reasons for **storing** materials prior to use to protect them from the weather, damage, and theft. Learners will also recognise the reasons for **stacking and storing** materials for efficiency in relation to **preparing** for work.*

Core unit content

Unit 201: Employment and employability in the construction sector

GLH:	30

What is this unit about?

This unit provides the learner with knowledge of some of the wider aspects within the construction sector.

Learners will develop their knowledge, understanding, and where relevant skills of:

- the trade relevant bodies and organisations within the construction sector
- the main principles of self-employment in the construction sector
- the importance of inter- and intra-personal skills
- solving problems within their scope of responsibility.

Learners may be introduced to this unit by asking themselves questions such as:

- What is reflective practice and when will I need to use it?
- What does the Federation of Master Builders do?
- What is a CSCS card and how do I get one?
- What do I need to consider about being self-employed?

Learning outcome:

1. Know the trade bodies and organisations within the construction sector

Criteria

1.1 The trade bodies and organisations within the construction sector

1.2 The role of trade bodies and organisations within the construction sector

1.3 The competence card schemes within the construction sector and the types of cards available

1.4 Professional registration as a construction professional

1.5 CITB and its role within the construction sector
Range: training and CPD; registration

2. Know the main principles of self-employment in the construction sector

Criteria

2.1 The characteristics of self-employment

2.2 The advantages and disadvantages of self-employment

2.3 The responsibilities of being self-employed

2.4 Patterns in employment and rises and falls in demand
Range: peaks and troughs in construction work, recruitment shortfall, skills shortage forecasts, trend predictions, vacancies

2.5 The duty of care in ensuring products and work are safe for end users

3. Know the importance of inter- and intra-personal skills

Criteria

3.1 The importance of effective and appropriate communication with **others**

Range: team members/colleagues, other trades, management, customers/clients, and members of the public

3.2 The importance of emotional intelligence in effective communication

3.3 How to plan and manage one's own time

3.4 How to set targets and success criteria

3.5 The importance of reflective practice

4. Know how to solve problems within their scope of responsibility

Criteria

4.1 Recognise problems that may occur within construction projects

Range: resource shortages (materials, people, money, plant, equipment), communication breakdown, incorrect information, process problems, problems arising from changes to the specification, scheduling changes, faulty products/equipment (including counterfeit products), non-compliances, and technical/physical faults of the system being installed

4.2 How to identify solutions to problems

4.3 How to test and evaluate solutions

Delivery Outcomes (depth of content)

Outcome 1

1.1 Learners will have an awareness of the full range of trade organisations within the construction sector, including the trade organisation umbrella - Build UK; the larger mainstream federations such as the FMB (Federation of Master Builders) and NFB (National Federation of Builders).

Learners will also have knowledge of the niche organisations covering every specialist aspect of the construction industry within their chosen trade area. Specialist federations include the Fire Protection Association, National Roofing Federation, Natural Stone Industry Training Group, Association of Concrete Industrial Flooring Contractors, ICE (Intuition of Civil Engineers) and Civil Engineering Contractors Association Wales (CECAW).

Learners will be able to recognise the specific trade federations which support their trade, and a range of additional associations which support more specialist elements of their trade. Learners will know about professional registration as a construction professional for their chosen trade area.

1.2 Learners will understand the role that trade organisations have within the construction sector. This should include the strengthening, uniting and advocacy role of Build UK; the assurances that company membership of FMB or NFB offers customers, as well as the business support and quality control that they offer to members; and a 'voice', training and technical support that niche associations offer specialist contractors.

Learners will have an awareness of unions, and their services/benefits.

1.3 Learners will know the card schemes for construction trades including the mandatory CSCS card. Learners will know the role of card issuers, and registration requirements and industry recognised qualifications. Learners will know the role of competent person schemes and the opportunity to become members of bodies such as FMB or NFB.

Learners will know the role of card issuers, and registration requirements and the need for industry recognised qualifications.

1.4 Learners will know the benefits of professional registration with the relevant professional construction institution such as: higher earning potential, improved career prospects and employability, enhanced status leading to higher self-esteem, international recognition of competence and commitment, evidence of expertise, greater influence within own organisation and industry, and recognition as a counter signatory.

1.5 Learners will know the role of the Construction Industry Training Board (CITB) in its support and funding for training and ongoing CPD. Learners will understand the requirements for company registration and network of training groups and CITB advisors across the country.

Outcome 2

2.1 – 2.3 Learners will recognise that if you start working for yourself, you're classed as a sole trader. This means you're self-employed - even if you haven't yet told HM Revenue and Customs (HMRC).

Learners will know that to be successfully in self-employment they will need to be responsible, autonomous and self-motivated. Learners will recognise key advantages: of being your own boss, having greater opportunities to earn more, utilise expenses, having greater flexibility in working arrangements, selecting your own customers etc. Learners will recognise key responsibilities of: tax, administration, and planning. Potential disadvantages of responsibility for the work, lack of security, social isolation, capital to purchase tools and equipment, insurance costs; no wider team to rely on, no employee benefits.

2.4 Learners will be able to recognise historical patterns in the industry including key peaks and troughs. Learners will know what is meant by shortfall and skills shortages and identify how trends are predicted. Learners will be able to recognise local labour market intelligence and the opportunities that are available.

2.5 Learners will know that they must have the skills, knowledge, experience and, where relevant, the organisational capability to carry out the work safely and without risk to health. Learners will know that they will be responsible for ensuring the work complies with relevant regulations (such as CDM etc.).

Outcome 3

3.1 Learners will be able to identify an appropriate method for communication, and the communication requirements of technical and functional information including: reports, formal letters, emails, and text messages, etc. Learners will recognise the importance of communication for good working relations with team members/colleagues, other trades, managers, consultants, customers/clients, and members of the public and respecting the needs of others. Learners will understand the implications of poor communication to the work being undertaken and the effect poor communication has to the site team and co-workers. This includes undertaking work to one's best ability and being a good employee/worker; co-operating with the employer and/or customer during work activities.

3.2 Learners will know what is meant by emotional intelligence and its importance to effective communication. Learners will understand that it can foster good relations with the personnel listed in the range in 3.1. Emotional intelligence can facilitate clear, concise, effective and positive communication. Learners will recognise the need for self-awareness and self-management; social awareness and relationship management. Learners will understand how to apply the principles of equality and diversity when working with others.

3.3 Learners will understand the importance of planning and managing one's own time, how planning can alleviate confusion (and subsequent stress) and the benefits of using software such as a phone calendar, sharing a calendar, and scheduling of priorities – and keeping track.

3.4 Learners will recognise the importance of setting targets (which can be SMART/SMART+C targets) and achieving results. Learners will understand what is meant by success criteria as the 'qualitative or quantitative criteria by which the successful project is judged'. Learners will also know what success factors are and how they can augment success. Learners will be able to relate this to the importance of inter-and intra-personal skills.

3.5 Learners will understand the importance of reflective practice both in delivering a project (completing the work) and in personal relations. Learners will recognise learning from practice/experiential learning – which is an essential skill in order to improve skills and abilities. Learners will be able utilise basic models of learning from practice.

Outcome 4

4.1 Learners will know the types of problems (and issues) that can occur within construction projects. Problems can occur from a wide range of causes, and may manifest in technical problems, problems in communication, faulty or defective equipment (which may have implications to health and safety); and non-compliances and other faults/problems or issues.

4.2 Learners will have an awareness of and be able to utilise two problem solving strategies and methods, such as trial and error, root cause analysis, research, lateral thinking, divide and conquer, brainstorming or other appropriate methods.

4.3 Learners will know how to safely test and evaluate solutions within their scope of responsibility in order to rectify typical problems in construction work.

Unit 202: Changing practices over time

GLH:	45

What is this unit about?

The purpose of this unit is for learners to gain knowledge and understanding of how materials, tools and techniques have changed and adapted from pre-1919 practices to the current practices, as well as looking to the future.

Learners will develop their knowledge, understanding, and where relevant skills of:

- the changing construction and built environment sector
- the changes in construction materials, tools, and techniques over time
- the relationship between trades and the environment
- connected practice in the construction and building services engineering.

Learners may be introduced to this unit by asking themselves questions such as:

- What changed within Construction in 1919?
- What is an aggregate?
- How does a DPM work?
- What is BIM and how does it influence the building process?
- What is a Passivhaus?

Learning outcome:

1. Know the changes in construction pressures and materials over time

Criteria

1.1 Pre-1919 construction
Range: pressures (geographical influences, local need), materials (regionally available)

1.2 Post-1919 to modern construction
Range: pressures (supply chain, industry demand, population); materials (standardisation, innovation)

1.3 21st century construction
Range: pressures (climate change, carbon footprint, resource availability); materials (lime; natural building materials; engineered materials)

2. Know the changes in construction methods over time

Criteria

2.1 Pre-1919 construction methods
Range: materials, tools and techniques used pre-1919

2.2 Post-1919 and modern construction techniques
Range: evolution of modern construction methods and techniques shaped by changes in materials, tools, and techniques.

2.3 21st century construction techniques and technologies for chosen trade
Range: off-site manufacturing; prefabricated construction components; 3-D printing of construction components; circular economy, sustainable design and retrofit; insulation; ventilation; new and emerging technologies

3. Understand the relationship between trades and the environment

Criteria

3.1 Industry regulation and sustainability

3.2 Ecological considerations and principles

3.3 Sustainable approaches
Range: heat recovery and ventilation, rainwater harvesting, fuel cells, solar panels, heat, and cooling pumps, zero carbon buildings.

3.4 Waste disposal in construction
Range: waste reduction, waste disposal, recycling principles in the learner's trade area.

4. Understand connected practice in the construction industry

Criteria

4.1 Interdependencies between trades

Range: relationships between individual trades and other trades in different scenarios from new build to repairing traditional structures.

Delivery outcomes (depth of content)

Outcome 1

1.1 Pressures: Learners will know local need (type and use of structures, needs of industry, cultural needs). Geographical influences: local availability of resources, local climate (weather considerations) locally influenced methods and styles; local distinctiveness.

Materials: Learners will know the basic qualities and uses of mortars, aggregates, binders, internal and external functional and decorative finishes, stone, slate, timber, and earth. Learners will know the permeable nature of lime and earth mortars.

Specific to this time period, learners will develop an understanding of the transportation and supply chain of materials; the benefits of using materials available within the region local to work sites, and the barriers/problems associated with using materials not local to work sites.

1.2 Pressures: Learners will know the developments in transport that influenced the supply chain since the industrial revolution.

An awareness of the sources of building materials, comparing materials found locally and those imported to a region.

Learners will know that for traditional buildings, the choice of materials also often reflected the status of the building. For example, higher value materials were often brought in for churches, particularly for the windows and other decorative design features.

Materials: Learners will know basic qualities of concrete slabs, brick and block, steel, glass, plastics, composite materials, standardisation of materials, and damp-proof membranes. The role that materials such as cement, glass and steel have played in the industry and the effect that material innovations have had on the scale and speed of construction including cost-effectiveness and durability. Learners will understand why damp-proof membranes (DPC, DPM) are included in post-1919 builds.

1.3 Pressures: Learners will know the increasing pressures of climate change and the carbon footprint of the construction industry. An understanding of the importance of energy efficiency and embodied energy in meeting the zero-carbon target is required. Learners will understand the importance of the Well-being of Future Generations (Wales) Act 2015 for the Construction industry.

Materials: Learners will know the qualities and uses of lime (limecrete, lime renders and mortars and plasters); natural building materials and engineered materials (timbers, acetylated wood, (re)engineered bricks and blocks, crushed concrete and glass aggregate, aerated bricks, and blocks).

Learners will recognise the need for sustainability of traditional and vernacular buildings; sustainable building materials; embodied energy, material selection and quality, energy efficiency, waste management and recycled materials. Sustainability also includes the re-use of buildings, rather than their demolition and the construction of new ones, as well as improving the thermal performance of existing modern and traditional buildings.

Learners will appreciate, off-site manufacturing; modular buildings, prefabricated construction components; digital construction technologies.

Learners will be aware of traditional methods of building surveying and design, as well as modern construction applications including digital design software, smart enabled tools, technologies and apps, drones, robotics, BIM, CAD, 3D modelling, and simulation.

Learners will have knowledge of 2D and 3D related software. Learners will be able to identify smart enabled tools and the benefits of using them in construction compared to traditional/existing methods.

Learners will be able to recognise where and how technologies, apps, drones, and robotics can be used in construction and the built environment, and the benefits and barriers of using them.

Learners will have a basic knowledge of the concepts of 3D printing including its uses, benefits, and limitations in relation to planning, designing, modelling, and constructing.

Outcome 2

2.1 Learners will know the typical methods of construction for pre-1919 buildings, this should include the materials, tools, and techniques relevant to their chosen trade.

<u>Bricklaying:</u>
Learners will know the methods of construction of solid wall structures and traditional timber frames, and the importance of retaining breathability in the fabric of the building using natural ventilation (fireplaces and chimneys), using hand tools and predominantly local materials such as stone and slate.

<u>Architectural Joinery:</u>
Learners will know the traditional box frame and casement construction methods and different types of adhesives such as animal glue used for internal joinery products and primer paint for external joinery products. Learners will know there was a limited range of machinery available and a reliance on belt-driven systems.

Site Carpentry:
Learners will know the methods of construction for

- traditional ground floors (suspended timber)
- timber lintels, bressummers
- trussed partitions
- traditionally cut roofs and King and Queen post roof trusses.

Learners will know traditional structural jointing techniques such as tusk tenons used in the above constructions.

Learners will know that locally sourced timber and ironmongery were predominantly used, and only handheld tools were available.

Timber Frame Erection:
Learners will know the methods of construction for

- traditional ground floors (suspended timber)
- timber lintels, bressummers
- trussed partitions
- traditionally cut roofs and King and Queen post roof trusses.

Learners will know traditional structural jointing techniques such as tusk tenons used in the above constructions.

Learners will know that locally sourced timber and ironmongery were predominantly used, and only handheld tools were available.

Solid Plastering and Dry Lining:

Learners will know methods of applying internal and external functional surface finishes including internal and external ornate plaster work (render and plaster) using lath, hydraulic lime, and hand tools such as lath hammer, water level and mild steel trowel.

Painting and Decorating:

Learners will know methods of applying internal and external protective and decorative finishes (making paint, preparation tools, brush application using paints and surface coverings such as wallpapers) using animal hair, white lead and limewash.

Roof Slating and Tiling:

Learners will know methods of constructing traditional roofing structures (cruck, cut and trussed) and roof coverings (slate, tile, stone, thatch) using lime mortar and horsehair, hammers, knifes and hand saws.

Groundworks:
Learners will know methods of ground working and civil operations (hand cutting or dressing stone, hand laid roads and footways, combined drainage systems) and relevant resources (natural stone and cobbles for paving and walling, hammers/mallets, chisels, water levels).

Wall and Floor Tiling:
Learners will know tiles were sourced from factories predominantly based in Stoke-on-Trent, the types and sizes of wall and floor tiles produced, and that a limited range of handheld tools were used.

Learners will know the method of fixing tiles with lime-based mortar and the requirement for the majority of tiles to be soaked due to their porous properties prior to fixing. Learners will know all tiles were grouted using the same type of mortar and that tile joints were larger due to the manufacturing tolerance size of the period.

2.2 Learners will know the typical methods of construction for post-1919 buildings, this should include the materials tools and techniques relevant to their chosen trade.

Learners will understand the development of construction practice within their chosen trade, for example:

- brick cavity methods of construction and later variations of cavity wall design
- prefabricated floor, wall, roof, and joinery components

Bricklaying:
Learners will know the methods of construction of solid and cavity wall structures (vapour permeable construction methods, damp proof courses, increase in insulation) and the use of machinery and resources (cutting materials, use of prefabrication, concrete units).

Architectural Joinery:
Learners will know the impact of the post WW2 requirement for the economical use of timber and quality design and of the introduction of joinery manufacturing standards such as the EJMA English Joinery Manufacturers Association (EJMA).

Learners will know the development of end jointing techniques such as comb joints and the introduction of engineered timbers, sheet materials, improved adhesives, preservative methods, and ironmongery.

Learners will know the increased range of static machinery available for end jointing, sanding, and profiling of joinery components and of the introduction of portable power tools and the development of jointing techniques as a result of their introduction.

Site Carpentry:
Learners will know that imported timber and regularised timber (CLS - Canadian Lumber Standard) became more commercially available and of the introduction of solvent-based preservatives and timber-based sheet materials.

Learners will know the requirement for the economical use of timber and quality standards through the introduction of the Timber Research and Development Association (TRADA) type roof trusses and structural joist size and tables.

Learners will know of the introduction of portable power tools and proprietary building ironmongery and fixing systems.

Timber Frame Erection:
Learners will know that imported timber and regularised timber (CLS - Canadian Lumber Standard) became more commercially available and of the introduction of solvent-based preservatives and timber-based sheet materials.

Learners will know the requirement for the economical use of timber and quality standards through the introduction of TRADA (Timber Research and Development Association) type roof trusses and structural joist size and tables.

Learners will know of the introduction of portable power tools and proprietary building ironmongery and fixing systems.

Solid Plastering & Dry Lining:
Learners will know methods of applying internal and external functional and surface finishes (render, plaster, and plasterboards) including the introduction of fixing dry lining with galvanized nails (c1950s), mechanical methods and by direct bond (c1980s) (standard and performance plasterboard).

Painting and Decorating:
Learners will know methods of applying internal and external protective and decorative finishes (paint manufacture, preparation tools, wallcovering) using relevant resources (synthetic/natural brushes, vinyl coverings, lead/non-lead paints, water based and solvent based paints).

Roof Slating and Tiling:
Learners will know methods of constructing roofing structures (single lap, double lap, felt underlays, lead work) and roof coverings (slate, tile, stone, concrete) using 110v power tools such as cut-off saws and drills.

Groundworks:
Learners will know methods of ground working and civil operations (national standards used for construction methods, slip form paver machines for concrete roads, heavy plant and equipment for earthworks, mechanical saws, pneumatic breakers) and relevant resources (preformed kerbs, paving and drainage units made to measure, clay preformed engineering bricks, precast concrete, laser levels, electric drills).

Wall and Floor Tiling:

Learners will know tiles became more widely produced, predominantly quarry tiles in Wales and the manufacture of dust pressed tiles in Manchester and Dorset.

Learners will be aware of the introduction of industry standards and in particular CP202.

Learners will know there was increased use of low porosity tiles in the latter half of the century and the use of cement based adhesives and grouts, commonly white and grey. Learners will know all floor tiles bedded on to a timber substrate included a meshed reinforced sand and cement onto a bitumen based building paper and of the introduction of electrically operated cutting tools.

2.3 Learners will know emerging methods of construction for 21st century buildings, this should include the materials, tools, and techniques relevant to their chosen trade. Learners will know the new/emerging technologies in their trade. Learners will know how to access information on new developments in their trade – such as through professional institutions, industry bodies and trade associations, articles, trade press, formal CPD, manufacturers' information etc.

Learners will be aware of modern construction, surveying and design applications including BIM, CAD, 3D modelling, simulation, and drones, as well as traditional methods of building survey and design as relevant to their chosen trade.

Learners will have an understanding of modular building design and construction methods for their chosen trade.

Learners will know what is meant by the following terms and what they mean in relation to their trade: circular economy, sustainable design and retrofit; insulation; moisture management; ventilation.

Bricklaying:

Learners will know the modern methods of construction of solid and cavity wall structures (sealed external wall, plastic damp proof courses, insulation) and the use of relevant resources (modular construction, sustainability focus, concrete). Learners will know the requirement for airtightness in buildings to improve the insulation value.

Architectural Joinery:

Learners will know the impact of AutoCAD systems and their relationship to CNC machinery production methods, and of the increased use of modern assembly techniques and machines such as laser/plasma cutters and engineered wood i.e. acetylated timber, plastic composite profiles, and conveyor belt assembly lines for mass produced joinery components.

Site Carpentry:

Learners will know about the development of prefabricated structural panels.

Learners will know composite materials and modified timbers and their impact on performance, aesthetics, and design.

Learners will know the increased range and use of cordless power tools.

Timber Frame Erection:
Learners will know the impact of the development of modular construction and prefabricated flatpack.

Learners will know composite materials and modified timbers and their impact on performance, aesthetics, and design.

Learners will know the increased range and use of cordless power tools.

Solid Plastering:
Learners will know methods of applying internal and external functional and surface finishes, (plain and textured, traditional loose materials, standard and specialist pre-blended and pre-mixed materials), specialist standard and thin coat beads, plaster, and performance plasterboards to meet regulations using relevant modern resources (spray machines, mechanical mixing/fixing, self-adhesive scrim, collated and singular mechanical fixing methods).

Dry-lining:
Learners will know modern methods of applying internal functional and surface finishes (performance plasterboard, specialist metal interior systems, fire proofing and acoustic control) using relevant modern resources (hand/mechanical taping and jointing, aerated and fast setting chemical jointing adhesives including primers and sealers).

Painting and Decorating:
Learners will know modern methods of applying internal and external functional and decorative finishes (digital wallcovering, airless spraying, HVLP spraying, chemical processes for paint mixing) using relevant resources (synthetic/natural brushes, eco-friendly paint strippers, synthetic resins, and pigments).

Roof Slating and Tiling:
Learners will know modern methods of constructing roofing structures (GRP roof products, roof windows, polymer-modified mortar) and roof coverings (tile, stone, UPVC fittings) using battery operated power tools such as drills and cut-off saws.

Groundworks:
Learners will know modern methods of ground working and civil operations (Modern Methods of Construction (MMC), 3D Volumetric Construction, precast flat panel modules, hybrid concrete building technique, modular construction) and relevant resources (robotic GPS setting out equipment, highly engineered tools).

Wall and Floor Tiling:

Learners will know the use of larger tiles became the norm and of the introduction of panel tiles (i.e. tiles with surface area >1m² and any tile edge >1200mm), and the requirement for different fixing techniques.

Learners will be aware of the introduction of levelling devices to reduce lippage, and know modern systems (uncoupling membranes, undertile and under floor heating systems, tiles fixed to pedestals, tiles fixed to acoustic systems).

Learners will know the tools and equipment required to move, handle and install larger tiles.

Outcome 3

3.1 Learners will know the features of the Environment (Wales) Act 2016, Environmental Protection Act, PAS 2030 and PAS 2035, The Hazardous Waste Regulations, Pollution Prevention and Control Act, Control of Pollution Act. Learners will know the value of thermal imaging in energy efficient construction practice and understand BREEAM and Passivhaus codes of good practice.

Learners will know the essentials of responsible retrofit of the full range of building stock including traditional and modern.

Learners will know the Conservation of Habitats and Species Regulations 2010 and the penalties for breaking the law (e.g. disturbing a bat roost or a Newt Colony).

Learners will know how the design of construction projects can help with energy efficiency and the link to smart homes and smart technologies, such as sensors and controls.

3.2 Learners will have an awareness of ecological considerations and principles and be able to relate this to construction and the built environment. Learners will have a basic appreciation of endangered habitats, areas of flood plains, biodiversity offsetting and primary protected species, and of current legislation relating to wildlife and habitats.

3.3 Learners will be able to identify the sustainable considerations used in construction and the built environment and recognise the scope of their use to maintain a healthy building. Learners will also be able to identify the ways in which buildings can off-set their carbon footprint.

3.4 Learners will know how the use of different materials can reduce environmental impact in their trade area, and the principles of the '3 Rs' of waste management (reduce, reuse and recycle).

Learners will know the importance of accurately ordering materials in order to reduce site waste and save money on over-ordering and waste disposal costs. Storing materials in an appropriate manner and the controlling of inventory and appropriate sorting of waste on site.

Learners will be aware of good practice guidance such as WRAP for industry waste management. Learners will understand the nature of recyclable and biodegradable

materials and the impact on landfill and cost to the environment and the type of materials that are commonly recycled on-site.

Learners will know how scrap materials can hold value (such as copper) understanding that it is a finite resource and know the public register of scrap metal dealers in Wales.

Learners will know how to dispose of hazardous waste including cement-bonded and fibrous asbestos waste collection. The use of licensed waste carriers, brokers, and dealers. The consequences to self, others, and the environment of not following best practice, and relating statutory requirements in relation to waste disposal.

Learners will know the key features of regulations including the Environmental Protection Act, The Hazardous Waste Regulations, Pollution Prevention and Control Act, Control of Pollution Act, The Waste Electrical and Electronic Equipment Regulations.

Outcome 4

4.1 Learners will appreciate the relationships between their chosen trade and other trades in different contexts from new build to repairing traditional structures.

Learners will understand how individual trades work with each other and interact. Learners will understand for example first and second fix, and the types of problems that can arise and how to mitigate them.

Interdependencies can be linked to safe working practices, planning, type of premises/context, and good working relations and communication. Learners will understand how different trades interact across different scenarios and how these interactions and roles have changed over time.

Unit 203: Planning and evaluating work in the construction sector in Wales

GLH:	25

What is this unit about?

This unit provides the learner with the knowledge of how to plan and evaluate work. Learners will be able to read and interpret plans and documentation required in performing a wide range of tasks in the trade area. Learners will be able to plan the completion of a wide range of tasks in the trade area, using the required literacy and numeracy skills and set their own performance criteria for given tasks.

Learners will evaluate their own performance in carrying out a wide range of tasks in this trade area both in relation to the set requirements and their own success Criteria.

Learners will develop their knowledge, understanding and skills of:

- how to calculate costs and determine resource requirements
- planning work
- the importance of evaluation of the work

Learners may be introduced to this unit by asking themselves questions such as:

- What is the difference between an estimate and a quote?
- How do I price up a small job?
- What is involved in pricing up for a large contract?
- What are RAMS?

Guidance: Where relevant this unit can be delivered in conjunction with the trade units being delivered and learning outcomes 3 and 4 of the Employment and Employability in the Construction Sector. The skills in this outcome will be important to enable the learner to plan, perform, and evaluate their work in the Practical Project assessment.

Learning outcome:

1. Know how to calculate costs and determine resource requirements

Criteria

1.1 The main techniques used for estimating jobs/projects in construction

1.2 How to identify resource requirements

1.3 How to estimate time requirements

2. Plan the work required to complete the task(s)

Criteria

2.1 Identify resources required to complete the task
Range: tools, plant, equipment, products, materials

2.2 Plan the activities and the ordering/phasing of work to complete the task

2.3 Identify success criteria for the task
Range: key elements of the work, recognising areas that may be challenging

3. Evaluate completed work

Criteria

3.1 Evaluate completed work against the task brief and success criteria
Range: output fit for purpose, safe and in line with task parameters/tolerances, quality of work, tool selection, were success criteria set appropriate, material usage and waste generated, approach taken to phasing/ordering work

Delivery Outcomes (depth of content)

Outcome 1

1.1 Learners will gain an awareness of estimating techniques used for calculating cost, profit margin and methods of determining price.

1.2 Learners will recognise types of resources as:

- consumable (replenishable), such as materials and money
- re-useable, such as plant, equipment, and people.

Learners will have an appreciation of the resources required for construction projects and when they are required and how to avoid waste. Learners will have an appreciation of scheduling and the need to avoid resource overloads.

1.3 Learners will acquire a fundamental knowledge of how to estimate the time requirements for simple construction projects. This will include design, planning, preparation, installation, commissioning, and administration for the projects.

Outcome 2

2.1 – 2.2 Learners will know how to plan the completion of well-defined, generally routine tasks and address straightforward problems. Learners will be able to select (and use) relevant skills and procedures to carry out their chosen trade. Learners will know how to carry out the necessary planning to enable the completion of work, this includes risk and method statements (RAMS), cost and pricing (e.g. customer estimates), and utilising/creating diagrams or drawings with correct information from appropriate sources of information.

Learners will identify, gather, and use relevant information to inform actions. Learners will be able to identify and produce relevant documentation for tools and materials required to complete tasks (e.g. resource list); and plan the ordering/phasing of work (e.g. schedule of works), so work is completed safely, efficiently, and effectively (creating plans with activities, milestones, and dependencies).

2.3 Learners will be able to identify success criteria for the task, such as milestones, key activities, material usage, and finished quality etc. Learners will recognise areas which they will find challenging enabling them to address this as much as possible in the planning and preparation stages of the work.

Outcome 3

3.1 Learners will be able to evaluate their performance in carrying out the tasks, both in relation to the set requirements and their own success criteria.

Learners will be able to evaluate their own performance against the given plan in relation to key aspects such as:

- whether an alternative approach could have been taken
- identify how effective their actions have been
- strengths/weaknesses
- lessons learnt.

Trade Pathways: Trade-specific Pathway Content

Pathway A: Bricklaying

Unit 204: Bricklaying Core Knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this pathway.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- understand working to deadlines

The content contained within this unit has been presented in a generic way as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in the context of the following skills units (where appropriate);

- Set Out to Form Masonry Structures
- Erect Masonry Structures.

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria

1.1 The organisational procedures developed to report and rectify inappropriate information and unsuitable resources, and how they are implemented

1.2 The types of information, their source and how they are interpreted

1.3 The organisational procedures to solve problems with the information and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria

2.1 The level of understanding operatives must have of information for relevant, current legislation and official guidance and how it is applied

2.2 How emergencies should be responded to and who should respond

2.3 The organisational security procedures for tools, equipment, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how health and safety control equipment should be used

2.6 How to comply with environmentally responsible work practices to meet current legislation and official guidance

3. Understand how to minimise the risk of damage

Criteria

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4. Understand working to deadlines

Criteria

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problems, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings and plans, specifications, schedules, method statements, risk assessments, site notices and safety signs, manufacturers' information, oral and written instructions, and building regulations, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems and potential hazards arising from resources including unsuitable materials, adverse weather conditions and changing circumstances.

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know the principles of the following pieces of legislation; Building regulations; Working at Height regulations (WAH); Health and Safety at Work Act (HASAWA); PUWER; ACOPs; RIDDOR; CDM; COSHH; PPE; LOLER, Manual Handling regulations; Noise at Work regulations.

Learners will know what each legislation is for, how it is used in industry and the consequences of non-compliance. Learners will understand the roles of local authority with regards to planning and Building Control and with heritage structures including consultation with Cadw.

2.2 Learners will know how to respond to situations in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries, and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.
Learners will know the types of spillages, how to prevent them and how to fix them.
Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities, including prevention, emergency procedures, emergency services, reporting procedures, access, and egress for emergency vehicles.

2.3 Learners will know the organisational security procedures for different situations, to include:

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID authorisation procedures
- operative - including security of tools, materials, equipment and vehicles, personal belongings.

Learners will have an understanding of security procedures in a domestic dwelling compared to on-site.

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling, and how to take active responsibility for health, safety, and welfare. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learners will know how to make the correct selection, usage, and maintenance of PPE, RPE, LEV including knowledge of the following; high-impact glasses, goggles, hard hat, Hi-Viz jacket, ear defenders, safety boots, dust masks (including face fit tests), safety harnesses, appropriate gloves, fall arrest bags, crash mats, scaffold guard rail and netting, false floors, first fix nail gun training, and second fix nail gun training.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including Site Waste Management Plan (SWMP), recycling, reuse, segregated waste.

Outcome 3

3.1 Learners will know how to protect work from damage from general work activities and from other occupations and weather conditions (domestic as well as site-based). Learners will understand the use of temporary cover, altering order of work to protect work better, the care and attention to detail during installation, use of dust sheets and material protectors. Learners will know how to correctly store materials before, during and after the work.

3.2 Learners will know why the disposal of waste should be carried out safely and responsibly following organisational procedures, manufacturers' information, statutory regulations, and official guidance in line with environmental responsibilities. Learners will know the different methods of disposal, to include designated skips, recycling, segregation of waste, local waste collection point, biofuel.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme and the importance of why the deadlines should be kept.

Learners will know the types of productivity targets and time scales, how times are estimated and the circumstances which will affect the work programme, to include weather, availability of labour, the knock-on effect of poor handling and storage causing damage to materials, penalty clause, retention fees, reputation, and the implication on other trades.

Unit 205: Set Out to Form Masonry Structures

GLH:	135

What is this unit about?

This unit is about setting out to form masonry structures for brickwork, blockwork, and local materials.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What are the range of materials and equipment used when setting out masonry structures?
- What are the types of information that I will use?

Learning outcome:

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the range of resources used in the process of setting out buildings to drawings specifications, and schedules.

Learners will understand the use of tape measures for linear measurement in the setting out process. Learners will understand the use of lines to establish wall positions at ground level and below ground to establish dimensional accuracy to include using;

- ranging rods
- site square
- lines
- profiles
- pegs

Learners will understand the characteristics of the materials used to set out masonry structures in brick, block and stone and know how to determine suitable materials for the given task, they will also know how those resources should be selected, moved, and stored.

1.2 Learners will understand the methods used to establish levels by transferring heights from given points or datums using an appropriate optical level. Learners will know how to identify inaccuracies in measurements and in square and how to rectify the position or who to report the problems to. Learners will be able to identify problems and understand the reporting procedure when setting out to form masonry structures.

1.3 Learners will understand the working procedures used to select the most appropriate methods to set out dimensional position, establish corners square and at angles in accordance with written instructions, drawings, specifications, schedules, and verbal instructions to meet the contract size/needs.

1.4 Learners will understand the hazards that are present in setting out buildings and understand how to follow risk assessments and method statements to carry out the work in a safe manner, to include;

- trenches
- falling from height
- manual handling

Learners will understand their responsibilities in relation to the hazards.

Outcome 2

2.1 Learners will understand the correct methods used to establish dimensions accurately and to establish the setting out details from drawings, specifications, and verbal instructions. Learners will understand how to identify fixed level points and datums and how to transfer values from one established point to establish a Temporary Bench Mark (TBM).

2.2 Learners will know how to maintain equipment to ensure its accuracy in future use and how equipment should be cleaned and maintained after use.

Methods of maintaining tools and equipment to include:

- checking for accuracy
- oiling tapes
- cleaning equipment

Learning outcome

3 Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills to measure, mark out, level, plumb, position, transfer, fix and secure

3.2 Use and maintain hand tools and setting out equipment to determine dimensions and positions using line, level, depth, area, height, and angle to given working instructions to establish at least two of the following lines;

- straight (180 degrees)
- right angles (90 degrees)
- openings

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to identify suitable information from contract documentation to enable them to position profiles accurately to set out for the dimensional positioning of a building. Learners will be able to measure and mark out wall positions on fixed profiles and be able to transfer wall positions from lines on to foundation concrete. Learners will be able to use correct manual handling techniques and demonstrate active responsibility for health, safety, and welfare.

3.2 Learners will be able to establish wall positions, lengths, square and line by measurement to establish wall positions and positions of openings, to include windows and doors. Learners will be able to transfer levels from distance and from temporary datums.

Learners will be able to identify and use tools and equipment to set out and position lines, profiles, and pegs. Learners will be able to maintain the equipment in good condition for future use. Equipment to include:

- tape measures
- levels
- optical levels
- site square
- laser levels
- legs
- lines

Unit 206: Erect Masonry Structures

GLH:	193

What is this unit about?

This unit is about erecting brickwork and blockwork and/or structures of local materials and styles.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What is quarter bond?
- How do I set out a right-angled corner?
- How do I find out the gauge of the mortar I will use?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the types of resources used in construction such as:

- bricks
- blocks
- insulation blocks
- local stone
- reconstructed stone
- cement
- sand
- additives
- walling components
- wall ties
- DPC
- DPM
- insulation

- partial fill
- full fill
- vents
- cavity closers.

Learners will know how to identify and select the correct suitable materials for selected tasks. Learners will know how to assess the quality and condition of materials as fit for use and defect free.

Learners will know how to ensure materials are stored in line with manufacturers information and identify defective materials including accessories for poor quality and contamination and ensure they are removed and set to one side.

Quality and defects to include:

- twisted timber
- rot
- rust
- damaged materials
- clean water
- clean sand.

1.2 Learners will know how and when to select the suitable types of materials, components, accessories, for various applications such as mixing mortars, solid walling, cavity walling. Learners will know how to identify and report any defects in the materials and apply corrective measures.

1.3 Learners will understand the process for selecting materials using technical information sources such as drawing, specifications, schedules, and manufacturer's information to ensure quality and quantity of materials prior to work commencing to the required standard.

1.4 Learners will understand hazards associated with the type of work and with the various selected materials, and those associated with storing, moving, and handling, mixing, laying, working at height. Learners will know how to follow method statements and risk assessments to identify suitable PPE and carry out the work safely in accordance with health and safety legislation. Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority when carrying out the work.

Outcome 2

2.1 Learners will understand their responsibility for completing set work tasks to the required standard and time frames set by planned work programmes. Learners will understand the effects of not meeting quality standards or the planned deadlines, and the follow-on effects it has on other trades and planned work programmes.

2.2 Learners will know how to carry out pre checks on hand tools and power tools to ensure they are fit for use and purpose when mixing and preparing mortar.

Learners will know how to select tools and equipment to carry out the work on various types of walling, how to measure, gauge and mix mortar to set specifications, positioning and cutting using a range of methods including bricks, blocks, natural stone, wall ties, wall components, DPC, DPM, vertical DPC's, trays, lintels, reinforcement using correct techniques.

Learners will know how to use hand tools and power tools, access equipment and store and maintain during and after completing set work tasks.

Tools to include:

- trowel
- line/pins
- corner blocks
- lump hammer
- bolster
- chisel
- comb
- hammer
- level
- pocket level
- gauge rod

Equipment to include:

- buckets
- shovel
- mixer
- disc cutter
- corner profiles
- optical level

Learning outcome

3 Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills to measure, mark-out, lay, position, plumb, level and secure

3.2 Use and maintain hand and power tools, mixing plant and equipment to erect masonry in brick and block and/or local materials to given working instructions for the following;

- cavity wall structures
- solid wall structures
- form and bridge openings
- joint finishes
- cills
- capping and copings

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to demonstrate work skills to measure, mark out, lay, position and secure bricks, blocks, stone, mortar and accessories, components using correct manual handling techniques. Learners will carry out the work consistently in line with information sources to include:

- drawings
- specifications
- schedules
- manufacturer's information to meet current industrial standards

3.2 Learners will be able to demonstrate work skills to erect masonry structures in brick, block, and/ or local materials in line with specifications drawings, schedules, and manufacturers information.

Learners will be able to select materials for mixing mortars by hand and by mechanical mixer to correct consistency and gauge.

Learners will be able to erect solid walls up to one brick thick in English, Flemish, English Garden wall, Flemish Garden wall, in solid blocks and local materials in accordance with set drawings, specifications and schedules to required standards.

Learners will be able to construct cavity walls using brick, block, insulation block and local materials and install components such as DPC's, DPM's, cavity closers, wall ties, clips, insulation (full and partial fill), straps, reinforcement, frames, cills, lintels to bridge openings.

Learners will be able to finish joints to specification including flush, weather struck, recessed, half round. Learners will be able to lay, position and cut copings and cappings to solid walling according to given information.

Materials to include:

- brick
- solid block
- insulation block
- hollow block
- natural stone
- reconstructed stone.

Components to include:

- lintels – steel, concrete
- insulation- full fill and partial
- wall ties
- damp proof courses/damp proof membranes
- cavity closures
- frames - windows and doors
- cills
- wall finishes – copings, cappings.

Learners will be able to use correct manual handling techniques and demonstrate active responsibility for health, safety, and welfare.

Pathway B: Architectural Joinery

Unit 207: Architectural Joinery core knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this pathway.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- understand working to deadlines.

The content listed in this document is deemed generic as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in relation to the following skills units (where appropriate):

- Produce setting out details for routine products
- Mark out from setting out details for routine products
- Manufacture routine products
- Set up and use transportable cutting and shaping machines

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria

1.1 The organisational procedures developed to report and rectify inappropriate **i**nformation and unsuitable resources, and how they are implemented

1.2 The types of information, their source and how they are interpreted

1.3 The organisational procedures to solve problems with the information and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria

2.1 The level of understanding operatives must have of information for relevant, current legislation and official guidance and how it is applied

2.2 How emergencies should be responded to and who should respond

2.3 The organisational security procedures for tools, equipment, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how health and safety control equipment should be used

2.6 How to comply with environmentally responsible work practices to meet current legislation and official guidance

3. Understand how to minimise the risk of damage

Criteria

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4. Understand working to deadlines

Criteria

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problems, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings and plans (floor plan, range drawings, component range and elevation, assembly and detail drawings), specifications, schedules, method statements, risk assessments, site notices and safety signs, manufacturers' information, oral and written instructions, building regulations, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems arising from resources and potential hazards including unsuitable materials, adverse weather conditions and changing circumstances.

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know the principles of the following pieces of legislation; Building regulations; Working at Height regulations (WAH); Health and Safety at Work Act (HASAWA); PUWER; ACOPs; RIDDOR; CDM; COSHH; PPE; LOLER; Manual Handling regulations; Noise at Work regulations.

Learners will know what each legislation is for, how it is used in industry and the consequences of non-compliance. Learners will understand the roles of local authority with regards to planning and Building Control and with heritage structures including consultation with Cadw.

2.2 Learners will know how to respond to situations in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.

Learners will know the types of spillages, how to prevent them and how to fix them. Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities, including prevention, emergency procedures, emergency services, reporting procedures, access and egress for emergency vehicles.

2.3 Learners will know the organisational security procedures for different situations, to include:

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID authorisation procedures
- operative - including security of tools, materials, equipment and vehicles, personal belongings.

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling. including how to take active responsibility for health, safety and welfare. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learners will know the correct selection, usage and maintenance of PPE, RPE, LEV including knowledge of high-impact glasses, goggles, hard hat, Hi-Viz, ear defenders, safety boots, dust masks (including face fit tests), appropriate gloves, respirator.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including: site waste management plan (SWMP); recycling; reuse; segregated waste, machine authorised user log.

Outcome 3

3.1 Learners will know how to protect work from damage, dust sheets, material protectors (bubble wrap, corrugated cardboard).

Learners will know the correct storage of materials before, during and after the work.

3.2 Learners will know why the disposal of waste should be carried out safely and responsibly following organisational procedures, manufacturers' information, statutory regulations and official guidance in line with environmental responsibilities.

Learners will know the different methods of disposal to include designated skips, recycling, segregation of waste, local waste collection point, biofuel.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme, and why the deadlines should be kept.

Learners will know the types of productivity targets and timescales, how times are estimated and the circumstances which will affect the work programme, to include availability of labour and resources, knock-on effect of poor handling and storage causing damage to materials, penalty clause, retention fees, reputation and the implications on other trades.

Unit 208: Produce setting out details for routine products

GLH:	50

What is this unit about?

This unit is about setting out details prior to marking out components for manufacturing routine joinery products.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What do I need to know about the resources required to manufacture joinery products?
- What tools and equipment are required to set out joinery products?
- How do I set out for a straight flight of stairs?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the characteristics and suitability of resources when selecting them for setting out details for routine products. Learners will know how to assess the quality of the resources including grading of timber for a particular use when appearance, strength and durability is important.

Timber and manufactured boards:

- European redwoods and whitewoods
- Douglas fir
- European oak
- ash
- sapele
- idigbo
- Iroko
- maple

- acetylated/ heat treated softwoods
- plywood
- fibreboard

Ironmongery:

- hinges (butt, loose pin, rising, concealed, storm-proof, friction, T, friction back flaps)
- locks (rim, mortice, sash mortice, Suffolk latches, drawer, and cupboard locks)
- casement fasteners and stays, pivot centres

Glazing: single, double, treble and secondary

Learners will know how to identify defects and when to remove them during the selection process for the production of shaped work, defects to include:

- knots
- twist
- bowing
- cupping
- sloping grain
- heart, cup, star, and thunder shakes
- case hardening
- end checks
- waney edge.

1.2 Learners will understand how and when to select the suitable type of timber and manufactured products in the setting out process, to include consideration of internal and external application, the environment, temperature, and ambient moisture content.

Learners will know how and when to report problems with resources when setting out details for routine products.

1.3 Learners will know the process for selecting materials using technical information sources including drawings, specifications, schedules, and manufacturer's information when setting out details for routine products.

1.4 Learners will understand the hazards and risks associated with resources used in the setting out process within a workshop environment. Learners will understand the importance of dust control and the correct use of dust extraction:

- the use of particle board and related health issues to include respiratory problems (bronchitis, asthma, and emphysema)
- the use of certain hardwoods and related health issues to include cancer.

Learners will understand the importance of hearing protection and know the effects of noise to include deafness and tinnitus.

Outcome 2

2.1 Learners will know how to:

- set out for joinery products
- produce templates
- compile a cutting list and material requisition order sheets
- calculate the quantity of materials required.

2.2 Learners will know the features and benefits of tools and equipment and understand their suitability for use:

- measuring: to include scale rule, steel rules, tape measure, Vernier calipers
- setting out and marking out: to include Tee square, try square, set squares, straight edge, combination square, line runner (panel gauge), compass, trammel.

Learners will know how to transfer measurements and draw the necessary plan and height sections, front, and auxiliary elevations, where required for workshop rods to include mouldings, rebated and grooved details.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out and draw

3.2 Use and maintain hand and power tools to produce setting out details and cutting lists for routine products to given working instructions for at least two from the following:

- doors
- windows with opening lights
- units and/or fitments (panelling or cladding)
- staircases (straight)

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to set out:

- match boarded, panelled, and glazed doors
- traditional casement, single- and double-glazed windows
- dado, frieze, and full height panelling incorporating sunk, beaded, and raised panels
- for unit and fitment carcase construction to include drawers
- internal and external jointing details and quantities for cladding
- for straight flights of stairs, closed string and open riser.

3.2 Learners will be able to select, safely set up, use, and maintain the appropriate tools and equipment) to include:

- measuring tools: scale rule, steel rules, tape measure, Vernier calipers
- setting out and marking out tools: Tee square, try square, set squares, straight edge, combination square, line runner (panel gauge), compass, trammel.

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 209: Mark out from setting out details for routine products

GLH:	50

What is this unit about?

This unit is about setting out details prior to marking out components for manufacturing routine joinery products.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- How do I use the resources available most efficiently?
- What methods are used to mark out the strings of a staircase?
- How do I ensure that door stiles are marked out as a pair?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the characteristics and suitability of resources when selecting them for marking out details for routine products. Learners will know how to assess the quality of the resources including grading of timber for a particular use when appearance, strength and durability is important.

Timber and manufactured boards:

- European redwoods and whitewoods
- Douglas fir
- European oak
- ash
- sapele
- idigbo
- Iroko
- maple

- acetylated/ heat treated softwoods
- plywood
- fibreboard

Ironmongery:

- hinges (butt, loose pin, rising, concealed, storm-proof, friction, T, friction back flaps)
- locks (rim, mortice, sash mortice, Suffolk latches, drawer, and cupboard locks)
- casement fasteners and stays, pivot centres

Glazing: single, double, treble and secondary

Learners will know how to identify defects and when to remove them during the selection process for the production of shaped work, defects to include:

- knots
- twist
- bowing
- cupping
- sloping grain
- heart, cup, star, and thunder shakes
- case hardening
- end checks
- waney edge.

1.2 Learners will know how and when to report problems associated with materials not suitable for their application and how to determine suitability of the construction method or use of correct jointing.

1.3 Learners will know the process for selecting materials using technical information sources including drawings, specifications, schedules, and manufacturer's information when setting out details for routine products.

1.4 Learners will understand the hazards and risks associated with resources used when marking out within a workshop environment. Learners will understand the importance of:

- manual handling (carrying, pushing, assessing weight, manual assistance where required, strains, musculoskeletal disorders)
- eye protection (safety glasses, face shields, blindness)
- ear protection (ear plugs, ear defenders, deafness, tinnitus).

Outcome 2

2.1 Learners will know how to apply marking references (face and edge) taking into account defects present within the timber.

Learners will know how to mark out joinery products as 'one off' or batch items.

2.3 Learners will know how to adjust, set and maintain marking and testing tools and know how to produce setting out rods and templates (stair).

Learners will know how to mark out from setting out rods with the use of marking and measuring tools to include:

- steel rules
- tape measure
- try square
- combination square
- box square
- Vernier calipers
- sliding bevels
- marking gauge
- mortice gauge
- trammel.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure and mark out joinery components using setting out details

3.2 Use and maintain marking and testing tools (setting out rods or templates), to mark out routine products to given working instructions for at least two items from the following:

- doors
- windows with opening lights
- units and/or fitments (panelling or cladding)
- staircases (straight)

Delivery outcomes (depth of content)

Outcome 3
3.1 and 3.2
Learners will be able to mark out:

- match boarded, panelled, and glazed doors
- traditional casement, single- and double-glazed windows
- dwarf, dado, and full height panelling incorporating sunk, beaded, and raised panels

- for unit and fitment carcase construction to include drawers
- internal and external jointing details for cladding
- for straight flights of stairs, closed string and open riser.

Learners will be able to safely adjust, set and maintain marking and testing tools and be able to produce setting out rods and templates (stair).

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 210: Manufacture routine products

GLH:	165

What is this unit about?

This unit is about manufacturing routine joinery products including doors, windows, and straight staircases.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What processes are required to manufacture joinery products?
- How do I sharpen and set up a smoothing plane?
  How do I check that a window frame has been assembled square?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the characteristics and suitability of resources when selecting them for manufacturing routine products. Learners will know how to assess the quality of the resources including grading of timber for a particular use when appearance, strength and durability is important.

Timber and manufactured boards:

- European redwoods and whitewoods
- Douglas fir
- European oak
- ash
- sapele
- idigbo
- Iroko
- maple

- acetylated/ heat treated softwoods
- plywood
- fibreboard

Ironmongery:

- hinges (butt, loose pin, rising, concealed, storm-proof, friction, T, friction back flaps)
- locks (rim, mortice, sash mortice, Suffolk latches, drawer, and cupboard locks)
- casement fasteners and stays, pivot centres

Glazing: single, double, treble and secondary

1.2 Learners will know the suitability of resources to meet the specification of the finished joinery product. Learners will know how and when to report problems with resources when producing routine products.

1.3 Learners will know the process for selecting materials using technical information sources including drawings, specifications, schedules, and manufacturers' information when producing routine products.

1.4 Learners will understand the hazards and risks associated with manufacturing routine products including LEV during the manufacturing process both with power tools and machinery.

Learners will know how to reduce the hazards of dust from timber solids and manufactured products and the associated respiratory problems (asthma, emphysema).

Learners will know the importance of using appropriate manual handling techniques (carrying, pushing, assessing weight, manual assistance where required, strains) and how to prevent musculoskeletal disorders.

Learners will understand the importance of using eye protection (safety glasses, face shields) and ear protection (ear plugs, ear defenders).

Learners will understand the correct use and setting of guards for power tools and fixed machinery and associated risks (cuts, bruising, lacerations, projectiles, cutter contact, noise, dust, vibration, electrocution, slips, trips, falls and entanglement, orificial bodily entry, skin penetration (pneumatic supply)).

Learners will understand how to access information for their safe use including manufacturers' instructions, Approved Codes of Practice, appropriate legislation i.e. PUWER, abrasive wheels.

Outcome 2

2.1 Learners will know how to cut and machine joints from the marking out process:

- mortice and tenon (barefaced, long short shoulder, diminished shoulder, stub)
- other joints (housing, dovetail)

- mouldings and rebates.

Learners will know how to recognise the orientation of the material for the machining process to include face side, face edge of stock.

Learners will know how to safely use hand, power tools and machinery for jointing, profiling, and shaping prior to assembly.

Learners will know how to fit up and assemble components to achieve the finished product, select the correct adhesive (PVA, PU, synthetic resin, rubber solvent) and cramping methods (use of protection blocks and cauls to prevent bruising, masking methods to prevent glue staining).

Learners will know how to flush joint surfaces and prepare joinery products for surface finishes. Learners will know the appropriate abrasives (grit grades) for the specified finishes (painted, clear finish).

Learners will know how to rectify problems (dead knots, shakes and surface damage) and how to use filling, piecing and how to steam out bruising damage.

Learners will know how to protect and store finished products prior to delivery.

2.2 Learners will know how to set up and use hand tools, power tools and associated fixed machinery including the correct setting of safety guarding, fence and stop settings, blade replacement and setting, cutter replacement and setting along with abrasive loadings.

Fixed machines to include:

- cross cut saw
- rip saw
- surface planer
- thicknesser
- morticer
- band saw
- spindle moulder
- finishing sander
- drum/straight belt sander

Power tools to include:

- router
- jigsaw
- cordless drill driver
- biscuit jointer
- random orbital sander
- belt sander
- laminate trimmer

- brad nailer

Equipment to include:

- bench bearers
- sash cramps
- G/F cramps
- toggle cramps
- squaring rods

Hand tools to include:

- tenon saw
- mallet
- chisels
- coping saw
- shoulder plane
- smoothing plane
- block plane
- compass plane
- concave and convex spokeshaves
- cork rubber
- cabinet scraper
- draw pins
- square
- mitre template
- cutting gauge
- hammer
- nail punch
- pincers

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out, fit, finish, position and secure

3.2 Use and maintain hand and power tools to fit and assemble routine manufactured products to given working instructions, at least two items from the following:

- doors
- windows with opening lights
- units and/or fitments
- panelling and cladding
- staircases (straight)

Delivery outcomes (depth of content)

Outcome 3

3.1 and 3.2

Learners will be able to manufacture:

- match boarded, panelled, and glazed doors
- traditional casement, single- and double-glazed windows
- dwarf, dado, and full height panelling incorporating sunk, beaded, and raised panels
- for unit and fitment carcase construction to include drawers
- internal and external jointing details for cladding
- straight flights of stairs, closed string and open riser.

Learners will be able to prepare surfaces for final specified finish of chosen products.

Learners will be able to select, safely set up, use and maintain the different types of hand tools, power tools and associated equipment.

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 211: Set up and use transportable cutting and shaping machines

GLH:	63

What is this unit about?

This unit is about the safe set up and use of portable power tools used within the construction industry.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- How do I set up and safely operate a surface planing machine?
- Can I select appropriate tooling for routing stair strings when using a trenching jig?
- How do I make a saddle jig to produce stair wedges?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know and be able to identify the main parts of a variety of transportable cutting and shaping machines. Learners will understand the purpose and limitations of each power tool and associated tooling and know how to rectify defects within limits of their responsibility.

To include:

- saws: circular, chop (including compound mitre), table jig, alligator, oscillating (multi-tool)
  tooling: negative hook, positive hook, neutral hook, TCT, plate blade, TPI
- drill (rotary, rotary percussion, drill driver); HSS, TCT, SDS
- planer (handheld)
- knives
- biscuit jointer
- cutters - saw blade

- disc cutter: cutting, grinding, metal, stone, and diamond discs
- morticer (portable)
- augers and chisels
- portable surface planer thicknesser
- sander (orbital, belt, disc), graded abrasive papers
- router (handheld and inverted in a table)
- cutter types - fluted, fixed pin, ball race, profile, moulding, HSS, TCT, PCD
- laminate trimmer
- cutters - flute, ball race

Learners will know the different types of power supply used for the machines above to include 110 V, 230 V and pneumatic.

1.2 Learners will know how to use the transportable cutting and shaping machines listed in 1.1.

Learners will know how and when to report problems or defects with transportable cutting and shaping machines.

1.3 Learners will know how to access or requisition machines and understand their suitability for the task.

1.4 Learners will know common hazards and risks associated with using cutting machines (projectiles, cutter contact, noise, dust, vibration, electrocution, slips, trips, falls and entanglement, orificial bodily entry, skin penetration (pneumatic supply)) and how these can be minimised or overcome. Learners will understand how to access information for their safe use including manufacturers' instructions, Approved Codes of Practice, appropriate legislation i.e. PUWER, abrasive wheels.

Outcome 2

2.1 Learners will know how to select and use transportable tools to shape timber and panel products taking into account:

- reference marks, defects to include twist, bow, cupping, sloping grain, shaped work, and size/weight of component.
- work piece support equipment i.e. roller tables, trestles, operative
- using jigs and aids for safe working and accurately producing multiple components (wedged jigs, glue block jigs, saddle boards, jigs for securing curved components whilst being machined on a spindle moulder, push blocks, push sticks, feather board)
- good housekeeping and working in accordance with safety guidance
- providing temporary storage of stacked components during machining operations
- how to store finished component to prevent damage.

Learners will know how each machine is used to cut, profile and shape components for manufacturing joinery products.

2.2 Learners will know how to

- select appropriate power tools, tooling, and equipment for the chosen task
- set up power tools and equipment, and change tooling for the chosen task
- carry out pre-start safety checks
- maintain and store power tools, tooling, and equipment
- set up and maintain local exhaust ventilation systems (LEV).

Learners will know how to select the appropriate cutters and collars for proprietary router jigs to include stair trenching, hinge, and housing jigs.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out and secure materials for power tool operations

3.2 Set up, use, and maintain power tools including using at least three of the following cutting machines to given working instructions:

- saw (at least three from the following: circular, chop, mitre, bench or table, jig, reciprocating, oscillating)
- drill
- planer
- biscuit jointer
- morticer

and set up and use at least two of the following powered shaping machines to given working instructions:

- thicknesser
- sander (orbital, belt, disc)
- router
- laminate trimmer

Delivery outcomes (depth of content)

Outcome 3

3.1 and 3.2

Learners will be able to measure, mark out, position, feed, and support materials for machine operations.

Learners will be able to safely set up, use and maintain different types of transportable power tools when manufacturing joinery products: saw (circular [handheld, including track saw], chop, mitre [compound mitre saw], bench or table, jig, reciprocating [alligator], oscillating [multi-tool]), drill, planer (handheld and portable surface and thicknesser), biscuit jointer, morticer, thicknesser, sander, router, laminate trimmer.

Learners will be able to safely set up and use proprietary router jigs to include stair trenching, hinge, and housing jigs.

Pathway C: Site Carpentry

Unit 212: Site Carpentry core knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this pathway.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- understand working to deadlines.

The content contained within this unit has been presented in a generic way as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in the context of the following skills units (where appropriate):

- Install first fixing components
- Install second fixing components
- Erect structural carcassing components
- Maintain non-structural carpentry work
- Set up and use transportable cutting and shaping machines

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria

1.1 The organisational procedures developed to report and rectify inappropriate **i**nformation and unsuitable resources, and how they are implemented

1.2 The types of information, their source and how they are interpreted

1.3 The organisational procedures to solve problems with the information and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria

2.1 The level of understanding operatives must have of information for relevant, current legislation and official guidance and how it is applied

2.2 How emergencies should be responded to and who should respond

2.3 The organisational security procedures for tools, equipment, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how health and safety control equipment should be used

2.6 How to comply with environmentally responsible work practices to meet current legislation and official guidance

3. Understand how to minimise the risk of damage

Criteria

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4. Understand working to deadlines

Criteria

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problems, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings and plans (roofing plan, joist plan, floor plan, range drawings, component range and elevation), specifications, schedules, method statements, risk assessments, site notices and safety signs, manufacturers' information, oral and written instructions, and building regulations, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems and potential hazards arising from resources including unsuitable materials, adverse weather conditions and changing circumstances.

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know the principles of the following pieces of legislation, what each legislation is for, how it is used in industry and the results of non-compliance: Building regulations; Working at Height regulations (WAH); Health and Safety at Work Act (HASAWA); PUWER; ACOPs; RIDDOR; CDM; COSHH; PPE; LOLER; MEWP; Manual Handling regulations; Noise at Work regulations.

Learners will know what each legislation is for, how it is used in industry and the consequences of non-compliance. Learners will understand the roles of local authority with regards to planning and Building Control and with heritage structures including consultation with Cadw.

2.2 Learners will know how to respond to situations in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries, and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.

Learners will know the types of spillages, how to prevent them and how to fix them. Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities, including prevention, emergency procedures, emergency services, reporting procedures, access, and egress for emergency vehicles.

2.3 Learners will know the organisational security procedures for different situations, to include:

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID authorisation procedures
- operative - including security of tools, materials, equipment and vehicles, personal belongings.

Learners will understand security procedures in a domestic dwelling compared to on-site.

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling, including how to take active responsibility for health, safety, and welfare. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learners will know the correct selection, usage, and maintenance of PPE, RPE, LEV including knowledge of high-impact glasses, goggles, hard hat, Hi-Viz, ear defenders, safety boots, dust masks (including face fit tests), safety harnesses, appropriate gloves, fall arrest bags, crash mats, scaffold guard rail and netting, false floors, first fix nail gun training; second fix nail gun training.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including: site waste management plan (SWMP); recycling; reuse; segregated waste.

Outcome 3

3.1 Learners will know how to protect work from damage, from general work activities, other occupations, weather conditions (domestic as well as site-based), temporary cover, altering order of work to protect work better, care and attention to detail during installation, dust sheets, material protectors.

Learners will know the correct storage of materials before, during and after the work.

Learners will know how to dispose of waste (safely and responsibly following organisational procedures, manufacturers' information, statutory regulations, and official guidance in line with environmental responsibilities).

Learners will know the different methods of disposal to include designated skips, recycling, segregation of waste, local waste collection point, biofuel.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme, and why the deadlines should be kept.

Learners will know the types of productivity targets and timescales, how times are estimated, circumstances which will affect the work programme including weather, availability of labour, knock-on effect of poor handling and storage causing damage to materials, penalty clause, retention fees, programme of work (both formal and informal), reputation and the implications on other trades.

Unit 213: Install first fixing components

GLH:	80

What is this unit about?

This unit is about setting out and fixing first fix site carpentry components including partitions, floor coverings, door frames and linings.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What is first fixing?
- What tasks will I be doing in first fixing carpentry?
- How do I plan for and fit a flight of stairs?
- Why would I use wood or metal for building a partition?
- How do I measure out and fit floor coverings?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the characteristics and suitability of materials when selecting resources for the installation of first fix components. Learners will know the reasons for selecting

- white wood, T&G or timber-based sheet material for floor coverings
- white wood, CLS or metal stud work for constructing partitions and the recommended coverings to match the location i.e. moisture resistance, acoustic, fire, high impact areas
- European redwood or MDF for internal hatch and door linings
- UPVC, redwood or timber-based sheet materials for roof and verge finishings.

Learners will know how to identify defects that can affect the structural integrity i.e. knots, splits, shakes, grain direction and those that only affect the aesthetics.

Learners will understand the uses and limitations of resources and sustainable alternatives, to include metal studwork for partitions and composite materials.

1.2 Learners will know which materials and fixings to use in specific locations, and their suitability to fix, join and secure:

- partitions and coverings (metal stud and timber)
- stairs to walls and floors
- door frames and linings to masonry (metal and timber studs)
- flooring or flat roof coverings
- eaves and soffit materials.

Fixings to include wafer head screws, dry wall screws, channel, C section studs, plasterboards, timber screws, screws, nails, proprietary fixings, wedges, spacers, twist nails, ring shank nails, mechanical fixed flooring cleats, cut clasp, adhesives, UPVC pins, nails and cappings.

Learners will know the procedures for reporting problems with selected resources including defective materials found at point of delivery and during the construction process.

1.3 Learners will know the process for selecting materials using technical information sources including drawings, specifications, schedules, and manufacturer's information.

Learners will know how to requisition, order resources to complete a specific task using organisational procedures to include:

- completing a requisition order form
- compiling a material list for a range of first fix carpentry tasks.

1.4 Learners will understand the hazards and risks associated with the installation of first fixing components. Hazards and risks to include muscular/skeletal injuries from lifting, carrying and poor working posture, impact from tools and entrapment, repetitive strain, cuts, bruising, lacerations, vibration white finger VWF (Raynaud's syndrome) from using vibrating handheld machinery, irritants affecting the eyes, nose and throat, carcinogenic dusts, hearing impairment from machine noise.

Outcome 2

2.1 Learners will know how to write a method statement for the installation of first fix carpentry components and the procedure to follow to report a problem found ensuring all relevant parties are informed.

2.2 Learners will know how to safely sharpen, maintain, and store hand and power tools, check, store and maintain equipment required to install first fix carpentry components and record any faults found.

Components:

- frames (door and/or window including window board)
- linings (door and/or hatch)

- floor joist coverings (or flat roof decking)
- partitions with coverings (timber and metal)
- straight flight staircases
- roof verge and eaves finishings (timber, full composite, and PVC cladding) open, closed, sprocketed

Tools and equipment to include:

- measuring equipment
- levels
- straight edges
- squares
- saws (hand and portable power)
- drill/drivers pilot bits
- screwdriver bits
- nails
- planes and screws
- drill/driver hammer
- nail gun
- snips
- crimper
- trimming knife
- surform
- adjustable bevel
- string line
- access equipment

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out, cut, fit, finish, position, and secure materials

3.2 Select, use, and maintain hand and power tools to install at least three of the following to given working instructions:

- frames (door and/or window)
- linings (door and/or hatch)
- floor joist coverings (or flat roof decking)
- partitions
- staircases
- roof verge and eaves finishings

Delivery outcomes (depth of content)

Outcome 3

3.1 and 3.2

Learners will be able to:

- install door and window frames including window board
- fabricate and install door and hatch linings
- cut and fit floor joist coverings
- set out, fabricate, and install partitions with coverings (timber and metal)
- fit and install a straight flight of stairs
- cut and fit a range of eaves and verge finishings (timber, full composite, and PVC cladding), open, closed, sprocketed.

Learners will be able to select, safely set up, use, and maintain the different types of hand tools, power tools and associated equipment.

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 214: Install second fixing components

GLH:	80

What is this unit about?

This unit is about setting out and fixing second fix site carpentry components including hanging doors, fitted units, service encasements.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What is second fixing?
- What tasks will I be doing in second fixing carpentry?
- How will I know what ironmongery to use when hanging an external door?
- How do I measure up for decorative mouldings?
- What building regulations cover stairs?
- How do I set out and fit kitchens?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the characteristics and suitability of materials when selecting resources for the installation of second fix components.

Components and materials to include:

- doors: flush, panelled, FLB, LB, fire, half or fully glazed, double, rebated
- decorative mouldings: architrave, skirting, dado rail, frieze rail, corner, and plinth blocks; sizes and profiles, softwood, hard wood, MDF
- ironmongery: sizes and types of hinges, locks, latches, lever and knob furniture, push/kick plate, security hinge bolts, tower bolts, concealed bolts, cranked bolts, security viewer
- service encasements: traditional skeletal frame, slab construction, preformed UPVC and composite
- prefabricated units and fitments: worktops - solid wood, laminated, post formed and square edged, natural, and composite, method of jointing
- cladding or panelling: cedar, larch, composite boards, UPVC, timber-based sheet material, oak
- stair components: handrails, spindles, newel posts (full, half, pendant, intermediate), newel caps, string capping, spacers.

Learners will know how to identify defects that can affect the structural integrity i.e. knots splits, shakes, grain direction and those that only affect the aesthetics i.e. blue stain.

Learners will understand the uses and limitations of resources and sustainable alternatives to include use of FSC certified timbers.

1.2 Learners will know which materials to select, use or install in specific locations, to include:

- the correct door from a schedule
- the decorative moulding to use from a specification
- the correct ironmongery from a schedule
- materials required to construct service encasements in a range of locations to include areas of high moisture content, acoustic insulation for plumbing services, access panels
- cladding materials for internal or external use, decorative and structural finishes
- the correct materials for fixing a full balustrade including adhesives, mechanical fixings and draw bored dowels.

Learners will know the procedures for reporting problems with selected resources including defective materials found at point of delivery and during the construction process.

1.3 Learners will know the process for selecting materials using technical information sources including drawings, specifications, schedules, and manufacturer's information.

Learners will know how to requisition, order resources to complete a specific task using organisational procedures to include:

- completing a requisition order form
- compiling a material list for a range of second fix carpentry tasks.

1.4 Learners will understand the hazards and risks associated with the installation of second fix carpentry components and the correct method of work required to complete tasks safely. Hazards and risks to include muscular/skeletal injuries from lifting, carrying and poor working posture, impact from tools and entrapment, repetitive strain, cuts, bruising, lacerations, vibration white finger VWF (Raynaud's syndrome) from using vibrating handheld machinery, irritants affecting the eyes, nose and throat, carcinogenic dusts, hearing impairment from machine noise.

Outcome 2

2.1 Learners will know how to write a method statement for the installation of second fix carpentry components and the procedure to follow to report a problem found ensuring all relevant parties are informed.

2.2 Learners will know how to safely sharpen, maintain, and store hand and power tools, check, store and maintain equipment required to install second fix carpentry components and record any faults found.

Components:

- side hung doors
- decorative mouldings
- ironmongery
- service encasement
- prefabricated units or fitments including worktops with returns and apertures
- cladding or panelling
- stair components (balustrades, handrails, spindles)

Tools and equipment: measuring equipment, planes (hand and electric), saws (hand and chop), circular saws, jigsaws, chisels, gauges, marking or cutting knives, hammers/mallets, bradawl, screwdrivers, cordless drill driver with pilot bit and screwdriver bits, square, bevel, scribing block, nails, punches, finishing nailer, levels, routers, cutters, jigs, worktop bolts, fixings.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out, cut, fit, finish, position, and secure materials

3.2 Select, use, and maintain hand and power tools to install at least five of the following to given working instructions:

- side hung doors
- mouldings (architrave, skirting)
- ironmongery
- service encasement
- prefabricated units or fitments
- cladding or panelling
- stair components (balustrades, handrails, spindles)

Delivery outcomes (depth of content)

Outcome 3
3.1 and 3.2
Learners will be able to:

- fit and hang a side hung door
- cut and fit a range of decorative mouldings with internal, external angles and returns
- install a range of commercially available door and window ironmongery
- fabricate and install vertical and horizontal service encasements with access panels
- set out and install prefabricated units or fitments to include base and wall units, worktops and decorative panels and profiled mouldings
- fit and install a range of cladding or panelling
- set out, cut and fit full balustrades in compliance with the building regulations.

Learners will be able to select, safely set up, use, and maintain the different types of hand tools, power tools and associated equipment.

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 215: Erect structural carcassing components

GLH:	70

What is this unit about?

This unit is about setting out and fixing structural carcassing components for roofs and floors.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What is structural carcassing?
- What does stress grading mean?
- What is a dynamic load?
- Why is a honeycomb wall full of holes?
- What PPE do I need when working at height?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the characteristics and suitability of materials when selecting resources for the installation of structural carcassing components to include:

- inclined roofs with gables stress: graded timber, timber sizes, loads imposed (dead, live, dynamic)
- load bearing partitions: stress graded timber, timber sizes, loads imposed
- joists (ground, upper or flat roof), including coverings (flat roofs, decks, or floors); stress graded timber, timber sizes, loads imposed, durability of decking materials.

Learners will know how to identify defects that can affect the structural integrity i.e. knots splits, shakes, grain direction and those that only affect the aesthetics i.e. blue stain, U bleaching.

Learners will understand the uses and limitations of resources and sustainable alternatives to include Metsec framing systems.

1.2 Learners will know which materials to use in specific locations to include:

- components that make up traditional cut roofs: common, hip, valley, Jack, cripple, crown rafters, wall plate, restraint straps, ridge board, purlins, binders, bracings
- truss rafters: fink, fan, attic, howe, king post, queen post, diminishing, mono and dual pitch, truss clips, restraint straps, bracings
- components that make up a load bearing partition: head, soleplate, studs, noggings, cripple/puncheon studs, Jack studs, lintels
- components that make up ground and upper floors and flat roofs, bridging, trimmer, trimming, trimmed joists, strutting, bracings, straps, dwarf walls, firrings and fillets.

Learners will know the procedures for reporting problems with selected resources including defective materials found at point of delivery and during the construction process.

1.3 Learners will know the process for selecting materials using technical information sources including drawings, specifications, schedules, and manufacturer's information.

Learners will know how to requisition, order resources to complete a specific task using organisational procedures to include:

- completing a requisition order form
- compiling a material list for a range of structural carcassing tasks.

1.4 Learners will understand the hazards and risks associated with the installation of structural carcassing components and the correct method of work required to complete tasks safely. Hazards and risks to include falls from heights, muscular/skeletal injuries from lifting, carrying and poor working posture, impact from tools and entrapment, repetitive strain, cuts, bruising, lacerations, vibration white finger VWF (Raynaud's syndrome) from using vibrating handheld machinery, irritants affecting the eyes, nose and throat, hearing impairment from machine noise.

Outcome 2

2.1 Learners will know how to write a method statement for the installation of structural carpentry components and the procedure to follow to report a problem found ensuring all relevant parties are informed.

2.2 Learners will know how to safely sharpen, maintain, and store hand and power tools, check, store and maintain equipment required to install structural carpentry components to include scaffolding and fall arrest systems, and record any faults found.

Tools and equipment to include:

- measuring equipment
- levels
- saws (hand and PPT)

- chisels
- planes
- squares
- bevels
- hammers
- framing nailer
- string lines

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out, cut, fit, finish, position, and secure materials

3.2 Select, use, and maintain hand and power tools to erect at least one of the following to given working instructions

- inclined roofs with gables
- load bearing partitions
- joists (ground, upper or flat roof), including coverings (flat roofs, decks, or floors)

Delivery outcomes (depth of content)

Outcome 3

3.1 and 3.2

Learners will be able to:

- set out, cut, and pitch an inclined roof with gables
- set out, cut and erect load bearing partitions
- cut and fit floor joists including timber suspended ground floors, upper floors with trimmed openings and flat roofs with firrings and fillets.

Learners will be able to select, safely set up, use, and maintain the different types of hand tools, power tools and associated equipment.

Tools and equipment to include:

- measuring equipment
- levels
- saws (hand and PPT)
- chisels
- planes
- squares
- bevels
- hammers
- framing nailer
- string lines

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 216: Maintain non-structural carpentry work

GLH:	48

What is this unit about?

This unit is about the maintenance of non-structural carpentry components within domestic properties.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What is the difference between non-structural and structural carpentry work?
- What health and safety issues do I need to consider when carrying out repairs?
- When do I replace something rather than splicing?
- How do I change sash cords?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understanding working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the characteristics and suitability of materials when selecting resources for the maintenance and replacement of non-structural carpentry and joinery components including:

- how to recognise the profiles used in window and door frame construction
- how to identify and match materials used to splice, repair, or replace timber components
- the selection of ironmongery used in maintaining and repairing carpentry items, windows: casement stays, catches, hinges (storm proof), butt, sliding sash pulleys, catches, locks
- door furniture: locks (rim, sash, cylinder night, mortice, euro latches, mortice, roller ball), hinges, hinge bolts, tower bolts, letterplate, handles (lever and knob), security viewers
- how to identify and select matching ironmongery materials to include steel, brass, nickel, chrome, black jap.

Learners will know how to identify defects that can affect structural integrity, when components need replacing and those defects that only affect the aesthetics. Learners will understand sustainable alternatives i.e. total replacement, upgrades.

1.2 Learners will know which materials to use in specific locations:

- to splice window cills, jambs, rails, and stiles
- to make repairs to door frames and linings
- to replace sash cords
- the ironmongery required to replace defective components
- the equipment required to work at height making repairs to eaves and verge finishes
- the profile to ensure repairs to mouldings match
- suitable protective coatings used to seal end grain and protect surfaces.

Learners will know the procedures for reporting problems with selected resources including defective materials found at point of delivery and during the construction process.

1.3 Learners will know the process for selecting materials using technical information sources including drawings, specifications, schedules, and manufacturer's information.

Learners will know how to requisition and order resources to complete a specific task using organisational procedures to include:

- completing a requisition order form
- compiling a material list for a range of non-structural maintenance tasks.

1.4 Learners will understand the hazards associated with the maintenance and replacement of non-structural carpentry components and the correct method of work required to complete tasks safely.

Outcome 2

2.1 Learners will know how to write a method statement for the maintenance and replacement of non-structural carpentry and joinery components and the procedure to follow to report a problem found ensuring all relevant parties are informed.

2.2 Learners will know how to safely sharpen, maintain, and store hand and power tools, check, store and maintain equipment required to maintain and replace non-structural carpentry and joinery components and record any faults found.

- Hand tools to include hand saw, coping saw, measuring equipment (tapes and rules), slot and pozidriv screwdrivers, bradawl, hammers (claw, lump and pein), combination square, try square, sliding bevel, bevel edged chisels, sharpening stone, nail punches, pinchers, smoothing plane, block plane, levels, string line, chalk line, scrapers, filler knives, paint brushes, trimming knife, auger, spade and HSS bits, clamps, abrasive papers sanding blocks, marking gauge.

- Power tools to include chop saw, circular saw, jig saw, multi-cutter, brad nailer, sanders (orbital and belt), drill/driver, routers and cutters, planer.
- Access equipment to include hop ups, mobile /static tower scaffold, ladders, step ladders, saw stools.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out, cut, splice, fit, finish, position, and secure materials

3.2 Use and maintain hand and power tools to either repair or replace at least two of the following:

- frames
- mouldings
- doors
- windows
- door and or window ironmongery
- verge and or eaves
- sash cords
- prime the repair work

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to:

- carry out repairs to door and or window frames to include the replacement or splicing of defective components
- carry out repairs or splicing of rotten or damaged decorative mouldings
- hang replacement doors
- carry out repairs to sashes
- splice and replace defective eaves and verge components
- replace single and double sash cords
- apply primers and clear preservative coatings during the repair and replacement process.

3.2 Learners will be able to select, safely set up, use, and maintain the different types of hand tools, power tools and associated equipment.

Hand tools: hand saw, coping saw, measuring equipment (tapes and rules), slot and pozidriv screwdrivers, bradawl, hammers (claw, lump and pein), combination square, try square, sliding bevel, bevel edged chisels, sharpening stone, nail punches, pinchers, smoothing plane, block plane, levels, string line, chalk line, scrapers, filler knives, paint brushes, trimming knife, auger, spade and HSS bits, clamps, abrasive papers, sanding blocks, marking gauge.

Power tools: chop saw, circular saw, jig saw, multi-cutter, brad nailer, sanders (orbital and belt), drill/driver, routers and cutters, planer.

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 217: Set up and use transportable cutting and shaping machines

GLH:	50

What is this unit about?

This unit is about the safe set up and use of portable power tools used within the construction industry.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- How do I know which saw blade to use?
- What regulations cover the use of power tools?
- What does HSS, TCT and SDS stand for?
- How do I know what voltage a power tool is?
- How do I check a power tool is safe to use?
- When would I use a router jig?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know and be able to identify the main parts of a variety of transportable cutting and shaping machines. Learners will understand the purpose and limitations of each power tool and associated tooling and know how to rectify defects within limits of their responsibility. To include:

- saws: circular, chop (including compound mitre), table jig, alligator, oscillating (multi-tool)
  tooling: negative hook, positive hook, neutral hook, TCT, plate blade, TPI
- drill (rotary, rotary percussion, drill driver); HSS, TCT, SDS
- planer (handheld)
- knives
- biscuit jointer
- cutters - saw blade
- disc cutter: cutting, grinding, metal, stone, and diamond discs
- morticer (portable)

- augers and chisels
- portable surface planer thicknesser
- sander (orbital, belt, disc), graded abrasive papers
- router (handheld and inverted in a table)
- cutter types - fluted, fixed pin, ball race, profile, moulding, HSS, TCT, PCD
- laminate trimmer
- cutters - flute, ball race.

Learners will know the different types of power supply used for the machines above to include 110 V, 230 V and pneumatic.

1.2 Learners will know how to use the transportable cutting and shaping machines listed in 1.1. Learners will know how and when to report problems or defects with transportable cutting and shaping machines.

1.3 Learners will know how to access or requisition machines and understand their suitability for the task.

1.4 Learners will know common hazards and risks (projectiles, cutter contact, noise, dust, vibration, electrocution, slips, trips, falls and entanglement, orificial or bodily entry, skin penetration (air/pneumatic supply)) encountered when using cutting machines and how these can be minimised or overcome. Learners will understand how to access information for their safe use including manufacturers' instructions, Approved Codes of Practice, appropriate legislation i.e. PUWER, abrasive wheels.

Outcome 2

2.1 Learners will know how to select and use transportable tools to shape timber and panel products taking into account:

- reference marks, defects such as twist, bow, cupping, sloping grain, shaped work, and size/weight of component
- work piece support equipment i.e. roller tables, trestles
- using jigs and aids for safe working and accurately producing multiple components (wedged jigs, glue block jigs, saddle boards, jigs, push blocks, push sticks, feather board)
- good housekeeping and working in accordance with safety guidance
- providing temporary storage of stacked components during machining operations
- how to store finished component to prevent damage.

Learners will know how each machine is used to cut, profile and shape components for producing site carpentry components.

2.2 Learners will know how to

- select appropriate power tools, tooling, and equipment for the chosen task
- set up power tools and equipment, and change tooling for the chosen task
- carry out pre-start safety checks
- maintain and store power tools, tooling, and equipment

- set up and maintain local exhaust ventilation systems (LEV).

Learners will know how to select the appropriate cutters and collars for proprietary router jigs to include stair trenching, hinge, and housing jigs.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out and secure materials for power tool operations

3.2 Set up, use, and maintain power tools including using at least three of the following powered cutting machines to given working instructions:

- saw (at least three from the following: circular, chop, mitre, bench or table, jig, reciprocating, oscillating)
- drill
- planer
- biscuit jointer

and set up and use at least one of the following powered shaping machines to given working instructions:

- sander (orbital, belt, disc)
- router

Delivery outcomes (depth of content)

Outcome 3
3.1 and 3.2
Learners will be able to use different types of transportable power tools when producing site carpentry components: saw (circular [handheld, including track saw], chop, mitre [compound mitre saw], bench or table, jig, reciprocating [alligator], oscillating [multi-tool]), drills, planer, biscuit jointer, sander, router.

Learners will be able to set up and use proprietary router jigs to include lock, hinge, and worktop jigs.

Learners will be able to select, safely set up, use, and maintain the different types of transportable power tools and associated equipment.

Pathway D: Timber Frame Erection

Unit 218: Timber Frame Erection core knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this pathway.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- understand working to deadlines.

The content listed in this document is deemed generic as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in relation to the following skills units (where appropriate):

- Erect timber walls and floors
- Erect timber roof structures

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria

1.1 The organisational procedures developed to report and rectify inappropriate information and unsuitable resources, and how they are implemented

1.2 The types of information, their source and how they are interpreted

1.3 The organisational procedures to solve problems with the information and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria

2.1 The level of understanding operatives must have of information for relevant, current legislation and official guidance and how it is applied

2.2 How emergencies should be responded to and who should respond

2.3 The organisational security procedures for tools, equipment, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how health and safety control equipment should be used

2.6 How to comply with environmentally responsible work practices to meet current legislation and official guidance

3. Understand how to minimise the risk of damage

Criteria

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4. Understand working to deadlines

Criteria

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problem, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings and plans (roofing plan, joist plan, floor plan, range drawings, component range and elevation), specifications, schedules, method statements, risk assessments, site notices and safety signs, manufacturers' information, oral and written instructions, building regulations, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems arising from resources and potential hazards including unsuitable materials, adverse weather conditions and changing circumstances.

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know the principles of the following pieces of legislation, what each legislation is for, how it is used in industry and the results of non-compliance: Building regulations; Working at Height regulations (WAH); Health and Safety at Work Act (HASAWA); PUWER; ACOPs; RIDDOR; CDM; COSHH; PPE; LOLER; MEWP; Manual Handling regulations; Noise at Work regulations.

Learners will know what each legislation is for, how it is used in industry and the consequences of non-compliance. Learners will understand the roles of local authority with regards to planning and Building Control and with heritage structures including consultation with Cadw.

2.2 Learners will know how to respond to situations in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to

evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.

Learners will know the types of spillages, how to prevent them and how to fix them. Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities, including prevention, emergency procedures, emergency services, reporting procedures, access and egress for emergency vehicles.

2.3 Learners will know the organisational security procedures for different situations, to include:

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID authorisation procedures
- operative - including security of tools, materials, equipment and vehicles, personal belongings.

Learners will understand security procedures in a domestic dwelling compared to on-site.

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling including how to take active responsibility for health, safety and welfare. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learners will know the correct selection, usage and maintenance of PPE, RPE, LEV including knowledge of high-impact glasses, goggles, hard hat, Hi-Viz, ear defenders, safety boots, dust masks (including face fit tests), safety harnesses, appropriate gloves, fall arrest bags, crash mats, scaffold guard rail and netting, false floors, first fix nail gun training; second fix nail gun training.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including: site waste management plan (SWMP); recycling; reuse; segregated waste.

Outcome 3

3.1 Learners will know how to protect work from damage, from general work activities, other occupations, weather conditions, temporary cover, altering order of work to protect work better, care and attention to detail during installation, material protectors.

Learners will know the correct storage of materials before, during and after the work to include stacking, racking, loading, and handling.

3.2 Learners will know why the disposal of waste should be carried out safely and responsibly following organisational procedures, manufacturers' information, statutory regulations and official guidance in line with environmental responsibilities.

Learners will know the different methods of disposal to include designated skips, recycling, segregation of waste, local waste collection point, biofuel.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme, and why the deadlines should be kept.

Learners will know the types of productivity targets and timescales, how times are estimated and the circumstances which will affect the work programme to include weather, availability of labour, knock-on effect of poor handling and storage causing damage to materials, penalty clause, retention fees, programme of work (both formal and informal), reputation and the implications on other trades.

Unit 219: Erect timber walls and floors

GLH:	182

What is this unit about?

This unit is about erecting timber walls and floors.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What is the difference between a load bearing partition and a normal stud partition?
- What does air tightness mean?
- What materials do we use in timber framed construction?
- What is a U-value?
- How do I plan a sequence of operations to erect timber walls and floors?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the range of resources used in erecting timber walls and floors to include structural and non-structural components, load and non-loadbearing components and timber types.

Learners will know the purpose of and difference between materials (to include solid timber, boards, membranes), components (to include C stud, I beam, web joist), and assemblies (to include closed panel, structural insulated panel (SIP), open panel, Larsen truss).

Learners will understand the characteristics and limitations of different materials to include: timber and timber based materials, types of sheet materials (ply, OSB), sheathing board, wall, spandrel and floor panels, timber and metal columns and beams, damp-proof courses, damp-proof membranes, breather membranes, building paper, fire stops, cavity barriers, moisture and vapour barriers (permeable and non-permeable), preservatives, adhesives (including PVA and D4 expanding/PU), sealants, fittings, fixings (including nails,

screws, masonry nails, ballistic nails, bolts hammer fixings and brackets), acoustic and thermal insulation and associated ancillary items.

Learners will know the different types of defects found in timber products, to include natural, conversion and seasoning defects, and their effect on structural timbers.

Learners will understand how sustainability can be applied to timber framed construction and the benefits of using sustainable materials. Learners will know the advantages of using locally sourced materials, enhanced material properties (energy saving), lower carbon footprint (to include embodied carbon), and how they relate to protecting the natural environment, controlling waste management, energy loss prevention and U-Value.

Learners will understand the importance of design for manufacture including passive design off-site construction, and modern methods of timber construction; the concept of fabric first principles and building performance in terms of thermal performance (including airtightness, U-Values, and cold bridging), as well as modelling versus as-built.

Learners will know the importance of quality control, quality assurance, certification, and warranties in reducing the performance gap; the role of different materials, components, and assemblies; fire safety in construction onsite and offsite; the importance of moisture control and minimising waste.

1.2 Learners will know the purpose of the range of resources in 1.1, their function, use and methods of fixing in different circumstances.

Learners will know the procedures for reporting problems related to resources (hierarchy charts, company structure, architect's role, terms of contract, changes to specification, variation orders and architect instruction).

1.3 Learners will know the process for selecting materials using technical information sources and understand the importance of working to drawings, specifications, schedules, digital information and 3D modelling and the interaction between documentation.

Learners will understand the benefits of planning the sequence of materials and labour requirements, the use of Bills of quantities, programmes of work, stock systems, stock control lead times, schedules, Gantt charts and bar charts.

1.4 Learners will understand the hazards that are present in timber framed construction including prevention methods, and know the purpose of and how to follow risk assessments and method statements to carry out the work in a safe manner.

Learners will know the major types of hazards and risks associated with timber frame erection to include trips, falls from height, exposure to hazardous substances and those related to plant and vehicles, lifting, mechanical and manual handling.

Learners will know how hazards can be created by changing circumstances during the construction process to include construction site developments and ongoing work, plant and vehicles, and periods of extreme weather.

Outcome 2

2.1 Learners will understand the importance of using the appropriate skills (mark, measure, set out) in framed construction methods.

Learners will understand the process of erection to include sole plates, damp-proof courses, damp-proof membranes, wall, and floor panels (structural and non-structural, including SIPs), loose joist and decking structural columns and beams, cavity barriers, breather membranes and vapour control layers, floating floors insulation for both on site (stick-build, balloon) and off-site manufacture (prefabricated) of closed and open panels.

Learners will understand the differences between stick build, balloon and prefabricated construction methods.

Sole plates

Learners will know how to select and fix sole plates including section size and type of material, DPC courses, alternative fixings (including ballistic/masonry nails, screws, hammer fixings and brackets) correct size and position. Laying to line, level and amend any deviations in position in accordance with the work requirements and tolerances.

Learners will understand the types and limits of overhang and under-sail on slab, second sole plate, non-compressive packing, and lapping.

Timber frame walls and floors (structural and non-structural)

Learners will know how to select, use and fix a range of timber wall panels including external and internal panels, stick-build and prefabricated panels of closed and open panels. Learners will know the sequence of operations in timber frame erection i.e. starting position, temporary bracing, levelling, plumbing, fixing specification, head binders and lapping.

Floor joists and coverings

Learners will know a range of floor joists to include loose timber, metal web, I beam, laminated veneered beams and glulam beams.

Learners will know a range of manufactured board joist coverings and floating floor to include: OSB, moisture and vapour barriers (permeable and non-permeable), T&G, chipboard, plywood.

Learners will understand the appropriate methods of fixing joist coverings in accordance with the given specification including use of appropriate fasteners, tapes, and sealants.

On-site erection of open and closed frame panels

Learners will understand the correct location and orientation of panels: temporary bracing, levelling, connection of panels, erection/nailing, use of header binders, fixing and fasteners, use of waist bands, installation of breather membranes and tear and repair process, following numbering codes, drawings, and schedules.

Off-site manufacture of wall panels and cassette floors

Learners will know the processes involved in manufacturing closed and open wall panels, floor cassette systems using jigs, following plans and drawings, to include:

- solid timber, Larsen truss, I beam, metal web
- internal and external sheathing boards
- insulation (including mineral wool, foam-based products, air-injected cellulose, air injected wood fibre, flexible wood fibre, and rigid wood fibre)
- breather papers and membranes
- access for services.

Incorporated structural columns and beams

Learners will know how to position and fix a range of structural columns and beams to include steel, concrete, timber glulam beams and engineered timber for transmission of loads.

Learners will know the appropriate methods of fixing services within a timber frame construction to include gas, water and waste pipes, electric cables, telecommunications.

2.2 Learners will know how to safely sharpen, maintain and store hand and power tools, check, maintain, store equipment required to install walls and floors, and record any faults found.

Tools and equipment to include saws hammers, chisels, screwdrivers, electric drills, cordless drills, drill bits, powered nailers, battery powered tools, try square.

Measuring, levelling and recording equipment: tape measure, laser level, spirit level, plumb bob, string line, water levels, dumpy level, theodolite and total stations.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out, fit, align, position and secure

3.2 Use and maintain hand and power tools and ancillary equipment to erect and/or install the following to given working instructions:

- sole plates
- timber frame walls and floors (structural and non-structural)
- incorporated structural columns and beams

Delivery outcomes (depth of content)

Outcome 3
3.1 and 3.2
Learners will be able to select and fix a range of joists to include loose timber, metal web, I beam.

Learners will be able to select and fix a range of manufactured board joist coverings and floating floors to include OSB sheathing board, moisture and vapour barriers (permeable and non-permeable), T&G, chipboard, plywood, and form openings to services under floors.

Learners will be able to select and fix sole plates to include section size and type of material, DPC courses, laying to line, level and amend any deviations in position.

Learners will be able to select, use and fix a range of timber wall panels including spandrel, external and internal panels, on site stick-build, pre-manufactured panels including SIPs, closed and open panels.

Learners will be able to select and use the appropriate methods of fixing services within partition walls.

Learners will be able to select, safely set up, use, and maintain the different types of hand tools, power tools and associated equipment

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 220: Erect timber roof structures

GLH:	146

What is this unit about?

This unit is about erecting timber roof structures.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What does stress grading mean?
- What is a live load?
- How do I know which truss type to use?
- How can I reduce the risks of working at height?
- Why do roofs have to have bracings built in?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the characteristics and limitations of the material used in structural and non-structural roof components, load, and non-loadbearing components, UPVC, timber types (hardwood, softwood), grading, sustainability, and timber defects.

Learners will understand how sustainability can be applied to roof construction and the benefits of using sustainable materials. Learners will know the advantages of using locally sourced materials, enhanced material properties (energy saving), lower carbon footprint (to include embodied carbon), and how they relate to protecting the natural environment, controlling waste management, energy loss prevention and U-Values.

Learners will know the current legislation that applies to the use of timber roof structures.

Learners will understand the types of load, dead, live, and dynamic i.e. wind.

Learners will understand the fundamental difference between truss and traditional cut roofs.

Truss roof

Learners will know the different types of truss rafter roofs to include fink, fan, king post, queen post, attic, girder, and mono.

Learners will know the different components required to erect a trussed roof (truss rafter roof hips, valleys, diminishing trusses, gable, ladder, wall plate, eaves, verge, straps, wall plate and restraint, bracing, lateral, diagonal and chevrons, truss clip, temporary bracing).

Learners will know the different types of eaves (open, closed, flush and sprocketed) and materials used (hardwood, softwood and UPVC).

Learners will know the different types of verge (closed, flush, plastic, and dry systems).

Traditional cut gable end and flat roofs

Learners will know the different types of traditional cut roof construction (single, double, gable, lean to, couple, close couple, collared and flat).

Learners will know the different components used to construct traditional gable end and flat roofs:

- gable end roofs: wall plate, ridge board, common rafter, purlins, sprocket ends, ceiling rafter, collar ties, binders, gable ladder, eaves, verges, fascias, bargeboards, soffits, soffit brackets, straps, lateral and diagonal bracings

- flat roofs: wall plate, ceiling rafter, strutting, fillets and firrings, fascias, soffits, cold and warm decking, decking materials.

Learners will understand the importance of design for manufacture, off-site construction, and modern methods of timber construction; the concept of fabric first principles and building performance in terms of acoustic and thermal performance (including sound transfer, airtightness, ventilation, airflow, U-Values, and cold bridging).

Learners will know the importance of quality control, quality assurance, certification, and warranties in reducing the performance gap; the role of different materials, components, and assemblies; fire safety in construction onsite and offsite; the importance of moisture control; and minimising waste.

1.2 Learners will know the procedure for erecting truss and cut roofs:

Truss roof

Learners will know how to install trusses and understand the importance of lateral bracing, diagonal bracing, chevron bracing, lateral restraints, wall plate, gable ladder, straps (wall plate and lateral) and truss clips.

Traditional cut

Learners will understand the methods for determining lengths and cuts of common rafters including plumb cut, seat cut and third/pitch line and the importance of wall plate, ridge board, purlins, gable ladder, bracings, and straps (wall plate and lateral).

Eaves and verge finishes

Learners will know the methods of forming closed, open, sprocketed and flush eaves to include soffit brackets, soffits, tilting fillet, fascias, bargeboard, proprietary ventilation systems, dry verge finishes, plastic, and cement systems.

Learners will know the personal protective equipment (PPE) requirements for erecting roof structures to include harnesses.

Learners will know the collective protective measures, personal protective equipment (PPE) and respiratory protective equipment (RPE).

Learners will know the access equipment required for the work and associated legislation.

Learners will know the procedures for reporting problems related to resources (hierarchy charts, company structures, architect's role, terms of contracts, and changes to specifications, variation orders and architect instructions).

1.3 Learners will know the process for selecting materials using technical information sources and understand the importance of working to drawings, specifications, schedules, digital information and 3D modelling and the interaction between documentation.

Learners will understand the benefits of planning the sequence of materials and labour requirements, the use of Bills of quantities, programmes of work, stock systems, stock control lead times, schedules, specifications, Gantt charts, bar charts and critical path analyses.

1.4 Learners will understand the hazards and risks that are present when setting out and erecting roofs and know the purpose of and how to follow risk assessments and method statements to carry out the work in a safe manner. Hazards and risks to include falls from heights, exposure to hazardous substances, plant, and vehicles, lifting, mechanical and manual handling, muscular/ skeletal injuries from poor working practices.

Learners will understand their responsibilities in relation to the hazards.

Learners will know how to select correct PPE to include harnesses, lanyards, helmet, boots and Hi-Viz and collective protective measures requirements.

Learners will know how hazards can be created by changing circumstances in the workplace to include construction site developments and ongoing work, plant and vehicles and periods of extreme weather.

Outcome 2

2.1 Learners will know how materials are used in timber roof construction and understand the importance of using the appropriate skills and materials. Learners will know how to select suitable materials for tasks and their uses and understand the process of timber roof construction.

Truss

Learners will know how to measure, mark out, fit, align, finish, position and secure truss rafter roofs.

Learners will understand the implications, advantages and disadvantages of constructing trussed rafter roof structures at ground level.

Traditional Cut

Learners will know how to measure, mark out, fit, align, finish, position and secure traditional cut roofs including single, double, gable, lean to, couple, close couple, collared and flat.

Learners will understand the importance of working to drawings, specifications and schedules and the interaction of the documentation. Learners will know how to extract information from working drawings, schedules and specifications for position, size and fixing.

2.2 Learners will know how to safely sharpen, maintain and store hand and power tools, check, maintain, store and record any faults found with equipment required to install roof structures.

Tools and equipment to include: saws, hammers, chisels, screwdrivers, electric drills, cordless drills, drill bits, powered nailer, battery powered tools, tape measure, try square, spirit level, plumb bob and string line.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate work skills to measure, mark out, fit, align, finish, position and secure.

3.2 Use and maintain hand tools, portable power tools and ancillary equipment to construct, erect and/or install the following roof structures to given working instructions:

- in-situ roofs (manually handled)

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to mark out, fit, align, finish, position and secure a truss rafter roof.

Learners will be able to select and fix the different components required to erect a trussed roof to include truss rafter, gable, ladder, wall plate, eaves, verge, straps, wall plate and restraint bracing, lateral, diagonal, truss clip and temporary bracing.

Learners will be able to mark out, fit, align, finish, position, and secure traditional cut roofs to include single, gable and flat.

3.2 Learners will be able to select, safely set up, use, and maintain:

- measuring equipment (rulers, tape measures, digital measuring equipment)
- saws (hand and PPT to include chop saw, circular saw)
- squares (to include roofing, adjustable bevel, and 90 degree)
- claw hammer, framing nailer
- string line, chalk line, straight-edge
- levels (optical, laser, 600mm, 1000mm and 1800mm level).

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Pathway E: Painting and Decorating

Unit 221: Painting and Decorating core knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this pathway.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- understand working to deadlines

The content contained within this unit has been presented in a generic way as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in the context of the following skills units (where appropriate);

- Prepare surfaces for painting/decorating
- Apply coatings to surface by using a brush and roller
- Hang wallcoverings (standard and foundation)

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria

1.1 The organisational procedures developed to report and rectify inappropriate **information** and unsuitable **resources,** and how they are implemented

1.2 The types of **information**, their source and how they are interpreted

1.3 The organisational procedures to solve **problems** with the **information** and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria

2.1 The level of understanding operatives must have of **information** for relevant, current **legislation and official guidance** and how it is applied

2.2 How **emergencies** should be responded to and who should respond

2.3 The organisational **security procedures** for tools, equipment, materials, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how **health and safety control equipment** should be used

2.6 How to comply with environmentally responsible work practices to meet current **legislation and official guidance**

3. Understand how to minimise the risk of damage

Criteria

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4. Understand working to deadlines

Criteria

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problems, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings, specifications, current legislation, schedules, method statements, risk assessments, manufacturers' information, oral and written instructions, sketches, official guidance, and current regulations, including site notices and safety signs, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems arising from resources including unsuitable materials and adverse weather conditions

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know their responsibilities regarding safe working practices, health hazards and the environment whilst working; in the workplace, below ground level, in confined spaces, at height, with tools and equipment, with materials and substances. Learners will understand how these are used in industry.

2.2 Learners will know how to respond to situations in accordance with organizational authorisation and personal skills when involved with fires, spillages, injuries, and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to evacuation and prevention. Learners will know the types of spillages and how to prevent them. Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting. Learners will know their roles and responsibilities for dealing with emergencies relating to occupational activities including prevention, emergency procedures, emergency services, reporting procedures and evacuation.

2.3 Learners will know the organisational security procedures for different situations, to include:

- site - including temporary fencing/hoarding, surveillance identification for site access
- workplace - including opening up and locking up

- operative - including security of tools, materials, equipment and vehicles, personal belongings

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learner will know when to select and how use the correct health and safety control equipment including PPE, RPE and LEV. Learners will have an understanding as to why it is important to use health and safety control equipment.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including site waste management plan (SWMP), recycling, reuse, segregated waste.

Outcome 3

3.1 Learners will know how to protect work from damage from general work activities and from other occupations and weather conditions before, during and after the work. Learners will understand how to protect surfaces and surrounding areas. Learners will know how to correctly store materials before, during and after the work.

3.2 Learners will know why the disposal of waste should be carried out safely and responsibly following organisational procedures, manufacturers' information, statutory regulations and official guidance in line with environmental responsibilities.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme and the importance of why the deadlines should be kept. Learners will know types of productivity targets and time scales, how times are estimated, circumstances which will affect the work programme e.g. weather, availability of labour and materials, effects of poor handling and storage causing damage to materials.

Unit 222: Prepare surfaces for painting and/or decorating

GLH:	100

What is this unit about?

This unit is about preparing surfaces in readiness to receive protective and decorative finishes in industrial and/or non-industrial situations. It covers providing protection to the work area, interpreting information, and adopting safe, healthy, and environmentally responsible work practices. It also includes selecting and using materials, components, tools, and equipment.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- How would I prepare a surface for painting and decorating?
- Can I remove a coating without causing damage to the surface?
- Is there a difference in preparing a surface to be painted and a surface to be hung with wallpaper?
- What are the different types of building materials/surfaces?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the characteristics and suitability of resources when selecting them for preparing surfaces and substrates for painting to include:

Types of protective materials

- cotton twill sheeting
- plastic sheeting
- tarpaulin
- protective boarding
- masking paper
- masking tape: low-tack, exterior and 7 day

Types of cleaning and degreasing agents

- detergent
- white spirit
- methylated spirits

- sugar soap
- proprietary degreasing agent

Types of paint and wallpaper stripping materials and equipment
- materials to include: liquid paint stripper (solvent and water based)
- equipment to include: electric hot air guns, LPG guns, infra-red, steam stripper

Types of primers
- acrylic
- etch
- wood
- aluminum
- zinc phosphate
- universal
- thinned emulsion

Types of Sealers
- PVA
- stabilizing solutions
- shellac knotting (white knotting)
- size

Types of pre-treatment solutions
- stain block
- mordant solution
- fungicidal wash

Types of filling materials
- powder
- ready mixed
- decorators caulk
- light weight
- fine surface
- two pack

Types of abrasives
- aluminum oxide
- silicon carbide
- glass paper
- wire wool
- sanding pads

Learners will know how to assess the quality of resources and identify common defects to include:

- rip and tears in protective materials
- contamination of products
- shelf life of products
- effects of inappropriate atmospheric conditions
- incorrect dilutions

Learners will understand how to rectify defective material ensuring they are removed, and set to one side and replaced.

1.2 Learners will understand how and when to select the suitable type of resources for preparing different substrates and rectifying associated defects:

- timber: soft wood and hard wood, timber sheet material, including knots, end grain, open joints, and delamination
- metal: ferrous and non-ferrous including rust and corrosion
- internal plaster and plasterboard including pin-holes, cracks, indentations, nail pops, blown tapes, friable
- external rendering including mould and algae
- brick and block work including efflorescence, friable mortar
- cementitious surfaces including release agents
- contamination including grease/oil, silicone, nicotine, tar, smoke, pollution
- surface coating defects including cissing, bittiness, bleeding, blistering, flaking

Learners will know how and when to report any problematic issues with substrates and preparation materials.

1.3 Learners will know the process for selecting materials using technical information sources including drawing, specifications, schedules, and manufacturer's information to ensure quality prior to and during preparing surfaces for painting and/or decorating.

1.4 Learners will know hazards associated with methods of work. Learners will follow risk assessments and method statements to identify correct PPE and carry out the work safely and competently in accordance with health and safety legislation.

Learners will know hazards associated with resources to include

- dust produced from abrading and cleaning
- lead released when abrading
- mould spores
- bird droppings
- burns from chemicals, solvents, heat, and steam

Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority.

Outcome 2

2.1 Learners will know their responsibility for accurately following specifications and method statements for completing set work tasks to the required standard and within

time frames set by planned work programmes. Learners will understand the effects of not meeting planned deadlines and the follow-on effects it has on other trades and planned work programmes.

Learners will know the purpose of the following processes and understand the consequences of not following these in the correct sequence and to the required standard:

- washing
- stripping
- scraping
- abrading
- keying
- mixing
- filling
- levelling and flattening
- dusting-off / brushing-down

Learners will know organisational procedures to report a problem.

2.2 Learners will know how to use different types of hand tools, power tools and associated equipment correctly, to include:

- hand tools: scraper, putty knife, filling knife, shave hook, nail punch, hammer, wire brushes (steel and bronze), knotting brush, dusting brush, natural/synthetic paint brushes, short pile woven fabric roller
- power tools: hot air gun, steam stripper, sanding machines
- associated equipment: filling board, bucket, sponge, rubbing block, paint pot/kettle, roller tray, dust masks, goggles, gloves/gauntlets, access equipment

Learners will know how to carry out pre-start checks on hand tools and power tools to ensure they are fit for use and purpose to include:

- electrical equipment: PAT tested, cables, plug and transformer, on/off switch, casing and water level
- LPG equipment: hoses, clips, valves, trigger, regulator
- hand tools for sharpness: suitability for use, free from defects and damage

Learners will know how to clean, maintain, and store tools and equipment during and after use. This includes:

- procedures for short term and long-term storage
- conditions for storing equipment to prevent mildew and deterioration
- methods of storage for tools to ensure ventilation and shape retention
- methods of storage for power tools and equipment to ensure security, prevention of fire/explosion

Learning outcome

3 Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills to wash, strip and/or scrape, abrade and key, mix, fill, level and/or flatten and brush-down

3.2 Use and maintain hand and power tools and associated equipment to prepare, prime and seal exterior and/or interior surfaces for industrial and/or non-industrial situations to given working instructions for the following:

- bare substrates and previously painted and/or decorated surfaces in sound condition and featuring surface defects
- removal of existing covering and/or material where required

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to demonstrate washing surfaces to a finish. Learners will be able to demonstrate:

- the complete removal of defective coatings and wallpapers using stripping and scraping processes.
- abrading and keying surfaces to the required degree.
- the mixing of filling compounds to the correct consistency before making good by applying to surfaces to achieve a level and/or flat finish.
- the complete removal of surface dust by brushing down before the application of any coatings.
- measure surface areas and calculate correct quantities of primers, sealers, pre-treatment solutions and filling materials including an allowance for waste.

3.2 Learners will be able to identify and select the correct type of tools and equipment to prepare surfaces for painting and/or decorating in line with specifications and method statements. Learners will be able to use and maintain the different types of hand tools, power tools and associated equipment correctly, using correct manual handling techniques, to include:

- hand tools: scraper, putty knife, filling knife, shave hook, nail punch, hammer, wire brushes (steel and bronze), knotting brush, dusting brush, natural/synthetic paint brushes, short pile woven fabric roller
- power tools: hot air gun, steam stripper, sanding machines
- associated equipment: filling board, bucket, sponge, rubbing block, paint pot/kettle, roller tray, dust masks, goggles, gloves/gauntlets, access equipment.

Learners will be able to assess the surfaces to be treated and identify defects and contamination that will detract from the final finish and select appropriate preparation processes and materials.

Preparation processes

- wet abrading and dry abrading
- degreasing and washing down
- knotting
- priming
- stopping and filling
- rust removal
- raking out
- wetting in
- removal of paint systems and wallpaper

Materials

- a range of abrasives, sterilising fluids/fungicidal washes, solvents (white spirit, methylated spirits), stain blocks, primers/sealers (alkali-resisting, aluminium wood, acrylic, stabilising solutions), shellac/white knotting, fillers, stoppers

Learners will be able to prepare, prime and seal new/bare substrates to given working instructions to include:

- timber (softwood and sheet material)
- metal (ferrous and non-ferrous)
- plaster/plasterboard
- brick/blockwork.

Learners will be able to prepare previously painted and decorated surfaces in sound condition and featuring surface defects to given working instructions. Defects to include:

- cissing
- bittiness
- runs
- sags/curtains
- residual paste
- brush marks and orange peel
- indentations.

Learners will be able to completely remove existing defective covering and coatings from previously painted and decorated surfaces then apply primers sealers, pre-treatment solutions and filling materials to given working instructions.

Unit 223: Apply surface coatings by brush and roller

GLH:	113

What is this unit about?

This unit is about applying water-borne and/or solvent-borne coatings by brush and/or roller in industrial and/or non-industrial situations, providing protection to the work area, interpreting information, adopting safe, healthy, and environmentally responsible work practices, selecting, and using materials, components, tools, and equipment.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- How would I prepare the work area?
- How would I choose a coating for a particular surface?
- Will I learn to use a variety of tools and techniques to apply different coatings?
- What is the difference between a coating and paint?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the properties and characteristics of different coatings to include:

- composition: thinner, binder/film former, pigment, extenders
- drying methods: evaporation, oxidization, polymerisation, coalescence

Learners will understand the suitability of coatings when selecting them for applying different surface coatings with brushes and rollers:

- water–borne/based including primer/undercoat, eggshell, satin, gloss emulsion (matt, soft /mid sheen, silk), varnishes (matt, eggshell, gloss), masonry paint
- solvent –borne/based: primers (for multi-purpose, wood, metal, plaster), undercoat eggshell, satin, gloss, varnishes (matt, eggshell, gloss), thixotropic

Learners will understand differences in characteristics between trade and DIY products.

Learners will know how to assess the quality of coatings and identify common defects to include:

- contamination of products
- shelf life of products
- effects of inappropriate atmospheric conditions
- incorrect dilutions
- incorrect product supplied.

Learners will understand how to rectify defective material ensuring straining of contaminated materials, removal from the workplace and suppliers informed.

1.2 Learners will know the purpose of different coatings:

- decoration
- identification
- protection
- sanitation

Learners will understand the function of each coating for each paint system:

- primer
- immediate
- finish

Learners will know how and when to report any problematic issues when applying coatings. Learners will be able to dispose of used product and containers correctly without damaging the environment and with an importance placed on recycling.

1.3 Learners will understand the process for selecting materials interpreting and extracting technical information sources including drawing, specifications, schedules and manufacturers' information to ensure quality prior to and during preparation, mixing and application to meet the required industry standard.

1.4 Learners will understand hazards associated with the work schedule and materials and those associated with the process. Learners will understand how to follow risk assessments and method statements to identify correct PPE and carry out the work safely and competently in accordance with health and safety legislation.

Learners will know hazards associated with the application of coatings to include:

- solvents: inhalation of fumes, dermatitis
- spillages and splashes: slipping, contact to skin
- confined spaces: poor ventilation, sole working
- working at height
- musculoskeletal injuries; lifting and repetitive strain injury.

Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority when applying surface coatings

Outcome 2

2.1 Learners will understand their responsibility for completing set work tasks to the required standard and time frames set by planned work programmes.

Learners will understand the requirements of different trades working together, to considering:

- restrictions in access
- effects of fumes from coating
- effects of noise and particle pollution form other trades.

Learners will understand the effects of not meeting planned deadlines and the follow-on effects it has on other trades and planned work programmes.

Learners will know organisational procedures to report a problem.

Learners will know the purpose of the following processes and understand the consequences of not following these in the correct sequence and required standard:

- mixing
- pouring
- diluting
- loading
- laying-on
- laying-off
- cutting-in

2.2 Learners will know how to use the following tools and equipment

Tools:

- rollers with sleeves of synthetic filament, woven pile, woven fabric, mohair, lambswool, short/medium/long pile,
- brushes: natural bristle, synthetic filament

Equipment for

- rollers: scuttles/roller bucket, trays, extension poles
- brushes: kettles/pots

Learners will know how to clean, maintain and store tools and equipment during and after use, to include:

- use of cleaning materials: water, white spirit, methylated spirit
- procedures for short term storage: bagging, water steeped, brush keep
- conditions for long term storage to prevent mildew, deterioration and ensure shape retention

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills match, mix, pour, dilute, load, lay-on, lay-off and cut-in

3.2 Use and maintain hand and power tools and associated equipment to apply water-borne and/or solvent-borne coatings to internal and/or external surfaces for industrial and/or non-industrial situations, to given working instructions for trim, broad areas, and structural and architectural work by brush and/or roller

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to demonstrate the following skills when applying paint to different surfaces:

- match to specification or produced colour swatches
- mix to ensure even distribution of ingredients and produce colour
- strain/search to remove contamination
- pour/decant to appropriate container (scuttle, pot tray)
- dilute to correct consistency and viscosity
- load roller and brushes correctly
- lay on and spread out
- lay off to remove potential application defects
- cut in accurately to adjacent surfaces or struck / marked lines.

3.2 Learners will be able to identify, select, use, and maintain the following equipment safely, using correct manual handling techniques:

Tools:

- rollers with sleeves of synthetic filament, woven pile, woven fabric, foam short/medium/long pile
- brushes: natural bristle, synthetic filament

Equipment:

- rollers: scuttles/roller bucket, trays, extension poles
- brushes: kettles/pots
- sundries: dusting brush, paint tin opener, stirring stick, palate knife, strainer

Learners will be able to of calculate the quantity required, including wastage of materials associated with the methods and procedures.

Learners will be able to:

- identify and follow working instructions from specifications, schedules, method statements, verbal and written and manufacturers' instructions
- establish access requirements
- check suitability of surface to receive surface coatings.

Learners will be able apply solvent borne/based and waterborne/based coatings to:

- ceilings, walls, and floors
- skirting, architraves
- windows, panelled and flush doors.

Learners will be able to apply coatings by brush and roller following correct sequences to avoid the following application defects:

- runs
- sags, curtains
- cissing
- ladders
- orange peel
- misses
- fat edges
- excessive brush marks and ropiness
- excessive bits and nibs
- skid marks, roller edge marks
- paint on adjacent surfaces.

Unit 224: Hang wallcoverings (standard and foundation papers)

GLH:	115

What is this unit about?

This unit is about hanging foundation papers (cross), textured and/or relief and patterned finishing papers in non-complex locations providing protection to the work area, interpreting information, adopting safe, healthy, and environmentally responsible work practices, selecting, and using materials, components, tools, and equipment in industrial and/or non-industrial situations.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- How would I choose an adhesive for a particular surface and paper?
- Will I learn the appropriate areas to hang different types and patterns of wallpaper?
- What are the appropriate equipment and techniques to apply paper to ceilings and walls?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the characteristics and suitability of resources when selecting them for hanging wall coverings:

Types of paste and adhesive:

- cellulose
- starch
- ready mixed (light, medium, heavy weight)
- border and overlap

Types of foundation paper:

- lining paper (various grades)
- foil backed
- bitumen backed
- Expanded polystyrene (EPS)
- non-woven

Types and manufacturing methods of wallcoverings:

- simplex including grounds, pulps
- embossed/duplex including anaglypta, supaglypta
- relief including blown vinyl and wood ingrain
- washables including vinyl, ready pasted
- non-standard width
- non-woven including paste the wall

Pattern types:

- free match/random
- set match
- drop match/off-set
- reversible

Learners will know how to assess the quality of resources and identify common defects to include:

- water damage / mildew
- damaged in transit particularly edges
- fading
- incorrect product supplied, pattern number, batch number
- contamination and shelf life of adhesive.

Learners will understand how to rectify defective material ensuring, removal from the workplace and suppliers informed. Learners will be able to dispose of product correctly without damaging the environment and with an importance placed on recycling.

1.2 Learners will understand how and when to select suitable type of wallcoverings for different locations and conditions.

Location

- high traffic areas
- high humidity areas (kitchens and bathrooms)
- areas with increased risk of fire
- areas requiring high sanitation

Condition

- damaged walls
- condensation dampness
- insulation
- aesthetics i.e. enhance/disguise proportions

1.3 Learners will understand the process for selecting materials interpreting and extracting technical information sources including drawing, specifications, schedules and manufactures information to ensure quality prior to and during preparation, mixing adhesives and hanging wallcoverings to meet the required industry standard.

1.4 Learners will understand hazards associated with the work schedule and materials and those associated with the process. Learners will understand how to follow risk assessments and method statements to identify correct PPE and carry out the work safely and competently in accordance with health and safety legislation.

Learners will know hazards associated with hanging wallcoverings to include:

- adhesives: fungicide contact to skin and ingestion
- slips from offcuts
- lacerations from sharp tools and wallcoverings
- working at height
- musculoskeletal: injuries repetitive strain injury

Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority.

Outcome 2

2.1 Learners will understand their responsibility for completing set work tasks to the required standard and time frames set by planned work programmes. Learners will understand the effects of not meeting planned deadlines and the follow-on effects it has on other trades and planned work programmes.

Learners will know organisational procedures to report a problem.

Learners will know the purpose of the following processes and understand the consequences of not following these in the correct sequence and required standard:

- shading
- measuring and marking out
- matching
- cutting lengths
- mixing

- applying adhesives
- folding
- positioning
- fixing
- trimming
- cleaning-off

Learners will understand the techniques used to negotiate surface complexities to include:

- reveals
- internal and external angles
- around electrical fittings (ceiling rose, sockets and switches)
- around, radiators and associated pipework.

2.2 Learners will know how to use tools and equipment when hanging wallcoverings:

- measuring and marking out: tape measure, folder rule, pencil, chalk line, spirit level, plumb bob, laser level
- pasting: brush, roller machine, table, sponge, buckets/scuttle
- application: shears, paper hanging brush, straight edge, trimming knife, sharps box, seam roller
- access equipment: hop ups, scaffold boards, step ladder, trestles, staging, stairwell protection system

Learners will know how to clean, maintain, and store tools and equipment during and after use. This includes:

- use of cleaning materials: detergent and water
- procedures for storage under suitable conditions to prevent mildew and corrosion

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills to shade, measure, match and cut, mix, and apply, fold, position, fix, trim and clean-off

3.2 Use and maintain hand and power tools and associated equipment to establish start and finish point and hang standard papers of substantial length to given working instructions to the following areas; ceilings with any type of paper, walls with both internal and external angles using foundation papers (cross), textured and/or relief and patterned finishing papers

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to demonstrate the following skills when hanging wallpaper:

- shade wallcovering, checking appropriate batch and pattern numbers and conducting visual checks
- measure surface area accurately
- match and cut accurately avoiding undue waste
- stack wallcovering in correct order
- mix and apply the correct adhesive
- fold wallcovering: concertina and end to end
- hang wallcoverings to marked line (horizontal /vertical)
- trim accurately and safely with knife and shears
- remove all paste from the finished surface to avoid stains and marking.

Learners will be able to measure surface areas and calculate correct quantities of adhesives and wallcoverings including an allowance for waste.

3.2 Learners will be able to identify and select the correct type of tools and equipment to hang wall coverings in line with specifications, method statements and manufacturers' information.

Learners will be able to use and maintain the different types of tools and equipment safely, using correct manual handling techniques, to include:

- measuring and marking out: tape measure, folder rule, pencil, chalk line, spirit level, plumb bob, laser level
- pasting: brush, roller machine, table, sponges, buckets/scuttle
- application: shears, paper hanging brush, straight edge, trimming knife, sharps box, seam roller
- access equipment: hop ups, scaffold boards, step ladder, trestles.

Learners will be able to

- identify and follow manufacturers' instructions
- establish access requirements
- check suitability of surface to receive wallcoverings in that it is clean, level and sized
- prepare and apply pastes and adhesives
- establish start and finish points.

Learners will be able to prepare and hang wallcoverings to ceilings walls and ceilings keeping paper and adjacent surfaces clean to include:

- paper types: foundation paper, textured and/or relief and patterned finished
- complexities: reveals and internal and external angles, around electrical fittings, and pipework.

Learners will be able to hang wall coverings to avoid the following defects:

- creasing
- overlaps
- blisters
- tears
- polished edges
- pen joints
- loose edges
- irregular cutting
- staining/surface marking
- corners incorrectly negotiated
- inaccurate plumbing.

Pathway F: Solid Plastering

Unit 225: Solid plastering core knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this pathway.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- working to deadlines

The content contained within this unit has been presented in a generic way as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in the context of the following skills units (where appropriate);

- Produce internal solid plastering finishes
- Apply solid render to background surfaces & produce finishes

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria

1.1 The organisational procedures developed to report and rectify inappropriate information and unsuitable resources, and how they are implemented

1.2 The types of information, their source and how they are interpreted

1.3 The organisational procedures to solve problems with the information and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria

2.1 The level of understanding operatives must have of information for relevant, current legislation and official guidance and how it is applied

2.2 How emergencies should be responded to and who should respond

2.3 The organisational security procedures for tools, equipment, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how health and safety control equipment should be used

2.6 How to comply with environmentally responsible work practices to meet current legislation and official guidance

3 Understand how to minimise the risk of damage

Criteria

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4 Understand working to deadlines

Criteria

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problems, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings and plans, specifications, schedules, method statements, risk assessments, manufacturers' information, oral and written instructions, and building regulations, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems arising from resources including unsuitable materials and adverse weather conditions.

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know the principles of the following pieces of legislation; Building regulations; Working at Height regulations (WAH); Health and Safety at Work Act (HASAWA); PUWER; ACOPs; RIDDOR; CDM; COSHH; PPE; LOLER, Manual Handling regulations; Noise at Work regulations.

Learners will know what each legislation is for, how it is used in industry and the consequences of non-compliance. Learners will understand the roles of local authority with regards to planning and Building Control and with heritage structures including consultation with Cadw.

2.2 Learners will know how to respond to situations in accordance with organizational authorisation and personal skills when involved with fires, spillages, injuries, and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.

Learners will know the types of spillages, how to prevent them and how to fix them. Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities, including prevention, emergency procedures, emergency services, reporting procedures, access, and egress for emergency vehicles.

2.3 Learners will know the organisational security procedures for different situations, to include;

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID authorisation procedures
- operative - including security of tools, materials, equipment and vehicles, personal belongings

Learners will have an understanding of security procedures in a domestic dwelling compared to on-site.

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learners will know how to make the correct selection, usage, and maintenance of PPE, RPE, LEV including knowledge of the following; high-impact glasses, goggles, hard hat, Hi-Viz, ear defenders, safety boots, dust masks (including face fit tests), safety harnesses, appropriate gloves, fall arrest bags, crash mats, scaffold guard rail and netting, false floors, first fix nail gun training, and second fix nail gun training.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including; site waste management plan (SWMP), recycling, reuse, segregated waste.

Outcome 3

3.1 Learners will know how to protect work from damage from general work activities and from other occupations and weather conditions (domestic as well as site-based). Learners will understand the use of temporary cover, altering order of work to protect work better, the care and attention to detail during installation, use of dust sheets and material protectors.

Learners will know how to correctly store materials before, during and after the work.

3.2 Learners will know why the disposal of waste should be carried out safely and responsibly following organisational procedures, manufacturers' information, statutory

regulations, and official guidance in line with environmental responsibilities. Learners will know the different methods of disposal, to include designated skips, recycling, segregation of waste, local waste collection point, biofuel.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme and the importance of why the deadlines should be kept.

Learners will know the types of productivity targets and time scales, how times are estimated and the circumstances which will affect the work programme, to include weather, availability of labour, the knock-on effect of poor handling and storage causing damage to materials, penalty clause, retention fees, reputation, and the implication on other trades.

Unit 226: Produce internal solid plastering finishes

GLH:	178

What is this unit about?

This unit is about interpreting information, adopting safe and healthy working practices, and selecting materials and equipment. It covers preparing and applying one- and two-coat plaster to internal backgrounds.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- Why is internal solid plastering still commonly used today?
- What is the difference between lime based and cement-based backing plasters?
- What is the difference between a binder and aggregate?
- Why are the benefits of using Gypsum lightweight plasters?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the benefits of using traditional lime and cement-based plasters, modern gypsum preblended backing and finishing plasters for various application methods on to plasterboard, solid masonry with low, medium, and high suction, textured and pre plastered surfaces, expanded metal lath and traditional timber lath.

Learners will know how to identify and select the correct type of:

- backing and finishing plaster
- reinforcement
- sealers
- primers
- glues
- beads and fixings

for preparing, applying subsequent coats, ruling, consolidating, keying, and finishing for one and two coat application.

Learners will know how to assess the quality and condition of:

- lime
- cement
- sand
- plasters
- reinforcement
- sealers
- primers
- glues
- beads
- plasterboard surfaces
- timber lath
- expanded metal lath
- fixings

to ensure they are fit for use and defect free.

Learners will know how to ensure materials are stored in line with manufacturer's information and identify defective materials including accessories for poor quality and contamination and ensure they are removed and set to one side.

1.2 Learners will know how and when to select the suitable type of plaster, components, accessories, beads, and reinforcements for various backgrounds such as plasterboard, backing coats and solid masonry surfaces including pre-plastered surfaces prepared with grit adhesive. Learners will know how to identify and report any problematic issues with background surfaces and preparation and application of plasters and components.

1.3 Learners will understand the process for selecting materials interpreting and extracting technical information sources such as drawing, specifications, schedules, and manufacturer's information to ensure quality prior and during preparation, mixing and application to meet the required industry standard.

1.4 Learners will understand hazards associated with the work schedule and materials and those associated with the installation process. Learners will understand how to follow method statements and risk assessments to identify correct PPE and carry out the work safely and competently in accordance with health and safety legislation line. Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority.

Outcome 2

2.1 Learners will understand their responsibility for completing set work tasks to the required standard and time frames set by planned work programmes. Learners will understand the effects of not meeting planned deadlines and the follow-on effects it has on other trades and planned work programmes. Learners will know how to check plasterboard surfaces for correct installation and fixing of screws, correct layout of

plasterboards, and correct positioning of beads and trims and reinforcement tapes ready to be applied with finishing plaster to achieve a blemish free flat finish for decoration.

Learners will know how to check for any delamination and damage of pre plastered surfaces and know how to prepare the surfaces in readiness to carry out necessary repairs to achieve a blemish free flat finish for decoration.

Learners will know how to check finished concrete surfaces ready to be applied with finishing plaster to achieve a blemish free flat finish for decoration.

2.2 Learners will know how to carry out pre checks on hand tools and power tools to ensure they are fit for use and purpose.

Learners will know how to select tools and equipment to carry out preparation work on various types of backgrounds, measuring, gauging and mixing traditional and modern plasters, positioning accessories such as beads for accuracy, level, plumb and correct margin, positioning and fixing of components, reinforcements and apply backing and finishing plasters using various techniques for ruling, consolidating, keying and finishing.

Learners will know how to use hand tools and power tools, access equipment competently in line with the method of work and store and maintain during and after completing set work tasks.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Prepare background surfaces to receive one and two coat internal plaster systems to given working instructions relating to the following:

- plain walls
- walls with openings - reveals, cills and soffits (door and/or windows)
- walls with returns
- plain ceilings
- beams and piers

3.2 Measure, cut and set out components

3.3 Demonstration of work skills to prepare, gauge, mix, apply and finish one, two and three coat solid plastering work (including making good defects)

3.4 Use and maintain hand tools, portable power tools and mechanical equipment and resources to prepare pre-blended materials, apply and finish internal one, two and three coat plasterwork to given working instructions;

- plain walls
- walls with openings - reveals, cills and soffits (e.g. door and/or windows) walls with returns
- plain ceilings
- beams and piers

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to identify and select the correct type of traditional or modern plaster system, accessories, additives, bonding agents, components, reinforcements, beads to prepare surfaces for installation.

Learners will be able to select correct materials and resources for measuring, gauging and mix traditional and modern plasters to correct consistency and strength.

Learners will be able to prepare basic vertical and horizontal backgrounds by installing standard plasterboard, mechanically or by direct bond to solid masonry.

Learners will be able to apply plasters on to plasterboard, solid masonry with low, medium, and high suction, textured and pre plastered surfaces to form plain walls and ceilings, walls and ceilings with openings, stair walls, walls with pier returns, beams and independent piers.

Learners will carry out one and two coat application process in line with drawings, specifications, schedules and manufactures information to meet industry standard.

Learners will assess and carry out pre-checks to solid backgrounds for suction control, key, compatibility, and suitability to determine the type of plaster system and application.

Learners will be able to check installed plasterboard surfaces and joins including penetration of screws, position of beads, reinforcements.

Learners will be able to check scratch coat surfaces for subsequent application, adequate key and overall condition and quality of surface.

Learners will be able to check floated backing coats for lining plumb, returns formed square, soffits and cills formed level, cutting back at angles and beads, consolidated key, flatness, sharp angles, and suction control.

Learners will be able to check textured and solid masonry plastered surfaces for sealing, priming, and applying with grit adhesive to ensure adhesion.

Learners will be able to check all surfaces for adequate adhesion, plaster suitability and compatibility to ensure quality when applying and backing and finishing plaster surfaces for one and two coat plastering work.

3.2 Learners will be able to measure surface areas and calculate correct quantities of traditional loose aggregates, binders, and additives, bagged pre-blended plasters, primers and bonding adhesive including allowance for waste.

Learners will be able to measure linear and calculate correct quantities of standard and skim stop, angle, and movement beads including allowance for waste.

3.3 Learners will be able to interpret information sources and use correct skills and techniques to prepare low, medium, and high suction masonry surfaces, controlling suction with water, hacking, and stripping backgrounds, and applying bonding agents and slurries.

Learners will be able to select pre-blended bagged plasters, measure, gauge and carry out the mixing process by hand and mechanical methods using drill and whisk to the correct consistency and amount.

Learners will be able to measure, cut, position, and fix standard plasterboard to vertical and horizontal surfaces, position, and fix skim beads to form stops, splays, returns and movement joints.

Learners will be able to apply backing and finishing plasters, one and two coat plaster application using screeds and free hand methods.

Learners will be able to apply reinforcements such as scrim and tape for one coat plaster application.

Learners will be able to ensure surfaces are flat and smooth, clean and defect free including wall and ceiling angles, frames, services and sockets and surrounding work surfaces and areas.

3.4 Learners will be able to use suitable and correct methods for carrying out pre-checks, for background preparation for installing plasterboard, and installed plasterboard surface, pre-plastered and textured surfaces, solid masonry backgrounds (brick, block, stone, concrete), checking for surface defects, controlling suction, applying bonding agents to ensure adhesion, fixed and positioned standard and skim beads prior to receiving subsequent backing and finishing plaster application.

Learners will be able to select, measure, gauge and mix pre-blended lightweight plasters to the correct consistency, strength, and amount in line with specifications and manufacturers information.

Learners will be able to use correct skills, techniques, and application methods to apply, rule, consolidate and key backing coats, including applying bonding agents (spatterdash).

Learners will be able to use correct skills, techniques, and application methods to apply and finish walls using two passes of finishing plaster to walls, ceilings surfaces in line with drawings, specifications, schedules and manufactures information sources to ensure surfaces are consistent, even, flat, smooth and defect free in preparation for decoration and meet industry standard.

Learners will be able to carry out any necessary repairs/actions such as re-positioning of incorrect plasterboards and checking for mechanical and direct bond fixings.

Learners will be able to use the different types of hand tools and power tools to:

- prepare background surfaces for plastering
- Install standard plasterboard mechanically and direct bond
- measure, gauge and mix modern plasters to required consistency and strength
- apply plaster to form plain walls and ceilings, walls and ceilings with openings, stair walls, walls with pier returns, beams and independent piers in line with manufactures instructions.

Unit 227: Apply solid render to background surfaces and produce finishes

GLH:	150

What is this unit about?

This unit is about interpreting information and adopting safe, healthy, and environmentally responsible work practices. It covers selecting and using materials, components, tools, and equipment, preparing materials, applying solid render to external backgrounds, and producing finishes.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What is the purpose of rendering buildings?
- What types of surfaces can you apply external render to?
- What is the difference between traditional and modern renders?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the benefits of using traditional lime and cement-based renders, modern preblended bagged colour through renders, pre-mixed acrylic lightweight renders for various application methods on to external surfaces to form plain and textured finishes.

Learners will know how to identify and select the correct type of backing and topcoat renders, reinforcement, additives, sealers, primers, glues, beads, insulation, and fixings for preparing, applying subsequent coats, for one and two coat application.

Learners will know how to assess the quality and condition of lime, cement, sand, pre-mixed render, pre-blended render, reinforcement, additives, sealers, primers, glues, beads, timber lath, expanded metal lath, insulation and fixings and ensure they are fit for use and defect free.

Learners will know how to ensure materials are stored in line with manufactures information and identify defective materials and accessories for poor quality and contamination and ensure they are removed and set to one side.

1.2 Learners will know how and when to select the suitable type of rendering system, components, additives accessories, beads and reinforcements for various backgrounds such as solid masonry surfaces brick, block, stone, insulation for EWI and expanded metal reinforcement.

Learners will know how to identify and report any problematic issues with background surfaces and preparation and application of plasters and components

1.3 Learners will understand the process for selecting materials interpreting and extracting technical information sources such as drawing, specifications, schedules, and manufacturer's information to ensure quality prior and during preparation, mixing and application to meet the required industry standard. Learners will know the organisational procedures for reporting defects and inaccuracies within documentation.

1.4 Learners will understand hazards associated with the work schedule and materials associated with the installation process. Learners will know how to follow method statements and risk assessments to identify correct PPE and carry out the work safely and competently in accordance with health and safety legislation. Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority.

Outcome 2

2.1 Learners will understand their responsibility for completing set work tasks to the required standard and time frames set by planned work programmes. Learners will understand the effects of not meeting planned deadlines and the follow-on effects it has on other trades and planned work programmes.

2.2 Learners will know how to carry out pre checks on hand tools and power tools to ensure they are fit for use and purpose when preparing backgrounds, mixing traditional loose materials, aggregates, binders, additives, mixing preblended and pre-mixed renders for applying and finishing one and two coat rendering work.

Learners will know how to select tools and equipment to carry out preparation work on various types of new and old backgrounds surfaces, measuring, gauging, and mixing traditional and modern renders, positioning accessories such as beads for accuracy, level, plumb and correct margin, positioning and fixing of components, reinforcements and apply backing base coats and finishing topcoats using appropriate techniques for the application process.

Learners will know how to use hand tools and power tools, access equipment competently in line with the method of work and store and maintain during and after completing set work tasks.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Prepare at least **one** of the following background surfaces to given working instructions; brick, block, concrete, rubble stone masonry, expanded metal lath (EML), external insulation

3.2 Measure, cut and set out components

3.3 Application of base coats, reinforcing mesh and stress patches

3.4 Demonstration of work skills to mix, apply and finish internal and external angles, walls, reveals, and soffits including render features

3.5 Use and maintain hand tools, portable power tools, mechanical equipment, and resources to produce a plain-faced finish coat to external walls plus at least **one** of the following finishes to given working instructions; dry dash, rough-cast, tyrolean, silicone textured, cement-based scrape texture, pre-blended or pre-mixed (synthetic or non-synthetic renders)

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to identify and select the correct type of traditional or modern render system, accessories, additives, bonding agents, components, reinforcements, insulation, beads to prepare background surfaces for installation.

3.2 Learners will be able to select correct materials and resources for measuring, gauging and mix traditional and modern rendering products to correct consistency and strength to include; preparing backgrounds for adhesives, fixing beads, forming bellcasts with timber, fixing expanded metal lath (EML) sheet and coil, fixing insulation including reinforcements and traditional timber rules for forming hard angles including hard angle returns.

3.3 Learners will be able to apply to phenolic or polystyrene backgrounds including incorporating reinforcement mesh and applying suitable base coats. Learners will be able to apply to weak or composite backgrounds prepared with expanded metal to form plain and textured surfaces to exterior elevations.

3.4 Learners will be able to position and fix plastic or stainless-steel beads to form returns, drips, movement and stop incorporated with render system including render features to include; window banding, quoins, plinths etc.

3.5 Learners will be able to apply renders on to solid masonry brick, block, stone, concrete walls with low, medium and high suction. Learners will carry out one and two coat application process in line with drawings, specifications, schedules and manufactures information to meet industry standard. Learners will assess and carry out pre-checks to solid backgrounds for suction control, key, compatibility and suitability to determine type of render application and system.

Learners will be able to check positioning of beads when forming returns, drips, movement joints and stop ends, correct position of stress reinforcements, completed base coats surfaces for receiving subsequent application, adequate key and overall condition and quality of surface.

Learners will be able to check openings returns are formed square, soffits and cills formed level, cleaning back at angles and beads, overall condition and quality of plain and textured render surfaces. Learners will be able to check all surfaces for adequate adhesion, render suitability and compatibility to ensure quality when applying base and topcoat render surfaces.

Learners will be able to measure linear and calculate correct quantities of angle, bell, stop and movement beads including allowance for waste.

Learners will be able to interpret information sources and use correct skills and techniques to prepare low, medium and high suction masonry surfaces, controlling suction with water, hacking and stripping backgrounds, mechanical key using expanded metal lath and applying bonding agents and slurries.

Learners will be able to select traditional and modern rendering materials, measure, gauge and carry out the mixing process by hand and mechanical methods using drum mixer to the correct consistency, strength and amount.

Learners will be able to measure, cut, position and fix plastic or stainless beads to form stops, splays, returns, drips and movement joints.

Learners will be able to apply base and topcoat renders, one and two coat application using appropriate skills and techniques. Learners will be able to apply reinforcements such as mesh reinforcement cloth and expanded metal incorporated with the render system.

Learners will ensure finished render surfaces are consistent, even, flat, angles and beads sharp, clean and defect free including wall and surrounding work surfaces and areas.

Defects to include; grinning, scarring, sagging, beads not plumb and level, surface ghosting, inconsistent textured and plain finishing, inconsistent colour and strength.

Learners will able to use suitable and correct methods for carrying out pre-checks, for background preparation, controlling suction, applying bonding agents to ensure adhesion, reinforcing by mechanical key, fixed and positioned mesh reinforcement cloths and beads prior to receiving subsequent base and topcoat render application.

Learners will be able to measure surface areas, select, measure, gauge and mix traditional loose aggregates, binders and additives, bagged preblended and premixed renders, primers and bonding adhesive to the correct quantity, consistency, strength and amount in line with specifications and manufactures information including allowance for waste.

Learners will be able to use correct skills, techniques, tools and application methods to apply and form plain and textured render finishes one and two coat application to external walls in line with drawings, specifications, schedules and manufactures information sources.

Learners will be able to use the different types of hand tools and power tools to prepare background surfaces for render application, measure, gauge and mix traditional and modern materials and products to required consistency and strength, apply different renders to form plain and textured surfaces to external walls in line with manufactures instructions.

Learners will be able to use correct skills, techniques, tools and application methods to prepare and position beads, apply, key base coat surfaces in preparation for subsequent topcoat application.

Pathway G: Dry lining – Fixing

Unit 228: Dry lining core knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this pathway.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- understand working to deadlines

The content contained within this unit has been presented in a generic way as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in the context of the following skills units (where appropriate);

- Installing dry lining systems
- Install plasterboard mechanically and by direct bond

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria

1.1 The organisational procedures developed to report and rectify inappropriate information and unsuitable resources, and how they are implemented

1.2 The types of information, their source and how they are interpreted

1.3 The organisational procedures to solve problems with the information and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria

2.1 The level of understanding operatives must have of information for relevant, current legislation and official guidance and how it is applied

2.2 How emergencies should be responded to and who should respond

2.3 The organisational security procedures for tools, equipment, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how health and safety control equipment should be used

2.6 How to comply with environmentally responsible work practices to meet current legislation and official guidance

3. Understand how to minimise the risk of damage

Criteria

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4. Understand working to deadlines

Criteria

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problems, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings and plans, specifications, schedules, method statements, risk assessments, manufacturers' information, oral and written instructions, and building regulations, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems arising from resources including unsuitable materials and adverse weather conditions.

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know the principles of the following pieces of legislation; Building regulations; Working at Height regulations (WAH); Health and Safety at Work Act (HASAWA); PUWER; ACOPs; RIDDOR; CDM; COSHH; PPE; LOLER, Manual Handling regulations; Noise at Work regulations.Learners will know what each legislation is for, how it is used in industry and the consequences of non-compliance. Learners will understand the roles of local authority with regards to planning and Building Control and with heritage structures including consultation with Cadw.

2.2 Learners will know how to respond to situations in accordance with organizational authorisation and personal skills when involved with fires, spillages, injuries and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.

Learners will know the types of spillages, how to prevent them and how to fix them. Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities, including prevention, emergency procedures, emergency services, reporting procedures, access and egress for emergency vehicles.

2.3 Learners will know the organisational security procedures for different situations, to include:

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID authorisation procedures
- operative - including security of tools, materials, equipment and vehicles, personal belongings

Learners will have an understanding of security procedures in a domestic dwelling compared to on-site.

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learners will know how to make the correct selection, usage and maintenance of PPE, RPE, LEV including knowledge of the following; high-impact glasses, goggles, hard hat, Hi-Viz, ear defenders, safety boots, dust masks (including face fit tests), safety harnesses, appropriate gloves, fall arrest bags, crash mats, scaffold guard rail and netting, false floors, first fix nail gun training, and second fix nail gun training.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including; site waste management plan (SWMP), recycling, reuse, segregated waste.

Outcome 3

3.1 Learners will know how to protect work from damage from general work activities and from other occupations and weather conditions (domestic as well as site-based). Learners will understand the use of temporary cover, altering order of work to protect work better, the care and attention to detail during installation, use of dust sheets and material protectors.

Learners will know how to correctly store materials before, during and after the work.

3.2 Learners will know why the disposal of waste should be carried out safely and responsibly following organisational procedures, manufacturers' information, statutory regulations and official guidance in line with environmental responsibilities. Learners will know the different methods of disposal, to include designated skips, recycling, segregation of waste, local waste collection point, biofuel.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme and the importance of why the deadlines should be kept.

Learners will know the types of productivity targets and time scales, how times are estimated and the circumstances which will affect the work programme, to include weather, availability of labour, the knock-on effect of poor handling and storage causing damage to materials, penalty clause, retention fees, reputation, and the implication on other trades.

Unit 229: Install dry lining systems

GLH:	178

What is this unit about?

This unit is about interpreting information, adopting safe, healthy, and environmentally responsible work practices. It also covers selecting and using materials, components, tools, and equipment whilst preparing, installing, and repairing proprietary dry lining systems.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What is the difference between solid plastering and dry lining direct bond?
- What is performance plasterboard?
- What type of backgrounds will I come across in buildings?
- Why are some dry lining backgrounds finished using tape and jointing compound?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the benefits of installing interior systems for producing metal framed partitioning, wall and ceiling linings and encasements and ceiling framed systems using various metal components and fixings ion line with each system.

Learners will know how to identify and select the correct type and size of track, standard and performance stud, furring and linings, perimeter and secondary channels, connectors, clips, brackets, fixings, anchors for the chosen system. Learners will know how to assess the quality and condition of materials and components including accessories for fire proofing and insulating to ensure they are fit for use. Learners will know how to ensure materials are stored in line with manufactures information and know how to identify defective materials for poor quality and contamination, ensure they are removed and set to one side.

1.2 Learners will know how to select different materials and components for setting out and installing framed partitioning, wall and ceiling linings and encasements and ceiling framed systems. Learners will know how to identify and report any problematic issues with background preparation and installation of interiors system.

1.3 Learners will understand the process for selecting materials and components using technical information sources such as drawing, specifications, schedules, and manufacturer's information.

1.4 Learners will understand hazards associated with the work schedule, materials and components associated with the installation process. Learners will know how to follow method statements and risk assessments to identify correct PPE and carry out the work safely and competently in accordance with health and safety legislation. Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority.

Outcome 2

2.1 Learners will understand their responsibility for completing set work tasks to the required standard and time frames set by planned work programmes. Learners will understand the effects of not meeting planned deadlines and the follow-on effects it has on work programmes.

2.2 Learners will know how to carry out pre checks on hand tools, power tools access equipment to ensure they are fit for use and purpose when installing interior systems.

Learners will know how to select tools and equipment to carry out the setting out and transfer of dimensions and datums, preparation of work area's including services and access points, measuring of materials and components, cutting, positioning, installing and finishing plain walls and ceilings, and walls and ceilings with openings including beams and columns:

- metal stud single, twin, staggered, curved, walls over 3metres and deflection heads
- wall and ceiling linings and encasements
- metal furring ceilings systems.

Learners will know how to store and maintain hand tools and power tools including access equipment during and after completing set work task.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills to measure, set out, fit, position, and install dry lining systems

3.2 Use and maintain hand tools, portable power tools and ancillary equipment to install the following, including fixing deflection heads, forming openings and junctions, and carrying out repairs, to given working instructions:

- metal stud partitions
- metal furring ceilings
- framed wall linings
- twin walls
- staggered studs
- framed and frameless beam and column encasement

3.3 Install at least **two** of the following systems to given working instructions, including fixing deflection heads, service shaft partitions, curved walls, walls over two metres high

Delivery outcomes (depth of content)

Outcome 1

3.1 Learners will be able to identify and select the correct size and type of metal products, materials, and components for installing metal stud partitioning, wall and ceiling linings and encasements and metal furring ceiling systems in line with drawings, specifications, schedules and manufactures information to industry standard.

Learners will assess and carry out pre-checks on background substrates for correct strength, condition, accommodation, compatibility, and suitability of the chosen/specified installation system.

Learners will be able to measure surface areas and calculate correct quantities of linear metal products:

- track
- studs
- linings
- furrings
- perimeter channel
- primary channels

Components to include: connectors, anchors, clips, straps, resilient bar, and fixings etc including allowance for waste.

Learners will be able to use correct techniques for interpreting and transferring dimensions and datums when setting out, measuring, cutting, installing interior systems for producing walls, ceilings, bulkheads, and encasements including pre installation of electrical and mechanical services and access channels and hatches.

3.2 and 3.3

Learners will be able to use the different types of hand tools and power tools to prepare and set out interior systems, measure accurately, cut, pre-position, and install interior system components and systems using appropriate methods and techniques including the need for increasing fire proofing and thermally insulating.

Learners will be able to carry out different installation methods and techniques for setting out, installing and finishing plain walls and ceilings and walls and ceilings with openings including beams and columns:

- metal stud single, twin, staggered, curved, walls over 2metres and deflection heads
- wall and ceiling linings and encasements
- metal furring ceilings system

Learners will be able to carry out pre installation checks such as sound proofing to party walls, applying intumescent sealant to form fire breaks and forming perimeter seals using compound adhesive including the positioning of insulation materials.

Learners will be able to select and install standard and performance metal products, materials and components to reduce acoustic and sound transmittance, to assist in increasing thermal properties and increase resistance against impact and increase fire proofing.

Learners will be able to use correct installation methods, using accurate fixing points and fixing centers to correctly set out and install interior systems using appropriate anchors, clips and mechanical fixings including cartridge operated fixing tool.

Learners will be able to set out dimensions and transfer levels and datums to accurately install metal stud partitions with deflection heads and junctions, wall linings and encasements with junctions and returns and ceiling systems including bulk heads in line with drawings, specifications, schedules and manufacturer's information sources to ensure surfaces meet industry standards.

Learners will be able to carry out repairs to interior systems in line with manufacturer's guidelines.

Unit 230: Install plasterboard mechanically and by direct bond

GLH:	150

What is this unit about?

This unit is about interpreting information and adopting safe and healthy working practices. It covers selecting materials, components, and equipment, as well as preparing and fixing plasterboard to timber and metal frames and solid masonry internal backgrounds.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What does mechanical fixing mean when installing plasterboard?
- What is a perimeter seal?
- What is direct bond installation?
- What is a parge coat and why is it applied?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the benefits of installing standard and performance plasterboard using mechanical fixings and direct bond dry wall compound adhesive for specific installation purposes. Learners will know how to identify and select the correct type and size of plasterboard, screw fixing length or dry wall compound for the type of background. Learners will know how to assess the quality and condition of sheet materials, fixings and adhesive and ensure they are fit for use. Learners will know how to ensure materials are stored in line with manufactures information and identify defective materials for poor quality and contamination and ensure they are removed and set to one side.

1.2 Learners will know how to select different materials for various installation methods and procedures for timber, metal and masonry backgrounds using mechanical fixings and direct

bond installation. Learners will know how to identify and report any problematic issues with background preparation and installation of systems.

1.3 Learners will understand the process for selecting materials using technical information sources such as drawing, specifications, schedules, and manufacturers' information.

1.4 Learners will understand hazards associated with the work schedule and materials associated with the installation process. Learners will follow method statements and risk assessments to identify correct PPE and carry out the work safely and competently in accordance with health and safety legislation. Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority.

Outcome 2

2.1 Learners will understand their responsibility for completing set work tasks to the required standard and time frames set by planned work programmes. Learners will understand the effects of not meeting planned deadlines and the follow-on effects it has on work programmes. Learners will understand their responsibility for reporting problems or defects relating to the work.

2.2 Learners will know how to carry out pre checks on hand tools and power tools to ensure they are fit for use and purpose when installing plasterboard mechanical or direct bond fixing process. Select tools and equipment to carry out preparation, measuring, cutting, rasping, positioning, mixing, fixing and finishing plasterboard mechanical or direct bond. Store and maintain hand tools and power tools during and after completing set work tasks.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills to measure, mark out, cut, apply, fit, finish, position and secure

3.2 Use and maintain hand tools, portable power tools and ancillary equipment to install plasterboard to given working instructions of; cladding to timber and/or metal, and masonry forming openings with reveals

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to identify and select the correct size and type of sheet materials and fixing process to install plasterboard by mechanical fixing or direct bond dry wall adhesive in line with drawings, specifications, schedules and manufactures information to industry standard.

Learners will assess and carry out pre-checks to timber and metal backgrounds for correct stud and joist centres and true line-ability of background surface. Learners will be able to check masonry backgrounds for strength condition and straightness for setting out fixing guidelines.

Learners will be able to measure surface areas and calculate correct quantities of sheet materials fixings/ adhesive including allowance for waste.

Learners will be able to use correct techniques for interpreting and transferring dimensions when measuring, cutting, rasping, and pre-installing plasterboard too plain walls and ceilings, walls and ceilings with openings, stair walls, walls with pier returns, beams and independent piers including cutting out position of electrical and mechanical services and sockets.

3.2 Learners will be able to use the different types of hand tools and power tools to prepare timber, metal and masonry backgrounds, measure, cut and rasp plasterboard and pre-position prior to installation. Install standard or performance sheet materials using mechanical fixings or direct bond using mechanically mixed pre-blended dry wall adhesive.

Learners will know different installation methods for setting out sheet material:
singular fixing, staggered fixing, reinforcing positioning, double staggered fixing, vertical and horizontal positioning including, returns, reveals and soffits.

Learners will be able to carry out pre installation such as sound proofing to party walls, applying intumescent sealant to form fire breaks and forming perimeter seals using dry wall adhesive.

Learners will be able to select and install standard and specific performance plasterboard to reduce sound transmittance, control levels of moisture and vapor, increase resistance against impact and increase fire proofing.

Learners will be able to use correct fixing centres to install plasterboard with screws and dry wall adhesive.

Learners will be able to fix and install plasterboard in line with drawings, specifications, schedules and manufactures information sources to ensure surfaces are plumb, level, square, edges slightly butted with no uneven joins to meet industry standards.

Pathway H: Groundworks

Unit 231: Groundworks core knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this pathway.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- understand working to deadlines

The content contained within this unit has been presented in a generic way as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in the context of the following skills units (where appropriate);

- Set out secondary dimensional work control
- Prepare and mix construction related materials
- Install drainage

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria:

1.1 The organisational procedures developed to report and rectify inappropriate information and unsuitable resources, and how they are implemented

1.2 The types of information, their source and how they are interpreted

1.3 The organisational procedures to solve problems with the information and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria:

2.1 The level of understanding operatives must have of information for relevant, current legislation and official guidance and how it is applied

2.2 How emergencies should be responded to and who should respond

2.3 The organisational security procedures for tools, equipment, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how health and safety control equipment should be used

2.6 How to comply with environmentally responsible work practices to meet current legislation and official guidance

3. Understand how to minimise the risk of damage

Criteria:

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4. Understand working to deadlines

Criteria:

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery Outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problems, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings and plans, specifications, schedules, method statements, risk assessments, manufacturers' information, oral and written instructions, and building regulations, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems arising from resources including unsuitable materials and adverse weather conditions.

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know the principles of the following pieces of legislation; Building regulations; Working at Height regulations (WAH); Health and Safety at Work Act (HASAWA); PUWER; ACOPs; RIDDOR; CDM; COSHH; PPE; LOLER, Manual Handling regulations; Noise at Work regulations.

Learners will know what each legislation is for, how it is used in industry and the consequences of non-compliance. Learners will understand the roles of local authority with regards to planning and Building Control and with heritage structures including consultation with Cadw.

2.2 Learners will know how to respond to situations in accordance with organizational authorisation and personal skills when involved with fires, spillages, injuries, and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.

Learners will know the types of spillages, how to prevent them and how to fix them. Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities,

including prevention, emergency procedures, emergency services, reporting procedures, access, and egress for emergency vehicles.

2.3 Learners will know the organisational security procedures for different situations, to include:

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID authorisation procedures
- operative - including security of tools, materials, equipment and vehicles, personal belongings

Learners will have an understanding of security procedures in a domestic dwelling compared to on-site.

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learners will know how to make the correct selection, usage, and maintenance of PPE, RPE, LEV including knowledge of the following; high-impact glasses, goggles, hard hat, Hi-Viz, ear defenders, safety boots, dust masks (including face fit tests), safety harnesses, appropriate gloves, fall arrest bags, crash mats, scaffold guard rail and netting, false floors, first fix nail gun training, and second fix nail gun training.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including; site waste management plan (SWMP), recycling, reuse, segregated waste.

Outcome 3

3.1 Learners will know how to protect work from damage from general work activities and from other occupations and weather conditions (domestic as well as site-based). Learners will understand the use of temporary cover, altering order of work to protect work better, the care and attention to detail during installation, use of dust sheets and material protectors. Learners will know how to correctly store materials before, during and after the work.

3.2 Learners will know why the disposal of waste should be carried out safely and responsibly following organisational procedures, manufacturers' information, statutory regulations, and official guidance in line with environmental responsibilities. Learners will know the different methods of disposal, to include designated skips, recycling, segregation of waste, local waste collection point, biofuel.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme and the importance of why the deadlines should be kept.

Learners will know the types of productivity targets and time scales, how times are estimated and the circumstances which will affect the work programme, to include weather, availability of labour, the knock-on effect of poor handling and storage causing damage to materials, penalty clause, retention fees, reputation, and the implication on other trades.

Unit 232: Set out secondary dimensional work control

GLH:	115

What is this unit about?

The aim of this unit is to provide learners with the relevant practical skills and understanding required for setting out secondary dimensional work control in a construction and civil engineering environment. It also covers interpreting information, adopting safe, healthy, and environmentally responsible work practices, and selecting, preparing, and using materials, components, tools, and equipment.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What is dimensional control?
- Why is setting out important within civil engineering?
- What equipment is needed when setting out dimensional work?
- What are the different methods used when setting out in civil engineering work?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery Outcomes (depth of content)

Outcome 1

1.1 Learners will understand the range of resources used in the process of set out dimensional control to drawings specifications, and schedules. Learners will know and be able to understand the characteristics and suitability of materials when selecting resources for setting out secondary dimensional work control for residential or larger Civil engineering projects. Learners will have knowledge of Groundworks components and be able to identify defects that can affect the structural integrity and need replacing and those that only effect the aesthetics, their uses and limitations, sustainable alternatives.

Materials include:

- spray paint
- lime powder
- crayons, chalk, and markers

- flags and lines
- levelling and reference nails
- profile boards and edgings
- nylon lines
- straight edge

Equipment includes:

- tripods
- staffs
- theodolites
- total stations
- measuring tape
- spirit levels
- digital levels
- squares
- angle finders and straight edges
- spirit levels and inclinometers
- claw hammer
- mallets
- power drills

Documentation includes:

- specifications
- drawings
- manufacturer's literature
- risk assessments
- method statements
- supplier contact information
- requesting further information (RFI) process
- technical queries
- change orders
- bill of quantities
- requisition sheets
- purchase orders
- delivery notes
- stock inventory
- Working at Height 2005
- Manual Handling 1992
- MEWPs (Mobile Elevating Work Platforms)
- PUWER 1998 (Provision of use of Working Equipment Regulation 1998)
- HASAWA 1974 (Health and Safety at Work Act 1974)
- COSHH 2002 (Control of Substances Hazardous to Health Regulations)
- Traffic Signs Regulations and General Directions (TSRGD) - Chapter 8

1.2 Learners will understand how the resources should be used and how any problems associated with the resources are reported. Learners will know and understand which materials are to be used in specific locations, the procedures and reporting protocols to follow to report any problems, as well as defects or concerns with selected resources. Learners will also know how to select and use tools and equipment for their intended purpose and how to rectify or report any defects. Learners will know the calibration requirements of total stations, ensuring architects and engineers drawings are also reviewed and current, the process of positional error checks and individual peg checks.

1.3 Learners will understand the working procedures used to select the most appropriate methods to set out secondary dimensional control, in accordance with written instructions, drawings, schedules and verbal instructions to meet the contract size/needs. Learners will know how to raise requisitions, order resources to complete a specific task using organisational procedures.

1.4 Learners will know the hazards associated with setting out secondary dimensional work control, the maintenance and replacement of groundworks components as well as the correct method of work required to complete the setting out of secondary dimensional work control, whilst working on small residential or large civil engineering projects.

Hazards include:

- importance of working to method statements and risk assessments
- open excavations
- moving plant and equipment
- slips trips and falls
- working at height
- hand and eye injuries
- being hit by falling objects

Outcome 2

2.1 Learners need to know and understand the application of knowledge for safe and healthy work practices, procedures and skills relating to the method, process, and area of work. Learners need to plan their work efficiently from the given instructions and complete the work to the agreed specifications. Learners need to understand the importance of communication amongst team members during activities as well as the needs of other occupations working alongside them. Learners will understand the correct methods used to establish dimensions accurately and to establish the setting out details from drawings, specifications, and verbal instructions. Learners will understand how to identify problems and how to report.

2.2 Learners need to know and understand the importance of maintaining tools and equipment and the operative care associated with hand tools, portable power tools. powered units, machinery, and ancillary equipment. Learners also need to understand procedures such as start-up and shut down checks, calibration, and planned maintenance schedules. Learners will know how to maintain equipment to ensure its

accuracy in future use and how equipment should be cleaned and maintained after use. Methods of maintaining tools and equipment to include:

- checking for accuracy
- cleaning equipment

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Use and maintain hand tools, measuring and marking equipment and ancillary equipment to set out secondary dimensional control for the work to given working instructions for any three of the following
Range: line, level, depth, area, height, and angle

3.2 Demonstrate work skills to transfer, transpose, level, measure, mark, position, fix and secure

Delivery Outcome (depth of content)

Outcome 3

3.1 Learners can demonstrate that they can plan and set out secondary dimensional work control by following the information and guidance given to them. Learners can produce a method statement and work programme to plan efficiently for the work to be carried out within the agreed time for the work.

Learners will be able to identify and extract suitable information from arrange of sources to set out secondary dimensional work control

Documentation to include:

- drawings
- specifications
- TBM's (Temporary Benchmark)
- schedules
- method statements
- risk assessments
- manufacturers' technical information

Learners will be able to set out secondary work control as per instructions or methods of work. To establish **three** of the following:

- line (transferring points from a primary station to establish secondary station)
- level (finish floor level, domestic, highways, roads, paths, inverse levels for drainage)
- depth (excavations, foundations, slabs& floors, services, sewers, drainage)
- area (boundaries, footprints)
- height (existing structures, new structures, topography, establish cut and fill, drainage)
- angle (right angles, arcs, heights, establishing secondary stations)

Learners will be required to follow the sector regulations when carrying out this work.

Regulations to include:

- Working at Height 2005
- Manual Handling 1992
- MEWPs (Mobile Elevating Work Platforms)
- PUWER 1998 (Provision of use of Working Equipment Regulation 1998)
- HASAWA 1974 (Health and Safety at work Act 1974)
- COSHH 2002 (Control of Substances Hazardous to Health 2002)
- Traffic Signs Regulations and General Directions (TSRGD) - Chapter 8

Learners will be able to identify suitable PPE (Personal Protection Equipment) and use whilst setting out secondary dimensional work control.

PPE to include:

- safety boots
- hard hat
- high visibility jackets
- goggles
- gloves
- dust masks
- respiratory equipment
- local exhaust ventilation

Learners will be able to access and use the appropriate ancillary equipment.

Ancillary equipment to include:

- ladders/step ladders
- scaffold/tower scaffolds
- podiums

Learners will be able to identify and extract suitable information to ensure equipment is used safely whilst setting out secondary dimensional work control. Ensuring Supplier literature and MEWP is adhered too. Learners will be able to identify the signage and barrier protection types required and place in the correct location whilst setting out dimensional control of the work, to maintain a safe working environment.

Barrier protection types include:

- fencing
- hoardings
- sheeting
- netting
- pedestrian barriers

Signage types include:

- Mandatory (must wear gloves, masks, googles, hi visibility vests to be worn, hard hats must be worn, pedestrians only, sound horn)
- Warning (slippery surface, corrosive, forklifts, and plant operating)
- Prohibition (not drinking water, no smoking, no entry, scaffold incomplete, do not touch)

- Traffic signs (notification of works, lane closures, speed restrictions, for control of that must conform to Traffic Signs Regulations and General Directions (TSRGD) in force at the time of the works).

Learners will be able to identify and use tools and equipment to set out secondary dimensional work control. Learners will be able to maintain the equipment in good condition for future use.

Equipment to include:

- theodolites
- tripods
- staff
- total stations
- measuring tape
- spirit levels
- squares
- straight edge
- nylon string
- lime powder
- spray paint
- crayons
- chalk and markers
- flags and lines
- levelling and reference nails
- profile boards and edgings

Learners will be able to demonstrate the safe use of health and safety control equipment whilst setting out secondary dimensional work control. Learners will be able to use access equipment safely, whilst setting out secondary dimensional work control, and use and maintain hand tools, measuring and marking equipment and ancillary equipment.

3.2 Learners will be able to identify and use measuring tools and instruments to **transfer, transpose, level, measure,** and **position** whilst setting out secondary dimensional work control.

Equipment to include:

- tripods
- staffs
- theodolites
- total stations
- measuring tape
- spirit levels
- digital levels
- squares
- optical level
- optical plumb

- lasers
- gyroscopic theodolite

Learners will be able to identify and use marking materials and components to mark, fix and secure the position whilst setting out secondary dimensional work control.

Marking equipment to include:

- spray paint
- lime powder
- crayons
- chalk and markers
- flags and lines
- levelling and reference nails
- profile boards and edgings
- nylon lines

Learners will be able to identify and use tools and equipment whilst setting out secondary dimensional work control.

Equipment to include:

- angle finders and straight edges
- spirit levels and inclinometers
- claw hammer
- mallets
- power drills
- shovel and brush
- wheelbarrow

Learners will be able to wash down equipment using chemicals store tools and equipment safely, ensuring the work area is kept clean and tidy. Placing all designated waste into the correct containers

Waste to include:

- metal timber
- hardcore
- chemicals (hazardous and non-hazardous)

Unit 233: Install drainage

GLH:	120

What is this unit about?

The aim of this unit is to provide learners with the relevant practical skills and understanding required for installing drainage, in a construction and civil engineering environment. It also covers interpreting information, adopting safe, healthy, and environmentally responsible work practices, and selecting, preparing, and using materials, components, tools, and equipment.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What typical work is covered when installing drainage on construction sites?
- Why is health and safety important when laying drainage?
- Why do we need to lay drainage when completing civil engineering activities?
- How many different types of drainage systems are there?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery Outcomes (depth of content)

Outcome 1

1.1 Learners will understand the range of resources used to Install drainage to drawings specifications, and schedules. Learners will know and be able to understand the characteristics and suitability of materials when selecting resources for a construction and civil engineering environment. Learners will have knowledge of drainage components and be able to identify defects that can affect the structural integrity and need replacing and those that only effect the aesthetics, their uses and limitations, sustainable alternatives.

Materials include:

- inspection chambers
- deep manhole chambers
- fittings
- elbows
- couplings
- junctions

- P trap gully
- bottle gully
- gully hoppers
- manholes (plastic, fiberglass, precast concrete)
- manhole covers
- sealant materials (adhesives, compounds, solvents)
- side fill or backfill material
- aggregates (pea shingle)
- cementitious materials and bricks
- blocks and sandbags
- lubricant
- Pipes; below 150mm diameter, or above 150mm diameter including:
    - clay
    - metal
    - concrete
    - UPVC Pipes

Equipment includes:

- rodding eyes
- access fittings
- ladders
- step ladders
- harness equipment
- tripods
- gantry and winches
- shovels and picks
- wheelbarrow
- hand saws
- hand files
- tape measure
- spirit level
- power drills
- transformers and generators
- mini excavator
- disk cutters
- utility scanner

Documentation include:

- specifications
- drawings
- manufacturer's literature
- risk assessments
- method statements
- highway standards

- requisitions
- Working at Height 2005
- Manual Handling 1992
- MEWPs (Mobile Elevating Work Platforms)
- PUWER 1998 (Provision of use of Working Equipment Regulation 1998)
- HASAWA 1974 (Control of Substances Hazardous to Health Regulations)
- COSHH 2002 (Control of Substances Hazardous to Health 2002)
- Approved regulations document H, Drainage for Foul Water and Rainwater including Waste Storage and Disposal
- Traffic Signs Regulations and General Directions (TSRGD) - Chapter 8

1.2 Learners will understand how the resources should be used and how any problems associated with the resources are reported. Learners will know and understand which materials are to be used in specific locations, the procedures and reporting protocols to follow to report any problems, as well as defects or concerns with selected resources. Learners will also know how to select and use tools and equipment for their intended purpose and how to rectify or report any defects.

1.3 Learners will understand working procedures used to select the most appropriate methods to install drainage related materials, in accordance with written instructions, drawings, schedules and verbal instructions to meet the contract size/needs. Learners will know how to raise requisitions, order resources to complete a specific task using organisational procedures.

1.4 Learners will know and will be to identify the hazards associated with installing drainage related materials, the maintenance and replacement of material components as well as the correct method of work required to installing drainage related materials.

Hazards include:

- Importance of working to method statements and risk assessments
- open excavations
- moving plant and equipment
- slips trips and falls
- working at height
- hand and eye injuries
- being hit by falling objects

Outcome 2

2.1 Learners need to know and understand the application of knowledge for safe and healthy work practices, procedures and skills relating to the method, process, and area of work. Learners need to plan their work efficiently from the given instructions and complete the work to the agreed specifications. Learners need to understand the importance of communication amongst team members during activities as well as the needs of other occupations working alongside them. Learners will understand the correct methods used to establish dimensions accurately and to establish the setting out details from drawings, specifications, and verbal instructions. Learners will understand how to identify problems and how to report.

2.2 Learners need to know and understand the importance of maintaining tools and equipment and the operative care associated with hand tools, portable power tools. powered units, machinery, and ancillary equipment. Learners also need to understand procedures such as start-up and shut down checks, calibration, and planned maintenance schedules. Learners will know how to maintain equipment to ensure its accuracy in future use and how equipment should be cleaned and maintained after use. Methods of maintaining tools and equipment to include:

- checking for accuracy
- cleaning equipment

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Lay bedding materials, install and test pipework (e.g. clay, concrete, metal, or plastic) for new and/or replacement, foul and/or surface water drainage for at least one of the following:
Range: Inspection chambers (e.g. brick, concrete, metal, or plastic), water systems (e.g. cells, culverts, high capacity, linear, balancing ponds, interceptors, recycling equipment, soak-a-ways, sustainable urban drainage systems), foul water systems (e.g. cess pools, septic tanks, reed beds, treatment plants)

3.2 Demonstrate work skills to measure, check, mark out, cut, lay, position, fit, join, level, plumb, align, secure and test

3.3 Surround pipe with specified materials

3.4 Backfill to trench using given work instruction for both compacted and free drainage materials

Delivery Outcome (depth of content)

Outcome 3

3.1 Learners can demonstrate that they can plan for installing drainage by following the information and guidance given to them by using the relevant documentation. Learners can produce a method statement and work programme to plan efficiently for the work to be carried out within the agreed time for the work.

Learners will be able to identify and extract suitable information from arrange of sources for installing drainage

Documentation to include:

- specifications
- drawings
- manufacturer's literature
- risk assessments
- method statements
- highway standards
- requisitions

Learners will be able to install drainage related materials as per instructions or methods of work. To establish **one** of the following:

- Inspection chambers (brick, concrete, metal, or plastic)

- water systems (cells, culverts, high capacity, linear, balancing ponds, interceptors, recycling equipment, soak-a-ways, sustainable urban drainage systems)
- foul water systems (cess pools, septic tanks, reed beds, treatment plants

Learners will be required to follow the sector regulations when carrying out this work.
Regulations to include:

- Working at Height 2005
- Manual Handling 1992
- MEWPs (Mobile Elevating Work Platforms)
- PUWER 1998 (Provision of use of Working Equipment Regulation 1998)
- HASAWA 1974 (Health and Safety at work Act 1974)
- COSHH 2002 (Control of Substances Hazardous to Health 2002)
- Approved regulations document H, Drainage for Foul Water and Rainwater including Waste Storage and Disposal
- Traffic Signs Regulations and General Directions (TSRGD) - Chapter 8

3.2 Learners will be able to install drainage using tools and equipment to measure, measure mark out, cut, lay, position, fit, join, level, plumb, align, secure and test

Learners will be able to identify suitable PPE (Personal Protection Equipment) and use whilst installing drainage
PPE to include:

- safety boots
- hard hat
- high visibility jackets
- goggles
- gloves
- dust masks
- respiratory equipment
- local exhaust ventilation

Learners will be able to access and use the appropriate ancillary equipment.
Ancillary equipment to include:

- ladders/step ladders
- scaffold/tower scaffolds
- podiums

The learners will be able to identify and extract suitable information to ensure equipment is used safely whilst preparing and mixing construction related materials. Ensuring Supplier literature, MEWPs and COSHH is adhered too. Learner will be able to identify the signage and barrier protection types required and place in the correct location whilst preparing and mixing construction related materials, to maintain a safe working environment.

Barrier protection types include:

- fencing
- hoardings

- sheeting
- netting
- pedestrian barriers

Signage types include:

- Mandatory (must wear gloves, masks, googles, hi visibility vests to be worn, hard hats must be worn, pedestrians only, sound horn)
- Warning (slippery surface, corrosive, forklifts, and plant operating, excavations)
- Prohibition (not drinking water, no smoking, no entry, scaffold incomplete, do not touch)
- Traffic signs (notification of works, lane closures, speed restrictions, for control of that must conform to Traffic Signs Regulations and General Directions (TSRGD) in force at the time of the works)

Learners will be able to identify and use tools and equipment to install drainage. Learners will be able to maintain the equipment in good condition for future use

Equipment to include:

- rodding eyes
- access fittings
- ladders
- step ladders
- harness equipment
- tripods
- gantry and winches
- shovels and picks
- wheelbarrow
- hand saws
- hand files
- tape measure
- spirit level
- power drills
- transformers and generators
- mini excavator
- disk cutters
- utility scanner

Learners will be able to wash down equipment using chemicals store tools and equipment safely, ensuring the work area is kept clean and tidy. Placing all designated waste into the correct containers

Waste to include:

- metal timber
- hardcore
- chemicals and gypsum (hazardous and non-hazardous)

3.3 Learners will be able to surround drainage pipes to the given instructions using the specified materials following health and safety and approved regulation requirements

Materials to include:

- sand
- shingle
- cementitious material

3.4 Learners will be able to backfill trenches to the given instructions using the specified materials following health and safety and approved regulation requirements

Backfill materials to include:

- pea shingle
- granular materials not exceeding 40mm and soil

Learners will ensure backfilled materials are free from boulders, building rubble, timber and vegetable matter**.**

Unit 234: Prepare and mix construction related materials

GLH:	93

What is this unit about?

The aim of this unit is to provide learners with the relevant practical skills and understanding required for preparing and mixing construction related materials, in a construction and civil engineering environment. It also covers interpreting information, adopting safe, healthy, and environmentally responsible work practices, and selecting, preparing, and using materials, components, tools, and equipment.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What different types of materials are used when mixing concrete?
- What types of personal protective equipment is needed when mixing materials?
- What different types of materials used when mixing mortar?
- How many different methods are they when mixing materials?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery Outcomes (depth of content)

Outcome 1

1.1 Learners will understand the range of resources used in the process to prepare and mix construction related materials to drawings, specifications, and schedules. Learners will know and be able to understand the characteristics and suitability of materials when selecting resources to prepare and mix construction related materials. Learners will have knowledge of material components and be able to identify defects that can affect the structural integrity and need replacing and those that only effect the aesthetics, their uses and limitations, sustainable alternatives.

Materials include:

- aggregates
- cementitious materials
- plasters
- resins
- adhesives
- bonding agents

- colourings
- waterproof coatings
- grouts and pre-mixed compounds

Equipment to include:
- floor protection
- buckets
- water containers
- shovel and brush
- wheelbarrows
- mixing whisks
- cement mixer
- transformers
- generators
- power tools

Documentation to include:
- specifications
- drawings
- manufacturer's literature
- risk assessments
- method statements
- supplier contact information
- Requesting further information (RFI) process
- technical queries
- change orders
- bill of quantities
- requisition sheets
- purchase orders
- delivery notes
- stock inventory
- Working at Height 2005
- Manual Handling 1992
- MEWPs (Mobile Elevating Work Platforms)
- PUWER 1998 (Provision of use of Working Equipment Regulation 1998)
- HASAWA 1974 (Health and Safety at Work Act 1974)
- COSHH 2002 (Control of Substances Hazardous to Health Regulations)

1.2 Learners will understand how the resources should be used and how any problems associated with the resources are reported. Learners will know and understand which materials are to be used in specific locations, the procedures and reporting protocols to follow to report any problems, as well as defects or concerns with selected resources. Learners will also know how to select and use tools and equipment for their intended purpose and how to rectify or report any defects.

1.3 Learners will understand the working procedures used to select the most appropriate methods to prepare and mix construction related materials, in accordance with written instructions, drawings, schedules and verbal instructions to meet the contract size/needs. Learners will know how to raise requisitions, order resources to complete a specific task using organisational procedures.

1.4 Learners will know and will be to identify the hazards associated with preparing and mixing construction related materials, the maintenance and replacement of material components as well as the correct method of work required to prepare and mix construction related materials.

Hazards include:

- importance of working to method statements and risk assessments
- slips trips and falls
- working at height
- hand and eye injuries
- being hit by falling objects

Outcome 2

2.1 Learners need to know and understand the application of knowledge for safe and healthy work practices, procedures and skills relating to the method, process, and area of work. Learners need to plan their work efficiently from the given instructions and complete the work to the agreed specifications. Learners need to understand the importance of communication amongst team members during activities as well as the needs of other occupations working alongside them. Learners will understand the correct methods used to prepare and mix construction related materials to establish type, quantity accurately of materials and establish the details from drawings, specifications, and verbal instructions. Learners will understand how to identify problems and how to report.

2.2 Learners need to know and understand the importance of maintaining tools and equipment and the operative care associated with hand tools and portable power tools. Learners also need to understand procedures, calibration, and planned maintenance schedules. Learners will know how to maintain equipment to ensure its accuracy in future use and how equipment should be cleaned and maintained after use. Methods of maintaining tools and equipment to include:

- checking for accuracy
- cleaning equipment

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Use and maintain hand tools, power tools and equipment to prepare at least two of the following materials for use to given working instructions

Range: cementitious, plasters, resin, adhesives, bonding agents, colourings, waterproof coating, grouts, pre-mixed compounds

3.2 Demonstrate work skills to measure, gauge, stir, mix, agitate and blend

Delivery Outcome (depth of content)

Outcome 3

3.1 Learners will be able to plan for preparing and mixing construction related materials by following the information and guidance given to them by using the relevant documentation. Learners will be able to produce a method statement and work programme to plan efficiently for the work to be carried out within the agreed time for the work.

Learners will be able to identify and extract suitable information from arrange of sources for preparing and mixing related construction materials

Documentation to include:

- drawings
- specifications
- TBM's (Temporary Benchmark)
- schedules
- method statements
- risk assessments
- manufacturers' technical information

Learners will be able to prepare and mix construction related materials as per instructions or methods of work. To establish **two** of the following:

- cementitious (Concrete, Mortar, screed, asphalt concrete)
- plasters (cement render, lime render, polymer render, acrylic render, gypsum materials)
- resin (epoxy asphalt resins and aggregates, resin bound surfacing)
- adhesives (thermoplastic road markings, dirtglue Polymer binder)
- bonding agents (epoxy bonding agents, acrylic bonding agents, polyvinyl acetate)
- colourings (organic dyes and pigments, acid dyes, solvent dyes)
- waterproof coating (liquid membranes, tanking, sheet applied systems, liquid applied systems)

- grout (cement grouting, bentonite grouting, chemical grouting, bituminous grouting)
- pre -mixed compounds (concrete curing compounds, ready mixed mortar, epoxy asphalt)

Learners will be required to follow the sector regulations when carrying out this work.

Regulations to include:

- Working at Height 2005
- Manual Handling 1992
- MEWPs (Mobile Elevating Work Platforms)
- PUWER 1998 (Provision of use of Working Equipment Regulation 1998)
- HASAWA 1974 (Health and Safety at Work Act 1974)
- COSHH 2002 (Control of Substances Hazardous to Health Regulations)

Learners will be able to identify suitable PPE (Personal Protection Equipment) and use whilst preparing and mixing construction related materials

PPE to include:

- safety boots
- hard hat
- high visibility jackets
- goggles
- gloves
- dust masks
- respiratory equipment
- local exhaust ventilation

Learners will be able to access and use the appropriate ancillary equipment.
Ancillary equipment to include:

- ladders/step ladders
- scaffold/tower scaffolds
- podiums

Learners will be able to identify and extract suitable information to ensure equipment is used safely whilst preparing and mixing construction related materials. Ensuring Supplier literature, MEWPs and COSHH is adhered too. Learners will be able to identify the signage and barrier protection types required and place in the correct location whilst preparing and mixing construction related materials, to maintain a safe working environment.

Barrier protection types include:

- fencing
- hoardings
- sheeting
- netting
- pedestrian barriers

Signage types include:

- Mandatory (must wear gloves, masks, googles, hi visibility vests to be worn, hard hats must be worn, pedestrians only, sound horn)
- Warning (slippery surface, corrosive, forklifts operating)
- Prohibition (not drinking water, no smoking, no entry, scaffold incomplete, do not touch)

Learners will be able to identify and use tools and equipment to prepare and mix construction related materials. Learners will be able to maintain the equipment in good condition for future use.

Equipment to include:

- floor protection
- buckets
- water containers
- Shovel and brush
- wheelbarrows
- mixing whisks
- cement mixer
- transformers
- generators
- power tools

3.2 Learners will be able to prepare and mix construction related materials using tools and equipment to **measure, gauge, stir, mix, agitate** and **blend transfer.**

Stir and mix equipment to include:

- floor protection
- buckets
- water containers
- shovel and brush
- wheelbarrows
- mixing whisks
- cement mixer
- transformers
- generators
- power tools

Measure and gauge equipment to include:

- buckets
- gauge box
- scales
- measuring containers

Learners will be able to wash down equipment using chemicals store tools and equipment safely, ensuring the work area is kept clean and tidy. Placing all designated waste into the correct containers

Waste to include:

- metal timber
- hardcore
- chemicals and gypsum (hazardous and non-hazardous)

Pathway I: Roof Slating and Tiling

Unit 235: Roof slating and tiling core knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this pathway.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- understand working to deadlines

The content contained within this unit has been presented in a generic way as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in the context of the following skills units (where appropriate);

- Install underlay, battens, and roofing components
- Install single-lap roof tiles to a variable gauge
- Install plain tile roof coverings
- Install pre-formed weather flashings to roofs
- Install regular sized natural roof slate to standard roof details
- Strip and reclaim roof coverings

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria

1.1 The organisational procedures developed to report and rectify inappropriate information and unsuitable resources, and how they are implemented

1.2 The types of information, their source and how they are interpreted

1.3 The organisational procedures to solve problems with the information and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria

2.1 The level of understanding operatives must have of information for relevant, current legislation and official guidance and how it is applied

2.2 How emergencies should be responded to and who should respond

2.3 The organisational security procedures for tools, equipment, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how health and safety control equipment should be used

2.6 How to comply with environmentally responsible work practices to meet current legislation and official guidance

3. Understand how to minimise the risk of damage

Criteria

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4. Understand working to deadlines

Criteria

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problems, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings and plans, specifications, schedules, method statements, risk assessments, manufacturers' information, oral and written instructions, and building regulations, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems arising from resources including unsuitable materials and adverse weather conditions.

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know the principles of the following pieces of legislation; Building regulations; Working at Height regulations (WAH); Health and Safety at Work Act (HASAWA); PUWER; ACOPs; RIDDOR; CDM; COSHH; PPE; LOLER, Manual Handling regulations; Noise at Work regulations.

Learners will know what each legislation is for, how it is used in industry and the consequences of non-compliance. Learners will understand the roles of local authority with regards to planning and Building Control and with heritage structures including consultation with Cadw.

2.2 Learners will know how to respond to situations in accordance with organizational authorisation and personal skills when involved with fires, spillages, injuries, and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.

Learners will know the types of spillages, how to prevent them and how to fix them. Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities, including prevention, emergency procedures, emergency services, reporting procedures, access, and egress for emergency vehicles.

2.3 Learners will know the organisational security procedures for different situations, to include:

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID authorisation procedures
- operative - including security of tools, materials, equipment and vehicles, personal belongings

Learners will have an understanding of security procedures in a domestic dwelling compared to on-site.

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learners will know how to make the correct selection, usage, and maintenance of PPE, RPE, LEV including knowledge of the following; high-impact glasses, goggles, hard hat, Hi-Viz, ear defenders, safety boots, dust masks (including face fit tests), safety harnesses, appropriate gloves, fall arrest bags, crash mats, scaffold guard rail and netting, false floors, first fix nail gun training, and second fix nail gun training.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including; site waste management plan (SWMP), recycling, reuse, segregated waste.

Outcome 3

3.1 Learners will know how to protect work from damage from general work activities and from other occupations and weather conditions (domestic as well as site-based). Learners will understand the use of temporary cover, altering order of work to protect work better, the care and attention to detail during installation, use of dust sheets and material protectors.

Learners will know how to correctly store materials before, during and after the work.

3.2 Learners will know why the disposal of waste should be carried out safely and responsibly following organisational procedures, manufacturers' information, statutory regulations, and official guidance in line with environmental responsibilities. Learners

will know the different methods of disposal, to include designated skips, recycling, segregation of waste, local waste collection point, biofuel.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme and the importance of why the deadlines should be kept.

Learners will know the types of productivity targets and time scales, how times are estimated and the circumstances which will affect the work programme, to include weather, availability of labour, the knock-on effect of poor handling and storage causing damage to materials, penalty clause, retention fees, reputation, and the implication on other trades.

Unit 236: Install underlay, battens, and roofing components

GLH:	40

What is this unit about?

This unit is about interpreting information, adopting safe, healthy, and environmentally responsible work practices, selecting, and using materials, components, tools, and equipment and preparing and installing battens, underlay, counter-battens, undercloaks, eaves ventilation systems, underlay support trays and fire breaks for new and/or re-roof work.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- Why is it important to ventilate a roof space?
- Where would a warm roof be insulated?
- What does vapour permeable mean?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the characteristics associated with the resources for installing underlay, battens, and roofing components, including quality, uses, sustainability, limitations, common defects, and methods of repair. Resources and components to include;

- breathable and non-breathable underlays
- batten sizes
- eaves ventilation
- eaves support tray

1.2 Learners will know the resources required for installing underlay, battens, and roofing components to; general areas, eaves, abutments, openings (roof lights, windows), dry and/or wet fix verges, ridges, hips, and valleys and know reporting procedures for problems with the resources including defective materials, shortages, storage.

1.3 Learners will know the procedures, reasoning, use and selection of resources required for installing underlay, battens, and roofing components, and equipment relating to types, quantity, quality, and sizes of standard and/or specialist components.

1.4 Learners will recognize hazards associated with installing underlay, battens, and roofing components, and know the operative's responsibilities regarding;

- potential accidents
- health hazards whilst working in the workplace
- working at height
- with tools and equipment
- with materials and substances
- with movement/storage of materials
- by manual handling and mechanical lifting
- procedures on reporting of hazards.

Outcome 2

2.1 Learners will understand safe and healthy work practices, procedures and skills relating to the method/area of work and materials used to;

- assess suitability of sub-structure
- identify and report faults with sub-structure and roof interfaces
- establish fixed points and determine the gauge to set out and fix batten positions
- cut underlay, battens and roofing components to the required size and shape
- fix underlay, battens and counter-battens, verge clips and hip irons
- set out and determine overhang for wet and/or dry fix systems
- fix undercloak for bedded verges and/or dry fix systems
- install underlay to openings (roof lights, windows) and penetrations
- install underlay support trays and eaves ventilation systems
- form fire breaks.

Learners will know how to recognise when specialist skills and knowledge are required and report accordingly. Learners will know how to recognise specific requirements for structures of special interest, traditional build (pre-1919) and historical significance.

2.2 Learners will understand the tools and equipment required for installing underlay, battens, and roofing components. Tools and equipment to include;

- rule/tape
- trimming knife
- hammers
- hand saw
- power or hand cutting tools (drills, screwdriver).

Learners will understand the safe use, storage of tools and equipment. Learners will know tool defects and the maintenance requirements for tools and equipment with organisational procedures.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills

Range: PPE requirements, measuring, set out, mark out, position and fixing

3.2 Use and maintain hand tools, power tools and ancillary equipment to install materials and components

Range: to eaves, verges, hips, ridges, valleys, abutments, openings, penetrations, general areas, and vertical surfaces to given working instructions relating to the following; underlay, battens, counter battens, undercloaks, ventilation systems, underlay support trays, fire-breaks

3.3 Set out battens to datum points and gauge

Range: setting out eave datum, calculation of batten gauge, marking out perpend lines for equal overhangs

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to work in a safe manner using all required PPE, measuring, hand cutting of underlay, batten, and tiles.

3.2 Learners will be able use tools and equipment for single-lap tiling safely, including ladders and crawler boards. Learners will be able to demonstrate safe storage of tools and equipment and maintain the tools and equipment safely in accordance with organisational procedures. Learners will be able to measure the roof, cut, fix underlay, calculate datum and even gauge by measuring the rafter length at various points to determine the number of courses in line with specifications. Learners will be able to fit and securely fix single-lap tiles and components to a roof correctly and safely to specification using new and/or reclaimed materials to general areas, eaves, abutments, openings (roof lights, windows), dry and/or wet fix verges, ridges, hips and valleys.

3.3 Learners will be able to set out datum batten for correct eave projection, calculate datum and even gauge by measuring the rafter length at various points to determine the number of courses in line with specifications, mark out perpend lines to give an equal overhang at verge.

Unit 237: Install single-lap roof tiles to a variable gauge

GLH:	48

What is this unit about?

This unit is about interpreting information, adopting safe, healthy, and environmentally responsible work practices, selecting, and using materials, components, tools, and equipment and installing single-lap roof tiles to a variable gauge for new and/or re-roof work.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What is sustainable construction in roofing?
- What is the span of a roof?
- What is an abutment?
- Why are face masks required when cutting concrete tiles?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will be able to identify the characteristics associated with the resources for single-lap tiling, including materials used in manufacturer, quality testing, pitch limitations, common defects, and methods of repair.

1.2 Learners will be able to identify the resources required for single-lap tiling to; general areas, eaves, abutments, openings (roof lights, windows), dry and/or wet fix verges, ridges, hips, valleys, and associated lead work. Learners will know reporting procedures for problems with the resources including defective materials, shortages, storage, and security.

1.3 Learners will be able to identify the procedures, reasoning and use of resources required for single-lap tiling materials, components and equipment relating to types, quantity, quality, and sizes of standard and/or specialist components including:

- underlays
- eave support trays

- single-lap tiles
- fittings
- fixings
- ridge and hip tiles
- battens
- dry fix systems
- ventilation systems
- mortar mixes and additives for roof work.

1.4 Learners will be able to recognize hazards associated with single-lap tiling, operative's responsibilities regarding potential accidents, health hazards whilst working in the workplace, working at height, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting and procedures on reporting of hazards.

Outcome 2

2.1 Learners will understand safe methods of work to meet the specification, and problems reported in line with written or verbal instructions:

- methods of work followed to required specifications
- know procedures for reporting problems

2.2 Learners will understand the tools and equipment required for single-lap tiling. Learners will understand the safe use, storage of tools and equipment. Learners will understand tool defects and the maintenance requirements for tools and equipment with organisational procedures.

- tools and equipment used for single-lap tiling
- defects, and maintenance requirements for single lap tiling

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills to measure,

3.2 Use and maintain hand tools, power tools and ancillary equipment to install single-lap roof tiles to a variable gauge and related fittings, fixings, and components to given working instructions
Range: to eaves, verges, hips, ridges, valleys, abutments, openings, penetrations, general areas

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to work in a safe manner using all required PPE, measuring, hand cutting of underlay, batten, and tiles.

PPE requirements used appropriately for single lap tiling

- hard hat, hi-vis vest, safety footwear, work gloves, FFP3 face mask, eye protection

3.2 Learners will be able use tools and equipment for single-lap tiling safely, including ladders and crawler boards. Learners will be able to demonstrate safe storage of tools and equipment and maintain the tools and equipment safely in accordance with organisational procedures.

Tools and equipment for single lap tiling:

- hammers, hand saw, trimming knife, rules, tapes, power tools and ancillary equipment

Learners will be able to measure the roof, cut, fix underlay, calculate datum and even gauge by measuring the rafter length at various points to determine the number of courses in line with specifications. Learners will be able to fit and securely fix single-lap tiles and components/fittings to a roof correctly and safely to specification using materials to general areas, eaves, abutments, openings (roof lights, windows), dry and/or wet fix verges (including undercloak), ridges, hips, and valleys.

Work to include new and/or reclaimed materials for roofs with the following:

- general areas, eaves, abutments, openings (roof lights, windows), dry and/or wet fix verges, ridges, hips, and valleys

Unit 238: Install plain tile roof coverings

GLH:	62

What is this unit about?

This unit is about interpreting information, adopting safe, healthy, and environmentally responsible work practices, selecting, and using materials, components, tools, and equipment and installing plain tile roof coverings for new and/or re-roof work.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- Where would a cold roof be insulated?
- Why are plain tiles cambered in their length?
- What feature is used to hang a plain tile on a batten?

Learning outcome:

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2 Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the characteristics associated with the resources for plain tiling, including materials used in manufacturer, quality testing, pitch limitations, common defects, and methods of repair.

1.2 Learners will know the resources required for plain tiling to;

- general areas
- eaves and top course
- abutments
- openings (roof lights, windows)
- dry and/or wet fix verges
- ridges
- hips and valleys

Learners will know reporting procedures for problems with the resources including defective materials, shortages, storage.

1.3 Learners will know the procedures, reasoning and use of resources required for plain tiling materials, components and equipment relating to types, quantity, quality, and sizes of standard and/or specialist components to include:

- plain tiles
- fittings
- fixings
- soakers
- ridge and hip tiles
- battens
- dry fix systems
- ventilation systems
- mortar mixes and additives for roof work.

1.4 Learners will know the hazards associated with plain tiling, operative's responsibilities regarding potential accidents, health hazards whilst working in the workplace, working at height, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting and procedures on reporting of hazards.

Outcome 2

2.1 Learners will understand safe methods of work to meet the specification in line with written or verbal instructions.

2.2 Learners will understand the tools and equipment required for plain tiling. Learners will understand the safe use, storage of tools and equipment. Learners will understand tool defects and the maintenance requirements for tools and equipment with organisational procedures.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills
Range: PPE requirements, measuring, set out, mark out, cutting, fitting, mix, position, secure and finish

3.2 Use and maintain hand tools, power tools and ancillary equipment to install plain roof tiles to a variable gauge and related fittings, fixings, and components to given working instructions
Range: new and/or reclaimed materials for roofs with the following: general areas, eaves and top course, abutments, openings (roof lights, windows), dry and/or wet fix verges, ridges, hips and valleys, and vertical surfaces

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to work in a safe manner using all required PPE, measuring, hand cutting of underlay, batten, and tiles.

3.2 Learners will be able use tools and equipment for plain tiling safely, including ladders and crawler boards. Learners will be able to demonstrate safe storage of tools and equipment and maintain the tools and equipment safely in accordance with organisational procedures.

Learners will be able to measure the roof, cut, fix underlay, calculate datum and even gauge by measuring the rafter length at various points to determine the number of courses in line with specifications. Learners will be able to fit and securely fix plain tiles and components to a roof correctly and safely to specification using new and/or reclaimed materials to general areas, eaves and top course, abutments, openings (roof lights, windows), dry and/or wet fix verges (including undercloaks), ridges, hips and valleys, and vertical surfaces.

Unit 239: Install pre-formed weathering flashings to roofs

GLH:	45

What is this unit about?

This unit is about interpreting information, adopting safe, healthy, and environmentally responsible work practices, selecting, and using materials, components, tools, and equipment and installing pre-formed lead and/or proprietary flashings to single and double-lap roof coverings with chimneys, abutments, soil and/or vent pipes, junctions, valleys, and openings for new and/or re-roof work.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What two methods are used to form lead flashings?
- Why is lead used for roof flashings?
- What is the purpose of a lead soaker?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will be able to identify the characteristics associated with the resources for installing pre-formed weather flashings, including materials used in manufacturer, quality testing, pitch limitations, common defects, and methods of repair.

1.2 Learners will be able to identify the resources required for installing pre-formed weather flashings to roofs, abutments, openings (roof lights, dormers, chimneys), hips and valleys and know reporting procedures for problems with the resources including defective materials, shortages, storage.

1.3 Learners will be able to identify the procedures, reasoning and use of resources required for pre-formed weather flashings materials, components and equipment relating to types, quantity, quality, and sizes of standard and/or specialist components including soakers, valleys, flashings, and ridges

1.4 Learners will be able to recognize hazards associated with installing pre-formed lead and/or proprietary weather flashings to roofs. Learners will know the operative's responsibilities regarding potential accidents and health hazards whilst working in the workplace;

- working at height
- with tools and equipment
- with materials and substances
- with movement/storage of materials
- by manual handling and mechanical lifting

Learners will know the procedures on reporting of hazards.

Outcome 2

2.1 Learners will know the safe methods of work to meet the specification in line with written or verbal instructions.

2.2 Learners will know the tools and equipment required for installing pre-formed weather flashings to roofs. Learners should understand the safe use, storage of tools and equipment. Learners will know tool defects and the maintenance requirements for tools and equipment with organisational procedures.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills

Range: PPE requirements, measuring, set out, mark out, grade, hole, cut, fit, mix, position, secure and finish

3.2 Use and maintain hand tools, power tools and ancillary equipment to install pre-formed lead and/or proprietary flashings to single and double-lap roof coverings to given working instructions

Range: relating to the following: chimneys, abutments, soil and/or vent pipes, junction saddles, valleys, openings (roof lights, windows)

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to work in a safe manner, using all required PPE, whilst measuring, setting out, marking out, grade, hole, cut, fit, mix, position, secure and finish.

3.2 Learners will be able to use and maintain hand tools, power tools and ancillary equipment safely. Learners will be able to demonstrate safe storage of tools and equipment and maintain the tools and equipment safely in accordance with organisational procedures, to include;

- hammers
- trimming knife
- lead dressers
- tin snips
- power tools and ancillary equipment.

Learners will be able to install pre-formed lead and/or proprietary flashings to single and double-lap roof coverings to given working instructions relating to the following;

- chimneys
- abutments
- soil and/or vent pipes
- junction saddles – bottom/drip
- valleys
- openings (roof lights, windows)

Unit 240: Install regular sized natural roof slate to standard roof details

GLH:	83

What is this unit about?

This unit is about interpreting information, adopting safe, healthy, and environmentally responsible work practices, selecting, and using materials, components, tools, and equipment and installing regular sized natural slate roof coverings to battens and/or boards for new and/or re-roof work.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What mortar mix is used for roof work?
- What methods are used to fix natural slates?
- What type of metal should be used for a slate nail?

Learning outcome

1. **Understand resource selection**

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. **Understand working to a contract specification**

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will be able to identify the characteristics associated with the resources for regular sized natural roof slate including:

- origin
- manufacturing process
- quality testing
- fixing methods
- pitch limitations
- common defects
- methods of repair.

1.2 Learners will be able to identify the resources required for installing regular sized natural roof slate to; general areas, eaves and top course, abutments, openings (roof lights, windows), dry and/or wet fix verges, ridges, hips, valleys, and associated lead

work. Learners will know reporting procedures for problems with the resources including defective materials, shortages, storage, and security.

1.3 Learners will be able to identify the procedures, reasoning and use of resources required for installing regular sized natural roof slate including:

- materials, components, and equipment relating to types, quantity, quality, and sizes of standard and/or specialist components including:
    - natural slate
    - fittings
    - fixings (nail or hook)
    - soakers
    - ridge and hip tiles
    - battens
    - dry fix systems
    - ventilation systems
    - mortar mixes and additives for roof work.

1.4 Learners will be able to recognize hazards associated with installing regular sized natural roof slate, operative's responsibilities regarding potential accidents, health hazards whilst working in the workplace, working at height, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting and procedures on reporting of hazards.

Outcome 2

2.1 Learners will understand safe methods of work to meet the specification in line with written or verbal instructions.

2.2 Learners will understand the tools and equipment required for installing regular sized natural roof slate. Learners should know/understand the safe use, storage of tools and equipment. Learners will understand tool defects and the maintenance requirements for tools and equipment with organisational procedures.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills

Range: PPE requirements, measuring, set out, mark out, grade, hole, cut, fit, mix, position, secure and finish

3.2 Use and maintain hand tools, power tools and ancillary equipment to install regular sized natural roof slates to battens and/or boards and related fittings, fixings, and components to given working instructions

Range: using new and/or reclaimed materials for roofs with the following; general areas, eaves and top course, abutments, openings (roof lights, windows), dry and/or wet fix verges, ridges, hips, and valleys

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to work in a safe manner using all required PPE, measuring, hand cutting of underlay, batten, installing regular sized natural roof natural slate and ridge tiles.

3.2 Learners will be able use tools and equipment for install regular sized natural roof safely. Learners will be able to demonstrate safe storage of tools and equipment and maintain the tools and equipment safely in accordance with organisational procedures.

Learners will be able to measure the roof, cut, fix underlay, calculate datum and even gauge by measuring the rafter length at various points to determine the number of courses in line with specifications. Learners will be able to fit and securely fix regular sized natural slate and components to a roof correctly and safely to specification using new and/or reclaimed materials to general areas, eaves and top course, abutments, openings (roof lights, windows), dry and/or wet fix verges, ridges, hips, and valleys.

Unit 241: Strip and reclaim roof coverings

GLH:	50

What is this unit about?

This unit is about interpreting information, adopting safe, healthy, and environmentally responsible work practices, selecting, and using materials, components, tools, and equipment and removing and reclaiming roof coverings for future use, disposing of unsuitable materials, and preparing surfaces for reroofing.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification

Learners may be introduced to this unit by asking themselves questions such as:

- What is a fly batten used for?
- Why are old lead flashings not put into general waste bins?
- What can cause delamination of clay roof tiles?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the characteristics associated with the resources for stripping and reclaiming roof coverings. Learners will know the defects and limitations of the different resources in relation to reclaiming or re-using. Learners will understand how to evaluate suitability of backgrounds and evaluate materials for re-use, recycle or appropriate disposal following correct procedures.

1.2 Learners will know the resources required for stripping and reclaiming a range of roof coverings to include access equipment, hand and power tools and ancillary equipment. Learners will know reporting procedures for problems with the resources including defective materials, shortages, storage, and security.

1.3 Learners will know the procedures, reasoning and use of resources required for stripping and reclaiming roof coverings including materials, components and equipment relating to types, quantity, quality and sizes of standard and/or specialist components.

1.4 Learners will know the hazards associated with stripping and reclaiming roof coverings, operative's responsibilities regarding potential accidents, health hazards whilst working in the workplace, working at height, with tools and equipment, with materials and substances, with stripping, movement/storage of materials and by manual handling and mechanical lifting and procedures on reporting of hazards.

Outcome 2

2.1 Learners will know the safe methods of work to meet the specification in line with written or verbal instructions when used to;

- position temporary stop boards at eaves
- remove existing roof coverings
- clear roof of debris and nails in rafters and other roof timbers
- reclaim reusable tiles and natural slates, stone slates and flashings/components
- assess the suitability of materials to be reclaimed
- determine sizes of imperial and metric slates
- stack/store reclaimed materials for reuse
- prepare materials for reuse, including de-nailing, re-holing and re-sizing.

Learners will have an awareness of the specific requirements for roofing work on structures of special interest such as historical buildings, heritage roofing and traditional build (pre-1919). Learners will know how to recognise when specialist skills and knowledge are required and how to report accordingly.

2.2 Learners will know how to take operative care of hand tools, power tools and ancillary equipment.

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstration of work skills to use safe access to inspect, remove, reclaim, de-nail, re-hole, re-size, clean and sort

3.2 Use and maintain hand tools, portable power tools and ancillary equipment to remove, reclaim and/or dispose of weathering materials and ancillary components to given working instructions, plus at least two of the following: natural slates, plain tiles, single-lap tiles, stone slates

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to use all required PPE, use crawler boards, ladders and roof ladders to safely carry out roof inspection prior to stripping/reclaiming roof materials. Learners will be able to work in a safe manner to remove, reclaim, de-nail, re-hole, re-size, clean and sort roof coverings.

3.2 Learners will be able to use and maintain hand tools, power tools and ancillary equipment safely. Learners will be able to demonstrate safe storage of tools and equipment and maintain the tools and equipment safely in accordance with organisational procedures, to include;

- hammers and chisel
- slate rippers
- slate knife
- craft knife
- crowbar/ wrecking bar
- panel saw/ hand saw
- debris removal – brush, shovel, buckets
- materials removal - bumper, hoist, gin wheel and rope.

Learner will be able to remove, reclaim and/or dispose of weathering materials and ancillary components to given working instructions. Learners will be able to remove, reclaim and/or dispose of ridges and flashings/components, and at least two of the following;

- natural slates
- plain tiles
- single-lap tiles
- stone slates

Pathway J: Wall and Floor Tiling

Unit 242: Wall and Floor Tiling core knowledge

GLH:	50

What is this unit about?

This unit covers the overarching knowledge required for this trade.

On completion of this unit, learners will:

- understand how to interpret and maintain information
- understand safe work practices
- understand how to minimise the risk of damage
- understand working to deadlines.

The content contained within this unit has been presented in a generic way as it is consistent through many of the skills units in this qualification. The content should be taught, and will be assessed both generically and in the context of the following skills units (where appropriate):

- Lay sand and cement screeds
- Prepare backgrounds for tiling
- Tile wall and floor surfaces

Learners may be introduced to this unit by asking themselves questions such as:

- Why are site inductions important?
- What's the difference between a job card and a time sheet?
- Who are Cadw and what do they do?

Learning outcome

1. Understand how to interpret and maintain information

Criteria

1.1 The organisational procedures developed to report and rectify inappropriate **i**nformation and unsuitable resources, and how they are implemented

1.2 The types of information, their source and how they are interpreted

1.3 The organisational procedures to solve problems with the information and why it is important they are followed

1.4 The importance of maintaining documentation

2. Understand safe work practices

Criteria

2.1 The level of understanding operatives must have of information for relevant, current legislation and official guidance and how it is applied

2.2 How emergencies should be responded to and who should respond

2.3 The organisational security procedures for tools, equipment, and personal belongings

2.4 What the accident reporting procedures are and who is responsible for making the report

2.5 Why, when, and how health and safety control equipment should be used

2.6 How to comply with environmentally responsible work practices to meet current legislation and official guidance

3. Understand how to minimise the risk of damage

Criteria

3.1 How to protect work from damage and the purpose of protection

3.2 Why disposal of waste should be carried out safely and how it is achieved

4. Understand working to deadlines

Criteria

4.1 How work is carried out to meet the programme in the scheduled time and the importance of deadlines

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the types of organisational procedures and their features and uses, including verbal communication of problems, chain of command, toolbox talks, site induction.

1.2 Learners will know the features and uses of drawings and plans, specifications, schedules, method statements, risk assessments, site notices and safety signs, manufacturers' information, oral and written instructions, and building regulations, and know how they are implemented.

1.3 Learners will know the types of problems arising from inappropriate information – including misheard instructions, inaccurate information, misinterpretation of method statement, incorrect information given. Learners will know the types of problems and potential hazards arising from resources including unsuitable materials, adverse weather conditions and changing circumstances.

1.4 Learners will know how to maintain documentation, to include: job cards, worksheets, material/resources lists and time sheets.

Outcome 2

2.1 Learners will know the principles of the following pieces of legislation; Building regulations; Working at Height regulations (WAH); Health and Safety at Work Act (HASAWA); PUWER; ACOPs; RIDDOR; CDM; COSHH; PPE; LOLER, Manual Handling regulations; Noise at Work regulations.

Learners will know what each legislation is for, how it is used in industry and the consequences of non-compliance. Learners will understand the roles of local authority with regards to planning and Building Control and with heritage structures including consultation with Cadw.

2.2 Learners will know how to respond to situations in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and emergencies.

Learners will know the types of fire extinguishers and how and when they are used for different classes of fire. Learners will know their role and responsibility in relation to evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.

Learners will know the types of spillages, how to prevent them and how to fix them. Learners will know the procedures for spill kits, signage and how to cordon off the area.

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities, including prevention, emergency procedures, emergency services, reporting procedures, access and egress for emergency vehicles.

2.3 Learners will know the organisational security procedures for different situations, to include:

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID authorisation procedures
- operative - including security of tools, materials, equipment and vehicles, personal belongings.

Learners will have an understanding of security procedures in a domestic dwelling compared to on-site.

2.4 Learners will know who is responsible for completing accident forms and be able to identify a first aider. Learners will also understand the law around the number of people needed to be trained appropriately for first aid. Learners will understand the roles and responsibilities in different sites including in a domestic dwelling**,** including how to take active responsibility for health, safety and welfare. Learners will understand how reporting to HSE works and RIDDOR for relevant incidents. Learners will know how to use the reporting book for minor accidents and how to record near misses, including the review and re-evaluate procedures in place.

2.5 Learners will know how to make the correct selection, usage and maintenance of PPE, RPE, LEV including knowledge of the following: high-impact glasses, goggles, hard hat, hi-viz, ear defenders, safety boots, dust masks (including face fit tests), safety harnesses, appropriate gloves, fall arrest bags, crash mats, scaffold guard rail and netting, false floors, wet cutter and angle grinder training.

2.6 Learners will know how to comply with environmentally responsible work practices to meet current legislation and official guidance including: site waste management plan (SWMP); recycling; reuse; segregated waste.

Outcome 3

3.1 Learners will know how to protect work from damage from general work activities and from other occupations and weather conditions (domestic as well as site-based). Learners will understand the use of temporary cover, altering order of work to protect work better, the care and attention to detail during installation, use of dust sheets and material protectors.

Learners will know how to correctly store materials before, during and after the work.

3.2 Learners will know why the disposal of waste should be carried out safely and responsibly following organisational procedures, manufacturers' information, statutory

regulations and official guidance in line with environmental responsibilities.

Learners will know the different methods of disposal, to include designated skips, recycling, segregation of waste, local waste collection point, biofuel.

Outcome 4

4.1 Learners will know how work activities, materials and labour are allocated to meet the required timescale within the programme and the importance of why the deadlines should be kept.

Learners will know the types of productivity targets and timescales, how times are estimated and the circumstances which will affect the work programme, including weather, availability of labour and resources, the knock-on effect of poor handling and storage causing damage to materials, penalty clause, retention fees, reputation and the implications on other trades.

Unit 243: Lay sand and cement screeds

GLH:	55

What is this unit about?

This unit is about interpreting information and adopting safe, healthy and environmentally responsible work practices, to address selecting, preparing and using materials, components, tools and equipment, whilst preparing floor substrates when laying floor screed.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What is screed?
- How will I calculate the volume of screed for a floor area?
- What PPE will I need when laying screed?
- What tools do I need to use when floor screeding?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources

Range: characteristics, quality, uses, sustainability, limitations, defects and rectifying defects

1.2 Use of resources

Range: use of the resources, reporting problems

1.3 Organisational procedures to select resources

Range: organisational procedures; reasoning; use of

1.4 Hazards

Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work

Range: completing methods of work; reporting problems

2.2 Tools and equipment

Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the properties and importance of using traditional cement and sand semi-dry floor screeding materials and manufactured pre-blended liquid screeds.

Learners will know common defects associated with different resources to include:

- dusting
- cracking
- separation
- loss of strength (quality of mix)
- inadequate compacting (sinking)
- inadequate preparation and bonding
- incorrect position of rigid insulation, reinforcements, membranes and components.

Learners will know the importance of sustainability by ensuring quality, use of correct screed and minimal wastage of floor screeds.

Learners will know how to assess the quality, condition and limitations of materials, components and sub-floor substrates to ensure they are fit for purpose and defect free.

1.2 Learners will understand when to apply semi-dry screeds and pre-blended liquid floor screed systems to existing and newly laid floors. Sub-bases to include:

- concrete oversite
- block and beam
- insulation and underfloor heating.

Learners will understand how and when to use different materials and additives, their suitability and the importance of storage, to include:

- materials: sand, cement, reinforcement, insulation, pre-blended screeds, membranes
- substances: sealers, primers, bonding agents
- additives: fibres, accelerators.

Learners will know how to report defects in line with organisational procedures.

1.3 Learners will understand organisational procedures and process for selecting and using materials, and how to interpret and extract technical information from different sources:

- drawings
- specifications
- method statements
- schedules
- work programmes
- manufacturer's information
- industry standards.

1.4 Learners will understand hazards and identify suitable control measures related to the work schedule and materials associated with the installation process of screeding.

Learners will understand how to follow method statements and risk assessments to identify correct Personal Protective Equipment (PPE) and clothing to carry out the work safely and competently in accordance with health and safety legislation.

Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority.

Outcome 2

2.1 Learners will know the methods and their purpose to:

- prepare, lay, rule, compact and finish bonded, unbonded, floating floor screed systems using levelling rails, free-hand perimeter screeds
- pour and finish liquid-based screeds
- mix materials.

Learners will understand their responsibility for:

- completing related set work tasks to the required industry standard and time frames set by a planned work programme
- the effects of not meeting planned deadlines
- reporting identified problems and communicating in line with organisational procedures.

2.2 Learners will know how to carry out pre-checks on hand and power tools to ensure they are fit for use when preparing to mix materials.

Learners will know how to select tools and equipment to carry out preparation work on sub-bases i.e. concrete oversite, block and beam, insulation and underfloor heating. Preparation to include:

- removing laitance and dust
- controlling suction
- measuring and gauging grout slurry
- applying chemical bonding adhesives.

Learners will know how to select tools and equipment when positioning:

- rigid insulation
- membranes
- reinforcements
- movement joints

Learners will know how to select tools and equipment when setting out datums for accuracy and correct transfer of levels and falls.

Learners will know how to use hand and power tools in line with the method of work and how to maintain and store tools and equipment during and after use.

Tools and equipment:

- Hand tools to include: trowels (flooring, gauging/bucket trowel), float, spirit level, laser level, optical level and staff, tape measure/rule, straight edge/box rule, square, shovel
- Power tools: cement mixer, cordless drill
- Ancillary equipment: brushes, fixing battens/screed rails, buckets, moving and handling aids and protective sheets

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate the work skills to measure, mark out, clean, lay, compact and finish

3.2 Use and maintain hand tools, portable power tools and ancillary equipment to:

- prepare surfaces, mix and lay floor screeds to given working instructions relating to the following
    - sand and cement screeds
    - level and/or to falls

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to:

- use correct methods for carrying out pre-checks, for sub floor substrate preparation for producing flat floors to level and given falls
- apply appropriate bonding agents, primers to backgrounds and slurry coat (if required).

Learners will be able to set out and lay semi-dry floor screed materials, free-hand perimeter screeds, consolidate and finish surfaces to levels and falls from a given datum to industrial standard to either a bonded floor screed, an unbonded floor screed or a floating floor screed.

Learners will be able to measure surface areas and calculate correct quantities of materials including allowance for waste.

Learners will be able to protect mixing, screeded and surrounding areas from damage.

Learners will be able to carry out remedial repairs to defective floor screeds and material breakdown, to include: dusting, cracking, sinking, separation, loss of strength, inadequate compacting, poor quality materials and accessories, inadequate preparation and bonding, incorrect position of rigid insulation, reinforcements, membranes and components.

3.2 Learners will be able to select, safely use and maintain tools and equipment to set out, prepare sub floor surfaces, measure/gauge, mix and lay sand/cement floor screeds.

- Hand tools to include: trowels (flooring, gauging/bucket trowel), float, spirit level, laser level, optical level and staff, tape measure/rule, straight edge/box rule, square, shovel
- Power tools: cement mixer, cordless drill
- Ancillary equipment: brushes, fixing battens/screed rails, buckets, moving and handling aids and protective sheets

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 244: Prepare backgrounds for tiling

GLH:	123

What is this unit about?

This unit is about interpreting information and adopting safe, healthy and environmentally responsible work practices. It covers preparing new and existing solid and manufactured board backgrounds to receive wall and floor tiling and appropriate accessories, selecting and using materials, components, tools and equipment.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What are the different types of backgrounds I will come across in tiling?
- How do I check the suitability of a background?
- What materials will I need when preparing a background?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the characteristics, quality and limitations of resources when preparing backgrounds for tiling to include:

- manufactured boards: wood (timber-based products) and proprietary products (non-wood) to include:
  - OSB (Orient Strand Board)
  - tile backer boards (glass reinforced cement, foam-cored, fibre cement, magnesium oxide, insulated)
  - plasterboards (moisture, fire, sound, foil, thermal)
- fixings: screws, nailing, direct bond, mechanical fixings
- membranes: decoupling and separating, sizes and thickness
- tanking: tanking membrane systems (proprietary sheet or liquid applied), scrims, tapes

- additives: primers, bonding agents, sealants, impregnators, plasticisers and water proofer
- movement joints: purpose, location, dimension
- sand: types of sand (sharp and soft), impurities, tests (silt test), gauging
- cement: types of cement (Ordinary Portland Cement [OPC], rapid hardening), storage and shelf life
- beads: angle, stop and movement
- levelling and smoothing compounds: working time and setting time.

Learners will know the importance of sustainability when preparing backgrounds, how to select the correct materials and to minimise waste, backgrounds to include:

- masonry: brickwork, blockwork
- concrete
- screed
- plasterwork
- manufactured boards
- painted surfaces
- timber (floor).

1.2 Learners will know when to use resources and their suitability in relation to preparing different types of backgrounds.

Learners will understand the importance of compatibility between substrates and materials and securely fixing tiling resources.

1.3 Learners will understand organisational procedures and the process for selecting and using materials, and how to interpret and extract technical information from different sources:

- drawings
- specifications
- method statements
- schedules
- work programmes
- manufacturer's information
- industry standards.

1.4 Learners will understand hazards and suitable control measures related to the work schedule and materials associated with preparing backgrounds.

Learners will understand how to protect the work and its surrounding area from damage in accordance with the given specification, including protection against damage from general workplace activities, other occupations and adverse weather conditions.

Learners will understand how to follow method statements and risk assessments to identify correct Personal Protective Equipment (PPE) and clothing and carry out the work safely and competently in accordance with health and safety legislation.

Outcome 2

2.1 Learners will know the methods and their purpose to:

- set out
- cut and fix manufactured boards
- prepare a wall
- render a wall
- apply tanking systems
- prepare a floor
- lay self-levelling/smoothing compound

to new and existing surfaces.

Learners will know how to select tools and equipment when setting out levels for accuracy and correct transfer of levels.

Learners will know different processes for mixing materials when preparing backgrounds.

Learners will understand their responsibility for:

- completing related set work tasks to the required industry standard and time frames set by a planned work programme
- the effects of not meeting planned deadlines
- reporting identified problems and communicating in line with organisational procedures.

2.2 Learners will know how to carry out pre-checks on hand and power tools to ensure they are fit for use and purpose.

Learners will know how to select tools and equipment when preparing different backgrounds:

- masonry: brickwork, blockwork
- concrete
- screed
- plasterwork
- manufactured boards
- painted surfaces
- timber (floor).

Learners will know how to select tools and equipment when positioning resources to include:

- manufactured boards
- reinforcements, lathes (metal)
- angle beads
- stop beads
- movement beads

- scratch and floating coats
- tanking systems
- membranes: decoupling, separating
- self-levelling compounds.

Learners will know how to use tools and equipment in line with the method of work and how to store and maintain them during and after use.

Tools and equipment:

- Hand tools: rendering trowel (including gauging/bucket trowel), hammer(s), hawk, scratcher (comb), float, spirit level, laser level, trimming tools, screwdrivers, retractable knives, tape measure/rule, chalk line, straight edge, square and carbide tipped scoring tool
- Power tools: cement mixer, mixing paddle and drill, cordless drill
- Ancillary equipment: shovel, roller and tray, brushes, batten, fixing (nails/screws), buckets, moving and handling aids and protective sheets

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate the work skills to measure, set out, strip, cut out, remove, make good, apply, position, secure and finish

3.2 Use and maintain hand tools, portable power tools and associated equipment in the preparation and application of surfaces to receive wall and floor tiling and appropriate accessories to given working instructions including:

- the siting and installation of movement joints
- the installation of membranes

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to use correct methods for preparing backgrounds to receive:

- manufactured boards
- render
- membranes
- tanking systems
- self-levelling compounds.

Learners will be able to calculate quantities of materials from drawings to include linear measurement, areas, ratios and percentages and allow for waste.

Learners will be able to cut, fix and secure backing boards to produce a flat, plumb, and rigid surface.

Learners will be able to gauge and mix renders with sand and cement mixes in the correct proportions.

Learners will be able to use methods of application to provide the specified finish and key for tiling and produce a flat, plumb, and rigid surface.

Learners will be able to cut, fix and secure membranes to produce a flat, level and solid surface.

Learners will be able to install tanking systems to meet manufacturer's specification.

Learners will be able to prepare, mix and lay levelling/smoothing compound to produce a flat, level and solid surface.

Learners will be able to protect mixing, prepared work and surrounding area from damage.

Learners will be able to carry out remedial repairs to defective backgrounds and material breakdown to include: dusting, cracking, separation, loss of strength, poor quality materials and accessories, inadequate preparation and bonding, incorrect position of reinforcements, membranes and components.

3.2 Learners will be able to select, safely use and maintain hand tools, power tools and ancillary equipment when preparing backgrounds and positioning resources as listed in Delivery outcome 2.2.

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Unit 245: Tile wall and floor surfaces

GLH:	150

What is this unit about?

This unit is about fixing wall and floor tiles to vertical, horizontal and inclined surfaces, interpreting information, adopting safe, healthy and environmentally responsible work practices, selecting and using materials, components, tools and equipment.

On completion of this unit, learners will:

- understand resource selection
- understand working to a contract specification
- be able to comply with the given contract information to carry out the work safely and efficiently to the required specification.

Learners may be introduced to this unit by asking themselves questions such as:

- What are the different types of tiles used in the industry?
- Why do I need to wear safety glasses when tiling?
- What sort of technical information will I be using?
- What tools will I be using to tile a wet room?

Learning outcome

1. Understand resource selection

Criteria

1.1 Characteristics of the resources
Range: characteristics; quality; uses; sustainability; limitations; defects; rectifying defects

1.2 Use of resources
Range: use of the resources; reporting problems

1.3 Organisational procedures to select resources
Range: organisational procedures; reasoning; use of

1.4 Hazards
Range: resource hazards; methods of work hazards; overcoming hazards

2. Understand working to a contract specification

Criteria

2.1 Methods of work
Range: completing methods of work; reporting problems

2.2 Tools and equipment
Range: methods of maintaining tools and equipment

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand the characteristics, quality and limitations of resources to include:

- wall and floor tiles: ceramic, porcelain; sizes: standard, large format
- adhesives: ready mixed, cement-based, flexible, fast setting
- grouts: ready mixed, cement-based, resin based, coloured
- wall tile profiles (trims): metal, plastic, various shapes
- spacers: plastic, peg
- membranes: decoupling, separating
- movement joints: purpose, specialist trims, purpose location and size
- additives: primers, bonding agents, sealants, impregnators
- manufactured boards: wood (timber-based products) and proprietary products (non-wood) to include:
    - OSB (Orient Strand Board)

- tile backer boards (glass reinforced cement, foam-cored, fibre cement, magnesium oxide, insulated)
- plasterboards (moisture, fire, sound, foil, thermal)

- tanking: tanking membrane systems (proprietary sheet or liquid applied).

1.2 Learners will know when to use resources and their suitability in relation to tiling walls and floors.

Learners will understand the importance of compatibility between substrates and materials and securely fixing tiling resources.

1.3 Learners will understand organisational procedures and the process for selecting and using materials, and how to interpret and extract technical information from different sources:

- drawings
- specifications
- method statements
- schedules
- work programmes
- manufacturer's information
- industry standards.

1.4 Learners will understand hazards and identify suitable control measures related with the work schedule and materials associated with setting out, fixing and finishing wall and floor tiling surfaces.

Learners will understand how to protect the work and its surrounding area from damage in accordance with the given specification, including protection against damage from general workplace activities, other occupations and adverse weather conditions.

Learners will understand how to follow method statements and risk assessments to identify correct Personal Protective Equipment/clothing and carry out the work safely and competently in accordance with health and safety legislation.

Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority.

Outcome 2

2.1 Learners will know how to set out using sources of technical information, to include focal points, levels and falls from datums, centre lines, tile pattern and 3: 4: 5 method.

Learners will know the methods for and purpose of setting out wall and floor tiles.

Learners will know the methods for and purpose of fixing and finishing tiles to include:

- soffits (heads)
- reveals
- cills

- cutting around apertures
- forming holes for services and levels and falls

Learners will know the methods for installing under-tile heating systems, electric cables and piped hot water.

Learners will know the different methods for fixing tiling resources.

Learners will know what tools and equipment to use when setting out levels for accuracy and correct transfer of levels.

Learners will know the different processes for mixing materials when tiling walls and floors.

Learners will understand their responsibility for:

- completing related set work tasks to the required industry standard and time frames set by a planned work programme
- the effects of not meeting planned deadlines
- reporting identified problems and communicating in line with organisational procedures.

2.2 Learners will know how to carry out pre-checks on hand and power tools to ensure they are fit for use and purpose when tiling walls and floors.

Learners will know how to use tools and equipment in line with the method of work and how to store and maintain them during and after use.

Tools and equipment:

- Hand tools: hand operated tile cutter, tiling trowels (serrated, gauging/bucket trowel), tile cutting wheel nippers/nippers, sealant gun, tile saws, hammer(s), carborundum stone/rubbing block, scribers, mitre block, spirit level, laser level, chisels, files, trimming tools , hacksaws, screwdrivers, retractable knives, tape measure/rule, chalk line, straight edge, square, squeegee, grout float, wash boy and sponge float, scraper, carbide tipped scoring tool, lock boy and tilers carbide hammer
- Power tools: electric tile cutter, mixing paddle and drill, cordless drill and core hole tile cutters, portable angle grinder
- Ancillary equipment: sponge, roller and tray, brushes, fixing batten/rule, nails/screws, polishing cloths, buckets, moving and handling aids and protective sheets

Learning outcome

3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Criteria

3.1 Demonstrate the work skills to measure, set out, cut, remove, apply, position, secure and finish

3.2 Use and maintain hand tools, portable power tools and associated equipment to:

- mix and apply materials
- fix tiles to vertical, horizontal and inclined wall surfaces to given working instructions for:
    - wall surfaces
    - reveals
    - cills and soffits (door and windows)
    - fixture of appropriate accessories
- fix tiles to vertical, horizontal and inclined floor surfaces to given working instructions for:
    - floor surfaces
    - floor drainage and outlets
    - treads and risers
    - fixture of appropriate accessories

Delivery outcomes (depth of content)

Outcome 3

3.1 Learners will be able to carry out pre-checks for background preparation for producing flat and plumb/level and rigid surfaces.

Learners will be able to select suitable resources to tile wall and floor surfaces.

Learners will be able to set out tiling to different wall and floor surfaces using appropriate measuring and levelling equipment.

Learners will be able fix tiles to wall and floor surfaces to include: vertical, horizontal and inclined.

Learners will be able to fix tiles to wall and floor designs to include: soffits (heads), reveals, cills, attached columns, cutting around apertures, forming holes for services and sockets.

Learners will be able to cut straight and angled tiles.

Learners will be able to install tile profiles (trims) and movement joints.

Learners will be able to grout (cement and resin based) and finish tiles to completion of wall and floor areas to include soffits (heads), reveals, cills, silicone sealants.

Learners will be able to carry out remedial repairs to defective backgrounds and material breakdown to include: dusting, cracking, separation, loss of strength, poor quality materials and accessories, inadequate preparation and bonding, incorrect position of reinforcements, membranes and components.

3.2 Learners will be able to select, safely use and maintain hand tools, power tools and ancillary equipment to:

- measure, mix
- set/mark out
- cut tiles
- apply, position, secure tiles
- finish
- clean work area.

Learners will be able to select, safely handle, stack and store resources using correct manual handling techniques.

Learners will be able to select appropriate personal protective equipment (PPE).

Learners will be able to protect the mixing, tiling and surrounding area from damage.

Learners will be able to maintain a clean work area and dispose waste in line with environmental guidance.

Learners will be able to report damages and defects in accordance with organisational policy.