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City & Guilds Construction (Level 3) Plant Operations

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Qualification Handbook

Version 1.4 September 2026

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Version information

Version and publication date	Changes
v1 January 2022	Original document
V1.1 April 2022	Updated occupational requirements for internal and external assessors (pg. 9-10, 12-13)
V1.2 May 2022	Minor amendments to unit content, including review of range of hazards and legislation covered under each unit
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) Plant Operations 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 the Built Environment qualification or will be completing their Foundation learning and assessments while in their apprenticeship.
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) Plant Operations** learners must undertake all units listed in the mandatory units section and one unit from the optional units section shown in the table below.

Achieving a Pass grade or higher in the three assessment methods, totalling 722 GLH.

Unit number	Unit title	GLH
	Mandatory units	
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
327	Plant Operations core knowledge	50
328	Preparing and operating forward tipping dumpers to receive, transport and discharge materials in the workplace	53
329	Preparing and operating telescopic handlers to lift and transfer loads in the workplace	83
330	Preparing and operating ride-on rollers to compact materials in the workplace	53

	Optional units – Choose one of the following units	
331	Preparing and operating **180** degree excavators to extract and excavate ground and loose materials in the workplace	266
332	Preparing and operating **360** degree excavators to extract and excavate ground and loose materials in the workplace	266
	All Forms of Assessment	37
	Total GLH (including core/mandatory units & Assessment):	722

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) – Plant Operations	802	80

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 Manual
- 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.

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

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

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

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

Registration, results issuing and certification

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

Quality assurance

Internal quality assurance

The focus of internal quality assurance for this qualification is:

- the quality assurance of assessment procedures, including standardisation of assessment practice across different assessors within the centre,
- 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 plant operations 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.
- have sufficient, verifiable, relevant up to date experience, knowledge and understanding of the occupational working area at, or above, the level being verified. This must be of sufficient depth to be effective and reliable when verifying judgements about assessors' assessment processes and decisions. Internal verifiers' experience, knowledge and understanding could be verified by a combination of, curriculum vitae and employer endorsement or references, possession of a relevant NVQ/SVQ, or vocationally related qualification, corporate membership of a relevant professional institution. This could be verified by records of continuing professional development achievements.
- be prepared to participate in activities for their continued professional development
- only assess in their acknowledged area of occupational competence.
- have a sound, in-depth knowledge of, and uphold the integrity of, the sector's OCS and the Assessment Strategy for Construction and the Built Environment – Plant Operations and Controlling Lifting Operation.

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).

City & Guilds will:

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

External quality assurers

EQAs are inducted, trained, and standardised to ensure a consistent approach. They are regularly updated on changes to qualifications and subject to ongoing monitoring and sampling of their work. Thorough vetting ensures required knowledge, including attainment of EQA Training Assessment and Quality Assurance (TAQA) 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 City & Guilds with the details of personnel who they plan to undertake assessment, so that they can be approved prior to them carrying out this role. Prior to the first assessments taking place; assessors must also complete City & Guilds training. This is to ensure the reliability of assessment at centres over time.

Assessors must be working towards (registered 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 and only assess in their acknowledged area of occupational competence. They must have sufficient, verifiable, relevant current industry experience, knowledge and understanding of the occupational area at, or above, the level being assessed. This must be of sufficient depth to be effective and reliable when judging candidates' competence. 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. This could be verified by records of continuing professional development achievements.

Assessors must have a sound, in-depth knowledge of, and uphold the integrity of, the sector's OCS and the Assessment Strategy for Construction and the Built Environment – Plant Operations and Controlling Lifting Operation.

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

Internal assessor requirements

Internal Assessors must:

- carry out and document assessment in line with City & Guilds and regulatory arrangements including:
    - acting in a professional and courteous manner at all times when conducting the assessment
    - marking the assessments, in accordance with grading criteria.
- maintain 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)

External assessor must be occupationally competent. Have sufficient, verifiable, relevant current industry experience, knowledge and understanding of the occupational area at, or above, the level being assessed. This must be of sufficient depth to be effective and reliable when judging candidates' competence. 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. This could be verified by records of continuing professional development achievements.

*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).

External assessors must:

- Be prepared to participate in activities for their continued professional development
- Only assess in their acknowledged area of occupational competence
- Have a sound, in-depth knowledge of, and uphold the integrity of, the sector's OCS and the Assessment Strategy for Construction and the Built Environment – Plant Operations and Controlling Lifting Operation.

Prior to the first assessment taking place; assessors must also complete City & Guilds training. This is to ensure the reliability of assessments 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 City & Guilds and regulatory arrangements including:
    - acting in a professional and courteous manner at all times when conducting the assessment on behalf of City & Guilds.
    - 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 City & Guilds 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 City & Guilds 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)),
- 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 Level 3 Construction – Plant Operations** 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.

Assessment timings and phasing

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

- all mandatory units and one optional unit 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 City & Guilds when new assessment versions are released.

Practical Project

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

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	301 – LO4

4.2 Post-1919 and modern construction techniques 4.3 21st century construction techniques and technologies	

Qualification grading

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

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

Content key

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 for chosen trade

Range: off-site manufacturing; prefabricated construction components; 3-D printing of construction components; circular economy, sustainable design and retrofit; insulation; ventilation; new and emerging technologies

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 the Fire Protection 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 plant operations (steam operated rollers, steam shovel, excavation by hand) and relevant resources (water levels, profiles and travellers, boning rods).

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 plant operations (national standards used for construction methods, heavy plant and equipment for earthworks) and relevant resources (laser levels, cowley level, theodolite, total stations).

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 plant operations (Modern Methods of Construction (MMC), GPS operated plant, electric powered and controlled equipment) 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 Passivhaus codes of good practice.

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

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

Learners will know how the design of construction projects can help with energy efficiency and the link to 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, learners 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, learners 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 the 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, toolbox 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 327: Plant Operations 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);

- Preparing and operating 180 degree excavators to extract and excavate ground and loose materials in the workplace (180 degree excavators)
- Operate plant or machinery to excavate (360 degree excavator)
- Preparing and operating forward tipping dumpers to receive, transport and discharge materials in the workplace (Forward Tipping Dumper)
- Preparing and operating telescopic handlers to lift and transfer loads in the workplace (Telescopic handler)
- Preparing and operating ride-on rollers to compact materials in the workplace (ride on rollers)

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 relating to Plant Operations, to include; pre-use inspection checklist, LOLER certificate, operator logbook, 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. Learners will know their role and responsibility in relation to evacuation, prevention (water, CO2, foam, powder), the fire triangle and muster points.

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

Learners will know the types of common injuries and responsibilities including first aider, first aid kit and accident reporting for emergencies relating to occupational activities,

including prevention, emergency procedures, emergency services, reporting procedures, access and egress for emergency vehicles.

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

- site - including temporary fencing/hoarding, security guards, surveillance
- workplace - including opening up and locking up
- company - including signing in, ID 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 328: Preparing and operating forward tipping dumpers to receive, transport and discharge materials in the workplace

GLH:	53

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 operating forward tipping dumpers to receive, transport and discharge materials in the workplace, in a construction and civil engineering environment.

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 dumpers available?
- What are the dangers when working in or around forward tipping dumpers?
- What restrictions are there in order to operate a tipping dumper?

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 when preparing and operating forward tipping dumpers to receive, transport and discharge materials in the workplace to drawings specifications, and schedules. Learners will know and be able to understand the characteristics and suitability of equipment when selecting resources for a construction and civil engineering environment. Learners will have knowledge of operating forward tipping dumper equipment and will know how to identify defects that affect the operation of equipment. Learners will know how to respond to defects, follow processes to place the machine out of service and report defects following organisational procedures.

Equipment type to include;

Wheeled Standard

- articulated two-piece chassis with the front section containing the body and rear section containing the power, hydraulic and electrical units
- one-piece chassis with steering axles containing all components

Tracked

- Rigid chassis of reversible, crawler, hydraulically driven tracks for mobility

Note: size categories to cover 0.5 – 10 tonnes

Suggested documentation that provides information relating to the characteristics of the resources includes;

- specifications
- drawings
- operating instructions
- checklists
- method statements
- risk assessments
- safe systems of work
- manufacturers' information
- Working at Height 2005
- Manual Handling 1992
- 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
- Road Traffic Act (Vehicles being used on the public highway)

1.2 Learners will understand how the resources should be used and how any problems associated with the forward tipping dumper are reported. Learners will know and understand how to store equipment in the correct locations, the procedures and reporting protocols to follow to report any problems, as well as defects or concerns with selected equipment. 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 understand and recognise the relevant resources to include materials, components and equipment relating to types, quantity, quality, sizes and the sustainability of standard and specialist consumables, lubricants, fuels, attachments and load coverings, hand tools, ancillary equipment and accessories.

1.3 Learners will understand the working procedures used to select the most appropriate methods for preparing and operating forward tipping dumpers to receive, transport and discharge materials in the workplace, 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 preparing and operating to receive, transport and discharge materials in the workplace. Learners will know the correct method of work required to prepare and operate forward tipping dumper, and how to maintain equipment.

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
- entrapment
- limited forward visibility when loaded
- stability when laden and when travelling up, down and across inclines
- travelling on uncompacted ground
- stockpiles

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 operate forward tipping dumper to receive, transport and discharge materials in the workplace 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 machinery, equipment and a forward tipping dumper. Learners will understand procedures, calibration and planned maintenance schedules (including work carried out by the maintenance fitter). 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
- maintenance schedules
- safety checks
- cleaning equipment

Learning outcome

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

Criteria

3.1 Demonstrate the work skills to check, adjust, communicate, operate, manoeuvre, position, receive, transport and deposit

3.2 Use and maintain hand tools, ancillary equipment and/or accessories to operate plant or machinery to receive and transport bulk material loads to given working instruction relating to forward tipping dumpers

3.3 Shut down and secure plant or machinery

Delivery Outcome (depth of content)

Outcome 3

3.1 Learners will be able to check, adjust the forward tipping dumper before preparing and operating within the workplace. Learners will be able to carry out pre-operational checks to manufacturer's instructions ensuring stability, safety and security of the equipment, work and surrounding area.

Learners will be able to operate, manoeuvre and transport loads around site receiving and depositing materials in the correct location and position within the workplace, through restricted confined areas with ease and traveling on public highways **if DVLA (Driving Vehicle Licensing Authority) licence category allows.**

3.2 Learners will be able to identify, use and maintain hand tools and ancillary equipment and/or accessories equipment for a forward tipping dumper, size categories to cover (0.5 – 10 tonnes) loads in the workplace. Learners will be able to plan for preparing and operating a forward tipping dumper to receive, transport and discharge materials in the workplace, by following the information and guidance given to them by using the relevant documentation. Learners can produce a method statement and work programme to plan efficiently for the work to be carried out within the agreed time for the work.

Learners will be able to maintain equipment as per manufactures instructions and report any defects within a logbook or company documentation.

Equipment type can include;

- **Wheeled Standard**
  - articulated two-piece chassis with the front section containing the body and rear section containing the power, hydraulic and electrical units

- one-piece chassis with steering axles containing all components

- **Tracked**
  - rigid chassis of reversible, crawler, hydraulically driven tracks for mobility

Note: size categories can cover 0.5 – 10 tonnes

Learners will be required to follow the sector regulations when carrying out this work. Regulations to include;

- Working at Height 2005
- Manual Handling 1992
- 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
- Road Traffic Act (Vehicles being used on the public highway)

3.3 Learners will be able to shut down the forward tipping dumper and park, isolate and store securely in a designated area, ensuring it is left safely in accordance with the manufacturer's and operating instructions.

Unit 329: Preparing and operating telescopic handlers to lift and transfer loads in the workplace

GLH:	83

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 operating telescopic handlers to lift and transfer loads in the workplace, 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 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 telescopic handlers available?
- What are the dangers when working in or around a telescopic handler?
- What restrictions are there in order to operate a telescopic handler?

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 prepare and operate telescopic handlers to lift and transfer loads in the workplace to drawings, specifications, and schedules. Learners understand the characteristics and suitability of equipment when selecting resources for a construction and civil engineering environment. Learners will have knowledge of operating telescopic handling equipment and be able to identify defects that can affect the structural integrity and need replacing and those that only effect the aesthetics. Learners will understand their uses and limitations, and sustainable alternatives.

Equipment type to include;

- lift trucks
- cranes
- knuckleboom cranes
- excavator cranes

- crawler tractor/side booms
- skip handlers
- hoists
- container handlers
- self-propelled motorised trailers

Suggested documentation that provides information relating to the characteristics of the resources includes;

- specifications
- drawings
- operating instructions
- checklists
- method statements
- risk assessments
- safe systems of work
- manufacturers' information
- Working at Height 2005
- Manual Handling 1992
- 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
- Road Traffic Act (Vehicles being used on the public highway)
- LOLER 1998 (Lifting Operations and Lifting Equipment Regulations 1998)

1.2 Learners will understand how the resources should be used and how any problems associated with the telescopic handler are reported. Learners will know and understand regulations relating to how to store equipment in the correct locations, the procedures and reporting protocols to follow to report any problems, as well as defects or concerns with selected equipment. 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 for preparing and operating telescopic handlers to lift and transfer loads in the workplace, in accordance with written instructions, drawings, schedules and verbal instructions to meet the contract size/needs. Learners will know how to order equipment and resources to complete a specific task using organisational procedures.

1.4 Learners will know how to identify the hazards associated with preparing and operating telescopic handlers to lift and transfer loads in the workplace. Learners will know how to maintain equipment and know the importance of working to method statements, risk assessments and the correct method of work required to prepare and operate telescopic handlers.

Hazards include;

- open excavations
- moving plant and equipment
- slips trips and falls
- working at height
- hand and eye injuries
- being hit by falling objects
- lateral and longitudinal instability
- visibility

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 operate telescopic handlers to lift and transfer loads in the workplace from lift plans, drawings, specifications and verbal instructions. Learners will understand how to identify problems and how to report them.

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 and telescopic handlers. 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
- safety checks
- maintenance schedules (in accordance with operating instructions)
- checking consumables, lubricants and fuels

Learning outcome

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

Criteria

3.1 Demonstrate the work skills to check, adjust, communicate, operate, manoeuvre, position, lift, transfer and set down loads

3.2 Use and maintain hand tools, ancillary equipment and/or accessories to operate plant or machinery to lift and transfer loads to given working instruction relating to one of the following categories:

Range: lift trucks, cranes, knuckleboom cranes, excavator cranes, crawler tractor/side booms, skip handlers, hoists, container handlers, self-propelled motorised trailers

3.3 Shut down and secure plant or machinery

Delivery outcome (depth of content)

3.1 Learners will be able to check and adjust the telescopic handler used for transferring, lifting and setting down loads on a suitable vehicle (wagon, van or container) Learners will be able to identify the type, volume and quantity of loads to be positioned on the transporting vehicle.

Learners will be able to carry out pre-operational checks to manufacturer's instructions ensuring stability, safety and security of the equipment, work and surrounding area. Learners will be able to attach and remove guide ropes and aids.

Learners will be able to maneuver around site loaded and unloaded, through restricted confined areas with ease and travel on public highways **if DVLA (Driving Vehicle Licensing Authority) licence category allows.**

Daily checks to include;

- capacity plate and load chart: check load chart visibility, check machine against loads to be lifted
- fork arms and attachments: attachments alter lifting capacity, fork condition, tested
- carriage plate: condition, visual, functional
- backrest extension: condition, wear and tear, function
- stabilisers: condition, wear and tear, hydraulic pressures, rams and seals
- telescopic boom: raise, full extension, greased, function, SLI, noises
- hydraulics: function, oil levels
- load sensors: check prior to lifting different heights and loads
- wheels and tyres: cleanliness, pressures, tread, splits and tears, bulges, wheel nuts, wheel nut indicators
- external condition: cleanliness, glass, mirrors, body work

- cab door: working, locks, unlocks, glass braking hammer
- operating position: distance from controls, can be adjusted, visibility
- operator seat: cleanliness, adjustable, splits and tears, general wear and tear
- starting procedure: key start, warning lights, check all controls work, safety devices, stopping procedure, cycle down turbo if fitted
- lights and beacons: condition, cleanliness, working, adjusted to the work
- audible warning devices: working, horn, reversing beeper
- hydraulic controls: working smoothly, no leaks, stiffness, slow reactions when released
- forward and reverse movements: working, react promptly when used, no unusual noises
- turning: left and right tracks or wheels, no unusual noises leaks
- stability ground check (bearing capacity of ground)
- refuelling: when necessary, at the end of a shift, prevents condensation building up in the tank, engine off, key removed, no smoking, designated areas, spill kits, fire fighting equipment
- fault reporting procedures: in line with company procedures, daily check sheets, defect books

3.2 Learners will be able to select, use and maintain hand tools and ancillary equipment and/or accessories for telescopic handlers. Learners will be able to maintain equipment as per manufacturer's instructions and report any defects within a logbook or company documentation. Learners will be able to identify and extract suitable information to prepare and operate telescopic handler equipment to lift and transfer loads in the workplace.

Equipment type to include;

- lift trucks
- cranes
- knuckleboom cranes
- excavator cranes
- crawler tractor/side booms
- skip handlers
- hoists
- container handlers
- self-propelled motorised trailers

Documentation to include;

- specifications
- drawings
- operating instructions
- checklists
- method statements
- risk assessments

- safe systems of work
- manufacturers' information
- lift plans

Learners will be required to follow the sector regulations when carrying out this work. Regulations to include;

- Working at Height 2005
- Manual Handling 1992
- 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
- Road Traffic Act (vehicles being used on the public highway)
- LOLER 1998 (Lifting Operations Lifting Equipment Regulations 1998)

3.3 Learners will be able to shut down the telescopic handler and park, isolate and securely store in a designated ~~secure~~ area, ensuring it is left safely in accordance with the manufacturer's instructions and operating instructions.

Unit 330: Preparing and operating ride-on rollers to compact materials in the workplace

GLH:	53

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 operating ride-on rollers to compact materials in the workplace, 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 types of rollers are there available?
- Do all rollers do the same thing?
- How do they compact materials?
- What materials can they compact?

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 prepare and operate ride-on rollers to compact materials in the workplace, to drawings, specifications and schedules. Learners will know and be able to understand the characteristics and suitability of equipment when selecting resources for a construction and civil engineering environment. Learners will have knowledge of operating ride on roller equipment and be able to identify defects that can affect the structural integrity and need replacing and those that only effect the aesthetics. Learners will understand their uses and limitations, and any sustainable alternatives.

Equipment type to include;

- Ride-on rollers
- Compactors

Suggested documentation that provides information relating to the characteristics of the resources includes;

- specifications
- drawings
- operating instructions
- checklists
- method statements
- risk assessments
- safe systems of work
- manufacturers' information
- Working at Height 2005
- Manual Handling 1992
- 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
- Road Traffic Act (Vehicles being used on the public highway)

1.2 Learners will understand how the resources should be used and how any problems associated with the resources and rollers are reported. Learners will understand which materials are to be used and stored 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 for preparing and operating ride-on rollers to compact materials loads in the workplace, in accordance with written instructions, drawings, schedules and verbal instructions to meet the contract size/needs. Learners will know how to order equipment and 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 operating ride-on rollers. Learners will know how to maintain equipment and the correct method of work required to prepare and operate ride-on rollers to compact materials.

Hazards include:

- open excavations
- moving plant and equipment
- slips trips and falls
- working at height
- hand and eye injuries
- being hit by falling objects
- travelling on and near to inclines and edges

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 check to avoid damage to structures and utilities service apparatus. 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 operate ride-on rollers from drawings, specifications and verbal instructions, including recognising different compaction methods and working compaction patterns. Learners will understand how to identify problems and how to report them. Learners will know how to identify geological, environmental and material changes and report.

2.2 Learners will understand the importance of maintaining tools and equipment and the operative care associated with hand tools, machinery, ancillary equipment and ride-on rollers. 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, stored and maintained after use. Methods of maintaining tools and equipment to include;

- maintenance schedules (in accordance with operating instructions)
- cleaning equipment
- safety checks
- checking for accuracy
- cleaning equipment
- checking consumables, lubricants and fuels

Learning outcome

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

Criteria

3.1 Demonstrate the work skills to check, adjust, communicate, operate, manoeuvre, position and compact

3.2 Use and maintain hand tools, ancillary equipment and/or accessories to operate plant or machinery to compact materials to given working instruction relating to ride-on rollers

3.3 Shut down and secure plant or machinery

Delivery Outcome (depth of content)

3.1 Learners will be able to check and adjust the ride-on rollers before preparing and operating within the workplace. Learners will be able to carry out pre-operational checks to manufacturer's instructions ensuring stability, safety and security of the equipment, work and surrounding area.

Learners will be able to operate, maneuver and compact materials around site in the correct location within the workplace, through restricted confined areas with ease and traveling on public highways **if DVLA (Driving Vehicle Licensing Authority) licence category allows.**

Daily checks to include;

- seat (security, adjustment, comfort)
- seatbelt (frayed, cuts, buckles damaged, loose mountings)
- horn (operation)
- scraper bars (function correctly)
- water sprinkler system (function correctly)
- controls (function correctly, are not slippery, clear of debris)
- steering (function, hydraulic leaks)
- check areas (around pivot points, rams, linkages are free from mud, ice or debris)
- check that all safety decals are in place and can be read clearly
- structure (condition of body and chassis)
- fluid levels (check prior to use and thereafter in accordance with manufactures instructions/operating manual)
- check the cooling vents for the motor are clear of dust and debris
- check the air filter intake is clear

3.2 Learners will be able to identify, use and maintain hand tools and ancillary equipment and/or accessories for ride-on rollers.

Learners will be able to maintain equipment as per manufactures instructions and report any defects within a logbook or company documentation.

Equipment type to include at least one of;

- Ride-on rollers
- Compactors

Learners will be required to follow the sector regulations when carrying out this work.

Regulations to include;

- Working at Height 2005
- Manual Handling 1992
- 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
- Road Traffic Act (vehicles been used on the public highway)

3.3 Learners will be able to shut down the ride-on roller and park, isolate and securely store in a designated area, ensuring it is left safely in accordance with the manufacturer's and operating instructions.

Unit 331: Preparing and operating 180-degree excavators to extract and excavate ground and loose materials in the workplace

GLH:	266

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 operating 180-degree excavators to extract and excavate ground and loose materials in the workplace, 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 excavating on construction sites?
- Why is health and safety important when operating a 180 excavator?
- What restrictions are there in order to operate a 180 excavator?

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. Meet the 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 preparing and operating 180-degree excavators to extract and excavate ground and loose materials in the workplace to drawings, specifications, and schedules. Learners will know and be able to understand the characteristics and suitability of equipment when selecting resources for a construction and civil engineering environment. Learners will have knowledge of operating lift excavator equipment and will know how to identify defects that effect the operation of equipment. Learners will know how to respond to defects, follow processes to place the machine out of service and report defects following organisational procedures.

Equipment type to include;

- excavators
- loading shovels
- skid steer loaders
- motorised scrapers

- trenchers
- draglines
- dozers

Suggested documentation that provides information relating to the characteristics of the resources includes;

- specifications
- drawings
- schedules
- operating instructions
- checklists
- method statements
- risk assessments
- safe systems of work
- manufacturer's information
- oral and written instructions
- sketches
- electronic data
- official guidance
- current regulations governing the operation of plant and machinery for excavation and extraction of work
- Working at Height 2005
- Manual Handling 1992
- Personal Protection Equipment Regulations (PPE)
- 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
- Road Traffic Act (vehicles being used on the public highway)
- LOLER 1998 (Lifting Operations Lifting Equipment Regulations 1998)

1.2 Learners will understand how the resources should be used and how any problems associated with the 180-degree excavator are reported. Learners will know and understand how to store equipment in the correct locations, the procedures and reporting protocols to follow, report any problems, as well as defects or concerns with selected equipment. Learners will understand training requirements for selecting and using Plant equipment, in line with regulations. 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 for preparing and operating 180-degree excavators to extract ground and loose materials in the workplace, in accordance with written instructions, drawings, schedules and verbal instructions to meet the contract size/needs. Learners will know

how to order equipment and resources to complete a specific task using organisational procedures.

1.4 Learners will know how to identify the hazards associated with preparing and operating 180-degree excavators in the workplace. Learners will know how to maintain the equipment and the correct method of work required to prepare and operate 180 degree excavators.

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
- travelling and when working up, down and across inclines
- instability when carrying out excavation and loading activities
- visibility

Outcome 2

2.1 Learners need to know and understand the application of knowledge for safe and healthy work practices, procedures and skills relating to the method, process and area of work. Learners need to plan their work efficiently from the given instructions and complete the work to the agreed specifications. Learners need to understand the importance of communication amongst team members during activities as well as the needs of other occupations working alongside them. Learners will understand the correct methods used to prepare and operate a 180-degree excavator to extract ground and loose materials in the workplace from drawings, specifications and verbal instructions. Learners will understand how to identify geological, environmental and material changes and report. Learners will understand how to excavate accurately to line and level. 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 machinery, ancillary equipment and preparing and operating a 180-degree excavator to extract ground and loose materials in the workplace. 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:

- maintenance schedules (in accordance with operating instructions)
- cleaning equipment
- safety checks
- checking for accuracy

- checking consumables, lubricants and fuels

Learning outcome

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

Criteria

3.1 Demonstrate work skills to check, adjust, communicate, operate, manoeuvre, position, excavate, measure and remove

3.2 Use and maintain hand tools, measuring and marking equipment and ancillary equipment to operate plant or machinery to excavate ground and loose materials to given working instruction relating to 180-degree excavators
Range: excavator, loading shovels, skid steer loaders, motorised scrapers, trenchers, draglines, dozers

3.3 Shut down and secure plant or machinery

Delivery Outcome (depth of content)

Outcome 3

3.1 Learners will be able to maintain equipment as per manufactures instructions and report any defects within a logbook or company documentation.

Daily checks to include;

- bucket teeth/ pins: check that the bucket has no splits, teeth missing and has all its pins and clips
- quick hitch: if fitted it is fully operational and you know how to use it checking security of attachments.
- boom/dipper and tipping link: checking for leaks from the rams and making sure they are greased in accordance with the manufacturer's handbook
- tracks (tension, drive sprocket, idler, cleats, pads, top and bottom rollers)
- tyres (splits, cuts, pressures and tread)
- wheel nuts (tightness)
- outriggers: operational, security, valves, pipework, cab levers, levelling devices
- external condition: cleanliness, glass, warning signs, body work, door latches and catches
- information plate: legible, weights and capacities
- steps and handrails: cleanliness, condition, anti-slip
- labels and decals: clean, legible, not missing
- cab condition: no unnecessary items in the cab, nothing fouling controls or vision
- engine compartment: cleanliness, leaks, fluid levels, condition of fans and belts, oils
- operating position: distance from controls, can be adjusted, visibility

- operator seat: cleanliness, adjustable, splits and tears, general wear and tear
- starting procedure: key start, warning lights, check all controls work, safety devices, stopping procedure, cycle down turbo if fitted
- lights external: condition, cleanliness, working, adjusted to the work
- audible warning devices: working, horn, reversing beeper
- safety devices: working, condition
- warning lights: working when key is in position one prior to starting engine and monitor and react if they come on while machine is working
- hydraulic controls: working smoothly, no leaks, stiffness, slow reactions when released
- driving and braking: brake pressures, forward and backward movements, no debris behind pedals, locking independent brakes
- steering: left to right movement, no juddering play in steering wheel, full lock to full lock checked
- refueling: when necessary, at the end of a shift, prevents condensation building up in the tank, engine off, key removed, no smoking, designated areas, spill kits, firefighting equipment
- fault reporting procedures: in line with company procedures, daily check sheets, defect books

3.2 Learners will be able to identify, use and maintain hand tools and ancillary equipment and/or accessories equipment for a 180-degree excavator to extract ground and loose materials in the workplace.

Equipment to include at least one of:

- Excavator
- loading shovels
- skid steer loaders
- motorised scrapers
- trenchers
- draglines
- dozers

Learners will be able to check and adjust the 180-degree excavator used to excavate ground and loose materials in the workplace, lifting and set down loads at given locations.

Learners will be able to identify the type, volume and quantity of loads to be placed into a transporting vehicle.

Learners will be able to excavate materials to the required depths and reinstate, grade and level the ground.

Learners will be able to carry out pre-operational checks to manufacturer's instructions ensuring stability, safety and security of the equipment, work and surrounding area.

Learners will be able to maneuver around site loaded and unloaded, through restricted confined areas with ease and travel on public highways **if DVLA (Driving Vehicle Licensing Authority) licence category allows.**

Learners will be able to identify suitable PPE (Personal Protection Equipment) and use whilst preparing and operating a 180-degree excavator to extract ground and loose materials in the workplace.

PPE to include;

- Safety boots
- hard hat
- high visibility jackets
- goggles
- gloves
- dust masks
- respiratory equipment
- local exhaust ventilation

Learners will be required to follow the sector regulations when carrying out this work. Regulations to include;

- Working at Height 2005
- Manual Handling 1992
- 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
- Road Traffic Act (vehicles being used on the public highway)
- LOLER 1998 (Lifting Operations Lifting Equipment Regulations 1998)

3.3 Learners will be able to shut down the 180-degree excavator and park, isolate and store securely in a designated area, ensuring it is left safely in accordance with the manufacturer's and operating instructions**.**

Unit 332: Preparing and operating 360-degree excavators to extract and excavate ground and loose materials in the workplace

GLH:	266

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 operating 360-degree excavators to extract and excavate ground and loose materials in the workplace, 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 excavating on construction sites?
- Why is health and safety important when operating a 360 excavator?
- What restrictions are there in order to operate a 360 excavator?

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 preparing and operating 360-degree excavators to extract and excavate ground and loose materials in the workplace to drawings specifications, and schedules. Learners will know and be able to understand the characteristics and suitability of equipment when selecting resources for a construction and civil engineering environment. They will have knowledge of operating 360 degree excavators 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.

Equipment type to include at least one of;

- excavators
- trenchers
- dozers
- loading shovels

Suggested documentation that provides information relating to the characteristics of the resources includes;

- specifications
- drawings
- schedules
- operating instructions
- checklists
- method statements
- risk assessments
- safe systems of work
- manufacturers' information
- oral and written instructions
- sketches
- electronic data
- official guidance
- current regulations governing the operation of plant and machinery for excavation and extraction of work
- Working at Height 2005
- Manual Handling 1992
- Personal Protection Equipment Regulations (PPE)
- 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
- Road Traffic Act (vehicles being used on the public highway)
- LOLER 1998 (Lifting Operations Lifting Equipment Regulations 1998)

Note: Both wheeled and tracked versions of equipment must be covered

1.2 Learners will understand how the resources should be used and how any problems associated with 360-degree excavators 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 understand training requirements for selecting and using Plant equipment, in line with regulations. 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 for preparing and operating a 360-degree excavator to extract ground and loose materials in the workplace, 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 preparing and operating a 360-degree excavator in the workplace. Learners will know how to maintain the equipment and the correct method of work required to prepare and operate a 360-degree excavator.

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
- travelling and working on inclines, including up, down and across
- instability when carrying out excavation and loading activities
- visibility

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 check to avoid damage to structures and utilities service apparatus. 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 geological, environmental and material changes and report. Learners will understand how to excavate accurately to line and level. 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, and preparing and operating 360-degree excavators to extract ground and loose materials in the workplace. 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:

- maintenance schedules (in accordance with operating instructions)
- cleaning equipment
- safety checks
- checking for accuracy
- checking consumables, lubricants and fuels

Learning outcome

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

Criteria

3.1 Demonstrate the work skills to check, adjust, communicate, operate, manoeuvre, position, excavate, measure and remove

3.2 Use and maintain hand tools, ancillary equipment and/or accessories to operate plant or machinery to excavate ground and loose materials to given working instruction relating to 360-degree excavators
Range: excavators, trenchers, dozers, loading shovels

3.3 Shut down and secure plant or machinery

Delivery Outcome (depth of content)

Outcome 3

3.1 Learners will be able to check and adjust the 360-degree excavator used to excavate ground and loose materials in the workplace, lifting and set down loads on a suitable vehicle (wagon, van or container).

Daily checks to include;

- bucket teeth/ pins: check that the bucket has no splits, teeth missing and has all its pins and clips
- quick hitch: if fitted it is fully operational and you know how to use it checking security of attachments
- boom/dipper and tipping link: checking for leaks from the rams and making sure they are greased in accordance with the manufacturer's handbook
- tracks (tension, drive sprocket, idler, cleats, pads, top and bottom rollers)
- tyres (splits, cuts, pressures and tread)
- wheel nuts (tightness)
- rollers and idlers: condition, debris, no unusual noises
- dozer blade: condition, grease points, rams, debris, extension.
- external condition: cleanliness, glass, warning signs, body work, door latches and catches
- information plate: legible, weights and capacities
- steps and handrails: cleanliness, condition, anti-slip
- labels and decals: clean, legible, not missing
- cab condition: no unnecessary items in the cab nothing fouling controls or vision

- hydraulics: no leaks, oil levels, bulging pipes, damaged connectors, check with manufacturer's handbook
- engine compartment: cleanliness, leaks, fluid levels, condition of fans and belts, oils
- operating position: distance from controls, can be adjusted, visibility
- operator seat: cleanliness, adjustable, splits and tears, general wear and tear
- starting procedure: key start, warning lights, check all controls work, safety devices, stopping procedure, cycle down turbo if fitted
- lights external: condition, cleanliness, working, adjusted to the work
- audible warning devices: working, horn, reversing beeper
- safety devices: working, condition
- warning lights: working when key is in position one prior to starting engine and monitor and react if they come on while machine is working
- hydraulic controls: working smoothly, no leaks, stiffness, slow reactions when released.
- forward and reverse movements: working, react promptly when used, no unusual noises.
- turning: left and right tracks or wheels, no unusual noises leaks
- refueling: when necessary, at the end of a shift, prevents condensation building up in the tank, engine off, key removed, no smoking, designated areas, spill kits, firefighting equipment
- fault reporting procedures: in line with company procedures, daily check sheets, defect books

3.2 Learners will be able to identify, use and maintain hand tools and ancillary equipment and/or accessories equipment for a 360-degree excavator and excavate ground and loose materials in the workplace.

Equipment to include at least one of:

- excavators
- trenchers
- dozers
- loading shovels

Learners will be able to check and adjust the 360 degree excavator used to excavate ground and loose materials in the workplace, lifting and set down loads at given locations.

Learners will be able to identify the type, volume and quantity of loads to be place into a transporting vehicle.

Learners will be able to excavate materials to the required depths and reinstate, grade and level the ground.

Learners will be able to carry out pre-operational checks to manufacturer's instructions ensuring stability, safety and security of the equipment, work and surrounding area.

Learners will be able to maneuver around site loaded and unloaded, through restricted confined areas with ease and travel on public highways **if DVLA (Driving Vehicle Licensing Authority) licence category allows.**

Learners will be able to identify suitable PPE (Personal Protection Equipment) and use whilst preparing and operating a 360-degree excavator to extract ground and loose materials in the workplace.

PPE to include;

- Safety boots
- hard hat
- high visibility jackets
- goggles
- gloves
- dust masks
- respiratory equipment
- local exhaust ventilation

3.3 Learners will be able to shut down the 360-degree excavator and park, isolate and store securely in a designated area, ensuring it is left safely in accordance with the manufacturer's and operating instructions**.**