8042-19

City & Guilds Construction (Level 3) - Civil Operations - Groundworks

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Qualification Handbook

Version 1.4 September 2026

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Version information

Version and publication date	Changes
v1 June 2021	Original document
v1.1 January 2022	Rule of combination clarified (p6) Support materials - website address updated (p15)
v1.2 March 2022	Unit titles updated in Rules of combination (p6). Unit title updated unit 231 (p61); Unit 232 Learning outcome 2 updated (p67)
v1.3 September 2025	Unit Delivery Outcomes section - content updated - 302: 1.1
V1.4 September 2026	Centre requirements and Quality Assurance sections - Centre Manual title and link updated to new Centre Handbook. Result release section - information updated for Professional Discussion. Assessment specifications – Updated criteria numbering in the Professional Discussion Assessment specification. City and Guilds updated to City & Guilds throughout

Qualification purpose

	Description
Who is the qualification for?	The City & Guilds Construction (Level 3) – Civil Operations - Groundworks qualification was developed to allow those in work-based learning to demonstrate and enhance their occupational knowledge, skills and understanding within a construction trade of their choice. It is aimed at learners who have either achieved the Foundation in Construction and Building Services Engineering (Level 2) or will be completing the Core in Construction and Building Services Engineering (Level 2) learning and assessments while on their apprenticeship. This qualification will enable learners to be proven as competent and enter employment in the trade of their choice as well as to go on to study other Level 3 construction courses relevant to their choice of trade. It is suitable for: • learners aged 16+ currently working in the construction sector • learners who have either passed the Foundation in Construction and Building Services Engineering qualification or will be completing their Foundation learning and assessments while in their apprenticeship. • learners who have completed the Progression in Construction (Level 2) – Groundworks
What does the qualification cover?	Learners choose a trade in the construction sector and will develop their knowledge, skills and understanding for that trade, as contained in the National Occupational Standards. The qualification will allow learners to plan and perform projects in the chosen construction trade, against nationally recognised occupational standards, before reviewing and evaluating the quality of the project outputs. The qualification will be portable throughout the UK and is aimed to develop learners' ability to meet the demands of the construction sector in Wales, including working with traditional, new and pre-1919 building stock and understanding new and emerging technologies.

What are the opportunities for progression?	On completion, the qualification will provide learners with the skills and knowledge required for the learner to be capable of working in their chosen trade across the UK.
Who did we develop the qualification with?	The content has been developed by the Consortium[1] in conjunction with stakeholders, tutors, centres and employers from across the sector.

[1] The consortium consists of the City & 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 Construction (Level 3) Qualification enables learners to develop their:

- ability to effectively plan work projects using the appropriate skills for a chosen construction trade and in a work environment;
- ability to effectively review and evaluate the quality of their completed work in a chosen construction trade and in a work environment;
- knowledge and understanding of the tools, techniques, materials and technologies used in a chosen construction trade and of how they change, and have changed, over time;
- employability skills and their ability to utilise them in a work environment;
- understanding of social, economic and environmental sustainability as appropriate to construction and the built environment;
- occupational knowledge and understanding in a chosen construction trade;
- occupational performance in a chosen construction trade in a work context.

Qualification structure

Rules of combination

To achieve the **City & Guilds Construction (Level 3) – Civil Operations - Groundworks** learners must undertake all units listed below.

Achieving a Pass grade or higher in the three assessment methods, totalling 854 GLH.

Unit number	Unit title	GLH
301	Understanding Construction Practice in Wales	40
302	Working in the Construction Sector in Wales	40
303	Planning and Evaluating Work in the Construction Sector in Wales	35
304	Conform to General Workplace Health, Safety and Welfare	21
305	Conform to Productive Work Practices	14
306	Move, Handle or Store Resources	30
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
324	Operate powered units, tools or pedestrian plant, machinery or equipment	100

325	Install, maintain and remove temporary excavation support	120
	All Forms of Assessment	76
	Total GLH (including core/mandatory units & Assessment):	854

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
Construction (Level 3) - Civil Operations - Groundworks	927	93

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 an organisation's ability to meet the centre approval criteria. The approval requirements for this qualification can be found detailed in the following documents:

- City & Guilds Centre Handbook
- Our Quality Assurance Requirements
- Quality Assurance Model

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

The Consortium 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,
- ensuring the approximate GLH figures for the practical project are consistently met, with significant or continued variance investigated,
- internal standardisation of learner marks awarded for the Practical Project.

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 Centre Handbook 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, and 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 before carrying out any quality assurance activity), 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 either 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 is internally assessed and externally verified.
The Professional Discussion is externally 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 Learners/Learners, Assessors, Methods of assessment, Evidence, Records, Assessment sites).

The Consortium 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) qualifications. All Building Services Engineering (BSE) and Construction 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 have achieved V2 or D35 and possess CPD evidence of practicing to the TAQA Standards
  and
- 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 the Consortium 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 the Consortium training. This is to ensure the reliability of assessment at centres over time.

Assessors must be working towards (registered before carrying out any assessments) or have achieved the following units:

- Unit: Understanding the Principles and Practices of Assessment*
- Unit: Assess occupational competence in the work environment*
- Unit: 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 the Consortium 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 a 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 Consortium 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.

Expert witness (to provide supporting evidence for Practical Project)

Expert witnesses who work with the learner on a regular basis can be nominated and confirmed with the learning provider/centre to support evidence gathering whilst learners undertake the Practical Project. Expert witnesses do not make assessment decisions/judgements, their role is to provide information, context and an experienced perspective on the work completed by the learner as part of their specified project task(s).

In order to be confirmed as an expert witness employer representative(s) must:

- be occupationally competent – holding a relevant qualification, being able to demonstrate relevant experience in the industry/trade and/or being a member of/or recognition by a relevant trade body.
- understand the sector, the qualification, and the assessment requirements,

External assessor profile (for the Professional Discussion)

Assessors for the professional discussion assessment will be appointed by the Consortium and will conduct the assessment on behalf of the Consortium. They will be independent of the centre. Prior to the first assessments taking place assessors must also complete the City & Guilds training.

Assessors must be working towards or have achieved a relevant recognised assessor qualification **and** continue to practice to that standard. Assessors who hold earlier qualifications (A1, D32 or D33) should have CPD evidence to the most current standards.

Assessors must be occupationally competent. Evidence which supports this is by the assessor holding a relevant NVQ* 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 their trade.

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

Prior to the first assessments taking place; assessors must also complete the Consortium training. This is to ensure the reliability of assessment over time.

External assessor requirements (for the Professional Discussion)

External Assessors must:

- fully prepare the professional discussion utilising the project evidence,
- carry out and document the professional discussion assessment in line with the Consortium and regulatory arrangements including:
    - acting in a professional and courteous manner at all times when conducting the assessment on behalf of the Consortium.
    - arriving at the centre at least 45 minutes prior to the assessment and staying at the centre for the duration of the assessment (when conducting a face-to-face assessment),
    - marking the Assessments, in accordance with grading criteria.
- maintain a thorough knowledge of assessment policies and procedures,
- maintain and document CPD (to be submitted on request),
- understand the sector, the apprenticeship, and the assessment requirements,
- be familiar with the latest technologies used within the industry,
- 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 and GDPR requirements,
- prepare for and participate in relevant Consortium 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 Consortium any suspicion of malpractice or maladministration, including academic misconduct,
- declare any conflicts of interest (such as between the assessor and the apprentice)
- provide access to information and records when requested,

- complete and submit all reports within specified timeframes.

They must be able to demonstrate evidence of being up to date with the relevant trade/industry. This can be evidenced for example by either accessing trade publications, undertaking courses of learning, attending networking events relevant to this qualification and/or attending industry events.

External associates/appointees

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

There are criteria set by City & Guilds to ensure that 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 is mandatory.

All associates/appointees are performance managed by staff within City & Guilds. If concerns are identified with an individual, each City & Guilds partner will take corrective action which may include improvement actions and close monitoring or in some instances quality issues in performance may lead to the City & Guilds contract with the associate/appointee 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

City & Guilds does not set entry requirements for this qualification. Centres must ensure that learners have the potential and opportunity to gain the qualification successfully.

If taken as part of an apprenticeship, then specific requirements must be met as part of the apprenticeship framework.

Entries for the qualification can be made via the Walled Garden, see the 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. a relevant trade from the Progression in Construction (Level 2)),
- recognition of prior achievement can be gained for Test 1 where learners have achieved the Progression in Construction (Level 2) - **Groundworker.**
- 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

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

The Practical Project will be internally assessed and subject to risk-based monitoring and sampling by external quality assurers 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 de-registration 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 or not 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.

These actions constitute malpractice, for which a penalty (e.g. 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 City & Guilds 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 City & Guilds website: https://www.jcq.org.uk/exams-office/access-arrangements-and-special-consideration/regulations-and-guidance/

Summary of assessment

The **City & Guilds Construction (Level 3) – Civil Operations – Groundworks** is assessed using 3 assessment methods:

Assessment type	Approach to assessment	Weighting (Contribution to overall qualification grade)
On-Screen Assessment (Test 1 & 2)	Externally-set, externally-marked	20%
Practical Project	Internally-set, internally-marked, externally verified	60%
Professional Discussion	Externally-set, externally-marked, externally verified	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.

Recognition of prior achievement can be gained for Test 1 where learners have achieved the Progression in Construction (Level 2) - Groundworker, further details of this are available within the Assessment Pack.

Assessment timings and phasing

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

- all 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 learning and are adequately prepared to undertake each assessment.

The Employer Confirmation must have been completed prior to commencement of the Professional Discussion.

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

Result release

On-screen assessments

On-screen tests are auto-marked and results will be received by the centre the same day the assessment is completed. A result release process will be followed by the Consortium 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 the 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.

Professional Discussion

The professional discussion is externally marked and externally verified. The marking and grading tables provided in the Assessment Pack will be used by the external assessor to mark and allocate a grade. The provisional mark for this assessment will be released by City & Guilds within 30 working days of the professional Discussion taking place.

Overall qualification results

Provisional grades for the Practical Project and Professional 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 internal and external quality assurance activities, and final qualification grading by City & Guilds.

Final qualification grades will be notified to centres following completion of external quality assurance activities. This notification will be within eight weeks of centre submission of learner results for the practical project (following successful completion of the on-screen assessment and Professional Discussion).

Resubmission/Re-sit of assessment

If the learner fails to successfully achieve any of the assessments, they are permitted to resit/resubmit.

Guidance on the resit/resubmission procedures for each assessment can be found in the Assessment Pack for this qualification which can be downloaded from the City & Guilds website.

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 should 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 assessments

The test specifications for both on-screen assessments (Tests 1 and 2) can be found in the Assessment Pack.

Recognition of prior achievement can be gained for Test 1 where learners have achieved the Progression in Construction (Level 2) in the same trade, further details of this are available within the Assessment Pack.

Test 2 will cover the generic and trade-based content contained in the level 3 qualification only.

Practical Project

Please refer to the Practical Project section of the assessment pack.

Professional Discussion

The Professional Discussion will be conducted by the external assessor. The centre will be required to agree a date for the discussion with City & Guilds and to ensure that a suitable assessment environment is provided for this discussion. The Employer Confirmation must be completed before the point of booking the discussion with City & Guilds.

The unit content covered by the Professional discussion is outlined in the table below.

Learner reflection on the Practical Project: It will utilise the project evidence to augment the professional discussion. What the learner did, and why they did it.	
Reflection on knowledge and understanding of and skills of:	**Unit ref**
1.1 Organise the resources required. 1.2 Set success criteria for the task(s). 1.3 Carry out effective planning 1.4 Rationalise why the proposed approach is the most appropriate 1.5 Recognise cost and waste implications of the work. 1.6 Manage risks associated with completing the task and recognise the steps to be taken to stop risks becoming problems. 1.7 Identify the handover requirements of work. 2.1 Review the appropriateness of success criteria set. 2.2 Evaluate the resource selection and usage 2.3 Evaluate the finished output 2.4 Evaluate own performance 2.5 Review the achievement of timescales. 2.6 Evaluate the handover.	303 – LO1, LO2
2.1 How to develop and maintain productive working relationships 2.2 How to communicate effectively with clients, employers, colleagues and with other stakeholders throughout construction/BSE projects	302 – LO2
4.1 Pre-1919 construction methods 4.2 Post-1919 and modern construction techniques 4.3 21st century construction techniques and technologies	301 – LO4

Qualification grading

This qualification is graded **Fail, 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

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 trade bodies and organisations in the constructions sector.

Learning outcome:

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

Criteria

Assessment 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, assessment criteria 1.5 is about the CITB's role in the construction sector, which has been written and will be assessed against the learning outcome.

Criteria

1.5 CITB and its role within the construction sector

Range

Range contains information about the breadth required for a specific assessment criterion, for example, training, registration etc. 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: *Training and CPD; registration*

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)

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

Unit content

Unit 301: Understanding Construction Practice in Wales

GLH:	40

What is this unit about?

The purpose of this unit is for learners to explore and understand the wide and changing scope of the construction sector in Wales from pre-1919 practices to future development. It will provide an overview and set the scene for working in the construction sector in Wales.

It is recommended this unit is delivered prior to the Working in the Construction Sector in Wales unit.

On completion of this unit, learners will:

- know the trade bodies and organisations within the construction sector
- understand connected practice in the construction industry
- know the changes in construction pressures and materials over time
- know the changes in construction methods over time
- understand the relationship between trades and the environment

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

- Why should I join a union?
- What do the different coloured CSCS cards mean?
- How is the Well-being of Future Generations (Wales) Act 2015 relevant to construction?
- What does circular economy mean?
- What is BREEAM?

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. Understand connected practice in the construction industry

Criteria

2.1 Interdependencies between trades
Range: Relationships between individual trades and other trades in different scenarios from new build to repairing traditional structures

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

Criteria

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

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

3.3 21st century construction
Range: pressures (climate change, carbon footprint, resource availability); materials (lime; natural building materials; engineered materials)

4. Know the changes in construction methods over time

Criteria

4.1 Pre-1919 construction methods

Range: materials, tools and techniques used pre-1919

4.2 Post-1919 and modern construction techniques

Range: evolution of modern construction methods and techniques shaped by changes in materials, tools, and techniques

4.3 21st century construction techniques and technologies

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

5. Understand the relationship between trades and the environment

Criteria

5.1 Industry regulation and sustainability

5.2 Ecological considerations and principles

5.3 Sustainable approaches

Range: Heat recovery and ventilation, rainwater harvesting, fuel cells, solar panels, heat and cooling pumps, zero carbon buildings

5.4 Waste disposal in construction

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

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 National Fire Proof Association, National Roofing Federation, Natural Stone Industry Training Group,

association of Concrete Industrial Flooring Contractors, Institution of Civil Engineers (ICE) 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 registrations available 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 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 overtime.

Outcome 3

3.1 Pressures: 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.

3.2 Pressures: The learner will know the developments in transport influenced the supply chain since the industrial revolution and that there is a long history of moving materials along the coast that pre-dates 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. Learners need to understand the drivers behind these choices.

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 on their own trade, 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 post-1919 build.

3.3 Pressures: Learners will know and understand 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 should understand the importance of the Well-being of Future Generations (Wales) Act 2015 for the Construction industry.

Materials: Learners will need to 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 4

4.1 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.

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).

4.2 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

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).

4.3 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.

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).

Outcome 5

5.1 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 Passivehaus 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 include smart homes and smart technologies, such as sensors and controls.

5.2 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.

5.3 Learners will be able to identify the sustainable considerations used in construction and the built environment and recognize 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.

5.4 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 including WRAP for industry waste management. Learners will understand the nature of recyclable and biodegradable materials and the impact that it has 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 (including 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.

Unit 302: Working in the Construction Sector in Wales

GLH:	40

What is this unit about?

This unit provides the learner with a holistic understanding of the built environment in Wales, how it has changed, and the need for a safe built environment and delivering safe projects/work.

Learners will also appreciate the importance of planning and reviewing work, and how to carry out effective planning and evaluation. Learners will understand the importance of working and communicating effectively with others.

On completion of this unit, learners will:

- understand the built environment in Wales
- understand how to work effectively with others

It is recommended prior to undertaking this unit learners should have been taught the Understanding Construction Practice in Wales unit.

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

- What are PESTLES?
- How will the CDM regulation affect my working practices?
- How can we develop and maintain a high-performance team?
- How do you get a good reputation as a tradesperson?

Learning outcome

1. Understand the built environment in Wales

Criteria

1.1 Building stock in Wales
Range: forms, purposes, changing materials, periods of building stock in Wales

1.2 Factors influencing change in the built environment in Wales
Range: political, environmental, social, technological, legal, and economic

1.3 Safety of the built environment

2. Understand how to work effectively with others

Criteria

2.1 How to develop and maintain productive working relationships

2.2 How to communicate effectively with clients, employers, colleagues and with other stakeholders throughout built environment projects

Delivery outcomes (depth of content)

Outcome 1

In this learning outcome the learner will gain a holistic understanding of the construction sector. This outcome builds upon the unit: Understanding Construction Practice in Wales, Learning.

1.1 For the following domestic structures, the learner will be able to identify retrofit, refurbishment and development projects which bring the buildings up to current regulatory standards. Learners will know the following:

Houses: attached and detached:
Pre-1919:

- solid stone
- solid brick
- traditional timber frame.

Cavity wall:

- brick and block

- modern timber frame – timber with block outer

Prefabrication and mass housing booms:

- Post WWII war housing
- off-site modern prefabrication
- flats – High rise apartments.

Learners will understand the reasons behind pre-fabrication – largely economies of scale and ability and need to provide better quality housing within a short timeframe.

Learners will understand the need for energy efficient housing:

- retrofit
- natural materials
- BREEAM and Passivhaus
- the need for compliance with Building Regulations

BREEAM is the UK's most widely used means of reviewing and enhancing the environmental performance and minimising the environmental impacts of both new and existing buildings. Passivhaus buildings provide a high level of occupant comfort while using very little energy for heating and cooling. They are built with meticulous attention to detail and rigorous design and construction according to principles developed by the Passivhaus Institute in Germany, and can be certified through an exacting quality assurance process.

The WELL Building Standard. WELL is a performance-based system for measuring, certifying, and monitoring features of the built environment that impact human health and well-being, through air, water, nourishment, light, fitness, comfort and mind.

Learners will understand the requirements to meet energy saving targets.

Industrial units and factories:

- historic factories and warehouses
- 20th Century
- modern industrial units including shopping centres.

Learners will know what reuse of buildings and building materials includes and know the types of buildings available for multiple/adaptable purposes.

Learners will understand the importance of energy efficiency and embodied energy in meeting the zero-carbon target is required. Learners will understand the sustainability and carbon saving value of maintaining and repairing the current housing stock compared to replacing existing 20th century buildings with new buildings.

Changing materials

Learners will understand the changes that occurred from the introduction of the standardisation of materials and what effect this has on the construction industry. Learners will understand the role of standardisation in relation to safety in the industry, as well availability of materials of a recognised quality and performance is important, particularly with the development and manufacture of new materials and their use in modern construction.

Learners will know the role that materials such as cement, glass and steel have played in the industry and on their own trade, and the effect that material innovations have had on the scale and speed of construction.

Learners will understand why damp-proof membranes (DPC, DPM) are included post-1919 build and not suitable for solid walled structures.

1.2 Learners will understand PESTLE influences including:

- political: how government initiatives/changes in government affect the construction sector and the built environment, laws, taxes how this affects demand,
- environmental: targets to cut emissions, preserving the natural/built environment,
- social: age of population/demographic, cultural requirements, population growth,
- technological: new technologies and application of technology, changes in materials and innovations,
- legal: new/changes to regulations etc. such as the Building Regulations, consent/planning permissions, safety of buildings and building services,
- economic. affordability, unemployment/employment, the economy.

Learners will identify the key reasons for increases and decreases in housing demand over the last 100 years and the way that this has caused fluctuations in housebuilding.

1.3 Learners will know the advances in architectural design and material science, and their influence on modern construction, whilst also recognising the requirement for a focus on long term user safety when adapting, creating, and maintaining buildings, this will include building materials, products and services and the role of the CDM Regulations (The Construction (Design and Management) Regulations) and the foreseeable necessary information to be provided for future maintenance, repairs, and cleaning of the building. Learners will understand quality assurance marking of products (such as the CE mark) and the applicability of the Construction Products Regulations. The building regulations guidance Approved Document 7: materials and workmanship, the BSI Kitemark, the Declaration of Conformity, and trade specific requirements for products such as BASEC Approved Cables.

Learners will know of other applicable guidance such as RSPA (Royal Society for the Prevention of Accidents) safer by design. Learners will recognise the Provision and Use of Work Equipment Regulations that work equipment, including installations, is so

constructed, or adapted as to be suitable for the purpose for which it is provided. Relating requirements that apply such as lifting equipment must also meet the requirements of Lifting Operations and Lifting Equipment Regulations (LOLER), pressure equipment must meet the Pressure Systems Safety Regulations.

The implications of a lack of regard to safety of users can be discussed using examples such as asbestos and the Grenfell Tower disaster. Learners will have an awareness of the Welsh Government's plan to reform regulations and fire safety in high rise buildings, and the actions with regards to the 'Road Map to Safer Buildings in Wales'.

Learners will understand the considerations and implications of making changes to buildings and the responsibilities of the customer/client and the contractor and how this relates to the Building Regulations and relevant approved documents and technical guidance. Learners will know that there are different applicable requirements in Wales and England (e.g. the requirement for automatic fire suppression in Wales).

Learners will understand the need for relevant consent/permissions for work to be carried out (which could be required for minor work on a listed building in Wales), complying with building regulations (following approved documents) and utilisation of appropriate materials. Learners will understand it is incumbent on the contractor to carry out safe work and deliver safe projects for the customer/client.

Learners will understand the consequences of not carrying out safe work/delivering unsafe projects/work.

Learners will understand the importance of using suitable materials, parts and products that are appropriate for the building task, and that maintain the safety of buildings for building users for the long term.

Learners will understand that importance of deferring to qualified colleagues, when and if necessary, to check or complete work to ensure that the safety of building/premises users is maintained.

Outcome 2

2.1 Learners will appreciate the range of communication techniques and mediums and their suitability e.g. face to face, active/passive listening, written, oral, and electronic. Learners will understand the importance of the needs of individuals by applying the principles of equality and diversity.

Learners will understand how to maintain and encourage both formal and informal good working relationships to promote goodwill and trust with the relevant people. This can involve keeping promises and undertakings, being honest and constructive building relationships, co-operating, and having appropriate and good dialogue.

Learners will recognise the stages of team development Tuckman's team-development model as:

- forming
- storming
- norming
- performing

Learners will understand how to discuss proposals with relevant people and discuss alternative suggestions - appreciating that they should encourage questions and requests for clarification and comments.

Learners will recognise the benefits of a high-performance team. Learners will understand how to resolve differences of opinion in ways which minimise offence and maintain the goodwill, trust, and respect and why this is important.

2.2 Learners will understand how to confirm and communicate the requirements relating to the work. Learners will know how to confirm and communicate the work method to relevant people e.g. colleagues, employers, customers, contractors, suppliers of products and services and those affected by the work/project with the right level of detail and with an appropriate degree of urgency. These details can involve work progress, results, achievements, occupational problems**,** occupational opportunities, health and safety requirements and the co-ordination of work (e.g. with other trades/colleagues). Learners will recognise the benefits of good customer care to current and potential future customers (such as referrals, repeat business, good feedback, satisfied customers, more revenue opportunity).

Unit 303: Planning and Evaluating Work in the Construction Sector in Wales

GLH:	35

What is this unit about?

This unit provides the learner with the competencies of how to plan and evaluate work in their trade. Learners will be able to plan work to ensure that it is carried out safely and to any relevant industry standards; acceptance and success criteria that apply.

Learners will be able to organise resources and plan the use of these resources and their time. Learners will organise their own work activities, dealing with typical problems that arise in their work, and seeking advice from others if required. Learners will be able to communicate the work requirements to customers, colleagues, and members of the public other trades.

Learners will be able to evaluate their completed work and how effective they were in planning and performing stages; identifying strengths and weaknesses and using reflective practice to facilitate continual improvement.

On completion of this unit, learners will:

- plan the work required to complete the task(s)
- evaluate the work completed against the task brief and success criteria

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

- How do I ensure I don't have much waste when building a house?
- Where can I get up to date information on technical and materials?
- What factors do I need to take into account when evaluating my performance?

Learning outcome

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

Criteria

1.1 Organise the resources required
Range: tools, , equipment, , materials

1.2 Set success criteria for the task(s)

1.3 Carry out effective planning
Range: timescales, scheduling, quality, cost

1.4 Rationalise why the proposed approach is the most appropriate

1.5 Recognise cost and waste implications of the work
Range: financial, environmental

1.6 Manage risks associated with completing the task and recognise the steps to be taken to stop risks becoming problems
Range: nature of the task, other trades, resources, the work environment, timescales, contingent tasks, alterations, access, any other relevant external factors

1.7 Identify the handover requirements of work
Range: information, documentation, communication

2. Evaluate the work completed against the task brief and success criteria

Criteria

2.1 Review the appropriateness of success criteria set

2.2 Evaluate the resource selection and usage
Range: tools, plant, equipment, products, materials

2.3 Evaluate the finished output
Range: fit-for-purpose, safe, meets task brief/acceptance criteria, success criteria

2.4 Evaluate own performance
Range: methods, techniques, processes, effectiveness, strengths, weaknesses, lessons learnt, continual improvement

2.5 Review the achievement of timescales

2.6 Evaluate the handover

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will understand how to identify resources to produce a resource list, using estimation techniques such as required (such as: analytical (bottom up), comparative (top down/historic), and parametric). Learners will have an appreciation of the 'estimating funnel'. Learners will recognise types of resources as: consumable (replenishable), such as materials and money, and re-useable, such as plant, equipment, and people.

Learners will be able to organise the resources required to carry out the task/s. Learners will be able to recognise the need for, and plan the use of tools, plant, equipment, products, and materials. Learners will understand how to seek clarification and advice where the resources required are not available e.g. from: the customer/customer's representative, manufacturer's technical information, trade literature or referring to the organisation's procedures.

1.2 Learners will be able to identify success criteria for the task, which should include smaller milestones which identify key activities, material usage, and quality of finish etc. framed within the context of the overarching task requirements.

1.3 Learners will use effective planning methods to calculate time required to successfully complete tasks including a schedule of works, scheduling task activities to enable tasks to be completed to the standard required within the timescale set. Learners will identify different types of dependencies between tasks and factor this into their planned phasing of work.

Learners will be able to identify work methods that will make the best use of resources and meet project, statutory and contractual requirements, detailing these in a method statement. Learners will understand the need to carefully consider the scope of the work to avoid underestimating what is required.

1.4 Learners will rationalise why the approach planned for tasks is the most appropriate and will allow them to achieve quality and timescale requirements.

1.5 Learners will be able to plan the use of methods of work to help achieve zero or low carbon outcomes and be considerate of resource usage and wastage - evidencing environmental and financial awareness. Learners will understand planning methods, and planning for efficiency, cost control/savings, limited wastage, timely delivery, and a clear handover.

1.6 Learners will understand in the planning stage that problems can be anticipated and therefore can be more easily managed, for example within a risk assessment (proactive instead of reactive). Learners will be able to carry out mitigation planning for potential problems/issues. Recognising problems can arise from the weather conditions, nature of the task, other trades, resource availability etc. Learners will be able to assess the effects resulting from alterations to the work programme and be able to manage risks (within their control) that would impact on completing the tasks.

1.7 Learners will be able to communicate progress to relevant stakeholders such as employer/supervisor or the customer. Learners will know the measures to manage access to the site (Section 3 of Health and Safety at Work etc. Act 1974 requires the conducting of business without putting members of the public at risk). This includes the public and other workers who may be affected by the work. Learners will be able to identify the relevant document (as appropriate) required for a handover and be able to plan the handover, using the appropriate information, documentation, and communication (and demonstration) methods as relevant to the completed trade service provided.

Outcome 2

2.1 Learners will be able to evaluate whether the success criteria supported successful and efficient achievement of the task, did they create any unnecessary hurdles/barriers? Learners will reflect on whether different/additional criteria may have helped.

2.2 Learners will be able to evaluate their resource selection and usage, the appropriateness of tool selection, the quantity of materials selected, efficiency of material selection and usage. Evaluation of impact to cost and the environment.

2.3 Learners will be able to evaluate the quality of their completed work to industry and safety standards, the degree to which it meets the task brief and employer/customer requirements.

2.4 Learners will be able to evaluate the overall fit and finish and reflect on what they could have done differently to improve their output. Learners will be able to evaluate their own strengths, weaknesses, areas for improvement. Learners will be able to communicate their lessons learnt as and when required.

2.5 Learners will evaluate reasons for any delays, how these could have been avoided and how they could be mitigated against in the future. Learners will recognise reasons for any time savings and consider how they could take lessons learnt into future planning.

2.6 Learners will evaluate the quality and clarity of the information provided in the handover, achievement of the purpose of the handover, success of communication method chosen.

Unit 304: Conform to general workplace health, safety and welfare

GLH:	21

What is this unit about?

This unit is about awareness of relevant current statutory requirements and official guidance to include responsibilities, to self and to others, relating to workplace health, safety and welfare. It also covers personal behaviour and security in the workplace in the context of your occupation and work environment.

On completion of this unit, learners will be able to:

- accept responsibility for, and comply with, organisational policies and procedures in order to contribute to health, safety and welfare
- comply with and support all organisational security arrangements and approved procedures.

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

- What regulations do I need to know about?
- What does a method statement tell me?
- Will I have to work with dangerous materials and substances?
- How can I identify asbestos?

Learning outcome

1. Understand workplace health, safety and welfare

Criteria

1.1 What and why health, safety and welfare legislation is relevant to the occupational area

1.2 What health, safety and welfare legislation notices and warning signs are relevant to the occupational area and associated equipment

1.3 How to comply with control measures identified by risk assessments and safe systems of work

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

2. Understand how to recognise hazards

Criteria

2.1 The hazards associated with the work environment

2.2 How changing circumstances can create hazards

2.3 The method of reporting hazards in the workplace

3. Understand organisational policies and procedures

Criteria

3.1 What the organisational policies and procedures are for health, safety and welfare

3.2 How to take active responsibility for health, safety and welfare

3.3 How individual actions and behaviour may affect others

3.4 What the types of fire extinguishers are and how and when they are used

4. Understand how to implement security arrangements

Criteria

4.1 How security arrangements are implemented in the workplace

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the statutory requirements and/or official guidance for health, safety and welfare for the occupation and the work area.

1.2 Learners will know the different notices and warning signs relevant to the occupational area.

1.3 Learners will know how to work safely and in line with control measures identified by risk assessments and safe systems of work.

1.4 Learners will know how to identify appropriate health and safety control equipment by the principles of protection for occupational use, types and purpose of each type, different work situations and the general work environment, to include;

- collective protective measures
- local exhaust ventilation (LEV)
- personal protective equipment (PPE)
- respiratory protective equipment (RPE)

Outcome 2

2.1 Learners will know to recognise hazards associated with the occupational area, to include hazards in relation to; resources, the workplace, the environment, substances, asbestos, silica, equipment, obstructions, storage, services and work activities.

2.2 Learners will know how to identify current common safety risks and current common health risks.

2.3 Learners will know the organisational recording procedures and statutory requirements for reporting hazards in the workplace.

Outcome 3

3.1 Learners will know how to work safely in accordance with organisational requirements, to include; receiving or sourcing information, reporting, stopping work, evacuation, fire risks and safe exit procedures, consultation and feedback**,** induction, toolbox talk and signage**.**

Learners will know how to deal with accidents and emergencies associated with the type of work being undertaken and the work environment.

3.2 Learners will know how to take responsibility for health, safety and welfare, in line with their training and skills.

3.3 Learners will know how to recognise behaviour that affects health, safety and welfare and recognising when to stop work in the face of serious and imminent danger.

Learners will know how to contribute to discussions and provide valuable feedback. Learners will know how to report changed circumstances and incidents in the workplace whilst adhering to the environmental requirements of the workplace.

3.4 Learners will be able to identify the different fire extinguishers and their uses, to include; water, CO2, foam, powder, vaporising liquid

Outcome 4

4.1 Learners will know the organisational procedures relating to the workplace, general public, site personnel and resources, and how they are implemented in the workplace.

Learning outcome

5. Accept responsibility for, and comply with, organisational policies and procedures in order to contribute to health, safety and welfare

Criteria

5.1 Show personal behaviour which demonstrates active responsibility for general workplace health, safety and welfare

5.2 Comply with organisational policies and procedures relating to the following;

- consideration of others,
- interpretation of given instructions to maintain safe systems of work,
- contributing to discussions (offer and provide feedback),
- maintaining quality working practices,
- contributing to the maintenance of workplace welfare facilities,
- storage and use of equipment provided to keep people safe,
- disposal of waste and/or consumable items

6. Comply with and support all organisational security arrangements and approved procedures

Criteria

6.1 In accordance with organisational requirements with regard to:

- dealing with accidents and emergencies associated with the type of work being undertaken and the work environment
- methods of receiving or sourcing information
- reporting
- stopping work
- evacuation
- fire risks and safe exit procedures
- consultation and feedback

Unit 305: Conform to productive work practices

GLH:	14

What is this unit about?

This unit is about productive communication with line management, colleagues and customers as well as interpreting information, planning and carrying out productive work practices and working with others or as an individual, in the context of your occupation and work environment.

On completion of this unit, learners will be able to:

- communicate with others
- follow organisational procedures to plan the sequence of work in order to conform to productive work practices and maintain records
- maintain good work relationships

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

- What paperwork will I have to work with on-site?
- What does E&D actually mean?
- Will I still have to attend meetings and briefings after my induction?
- What are organisational procedures?

Learning outcome

1. Understand how to communicate with others

Criteria

1.1 how to use methods of communication with other workplace personnel and customers

1.2 how to communicate to ensure work is productive

2. Understand how to follow procedures

Criteria

2.1 how organisational procedures are applied to plan and carry out productive work

2.2 how to maintain documentation in accordance with organisational procedures

2.3 how to contribute to zero/low carbon outcomes in the built environment

3. Understand how to maintain good work relationships

Criteria

3.1 how to maintain good work relationships

3.2 how to apply the principles of equality and diversity

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know how to use different methods of communication where appropriate, to include; listening, written, oral visual and electronic.

1.2 Learners will know how to use different methods of communication to ensure information is clear and work is productive.

Outcome 2

2.1 Learners will know the appropriate use of resources for their own and other's work requirements. Learners will understand the allocation of appropriate work to employees and the organisation of work sequence.

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

2.3 Learners will also know how to contribute to the reduction of carbon emissions in the built environment.

Outcome 3

3.1 Learners will know how to build and maintain good relationships with others, to include; individuals, workplace groups (customer and operative, operative and line management, own occupation and allied occupations).

3.2 Learners will know how to show consideration for the needs of individuals by applying the principles of equality and diversity.

Learning outcome

4. Communicate with others

Criteria

4.1 Communicate with line management, colleagues or customers to ensure work is carried out productively

4.2 Respect the needs of others when communicating

5. Follow organisational procedures to plan the sequence of work in order to conform to productive work practices and maintain records

Criteria

5.1 Interpret procedures and use resources to plan the sequence of work, so that it is completed productively

5.2 Complete documentation as required by the organisation

6. Maintain good work relationships

Criteria

6.1 Work productively with line management, colleagues, customers or other people

6.2 Apply the principles of equality and diversity

Unit 306: Move, handle or store resources

GLH:	30

What is this unit about?

This unit is about interpreting information and adopting safe and healthy working practices including selecting aids or equipment to move, handle or store occupational resources. It also includes moving, handling and storing occupational resources to maintain useful condition, in the context of your occupation and work environment.

On completion of this unit, learners will be able to:

- understand how to interpret information
- understand safe work practices
- understand resource selection
- understand how to minimise the risk of damage
- understand working to deadlines
- comply with occupational resource information

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

- How heavy an object will I be expected to carry?
- Will I learn how to use correct lifting techniques?
- Am I responsible for site security?
- What does FIFO mean?

Learning outcome

1. Understand how to interpret 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 How to obtain information to use and store lifting aids and equipment

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 The types of fire extinguishers and how and when they are used

2.3 How emergencies should be responded to and who should respond

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

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

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

3. Understand resource selection

Criteria

3.1 The characteristics, quality, uses, sustainability, limitations and defects associated with the resources and how defects should be rectified

3.2 How the resources should be used and how any problems associated with the resources are reported

3.3 The organisational procedures to select resources, why they have been developed and how they are used

3.4 The hazards associated with the resources and methods of work and how they are overcome

4. Understand how to minimise the risk of damage

Criteria

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

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

5. Understand how to comply with occupational resource information

Criteria

5.1 How methods of work, to meet the specification, are carried out and problems reported

6. Understand how to work to deadlines

Criteria

6.1 What the programme is for the work to be carried out in the estimated, allocated time and why deadlines should be kept

Delivery outcomes (depth of content)

Outcome 1

1.1 Learners will know the organisational procedures in place to report and resolve problems with inappropriate information and unsuitable resources. Learners will know how they are implemented in the organisation.

1.2 Learners will know the different types of information available and how they can be presented and interpreted. To include -

- technical – e.g. safety data sheets
- product – e.g. manufacturers literature
- regulatory – e.g. health and safety (Risk Assessment Method Statements - RAMS)
- written documents – e.g. delivery notes, requisition forms

- methods of presentation – oral (e.g. verbal instructions), written (e.g. specification, job sheet), graphical presentation (e.g. work programme)

1.3 Learners will know the organisational procedures in place to solve problems with information and know the importance of following them correctly.

1.4 Learners will know how to find information to safely use and store lifting aids and equipment.

Outcome 2

2.1 Learners will understand their responsibilities regarding potential accidents and health hazards whilst working with the following; tools and equipment, materials and substances, movements and storage of materials and by manual handling and mechanical lifting.

Learners will know about the correct PPE and the importance of inductions and training. Learners should know to interpret RAMS, COSHH reports and Health and Safety data sheets in relation to reporting of new hazards/near misses and applying appropriate techniques (in line with current relevant legislation);

- *in the workplace* – e.g safe access, egress and walkways, plant movement, excavations, lone working
- *in confined spaces* – e.g emergency plans, Respiratory Protective Equipment (RPE), Local Exhaust Ventilation (LEV)
- *below ground level* – e.g safe exits, services, floods/ground water
- *at height* – e.g fall protection, safety harnesses, correct access equipment

2.2 Learners will know the different fire extinguishers available and their uses. Learners will know the following classifications;

- water – red/Class A, carbonaceous materials
- CO2 – black/Class B&E, electrical and flammable liquids
- foam – cream/Class A&B, carbonaceous materials and flammable liquids
- powder – blue, all classes of fire

Learners will know the moving weight of extinguishers and the handling/operating techniques for safety. Learners will know the location of extinguishers in relation to stored materials.

2.3 Learners will know their responsibility in response to situations in accordance with organizational authorisation and personal skills when involved with;

- fires – e.g. using fire extinguishers for different classes of fire, evacuation, prevention
- spillages – e.g. prevention, spill kits, signage, cordon off area

- injuries – e.g. first aider, first aid kit, accident reporting
- emergencies relating to occupational activities – e.g. prevention, emergency procedures, emergency services, reporting

2.4 Learners will know the different security procedures to include;

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

2.5 Learners will know the accident reporting procedures and know their own responsibility in relation to reporting. Learners will know who is responsible for making the report.

2.6 Learners will know how to identify appropriate health and safety control equipment by the principles of protection for occupational use, the types and purpose of each type, in relation to work situations and the general work environment to include;

- Collective protective measures
- Personal protective equipment (PPE)
- Respiratory protective equipment (RPE)
- Local exhaust ventilation (LEV)

Outcome 3

3.1 Learners will know to identify types, quantity, quality, sizes and sustainability of standard and/or specialist resources. Learners will know the potential problems, faults or defects and how to deal with them.

3.2 Learners will know how to select resources for different jobs and for the prevention of hazards related to the work, to include;

- occupational resources – tools, materials and equipment related to work/trade
- lifting and handling aids – e.g. wheelbarrows, pallet truck, forklift, sack barrow
- containers – e.g storage container, flammable container
- fixing, holding and securing systems – e.g ropes and lashing, bracing, ratchet straps
- rotation of perishable stock, FIFO (first in first out).

Learners will know their own authority to rectify problems or how to report to the suitable supervisor and make an appropriate log of the problem. Learners will know the organisational reporting procedures including the correct person to inform and in the correct format to include written or verbal communication.

3.3 Learners will know the organisational procedures relating to selection of resources relevant to the task. Learners will know why the procedures are in place and how they are used.

3.4 Learners will know how to identify hazards from available information, to include;

- method of work – e.g. RAMS, tool box talks, hazard reporting
- manufacturers' technical information – e.g. health and safety data sheets
- statutory regulations – e.g. COSHH, Manual Handling Operations, Working at Height Regulations (WAHR), Lifting Operations and Lifting Equipment Regulations (LOLER)
- official guidance – e.g. Health and Safety Executive (HSE)

Outcome 4

4.1 Learners will know how to protect work against damage from general workplace activities, other occupations and adverse weather conditions such as correct storage, scheduled delivery in line with work programme and the protection of surrounding area.

4.2 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 5

5.1 Learners will understand safe work practices and procedures, to include;

- the method and area of work – correct lifting procedures for different materials (weight, quantity, shape), routes for safely moving materials, keeping exits clean and clear,
- materials and equipment used for moving, handling and storing occupational resources – e.g. correct manual handling techniques, different lifting aids
- needs of other occupations associated with the resources e.g storage of resources with appreciation of other trades' work areas/needs

Learners will know the organisational procedures for reporting circumstances which will affect the work programme including reporting to the supervisor/manager e.g. unexpected delays, weather, problems with deliveries. Learners will know the problems that can affect the programme, to include;

- problems arising from inappropriate information – e. g misheard instructions, misinterpretation of manufacturers information, incorrect information
- problems arising from resources – e.g. unsuitable, damaged, incorrect, quantity

- problems of methods of work – e.g. incorrect storage, incorrect actions (e.g. incorrect moving and handling), incorrect use of equipment

Outcome 6

6.1 Learners will be able to identify the types of programmes, to include;

- progress charts and timetabling – e.g programmes of work, bar charts, Gantt charts

Learners will understand the importance of working to deadlines and allocated times, and the effect this would have on other areas of the programme.

Learning outcome

7. Comply with the given occupational resource information to carry out the work efficiently to the required guidance

Criteria

7.1 Work skills to move, position, store, secure and/or use lifting aids and kinetic lifting techniques

7.2 Move, handle or store occupational resources to meet product information and organisational requirements relating to at least three of the following; sheet material, loose material, bagged or wrapped material, fragile material, tools and equipment, components, liquids

Unit 231: Groundworks 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:

- 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
- Operate powered units, tools or pedestrian plant, machinery or equipment
- Install, maintain and remove temporary excavation support

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 belonging

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; 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. They 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. They 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 authorization 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). They 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, bio fuel.

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 Groundworker 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 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)

- 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 groundworker 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 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 to. 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 & 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 & 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 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

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 how 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 will 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 will 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 will 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 will 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 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, measure 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 will be able to demonstrate that they can plan for installing drainage 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 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

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 & 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 include:
- floor protection
- buckets
- water containers
- shovel and brush
- wheelbarrows
- mixing whisks
- cement mixer
- transformers
- generators
- power tools

Documentation 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 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 will understand the application of knowledge for safe and healthy work practices, procedures and skills relating to the method, process and area of work. Learners will know how to plan their work efficiently from the given instructions and complete the work to the agreed specifications. Learners will 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 will understand the importance of maintaining tools and equipment and the operative care associated with hand tools and portable power tools. Learners will 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 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, fork lifts 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)

Unit 324: Operate powered units, tools or pedestrian plant, machinery or equipment

GLH:	100

What is this unit about?

The aim of this unit is to provide learners with the relevant practical skills and understanding required for operating powered units, tools or pedestrian plant, machinery or equipment, 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 are the different types of power tools used?
- What are the mandatory items of PPE needed when operating power tools?
- What age do I need to be to use power tools?
- Do I always need a licence to operate power tools?

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 operate powered units, tools or pedestrian plant machinery and equipment to drawings specifications, and operating instructions. Learners will understand the characteristics and suitability when selecting resources for operate powered units, tools or pedestrian plant machinery and equipment for residential or larger civil engineering projects. Learners will have knowledge of powered units, tools or pedestrian plant machinery and equipment 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.

Power sources include:

- fuel type
- air lines

- electric cables
- chargers

Equipment include:

- handheld non power tools
- handheld petrol power tools,
- electrical tools (saws - circular saw, chop saw, drills, hammers)
- battery operated tools
- air driven tools
- plate vibrators
- wacker plates
- pneumatic drills
- angle grinders
- disc cutters
- kango hammers
- hammer drills
- rollers
- excavators
- loading shovels

Documentation include:

- specifications
- drawings
- operating instructions
- checklists
- method statements
- risk assessments
- safe systems of work
- manufacturers' information
- Control of Vibration at Work Regulations (Hand Arm Vibration Syndrome-HAVS)
- Expose limit values (HASAWA and manufacturers recommendations)
- 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 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 to operate powered units, tools or pedestrian plant machinery and equipment, 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 able to identify the hazards associated with operating powered units, tools or pedestrian plant machinery and equipment, the maintenance and replacement of components as well as the correct method of work, whilst working in a construction and civil engineering environment.

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 will understand the application of knowledge for safe and healthy work practices, procedures and skills relating to the method, process and area of work. Learners will know how to plan their work efficiently from the given instructions and complete the work to the agreed specifications. Learners will 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 of selecting the appropriate equipment whilst working in a construction and civil engineering environment. Learners will 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 will 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
- maintenance schedules (in accordance with operating instructions)

Learning outcome

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

Criteria

3.1 Operate and monitor powered unit, tools or pedestrian plant, machinery or equipment to given working instructions, relating to:
Range: continual running, closing down and cleaning

3.2 Use and maintain powered units, tools and ancillary equipment

3.3 Demonstrate work skills to start, stop, replenish and control the use of powered units, tools or pedestrian plant machinery and equipment

3.4 Disassemble, clean and return powered units tools or pedestrian plant, machinery or equipment to a safe operational condition on completion of work.

Delivery outcome (depth of content)

3.1 Learners will be able to demonstrate that they can plan for operating powered units, tools or pedestrian plant machinery and equipment 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 to operate powered units, tools or pedestrian plant machinery and equipment

Documentation to include:

- specifications
- drawings
- operating instructions
- checklists
- method statements
- risk assessments
- safe systems of work
- manufacturers' information

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)
- Traffic Signs Regulations and General Directions (TSRGD) - Chapter 8

3.2 Learners will be able to identify suitable PPE (Personal Protection Equipment) and use whilst operating powered units, tools or pedestrian plant machinery and equipment.

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 operating powered units, tools or pedestrian plant machinery and auxiliary equipment. 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 operating powered units, tools or pedestrian plant machinery and equipment, 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, fork lifts & 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, prepare and operate powered units, tools or pedestrian plant machinery and equipment. Learners will be able to maintain the equipment in good condition for future use.

Equipment to include:

- handheld non power tools
- handheld petrol power tools,
- electrical tools (saws - circular saw, chop saw, drills, hammers)
- battery operated tools
- air driven tools
- plate vibrators
- wacker plates
- pneumatic drills
- angle grinders
- disc cutters
- kango hammers
- hammer drills
- rollers
- excavators
- loading shovels

3.3 Learners will be able to identify and select the correct tools for the designated task. Learners will be able to start and stop powered units, tools or pedestrian plant machinery and equipment safely in accordance with the manufacturer's instructions**.**

Learners will be able to replenish and control equipment ensuring there are sufficient supply and replacement tools, parts and fixtures available.

3.4 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 or non-hazardous)

Learners will be able to ensure that pedestrian plant, machinery, equipment and tools that have defects and require repair or replacement are placed in a designated quarantine area. Learners will be able to record the defects within a logbook or company documentation.

Unit 325: Install, maintain and remove temporary excavation support

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, maintaining and removing temporary excavation support 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 classed as an excavation?
- Do all excavations need support?
- What is classed as temporary excavation support?
- Why is working in excavations dangerous?

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, maintain and remove temporary excavation support to drawings specifications, and schedules. Learners will understand the characteristics and suitability of materials when selecting resources for Install, maintain and remove temporary excavation support for residential or larger civil engineering projects. Learners will have knowledge of install, maintain and remove temporary excavation support 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.

Power sources include:

- fuel type
- air lines
- electric cables
- chargers

Materials include:

- poling boards
- waling
- lippings
- wedges
- puncheons
- foot blocks

Equipment include:

- hydraulic frames
- secure ladders
- handrails
- physical barriers
- suitable vehicles and plant
- pumps
- local exhaust ventilation plant
- generators plus
- handheld non power tools
- handheld petrol power tools,
- electrical tools (saws - circular saw, chop saw, drills, hammers)
- battery operated tools
- air driven tools
- plate vibrators
- wacker plates
- pneumatic drills
- trench sheets
- props or jacks
- struts
- chains
- slings
- shackles
- trench sheets
- driving caps
- angle grinders
- disc cutters
- kango hammers
- hammer drills
- rollers
- excavators
- loading shovels

Documentation include:

- specifications
- drawings
- manufacturer's literature

- risk assessments
- method statements
- supplier contact information
- safe systems of work
- permit to dig
- excavation inspection report
- overhead services checklist
- 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 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 how to install, maintain and remove temporary excavation support.

1.3 Learners will understand the working procedures used to select the most appropriate methods to install, maintain and remove temporary excavation support, 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, maintaining and removing temporary excavation supports. The maintenance and replacement of groundworker components as well as the correct method of work required to install, maintain and remove temporary excavation support whilst working in a construction and civil engineering environment.

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
- collapse of sides
- water ingress
- presence of gases

Outcome 2

2.1 Learners will understand the application of knowledge for safe and healthy work practices, procedures and skills relating to the method, process and area of work. Learners will know how to plan their work efficiently from the given instructions and complete the work to the agreed specifications. Learners will 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 install, maintain and remove temporary excavation from drawings, specifications and verbal instructions. Learners will understand how to identify problems and how to report.

2.2 Learners will 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 will 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 efficiently to the required specification

Criteria

3.1 Use and maintain hand tools, measuring and marking equipment and ancillary equipment to install, maintain and remove temporary excavation support to given working instructions relating to at least one of the following:
Range: proprietary systems e.g. drag box, trench box, manhole box, open and closed support systems, piling systems e.g. diaphragm wall, trench sheets, sheet piles, secant support or contiguous support and bespoke support systems

3.2 Demonstrate work skills to measure, mark out, prepare, position, fit, support, fix, secure, dismantle and remove

Delivery Outcome (depth of content)

3.1 Learners will be able to plan for installing, maintaining and removing excavation supports 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 installing, maintaining and removing excavation supports.

Documentation to include:

- specifications
- drawings
- manufacturer's literature
- risk assessments
- method statements
- supplier contact information
- safe systems of work
- permit to dig
- excavation inspection report
- overhead services checklist

Learners will be able to install maintain and remove temporary excavation support as per instructions or methods of work. To establish **one** of the following:

Proprietary systems to include:

- drag box

- trench box
- manhole box
- open and closed support systems

Pilling systems to include:

- diaphragm wall
- trench sheets
- sheet piles
- secant support or contiguous support
- bespoke support systems

Learners will be able 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)
- Traffic Signs Regulations and General Directions (TSRGD) - Chapter 8

Learners will be able to identify suitable PPE (Personal Protection Equipment) and use whilst installing, maintaining and removing excavation supports

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 installing, maintaining and removing excavation supports, 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
- vehicular 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, fork lifts & 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 install, maintain and removing excavation supports. 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
- transformers
- generators
- power tools

Learners will be able to use tools and equipment to install, maintain and remove temporary excavation support.

Equipment to include:

- hydraulic frames
- secure ladders
- handrails

- physical barriers
- suitable vehicles and plant
- pumps
- local exhaust ventilation plant
- generators plus
- handheld non power tools
- handheld petrol power tools,
- electrical tools (saws - circular saw, chop saw, drills, hammers)
- battery operated tools
- air driven tools
- plate vibrators
- wacker plates
- pneumatic drills
- angle grinders
- disc cutters
- kango hammers
- hammer drills
- rollers
- excavators
- loading shovels

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)