

City & Guilds Level 2 Extended Technical Occupational Entry in Bricklaying (Diploma) (7255-52)

Version 1.0 (January 2025)

Qualification Handbook

Qualification at a glance

Subject area	Construction
City & Guilds number	7255
Age group approved	16–18, 19+
Entry requirements	N/A
Assessment	Multiple choice question paper(s) Practical assignment
Grading	Pass/Fail
Approvals	Full approval required
Support materials	Sample assessments (SAMs), Qualification handbook
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates
Occupational Standard	ST0095 Bricklayer

Title and level	City & Guilds qualification number	Regulatory reference number	GLH	TQT
City & Guilds Level 2 Extended Occupational Entry in Bricklaying	7255-52	610/4544/5	480	585

Version and date	Change detail	Section
1.0 January 2025	Initial version	All

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1 Introduction

What is this qualification about?

Area	Description
Who is the qualification for?	<p>This qualification is for those individuals who are looking to work in the construction industry specifically as a craftsman in bricklaying.</p> <p>A bricklayer has the skills and knowledge to build or repair walls in accordance with construction plans.</p> <p>Learners will gain an understanding of the skills and knowledge that are important when working as a bricklayer or progressing to further learning and training in this area.</p> <p>This qualification is suitable for those aged 16–18 and 19+.</p>
What does the qualification cover?	This qualification aligns to the knowledge skills and behaviours in the ST0095 Bricklayer Occupational standard.
What opportunities for progression are there?	Following successful completion of this qualification learners will be qualified to work in the construction industry as a Bricklayer.
Why choose this qualification?	The City & Guilds Level 2 Extended Technical Occupational Entry in Bricklaying (Diploma) 7255-52 is a high-quality qualification that supports entry into an occupation at Level 2 by providing as close to full occupational competence as is possible in a classroom-based setting. The qualification aligns to an employer-led Occupational Standard at Level 2.

2 Content coverage and mapping

Occupational standards

This qualification has been developed to cover as many of the Knowledge, Skills and Behaviours (KSBs) in the relevant Occupational Standard as it may be reasonable to attain by undertaking a course of education or training. Where KSBs in a relevant occupation standard cannot be reasonably obtained within a course of education or training in an educational setting, City & Guilds seeks the validation from credible employers to ensure that the qualification is fit for purpose.

The knowledge and skills content within this qualification has been amplified to reflect the KSBs. High level mapping to the KSBs in the Occupational Standard can be found in the Qualification Structure section. Detailed mapping at unit level can be found in Appendix 1 within this qualification handbook.

The table below shows the Occupational Standard the qualification aligns to:

Qualification	Occupational Standard reference/title
City & Guilds Level 2 Extended Technical Occupational Entry in Bricklaying	ST0095 Bricklayer

3 Employer engagement

City & Guilds would like to take this opportunity to thank all the employers, trade associations, professional bodies, providers, subject matter experts and consultants who have dedicated time to review and validate this qualification. These stakeholders have been used throughout the development and validation of this qualification to ensure the qualification meets the requirements of the Occupational Standard and the needs of industry. Employer validation recognises the demand or likely demand for learners who have completed the Level 2 Extended Technical Occupational Entry in Bricklaying (Diploma). This collaborative work is to ensure that a learner studying the Level 2 Extended Technical Occupational Entry in Bricklaying (Diploma) has the best opportunities available to them as they progress through their career with a solid base as a starting point.

4 Qualification structure

Structure

To achieve the City & Guilds Level 2 Extended Technical Occupational Entry in Bricklaying (Diploma), learners must achieve all units. **All units are mandatory.**

City & Guilds unit number	Unit title	GLH
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Mandatory units:

101	Health and safety in a construction environment	21
201	Principles of welfare, health and safety in construction environments	30
202	Principles of working in the construction industry	50
203	Setting out buildings	31
204	Building solid walls and piers	215
205	Building cavity walls	133

Unit 101 Health and safety in a construction environment is an imported unit that covers the health and safety knowledge that is required to gain a CSCS 'Green Card' for access to construction sites in the UK.

The unit was developed in conjunction with CITB and CSCS UK Ltd and also exists as a standalone, single unit, City & Guilds qualification – Scheme and POS number 6072-51.

Total Qualification Time (TQT)

Total Qualification Time (TQT) is the number of notional hours which represents an estimate of the total amount of time that could reasonably be expected for a learner to demonstrate the achievement of the level of attainment necessary for the award of a qualification.

TQT consists of the following two elements:

- the number of hours that an awarding organisation has assigned to a qualification for guided learning
- an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by – but, unlike guided learning, not under the immediate guidance or supervision of – a lecturer, supervisor, tutor or other appropriate provider of education or training.

Title and level	GLH	TQT
City & Guilds Level 2 Extended Technical Occupational Entry in Bricklaying (Diploma)	480	585

5 Centre requirements

Approval

Full approval

To offer this qualification, new centres will need to gain both centre and qualification approval. Please refer to the document **Centre Approval Process: Quality Standards** for further information.

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

Resource requirements

Centre staffing

Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be occupationally competent or technically knowledgeable in the area(s) for which they are delivering training and/or have experience of providing training (this knowledge must be to the same level as the training being delivered)
- have recent relevant experience in the specific area they will be assessing
- have credible experience of providing training.

Continuing professional development (CPD)

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

Physical resources

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

Centres will have well equipped workshops with a comprehensive range of hand and portable power tools that meet current industry standards. All powered equipment should be well maintained and PAT certified. Centres will have special designated areas within their Bricklaying workshop (cubicles or project areas) allowing candidates to practice the requirements of the units and to carry out the practical assessment.

Materials

Facing bricks

Blocks

Lintels

Light weight insulation blocks

Partial fill rigid sheet insulation

Fire stops

Cavity closers

Cement

Contrasting bricks

Training mortar

PVC DPC horizontal/vertical

Wall ties and retaining clips

Expanded Metal Lath (EML)

Weep holes

Sand

Equipment

Mechanical cutter/disc cutter

Bed/table cutter

Preformed templates

Profiles and clamps

Laser levels

Straight edge

Mortar spot board

Personal Protective Equipment (PPE)

Optical levels

Batching equipment

Hand Tools

Tape measure

Spirit level

Craft knife

String lines

Pocket/boat level
Pointing trowel
Plugging (jointing) chisel
Half round jointer
Corner blocks
Hand saw
Scutch
Ancillary
Brushes
Wheelbarrow
Gauge rod

Brick trowel
Lump hammer and bolster
Brick hammer
Line and pins
Suitable cutting knife for DPC
Chariot jointer
Block saw

Shovel
Buckets
Builder's square

Quality assurance

Approved centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications. Quality assurance includes initial centre approval, qualification approval and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance and City & Guilds is responsible for external quality assurance. All external quality assurance processes reflect the minimum requirements for verified and moderated assessments, as detailed in the Centre Assessment Standards Scrutiny (CASS), section H2 of Ofqual's General Conditions of Recognition. For more information on both CASS and City & Guilds Quality Assurance processes visit: the **What is CASS?** and **Quality Assurance Standards** documents on the City & Guilds website.

Standards and rigorous quality assurance are maintained by the use of:

- internal quality assurance
- City & Guilds external quality assurance.

In order to carry out the quality assurance role, internal quality assurers must:

- have appropriate teaching and vocational knowledge and expertise
- have experience in quality management/internal quality assurance
- hold or be working towards an appropriate teaching/training/assessing qualification
- be familiar with the occupation and technical content covered within the qualification.

External quality assurance for the qualification will be provided by City & Guilds EQA process. EQAs are appointed by City & Guilds to approve centres and to monitor the assessment and internal quality assurance carried out by centres. External quality assurance is carried out to ensure that assessment is valid and reliable, and that there is good assessment practice in centres.

The role of the EQA is to:

- provide advice and support to centre staff
- ensure the quality and consistency of assessments within and between centres by the use of systematic sampling
- provide feedback to centres and to City & Guilds.

Learner entry requirements

City & Guilds does not set entry requirements for these qualifications. However, centres must ensure that candidates have the potential and opportunity to gain the qualification successfully.

Initial assessment and induction

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

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

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

Age restrictions

This qualification is approved for learners aged 16 or above.

Access to assessment and special consideration

City & Guilds has considered the design of this qualification and its assessments in order to best support accessibility and inclusion for all learners. We understand however that individuals have diverse learning needs and may require reasonable adjustments to fully participate. Reasonable adjustments, such as additional time or alternative formats, may be provided to accommodate learners with disabilities and support fair access to assessment.

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

The Equality Act 2010 requires City & Guilds to make reasonable adjustments where a disabled person would be at a substantial disadvantage in undertaking an assessment.

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

Please refer to the Jcq access arrangements and reasonable adjustments and Access arrangements – when and how applications need to be made to City & Guilds for more information. Both are available on the [City & Guilds website](#)

6 Delivering the qualification

Inclusion and diversity

City & Guilds is committed to improving inclusion and diversity within the way we work and how we deliver our purpose which is to help people and organisations develop the skills they need for growth.

More information and guidance to support centres in supporting inclusion and diversity through the delivery of City & Guilds qualifications can be found here:

[Inclusion and diversity | City & Guilds \(cityandguilds.com\)](#)

Sustainability

City & Guilds are committed to net zero. Our ambition is to reduce our carbon emissions by at least 50% before 2030 and develop environmentally responsible operations to achieve net zero by 2040 or sooner if we can. City & Guilds is committed to supporting qualifications that support our customers to consider sustainability and their environmental footprint.

More information and guidance to support centres in developing sustainable practices through the delivery of City & Guilds qualifications can be found here:

[Our Pathway to Net Zero | City & Guilds \(cityandguilds.com\)](#)

Centres should consider their own carbon footprint when delivering this qualification and consider reasonable and practical ways of delivering this qualification with sustainability in mind. This could include:

- reviewing purchasing and procurement processes (such as buying in bulk to reduce the amount of travel time and energy, considering and investing in the use of components that can be reused, instead of the use of disposable or single use consumables)
- reusing components wherever possible
- waste procedures (ensuring that waste is minimised, recycling of components is in place wherever possible)
- minimising water use and considering options for reuse/salvage as part of building activities wherever possible.

Support materials

The following resources are available for this qualification:

Description	How to access
Sample assessments	www.cityandguilds.com
Qualification handbook	www.cityandguilds.com

7 Assessment

Summary of Assessment methods

For City & Guilds Level 2 Extended Technical Occupational Entry in Bricklaying (Diploma) candidates must successfully complete:

Assessment component	Assessment method	Description and conditions
101	Externally marked MCQ exam	<p>This assessment covers units 101.</p> <p>The multiple choice assessment is externally set and externally marked and will be delivered online via e-volve.</p> <p>The exam is designed to assess the candidate's depth and breadth of understanding across content in the unit using one mark multiple choice questions and will be sat under supervised examination conditions.</p> <p>See JCQ requirements for details: http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations</p> <p>The test specification shows the coverage of the assessment across the unit content. Sample assessment materials can be downloaded from the City & Guilds website. Live assessment will be delivered by the City & Guilds online platform e-volve.</p>

Assessment component	Assessment method	Description and conditions
201	Externally marked MCQ exam	<p>This assessment covers units 201.</p> <p>The multiple choice assessment is externally set and externally marked and will be delivered online via e-volve.</p> <p>The exam is designed to assess the candidate's depth and breadth of understanding across content in the unit using one mark multiple choice questions and will be sat under invigilated examination conditions.</p> <p>See JCQ requirements for details: http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations</p> <p>The test specification shows the coverage of the assessment across the unit content. Sample assessment materials can be downloaded from the City & Guilds website. Live assessment will be delivered by the City & Guilds online platform e-volve.</p>

Assessment component	Assessment method	Description and conditions
202	Externally marked MCQ exam	<p>This assessment covers units 202.</p> <p>The multiple choice assessment is externally set and externally marked and will be delivered online via e-volve.</p> <p>The exam is designed to assess the candidate's depth and breadth of understanding across content in the unit using one mark multiple choice questions and will be sat under invigilated examination conditions.</p> <p>See JCQ requirements for details: http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations</p> <p>The test specification shows the coverage of the assessment across the unit content. Sample assessment materials can be downloaded from the City & Guilds website. Live assessment will be delivered by the City & Guilds online platform e-volve.</p>

Assessment component	Assessment method	Description and conditions
250	Externally marked MCQ exam	<p>This assessment covers units 203, 204 and 205.</p> <p>The MCQ exam is externally set and externally marked and will be online only.</p> <p>The exam is designed to assess the candidate's depth and breadth of understanding across content in units 203, 204 and 205 (and should only be attempted following learner completion of these units), using multiple choice questions and will be sat under invigilated examination conditions.</p> <p>See JCQ requirements for details: http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations</p> <p>The test specification shows the coverage of the assessment across the unit content. Sample assessment materials can be downloaded from the City & Guilds website. Live assessment will be delivered by the City & Guilds online platform e-volve.</p>

Assessment component	Assessment method	Description and conditions
260	Internally marked practical assignment	<p>This assessment covers units 203, 204 and 205.</p> <p>The practical assignment is externally set and internally marked with external verification.</p> <p>The assignment is designed to assess the candidate's depth and breadth of knowledge, skills and understanding from across content in the qualification, at the end of their period of learning, and will be completed under supervised, controlled assessment conditions.</p> <p>See JCQ requirements for details: http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations</p> <p>The test specification shows the coverage of the assessment across the qualification content.</p> <p>Assignment material availability will be communicated through the publication of a key date schedule.</p>

Scheme of assessment overview

For City & Guilds Level 2 Extended Technical Occupational Entry in Bricklaying (Diploma) candidates must successfully complete:

Candidates must complete all assessment components

Assessment component	Method	Duration	Marks	Marking approach	Grading
101	On-demand E-volve online MCQ	1 hour 10 minutes	45	Externally set and externally marked	Pass/Fail
201	On-demand E-volve online MCQ	45 minutes	30	Externally set and externally marked	Pass/Fail
202	On-demand E-volve online MCQ	1 hour	40	Externally set and externally marked	Pass/Fail
250	On-demand E-volve online MCQ	1 hour 10 minutes	45	Externally set and externally marked	Pass/Fail
260	On-demand practical assignment	14 hours	N/A	Externally set, internally marked and externally verified	Pass/Fail

Candidates must pass all assessment components to achieve the qualification.

Assessment specifications

The assessment specifications outlined in the tables below highlight at high level the way that the qualification content will be assessed within the different assessment components.

Test: 101		Duration: 1 hour 10 minutes	
Unit	Outcome	Number of marks	Percentage %
101	LO1: Know the principles of risk assessment for maintaining and improving health and safety at work	11	24
	LO2: Know the importance of safe manual handling in the workplace	8	18
	LO3: Know the importance of working safely at height in the workplace	9	20
	LO4: Know risks to health within a construction environment	12	27
	LO5: Know the importance of working around plant and equipment safely	5	11
Total		45	100%

Permitted materials: None

Graded: Pass/Fail

Pass mark: the pass mark for this examination is set at 80% (36 marks)

This boundary may be subject to slight variation to ensure fairness should any variations in the difficulty of the individual assessment versions be identified.

Test: 201	Duration: 45 minutes		
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Unit	Outcome	Number of marks	Percentage %
201	LO1: Know health and safety regulations, roles and responsibilities	4	13
	LO2: Understand accident and emergency reporting procedures and documentation	2	7
	LO3: Understand the management of workplace hazards and risks	5	17
	LO4: Know safe storage requirements for materials and equipment	1	3
	LO5: Understand access requirements and equipment when working at heights	2	7
	LO6: Understand safety considerations when working with electrical equipment	4	13
	LO7: Know Personal Protective Equipment (PPE) responsibilities	1	3
	LO8: Understand fire emergency procedures	3	10
	LO9: Understand factors that impact on physical and mental welfare maintenance and management	8	27
	Total	30	100%

Permitted materials: None

Graded: Pass/Fail

Pass mark: the pass mark for this examination is set at approx. 66% (20 marks)

This boundary may be subject to slight variation to ensure fairness should any variations in the difficulty of the individual assessment versions be identified.

Test: 202		Duration: 1 hour	
Unit	Outcome	Number of marks	Percentage %
202	LO1: Understand working practices in the construction industry	15	38
	LO2: Understand construction information	6	15
	LO3: Understand how to set up and secure construction work areas	2	5
	LO4: Know building substructure and superstructure components	8	20
	LO5: Understand personal development and working with others in the construction industry	6	15
	LO6: Know sustainability and emerging technology considerations affecting the construction industry	3	8
	Total	40	100% ¹

Permitted materials: None

Graded: Pass/Fail

Pass mark: the pass mark for this examination is set at approx. 70% (28 marks)

This boundary may be subject to slight variation to ensure fairness should any variations in the difficulty of the individual assessment versions be identified.

¹ Percentages in table rounded to whole numbers (presents as 101% in total due to rounding)

Test:
250

Duration: 1 hour 10 minutes

Unit	Outcome	Number of marks	Percentage %
202	LO1 Understand how to prepare construction sites for setting out procedures	5	11
202	LO2 Select tools, equipment and drawings for setting out work	2	4
202	LO3 Set out rectangular shaped masonry structures	2	4
203	LO1 Plan and prepare materials to build solid walls (Including half brick walling)	3	7
203	LO2 Build, half brick and one brick thick walls	7	16
203	LO3 Build piers for solid walls	1	2
203	LO4 Apply weathering finishes to one brick thick walls and piers	3	7
204	LO1 Materials, resources and information sources used during the planning stage of building a cavity wall	7	16
204	LO2 Understand how materials and resources are stored, used and protected during the construction process	6	13
204	LO3 Build cavity walls to comply with building regulations incorporating design features: raking cut, angles and decorative features of a masonry wall	5	11
204	LO4 Identifying defects and carrying out repairs	1	2
202	LO1 Understand how to prepare construction sites for setting out procedures		
202	LO3 Set out rectangular shaped masonry structures		
203	LO1 Plan and prepare materials to build solid walls (Including half brick walling)	3	7
204	LO2 Understand how materials and resources are stored, used and protected during the construction process		
Total		45	100%

Permitted materials: Calculator

Graded: Pass/Fail

Pass mark: the pass mark for this examination is set at approx. 60% (27 marks)

This boundary may be subject to slight variation to ensure fairness should any variations in the difficulty of the individual assessment versions be identified.

The table below highlights at high level the practical assessment coverage within the **260** assessment.

Units	Task
204, 205	Produce planning documentation
203, 204, 205	Construct a cavity wall with a range of features
205	Complete a repair to a damaged wall area

Permitted materials: Permitted materials will be given to candidates by centres.

Graded: Pass/Fail

Candidates must gain a Pass in all tasks within the assignment to achieve a pass overall for this component.

The table below shows how assessment **component 260 is mapped to the units and learning outcomes, alongside the associated tasks.**

Units	Learning Outcomes	Task
203	LO3 Set out rectangular shaped masonry structures	2
204	LO1 Plan and prepare materials to build solid walls (Including half brick walling)	1
204	LO2 Build, half brick and one brick thick walls	2
204	LO3 Build piers for solid walls	2
204	LO4 Apply weathering finishes to one brick thick walls and piers	2
205	LO1 Materials, resources and information sources used during the planning stage of building a cavity wall	1
205	LO3 Build cavity walls to comply with building regulations incorporating design features: raking cut, angles and decorative features of a masonry wall	2
205	LO4 Identifying defects and carrying out repairs	3

Assessment objectives

The following assessment objectives are used within the **101 assessment**. The weightings for how the assessment objectives are applied in the assessment are shown in the table below.

Assessment objective	Description	Weighting in Assessment 101
AO1a Demonstrate knowledge of the content	The ability to demonstrate basic recall of relevant knowledge in response to straightforward questioning.	45 marks – 100%
AO1b Demonstrate understanding of the content	The ability to demonstrate understanding of principles and concepts beyond recall of definitions.	0 marks – 0%
AO2 Apply knowledge and understanding of the content to different situations and contexts	Applying knowledge and understanding taking the understanding of generalities and applying them to specific situations.	0 marks – 0%

The following assessment objectives are used within the **201 assessment**. The weightings for how the assessment objectives are applied in the assessment are shown in the table below.

Assessment objective	Description	Weighting in Assessment 201
AO1a Demonstrate knowledge of the content	The ability to demonstrate basic recall of relevant knowledge in response to straightforward questioning.	16 marks – 53%
AO1b Demonstrate understanding of the content	The ability to demonstrate understanding of principles and concepts beyond recall of definitions.	14 marks – 47%
AO2 Apply knowledge and understanding of the content to different situations and contexts	Applying knowledge and understanding taking the understanding of generalities and applying them to specific situations.	0 marks – 0%

The following assessment objectives are used within the **202 assessment**.
The weightings for how the assessment objectives are applied in the assessment are shown in the table below.

Assessment objective	Description	Weighting in Assessment 202
AO1a Demonstrate knowledge of the content	The ability to demonstrate basic recall of relevant knowledge in response to straightforward questioning.	22 marks – 55%
AO1b Demonstrate understanding of the content	The ability to demonstrate understanding of principles and concepts beyond recall of definitions.	18 marks – 45%
AO2 Apply knowledge and understanding of the content to different situations and contexts	Applying knowledge and understanding taking the understanding of generalities and applying them to specific situations.	0 marks – 0%

The following assessment objectives are used within the **250 assessment**.
The weightings for how the assessment objectives are applied in the assessment are shown in the table below.

Assessment objective	Description	Weighting in Assessment 250
AO1a Demonstrate knowledge of the content	The ability to demonstrate basic recall of relevant knowledge in response to straightforward questioning.	23 marks – 51%
AO1b Demonstrate understanding of the content	The ability to demonstrate understanding of principles and concepts beyond recall of definitions.	16 marks – 36%
AO2 Apply knowledge and understanding of the content to different situations and contexts	Applying knowledge and understanding taking the understanding of generalities and applying them to specific situations.	6 marks – 13%

Availability of assessments

Assignment material availability will be communicated through the publication of a key date schedule. This schedule will include when assignment materials will be released to centres.

All assessments that are on E-volve are on demand and can be booked by the provider when the candidate is ready to be entered for the assessment.

Retakes/Resits

Multiple choice test(s)

Candidates who have failed an online multiple choice test(s) assessment are permitted up to **four** resits of the assessments before re-registration is required to retake the qualification.

Assignment(s)

Candidates who have failed 1 or more tasks in the assignment, will be advised to complete a further period of learning before then resitting fully, all tasks, within a different version of the assessment. Candidates can resit a different version of the assignment up to maximum of **three** times before re-registration is required to retake the qualification.

Recognition of prior learning (RPL)

Recognition of prior learning means using a person's previous experience or qualifications which have already been achieved to contribute to a new qualification. RPL can be used to exempt learners from areas of learning previously achieved but does not exempt them from assessment.

RPL is allowed and is also sector-specific.

8 Units

Structure of the units

All units each have the following:

- City & Guilds reference number
- title
- level
- Guided Learning Hours (GLH)
- unit aim
- assessment type
- relationship to Occupational Standard inc. reference.

Unit 101 also has the following:

- learning outcomes, which are comprised of a number of assessment criteria
- evidence requirements.

Units 201, 202, 203, 204 and 205 also each have the following:

- learning outcomes, which are comprised of a number of topics
- content elements
- supporting information.

Guidance for delivery of the units

This qualification comprises a number of **units**. A unit describes what is expected of a competent person in particular aspects of their job.

Each **unit** is divided into **learning outcomes** which describe in further detail the knowledge and skills that a candidate should possess.

For **unit 101** each **learning outcome** has a set of **assessment criteria** (knowledge that are simple and concise statements that indicates to a learner something specific they will be learning in relation to the learning outcome. It should provide clarity to a learner at a high level on what they should be expecting to learn or be able to do about a specific area of the learning outcome.

For **units 201, 202, 203, 204 and 205** each **learning outcome** has a set of **topics** (knowledge or skills) that are simple and concise statements that indicates to a learner something specific they will be learning in relation to the learning outcome. It should provide clarity to a learner at a high level on what they should be expecting to learn or be able to do about a specific area of the learning outcome.

For **units 201, 202, 203, 204 and 205** each **topic** has a **content element** (What needs to be covered) the content sections define the 'depth and breadth' to which the teaching/learning must be delivered.

It is important for **all units** that these sections define all the essential content that must be covered for learners to achieve the learning outcome. It is the information in this section that learners will be assessed on.

Transferable employability skills

The Institute for Apprenticeships have developed a transferable skills mapping framework which provides elaboration of generic, transferable employability skills that can be applied across all relevant occupational areas. This framework can be found **here**.

City & Guilds have considered which transferable employability skills within this framework are relevant to this qualification, and then mapped these skills to the relevant practical outcomes within the qualification content. A mapping grid that outlines how the skills are best reflected in the content **is** found in each relevant practical unit within this qualification.

Unit 101 Health and safety in a construction environment

Unit level:	Level 1
Guided Learning Hours (GLH):	21
Unit aim:	<p>This is a theory only unit.</p> <p>The purpose and aim of this unit is to provide the learner with the skills and knowledge required in health and safety in a construction environment.</p>
Assessment method:	Multiple choice question (MCQ) assessment
Endorsed by:	CITB
Links to Occupational Standards:	ST0095 (Bricklayer), ST0171 (Property Maintenance Operative), ST0295 (Painter and Decorator), ST0096 (Plasterer), ST0264 (Site Carpenter, Architectural Joiner)

Learning outcomes

1. Know the principles of risk assessment for maintaining and improving health and safety at work
2. Know the importance of safe manual handling in the workplace
3. Know the importance of working safely at height in the workplace
4. Know risks to health within a construction environment
5. Know the importance of working around plant and equipment safely

Learning outcome 1

The learner will:

- 1 Know the principles of risk assessment for maintaining and improving health and safety at work

Assessment criteria

The learner can:

- 1.1 State the purpose of risk assessments and method statements
- 1.2 State the legal requirements of risk assessments and method statements
- 1.3 State common causes of work-related:
 - fatalities
 - injuries
- 1.4 State the implications of not preventing accidents and ill health at work
- 1.5 State the meaning of the following in relation to health and safety at work:
 - accident
 - near miss
 - hazard
 - risk
 - competence
- 1.6 List typical hazards and potential risks associated with the following:
 - resources
 - equipment
 - obstructions
 - storage
 - services
 - wastes
 - work activities
- 1.7 State the importance of reporting accidents and near misses
- 1.8 State typical accident reporting procedures
- 1.9 State who is responsible for making accident reports
- 1.10 State the purpose of dynamic risk assessments

Learning outcome 2

The learner will:

- 2 Know the importance of safe manual handling in the workplace

Assessment criteria

The learner can:

- 2.1 State the reasons for ensuring safe manual handling in the workplace
- 2.2 State the potential injuries and ill health that may occur from incorrect manual handling.

- 2.3 State the employee's responsibilities under current legislation and official guidance for:
 - moving and storing materials
 - manual handling
 - mechanical lifting
- 2.4 State the procedures for safe lifting in accordance with official guidance
- 2.5 State the importance of using site safety equipment when handling materials and equipment
- 2.6 List aids available to assist manual handling in the workplace:
 - pallet truck
 - forklift truck
 - lifting sling
 - roust-about
 - wheelbarrow
 - sack barrow
 - kerb/vacuum lifters
- 2.7 State how to apply safe work practices, follow procedures and report problems when carrying out safe manual handling in the workplace

Learning outcome 3

The learner will:

- 3 Know the importance of working safely at height in the workplace

Assessment criteria

The learner can:

- 3.1 Define the term 'working at height'
- 3.2 State the employee's responsibilities under current legislation and official guidance whilst working at height
- 3.3 List hazards and potential risks associated with the following:
 - dropping tools and debris
 - stability of ladders
 - overhead cables
 - fragile roofs
 - scaffolds
 - internal voids
 - equipment
 - the working area
 - other people
- 3.4 State how hazards and potential risks associated with working at height can be controlled
- 3.5 State the regulation that controls the use of suitable equipment for working at height

Learning outcome 4

The learner will:

- 4 Know risks to health within a construction environment

Assessment criteria

The learner can:

- 4.1 List the main groups of substances hazardous to health under current regulations
- 4.2 List common risks to health within a construction environment:
- hand arm vibration
 - noise
 - respiratory illness
 - dermatitis
 - musculoskeletal problems
 - falling from height
 - struck by moving plant machinery
- 4.3 State the types of hazards and potential risks that may occur in the workplace linked with the use of drugs and alcohol
- 4.4 State the importance of the correct storage of combustibles and chemicals on site
- 4.5 State the importance of personal hygiene within a construction environment
- 4.6 State the potential risks to the health of workers exposed to asbestos
- 4.7 State the types of asbestos waste
- 4.8 State the types of personal protective equipment (PPE) that may be used when dealing with hazardous materials

Learning outcome 5

The learner will:

- 5 Know the importance of working around plant and equipment safely

Assessment criteria

The learner can:

- 5.1 List ways in which moving plant, machinery or equipment can cause injuries
- 5.2 State the hazards/risks relating to the use of plant and equipment
- struck by moving machinery
 - striking cables and buried services
 - trapped by moving machinery
 - damage from flying debris
 - electric shocks
 - burns
 - noise
 - tripping

- injury during use and changing tooling
 - dust
- 5.3 State the importance of safeguards located near where plant, machinery and equipment are being used
 - 5.4 State the importance of keeping a safe distance away from plant, machinery or equipment until clear contact is made with the operator
 - 5.5 Outline how method statements can assist in ensuring the safety of workers where moving plant, machinery or equipment is in use
 - 5.6 State the ways to eliminate or control risks relating to working around plant, machinery or equipment
 - 5.7 Identify hazard warning signs and symbols used when operating, working with, around or in close proximity to plant, machinery or equipment.

Unit 101 Health and safety in a construction environment

Supporting information

Evidence requirements

Assessment requirements:

Assessment criteria 1.6:

One hazard and potential risk must be listed for **each** of the following:

- resources
- equipment
- obstructions
- storage
- services
- wastes
- work activities

Assessment criteria 2.6:

Four aids must be listed

Assessment criteria 3.3:

One hazard and potential risk must be listed for **each** of the following:

- dropping tools and debris
- stability of ladders
- the working area
- overhead cables
- fragile roofs
- scaffolds
- internal voids
- equipment
- other people

Assessment criteria 4.1

List **five** substance groups

Assessment criteria 4.2:

Five risks to health must be listed

Assessment criteria 4.7:

Two types of asbestos waste must be stated

Assessment criteria 4.8:

Three types of personal protective equipment (PPE) must be stated

Assessment criteria 5.2:

Five hazards and **five** potential risks must be stated

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	<p>Deliver alongside the level 2 'Health, safety, and welfare in construction environments' as there may be efficiencies.</p> <p>Providers should consider candidate cohort and relevant chosen construction specialism(s) when preparing to deliver to see where contextualisation can be added to enhance relevance.</p> <p>There may be some efficiencies with health and safety practice content before/in line with associated practical activities from the trade specific content areas.</p>
Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:	<p>Short formative assessments at the end of sessions/aligned to outcome</p> <p>Sample test exam prep session(s) to prepare for assessment</p>
Opportunities for visits/engagement with local industry and employers:	<p>Site visits linked to specific trade area</p> <p>Guest lectures/speakers from local employers explaining elements of health and safety and how addressed on site</p>
Considerations for innovative methods of delivery:	<p>Blended learning approach – online learning opportunities</p> <p>Learner's research and investigation of local/national health and safety incidents that have made recent news, related to their chosen/specific trade area and explore their impacts (eg changes in legislation/practice, implications for employees, fines etc)</p>
Ways of ensuring content is delivered in line with current, up to date industry practice:	<p>Providers should check current legislation/guidance for amendments/changes prior to content delivery</p> <p>Staff CPD in line with current practice (eg CSCS card)</p>
EDI or accessibility considerations:	<p>Teaching for some specific areas may need adaptation eg PPE considerations based on religious grounds (eg headwear)</p>
Digital initiative considerations:	<p>Online VR tools to explore risks and hazards in workshop</p>
Sustainability considerations:	<p>Encouraging paperless working practices – printing materials only where necessary</p>
Books:	<p>HSE pamphlets available from HSE website</p>
Websites:	<p>https://www.hse.gov.uk/</p> <p>https://www.nebosh.org.uk/home/</p> <p>https://www.ioshmagazine.com/</p>

Unit 201 Principles of welfare, health and safety in construction environments

Unit level:	Level 2
Guided Learning Hours (GLH):	30
Unit aim:	<p>This is a theory only unit.</p> <p>The purpose of this unit is to provide learners with the knowledge required to enable them to carry out safe working practices in construction environments, including sourcing relevant safety information and using relevant safety procedures at work.</p> <p>This unit covers core cross-construction sector knowledge including awareness of key health and safety legislation and regulations and through completion of the unit learners will understand the roles and responsibilities of employers and employees in maintaining safe sites.</p> <p>The unit covers processes for hazard identification, risk assessments, accident reporting, emergency response and welfare provision. Learners will gain knowledge on safe working practices relating to working at height, electrical safety, manual handling, PPE and fire prevention.</p> <p>This unit provides foundational health and safety knowledge to operate safely in the sector.</p>
Assessment method:	Multiple choice question (MCQ) assessment
Links to Occupational Standards:	ST0095 (Bricklayer), ST0171 (Property Maintenance Operative), ST0295 (Painter and Decorator), ST0096 (Plasterer), ST0264 (Site Carpenter, Architectural Joiner)

Learning outcomes

1. Know health and safety regulations, roles and responsibilities
2. Understand accident and emergency reporting procedures and documentation
3. Understand the management of workplace hazards and risks
4. Know safe storage requirements for materials and equipment
5. Understand access requirements and equipment when working at heights
6. Understand safety considerations when working with electrical equipment
7. Know Personal Protective Equipment (PPE) responsibilities
8. Understand fire emergency procedures

9. Understand factors that impact on physical and mental welfare maintenance and management

Learning outcome 1

Know health and safety regulations, roles and responsibilities

Topics	Content elements
1.1 Legislation and the roles of employers and employees	<p>1.1.1 Where information on health and safety legislation relevant to, and used in, the construction environment can be found and key employee considerations for each legislation</p> <p>a) Legislation:</p> <ol style="list-style-type: none"> i. Health and Safety at Work Act (HASWA) <ul style="list-style-type: none"> • follow workplace procedures and systems • follow slip, trip and fall prevention methods • use equipment and PPE properly • report any issues or risks ii. Reporting Injuries Diseases and Dangerous Occurrences Regulations (RIDDOR) <ul style="list-style-type: none"> • report any work-related incidents • provide details for reporting purposes • comply with reporting procedures iii. Control of Substances Hazardous to Health (COSHH) <ul style="list-style-type: none"> • follow instructions for safe use • use control measures properly • report exposure incidents iv. Construction, Design and Management (CDM) regulations <ul style="list-style-type: none"> • take care of own health and safety • be aware of safety of others who may be affected by own actions • report potential safety issues to the employer v. Provision and Use of Work Equipment Regulations (PUWER) <ul style="list-style-type: none"> • use equipment only if trained • report any faulty equipment • follow safety instructions provided vi. Manual Handling Operations Regulations (MHR) <ul style="list-style-type: none"> • follow safe lifting techniques • use aids where provided • report unsafe loads or practices vii. Personal Protective Equipment (PPE) at Work Regulations <ul style="list-style-type: none"> • use PPE correctly as instructed • help maintain PPE properly • report any defects or issues

Topics**Content elements**

- viii. Work at Height Regulations (WAHR)
 - use safety equipment provided
 - follow training and procedures
 - do not undertake unsafe practices
 - ix. Control of Noise at Work Regulations (CNWR)
 - wear hearing protection when required
 - follow noise control procedures
 - report potential issues or over-exposure
 - x. Control of Vibration at Work Regulations (CVWR)
 - take regular rest breaks from use of vibrating tools
 - report potential symptoms of vibration exposure
 - follow control measures implemented
 - xi. Electricity at Work Regulations (EAWR)
 - visually check equipment before use
 - report any defects immediately
 - follow safe systems of work
 - xii. Lifting Operations and Lifting Equipment Regulations (LOLER)
 - do not use equipment unless trained
 - follow safe lifting practices
 - report any defective equipment
 - xiii. Confined Spaces Regulations
 - avoid entry into confined spaces whenever possible
 - if entry is unavoidable, follow a safe system of work
 - put in place adequate emergency arrangements before starting work in confined spaces
 - xiv. Building Safety Act
 - comply with building regulations and fire safety orders
 - escalate/report significant fire and structural safety concerns
 - xv. The Control of Lead at Work Regulations
 - use appropriate PPE
 - follow safe working practices.
 - b) Where information can be found:
 - i. government website – HSE website
 - ii. company handbook/induction materials
 - iii. local authority websites.
- 1.1.2 Employer and employee responsibilities under the Health and Safety at Work Act (HASWA)
- a) Employer responsibilities:
 - i. provision of safe working environment
 - ii. provision of access to adequate staff training

Topics	Content elements
	<ul style="list-style-type: none"> • CSCS card • induction • toolbox talks <ol style="list-style-type: none"> iii. provision of health and safety information iv. completion of risk assessments v. supervision vi. provision of PPE for employees vii. reporting of hazards, accidents and near misses viii. CDM regulations, construction phase plans ix. protecting/providing provision for employee welfare x. display of public liability insurance and health and safety law posters/information. <p>b) Employee responsibilities:</p> <ol style="list-style-type: none"> i. exercise a duty of care to themselves and to others ii. work in a safe manner iii. comply with employer instructions iv. work safely with other trades v. report hazards, accidents and near misses vi. follow organisational procedures.
<p>1.2 Organisations involved in health and safety advice and guidance</p>	<p>1.2.1 The key role/purpose of organisations and bodies involved in providing relevant health and safety information and guidance</p> <p>a) Key role/purpose of organisations and bodies:</p> <ol style="list-style-type: none"> i. Health and Safety Executive (HSE) <ul style="list-style-type: none"> • government body responsible for health and safety regulation and enforcement ii. Institute of Occupational Health and Safety <ul style="list-style-type: none"> • professional body for occupational safety and health professionals iii. British Safety Council <ul style="list-style-type: none"> • charity providing health, safety and environmental advice iv. Royal Society for the Prevention of Accidents (RoSPA) <ul style="list-style-type: none"> • charity promoting safety in the workplace and in public spaces v. local authorities <ul style="list-style-type: none"> • enforce regulations locally and provide health and safety services vi. Construction Industry Training Board (CITB) <ul style="list-style-type: none"> • training, skills and standards body for the construction industry vii. manufacturers (equipment and materials) <ul style="list-style-type: none"> • provide expert advice on safe use of their specific products.

Topics	Content elements
	<p>1.2.2 Roles and responsibilities of the Health and Safety Executive (HSE) and their inspectors</p> <p>a) HSE roles and responsibilities:</p> <ol style="list-style-type: none"> i. reduce accidents through education and advice ii. inspection iii. investigation eg site investigations iv. advice and enforcement.
<p>1.3 Communicating health and safety information in construction environments</p>	<p>1.3.1 Reasons for/purpose of holding on-site safety inductions and toolbox talks</p> <p>a) Reasons for/purpose of on-site safety inductions:</p> <ol style="list-style-type: none"> i. ensure employees understand site health and safety requirements in relation to <ul style="list-style-type: none"> • methods of accident reporting • methods of fire reporting • location of assembly points • location of risk assessments • evacuation procedures • first aid procedures ii. identify specific hazards associated with the site iii. ensure employees understand company policies and procedures and their roles in relation to them iv. ensure employees understand site layout v. maintain safe site access. <p>b) Reasons for/purpose of toolbox talks:</p> <ol style="list-style-type: none"> i. update on incidents and accidents ii. update on access routes and site layout iii. update on changes to company policies and procedures iv. update on manufacturers/suppliers' materials and plant movement.

Learning outcome 2

Understand accident and emergency reporting procedures and documentation

Topics	Content elements
2.1 Emergencies and major occurrences	<p>2.1.1 Major occurrences defined as emergencies that may occur in the construction workplaces and potential causes of emergencies that may occur in construction workplaces</p> <p>a) Emergencies:</p> <ol style="list-style-type: none">i. fireii. security incident<ul style="list-style-type: none">• unauthorised persons on site• terrorism• vandalismiii. gas leakiv. explosionv. collapse of scaffoldingvi. collapse of excavationsvii. vehicle strikes (moving plant and machinery)viii. physical injury to personnel. <p>b) Potential causes:</p> <ol style="list-style-type: none">i. fire<ul style="list-style-type: none">• fuel spillage• smoking on site• burning of waste• hot workii. security incident<ul style="list-style-type: none">• inefficient security measures in placeiii. gas leak<ul style="list-style-type: none">• poor storage of gas cylinders• unprofessional practice• unknown services/existing services in placeiv. explosion<ul style="list-style-type: none">• gas leak• fuel spillage• mixing of chemicals• poor storage of hazardous materialsv. collapse of scaffolding<ul style="list-style-type: none">• adverse weather• missing components• unauthorised modifications• overload of weight• insufficient safety checks• poor erection/quality of workvi. collapse of excavations<ul style="list-style-type: none">• adverse weather

Topics	Content elements
	<ul style="list-style-type: none"> • poor shoring • lack of barriers • plant operation proximity.
2.2 Dealing with accidents and emergencies	<p>2.2.1 Authorised personnel involved in dealing with accident and emergency situations and their duties</p> <p>a) Authorised personnel:</p> <ol style="list-style-type: none"> i. fire warden ii. first aider iii. supervisors/managers iv. safety officer v. emergency services vi. Health and Safety Executive (HSE). <p>b) Duties of authorised personnel:</p> <ol style="list-style-type: none"> i. fire warden <ul style="list-style-type: none"> • ensure safe evacuation of personnel • fight fires if safe to do so ii. first aider <ul style="list-style-type: none"> • attend personal injury incidents • treat minor injuries • liaise with emergency service professionals iii. supervisors/managers <ul style="list-style-type: none"> • oversee safety procedures are taking place • complete documentation to comply with legislation iv. safety officer <ul style="list-style-type: none"> • initial responder • point of call/investigation v. emergency services <ul style="list-style-type: none"> • provide professional medical/rescue assistance vi. Health and Safety Executive (HSE) <ul style="list-style-type: none"> • carry out investigations into accident/emergency incidents. <p>2.2.2 Actions that must be taken upon discovery of an accident in a construction workplace environment and their logical sequence</p> <p>a) Accident not involving injury to persons:</p> <ol style="list-style-type: none"> i. step 1 – assess seriousness of incident ii. step 2 – ensure the area is made safe iii. step 3 – alert other relevant persons – supervisors, employees iv. step 4 – assess whether emergency services are required v. step 5 – alert the emergency services in line with workplace protocols.

Topics**Content elements**

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- b) Accident involving injury to persons:
 - i. step 1 – call for help/first aider
 - ii. step 2 – ensure the area is made safe
 - iii. step 3 – treat casualty (within limits of training and competency)
 - iv. step 4 – alert the emergency services if required in line with workplace procedures.
 - c) Follow up actions:
 - i. completion of records
 - ii. contact HSE
 - iii. review workplace safety control measures and procedures.
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Learning outcome 3

Understand the management of workplace hazards and risks

Topics	Content elements
3.1 Control measures related to risk assessments	<p>3.1.2 Control measures related to risk assessments and method statements</p> <ul style="list-style-type: none">a) Control measures:<ul style="list-style-type: none">i. good housekeeping in the workplaceii. training of employeesiii. signage and safety procedures.b) Potential outcome of hazards affecting individuals:<ul style="list-style-type: none">i. injuryii. long-term illness/disabilityiii. loss of days worked due to injury/illness/prohibition noticeiv. death.
3.2 Housekeeping in construction environments	<p>3.2.1 Definition of good housekeeping and its importance and purpose in relation to health and safety in construction environments</p> <ul style="list-style-type: none">a) Definition 'Good Housekeeping' – the practice of maintaining a clean, organised and hazard-free work environment.b) Importance and purpose of good housekeeping in relation to health and safety:<ul style="list-style-type: none">i. maintain safetyii. reduce buildup of wasteiii. keep access routes cleariv. safe storage of materials, tools and equipmentv. reduce workplace/site congestionvi. enhances good working relationships and reduces stress. <p>3.2.2 Steps that can be taken to maintain good housekeeping in construction environments</p> <ul style="list-style-type: none">a) Steps/factors that contribute to good housekeeping:<ul style="list-style-type: none">i. cleanliness of working areaii. tidiness/robust storage systems, designated storageiii. use of skips and chutesiv. segregation of materialsv. segregation of stored materials to avoid congestion of work area and accessvi. clear access to fire escapes and fire extinguishersvii. waste and debris managementviii. storage and maintenance of tools and equipment.

Topics	Content elements
3.3 Signage and notices found in construction environments	<p>3.3.1 Categories of signs and safety notices used in construction workplaces and their key visual characteristics</p> <p>a) Categories of signs and safety notices:</p> <ol style="list-style-type: none"> i. prohibition <ul style="list-style-type: none"> • something must not be done ii. mandatory <ul style="list-style-type: none"> • something must be done iii. warning <ul style="list-style-type: none"> • alerting to danger/hazard awareness iv. safe condition <ul style="list-style-type: none"> • indicating equipment is safe to use, or not v. emergency <ul style="list-style-type: none"> • indicating what to do in event of an emergency. <p>b) Shape and colour of categories of safety sign and notice:</p> <ol style="list-style-type: none"> i. prohibition <ul style="list-style-type: none"> • circular • red band, white background • imagery of item in black • red diagonal cross ii. mandatory <ul style="list-style-type: none"> • circular • blue and white iii. warning <ul style="list-style-type: none"> • triangle • yellow and black iv. safe condition <ul style="list-style-type: none"> • rectangular • green and white v. emergency <ul style="list-style-type: none"> • rectangular • red and white. <p>3.3.2 Responsibilities of employers and employees relating to signs and safety notices in construction workplaces</p> <p>a) Responsibilities of employers:</p> <ol style="list-style-type: none"> i. ensuring signage is present, correct and up to date ii. checking and maintaining signage is visible iii. compliance with legislation and codes of conduct. <p>b) Responsibilities of employees:</p> <ol style="list-style-type: none"> i. read signage ii. adhere to signage iii. escalate issues to a supervisor.

Learning outcome 4

Know safe storage requirements for materials and equipment

Topics	Content elements
4.1 Safe storage of materials and equipment	<p>4.1.1 Considerations for the correct storage of materials and equipment</p> <ul style="list-style-type: none">a) Safe storage considerations:<ul style="list-style-type: none">i. stored securely and safelyii. following workplace systems/protocolsiii. ease of access and availabilityiv. kept clean and dry where relevant and possiblev. location and designated area of storage.b) Importance of safe storage:<ul style="list-style-type: none">i. prevent damageii. maintain working orderiii. prevent loss/theftiv. restrict/limit access where appropriate.

Learning outcome 5

Understand access requirements and equipment when working at heights

Topics	Content elements
5.1 Health and safety consideration when working at height	<p>5.1.1 Responsibilities of employers and employees under current working at height regulations</p> <ul style="list-style-type: none">a) Responsibilities of employers:<ul style="list-style-type: none">i. undertake risk assessmentsii. employ competent people for working at heightiii. provide appropriate equipmentiv. ensure sufficient inspection and recording of condition of access equipment as appropriate.b) Responsibilities of employees:<ul style="list-style-type: none">i. carry out visual inspection before using any ladders scaffolding etcii. do not alter or remove any parts of scaffold providediii. use identified access to working heightiv. report any safety issues to employerv. use equipment and PPE provided properly.

Topics**Content elements**

5.1.2 Types of access equipment used in construction workplace environments and safety considerations for their use**a) Access equipment:**

- i. stepladders
- ii. ladders (pole, extension)
- iii. trestles
- iv. hop-ups
- v. scaffolding – mobile/static
- vi. podiums
- vii. stilts

viii. MEWPs (Mobile Elevating Working Platforms).**b) Safety considerations for their use:**

- i. erection by competent persons (where applicable)
 - ii. inspect equipment before use
 - iii. use equipment only if properly trained
 - iv. follow manufacturer's instructions
 - v. maintain three points of contact (where applicable)
 - vi. do not overreach (sideways)
 - vii. check ground condition before setting up – level, firm, stable
 - viii. do not work in adverse weather conditions if unsafe
 - ix. wear appropriate PPE
 - x. use of equipment for intended purpose
 - xi. comply with method statement.
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Learning outcome 6

Understand safety considerations when working with electrical equipment

Topics	Content elements
6.1 Dangers of working with electrical equipment	<p>6.1.1 Potential hazards and risks when using electrical equipment in construction workplace environments</p> <p>a) Potential hazards:</p> <ol style="list-style-type: none">i. faulty equipmentii. incorrect voltageiii. weather and environmentiv. lack of training/incorrect usev. hidden servicesvi. overheard power linesvii. dust inhalation. <p>b) Potential risks:</p> <ol style="list-style-type: none">i. burnsii. electrocutioniii. deathiv. fire. <p>6.1.2 Precautions that should be taken to avoid risks to self and others when working with electrical equipment and why this is important</p> <p>a) Precautions:</p> <ol style="list-style-type: none">i. checking tools and equipment before use<ul style="list-style-type: none">• checking leads for signs of wear or damage• checking plugs for labelling and signs of wear or damageii. using cable hangers where possibleiii. ensuring there is a current PAT certificateiv. escalating issues or concerns to a supervisorv. ensuring training has been given before usevi. use of dust suppression measures and use of PPE – electrical safety Respiratory Protective Equipment (RPE)vii. use of safety control equipment and PPE. <p>b) Importance of taking precautions:</p> <ol style="list-style-type: none">i. keep self and other safeii. reduce risk of injury or deathiii. comply with legislation and workplace conduct.

Topics	Content elements
6.2 Power sources and voltages for electrical equipment	<p>6.2.1 Power sources, voltages and voltage colour coding that are used for electrical equipment in construction workplace environments</p> <p>a) Power sources:</p> <ol style="list-style-type: none"> i. battery powered ii. mains powered iii. portable generator iv. renewable energy sources – solar/wind. <p>b) Voltages and associated colours:</p> <ol style="list-style-type: none"> i. no standard colour – 18/24/36 volts <ul style="list-style-type: none"> • battery power for cordless tools ii. yellow – 110/115 volts <ul style="list-style-type: none"> • common workplace voltage for power tools and equipment iii. blue – 230/240 volts <ul style="list-style-type: none"> • standard domestic voltage for power tools and equipment iv. red – 415 volts <ul style="list-style-type: none"> • commercial/industrial machinery.
6.3 Storage of electrical equipment	<p>6.3.1 Methods of safely storing and maintaining electrical equipment and the importance of this</p> <p>a) Methods of safe storage and maintenance:</p> <ol style="list-style-type: none"> i. components present including any safety guards ii. equipment cleaned iii. check for damage regularly/before and after use and report where relevant iv. stored in a clean, dry and secure location v. PAT tested. <p>b) Importance of safe storage/maintenance:</p> <ol style="list-style-type: none"> i. maintain safety of self and others ii. promote efficiency and safe working.

Learning outcome 7

Know Personal Protective Equipment (PPE) responsibilities

Topics	Content elements
7.1 Responsibilities in relation to PPE	<p>7.1.1 Responsibilities of employers and employees relating to PPE under current regulations</p> <p>a) Responsibilities of employers:</p> <ol style="list-style-type: none">i. ensure suitable PPE is provided free of charge to employees who may be exposed to a risk to their health or safety while at workii. the maintenance, storage and replacement of any PPE they provideiii. provide training and instruction on safe and correct use of PPE for relevant tasks. <p>b) Responsibilities of employees:</p> <ol style="list-style-type: none">i. use PPE correctly following training and instruction from employerii. if PPE is lost or becomes damaged/defective, report to employer and do not useiii. check and ensure PPE to be used is within date before use, and report to employer and do not use where out of date.

Learning outcome 8

Understand fire emergency procedures

Topics	Content elements
8.1 How fires start	<p>8.1.1 How fire is created/caused – Elements essential to the creation of fire and how they interact/depend on each other</p> <p>a) Elements:</p> <ol style="list-style-type: none">i. oxygenii. fueliii. heat. <p>b) Their interdependence/situational requirements:</p> <ol style="list-style-type: none">i. they must all be presentii. they are interdependent – removal of one of the three elements will extinguish the fireiii. may be referred to as the 'fire triangle'.

Topics	Content elements
8.2 Fire prevention methods	<p>8.2.1 Methods of fire prevention, roles responsible for carrying them out and why this is important</p> <ul style="list-style-type: none"> a) Methods of prevention: <ul style="list-style-type: none"> i. up-to-date risk assessment ii. keep sources of ignition and flammable substances apart iii. ensure good housekeeping at all times – regular emptying of rubbish bins/skips iv. train workforce on their responsibilities in relation to fire prevention. b) Roles responsible: <ul style="list-style-type: none"> i. all personnel on site/in the workplace ii. appointed fire wardens iii. site manager. c) Importance of fire prevention: <ul style="list-style-type: none"> i. protection of lives/personal safety ii. preservation of property and equipment iii. reduce site downtime, keep job on track iv. compliance with regulation v. avoid legal implications vi. protect reputation/image vii. reduce environmental impacts.
8.3 Extinguishing fires	<p>8.3.1 Actions that must be taken on discovery of a fire and the sequence</p> <ul style="list-style-type: none"> a) Actions: <ul style="list-style-type: none"> i. step 1 – sound alarm ii. step 2 – assess risk and tackle fire if competent iii. step 3 – evacuate to fire assembly point iv. step 4 – call emergency services. <p>8.3.2 Types of fire extinguisher, their colours and uses</p> <ul style="list-style-type: none"> a) Types and colours: <ul style="list-style-type: none"> i. water <ul style="list-style-type: none"> • red ii. foam <ul style="list-style-type: none"> • cream/off white iii. CO₂ <ul style="list-style-type: none"> • black iv. dry powder <ul style="list-style-type: none"> • blue. b) Uses: <ul style="list-style-type: none"> i. water <ul style="list-style-type: none"> • Class A fires

Topics	Content elements
	<ul style="list-style-type: none"> ○ wood ○ paper ○ cloth ○ some plastics ○ never electrical, flammable liquid or gas ii. foam <ul style="list-style-type: none"> ● Class A and B fires <ul style="list-style-type: none"> ○ wood ○ paper ○ cloth ○ some plastics ○ flammable liquids iii. CO₂ <ul style="list-style-type: none"> ● Class B and C fires <ul style="list-style-type: none"> ○ flammable liquids ○ energised electrical equipment iv. dry powder <ul style="list-style-type: none"> ● Class A, B and C fires <ul style="list-style-type: none"> ○ applicable for use on all types of fire. <p>8.3.3 Circumstances under which fire extinguishers can/should be used</p> <p>a) Circumstances:</p> <ul style="list-style-type: none"> i. use in cases where it will aid means of escape/preserve life ii. in other circumstances use only when trained and authorised to do so in case of emergency.

Learning outcome 9

Understand factors that impact on physical and mental welfare maintenance and management

Topics	Content elements
9.1 Considerations in relation to construction workplace welfare	<p>9.1.1 Duty of care considerations in the workplace and why they are important</p> <ol style="list-style-type: none">a) Definition 'Duty of care' – all employers are under a statutory duty to ensure the health, safety and welfare of their staff.b) Duty of care considerations:<ol style="list-style-type: none">i. physical well-beingii. psychological well-being.c) Duty of care importance:<ol style="list-style-type: none">i. safety of employees is maintained<ul style="list-style-type: none">• protection from harm• protection from abuse• protection from injuryii. satisfaction and happiness of employeesiii. legal requirement – statutory requirement in law. <p>9.1.2 Facilities for welfare that must be provided as part of workplace/site set up and their importance</p> <ol style="list-style-type: none">a) Welfare facilities:<ol style="list-style-type: none">i. toiletsii. washing facilities – with hot and cold running wateriii. secure storage for personal itemsiv. canteenv. drinking watervi. drying room.b) Importance/reasons for provision:<ol style="list-style-type: none">i. legal requirementii. employee comfort and duty of careiii. attraction and retention of employeesiv. company reputation. <p>9.1.3 Potential causes and effects of excessive noise and employer/employee responsibilities in relation to minimising the impact</p> <ol style="list-style-type: none">a) Definition 'Excessive noise' – can be gradual from exposure to loud noise over time or that caused by sudden, extreme loud noise.b) Potential causes of excessive noise:<ol style="list-style-type: none">i. machinery and equipment<ul style="list-style-type: none">• excavators• mixers• cranes

Topics	Content elements
	<ul style="list-style-type: none"> ii. power tools <ul style="list-style-type: none"> • drills • saws • grinders iii. demolition activity iv. construction activity v. deliveries and transport of materials with machines vi. communication and radio systems. c) Potential effects of exposure to excessive noise: <ul style="list-style-type: none"> i. deafness/hearing loss ii. tinnitus/ringing in the ears iii. disturbed sleep iv. stress v. communication issues on site/within workplace vi. loss or reduction of working hours. d) Employee precautions: <ul style="list-style-type: none"> i. wearing hearing protection (PPE) – ear defenders ii. adhering to workplace/site rules/training iii. being aware of own safety and that of others on site/in the workplace. e) Employer requirements: <ul style="list-style-type: none"> i. providing PPE and ensuring employees know how/when to use it ii. adherence with legislation iii. regular monitoring of sound levels iv. taking action when excess levels are evident v. ensuring risk assessments are in place and followed.
<p>9.2 Personal physical welfare considerations in construction</p>	<p>9.2.1 Practices and support available to stay physically well and healthy at work</p> <ul style="list-style-type: none"> a) Personal practices that can support staying well/healthy while at work: <ul style="list-style-type: none"> i. taking breaks regularly ii. staying hydrated iii. making smart snack/food choices iv. keeping workplace/station clean v. using good hygiene practices vi. minimising caffeine intake. b) Factors that may support employees to stay well/healthy at work: <ul style="list-style-type: none"> i. a productive working environment eg well lit ii. provision of an Employee Assistance Programme (EAP) iii. scheduling of regular rest/breaks away from point of work

Topics	Content elements
	<ul style="list-style-type: none"> iv. encouragement of positive work/life balance v. frequent recognition of achievement/success vi. provision of social events/interactivity. <p>9.2.2 The importance of maintaining own physical well-being and how to do this in everyday life</p> <ul style="list-style-type: none"> a) Physical well-being importance: <ul style="list-style-type: none"> i. stay healthy/physically well ii. remain fit for task/work and day to day life. b) General physical well-being maintenance: <ul style="list-style-type: none"> i. regular exercise ii. get enough sleep iii. eat healthy regular meals and stay hydrated iv. knowing own physical capabilities and limits to avoid injury. <p>9.2.3 Unacceptable/inappropriate behaviours at work and their likely negative impacts for employees and employers</p> <ul style="list-style-type: none"> a) Unacceptable/inappropriate behaviours at work: <ul style="list-style-type: none"> i. bullying/harassment ii. consumption of alcohol iii. use of illegal drugs iv. not declaring to employer use of prescription medications that can impair judgement v. discrimination of others based on perceived differences vi. initiation ceremonies vii. smoking/vaping outside of designated areas viii. physical or verbal aggression towards others ix. self-harm x. isolation/deliberate exclusion and/or non-cooperation at work xi. coercion, such as pressure to subscribe to a particular political or religious belief xii. circulating or displaying offensive material. b) Potential negative impacts: <ul style="list-style-type: none"> i. for an employee <ul style="list-style-type: none"> • isolation/loneliness • loss of employment • impact on mental health and social relationships • detrimental to personal reputation ii. for an employer <ul style="list-style-type: none"> • loss in production • loss of experienced staff • loss of revenue • loss of future orders

Topics	Content elements
	<ul style="list-style-type: none"> • creation of negative environment that can impact positive mental health and well-being of employees • legal action/implications • reputational damage. <p>9.2.4 Sources/where to access support in cases of encountering/experiencing negative behavioural issues at work</p> <p>a) Sources of support:</p> <ol style="list-style-type: none"> i. colleagues ii. management iii. human resources iv. trade union representative v. trade organisations vi. police.
<p>9.3 Personal mental welfare considerations in construction</p>	<p>9.3.1 The importance of maintaining own mental well-being and how to do this</p> <p>a) Mental well-being importance:</p> <ol style="list-style-type: none"> i. can perform at optimal level ii. promotes safety – reduces risks and mistakes iii. reduces absence iv. maintain good work and personal relationships <p>b) Mental well-being maintenance:</p> <ol style="list-style-type: none"> i. spending time with others/avoid isolation ii. remote communication with others iii. engaging in open, safe discourse about mental health in the workplace. <p>9.3.2 Ways in which mental ill health can present and where individuals affected directly or indirectly can seek help</p> <p>a) Ways in which mental ill health can present:</p> <ol style="list-style-type: none"> i. stress ii. anxiety iii. depression iv. suicidal feelings/tendencies v. other complex mental health issues vi. absence from work vii. changes in behaviour eg increased aggression viii. self-harm. <p>b) Where to seek help:</p> <ol style="list-style-type: none"> i. mental health first aider ii. employer – raise awareness of issues and have the conversation iii. peers and colleagues – raise awareness of issues and have the conversation

Topics	Content elements
	<ul style="list-style-type: none"> iv. medical professional/doctor – to get medical support as needed v. specific mental health organisations/charities vi. online support networks. <p>9.3.3 Working methods that can promote good mental health as part of a duty of care and their importance</p> <ul style="list-style-type: none"> a) Definition ‘Mental health’ – an individual’s emotional, psychological and social well-being. b) Methods that promote good mental health: <ul style="list-style-type: none"> i. ‘buddy’ system – not working alone ii. access to support/information iii. recognising its importance and openly talking about issues iv. robust induction and onboarding processes v. avoiding alcohol and illegal substances vi. taking regular breaks. c) Importance of mental health awareness: <ul style="list-style-type: none"> i. employee well-being and duty of care ii. reduce employee stress and isolation iii. attraction and retention of employees iv. company/industry reputation.

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	<p>Deliver alongside the Level 1 'Health and safety in a construction environment' and Level 2 'Principles of working in the construction industry' unit as there may be efficiencies.</p> <p>Providers should consider candidate cohort and relevant chosen construction specialism(s) when preparing to deliver to see where contextualisation can be added to enhance relevance.</p> <p>There may be some efficiencies with health and safety practice content before/in line with associated practical activities from the trade specific content areas.</p>
Suggestions for formative assessment opportunities:	<p>Short formative assessments at the end of sessions/aligned to outcome.</p> <p>Sample test exam prep session to prepare for assessment.</p>
Opportunities for visits/engagement with local industry and employers:	<p>Employer engagement opportunities for this unit should be incorporated in order to allow the learner to understand application of knowledge learnt in context. This could include site visits linked to specific trade area or having guest lectures/speakers from local employers explaining elements of health and safety and how addressed on site.</p>
Considerations for innovative methods of delivery:	<p>Providers should make the best use of available resources to provide learners with the opportunity to use a wide range of activities that could include lectures, discussions and self-study. A blended learning approach, with online learning opportunities, could be adopted for content delivery.</p> <p>Learners research and investigation of local/national health and safety incidents that have made recent news, related to their chosen/specific trade area and explore their impacts (eg changes in legislation/practice, implications for employees, fines etc).</p>
Ways of ensuring content is delivered in line with current, up-to-date industry practice:	<p>Providers should check current legislation/guidance for amendments/changes prior to content delivery.</p> <p>Staff CPD in line with current practice (eg CSCS card).</p>
EDI or accessibility considerations:	<p>Teaching for some specific areas may need adaptation eg electrical power colour cords, fire extinguisher colours, PPE considerations based on religious grounds (eg headwear).</p>
Digital initiative considerations:	<p>Online VR tools to explore risks and hazards in workshop.</p>
Sustainability considerations:	<p>Encouraging paperless working practices – printing materials only where necessary.</p>
Books:	<p>HSE pamphlets available from HSE website.</p>

Websites:

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

<https://www.nebosh.org.uk/home/>

<https://www.ioshmagazine.com/>

Unit 202 Principles of working in the construction industry

Unit level:	Level 2
Guided Learning Hours (GLH):	50
Unit aim:	<p>This is a theory only unit.</p> <p>The purpose of this unit is to introduce learners to the construction industry and to give a wider context to the trade area they are studying, as construction is a vital part of the economy and plays an important role in all our lives. Learners will discover that this sector can be very rewarding and that there are opportunities for career progression. This unit provides learners with an understanding of the principles of construction, building technology and terminology used. This unit also covers various pieces of legislation, including health and safety, planning and building control.</p> <p>This unit covers core cross-construction sector knowledge which will support learners to understand how their future role fits within the context of the construction industry. The unit covers a range of knowledge areas including consideration job roles, related sector areas/industries and how they work together and impact each other, as well as developing learner understanding of key shared concepts such as the importance of sustainability, personal development and equality, diversity and inclusion.</p>
Assessment method:	Multiple choice question (MCQ) assessment
Links to Occupational Standards:	ST0095 (Bricklayer), ST0171 (Property Maintenance Operative), ST0295 (Painter and Decorator), ST0096 (Plasterer), ST0264 (Site Carpenter, Architectural Joiner)

Learning outcomes

1. Understand working practices in the construction industry
2. Understand construction information
3. Understand how to set up and secure construction work areas
4. Know building substructure and superstructure components
5. Understand personal development and working with others in the construction industry
6. Know sustainability and emerging technology considerations affecting the construction industry

Learning outcome 1

Understand working practices in the construction industry

Topics	Content elements
1.1 Areas of work and personnel involved in construction work	<p>1.1.1 Types of building construction work that may be encountered when working in the industry and their key features</p> <p>a) Types of work:</p> <ol style="list-style-type: none">i. new buildii. renovationiii. maintenanceiv. restoration/retrofitv. domesticvi. commercialvii. industrialviii. demolition. <p>b) Key features of different types of work:</p> <ol style="list-style-type: none">i. relative cost implicationsii. regional variationsiii. relative controls and regulations in placeiv. speculative new build. <p>1.1.2 Organisations and bodies that contribute to, and are involved in the construction process and their main responsibilities</p> <p>a) Organisations and bodies:</p> <ol style="list-style-type: none">i. building contractorsii. manufacturers/suppliersiii. local authoritiesiv. legislative bodiesv. training organisationsvi. professional bodies. <p>b) Responsibilities of organisations and bodies:</p> <ol style="list-style-type: none">i. building contractors<ul style="list-style-type: none">• plan, manage, monitor and coordinate the entire construction phase conforming to Construction Design Management (CDM)• taking account of the health and safety risks to everyone affected by the work including members of the public in planning and managing the measures needed to control themii. manufacturers/suppliers<ul style="list-style-type: none">• must comply with all relevant requirements under the Construction Products Regulation as retained in UK lawiii. local authorities<ul style="list-style-type: none">• prepare town and city plans and their associated basic development programmes to promote the improvement of various urban facilities, as well as area development and construction issue building consents• inspect building work for which it has granted a building consentiv. legislative bodies

Topics	Content elements
	<ul style="list-style-type: none"> • inspect and confirm that all activities and standard of work carried out meet the requirements of all regulatory bodies v. training organisations <ul style="list-style-type: none"> • meet industry requirements for training and development • recommending standards vi. professional bodies <ul style="list-style-type: none"> • Continuing Professional Development (CPD) • provide recommendations for future legislation.
<p>1.2 Roles of construction colleagues, team members and career progression pathways</p>	<p>1.2.1 Professional, craft and operative roles in the building team and their key responsibilities</p> <p>a) Professional role responsibilities:</p> <p>i. architect</p> <ul style="list-style-type: none"> • liaise with client and other relevant parties to design building, and ensure it is completed to standard • the client's representative on site/in the workplace • specify materials used for the project • on smaller projects advising on legal matters, including risks and disputes, monitor sub-contractors and stages of construction <p>ii. quantity surveyor</p> <ul style="list-style-type: none"> • work out quantities and costs of materials, time and labour for tender • negotiate contracts and work schedules • advise on legal matters, including risks and disputes • monitor sub-contractors and stages of construction <p>iii. building surveyor</p> <ul style="list-style-type: none"> • guide construction and development projects • provide professional advice on matters such as the structural integrity of a property or, its value, accessibility specifications and health and safety requirements • advise on energy efficiency and environmental impact of a property <p>iv. structural engineer</p> <ul style="list-style-type: none"> • ensure structures can withstand the stresses and pressures imposed through use and from the environment • calculate stability, strength and rigidity • advise on size scale and suitability of materials used <p>v. mechanical engineer</p> <ul style="list-style-type: none"> • create solutions and solve problems, playing a central role in the design and implementation of moving parts in a range of industries <p>vi. estimator</p> <ul style="list-style-type: none"> • calculate how much construction projects will cost, taking into account labour, materials and equipment requirements • negotiate with suppliers and gain quotes from sub-contractors

Topics	Content elements
	<ul style="list-style-type: none"> • use this information to compile detailed cost proposals for a client • works closely with the quantity surveyor • usually responsible for completing tenders <p>vii. site manager</p> <ul style="list-style-type: none"> • coordinate the total build of the project from start to finish including organising schedule of work, costings and budgets • plan the work and oversee the buying/hiring of plant and equipment <p>viii. architectural technologist</p> <ul style="list-style-type: none"> • work with architects to develop technical drawings, building models, material specifications • ensure designs meet regulations <p>ix. BIM manager</p> <ul style="list-style-type: none"> • oversee the building information modelling process • manage digital 3d model data, design collaboration and file sharing <p>x. project manager</p> <ul style="list-style-type: none"> • plan and oversee entire project lifecycle • manage budget, schedule, quality, safety, staffing, materials, subcontractors <p>xi. site engineer/planner</p> <ul style="list-style-type: none"> • develops site plans, logistics, access • order materials, plant, equipment • manage/inspect site operations and contractors <p>xii. building services engineer</p> <ul style="list-style-type: none"> • design and oversee installation of systems such as electrical, ventilation, plumbing, heating/cooling • confirm functionality and compliance. <p>b) Craft role responsibilities:</p> <p>i. carpenter/joiner</p> <ul style="list-style-type: none"> • complete all first and second fix operations in buildings including roof trusses, floors, skirtings, doors staircases, partition walls, and door and window furniture <p>ii. bricklayer</p> <ul style="list-style-type: none"> • lay bricks • pre-cut stone and concrete blocks in mortar • construct, extend and repair buildings, and other structures such as foundations, walls, chimneys or decorative masonry features <p>iii. plumber</p> <ul style="list-style-type: none"> • install water, drainage and heating systems • cut, shape and join pipes and fittings • find and fix faults • service plumbing systems <p>iv. gas/heating engineer</p> <ul style="list-style-type: none"> • carry out installation, servicing and maintenance of gas appliances and pipework systems <p>v. electrician</p>

Topics	Content elements
	<ul style="list-style-type: none"> • install indoor and outdoor electrical control, wiring, and lighting systems • inspect and test electrical systems, including fuses, transformers and circuit breakers <p>vi. plasterer/dry liner</p> <ul style="list-style-type: none"> • apply wet finishes to walls and ceilings and external finish to walls • create ornamental features like ceiling roses, cornices and architraves <p>vii. painter and decorator</p> <ul style="list-style-type: none"> • apply paint, varnish, wallpaper and other finishes and special coatings to the walls, ceilings and other surfaces of buildings and structures • protect surfaces from weather damage, erosion mould and rust • make surfaces look attractive <p>viii. wall and floor tiler</p> <ul style="list-style-type: none"> • cut and place wall and floor tiles <p>ix. roofer</p> <ul style="list-style-type: none"> • covers roof with slates, tiles, sheets or cladding • apply waterproof membranes to flat roofs • fit plastic or lead flashing around chimneys seal roof joints <p>x. renewable energy installer</p> <ul style="list-style-type: none"> • install and maintain renewable energy systems like solar panels, heat pumps, wind turbines • follow plans to assemble, connect, test systems <p>xi. floor layer</p> <ul style="list-style-type: none"> • prepare and lay flooring materials including wood, laminate, vinyl and carpet • measure areas, lay underlay and adhesive, cuts materials, fit trims and edges. <p>c) Operative role responsibilities:</p> <p>i. general building operative/labourer</p> <ul style="list-style-type: none"> • unload materials • prepares site/workplace areas • provides craft teams with materials <p>ii. ground worker</p> <ul style="list-style-type: none"> • excavate trenches • prepare and lay drainage pipes • prepares and lay floors and sub strata for roads <p>iii. highways operative</p> <ul style="list-style-type: none"> • work on roads and highways on paving, repair to surfaces, cleaning and traffic management <p>iv. plant operative</p> <ul style="list-style-type: none"> • drive and operate construction plant (including excavators and dumpers) <p>v. scaffolder</p> <ul style="list-style-type: none"> • erect and dismantle temporary static metal scaffoldings on structures in construction areas to enable others to work at height and carry out their roles safely

- may set up a scaffolding inside or outside a building.

1.2.2 Key stages involved in a construction project, their logical sequence, and factors that may impact the sequencing

- a) Key stage and their logical sequence:
 - i. stage 1 – site investigation
 - ii. stage 2 – design and planning
 - iii. stage 3 – setting up site
 - iv. stage 4 – groundwork
 - v. stage 5 – substructure
 - vi. stage 6 – superstructure
 - vii. stage 7 – external works
 - viii. stage 8 – internal services and finishes
 - ix. stage 9 – testing, commissioning and handover.
- b) Factors that impact sequencing:
 - i. planning permission
 - ii. site conditions
 - iii. lack of/shortage of materials and or labour
 - iv. adverse weather
 - v. disputes
 - vi. regulatory changes
 - vii. accidents
 - viii. investigations.

1.2.3 Career opportunities and progression routes that exist in the construction industry and where to get information on them

- a) Career opportunities in hierarchy order:
 - i. craft
 - ii. supervisory
 - iii. managerial
 - iv. professional.
- b) Progression routes in sequence:
 - i. apprenticeship to level 2/3
 - ii. craft level 2/3 progress to supervisor
 - iii. further study to site manager or similar role
 - iv. higher education into a professional role.
- c) Where to access information:
 - i. employer
 - ii. college/university open days – progression within education
 - iii. local company websites
 - iv. trade organisation websites
 - v. CGLI website
 - vi. careers advisor.

1.2.4 The importance/benefits of maintaining Continuous Professional Development (CPD) and lifelong learning

- a) **Definition** 'CPD' – ongoing process of acquiring and enhancing knowledge, skills and competencies throughout own professional career. Involves engaging in activities and learning opportunities that help individuals stay up to date with industry trends, advancements and best practices.

Topics	Content elements
	b) Benefits of maintaining CPD: <ol style="list-style-type: none"> i. keeping knowledge and skills up to date ii. professional standard of qualifications and registrations are maintained iii. credibility and confidence are built and enhanced iv. employment opportunities increased with possible increased remuneration.
1.3 Communication within construction team and wider (those outside the team)	1.3.1 Key personnel involved in day-to-day communications in construction workplace environments and the chain of reporting <ol style="list-style-type: none"> a) Definition ‘Chain of reporting’ – the line of authority and sequence of personnel that information or issues get communicated to within a workplace. b) Personnel and basic chain of reporting: <ol style="list-style-type: none"> i. operatives and craft personnel report to ii. supervisors report to iii. site managers report to iv. project manager reports to v. clients/end user/occupier vi. suppliers – may report to a combination of i – v depending on project. 1.3.2 Additional parties’ roles involved in wider communication on construction projects and activities <ol style="list-style-type: none"> a) Additional parties: <ol style="list-style-type: none"> i. architects ii. Quantity Surveyor (QS) iii. safety officer iv. local authority planning v. local residents/neighbours to site/workplace area vi. building inspector (LABC or appointed) vii. environmental bodies viii. conservation officer ix. National House Building Council (NHBC). b) Additional parties’ roles in communication: <ol style="list-style-type: none"> i. architects <ul style="list-style-type: none"> • communicates details of type and size of building/s to be completed ii. quantity surveyor <ul style="list-style-type: none"> • notifies client when payments are due iii. safety officer <ul style="list-style-type: none"> • communicates workplace safety issues to all personnel iv. local authorities planning <ul style="list-style-type: none"> • communicates breaches of planning permission to project manager and client v. local residents/neighbours to site/workplace area <ul style="list-style-type: none"> • voice and report consensus of opinion of residents over planned development vi. building inspector (LABC or appointed)

Topics**Content elements**

- vii.
 - communicates to contractor and reporting to LA or relevant partiesenvironmental bodies
- viii.
 - requests access and communicates findings of investigations and monitoring to planning teamconservation officer
- ix.
 - requests access and communicates findings of investigations and monitoring to planning teamNational House Building Council (NHBC)
- communicates with architect, project manager and Site Manager on day-to-day site/workplace affairs in respect of new builds.

1.3.3 Forms of communication/ways in which communication may be used in construction workplace environments and their suitability related to information type

- a) Communication methods for types of information being communicated:
 - i. written
 - text/wording
 - formal, detailed or complex information
 - should be clear, concise, accurate and well-structured
 - should follow the appropriate tone, style and format for intended audience
 - ii. verbal
 - voice/words
 - ideas, opinions, emotions or instructions in a direct and personal way
 - should be confident, engaging, respectful and persuasive
 - should use appropriate language, tone of voice, consider appropriate use of specialist terminology
 - iii. visual
 - graphical or pictorial information
 - capture attention and enhance understanding
 - should be simple, attractive, relevant and consistent
 - should use appropriate colours, shapes and symbols effectively.
- b) Types of written communications:
 - i. agenda items and minutes of meetings
 - ii. e-mails
 - iii. texts
 - iv. written notices – signs and posters
 - v. variation orders/architect's instructions
 - vi. orders to suppliers/delivery notes
 - vii. manufacturer's instructions
 - viii. specifications
 - ix. leaflets.
- c) Types of verbal communications:
 - i. face-to-face
 - ii. radio
 - iii. mobile phone.

Topics	Content elements
	<p>d) Types of visual communications:</p> <ol style="list-style-type: none"> i. hand signals ii. video calls/online meetings iii. signage and notices iv. drawings/plans. <p>1.3.4 Considerations for maintaining positive communication with colleagues and other parties when working in construction environments and the importance/benefits of doing so</p> <p>a) Positive written communication considerations:</p> <ol style="list-style-type: none"> i. creates a permanent record of evidence ii. can be used as a legal document iii. can be sent to many people at once/one time iv. suitable for long and distant communication and repetitive standing orders v. information presented as stated fact – no question as to the content/variation of message via delivery. <p>b) Positive verbal communication considerations:</p> <ol style="list-style-type: none"> i. can aid in building rapport and trust ii. establishes empathy with audience/others iii. allows for quick/instant feedback once delivered iv. reduces possible misunderstandings through opportunity for clarification ‘in the moment’. <p>c) Importance/benefits of maintaining positive communications:</p> <ol style="list-style-type: none"> i. ensure everyone is clear on tasks to be performed ii. avoid misunderstanding iii. maintain/promote safety iv. build trust.

Topics	Content elements
1.4 The importance of good customer service	<p>1.4.1 Key elements and considerations that make up good customer service in construction activities</p> <p>a) Key elements of good customer service:</p> <ol style="list-style-type: none"> i. good communication <ul style="list-style-type: none"> • updated on project details <ul style="list-style-type: none"> ○ timelines ○ costs ○ changes • using their preferred communication method • listening to and addressing their concerns ii. reliability/honesty <ul style="list-style-type: none"> • completing high quality work • working to schedule as promised • taking accountability if issues arise iii. responsiveness <ul style="list-style-type: none"> • reaching out to customers promptly • having systems to respond to inquiries, requests, complaints quickly iv. expertise <ul style="list-style-type: none"> • having qualified, knowledgeable staff • providing solutions tailored to their needs v. courtesy <ul style="list-style-type: none"> • treating customers with respect and professionalism • being patient and helpful even when under pressure • making them feel valued • positive customer reviews and feedback. <p>1.4.2 Importance of good customer service in construction from the perspective of employees, employers and customers</p> <p>a) Employee perspective:</p> <ol style="list-style-type: none"> i. builds trust and rapport with customers ii. creates positive work environment iii. gives sense of pride in own work iv. opportunity to showcase expertise v. gain recognition and rewards. <p>b) Employer perspective:</p> <ol style="list-style-type: none"> i. attracts new customers and business – potential expansion and growth ii. improves customer satisfaction and loyalty – and/or provide recommendations to others iii. reduces complaints and improves reputation iv. competitive advantage over other companies v. increased productivity and profitability. <p>c) Customer perspective:</p> <ol style="list-style-type: none"> i. creates a positive experience ii. makes them feel valued and respected iii. issues are handled quickly and effectively iv. needs and expectations are met v. time saved through having trusted source of service.

Topics	Content elements
1.5 Quality assurance and quality control of construction work	<p>1.5.1 The purpose of quality assurance activities to construction activities and the impact they aim to have on quality of work, efficiencies of activity</p> <ul style="list-style-type: none"> a) Definition 'Quality Assurance (QA)' – checking work systematically to make sure it meets standards and requirements. b) Definition 'Quality Control (QC)' – the process of checking outcomes from quality assurance are being achieved eg Building Control. c) QC methods used in construction: <ul style="list-style-type: none"> i. inspections by others/supervisors ii. regular testing – including random sampling iii. documented processes/checklists iv. official audits. d) Purpose and impact of QA and QC activities: <ul style="list-style-type: none"> i. meet agreed quality standards of work ii. maintain consistency across activities/instances iii. check and ensure safety of procedures iv. help find problems in early stages before they cause bigger issues v. increase efficiency through monitoring and correcting issues along the way rather than at the end vi. making sure collective end result of job meets external requirements and factors.
1.6 Roles of construction trade/professional bodies and unions	<p>1.6.1 The role and purpose of trade and professional bodies within the construction sector and the services/benefits they can provide</p> <ul style="list-style-type: none"> a) Role of trade and professional bodies: <ul style="list-style-type: none"> i. provide support and help to tradespeople ii. represent and advocate in cases of issue iii. educate and provide training and CPD iv. source of information and guidance v. support networking within/across trade areas vi. act in advisory role to government vii. promote the industry and careers within it. <p>1.6.2 The role of unions within the construction sector and the services/benefits they can provide</p> <ul style="list-style-type: none"> a) Role of unions: <ul style="list-style-type: none"> i. negotiate agreements with employers on pay and conditions ii. discuss major changes to the workplace eg large scale redundancy iii. discuss members' concerns with employers iv. accompany members in disciplinary and grievance meetings v. provide members with legal and financial advice vi. provide training and opportunities for CPD.

Topics	Content elements
<p>1.7 Competent person schemes and their importance</p>	<p>1.7.1 The role and purpose of competent person schemes in place for construction trades</p> <ul style="list-style-type: none"> a) Role of competent person schemes: <ul style="list-style-type: none"> i. provide evidence of training ii. provide evidence of assessment iii. provide evidence of competence/verification of skills iv. provide proof of identity of individual. b) Purpose of competent person schemes: <ul style="list-style-type: none"> i. upholds industry standards and best practice ii. reduces risks to workers and the public iii. provides assurance to clients/employers.
<p>1.8 Requirements for professional registration when working in the construction industry</p>	<p>1.8.1 Potential benefits of registration with relevant professional construction institutions</p> <ul style="list-style-type: none"> a) Potential benefits of registration: <ul style="list-style-type: none"> i. higher earning potential ii. improved career prospects and employability iii. enhanced status leading to higher self-esteem iv. international recognition of competence and commitment v. evidence of expertise vi. greater influence within own organisation and industry vii. Continuous Professional Development (CPD) viii. legal indemnity cover ix. networking opportunities. <p>1.8.2 The role and purpose of professional institutions related to the construction industry</p> <ul style="list-style-type: none"> a) Role and purpose: <ul style="list-style-type: none"> i. work in the public interest and advance the public good in their respective fields ii. uphold standards of competence, conduct and ethics among members iii. award chartered status to qualified professionals who meet their criteria of knowledge and behaviour iv. provide learning programmes, research, resources, services and events for their members and stakeholders.

Learning outcome 2

Understand construction information

Topics	Content elements
2.1 The purpose of controls on the construction process	<p>2.1.1 Controls and regulations that support the construction process, who they impact and where they can be accessed</p> <p>a) Controls and regulation types:</p> <ol style="list-style-type: none">i. pre-planning permissionii. planning permission/permitted development/national park authorityiii. building regulationsiv. health and safety lawv. quality and standards (British standards)vi. environmental law/regulationsvii. listed buildingsviii. tree preservation ordersix. English heritage. <p>b) Who is impacted by the controls and regulations:</p> <ol style="list-style-type: none">i. client/homeowner/end userii. design team<ul style="list-style-type: none">• architect• surveyoriii. managerial team<ul style="list-style-type: none">• site manager• site supervisoriv. tradespeoplev. manufactures/suppliers of equipment and materialsvi. the general public. <p>c) Where details of the controls can be accessed:</p> <ol style="list-style-type: none">i. onsite/in workplaceii. online eg on government/local authority websitesiii. local librariesiv. in the code of conductv. in induction materialsvi. professional bodiesvii. building material suppliers.
2.2 Types of information and technical drawings used in the construction industry	<p>2.2.1 Construction information used to manage, support and organise projects and roles responsible for their production and use</p> <p>a) Key construction information used to manage, support and organise:</p> <ol style="list-style-type: none">i. site/workplace rules/code of conductii. bill of quantities<ul style="list-style-type: none">• to control list material quantities and costsiii. construction phase planiv. programme of works/Gantt chartsv. specificationsvi. drawingsvii. schedules<ul style="list-style-type: none">• material/labour

- viii. Building Information Modelling (BIM)
- ix. Risk Assessment and Method Statement (RAMS).

2.2.2 Methods of drawing used for construction plans and blueprints and their advantages and disadvantages

a) Methods and their advantages/disadvantages:

- i. rough sketch
 - quick
 - cheap
 - low detail
- ii. hand
 - level of detail may vary
 - time consuming to produce if highly detailed
 - can be more expressive
 - more detailed than a rough sketch
- iii. line drawing
 - precise
 - accurate
 - easily edited
 - scaled
 - usually more detailed and accurate than a hand drawing
- iv. Computer Aided Design (CAD)
 - precise
 - adaptable
 - detailed
 - easily sharable electronically
 - may be complex and expensive to produce
 - usually the most detailed and complex form method.

2.2.3 Types and styles of construction drawings

a) Types of drawing:

- i. location
 - block
 - site
 - layout
- ii. component detail
- iii. assembly/detail drawings
- iv. elevations and plans
 - floorplans
 - reflective plans.

b) Styles of drawing

- i. orthographic
- ii. isometric
- iii. sectional
- iv. perspective.

Topics**Content elements****2.2.4 Technical information included on construction plans, diagrams****a) Technical information:**

- i. scale
- ii. hatchings
- iii. measurements
- iv. dimensions
 - length
 - width
 - height
 - area
- v. symbols
- vi. services
 - water
 - gas
 - electricity
 - drainage
 - internet/phone
- vii. architectural
- viii. version control/date
- ix. orientation.

b) What information on plans is used for:

- i. calculation of materials costs/quantities
- ii. setting out building in correct position
- iii. identifying materials to be used and their location
- iv. positioning and fixing of components
- v. communicating hazards
- vi. indicating specific common locations
- vii. identifying services
- viii. orientation of site when in real world
- ix. communicating common shared set of information across trades/roles
- x. ensuring currency and visibility of alterations/changes
- xi. ownership and version details
- xii. completed vision for project/building.

Topics	Content elements
2.3 Data protection	<p>2.3.1 Importance of data protection legislation and security of information in construction environments and methods workplaces may use to ensure data is kept secure</p> <ul style="list-style-type: none">a) Legislation:<ul style="list-style-type: none">i. Data Protection Actii. General Data Protection Regulation (GDPR).b) Importance:<ul style="list-style-type: none">i. ensures confidential information kept secureii. uphold industry regulationsiii. secures sensitive documents from theft and misuse<ul style="list-style-type: none">• staff information• client informationiv. prevents data breachesv. allows controlled record access.c) Methods:<ul style="list-style-type: none">i. user permissions and authentication eg passwordsii. using secure file sharing procedures for transferring documentsiii. safe and secure storage of documentsiv. regularly backing up data offlinev. following company policies.

Learning outcome 3

Understand how to set up and secure construction work areas

Topics	Content elements
3.1 Construction workplace planning requirements	<p>3.1.1 Different areas of construction workplaces that must be included on logistics plans and their importance</p> <p>a) Areas:</p> <ol style="list-style-type: none">i. environmental areas (ponds, plants, trees and wildlife)ii. neighbouring propertiesiii. site/workplace securityiv. service connectionsv. access/egress and parkingvi. site officevii. health, safety and welfareviii. emergency assemblyix. pedestrian routes/accessx. materials – delivery and storage<ul style="list-style-type: none">• dry• open• hazardousxi. waste management/recyclingxii. plantxiii. crane tower location. <p>b) Importance of having the areas marked on plans:</p> <ol style="list-style-type: none">i. for efficient site/workplace movement and access (eg deliveries)ii. to ensure boundary lines are maintained and reduce breachesiii. to maintain and improve safety and securityiv. to clearly inform of location of facilities for allv. to comply with legislation.

Topics	Content elements
3.2 Considerations in relation to construction workplace security	<p>3.2.1 The importance of site/workplace security and the employee/employer responsibilities for ensuring it</p> <p>a) Importance:</p> <ul style="list-style-type: none"> i. to maintain safety ii. to identify and control access iii. to minimise financial loss eg loss/theft of plant, machinery and/or materials iv. to prevent unauthorised entry v. to identify and maintain safe access routes vi. to control access to plant and machinery and controlled substances. <p>b) Responsibilities of employee:</p> <ul style="list-style-type: none"> i. return all materials and equipment after use ii. sign in/out as required iii. report any issues to employer/supervisor iv. follow company guidelines and safety signage. <p>c) Responsibilities of employer:</p> <ul style="list-style-type: none"> i. provide security measures as required eg booking in sign in/out, security fencing, security guards/personnel ii. ensure security reporting procedures and guidance are in place.

Learning outcome 4

Know building substructure and superstructure components

Topics	Content elements
4.1 Types and purposes of substructures	<p data-bbox="571 338 1329 371">4.1.1 Types of foundations and their descriptions/features</p> <p data-bbox="624 383 1050 416">a) Types and their descriptions:</p> <ul style="list-style-type: none"><li data-bbox="655 427 1437 562">i. pad<ul style="list-style-type: none"><li data-bbox="719 461 1126 495">• rectangular or circular pads<li data-bbox="719 499 1015 533">• usually of concrete<li data-bbox="719 537 1437 571">• used to support single point loads such as columns<li data-bbox="655 575 1437 732">ii. pile<ul style="list-style-type: none"><li data-bbox="719 609 1118 642">• deep cylindrical foundation<li data-bbox="719 647 1031 680">• bored below ground<li data-bbox="719 685 1437 741">• transferring the building load to load bearing ground made up of concrete and steel reinforcement<li data-bbox="655 745 1398 880">iii. raft<ul style="list-style-type: none"><li data-bbox="719 779 1398 835">• reinforced concrete slabs that cover an over site area<li data-bbox="719 840 1238 873">• often the full footprint of the building<li data-bbox="655 884 1422 1108">iv. strip<ul style="list-style-type: none"><li data-bbox="719 918 1015 952">• shallow foundation<li data-bbox="719 956 1414 1046">• used to provide a continuous, level or sometimes stepped strip of support around the perimeter of a building<li data-bbox="719 1050 1453 1106">• may also be positioned where there are internal load bearing walls. <p data-bbox="571 1155 1058 1189">4.1.2 Materials used in substructures</p> <p data-bbox="624 1200 799 1234">a) Materials:</p> <ul style="list-style-type: none"><li data-bbox="655 1245 783 1279">i. brick<li data-bbox="655 1283 791 1317">ii. block<li data-bbox="655 1321 783 1355">iii. steel<li data-bbox="655 1359 831 1393">iv. concrete<li data-bbox="655 1397 1382 1442">v. Damp Proof Course (DPC)/Damp Proof Membrane (DPM) and membranes<li data-bbox="655 1447 847 1480">vi. insulation<li data-bbox="655 1485 863 1518">vii. aggregate.

Topics	Content elements
4.2 Sequence of first and second fix building	<p>4.2.1 First and second building elements and logical sequence considerations relating to their installation</p> <p>a) First fix:</p> <ul style="list-style-type: none"> i. step 1 – external envelope ii. step 2 – roof structure iii. step 3 – roof coverings iv. step 4 – floors v. step 5 – stairs vi. step 6 – partitions vii. step 7 – external door and window frames viii. step 8 – internal door lining ix. step 9 – services x. step 10 – plaster. <p>b) Second fix (order may vary as activities may occur concurrently):</p> <ul style="list-style-type: none"> i. internal doors and door furniture ii. architraves and skirting boards iii. kitchen units iv. electrical fittings v. sanitary ware vi. finishes vii. wall viii. floor ix. landscape.

Topics	Content elements
4.3 Floor types and their associated materials	<p>4.3.1 Types of floors and factors impacting on when they are used</p> <p>a) Types of floors:</p> <ol style="list-style-type: none"> i. solid <ul style="list-style-type: none"> • concrete • sometimes reinforced and insulated ii. suspended <ul style="list-style-type: none"> • timber • can be concrete beam with block infill. <p>b) Factors impacting floor type:</p> <ol style="list-style-type: none"> i. loading <ul style="list-style-type: none"> • strength • reinforcement ii. moisture <ul style="list-style-type: none"> • sub floor/ground underneath iii. subsequent finish <ul style="list-style-type: none"> • underfloor heating • liquid floor screed • tiles. <p>4.3.2 Types of materials used for flooring</p> <p>a) Flooring materials:</p> <ol style="list-style-type: none"> i. block/beam ii. concrete iii. timber iv. steel and concrete deck v. steel reinforcement vi. insulation vii. DPM.

Topics	Content elements
4.4 Wall types and their associated materials	<p>4.4.1 Types of walls and factors impacting on when they are used</p> <p>a) Types of walls:</p> <ol style="list-style-type: none"> i. external <ul style="list-style-type: none"> • cavity • solid • steel frame • curtain • timber frame • concrete frame ii. internal <ul style="list-style-type: none"> • traditional (brick or block) • timber stud • metal stud and metal lining. <p>b) Factors impacting wall type:</p> <ol style="list-style-type: none"> i. loading ii. climate <ul style="list-style-type: none"> • location iii. finish <ul style="list-style-type: none"> • client/architect specification • conservation requirements. <p>4.4.2 Types of materials used for walls</p> <p>a) Wall materials:</p> <ol style="list-style-type: none"> i. brick ii. block iii. render iv. timber v. concrete vi. steel vii. cladding viii. insulation ix. DPC/Structurally Insulated Panels (SIPs) x. ties and clips.

Topics	Content elements
4.5 Roof types and their associated materials	<p>4.5.1 Types of roofs and their common materials and factors affecting their appropriateness/use</p> <p>a) Pitched roof types:</p> <ol style="list-style-type: none"> i. timber <ul style="list-style-type: none"> • traditional hand cut • trussed ii. metal <ul style="list-style-type: none"> • framed • trussed. <p>b) Flat roof types:</p> <ol style="list-style-type: none"> i. timber ii. metal iii. green. <p>c) Roofing materials:</p> <ol style="list-style-type: none"> i. timber ii. lead iii. slate iv. tile <ul style="list-style-type: none"> • concrete • clay • composite v. bitumen felt vi. sheet metal or timber vii. synthetic systems <ul style="list-style-type: none"> • fiberglass • EDPM viii. liquid resin ix. shingle <ul style="list-style-type: none"> • clay • timber • bitumen felt.

Topics	Content elements
4.6 Types of finishes	<p>4.6.1 Types of internal finishes and factors affecting their appropriateness for use</p> <p>a) Types of internal finishes:</p> <ol style="list-style-type: none"> i. paint systems ii. paper coverings iii. plaster iv. dry lined with tape and joint system v. tiling vi. cladding <ul style="list-style-type: none"> • timber • plastic • composite. <p>b) Factors affecting use:</p> <ol style="list-style-type: none"> i. base structure ii. customer requirements iii. cost iv. conservation restrictions. <p>4.6.2 Types of external finishes and factors affecting their appropriateness for use</p> <p>a) External finishes:</p> <ol style="list-style-type: none"> i. paint systems ii. rendering systems iii. coatings iv. External Wall Insulation (EWI) v. cladding <ul style="list-style-type: none"> • timber • plastic • composite • slate • tile. <p>b) Factors affecting use:</p> <ol style="list-style-type: none"> i. conservation requirements ii. building control iii. customer requirements iv. cost.

Topics	Content elements
4.7 Building services related to construction activities	<p>4.7.1 Types of services that are used to supply buildings, roles responsible for their servicing and maintenance and construction activities that rely on them</p> <p>a) Services:</p> <ol style="list-style-type: none"> i. electricity ii. gas iii. water iv. drainage <ul style="list-style-type: none"> • surface • foul v. communication networks <ul style="list-style-type: none"> • television • internet • phone • 'smart' home services. <p>b) Roles responsible for installation:</p> <ol style="list-style-type: none"> i. electricity <ul style="list-style-type: none"> • electrician and/or national utility company ii. gas <ul style="list-style-type: none"> • gas engineer or plumber if additionally qualified in gas safety national utility company iii. water <ul style="list-style-type: none"> • plumber and/or national utility company (for connection to mains) iv. drainage (surface, foul) <ul style="list-style-type: none"> • local authority • ground worker/plumber v. communication networks <ul style="list-style-type: none"> • internet/telephone engineer.

Topics	Content elements
4.8 Considerations for building materials used in construction activities	<p>4.8.1 Factors affecting materials used in building structure and substructure elements</p> <p>a) Elements:</p> <ul style="list-style-type: none"> i. foundations ii. floors iii. walls iv. roofs. <p>b) Factors affecting material use:</p> <ul style="list-style-type: none"> i. availability ii. bearing capacity iii. carbon footprint iv. client expectations/requirements v. conservation requirements (if relevant) vi. cost vii. design requirements viii. ground conditions ix. installation time x. longevity of material/performance over time xi. maintenance requirements xii. physical strength xiii. planning/regulation requirements xiv. purpose xv. sustainability xvi. transport, delivery and position xvii. handling weight.

Learning outcome 5

Understand personal development and working with others in the construction industry

Topics	Content elements
5.1 Equality and protected characteristics	<p>5.1.1 The definition of equality and protected characteristics under current legislation and other potential additional barrier characteristics</p> <ul style="list-style-type: none">a) Definition 'Equality' – a situation in which everyone is equal and has the same rights.b) Protected characteristics:<ul style="list-style-type: none">i. ageii. disabilityiii. gender reassignment/gender identityiv. marriage and civil partnershipv. pregnancy and maternityvi. race (including colour, nationality and ethnic or national origin)vii. religion or beliefviii. sexix. sexual orientation.c) Additional barrier characteristics:<ul style="list-style-type: none">i. employment historyii. educational background/attainmentiii. socio-economic statusiv. criminal recordv. unconscious bias.

Topics	Content elements
5.2 Considerations when valuing diversity and inclusion	<p>5.2.1 The principles of diversity and inclusion in the workplace</p> <ol style="list-style-type: none"> a) Definition 'Diversity' – including or involving people with a range of different characteristics. Having a variety of individuals and points of view represented. b) Definition 'Inclusion' – providing equal access to opportunities and resources for those who might otherwise be excluded. <p>5.2.2 Positive impacts of recognising and valuing diversity and inclusion in the workplace</p> <ol style="list-style-type: none"> a) Positive impacts: <ol style="list-style-type: none"> i. for the individual <ul style="list-style-type: none"> • personal motivation/self-actualisation • feelings of value • well-being • job satisfaction and engagement ii. for team dynamics <ul style="list-style-type: none"> • effective interpersonal communication • positive teamwork • time saving iii. for employers and businesses <ul style="list-style-type: none"> • employee retention • meeting legislation requirements • staff progression • societal reputation • staff recruitment • increased productivity and performance • innovation, creativity and problem solving.

Topics	Content elements
<p>5.3 Regulations, support and guidance relating to equality, diversity and inclusion (EDI)</p>	<p>5.3.1 Current regulations and legislation relating to EDI</p> <ol style="list-style-type: none"> a) Regulations and legislation: <ol style="list-style-type: none"> i. UK Equality Act ii. Human Rights Act. <p>5.3.2 The responsibility for awareness and action in relation to the UK Equality Act</p> <ol style="list-style-type: none"> a) Responsibilities: <ol style="list-style-type: none"> i. for the employee <ul style="list-style-type: none"> • awareness of • adherence to ii. for the employer: <ul style="list-style-type: none"> • awareness of • adherence to • procedures in place to address identified issues • promoting awareness/training employees • point of contact (welfare officer). <p>5.3.3 Sources of other information related to supporting and promoting EDI in the workplace</p> <ol style="list-style-type: none"> a) Sources of information: <ol style="list-style-type: none"> i. company charter/values ii. employee handbook iii. induction materials/programme iv. contractual documents/obligations v. external bodies and legislation vi. displays/signage and posters.
<p>5.4 Characteristics of employment and self-development</p>	<p>5.4.1 Key responsibilities of different employment types</p> <ol style="list-style-type: none"> a) Employment types: <ol style="list-style-type: none"> i. sole trader ii. sub-contractors iii. main developers iv. self-employed b) Responsibilities: <ol style="list-style-type: none"> i. tax ii. administration iii. planning iv. promotion v. insurance/liability vi. remuneration/wages vii. contracts viii. welfare.

5.4.2 Skills and characteristics which are beneficial to develop when working in construction roles and why these are important

a) Skills:

- i. organisational/planning
- ii. digital literacy
- iii. communication and collaboration
- iv. interpretation of information and directions
- v. practical trade skills (eg plastering, bricklaying etc).

b) Personal traits/characteristics:

- i. responsibility
- ii. autonomy
- iii. self-motivation
- iv. discipline
- v. resilience.

c) Importance:

- i. productivity to meet deadlines/requirements
- ii. quality of work/finish
- iii. meeting goals and targets
- iv. business/career growth and development
- v. personal mental welfare
- vi. financial stability.

5.4.3 Patterns in employment and the potential impacts of rises and falls in demand

a) Patterns:

- i. peaks and troughs in construction work
- ii. recruitment shortfall
- iii. skills shortage forecasts
- iv. financial climate
- v. future trend predictions/forecasts
- vi. vacancies – use of local labour market intelligence and the opportunities that are available.

b) Impacts of fluctuations in demand:

- i. cash flow
- ii. availability of labour
- iii. financial incentives and opportunities.

Learning outcome 6

Know sustainability and emerging technology considerations affecting the construction industry

Topics	Content elements
6.1 Sustainability and emerging technologies	<p>6.1.1 Considerations and impacts of sustainability in relation to construction activities</p> <p>a) Definition ‘Sustainability’ – constructing with renewable and recyclable resources while minimising waste and energy consumption to protect the natural environment materials.</p> <p>b) Considerations:</p> <ol style="list-style-type: none">i. legislationii. technological advancesiii. education<ul style="list-style-type: none">• eliminate bad practice• encourage reportingiv. sourcing of local materialsv. using energy efficient plant and equipment<ul style="list-style-type: none">• battery powered• solar chargingvi. changes to/or meeting historical practicevii. availability of sustainable materials and equipmentviii. financial cost and available fundingix. waste management practices<ul style="list-style-type: none">• segregation of materials<ul style="list-style-type: none">○ wood○ plastic○ cardboard○ paper○ plasterboard• limit environmental impact• support recyclingx. air flow in building design<ul style="list-style-type: none">• acoustics• airtightness• ventilation. <p>c) Impacts/advantages of sustainability:</p> <ol style="list-style-type: none">i. benefits to the immediate locality<ul style="list-style-type: none">• improved air quality• noise reduction• less wasteii. reduction in carbon footprintiii. a cleaner healthier site/workplaceiv. personal fulfilment (‘doing your bit’)v. company reputation. <p>d) Potential drawbacks:</p> <ol style="list-style-type: none">i. increased costs

Topics**Content elements**

- ii. reduced/limited availability
 - including ranges/sizes available
- iii. lack of experience/expertise for installation
- iv. potential limitations based on site location/climate
- v. infrastructure for recycling waste
- vi. subject to changing legislation and incentives
- vii. resistance to changing traditional methods.

6.1.2 Emerging and green technologies, resources and materials and activities that may be employed to maintain, increase or enhance the sustainability of building projects and factors that may affect their use

a) Technologies and resources:

- i. electric vehicles/machinery
- ii. solar/photovoltaic panels
- iii. wind turbines
- iv. air, water and ground-source heat pumps
- v. use of drones/Unmanned Aerial Vehicles (UAVs) for area surveying
- vi. 3D printing technologies
- vii. Augmented Reality (AR)/Virtual Reality (VR)/simulated training environments
- viii. Building Information Modelling (BIM).

b) Materials:

- i. self-healing concrete
- ii. insulation types and position
- iii. liquid floor screeds
- iv. thin joint systems
- v. transparent aluminium.

c) Practices:

- i. sustainable production – modular/prefab housing
- ii. recycling/reuse demolition materials for hardcore/architectural salvage
- iii. carbon neutral building design/‘passive’ buildings
- iv. rainwater harvesting and reuse
- v. installation of EV charging points on site/in buildings
- vi. installation of green energies as standard
- vii. replace/reduce/reuse/repurpose/recycle
- viii. increasing thermal performance of buildings.

d) Factors affecting use of technologies and practices:

- i. cost
- ii. availability
- iii. site/building location
- iv. planning and design requirements
- v. funding availability
- vi. legislation
- vii. local authority initiatives/restrictions.

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	<p>Deliver alongside the Level 2 'Principles of welfare, health and safety in construction environments' unit as there may be efficiencies.</p> <p>Providers should consider candidate cohort and relevant chosen construction specialism(s) when preparing to deliver to see where contextualisation can be added to enhance relevance.</p>
Suggestions for formative assessment opportunities:	<p>Short formative assessments at the end of sessions/aligned to outcome.</p> <p>Sample test exam prep session to prepare for assessment.</p>
Opportunities for visits/engagement with local industry and employers:	<p>Employer engagement opportunities for this unit should be incorporated in order to allow the learner to understand application of knowledge learnt in context. This could include site visits linked to specific trade area or having guest lectures/speakers from local employers explaining elements of own role and working environments, career progression etc.</p>
Considerations for innovative methods of delivery:	<p>Providers should make the best use of available resources to provide learners with the opportunity to use a wide range of activities that could include lectures, discussions and self-study. A blended learning approach, with online learning opportunities, could be adopted for content delivery.</p> <p>1.6.1 learners could be encouraged to research a specific trade and professional bodies relevant to their chosen specialism/area of study eg CIBSE, trade organisation umbrella Build UK, FMB (Federation of Master Builders), NFB (National Federation of Builders) etc.</p> <p>1.8.2 learners could be encouraged to research a specific chartered institute relevant to their chosen specialism/area of study eg Chartered Institute of Building (CIOB), Royal Institute of British Architects (RIBA), The Royal Institution of Chartered Surveyors (RICS), Institution of Civil Engineers (ICE), Chartered Institution of Building Services Engineers (CIBSE) etc.</p>
Ways of ensuring content is delivered in line with current, up-to-date industry practice:	<p>Providers should check current legislation/guidance for amendments/changes prior to content delivery.</p> <p>Staff CPD in line with current practice (eg CSCS card).</p>
EDI or accessibility considerations:	None.
Digital initiative considerations:	None.
Sustainability considerations:	Encouraging paperless working practices – printing materials only where necessary.
Books:	N/A

Websites:

Local/national construction company websites (specific to learner trade area).

Professional body websites (specific to learner trade area).

Unit 203 Setting out buildings

Unit level:	Level 2
Guided Learning Hours (GLH):	31
Unit aim:	The aim of this unit is for learners to have the knowledge, understanding and skills to set out rectangular masonry structures. The unit will provide learners with knowledge, understanding and skills of how to select and use tools and equipment as well as how to identify and use sources of information to prepare for setting out work.
Assessment method:	Multiple choice question (MCQ) assessment, practical assessment
Links to Occupational Standard:	Bricklayer ST0095 See also qualification content mapping to Occupational Standard (Appendix 1)

Learning outcomes

1. Understand how to prepare construction sites for setting out procedures
2. Select tools, equipment and drawings for setting out work
3. Set out rectangular shaped masonry structures

Learning outcome 1

Understand how to prepare construction sites for setting out procedures

Topics	Content elements
1.1 Types of site investigation, service location and information sources	<p>1.1.1 Reasons for different types of site investigations</p> <p>a) Types:</p> <ol style="list-style-type: none">i. desk top studyii. topography surveyiii. site walk overiv. ground scanningv. cat scan (cable avoidance tool)vi. soil samplesvii. service provider plansviii. water samplesix. local authority recordsx. trial holes. <p>b) Site investigations:</p> <ol style="list-style-type: none">i. environmentalii. ground typeiii. ground condition<ul style="list-style-type: none">• wet• dry• height of water tableiv. types of sites:<ul style="list-style-type: none">• brownfield• greenfieldv. possible land contamination:<ul style="list-style-type: none">• oil• chemical• gasesvi. landfillvii. heavy metalsviii. radioactive substances. <p>1.1.2 Types of services, their location and methods of identification as per NJUG (National Joint Utilities Group) guidelines</p> <p>a) Types and location of services both under and over ground:</p> <ol style="list-style-type: none">i. gasii. electricityiii. overhead cablesiv. telecomsv. watervi. drainage: installation and/or relocation. <p>b) Identification types:</p> <ol style="list-style-type: none">i. colour coded tapeii. sleeve protectioniii. vehicle awareness signage.

Topics	Content elements
	<p>c) Identification methods:</p> <ol style="list-style-type: none"> i. metal detector ii. ground penetrating radar iii. laser scan iv. CAT scan. <p>1.1.3 Types of information sources and their uses for gathering details relating to the current state, when setting out site requirements</p> <p>a) Information sources:</p> <ol style="list-style-type: none"> i. local authority records ii. utility company records iii. planning approval documentation iv. building regulations v. Health & Safety requirements and legislation vi. utility company authorisation for access, isolation and location or relocation of services vii. ordnance survey records viii. ordnance benchmarks ix. temporary benchmarks x. site drawings: <ul style="list-style-type: none"> • block plan • site plan • location plan • cross sectional (foundation detail). <p>b) Uses:</p> <ol style="list-style-type: none"> i. gathering information relating to the current state of the site ii. details about the layout of the site iii. details about the services on the site iv. requirements of the works v. restrictions of the works.

Topics	Content elements
1.2 Site clearance and environmental considerations	<p>1.2.1 Approaches to site clearance and types of environmental considerations</p> <p>a) Site clearance:</p> <ol style="list-style-type: none"> i. removal of obstacles from site ii. existing building iii. existing foundations iv. existing drainage and services v. removal of vegetation vi. removal of topsoil/surface strip vii. site security. <p>b) Environmental considerations:</p> <ol style="list-style-type: none"> i. preservation orders ii. wildlife habitats iii. surface run off iv. waste management v. invasive species and flora.
1.3 Environmental and sustainability regulations and resource segregation	<p>1.3.1 Know the environmental and sustainability regulations, standards and guidance, and how to comply with them</p> <p>a) Regulations:</p> <ol style="list-style-type: none"> i. the waste regulations ii. hazardous waste regulations iii. the site waste management plans regulations iv. Construction Design and Management Regulations (CDM). <p>b) Standards:</p> <ol style="list-style-type: none"> i. BS 5906 Code of practice for waste management in buildings ii. ENV15343 Sustainable construction – waste management and guidelines iii. BS EN 14001 Environmental management systems. <p>c) Guidance:</p> <ol style="list-style-type: none"> i. health and safety executive – material storage and waste management ii. The Environmental Protection Act iii. The Construction Waste and Environmental Act iv. local authorities. <p>1.3.2 Factors to consider for segregation of resources</p> <p>a) Segregation (waste hierarchy):</p> <ol style="list-style-type: none"> i. prevention ii. reuse iii. recycling iv. recovery v. disposal.

Topics	Content elements
1.4 Calculations used during preparation of setting out	1.4.1 Calculations and methods of measurements and their uses and application during setting out preparation a) Methods of measurements and calculations: i. linear ii. 3:4:5. b) Application: i. centre line ii. perimeter iii. diagonals iv. gauge v. check for square.

Learning outcome 2

Select tools, equipment and drawings for setting out work

Topics	Content elements
2.1 Tools and equipment	<p>2.1.1 Types of tools and equipment, their purposes and factors to consider for use</p> <p>a) Tools and equipment:</p> <ul style="list-style-type: none">i. ranging linesii. datum pegsiii. setting out pinsiv. setting out pegsv. materials for profile boardsvi. measuring tapesvii. optical levelviii. electronic levels and staff/receiver (GPS)ix. laser lined levelx. spray paintxi. straight edgesxii. spirit levelsxiii. builders' squaresxiv. optical squarexv. bricklaying hand toolsxvi. fixingsxvii. mobile device/tablet. <p>b) Purposes:</p> <ul style="list-style-type: none">i. identification of internal and external build lines, datum points and securing linesii. marking out and identifying trench widthiii. read and set linear measurements, set datum points and for transferring levelsiv. read and set 90° and other anglesv. cutting, laying, fixing, securing and positioning of materialsvi. accessing site documents. <p>c) Factors to consider:</p> <ul style="list-style-type: none">i. transporting and moving optical equipment (stored in appropriate cases, not moving equipment when on tripod)ii. manufacturers information followed in set up and storage of equipment.

Topics	Content elements
2.2 Drawings used during setting out	<p>2.2.1 Types of drawings used during setting out and their purpose, scales and uses:</p> <p>a) Types of drawings:</p> <ol style="list-style-type: none"> i. site plan ii. block plan iii. general location plan iv. ground floor plan v. elevation (proposed and existing) vi. cross section vii. orthographic projection viii. isometric projection. <p>b) Purposes:</p> <ol style="list-style-type: none"> i. identification of boundaries and surrounding area ii. types of material and location iii. building types, names and colour coding details iv. room dimensions and internal wall locations v. identification of foundations <ul style="list-style-type: none"> • ground floor • first floor • elevation • cavity detail. <p>c) Types of scales and their uses with drawings:</p> <ol style="list-style-type: none"> i. types of scale <ul style="list-style-type: none"> • 1:2500 • 1:1250 • 1:100 • 1:50 • 1:20 • 1:10 • 1:5 ii. convert scale from drawing using scale rule iii. use of Systems Internationale units (SI).

Learning outcome 3

Set out rectangular shaped masonry structures

Topics	Content elements
3.1 Types of building lines	<p>3.1.1 Types of building lines and their purpose and the reasons for their protection, maintenance and accuracy</p> <p>a) Building lines:</p> <ol style="list-style-type: none">building line (controls building position)frontage line (dictates front of the building)boundary line (dictates ownership of land). <p>b) Protection and maintenance of the accuracy of building lines:</p> <ol style="list-style-type: none">maintain dimensional accuracyensure correct location of construction (building direction)compliance with building control/consent.
3.2 Methods of Setting out right-angled corners	<p>3.2.1 Methods of setting out right angles for small rectangular structures</p> <p>a) Methods:</p> <ol style="list-style-type: none">3:4:5builders squaresite squarecheck square by measuring diagonalstolerances of accuracy.
3.3 Position of profile board	<p>3.3.1 Methods to establish setting out dimensions and positions using equipment and the methods of transferring data</p> <p>a) Equipment:</p> <ol style="list-style-type: none">corner pegsprofile boards/rails (single and corner)ranging lines. <p>b) Methods:</p> <ol style="list-style-type: none">location of profile boardmarking of profile board<ul style="list-style-type: none">wall positionstrench positionscheck square by measuring diagonalscheck accuracy of corners using 3:4:5 method.
3.4 Set out right-angles	<p>3.4.1 Set out dimensions and right angles on site</p> <ol style="list-style-type: none">Establish building lines.Setting out right angles.Maintaining dimensional accuracy.

Topics	Content elements
3.5 Methods of transferring levels/datums	<p>3.5.1 Methods of transferring levels, datums and lines, their types and identification of location:</p> <p>a) Methods:</p> <ol style="list-style-type: none"> i. levelling equipment ii. spirit level and straight edge, pegs/pins iii. optical/electronic level iv. laser level and staff v. plumbing down to foundation from ranging lines vi. check gauge from datum height/peg to the top of the foundation concrete <ul style="list-style-type: none"> • DPC • Finished Floor Level (FFL). <p>b) Types:</p> <ol style="list-style-type: none"> i. Ordinance Survey Benchmark (OSBM) ii. Temporary Benchmark (TBM) iii. DPC – existing buildings iv. FFL – new and existing buildings v. site datum – various locations, depending on size of site, protected to avoid damage. <p>c) Locations of datum:</p> <ol style="list-style-type: none"> i. existing building (DPC/FFL) ii. government building iii. site locations – peg protected by barrier to avoid damage.

Unit guidance for delivery

<p>Opportunities for efficiencies in delivery across/between units:</p>	<p>Team building should be encouraged, as it would be beneficial to complete the practical activities working in small groups. It is recommended that this unit be taught alongside the building and constructing units so that practical activities are more contextualised.</p>
<p>Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:</p>	<p>Naturally occurring training activities used to set out buildings will facilitate the completion of this unit. This will support the holistic approach of delivering and assessing the qualification as well as stimulate a realistic experience for the learners.</p>
<p>Opportunities for visits/engagement with local industry and employers:</p>	<p>Research opportunities, visits to exhibitions and practical training to stimulate, motivate and educate the learner.</p>
<p>Considerations for innovative methods of delivery:</p>	<p>Health, safety and welfare issues are an important factor to consider during the delivery of this unit; therefore, strict safe working methods as outlined by legislation should be demonstrated and reinforced through close supervision of all activities. Risk assessments, method statements and COSHH assessments must be completed prior to any practical activities taking place.</p> <p>This unit should be delivered as knowledge/understanding supported by practical application. Tutors delivering this unit should ensure learners have a good understanding of the setting out process and terminology prior to reinforcing learning with practical setting out exercises.</p>
<p>Ways of ensuring content is delivered in line with current, up-to-date industry practice:</p>	<p>Employer guest lectures or real site visits should be encouraged to allow students to gain insight and or practical application of knowledge and skills in a real environment.</p> <p>Providers should ensure adherence to current relevant building regulations.</p>
<p>EDI or accessibility considerations:</p>	<p>Providers must deliver the unit in line with their EDI policy and organisational procedures.</p>
<p>Digital initiative considerations:</p>	<p>Accessing site plans though QR codes directly on site through use of mobile electrical devices.</p>

Sustainability considerations:	<p>Encouraging paperless working practices – printing materials only where necessary.</p> <p>Learners should consider approaches to sustainability throughout the construction process in order to minimise environmental impact.</p> <p>These would include recycling of materials where possible, minimising waste and reusing materials for practical tasks where possible.</p>
Books:	<p>N/A</p>
Websites:	<p>http://streetworks.org.uk/</p> <p>https://www.planningportal.co.uk/</p> <p>https://www.gov.uk/planning-permission-england-wales</p> <p>https://www.hse.gov.uk/construction/safetytopics/planning.htm</p> <p>https://www.hse.gov.uk/construction/safetytopics/siteorg.htm</p> <p>https://www.hse.gov.uk/workplacetransport/sitelayout.htm</p>

Transferable employability skills

Workplace conduct	LO and Topic
Identifies and follows codes of conduct (eg, for personal presentation, timekeeping) as appropriate to own role (CW1)	LO3: 3.4
Applies sufficient effort to enable them to complete tasks set to the standard required (CW3)	LO3: 3.4
Demonstrates initiative in carrying out own role (CW4)	LO3: 3.4
Outlines aspects of own conduct which meet expectations of a work setting (CW5)	LO3: 3.4
Problem Solving	
Gathers appropriate information or advice from different sources to help solve a specific work-related problem (PSW1)	LO3: 3.4
Assesses a range of potential solutions, applying appropriate problem-solving strategies (PSW2)	LO3: 3.4
Time management skills	
Plans work: <ul style="list-style-type: none">• according to priority• taking into account length of time needed to complete tasks• in order to meet deadlines (TMS1)	LO3: 3.4
Works at an appropriate pace to carry out tasks in accordance with plan (TMS2)	LO3: 3.4
Adjusts approach in response to any change of circumstance (eg, one task over running), as appropriate, to ensure remaining time is spent effectively (TMS3)	LO3: 3.4

Unit 204 Building solid walls and piers

Unit level:	Level 2
Guided Learning Hours (GLH):	215
Unit aim:	<p>The aim of this unit is for learners to have the knowledge, understanding and skills to set out and build solid walls and piers. These include one brick thick walls in English and Flemish bond, including garden wall bonds.</p> <p>The unit also covers attached and isolated piers, returns, junctions, movement joints, weathering features and finishes to walls. The unit will provide learners with knowledge, skills and understanding of how to use sources of information in order to plan, select resources and build solid walls in a safe way to the correct specification. Protection of the work environment must be considered during all stages of the building process.</p>
Assessment method:	Multiple choice question (MCQ) assessment, practical assessment
Links to Occupational Standard:	Bricklayer ST0095 See also qualification content mapping to Occupational Standard (Appendix 1)

Learning outcomes

1. Plan and prepare materials to build solid walls (including half brick walling)
2. Build half brick and one brick thick walls
3. Build piers for solid walls
4. Apply weathering finishes to one brick thick walls and piers

Learning outcome 1

Plan and prepare materials to build solid walls (including half brick walling)

Topics	Content elements
1.1 Common information sources for the preparing and planning for solid brick walling	<p>1.1.1 Common types of information sources that need to be interpreted, how they interact, and the information contained within, for half brick and one brick thick walling</p> <p>a) Types of information sources:</p> <ol style="list-style-type: none">i. working drawings<ul style="list-style-type: none">• floor plans• elevations• sectional• detailed drawings• assembly drawingsii. specificationsiii. manufacturer's literatureiv. work schedules, Gantt/bar chartsv. bill of quantitiesvi. building regulationsvii. risk assessmentsviii. method statementsix. manufacturer's informationx. materials schedule. <p>b) Types of information contained within information sources:</p> <ol style="list-style-type: none">i. symbols (hatchings)ii. wall positioning<ul style="list-style-type: none">• external• internaliii. dimensions (scale)iv. material typesv. bricks<ul style="list-style-type: none">• facing brick• contrasting brick• engineering brick• concrete brick• common brick• handmade brickvi. block<ul style="list-style-type: none">• lightweight• concretevii. stoneviii. wall ties<ul style="list-style-type: none">• wall starters• slip ties• expansion foam (sealants)• Expanded Metal Lath (EML)ix. DPC<ul style="list-style-type: none">• flexible• rigid

Topics	Content elements
	<ul style="list-style-type: none">x. lintels<ul style="list-style-type: none">• concrete• steelxi. mortars<ul style="list-style-type: none">• cement• masonry• Ordinary Portland Cement (OPC)• ready mixed. <p>1.1.2 How information can be interpreted, extracted, and applied to plan and build solid brick walling</p> <ul style="list-style-type: none">a) How drawings are used for setting out, the build process and completion.b) How materials and elements are bonded and fix together.c) Specific elements/processed/ finishes required.d) Specific material/element considerations required.e) Considerations for schedules, material availability, other trade start and completion times.

Topics	Content elements
1.2 Techniques and methods to calculate quantities for building solid walls	<p>1.2.1 How to use calculations, standard industry methods/quantities, measurements, material requirements and drawing specifications to estimate, required quantities of materials and resources</p> <ul style="list-style-type: none"> a) Standard industry methods/quantities: <ul style="list-style-type: none"> i. bricks in 1m², half brick thick, one-brick-thick, one-and a half-brick-thick ii. blocks in 1m², block thickness variations for solid walls iii. mortar required for 1m² iv. wastage calculation as a percentage. b) Material requirements – applying mathematical processes to establish: <ul style="list-style-type: none"> i. areas of squares, rectangles, triangles, circles and irregular shapes ii. perimeters of squares, rectangles, triangles, circles and irregular shapes iii. horizontal, vertical and linear measurements iv. volumes of squares, rectangles, triangles and irregular shapes v. percentage increase for wastage of materials and resources vi. ratios for mortar and concrete mixes vii. size of masonry products relating to British standards. c) Liner measurements and the methods applied to calculate: <ul style="list-style-type: none"> i. number of copings and cappings ii. bricks for brick on edge iii. tiles for tile creasing iv. DPCs v. expansion joints placement vi. decorative features <ul style="list-style-type: none"> • plinth course • contrasting brickwork bands. d) Drawings and specifications: <ul style="list-style-type: none"> i. ties ii. expansion joints, expansion ties, foam, filler, sealants iii. mortar dies iv. DPCs v. decorative features integrated specialist brick(s), stonework or elements vi. drainage vii. reinforcement viii. back fill requirements (retaining walls). e) Materials required to construct and finish a range of shapes and sizes of walls: <ul style="list-style-type: none"> i. solid walls with raking cut ii. attached piers iii. isolated piers.

Topics	Content elements
1.3 Safe use of materials on site prior to building solid walls (half brick and one brick thick)	1.3.1 Factors to consider for materials, their delivery, storage and safe use on site a) Factors: i. access to site ii. traffic management iii. storage – placement for efficiency, safety and security iv. security v. weather conditions vi. weight vii. size viii. sustainability ix. surface run-off x. potential contamination (water) xi. disposal of waste.

Topics	Content elements
1.4 Specifications, materials and tools for planning and building solid walls	<p>1.4.1 Methods for the specification and use of materials when planning and building solid walls (half brick and one brick thick)</p> <p>a) Methods:</p> <ol style="list-style-type: none"> i. selection of materials to meet the specification ii. using manufacturer's literature to ensure materials are fit for purpose iii. mixing for materials and the considerations attached to mixing by hand (using batching equipment), mechanical mixing, pre-mixed, silo iv. cutting of materials, by hand, mechanical, pre-cut v. cutting of bricks by hand <ul style="list-style-type: none"> • trowel • hammer and bolster • brick/scutch hammer vi. lifting and positioning of materials including, manual handling and mechanical lift methods. <p>1.4.2 The uses of common tools and power tools and the considerations of how they are used with materials during construction</p> <p>a) Common tools – uses, maintenance and storage requirements:</p> <ol style="list-style-type: none"> i. levels <ul style="list-style-type: none"> • spirit • laser ii. trowels <ul style="list-style-type: none"> • pointing trowel • brick trowel iii. tape measures iv. lump hammer v. bolsters vi. brick hammer vii. brick jointer viii. lines blocks and pins ix. profiles and brick clamps x. scutch xi. chariot jointer xii. hand brush xiii. plugging (jointing) chisel xiv. cold chisel. <p>b) Power tools used for building solid walls and their limitations:</p> <ol style="list-style-type: none"> i. disc cutter, (battery, petrol, 110v) <ul style="list-style-type: none"> • material restraint • wet cutting ii. mixers, (petrol, 110v) iii. drills, (battery, 110v).

Topics	Content elements
1.5 Prepare the work area to construct solid walling	1.5.1 Preparations required to construct solid walling <ol style="list-style-type: none"> a) Read and interpret information from drawings and specifications. b) Estimate and select required resources: <ol style="list-style-type: none"> i. prepare tools list ii. prepare equipment list iii. prepare materials list. c) Prepare and maintain a safe working area: <ol style="list-style-type: none"> i. completed risk assessment ii. completed method statements. d) Select hand tools. e) Identify the correct PPE. f) Comply with industry regulations, standards and guidance.

Learning outcome 2

Build, half brick and one brick thick walls

Topics	Content elements
2.1 Bonding types and arrangements for solid brick walls	2.1.1 The purpose and requirements of bonding arrangements, types of bond for solid brick walls (half brick and one brick thick) and factors required to maintain bonding arrangements <ol style="list-style-type: none"> a) Purpose and requirements of bonding: <ol style="list-style-type: none"> i. reasons for dry bonding ii. rules of bonding, half bond/stretcher bond and quarter bond iii. tie brick(s) iv. avoidance of straight joints with corresponding courses v. structural integrity, how loads are distributed through walls vi. strength requirements. b) Characteristics and types of bond: <ol style="list-style-type: none"> i. English bond ii. English garden wall bond iii. Flemish bond iv. Flemish garden wall bond v. stretcher bond vi. broken bond vii. reverse bond viii. bonding arrangements for blockwork. c) Maintain bonding arrangements: <ol style="list-style-type: none"> i. straight walls ii. stopped ends iii. right angled quoins iv. tee junctions v. ½ Bats, ¾ Bats and Queen closures.

Topics	Content elements
2.2 Solid walling and material selection when setting out	<p>2.2.1 Methods to setting out solid walling and when these are used:</p> <ol style="list-style-type: none"> a) Methods: <ol style="list-style-type: none"> i. dry bonding ii. assembly plans or detailed drawings. <p>2.2.2 Reasons for types of material selection or rejection and factors to consider when constructing solid walling:</p> <ol style="list-style-type: none"> a) Reasons for selection <ol style="list-style-type: none"> i. residential retaining walls ii. industrial and commercial walls iii. residential garden walls (non-retaining) iv. brick on edge capping v. walls that include projecting decorative features vi. cost vii. strength. b) Material types: <ol style="list-style-type: none"> i. engineering brick (Class A) ii. engineering brick (Class B) iii. concrete facing bricks iv. clay common bricks v. clay facing bricks vi. blocks (3.5 N, 7 N, 10 N) vii. stone. c) Factors to consider: <ol style="list-style-type: none"> i. weight ii. size (variations) iii. texture iv. absorption v. compressive strength vi. strengths and limitations.
2.3 Construct solid walling	<p>2.3.1 Estimate and select resources required and construct solid half brick thick walling:</p> <ol style="list-style-type: none"> a) Half brick walling with stop ends. b) Half brick walling with two right-angled quoins with stop ends. c) Half brick walling within indents (to allow walling to be extended at 90° maintaining original bond). d) Half brick walling using reinforcement (EML). e) Half brick walling (blockwork) with stop ends. f) Half brick walling (blockwork) right-angled quoin with stop ends. g) Half brick walling (blockwork) within indents (to allow walling to be extended at 90° maintaining original bond). h) Half Brick walling (blockwork) using reinforcement (EML). i) Half Brick walling (rusticated quoin with brick and blockwork).

2.3.2 Estimate and select resources required and construct solid one brick thick walling

- a) English bond straight wall with stop ends and integrated soldier course (brick on edge capping).
- b) English bond right angle quoin with stop ends.
- c) English garden wall straight wall with stop ends (brick on edge capping).
- d) Flemish straight wall with stop ends and integrated soldier course (brick on edge capping).
- e) Flemish bond right angle quoin with stop ends.
- f) Flemish garden wall straight wall with stop ends (brick on edge capping).
- g) broken bond (English and Flemish).

2.3.3 Factors to consider when constructing solid walling:

- a) Maintain quality of work:
 - i. maintain bond
 - ii. maintain regular joint size
 - iii. maintain gauge
 - iv. maintain level
 - v. maintain plumb
 - vi. maintain range
 - vii. visual appearance.
- b) Check for square.
- c) Specification – joint finishes.
- d) Installation specific factors for elements in line with manufacturers information and building regulations.
- e) Use appropriate PPE.
- f) Use appropriate hand tools.
- g) Maintain and store hand tools.
- h) Measure and cut bricks and blocks using hand tools, to given tolerances.
- i) Protect materials and finished work.

Topics	Content elements
2.4 Purpose of movement joints	<p>2.4.1 Types of movement joints, the reasons for using them including the advantages and disadvantages and their installation requirements</p> <ol style="list-style-type: none"> a) Types of movement joint: <ol style="list-style-type: none"> i. open joints ii. filled joints iii. foam rubber iv. cellular polyethylene v. flexible cellular polyurethane. b) Reasons for using movement joints and their advantages and disadvantages: <ol style="list-style-type: none"> i. advantages <ul style="list-style-type: none"> • allow for movement • reduce stress and increases durability of brickwork • improved lifespan of the brickwork • prevent movement cracks ii. disadvantages <ul style="list-style-type: none"> • maintenance requirements • can be difficult to install • cost • can be unsightly • ingress point(s) for water. c) Installation requirements: <ol style="list-style-type: none"> i. building regulations ii. warranty requirements iii. manufacturer's guidance iv. ties (expansion/sleeve ties) v. joint fill, sealants <ul style="list-style-type: none"> • low modulus silicon • polysulphide vi. distance between expansion joints.

Topics	Content elements
2.5 Purpose of protecting work and materials	<p>2.5.1 Reasons for protecting work and materials and the methods required to ensure all elements remain fit for purpose</p> <p>a) Reasons:</p> <ol style="list-style-type: none"> i. weather conditions impact on materials and constructed works ii. site conditions iii. impact damage iv. reduction of waste v. reduce cost (rectification of damaged works) vi. frost damage vii. water damage viii. construction damage. <p>b) Methods:</p> <ol style="list-style-type: none"> i. protect stacked materials with protective covers, brick jackets/hats, plastic sheeting ii. protect freshly laid brick/block work, hessian sheeting iii. stack/load out materials for maximum efficiency away from potential issues iv. considering site conditions that may cause damage to materials and completed works. v. barriers and signage vi. material management, using oldest materials first vii. inspection materials before use viii. train employees in safe manual handling techniques and storage techniques ix. security fencing/hoarding.

Learning outcome 3

Build piers for solid walls

Topics	Content elements
3.1 Bonding types and arrangements for isolated and attached piers	<p>3.1.1 Purpose and requirements of bonding, and the characteristics and types of bonding arrangements for isolated and attached piers</p> <p>a) Purpose and requirements of bonding types:</p> <ol style="list-style-type: none"> i. half bond/stretcher bond ii. quarter bond. <p>b) Bonding arrangements for isolated piers (two brick square):</p> <ol style="list-style-type: none"> i. English – solid ii. Flemish – solid iii. stretcher bond – hollow iv. $\frac{3}{4}$ Bats and Queen closures and how they are incorporated to maintain bonding in isolated piers. <p>c) Bonding arrangements for attached piers:</p> <ol style="list-style-type: none"> i. distance between attached piers ii. strength and reinforcement benefits to the walling iii. cost benefits.

Topics	Content elements
3.2 Set out and construct isolated piers and attached piers	<p>3.2.1 Methods for setting out and constructing isolated piers and attached piers brick walls</p> <ul style="list-style-type: none"> a) Methods: <ul style="list-style-type: none"> i. use dry bonding ii. reviewing assembly plans or detailed drawings. <p>3.2.2 Construct attached piers in half brick thick walling</p> <ul style="list-style-type: none"> a) Stretcher bond wall with stop ends (attached pier to incorporate mitred bricks to maintain the bond). <p>3.2.3 Construct attached piers in one brick thick walling</p> <ul style="list-style-type: none"> a) English bond straight wall with stop ends (attached pier to incorporate mitred bricks to maintain the bond). b) Flemish straight wall with stop ends (attached pier to incorporate mitred bricks to maintain the bond). <p>3.2.4 Construct isolated piers</p> <ul style="list-style-type: none"> a) Two brick stretcher bonds (hollow pier) with two contrasting banding brick courses. b) Two brick Flemish bond pier (solid) with projecting features (brick on edge capping). c) Two brick English bond pier (solid) with projecting features (pre-cast pier cap). <p>3.2.5 Factors to consider when construct building attached and isolated piers</p> <ul style="list-style-type: none"> a) Maintain quality of work: <ul style="list-style-type: none"> i. maintain bond ii. maintain regular joint size iii. maintain gauge iv. maintain level v. maintain plumb vi. maintain range vii. visual appearance. b) Check for square. c) Specification – joint finishes. d) Installation specific factors for elements in line with manufacturers information and building regulations. e) Use appropriate PPE. f) Use appropriate hand tools. g) Maintain and store hand tools. h) Measure and cut bricks and blocks using hand tools, to given tolerances. i) Protect materials and finished work. j) Segregate waste resources for reuse, recycling and disposal.

Learning outcome 4

Apply weathering finishes to one brick thick walls and piers

Topics	Content elements
4.1 Principles of decorative features	<p>4.1.1 Characteristics and principles of feature types and their purposes</p> <p>a) Feature types:</p> <ol style="list-style-type: none">i. copingsii. capsiii. brick on edgeiv. oversailingv. tile creasingvi. recessedvii. projectingviii. soldier coursesix. contrasting bricksx. banding courses. <p>4.1.2 Processes and factors to consider in order to achieve decorative features</p> <p>a) Processes:</p> <ol style="list-style-type: none">i. setting out – decorative feature placementii. maintain bondiii. maintain joint thicknessiv. maintained consistency of any cut bricksv. maintained alignmentvi. level – projections vertical and horizontalvii. squareviii. consistency of oversailing dimensionsix. projection dimension consistencyx. recessed dimension consistencyxi. specification requirements.
4.2 Different types of joint finishes	<p>4.2.2 Characteristics of different types of joint finishes, their differences and reasons for the application of the different types of joint finishes and tools used</p> <p>a) Types:</p> <ol style="list-style-type: none">i. weather struckii. flushiii. half roundiv. recessed. <p>b) Differences between:</p> <ol style="list-style-type: none">i. jointingii. pointing. <p>c) Reasons for application:</p> <ol style="list-style-type: none">i. decorative for exposed areasii. general decorative finishiii. general joint finishiv. hard well burnt bricks. <p>d) Tools:</p> <ol style="list-style-type: none">i. half round jointerii. pointing troweliii. chariot jointer.

Topics	Content elements
4.3 Construct different types of joint finishes	4.3.1 Different types of joint finishes a) Joint finishes: i. weather struck ii. flush iii. half round iv. recessed.

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	This unit should be delivered as knowledge/understanding supported by practical application. It is recommended that this unit be taught alongside Unit 203 Setting out buildings so that practical activities are more contextualised.
Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:	<p>Short formative assessments at the end of sessions/aligned to outcome.</p> <p>Naturally occurring training activities used to build solid walls will facilitate the completion of this unit. This will support the holistic approach of delivering and assessing the qualification as well as stimulate a realistic experience for the learners.</p>
Opportunities for visits/engagement with local industry and employers:	Research opportunities, visits to exhibitions and practical training to stimulate, motivate and educate the learner.
Considerations for innovative methods of delivery:	Health, safety and welfare issues are an important factor to consider during the delivery of this unit; therefore, strict safe working methods as outlined by legislation should be demonstrated and reinforced through close supervision of all activities. risk assessments, method statements and COSHH assessments must be completed prior to any practical activities taking place.
Ways of ensuring content is delivered in line with current, up-to-date industry practice:	Providers should ensure adherence to current relevant building regulations.
EDI or accessibility considerations:	<p>Providers must deliver the unit in line with their EDI policy and organisational procedures.</p> <p>Teaching for some specific areas may need adaptation eg PPE considerations based on religious grounds (eg headwear).</p>
Digital initiative considerations:	None.
Sustainability considerations:	<p>Encouraging paperless working practices – printing materials only where necessary.</p> <p>Providers should consider approaches to sustainability throughout the construction process in order to minimise environmental impact.</p> <p>These would include recycling of materials where possible, minimising waste, and reusing materials for practical tasks wherever possible including reuse of mortars, bricks blocks and masonry elements.</p> <p>Waste procedures (ensuring that waste is minimised, recycling of components is in place wherever possible).</p>

	Minimising water use and considering options for reuse/salvage as part of building activities wherever possible.
Books:	Colin Fearn, Mike Jones, Clayton Rudman, Level 1 Diploma in Bricklaying (City & Guilds) Colin Fearn, Mike Jones, Clayton Rudman, Level 2 Diploma in Bricklaying (City & Guilds) W.G.Nash, Brickwork 1, Stanley Thornes Jon Collison, Brickwork and Bricklaying, A DIY handbook, The Crosswood Press Ltd
Websites:	https://www.gov.uk/government/publications/structure-approved-document-a https://www.self-build.co.uk/how-build-brick-wall/ https://www.designingbuildings.co.uk/wiki/Types_of_brick_bonding https://www.bbc.co.uk/bitesize/topics/zkww7p3/articles/ztfx7p3#zq99wsg3

Transferable employability skills

Communication in the workplace	LO and Topic
Selects appropriate formats for written communication for different purposes and audiences, in line with workplace conventions or procedures, where appropriate (CSW1)	LO1: 1.5, LO2: 2.3
Produces documents of different types that are appropriate (eg, in terms of length, style and language use) for the purpose and intended audience (CSW2)	LO1: 1.5, LO2: 2.3
Uses available software appropriately to present written communication, including numerical information (CSW4)	LO1: 1.5
Accurately and appropriately uses terminology associated with a particular workplace or sector in written communication (CSW5)	LO1: 1.5, LO2: 2.3
Workplace conduct	
Identifies and follows codes of conduct (eg, for personal presentation, timekeeping) as appropriate to own role (CW1)	LO2: 2.3, LO3: 3.2, LO4: 4.3
Applies sufficient effort to enable them to complete tasks set to the standard required (CW3)	LO2: 2.3, LO3: 3.2, LO4: 4.3
Demonstrates initiative in carrying out own role (CW4)	LO2: 2.3, LO3: 3.2, LO4: 4.3
Outlines aspects of own conduct which meet expectations of a work setting (CW5)	LO2: 2.3, LO3: 3.2, LO4: 4.3
Problem Solving	
Gathers appropriate information or advice from different sources to help solve a specific work-related problem (PSW1)	LO1: 1.5, LO2: 2.3, LO3: 3.2, LO4: 4.3
Assesses a range of potential solutions, applying appropriate problem-solving strategies (PSW2)	LO1: 1.5, LO2: 2.3, LO3: 3.2, LO4: 4.3
Presents a clear action plan, including tasks and timelines, for implementing a chosen solution to a specific work-related problem (PSW4)	LO1: 1.5
Time management skills	
Plans work: • according to priority • taking into account length of time needed to complete tasks • in order to meet deadlines (TMS1)	LO2: 2.3, LO3: 3.2, LO4: 4.3
Works at an appropriate pace to carry out tasks in accordance with plan (TMS2)	LO2: 2.3, LO3: 3.2, LO4: 4.3
Adjusts approach in response to any change of circumstance (eg, one task over running), as appropriate, to ensure remaining time is spent effectively (TMS3)	LO2: 2.3, LO3: 3.2, LO4: 4.3

Unit 205 Building cavity walls

Unit level:	Level 2
Guided Learning Hours (GLH):	133
Unit aim:	<p>The aim of this unit is for learners to have the knowledge, understanding and skills to set out and build cavity walls.</p> <p>Learners will be able to understand how to use sources of information to plan, select resources and build cavity walls in a safe way to the correct specification. Protection of the work environment must be considered during all stages of the building process. Skills and knowledge acquired from this unit include setting out, building cavities to form straight lengths, returns, junctions, form openings with incorporated elements, closures, cavity trays, fire stops, insulation, ventilation and repair and replace damaged masonry.</p>
Assessment method:	Multiple choice question (MCQ) assessment, practical assessment
Links to Occupational Standard:	Bricklayer ST0095 See also qualification content mapping to Occupational Standard (Appendix 1)

Learning outcomes

1. Materials, resources and information sources used during the planning stage of building a cavity wall
2. Understand how materials and resources are stored, used and protected during the construction process
3. Build cavity walls to comply with building regulations incorporating design features: raking cut, angles and decorative features of a masonry wall
4. Identifying defects and carrying out repairs

Learning outcome 1

Materials, resources and information sources used during the planning stage of building a cavity wall

Topics	Content elements
1.1 Common information sources for the preparing and planning for cavity walling	<p>1.1.1 Common types of information sources that need to be interpreted and how they interact</p> <p>a) Types of information sources:</p> <ol style="list-style-type: none">i. working drawings<ul style="list-style-type: none">• floor plans• elevations• sectional• detailed drawings• assembly drawings• symbols (hatchings)• dimensions (scale)ii. specifications<ul style="list-style-type: none">• fire• moisture prevention and control• wind posts• movement/restraintiii. manufacturer's literatureiv. work schedules, Gantt/bar chartsv. bill of quantitiesvi. building regulationsvii. risk assessmentsviii. method statements<ul style="list-style-type: none">• alternative construction methods (modern methods of construction)ix. manufacturers' informationx. materials schedule. <p>1.1.2 How information can be interpreted, extracted, and applied to plan and build cavity walls</p> <ol style="list-style-type: none">a) How drawings are used for setting out, the build process and completion.b) How materials and elements are bonded and fix together.c) Specific elements/processed/finishes required.d) Specific material/element considerations required.e) Factors for schedules, material availability, other trade start and completion times.
1.2 Materials required for building cavity walling	<p>1.2.1 Characteristics of materials and components required for cavity walling and their uses</p> <p>a) Materials and components:</p> <ol style="list-style-type: none">i. bricksii. insulation block/concrete blocksiii. stoneiv. decorative stone components<ul style="list-style-type: none">• lintels• sills

Topics	Content elements
	<ul style="list-style-type: none"> • quoins (rusticated) v. roof trusses and timber wall plates <ul style="list-style-type: none"> • tension/restraint straps • hangers vi. wall ties <ul style="list-style-type: none"> • wall starters • reinforcement – EML • helical ties • metal (various shapes) vii. expansion joints <ul style="list-style-type: none"> • expansion ties/slip ties • foam filler • cellular polyethylene • flexible cellular polyurethane • sealants viii. DPC <ul style="list-style-type: none"> • flexible <ul style="list-style-type: none"> ○ polyethylene • rigid <ul style="list-style-type: none"> ○ engineering brick (Class A) • vertical (insulated) ix. insulation <ul style="list-style-type: none"> • cavity closures • partial/full • full fill • insulation restraint clips • insulation jointing tapes x. lintels <ul style="list-style-type: none"> • concrete • steel (formed) • separate lintels (internal and external) • Rolled Steel Joists (RSJ) • pad stones/spreaders • preformed arches • fire rated lintels xi. mortars <ul style="list-style-type: none"> • sand and cement ratios (gauging) • additives • mortar dies • plasticiser • rapid harder • water proofer xii. ventilation <ul style="list-style-type: none"> • clay air bricks • plastic air bricks • airbrick liner (fixed, telescopic) xiii. cavity tray (to include jointing methods and minimum lap requirements) <ul style="list-style-type: none"> • flexible • rigid

Topics	Content elements
	<ul style="list-style-type: none">• purpose made cavity trays• step cavity trays• prefabricated corners• cavity tray stop-endsxiv. weep holes<ul style="list-style-type: none">• fire rated• plasticxv. fire stops<ul style="list-style-type: none">• cavity barriers (vertical and horizontal)• cavity barriers (openings)• trench blocks.

Topics	Content elements
1.3 Techniques and methods to calculate quantities for cavity walls	<p>1.3.1 The use of calculations and standard industry methods/quantities, for material requirements and linear measurements, using drawings and specifications to estimate, required quantities of materials and resources</p> <ul style="list-style-type: none"> a) Standard industry methods/quantities: <ul style="list-style-type: none"> i. bricks in 1m² (half brick thick) ii. blocks in 1m² iii. mortar required for 1m² mortar required for 1m² (brickwork and blockwork) iv. wastage calculation as a percentage. b) Material requirements – applying mathematical processes to establish: <ul style="list-style-type: none"> i. areas of squares, rectangles, triangles, circles and irregular shapes ii. perimeters of squares, rectangles, triangles, circles and irregular shapes iii. horizontal, vertical and linear measurements iv. volumes of squares, rectangles, triangles and irregular shapes v. percentage increase for wastage of materials and resources vi. ratios for mortar and concrete mixes vii. size of masonry products relating to British standards. c) Linear measurements and the methods applied to calculate: <ul style="list-style-type: none"> i. DPCs – (vertical and horizontal) ii. expansion joints placement, foam filler, sealants iii. decorative features – integrated specialist brick(s), stonework or elements iv. fire stops v. cavity trays vi. starter ties. d) Drawings and specifications: <ul style="list-style-type: none"> i. ties ii. expansion joints, expansion ties, foam, filler, sealants iii. insulation iv. additives, mortar dies, plasticiser, rapid hardener, water proofer v. lintels vi. restraint straps/hangers vii. ventilation, air bricks, weep holes viii. reinforcement.

Topics	Content elements
1.4 Prepare the work area to construct cavity walling	1.4.1 Preparations required to construct solid walling <ol style="list-style-type: none"> a) Read and interpret information from drawings and specifications. b) Estimate and select required resources: <ol style="list-style-type: none"> i. prepare tools list ii. prepare equipment list iii. prepare materials list. c) Prepare and maintain a safe working area: <ol style="list-style-type: none"> i. completed risk assessment ii. completed method statements. d) Select hand tools. e) Identify the correct PPE. f) Comply with industry regulations, standards and guidance.

Learning outcome 2

Understand how materials and resources are stored, used and protected during the construction process

Topics	Content elements
2.1 Safe use of materials onsite prior to building cavity walls	2.1.1 Factors to consider for materials, their delivery, storage and safe use on site a) Factors: i. access to site ii. traffic management iii. storage – placement for efficiency, safety and security iv. security v. weather conditions vi. weight vii. size viii. sustainability ix. surface run-off x. potential contamination (water) xi. disposal of waste.

Topics	Content elements
2.2 Specifications, materials and tools for planning and building cavity walls	<p>2.2.1 Consideration of the specification and use of materials when planning and building cavity walls and the consideration for selection and use of tools required</p> <p>a) Specification and use of materials:</p> <ol style="list-style-type: none"> i. selection of materials to meet the specification ii. manufacturer's literature to ensure materials are fit for purpose iii. mixing for materials (gauging) and the factors to consider attached to mixing by hand, mechanical mixing, pre-mixed, silo iv. cutting of materials, by hand, mechanical, pre-cut v. lifting and positioning of materials including, manual handling and mechanical lift methods vi. quality of materials vii. thermal qualities viii. airtightness. <p>b) Common tools, their maintenance and storage requirements:</p> <ol style="list-style-type: none"> i. level(s) <ul style="list-style-type: none"> • spirit • laser ii. trowel(s) <ul style="list-style-type: none"> • pointing trowel • brick trowel iii. tape measures iv. lump hammer v. bolsters vi. brick hammer vii. brick jointer viii. lines blocks and pins ix. gauge rod x. scutch xi. chariot jointer xii. brush xiii. plugging chisel xiv. cold chisel xv. corner profiles and brick clamps xvi. square. <p>c) Power tools used for building cavity walls and their limitations:</p> <ol style="list-style-type: none"> i. disc cutter (battery, petrol, 110v) <ul style="list-style-type: none"> • material restraint • wet cutting ii. mixers (petrol, 110v) iii. drills (battery, 110v).

Topics	Content elements
2.3 Purpose and requirements of bonding	<p>2.3.1 Characteristics of maintaining bonding arrangements and reason for bond selection within cavity walls</p> <p>a) Characteristics of bonds:</p> <ol style="list-style-type: none"> i. half brick thick walls <ul style="list-style-type: none"> • half bond/stretcher bond • reverse bond • quarter bond • broken bond • bond management, common locations to regain bonding arrangements within elevations. <p>b) Purpose and reason for bond selection:</p> <ol style="list-style-type: none"> i. cost ii. strength iii. design iv. materials.
2.4 Methods to bridge openings in cavity walls	<p>2.4.1 Types of support to bridge masonry openings, their bearings and loads as per current building regulations, and their interaction with other materials and components in their construction</p> <p>a) Types of support to bridge masonry openings:</p> <ol style="list-style-type: none"> i. steel lintels ii. concrete lintels iii. stone lintels iv. arches v. Rolled Steel Joist (RSJ). <p>b) Materials, components and their uses:</p> <ol style="list-style-type: none"> i. bricks ii. block iii. stone iv. lintels v. weep holes vi. ties vii. cavity trays viii. fire stops ix. cavity closers.

Topics	Content elements
2.5 Purpose of protection needed when building cavity walls	<p>2.5.1 Reasons for protecting work and materials and the methods required to ensure all elements remain fit for purpose</p> <p>a) Reasons:</p> <ol style="list-style-type: none"> i. weather conditions impact on materials and constructed works ii. site conditions iii. impact damage iv. reduction of waste v. reduce cost (rectification of damaged works) vi. frost damage vii. water damage viii. construction damage. <p>b) Methods:</p> <ol style="list-style-type: none"> i. protect stacked materials with protective covers, brick jackets/hats, plastic sheeting ii. protect freshly laid brick/block work, hessian sheeting iii. stack/load out materials for maximum efficiency away from potential issues iv. considering site conditions that may cause damage to materials and completed works v. barriers and signage vi. material management, using oldest materials first vii. inspection of materials before use viii. train employees in safe manual handling techniques and storage techniques ix. security fencing/hoarding.

Learning outcome 3

Build cavity walls to comply with building regulations incorporating design features: raking cut, angles and decorative features of a masonry wall

Topics	Content elements
3.1 Cavity walling and material selection when setting out	<p>3.1.1 Types of materials used in setting out a cavity wall, the processes used and ensuring compliance with industry regulations, standards and guidance</p> <p>a) Materials:</p> <ol style="list-style-type: none">i. DPCsii. DPMsiii. trench blocksiv. reinforcement materialsv. wall ties, wall starters, specialist ties (cladding systems)vi. air bricksvii. ventilationviii. lintelsix. cavity traysx. fire stopsxi. weep holes. <p>b) Processes:</p> <ol style="list-style-type: none">i. extracting information from working drawingsii. extracting construction specific details and elementsiii. loading outiv. checking building linev. checking squarevi. checking ground levelvii. setting out bondviii. checking gauge from datum markix. build corners and run in (corner profiles)x. installation specific factors for elements in line with manufacturer's information and building regulations. <p>3.1.2 Methods of installing cavity insulation and characteristics of associated materials:</p> <p>a) Insulation:</p> <ol style="list-style-type: none">i. partial fillii. full filliii. injection filliv. ties and restraint clipsv. jointing tapes. <p>b) Materials and their correct installation:</p> <ol style="list-style-type: none">i. cavity trays<ul style="list-style-type: none">• correct positioning• lap requirements and jointing requirements• jointing methods• minimum upstands• cavity tray position and stop end considerations• internal and external detailii. air bricks<ul style="list-style-type: none">• placement and tray and liner considerationsiii. lintels<ul style="list-style-type: none">• bearing

Topics	Content elements
	<ul style="list-style-type: none"> • bonding considerations for bearing (full block on internal walling) • pad stone placement • incorporated opening for services underground level (concrete lintel to bridge opening) <p>iv. wall and roof abutments</p> <ul style="list-style-type: none"> • DPC and cavity tray positioning and heights <p>v. DPC</p> <ul style="list-style-type: none"> • lap requirements • stepped DPC's • ground level factors (minimum height requirements) <p>vi. DPM</p> <ul style="list-style-type: none"> • LAP requirements • positioning • type <p>vii. insulation</p> <ul style="list-style-type: none"> • partial fill • full fill • jointing/bonding methods <p>viii. weep holes</p> <ul style="list-style-type: none"> • spacings • bedded correctly in conjunction with cavity tray <p>ix. expansion joints and restraint</p> <p>x. fire stops</p> <ul style="list-style-type: none"> • vertical and horizontal placement • fixing methods <p>xi. ties</p> <ul style="list-style-type: none"> • placement <p>xii. trench blocks.</p>
	<p>3.1.3 Factors to consider for setting out when using alternative modern methods of construction</p> <ol style="list-style-type: none"> a) Rapid build technology. b) Precast components. c) Frame systems (steel and timber). d) Cladding systems. e) Masonry support systems.

Topics**Content elements****3.2 Construct cavity walling****3.2.1 Estimate and select resources required and construct cavity walling**

- a) Cavity walling in stretcher bond (brick and block) two stop ends, to include wall ties and DPC.
- b) Cavity walling in stretcher bond (brick and block) two stop ends, to include wall ties, DPC, cavity tray and weep holes.
- c) Cavity walling in stretcher bond with 90° quoin with corbelled feature, insulation, ties and racking cut.
- d) Cavity walling in stretcher bond with internal tee junction with integral fire stop.
- e) Cavity walling in stretcher bond (brick and block) with two right-angled quoins with stop ends, with ties DPC and weep holes, airbrick (cavity tray) and insulation.
- f) Cavity walling with rusticated quoin (brick and block).
- g) Cavity walling in stretcher bond (brick and block) with one right-angled quoin with stop end, lintel (opening, closure around opening) brick solders over the lintel (cavity trays and weep holes), incorporating cavity closures, ties, DPC, airbrick and insulation (build using gauge rods, profiles and square).
- h) Cavity walling in stretcher bond (brick and block) with two right-angled quoins with stop ends with solders over the opening (closure around opening), brick on edge sill, (construct gable end/raking cut) incorporating cavity closures, ties, DPC and weep holes, airbrick, insulation and fire stops (build using gauge rods, profiles and squares).

3.2.2 Factors to consider when constructing cavity walling:

- a) Maintain quality of work:
 - i. maintain bond
 - ii. maintain regular joint size
 - iii. maintain gauge
 - iv. maintain level
 - v. maintain plumb
 - vi. maintain range
 - vii. maintain cavity cleanliness
 - viii. visual appearance.
- b) Check for square.
- c) Specification – joint finishes.
- d) Installation specific factors for elements in line with manufacturer's information and building regulations.
- e) Use of appropriate PPE.
- f) Use of appropriate hand tools.
- g) Maintain and store hand tools.
- h) Measure and cut bricks and blocks using hand tools, to given tolerances.
- i) Protect materials and finished work.
- j) Quality of works – thermal qualities, airtightness and ventilation.
- k) Segregate waste resources for reuse, recycling and disposal.

Topics	Content elements
3.3 Reasons for different types of joint finishes	3.3.1 Characteristics of different types of joint finishes, their differences, reasons for the application of the different types of joint finishes and tools used: <ul style="list-style-type: none"> a) Types <ul style="list-style-type: none"> i. weather struck ii. flush iii. half round iv. recessed. b) Differences between: <ul style="list-style-type: none"> i. jointing ii. pointing. c) Reasons for application: <ul style="list-style-type: none"> i. decorative for exposed areas ii. general decorative finish iii. general joint finish iv. hard well burnt bricks. d) Tools: <ul style="list-style-type: none"> iv. half round jointer v. pointing trowel vi. chariot jointer.
3.4 Construct different types of joint finishes	3.4.1 Different types of joint finishes used in construction <ul style="list-style-type: none"> a) Joint finishes: <ul style="list-style-type: none"> i. weather struck ii. flush iii. half round iv. recessed.

Learning outcome 4

Identifying defects and carrying out repairs

Topics	Content elements
4.1 Common defects and repair methods in brick work	4.1.1 Features of common defects in brick work and their repair methods a) Defects: i. damaged brickwork ii. cracked mortar iii. staining iv. efflorescence v. lime leaching vi. spalling vii. banding. b) Repair methods: i. removing and replacing brickwork ii. cleaning brickwork iii. re-pointing iv. resin bond repair systems v. surface sealing.
4.2 Carry out a repair	4.2.1 Accurately gauge and hand mix mortar to ratio to carry out simple masonry repairs a) Mortar ratio: i. Brick 6:1 ii. Block 4:1. b) Repairs: i. remove and replace a damaged brick ii. remove and replace a damaged block.

Unit guidance for delivery

<p>Opportunities for efficiencies in delivery across/between units:</p>	<p>This unit should be delivered as knowledge/understanding supported by practical application. It is recommended that this unit be taught alongside Unit 203 Setting out buildings so that practical activities are more contextualised.</p>
<p>Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:</p>	<p>Short formative assessments at the end of sessions/aligned to outcome.</p> <p>Naturally occurring training activities used to build cavity walls will facilitate the completion of this unit. This will support the holistic approach of delivering and assessing the qualification as well as stimulate a realistic experience for the learners.</p>
<p>Opportunities for visits/engagement with local industry and employers:</p>	<p>Tutors should make the best use of available resources to provide learners with the opportunity to use a wide range of activities that could include visits to exhibitions and practical training to stimulate, motivate and educate the learner.</p>
<p>Considerations for innovative methods of delivery:</p>	<p>Tutors should ensure that learners can achieve the skills outlined in Learning Outcomes 1 and 2 before delivering Learning Outcomes 3 and 4, as the former serve as natural predecessors for building cavity walls.</p> <p>Health, safety and welfare issues are an important factor to consider during the delivery of this unit; therefore, strict safe working methods as outlined by legislation should be demonstrated and reinforced through close supervision of all activities. Risk assessments, method statements and COSHH assessments must be completed prior to any practical activities taking place.</p>
<p>Ways of ensuring content is delivered in line with current, up-to-date industry practice:</p>	<p>Providers should ensure adherence to current relevant building regulations.</p>
<p>EDI or accessibility considerations:</p>	<p>Providers must deliver the unit in line with their EDI policy and organisational procedures.</p> <p>Teaching for some specific areas may need adaptation eg PPE considerations based on religious grounds (eg headwear).</p>
<p>Digital initiative considerations:</p>	<p>None.</p>

Sustainability considerations:	<p>Encouraging paperless working practices – printing materials only where necessary.</p> <p>Providers should consider approaches to sustainability throughout the construction process in order to minimise environmental impact.</p> <p>These would include recycling of materials where possible, minimising waste, and reusing components for practical tasks wherever possible including reuse of mortars, bricks blocks and masonry elements, DPC and weep holes.</p> <p>Waste procedures (ensuring that waste is minimised, recycling of components is in place wherever possible).</p> <p>Minimising water use and considering options for reuse/salvage as part of building activities wherever possible.</p>
Books:	<p>Colin Fearn, Mike Jones, Clayton Rudman, Level 1 Diploma in Bricklaying (City & Guilds)</p> <p>Colin Fearn, Mike Jones, Clayton Rudman, Level 2 Diploma in Bricklaying (City & Guilds)</p>
Websites:	<p>https://nhbc-standards.co.uk/</p> <p>https://catnic.com/</p> <p>https://www.kingspan.com/gb/en/knowledge-articles/cavity-wall-guide-new-builds/</p>

Transferable employability skills

Communication in the workplace	LO and Topic
Selects appropriate formats for written communication for different purposes and audiences, in line with workplace conventions or procedures, where appropriate (CSW1)	LO1: 1.4, LO3: 3.2
Produces documents of different types that are appropriate (eg, in terms of length, style and language use) for the purpose and intended audience (CSW2)	LO1: 1.4, LO3: 3.2
Uses available software appropriately to present written communication, including numerical information (CSW4)	LO1: 1.4
Accurately and appropriately uses terminology associated with a particular workplace or sector in written communication (CSW5)	LO1: 1.4, LO3: 3.2
Workplace conduct	
Identifies and follows codes of conduct (eg, for personal presentation, timekeeping) as appropriate to own role (CW1)	LO3: 3.2, 3.4, LO4: 4.2
Applies sufficient effort to enable them to complete tasks set to the standard required (CW3)	LO3: 3.2, 3.4, LO4: 4.2
Demonstrates initiative in carrying out own role (CW4)	LO3: 3.2, 3.4, LO4: 4.2
Outlines aspects of own conduct which meet expectations of a work setting (CW5)	LO3: 3.2, 3.4, LO4: 4.2
Problem Solving	
Gathers appropriate information or advice from different sources to help solve a specific work-related problem (PSW1)	LO1: 1.4, LO3: 3.2, 3.4, LO4: 4.2
Assesses a range of potential solutions, applying appropriate problem-solving strategies (PSW2)	LO1: 1.4, LO3: 3.2, 3.4, LO4: 4.2
Presents a clear action plan, including tasks and timelines, for implementing a chosen solution to a specific work-related problem (PSW4)	LO1: 1.4
Time management skills	
Plans work: • according to priority • taking into account length of time needed to complete tasks • in order to meet deadlines (TMS1)	LO3: 3.2, 3.4, LO4: 4.2
Works at an appropriate pace to carry out tasks in accordance with plan (TMS2)	LO3: 3.2, 3.4, LO4: 4.2
Adjusts approach in response to any change of circumstance (eg, one task over running), as appropriate, to ensure remaining time is spent effectively (TMS3)	LO3: 3.2, 3.4, LO4: 4.2

Appendix 1 Qualification content mapping to Occupational Standard

The table below contains the mapping of the Occupational Standard ST0095 Bricklayer Knowledge, Skills and Behaviours (KSBs) to the City & Guilds Level 2 Extended Technical Occupational Entry in Bricklaying (Diploma) (7255-52).

The KSB reference to each unit in this document is not exhaustive.

Unit	Knowledge, Skills and Behaviours (KSBs) reference
101 Health and safety in a construction environment	K1, K2, K3
201 Principles of welfare, health and safety in construction environments	K1, K2, K3, K31 S21
202 Principles of working in the construction industry	K1, K2, K4, K5, K6, K7, K8, K10, K11, K26, K27, K28 S18, S19, S20 B4, B5, B6
203 Setting out buildings	K4, K6, K7, K10, K13,
204 Building solid walls and piers	K3, K6, K7, K10, K12, K13, K14, K15, K16, K17, K18, K19, K20, K23, K29, K30 S1, S2, S4, S5, S6, S7, S8, S9, S13, S14, S15, S17 B1, B2, B3
205 Building cavity walls	K3, K4, K5, K6, K7, K8, K9, K10, K12, K13, K15, K21, K22, K24, K25, K29 S1, S2, S4, S5, S6, S7, S8, S9, S10, S11, S12, S15, S16, S17, S22 B1, B2, B3

Appendix 2 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centre document library** on **www.cityandguilds.com** or click on the links below:

- Centre Handbook: Quality Assurance Standards

This document is for all approved centres and provides guidance to support their delivery of our qualifications. It includes information on:

- centre quality assurance criteria and monitoring activities
- administration and assessment systems
- centre-facing support teams at City & Guilds/ILM
- centre quality assurance roles and responsibilities.

The Centre Handbook should be used to ensure compliance with the terms and conditions of the centre contract.

- **Centre Assessment: Quality Assurance Standards**

This document sets out the minimum common quality assurance requirements for our regulated and non-regulated qualifications that feature centre-assessed components. Specific guidance will also be included in relevant qualification handbooks and/or assessment documentation.

It incorporates our expectations for centre internal quality assurance and the external quality assurance methods we use to ensure that assessment standards are met and upheld. It also details the range of sanctions that may be put in place when centres do not comply with our requirements or actions that will be taken to align centre marking/assessment to required standards. Additionally, it provides detailed guidance on the secure and valid administration of centre assessments.

Access arrangements: When and how applications need to be made to City & Guilds

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

The **Centre document library** also contains useful information on such things as:

- conducting examinations
- registering learners
- appeals and malpractice.

Useful contacts

- Please visit the **Contact us** section of the City & Guilds website.

City & Guilds

For over 140 years, we have worked with people, organisations and economies to help them identify and develop the skills they need to thrive. We understand the life-changing link between skills development, social mobility, prosperity and success. Everything we do is focused on developing and delivering high-quality training, qualifications, assessments and credentials that lead to jobs and meet the changing needs of industry.

We partner with our customers to deliver work-based learning programmes that build competency to support better prospects for people, organisations and wider society. We create flexible learning pathways that support lifelong employability because we believe that people deserve the opportunity to (re)train and (re)learn again and again – gaining new skills at every stage of life, regardless of where they start.

The City & Guilds community of brands includes Gen2, ILM, Intertrain, Trade Skills 4U, Kineo and The Oxford Group.

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