City & Guilds Level 2 Extended Technical Occupational Entry in Maintenance Operations (Diploma) (7255-92)

Version 1.0 (November 2024)

Qualification Handbook

Qualification at a glance

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

Title and level	City & Guilds qualification number	Regulatory reference number	GLH	TQT
City & Guilds Level 2 Extended Technical Occupational Entry in Maintenance Operations (Diploma)	7255-92	610/4543/3	490	518

Version and date	Change detail	Section
V1.0 November 2024	Initial published version	All

Contents

1 Introduction

What is this qualification about?

Area	Description
Who is the qualification for?	This qualification is for those individuals who wish to carry out a qualification at college with the view to seeking employment within property maintenance when completed. The qualification is aimed at all age ranges (16–19 and 19+) and will be available to full-time and part-time students.
What does the qualification cover?	This qualification aligns to the Knowledge, Skills and Behaviours in the Property Maintenance Operative (ST0171) Occupational Standard. Learners will cover entry-level knowledge, skills and behaviours for the technical areas of tiling, plastering, plumbing and drainage, painting and decorating, carpentry and joinery, building systems and maintenance to external property areas.
What opportunities for progression are there?	Learners will have the opportunity to progress onto further study or an apprenticeship or secure an entry-level role as a pProperty Maintenance Operative in industry.
Why choose this qualification?	The City & Guilds Level 2 Extended Technical Occupational Entry in Maintenance Operations (Diploma) 7255-92 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.

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 Occupational 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 topic 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 Maintenance Operations (Diploma)	ST0171 V1.1 Property Maintenance Operative

2 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 Maintenance Operations. This collaborative work is to ensure that a learner studying the Level 2 Extended Technical Occupational Entry in Maintenance Operations has the best opportunities available to them as they progress through their career with a solid base as a starting point.

3 Qualification structure

Structure

To achieve the City & Guilds Level 2 Extended Technical Occupational Entry in Maintenance Operations (Diploma), learners must achieve all units, 101, 201, 202, 240 – 246. **All units are mandatory.**

City & Guilds unit number	Unit title	GLH
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
240	Tiling repairs and maintenance	53
241	Plastering and rendering repairs and maintenance	54
242	Remedial painting and decorating works	52
243	Maintenance of plumbing and drainage systems	73
244	Preventative and corrective maintenance of building systems	33
245	Using carpentry and joinery skills for repairs and refurbishment	63
246	Corrective maintenance of external property areas	62

Note: 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 comprises 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 GLH, 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 Maintenance Operations (Diploma)	491	519

4 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 Assurance 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 workshops (cubicles or project areas) allowing candidates to practise the requirements of the units and to carry out the Practical Assignment.

Materials	Equipment and tools	
Replacement tiles	Tape measure	Padsaw
Grout	Tile gauge	Filling knife
Adhesive or tile mortar	Tile saw	Stud detector
Filler	Tile cutters (manual and powered)	Spirit level
Plasterboard		Utility knife

Materials	Equipment and tools	
○ Fire-rated	Tile nips	Screwdrivers
○ Moisture-resistant	Adhesive spreader	Plastering/rendering trowel
○ Sound block	Grout float	Hawk board
○ Standard	Polyurethane float	Paddle mixer drill
PVA adhesive	Grout remover	Plasterers darby/straight edge
Sandpaper	Grout sponge	Scratch comb
Drywall screws	Hammer (brick, club/lump, claw, sledge)	Bucket and sponge
Timber noggins	Bolster	Dusting brushes
Self-adhesive jointing tape	Chisel (plugging and cold)	Power sander
Finishing plaster	Scissors	Steam stripper
Backing plaster	Trimming knife	Heat gun
Solvent-based paints	Scraper	Trowel (bricklaying, gauging, pointing)
Water-based paints	Filling knife	Tape measure
Thinners/solvents	Access equipment	Steam roller
Abrasive papers	Paint brushes	Plumb line
Fillers	Pasting brush	Laser level
Stoppers	Extension pole	Spirit level
Patch repair kits	Roller sleeves and arms	Wire brush
Resins and putty	Kettles and scuttles	Adjustable spanner
Knotting solution	Roller trays	Water pump pliers
Rust remover	Shave hook	Flathead screwdriver
Specialist treatments	Chisel knife	Box spanner
Liquid paint removers	Putty knife	Tap spanner
Different grades of lining papers	Sanding block	Basin wrench
Textured wall coverings	Caulking/mastic gun	Tap reseating tool
Vinyls	Wallpapering table	Pipe cutter
Adhesives	Proving devices	Weir cup
Silicones and sealants	Label informing that isolation work is in progress	Temperature probe
Push-fit fittings	Locking-off devices	Hose with hose clamp
Compression fittings	Plug-in testing device	Water receptacle
Replacement component	Combination square	Dust sheet to protect fabric of the building
Soldered fitting (subject to a hot works permit)	Sliding bevel	Access equipment (ladder, hop-up)
Isolation valves	Mortice guage	Torch
Taps – single and mixer	Saw (hand, tenon, coping)	Shovels, spades, post-hole diggers and drain spade
Fill valves	Planes	String line (pins and corner blocks)
Float operated valves	Scribe and profile	Crow/wrecking bar
Flush valves	Nail punch	Socket set
WC doughnut seal	Chop saw	Gauge staff
Replacement tap washers	Circular saw	Cement mixer
Replacement tap cartridges	Jigsaw	Grinder, petrol/battery cut-off saw
Plumbing and drainage pipes and fittings	Sander	Cordless drills including impact driver, combination, SDS drill/breaker
Drainage traps	Planer	Hydraulic breaker
Air admittance valves	Multi tool	
Types of timber (hardwood (oak, sapele), softwood (pine, redwood), sheet material (plywood, MDF, OSB, chipboard, melamine facing chipboard)	Nail gun	

Materials	Equipment and tools
Adhesives (polyvinyl acetate, epoxy resin, contact adhesive) Sealants (water-based, acrylic, silicone, polyurethane) Preservatives (water-borne, organic solvent-based, creosote) Ironmongery (euro barrels, window-locking handles, letter plates, mortice, latch, lever handles, escutcheon, hinges) Fixings (screws, nails, bolts, dowels, metal plate fasteners) Wood fillers (water-based, latex-based, epoxy) Treated timber (feather edge, posts, rails, pickets) Soil boards/gravel boards Cement, mortar, postmix and concrete Screws and nails (clout, ring shank, roundwire, collated nails) Gate ironmongery (hinges, latches, locks) Aggregates (pea gravel, hardcore, sand and gravel mix) Temporary batons Drainage pipes, gulleys, manholes and surface drains Mortar, postmix and concrete Pavers and slabs Lintels and tie wires Bonding agent Bricks (engineering, common, facing) Blocks (thermal, hollow, solid) Mortar additives (plasticiser, frost proofer, water proofer, dye, retardant, accelerant)	

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 (EQA). All EQA 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 (EQA) for the qualification will be provided by the 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 this qualification. 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: http://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library/policies-and-procedures/access-arrangements-reasonable-adjustments

5 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 is committed to net zero. Our ambition is to reduce our carbon emissions by at least 50% before 2030 and to 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 plumbing activities wherever possible.
- utilising the minimum requirements set within the Practical Assignment tasks to minimise waste.

Support materials

The following resources are available for this qualification:

Description	How to access
Sample Assessment Materials (SAMs)	www.cityandguilds.com
Qualification Handbook	www.cityandguilds.com
SmartScreen	www.smartscreen.co.uk

6 Assessment

Summary of assessment methods

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

Assessment component	Assessment method	Description and conditions
101	Externally marked MCQ exam	This assessment covers Unit 101. The multiple choice question assessment is externally set and externally marked and will be delivered online via evolve. 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. See JCQ requirements for details: **http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations** The test specification shows the coverage of the assessment across the unit content. Sample Assessment Materials (SAMs) can be downloaded from the City & Guilds website. Live assessment will be delivered online via evolve.
201	Externally marked MCQ exam	This assessment covers Unit 201. The multiple choice assessment is externally set and externally marked and will be delivered online via . 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. See JCQ requirements for details: **http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations** The test specification shows the coverage of the assessment across the unit content. Sample Assessment Materials (SAMs) can be downloaded from the City & Guilds website. Live assessment will be delivered by the City & Guilds online platform evolve.

202	Externally marked MCQ exam	This assessment covers Unit 202. The multiple choice assessment is externally set and externally marked and will be delivered online via . 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. See JCQ requirements for details: **http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations** The test specification shows the coverage of the assessment across the unit content. Sample Assessment Materials (SAMs) can be downloaded from the City & Guilds website. Live assessment will be delivered by the City & Guilds online platform evolve.
255	Externally marked MCQ exam	This assessment covers Units 241, 242 and 245. The multiple choice question exam is externally set and externally marked and will be online only. The exam is designed to assess the candidate's depth and breadth of understanding across content in Units 241, 242 and 245 (and should only be attempted following learner completion of these units), using multiple choice questions and will be sat under invigilated examination conditions. See JCQ requirements for details: **http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations** The test specification shows the coverage of the assessment across the unit content. Sample Assessment Materials (SAMs) can be downloaded from the City & Guilds website. Live assessment will be delivered by the City & Guilds online platform evolve.

256	Externally marked MCQ exam	This assessment covers Units 240, 243, 244 and 246. The multiple choice question exam is externally set and externally marked and will be online only. The exam is designed to assess the candidate's depth and breadth of understanding across content in Units 240, 243, 244 and 246 (and should only be attempted following learner completion of these units), using multiple choice questions and will be sat under invigilated examination conditions. See JCQ requirements for details: **http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations** The test specification shows the coverage of the assessment across the unit content. Sample Assessment Materials (SAMs) can be downloaded from the City & Guilds website. Live assessment will be delivered by the City & Guilds online platform evolve.
265	Practical Assignment	This assessment covers Units 241, 242 and 245. The Practical Assignment is externally set and internally marked with external verification. 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. See JCQ requirements for details: **http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations** The test specification shows the coverage of the assessment across the qualification content. Assignment material availability will be communicated through the publication of a key date schedule.
266	Practical Assignment	This assessment covers Units 240 and 243. The Practical Assignment is externally set and internally marked with external verification.

		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. See JCQ requirements for details: **http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations** The test specification shows the coverage of the assessment across the qualification content. Assignment material availability will be communicated through the publication of a key date schedule.
267	Practical Assignment	This assessment covers Units 244 and 246. The Practical Assignment is externally set and internally marked with external verification. 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. See JCQ requirements for details: **http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations** The test specification shows the coverage of the assessment across the qualification content. Assignment material availability will be communicated through the publication of a key date schedule.

Scheme of assessment overview

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

Candidates must complete all assessment components					
Assessment component	**Method**	**Duration**	**Marks**	**Marking approach**	**Grading**
101	On-demand evolve online MCQ	1 hour 10 minutes	45	Externally set and externally marked	Pass/Fail
201	On-demand evolve online MCQ	45 minutes	30	Externally set and externally marked	Pass/Fail
202	On-demand evolve online MCQ	1 hour	40	Externally set and externally marked	Pass/Fail
255	On-demand evolve online MCQ	45 minutes	30	Externally set and externally marked	Pass/Fail
256	On-demand evolve online MCQ	1 hour 15 minutes	50	Externally set and externally marked	Pass/Fail
265	On-demand Practical Assignment	10 hours 30 minutes	N/A	Internally marked and externally verified	Pass/Fail
266	On-demand Practical Assignment	8 hours	N/A	Internally marked and externally verified	Pass/Fail
267	On-demand Practical Assignment	6 hours 30 minutes	N/A	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		
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 roundings)

Test: 255	Duration: 45 minutes		
Unit	Outcome	Number of marks	Percentage %
241	LO1 Understand how to identify common defective and damaged plastered and rendered surfaces	4	13
	LO2 Understand how to plan repairs to plastered and rendered surfaces	6	20
242	LO1 Understand the common causes of painting and decorating defects in relation to maintenance works	4	13
	LO2 Understand the types of materials, chemicals and processes used in remedial painting and decorating works including sustainable methods, safe storage and disposal	6	20
245	LO1 Understand which materials and equipment are required to carry out carpentry and joinery repairs and refurbishment	8	27
	LO2 Understand how to carry out carpentry repairs and refurbishment	2	7
	Total	30	100%

Permitted materials: None

Graded: Pass/Fail

Pass mark: the pass mark for this examination is set at approx. 70% (21 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: 256	Duration: 1 hour 15 minutes		
Unit	Outcome	Number of marks	Percentage %
240	LO1 Understand the hazards, risks and official guidance when carrying out tiling tasks and the requirements of the maintenance operative job role	6	12
	LO2 Understand how to identify defective tiling surfaces	3	6
	LO4 Carry out tiling and grouting repairs	1	2
243	LO1 Understand the principles and components of the maintenance and repairs to plumbing systems	10	20
	LO2 Understand the principles and components of maintenance of drainage systems	6	12
	LO3 Understand the principles of water hygiene within water systems	4	8
244	LO1 Understand the principles of electricity and safe isolation of electrical systems	6	12
	LO2 Understand the requirements for periodic and electrical testing	2	4
	LO3 Know the principles and components of common energy management systems	2	4
246	LO1 Understand the types of construction and the materials used with regards to fencing and groundworks and landscaping	2	4
	LO2 Understand how to identify common defective and damaged external property areas	4	8
	LO3 Understand how to plan repairs to external property areas	4	8
	Total	50	100%

Permitted materials: None

Graded: Pass/Fail

Pass mark: the pass mark for this examination is set at approx. 70% (35 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 assignment coverage within the **265** assessment.

Units	Learning Outcomes	Task
241	LO4 Understand how to plan repairs to plastered and rendered surfaces	1
242	LO3 Prepare surfaces and the work area for remedial painting and decoration	1
245	LO1 Understand which materials and equipment are required to carry out carpentry and joinery repairs and refurbishment	1
245	LO2 Understand how to carry out carpentry repairs and refurbishment	1
241	LO3 Carry out repairs to plastered and rendered surfaces	2
245	LO2 Understand how to carry out carpentry repairs and refurbishment	3
245	LO3 Carry out carpentry and joinery skills for repairs and refurbishment	3
242	LO3 Prepare surfaces and the work area for remedial painting and decoration	4
242	LO4 Apply the required finishes	4

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 highlights at high level the practical assignment coverage within the **266** assessment.

Units	Learning Outcomes	Task
240	LO1 Understand the hazards, risks and official guidance when carrying out tiling tasks and the requirements of the maintenance operative job role	1
240	LO2 Prepare the work area for repairs	1
243	LO4 Carry out maintenance and repairs to plumbing systems	2
243	LO5 Carry out maintenance to drainage systems	2
240	LO2 Prepare the work area for repairs	3
240	LO4 Carry out tiling and grouting repairs	3

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 highlights at high level the practical assignment coverage within the **267** assessment.

Units	Learning Outcomes	Task
244	LO4 Carry out safe isolation on electrical circuits	1
246	LO3 Understand how to plan maintenance and repairs to external property areas	1
246	LO4 Carry out repairs to external property areas	2
244	LO4 Carry out safe isolation on electrical circuits	3
244	LO5 Carry out electrical testing and periodic testing	4

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

Graded: Pass/Fail

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

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 101 assessment
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 201 assessment
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 202 assessment
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 **255 assessment**.
The weightings for how the assessment objectives are applied in the assessment are shown in the table below.

Assessment objective	Description	Weighting in 255 assessment
AO1a Demonstrate knowledge of the content	The ability to demonstrate basic recall of relevant knowledge in response to straightforward questioning.	19 marks - 63%
AO1b Demonstrate understanding of the content	The ability to demonstrate understanding of principles and concepts beyond recall of definitions.	11 marks - 37%
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 **256 assessment**.
The weightings for how the assessment objectives are applied in the assessment are shown in the table below.

Assessment objective	Description	Weighting in 256 assessment
AO1a Demonstrate knowledge of the content	The ability to demonstrate basic recall of relevant knowledge in response to straightforward questioning.	29 marks - 58%
AO1b Demonstrate understanding of the content	The ability to demonstrate understanding of principles and concepts beyond recall of definitions.	21 marks - 42%
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%

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 evolve 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 any of the online multiple choice test assessments within this qualification are permitted up to **four** retakes of the assessments before re-registration is required.

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

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.

7 Units

Structure of the units

These units each have the following:

- City & Guilds reference number
- title
- level
- guided learning hours (GLH)
- unit aim
- assessment type

Unit 101 also has the following:

- learning outcomes, which comprise a number of assessment criteria
- evidence requirements

Units 200, 201, 240–246 also each have the following:

- learning outcomes, which comprise a number of topics
- content elements
- supporting information
- relationship to /Occupational Standard inc. reference

Unit guidance for delivery

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, 240–246** each **learning outcome** has a set of **topics** (knowledge or skills) that are simple and concise statements indicating 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, 240–246** each **topic** has a **content element** (what needs to covered) and 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.

It is recommended that the order of delivery of the units by training providers is reflective of the grouping of units for assessment. Units have been grouped for the practical assignments; the grouping will support Practical Assignment tasks to be representative of actual industry requirements by creating 'real life' maintenance operative job role scenarios requiring a multi-trade approach. The units grouping is:

Practical assessments

- Assignment 265 – Units 241, 242 and 245
- Assignment 266 – Units 240 and 243
- Assignment 267 – Units 244 and 246

Multiple choice question assessments

- MCT 255 – Units 241, 242 and 245
- MCT 256 – Units 240, 243, 244 and 246

Modular assessment is the preferred approach to assessing this qualification – this will allow learners to be assessed regularly throughout their course of study and gain achievements throughout their course.

Transferable employability skills

The Institute for Apprenticeships has 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:	This is a **theory only** unit. 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.
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 Sate 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:	Deliver alongside the Level 2 'Health, safety and welfare in construction environments' as there may be efficiencies. 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. There may be some efficiencies with health and safety practice content before/in line with associated practical activities from the trade specific content areas.
Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:	Short formative assessments at the end of sessions/aligned to outcome Sample test exam prep session(s) to prepare for assessment
Opportunities for visits/engagement with local industry and employers:	Site visits linked to specific trade area Guest lectures/speakers from local employers explaining elements of health and safety and how addressed on site
Considerations for innovative methods of delivery:	Blended learning approach – online learning opportunities 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)
Ways of ensuring content is delivered in line with current, up-to-date industry practice:	Providers should check current legislation/guidance for amendments/changes prior to content delivery Staff CPD in line with current practice (eg CSCS card)
EDI or accessibility considerations:	Teaching for some specific areas may need adaptation eg PPE considerations based on religious grounds (eg headwear)
Digital initiative considerations:	Online VR tools to explore risks and hazards in workshop
Sustainability considerations:	Encouraging paperless working practices – printing materials only where necessary
Books:	HSE pamphlets available from HSE website
Websites:	https://www.hse.gov.uk/ https://www.nebosh.org.uk/home/ https://www.ioshmagazine.com/

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

Unit level:	Level 2
Guided Learning Hours (GLH):	30
Unit aim:	This is a **theory only** unit. 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. 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. 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. This unit provides foundational health and safety knowledge to operate safely in the sector.
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	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 a) Legislation: i. Health and Safety at Work Act (HASWA) • 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) • report any work-related incidents • provide details for reporting purposes • comply with reporting procedures iii. Control of Substances Hazardous to Health (COSHH) • follow instructions for safe use • use control measures properly • report exposure incidents iv. Construction, Design and Management (CDM) regulations • 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) • use equipment only if trained • report any faulty equipment • follow safety instructions provided vi. Manual Handling Operations Regulations (MHR) • follow safe lifting techniques • use aids where provided • report unsafe loads or practices vii. Personal protective equipment (PPE) at Work Regulations • 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
	• CSCS card • induction • toolbox talks i. provision of health and safety information ii. completion of risk assessments iii. supervision iv. provision of PPE for employees v. reporting of hazards, accidents and near misses vi. CDM regulations, construction phase plans vii. protecting/providing provision for employee welfare viii. display of public liability insurance and health and safety law posters/information. b) Employee responsibilities: 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.
1.2 Organisations involved in health and safety advice and guidance	1.2.1 The key role/purpose of organisations and bodies involved in providing relevant health and safety information and guidance a) Key role/purpose of organisations and bodies: i. Health and Safety Executive (HSE) • government body responsible for health and safety regulation and enforcement ii. Institute of Occupational Health and Safety • professional body for occupational safety and health professionals iii. British Safety Council • charity providing health, safety and environmental advice iv. Royal Society for the Prevention of Accidents (RoSPA) • charity promoting safety in the workplace and in public spaces v. local authorities • enforce regulations locally and provide health and safety services vi. Construction Industry Training Board (CITB) • training, skills and standards body for the construction industry vii. manufacturers (equipment and materials) • provide expert advice on safe use of their specific products.

Topics	Content elements
	1.2.2 Roles and responsibilities of the Health and Safety Executive (HSE) and their inspectors a) HSE roles and responsibilities: i. reduce accidents through education and advice ii. inspection iii. investigation eg site investigations iv. advice and enforcement.
1.3 Communicating health and safety information in construction environments	1.3.1 Reasons for/purpose of holding on-site safety inductions and toolbox talks a) Reasons for/purpose of on-site safety inductions: i. ensure employees understand site health and safety requirements in relation to • 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. b) Reasons for/purpose of toolbox talks: 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	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 a) Emergencies: i. fire ii. security incident iii. unauthorised persons on site iv. terrorism v. vandalism vi. gas leak vii. explosion viii. collapse of scaffolding ix. collapse of excavations x. vehicle strikes (moving plant and machinery) xi. physical injury to personnel. b) Potential causes: i. fire • fuel spillage • smoking on site • burning of waste • hot work ii. security incident • inefficient security measures in place iii. gas leak • poor storage of gas cylinders • unprofessional practice • unknown services/existing services in place iv. explosion • gas leak • fuel spillage • mixing of chemicals • poor storage of hazardous materials v. collapse of scaffolding • adverse weather • missing components • unauthorised modifications • overload of weight • insufficient safety checks • poor erection/quality of work vi. collapse of excavations • adverse weather

Topics	Content elements
	• poor shoring • lack or barriers • plant operation proximity.
2.2 Dealing with accidents and emergencies	2.2.1 Authorised personnel involved in dealing with accident and emergency situations and their duties a) Authorised personnel: i. fire warden ii. first aider iii. supervisors/managers iv. safety officer v. emergency services vi. Health and Safety Executive (HSE). b) Duties of authorised personnel: i. fire warden • ensure safe evacuation of personnel • fight fires if safe to do so ii. first aider • attend personal injury incidents • treat minor injuries • liaise with emergency service professionals iii. supervisors/managers • oversee safety procedures are taking place • complete documentation to comply with legislation iv. safety officer • initial responder • point of call/investigation v. emergency services • provide professional medical/rescue assistance vi. Health and Safety Executive (HSE) • carry out investigations into accident/emergency incidents. 2.2.2 Actions that must be taken upon discovery of an accident in a construction workplace environment and their logical sequence a) Accident not involving injury to persons: 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
	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.

Learning outcome 3

Understand the management of workplace hazards and risks

Topics	Content elements
3.1 Control measures related to risk assessments	3.1.2 Control measures related to risk assessments and method statements a) Control measures: i. good housekeeping in the workplace ii. training of employees iii. signage and safety procedures. b) Potential outcome of hazards affecting individuals: i. injury ii. long-term illness/disability iii. loss of days worked due to injury/illness/prohibition notice iv. death.
3.2 Housekeeping in construction environments	3.2.1 Definition of good housekeeping and its importance and purpose in relation to health and safety in construction environments 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: i. maintain safety ii. reduce buildup of waste iii. keep access routes clear iv. safe storage of materials, tools and equipment v. reduce workplace/site congestion vi. enhances good working relationships and reduces stress. 3.2.2 Steps that can be taken to maintain good housekeeping in construction environments a) Steps/factors that contribute to good housekeeping: i. cleanliness of working area ii. tidiness/robust storage systems, designated storage iii. use of skips and chutes iv. segregation of materials v. segregation of stored materials to avoid congestion of work area and access vi. clear access to fire escapes and fire extinguishers vii. waste and debris management viii. storage and maintenance of tools and equipment.

Topics	Content elements
3.3 Signage and notices found in construction environments	3.3.1 Categories of signs and safety notices used in construction workplaces and their key visual characteristics a) Categories of signs and safety notices: i. prohibition • something must not be done ii. mandatory • something must be done iii. warning • alerting to danger/hazard awareness iv. safe condition • indicating equipment is safe to use, or not v. emergency • indicating what to do in event of an emergency. b) Shape and colour of categories of safety sign and notice: i. prohibition • circular • red band, white background • imagery of item in black • red diagonal cross ii. mandatory • circular • blue and white iii. warning • triangle • yellow and black iv. safe condition • rectangular • green and white v. emergency • rectangular • red and white. 3.3.2 Responsibilities of employers and employees relating to signs and safety notices in construction workplaces a) Responsibilities of employers: 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. b) Responsibilities of employees: 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	4.1.1 Considerations for the correct storage of materials and equipment a) Safe storage considerations: i. stored securely and safely ii. following workplace systems/protocols iii. ease of access and availability iv. kept clean and dry where relevant and possible v. location and designated area of storage. b) Importance of safe storage: i. prevent damage ii. maintain working order iii. prevent loss/theft iv. 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	5.1.1 Responsibilities of employers and employees under current working at height regulations a) Responsibilities of employers: i. undertake risk assessments ii. employ competent people for working at height iii. provide appropriate equipment iv. ensure sufficient inspection and recording of condition of access equipment as appropriate. b) Responsibilities of employees: i. carry out visual inspection before using any ladders scaffolding etc ii. do not alter or remove any parts of scaffold provided iii. use identified access to working height iv. report any safety issues to employer v. 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.

Learning outcome 6

Understand safety considerations when working with electrical equipment

Topics	Content elements
6.1 Dangers of working with electrical equipment	6.1.1 Potential hazards and risks when using electrical equipment in construction workplace environments a) Potential hazards: i. faulty equipment ii. incorrect voltage iii. weather and environment iv. lack of training/incorrect use v. hidden services vi. overheard power lines vii. dust inhalation. b) Potential risks: i. burns ii. electrocution iii. death iv. fire. 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 a) Precautions: i. checking tools and equipment before use • checking leads for signs of wear or damage • checking plugs for labelling and signs of wear or damage ii. using cable hangers where possible iii. ensuring there is a current PAT certificate iv. escalating issues or concerns to a supervisor v. ensuring training has been given before use vi. use of dust suppression measures and use of PPE – electrical safety Respiratory Protective Equipment (RPE) vii. use of safety control equipment and PPE. b) Importance of taking precautions: i. keep self and other safe ii. reduce risk of injury or death iii. comply with legislation and workplace conduct.

Topics	Content elements
6.2 Power sources and voltages for electrical equipment	6.2.1 Power sources, voltages and voltage colour coding that are used for electrical equipment in construction workplace environments a) Power sources: i. battery powered ii. mains powered iii. portable generator iv. renewable energy sources – solar/wind. b) Voltages and associated colours: i. no standard colour – 18/24/36 volts • battery power for cordless tools ii. yellow – 110/115 volts • common workplace voltage for power tools and equipment iii. blue – 230/240 volts • standard domestic voltage for power tools and equipment iv. red – 415 volts • commercial/industrial machinery.
6.3 Storage of electrical equipment	6.3.1 Methods of safely storing and maintaining electrical equipment and the importance of this a) Methods of safe storage and maintenance: 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. b) Importance of safe storage/maintenance: 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	7.1.1 Responsibilities of employers and employees relating to PPE under current regulations a) Responsibilities of employers: 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 work ii. the maintenance, storage and replacement of any PPE they provide iii. provide training and instruction on safe and correct use of PPE for relevant tasks. b) Responsibilities of employees: i. use PPE correctly following training and instruction from employer ii. if PPE is lost or becomes damaged/defective, report to employer and do not use iii. 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	8.1.1 How fire is created/caused – Elements essential to the creation of fire and how they interact/depend on each other a) Elements: i. oxygen ii. fuel iii. heat. b) Their interdependence/situational requirements: i. they must all be present ii. they are interdependent – removal of one of the three elements will extinguish the fire iii. may be referred to as the ‘fire triangle’.

Topics	Content elements
8.2 Fire prevention methods	8.2.1 Methods of fire prevention, roles responsible for carrying them out and why this is important a) Methods of prevention: 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: i. all personnel on site/in the workplace ii. appointed fire wardens iii. site manager. c) Importance of fire prevention: 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	8.3.1 Actions that must be taken on discovery of a fire and the sequence a) Actions: 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. 8.3.2 Types of fire extinguisher, their colours and uses a) Types and colours: i. water • red ii. foam • cream/off white iii. CO2 • black iv. dry powder • blue. b) Uses: i. water • Class A fires

Topics	Content elements
	○ wood ○ paper ○ cloth ○ some plastics ○ never electrical, flammable liquid or gas ii. foam • Class A and B fires ○ wood ○ paper ○ cloth ○ some plastics ○ flammable liquids iii. CO2 • Class B and C fires ○ flammable liquids ○ energised electrical equipment iv. dry powder • Class A, B and C fires ○ applicable for use on all types of fire. 8.3.3 Circumstances under which fire extinguishers can/should be used a) Circumstances: 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	9.1.1 Duty of care considerations in the workplace and why they are important 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: i. physical well-being ii. psychological well-being. c) Duty of care importance: i. safety of employees is maintained • protection from harm • protection from abuse • protection from injury ii. satisfaction and happiness of employees iii. legal requirement – statutory requirement in law. 9.1.2 Facilities for welfare that must be provided as part of workplace/site set up and their importance a) Welfare facilities: i. toilets ii. washing facilities – with hot and cold running water iii. secure storage for personal items iv. canteen v. drinking water vi. drying room. b) Importance/reasons for provision: i. legal requirement ii. employee comfort and duty of care iii. attraction and retention of employees iv. company reputation. 9.1.3 Potential causes and effects of excessive noise and employer/employee responsibilities in relation to minimising the impact 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: i. machinery and equipment • excavators • mixers • cranes

Topics	Content elements
	ii. power tools • 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: 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: 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: 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.
9.2 Personal physical welfare considerations in construction	9.2.1 Practices and support available to stay physically well and healthy at work a) Personal practices that can support staying well/healthy while at work: 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: 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 iv. encouragement of positive work/life balance

Topics	Content elements
	v. frequent recognition of achievement/success vi. provision of social events/interactivity. 9.2.2 The importance of maintaining own physical well-being and how to do this in everyday life a) Physical well-being importance: i. stay healthy/physically well ii. remain fit for task/work and day to day life. b) General physical well-being maintenance: 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. 9.2.3 Unacceptable/inappropriate behaviours at work and their likely negative impacts for employees and employers a) Unacceptable/inappropriate behaviours at work: 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: i. for an employee • isolation/loneliness • loss of employment • impact on mental health and social relationships • detrimental to personal reputation ii. for an employer • loss in production • loss of experienced staff • loss of revenue • loss of future orders

Topics	Content elements
	• creation of negative environment that can impact positive mental health and well-being of employees • legal action/implications • reputational damage. 9.2.4 Sources/where to access support in cases of encountering/experiencing negative behavioural issues at work a) Sources of support: i. colleagues ii. management iii. human resources iv. trade union representative v. trade organisations vi. police.
9.3 Personal mental welfare considerations in construction	9.3.1 The importance of maintaining own mental well-being and how to do this a) Mental well-being importance: i. can perform at optimal level ii. promotes safety – reduces risks and mistakes iii. reduces absence iv. maintain good work and personal relationships b) Mental well-being maintenance: i. spending time with others/avoid isolation ii. remote communication with others iii. engaging in open, safe discourse about mental health in the workplace. 9.3.2 Ways in which mental ill health can present and where individuals affected directly or indirectly can seek help a) Ways in which mental ill health can present: 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. b) Where to seek help: 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
	iv. medical professional/doctor – to get medical support as needed v. specific mental health organisations/charities vi. online support networks. 9.3.3 Working methods that can promote good mental health as part of a duty of care and their importance a) **Definition** 'Mental health' – an individual's emotional, psychological and social well-being. b) Methods that promote good mental health: 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: 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:	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. 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. There may be some efficiencies with health and safety practice content before/in line with associated practical activities from the trade specific content areas.
Suggestions for formative assessment opportunities:	Short formative assessments at the end of sessions/aligned to outcome. Sample test exam prep session to prepare for assessment.
Opportunities for visits/engagement with local industry and employers:	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.
Considerations for innovative methods of delivery:	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. 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).
Ways of ensuring content is delivered in line with current, up-to-date industry practice:	Providers should check current legislation/guidance for amendments/changes prior to content delivery. Staff CPD in line with current practice (eg CSCS card).
EDI or accessibility considerations:	Teaching for some specific areas may need adaptation eg electrical power colour cords, fire extinguisher colours, PPE considerations based on religious grounds (eg headwear).
Digital initiative considerations:	Online VR tools to explore risks and hazards in workshop.
Sustainability considerations:	Encouraging paperless working practices – printing materials only where necessary.
Books:	HSE pamphlets available from HSE website.

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:	This is a **theory only** unit. 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. 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.
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	1.1.1 Types of building construction work that may be encountered when working in the industry and their key features a) Types of work: i. new build ii. renovation iii. maintenance iv. restoration/retrofit v. domestic vi. commercial vii. industrial viii. demolition. b) Key features of different types of work: i. relative cost implications ii. regional variations iii. relative controls and regulations in place iv. speculative new build. 1.1.2 Organisations and bodies that contribute to, and are involved in, the construction process and their main responsibilities a) Organisations and bodies: i. building contractors ii. manufacturers/suppliers iii. local authorities iv. legislative bodies v. training organisations vi. professional bodies. b) Responsibilities of organisations and bodies: i. building contractors • 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 them ii. manufacturers/suppliers • must comply with all relevant requirements under the Construction Products Regulation as retained in UK law iii. local authorities • 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 consent iv. legislative bodies

Topics	Content elements
	• inspect and confirm that all activities and standard of work carried out meet the requirements of all regulatory bodies v. training organisations • meet industry requirements for training and development • recommending standards vi. professional bodies • Continuing Professional Development (CPD) • provide recommendations for future legislation.
1.2 Roles of construction colleagues, team members and career progression pathways	1.2.1 Professional, craft and operative roles in the building team and their key responsibilities a) Professional role responsibilities: i. architect • 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 ii. quantity surveyor • 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 iii. building surveyor • 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 iv. structural engineer • 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 v. mechanical engineer • create solutions and solve problems, playing a central role in the design and implementation of moving parts in a range of industries vi. estimator • 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
	• use this information to compile detailed cost proposals for a client • works closely with the quantity surveyor • usually responsible for completing tenders vii. site manager • 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 viii. architectural technologist • work with architects to develop technical drawings, building models, material specifications • ensure designs meet regulations ix. BIM manager • oversee the building information modelling process • manage digital 3d model data, design collaboration and file sharing x. project manager • plan and oversee entire project lifecycle • manage budget, schedule, quality, safety, staffing, materials, subcontractors xi. site engineer/planner • develops site plans, logistics, access • order materials, plant, equipment • manage/inspect site operations and contractors xii. building services engineer • design and oversee installation of systems such as electrical, ventilation, plumbing, heating/cooling • confirm functionality and compliance. b) Craft role responsibilities: i. carpenter/joiner • complete all first and second fix operations in buildings including roof trusses, floors, skirtings, doors staircases, partition walls and door and window furniture ii. bricklayer • 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 iii. plumber • install water, drainage and heating systems • cut, shape and join pipes and fittings • find and fix faults • service plumbing systems iv. gas/heating engineer • carry out installation, servicing and maintenance of gas appliances and pipework systems v. electrician

Topics	Content elements
	• install indoor and outdoor electrical control, wiring and lighting systems • inspect and test electrical systems, including fuses, transformers and circuit breakers vi. plasterer/dry liner • apply wet finishes to walls and ceilings and external finish to walls • create ornamental features like ceiling roses, cornices and architraves vii. painter and decorator • 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 viii. wall and floor tiler • cut and place wall and floor tiles ix. roofer • covers roof with slates, tiles, sheets or cladding • apply waterproof membranes to flat roofs • fit plastic or lead flashing around chimneys seal roof joints x. renewable energy installer • install and maintain renewable energy systems like solar panels, heat pumps, wind turbines • follow plans to assemble, connect, test systems xi. floor layer • prepare and lay flooring materials including wood, laminate, vinyl and carpet • measure areas, lay underlay and adhesive, cuts materials, fit trims and edges. c) Operative role responsibilities: i. general building operative/labourer • unload materials • prepares site/workplace areas • provides craft teams with materials ii. ground worker • excavate trenches • prepare and lay drainage pipes • prepares and lay floors and sub strata for roads iii. highways operative • work on roads and highways on paving, repair to surfaces, cleaning and traffic management iv. plant operative • drive and operate construction plant (including excavators and dumpers) v. scaffolder • 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

Topics	Content elements
	• 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: 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 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: 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 a) Additional parties: 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: i. architects • communicates details of type and size of building/s to be completed ii. quantity surveyor • notifies client when payments are due iii. safety officer • communicates workplace safety issues to all personnel iv. local authorities planning • communicates breaches of planning permission to project manager and client v. local residents/neighbours to site/workplace area • voice and report consensus of opinion of residents over planned development vi. building inspector (LABC or appointed)

Topics	Content elements
	• communicates to contractor and reporting to LA or relevant parties vii. environmental bodies • requests access and communicates findings of investigations and monitoring to planning team viii. conservation officer • requests access and communicates findings of investigations and monitoring to planning team ix. National 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
	d) Types of visual communications: i. hand signals ii. video calls/online meetings iii. signage and notices iv. drawings/plans. 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 a) Positive written communication considerations: 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. b) Positive verbal communication considerations: 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’. c) Importance/benefits of maintaining positive communications: 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	1.4.1 Key elements and considerations that make up good customer service in construction activities: a) Key elements of good customer service: i. good communication • updated on project details o timelines o costs o changes • using their preferred communication method • listening to and addressing their concerns ii. reliability/honesty • completing high quality work • working to schedule as promised • taking accountability if issues arise iii. responsiveness • reaching out to customers promptly • having systems to respond to inquiries, requests, complaints quickly iv. expertise • having qualified, knowledgeable staff • providing solutions tailored to their needs v. courtesy • treating customers with respect and professionalism • being patient and helpful even when under pressure • making them feel valued • positive customer reviews and feedback. 1.4.2 Importance of good customer service in construction from the perspective of employees, employers and customers a) Employee perspective: 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. b) Employer perspective: 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. c) Customer perspective: 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	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 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: 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: 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	1.6.1 The role and purpose of trade and professional bodies within the construction sector and the services/benefits they can provide a) Role of trade and professional bodies: 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. 1.6.2 The role of unions within the construction sector and the services/benefits they can provide a) Role of unions: 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.
1.7 Competent person schemes and their importance	1.7.1 The role and purpose of competent person schemes in place for construction trades a) Role of competent person schemes:

Topics	Content elements
	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: i. upholds industry standards and best practice ii. reduces risks to workers and the public iii. provides assurance to clients/employers.
1.8 Requirements for professional registration when working in the construction industry	1.8.1 Potential benefits of registration with relevant professional construction institutions a) Potential benefits of registration: 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. 1.8.2 The role and purpose of professional institutions related to the construction industry a) Role and purpose: 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	2.1.1 Controls and regulations that support the construction process, who they impact and where they can be accessed a) Controls and regulation types: i. pre-planning permission ii. planning permission/permitted development/national park authority iii. building regulations iv. health and safety law v. quality and standards (British standards) vi. environmental law/regulations vii. listed buildings viii. tree preservation orders ix. English heritage. b) Who is impacted by the controls and regulations: i. client/homeowner/end user ii. design team • architect • surveyor iii. managerial team • site manager • site supervisor iv. tradespeople v. manufactures/suppliers of equipment and materials vi. the general public. c) Where details of the controls can be accessed: i. onsite/in workplace ii. online eg on government/local authority websites iii. local libraries iv. in the code of conduct v. in induction materials vi. professional bodies vii. building material suppliers.
2.2 Types of information and technical drawings used in the construction industry	2.2.1 Construction information used to manage, support and organise projects and roles responsible for their production and use a) Key construction information used to manage, support and organise: i. site/workplace rules/code of conduct ii. bill of quantities • to control list material quantities and costs iii. construction phase plan iv. programme of works/Gantt charts v. specifications vi. drawings vii. schedules • material/labour viii. Building Information Modelling (BIM)

Topics	Content elements
	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	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 a) Legislation: i. Data Protection Act ii. General Data Protection Regulation (GDPR). b) Importance: i. ensures confidential information kept secure ii. uphold industry regulations iii. secures sensitive documents from theft and misuse • staff information • client information iv. prevents data breaches v. allows controlled record access. c) Methods: i. user permissions and authentication eg passwords ii. using secure file sharing procedures for transferring documents iii. safe and secure storage of documents iv. regularly backing up data offline v. 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	3.1.1 Different areas of construction workplaces that must be included on logistics plans and their importance a) Areas: i. environmental areas (ponds, plants, trees and wildlife) ii. neighbouring properties iii. site/workplace security iv. service connections v. access/egress and parking vi. site office vii. health, safety and welfare viii. emergency assembly ix. pedestrian routes/access x. materials – delivery and storage • dry • open • hazardous xi. waste management/recycling xii. plant xiii. crane tower location. b) Importance of having the areas marked on plans: i. for efficient site/workplace movement and access (eg deliveries) ii. to ensure boundary lines are maintained and reduce breaches iii. to maintain and improve safety and security iv. to clearly inform of location of facilities for all v. to comply with legislation.
3.2 Considerations in relation to construction workplace security	3.2.1 The importance of site/workplace security and the employee/employer responsibilities for ensuring it a) Importance: 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. b) Responsibilities of employee: 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. c) Responsibilities of employer: 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	4.1.1 Types of foundations and their descriptions/features a) Types and their descriptions: i. pad • rectangular or circular pads • usually of concrete • used to support single point loads such as columns ii. pile • deep cylindrical foundation • bored below ground • transferring the building load to load bearing ground made up of concrete and steel reinforcement iii. raft • reinforced concrete slabs that cover an over site area • often the full footprint of the building iv. strip • shallow foundation • used to provide a continuous, level or sometimes stepped strip of support around the perimeter of a building • may also be positioned where there are internal load bearing walls. 4.1.2 Materials used in substructures a) Materials: i. brick ii. block iii. steel iv. concrete v. damp proof course (DPC)/damp proof membrane (DPM) and membranes vi. insulation vii. aggregate.

Topics	Content elements
4.2 Sequence of first and second fix building	4.2.1 First and second building elements and logical sequence considerations relating to their installation a) First fix: 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. b) Second fix (order may vary as activities may occur concurrently): 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	4.3.1 Types of floors and factors impacting on when they are used a) Types of floors: i. solid • concrete • sometimes reinforced and insulated ii. suspended • timber • can be concrete beam with block infill. b) Factors impacting floor type: i. loading • strength • reinforcement ii. moisture • sub floor/ground underneath iii. subsequent finish • underfloor heating • liquid floor screed • tiles. 4.3.2 Types of materials used for flooring a) Flooring materials: 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	4.4.1 Types of walls and factors impacting on when they are used a) Types of walls: i. external • cavity • solid • steel frame • curtain • timber frame • concrete frame ii. internal • traditional (brick or block) • timber stud • metal stud and metal lining. b) Factors impacting wall type: i. loading ii. climate • location iii. finish • client/architect specification • conservation requirements. 4.4.2 Types of materials used for walls a) Wall materials: 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	4.5.1 Types of roofs and their common materials and factors affecting their appropriateness/use a) Pitched roof types: i. timber • traditional hand cut • trussed ii. metal • framed • trussed. b) Flat roof types: i. timber ii. metal iii. green. c) Roofing materials: i. timber ii. lead iii. slate iv. tile • concrete • clay • composite v. bitumen felt vi. sheet metal or timber vii. synthetic systems • fiberglass • EDPM viii. liquid resin ix. shingle • clay • timber • bitumen felt.

Topics	Content elements
4.6 Types of finishes	4.6.1 Types of internal finishes and factors affecting their appropriateness for use a) Types of internal finishes: i. paint systems ii. paper coverings iii. plaster iv. dry lined with tape and joint system v. tiling vi. cladding • timber • plastic • composite. b) Factors affecting use: i. base structure ii. customer requirements iii. cost iv. conservation restrictions. 4.6.2 Types of external finishes and factors affecting their appropriateness for use a) External finishes: i. paint systems ii. rendering systems iii. coatings iv. External Wall Insulation (EWI) v. cladding • timber • plastic • composite • slate • tile. b) Factors affecting use: i. conservation requirements ii. building control iii. customer requirements iv. cost.

Topics	Content elements
4.7 Building services related to construction activities	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 a) Services: i. electricity ii. gas iii. water iv. drainage • surface • foul v. communication networks • television • internet • phone • 'smart' home services. b) Roles responsible for installation: i. electricity • electrician and/or national utility company ii. gas • gas engineer or plumber if additionally qualified in gas safety national utility company iii. water • plumber and/or national utility company (for connection to mains) iv. drainage (surface, foul) • local authority • ground worker/plumber v. communication networks • internet/telephone engineer.

Topics	Content elements
4.8 Considerations for building materials used in construction activities	4.8.1 Factors affecting materials used in building structure and substructure elements a) Elements: i. foundations ii. floors iii. walls iv. roofs. b) Factors affecting material use: 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	5.1.1 The definition of equality and protected characteristics under current legislation and other potential additional barrier characteristics a) **Definition** 'Equality' – a situation in which everyone is equal and has the same rights. b) Protected characteristics: i. age ii. disability iii. gender reassignment/gender identity iv. marriage and civil partnership v. pregnancy and maternity vi. race (including colour, nationality and ethnic or national origin) vii. religion or belief viii. sex ix. sexual orientation. c) Additional barrier characteristics: i. employment history ii. educational background/attainment iii. socio-economic status iv. criminal record v. unconscious bias.

Topics	Content elements
5.2 Considerations when valuing diversity and inclusion	5.2.1 The principles of diversity and inclusion in the workplace 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. 5.2.2 Positive impacts of recognising and valuing diversity and inclusion in the workplace a) Positive impacts: i. for the induvial • personal motivation/self-actualisation • feelings of value • well-being • job satisfaction and engagement ii. for team dynamics • effective interpersonal communication • positive teamwork • time saving iii. for employers and businesses • employee retention • meeting legislation requirements • staff progression • societal reputation • staff recruitment • increased productivity and performance • innovation, creativity and problem solving.

Topics	Content elements
5.3 Regulations, support and guidance relating to equality, diversity and inclusion (EDI)	5.3.1 Current regulations and legislation relating to EDI a) Regulations and legislation: i. UK Equality Act ii. Human Rights Act. 5.3.2 The responsibility for awareness and action in relation to the UK Equality Act a) Responsibilities: i. for the employee • awareness of • adherence to ii. for the employer: • awareness of • adherence to • procedures in place to address identified issues • promoting awareness/training employees • point of contact (welfare officer). 5.3.3 Sources of other information related to supporting and promoting EDI in the workplace a) Sources of information: 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.
5.4 Characteristics of employment and self-development	5.4.1 Key responsibilities of different employment types a) Employment types: i. sole trader ii. sub-contractors iii. main developers iv. self-employed b) Responsibilities: 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

Topics	Content elements
	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	6.1.1 Considerations and impacts of sustainability in relation to construction activities a) **Definition** 'Sustainability' – constructing with renewable and recyclable resources while minimising waste and energy consumption to protect the natural environment materials. b) Considerations: i. legislation ii. technological advances iii. education • eliminate bad practice • encourage reporting iv. sourcing of local materials v. using energy efficient plant and equipment • battery powered • solar charging vi. changes to/or meeting historical practice vii. availability of sustainable materials and equipment viii. financial cost and available funding ix. waste management practices • segregation of materials ○ wood ○ plastic ○ cardboard ○ paper ○ plasterboard • limit environmental impact • support recycling x. air flow in building design • acoustics • airtightness • ventilation. c) Impacts/advantages of sustainability: i. benefits to the immediate locality • improved air quality • noise reduction • less waste ii. reduction in carbon footprint iii. a cleaner healthier site/workplace iv. personal fulfilment ('doing your bit') v. company reputation. d) Potential drawbacks: i. increased costs ii. reduced/limited availability • including ranges/sizes available

Topics	Content elements
	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:	Deliver alongside the Level 2 'Principles of welfare, health and safety in construction environments' unit as there may be efficiencies. 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.
Suggestions for formative assessment opportunities:	Short formative assessments at the end of sessions/aligned to outcome. Sample test exam prep session to prepare for assessment.
Opportunities for visits/engagement with local industry and employers:	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.
Considerations for innovative methods of delivery:	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. 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. 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.
Ways of ensuring content is delivered in line with current, up-to-date industry practice:	Providers should check current legislation/guidance for amendments/changes prior to content delivery. Staff CPD in line with current practice (eg CSCS card).
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 240 Tiling repairs and maintenance

Unit level:	2
Guided Learning Hours (GLH):	53
Unit aim:	The purpose and aim of this unit is to provide the learner with the knowledge and skills to undertake basic repairs and maintenance to tiling of walls and floors within a 'maintenance contract' work environment.
Assessment method:	Multiple choice questions (MCQ) assessment Practical Assignment
Links to Occupational Standard:	ST0171 (Property Maintenance Operative)

Learning outcomes

1. Understand the hazards, risks and official guidance when carrying out tiling tasks and the requirements of the maintenance operative job role
2. Understand how to identify defective tiling surfaces
3. Prepare the work area for repairs
4. Carry out tiling and grouting repairs

Learning outcome 1

Understand the hazards, risks and official guidance when carrying out tiling tasks and the requirements of the maintenance operative job role

Topics	Content elements
1.1 British Safety Council and British Standards Institute guidance	1.1.1 Key tiling guidance contained in BS 5385 Part 1:2018 – Wall and floor tiling a) Table 5 Backgrounds – Summary of suitable tile beds b) Brickwork/Blockwork c) Tiling to plywood walls d) Tile adhesive coverage vs tile size e) Waterproof tanking 1.1.2 Key tiling guidance contained in BS 8000-11 – Workmanship on building sites a) Internal and external wall and floor tiling b) Ceramic and agglomerated stone tiles and slabs c) Natural stone and terrazzo tiles, slabs and mosaics d) Codes of practice 1.1.3 BSI Flex 8670

Topics	Content elements
	a) Core criteria for building safety competence related to building safety including behavioural, fire, structural and public safety b) Aims to improve safety outcomes throughout the lifecycle of a building c) Supports progressive development of a more consistent approach to the development and use of competence frameworks across the built environment
1.2 Safety hazards associated with carrying out tiling tasks and appropriate risk control measures	1.2.1 Hazards relating to carrying out tiling tasks and the risk control measure relevant to each a) Sharp edges on materials b) Flying debris c) Dust inhalation d) Skin irritation from materials e) Slips, trips and falls f) Asbestos 1.2.2 Risk control measures and their suitability in controlling the identified hazards a) Use of personal protective equipment (PPE) b) Warning signs c) Effective planning of works d) Barriers e) Asbestos register f) Use and application of a risk assessment g) Follow manufacturer's instructions for use and disposal
1.3 Repairs and maintenance within and outside of job role requirements	1.3.1 Types of repairs within the scope of the job role requirements a) Minor repairs to tiled materials b) Repairs to small, tiled areas c) Removing and renewing grout d) Filling voids e) Minor granolithic repairs 1.3.2 Types of repairs outside job role requirements a) Tasks requiring the use of specialist tools/materials are required which the Maintenance Operative has not been trained to use b) Underlying issue which has caused damage and needs to be repaired c) Size of work beyond the scope of the job role 1.3.3 Action needed to refer maintenance requirements, if required a) Record information about the repair needed b) Refer to team leader/supervisor

Topics	Content elements
	c) Make area safe, as required

Learning outcome 2

Understand how to identify defective tiling surfaces

Topics	Content elements
2.1 Common causes of tiling defects	2.1.1 Common causes of tiling defects a) Poorly fixed tiles b) Water penetration due to poor grouting c) Unsuitable/poorly prepared background surface: i. loose plaster/brick ii. boarding not securely fixed. d) Impact damage e) Insufficient expansion joints 2.1.2 Methods to recognise tiling defects a) Uneven finished surfaces b) Loose or flaking tiles or grout c) Evidence of water penetration d) Tap testing to identify the extent of damaged area e) Visible cracks f) Unsuitable tiles used for purpose, such as tiles used on a floor not designed for flooring

Learning outcome 3

Prepare the work area for repairs

Topics	Content elements
3.1 Plan materials and equipment required to carry out repairs	3.1.1 Requirements of planning including completing a method statement to: a) Carry out a risk assessment to identify hazards and risks associated to the repair b) Identify requirements for managing risk i. personal protective equipment (PPE) ii. making the work area safe. c) Calculating surface area of the area for repair d) Working out the materials required e) Selecting suitable material for repair, ensuring compliance with manufacturer's specifications, installation instructions and regulatory requirements:

Topics	Content elements
	i. size ii. shape iii. colour. f) Selecting what equipment will be needed g) Planning the work required to complete in the required timescale
3.2 Protect the surrounding areas when carrying out repairs to tiling	3.2.1 Methods to protect work and the surrounding area a) Liaising with customer to ensure repairs can take place at an agreed time b) Remove items to a safe location c) Protect remaining items and surfaces using suitable covering d) Protect existing floor coverings 3.2.2 Manual and mechanical handling equipment and their uses to safely remove items from a work area a) Manual: i. wheelbarrow ii. sack trolley. b) Mechanical: i. pump truck. 3.2.3 Requirements for safe removal of items a) Use suitable equipment b) Complete work at a suitable time to limit health and safety risks c) Customer consent to remove/move items d) Arrange for removal of items that require specialist support (computer equipment, electrical machinery) e) Record of equipment removed and condition
3.3 Tools, equipment and materials required for repairs to tiling and grouting	3.3.1 Tools, equipment and their uses a) Tape measure b) Tile gauge c) Tile cutters (manual and powered) d) Tile saw e) Tile nips f) Adhesive spreader g) Tile spacers h) Grout float i) Grout remover j) Grout sponge k) Hammer and bolster 3.3.2 Materials required a) Replacement tiles

Topics	Content elements
	b) Grout c) Adhesive or tile mortar
3.4 Prepare surfaces for tiling and grouting	3.4.1 Ways in which a surface may require preparation and the reasons for preparation: a) Protecting area not being repaired to prevent damage to surrounding area and items b) Ensuring any electrical outlets impacted by the work to be completed are safely isolated and locked off so they can be safely worked around c) Removing old or damaged tiles and grouting so that surface is suitable for attaching the replacement tiles d) Removing old plaster and repairing so that surface is suitable for attaching the replacement tiles e) Removing old paint, filling cracks and holes so that the surface is suitable for attaching the replacement tiles f) Ensuring surface is clean and dust free to allow for effective adhesion of the replacement tiles g) Carrying out suction tests to make sure that the backing surface provides adequate and consistent suction h) Applying bonding agent, as required, to improve the adhesive force of the tiles

Learning outcome 4

Carry out tiling and grouting repairs

Topics	Content elements
4.1 Prepare to complete the work	4.1.1 Preparation required a) Select correct personal protective equipment (PPE) and other safety requirements b) Plan timescale of repair to cause minimum disruption to the customer c) Select suitable replacement tiles and other materials, eg adhesive and grout type needed ensuring compliance with manufacturer's specifications, installation instructions and regulatory requirements d) Select the correct tools e) Ensure power and lighting supply to work area, if required f) Ensure adequate ventilation g) Select suitable protection for work area and surrounding area h) Protect fixtures and fittings i) Ensure any electrical outlets impacted by the work to be completed are safely isolated and locked off j) Ensure area of work is clearly indicated to protect the work area from unsafe/unauthorised access

Topics	Content elements
4.2 Prepare surfaces for the repair	4.2.1 Surface preparation required a) Adequate measures for dust suppression/containment b) Follow manufacturer's COSHH instructions for preparing/sealing surfaces c) Use suitable tools and materials for preparing the area for repair d) Remove damaged area of tiles, minimising damage to surrounding flooring e) Remove old adhesive and grout from the area to be repaired and clean the area
4.3 Complete tiling repair including grouting	4.3.1 Key requirements a) Set out tiles using suitable method which includes: i. replicating any existing tiling pattern required for the area to be repaired ii. checking that the replacement tiles will align correctly and evenly across the area. b) Cut round obstacles, as required c) Finished surfaces to match existing, colour, spacings d) Surfaces sealed, as required e) Completes task in required timescale
4.4 Clean and store all tools and equipment according to manufacturer's guidance and legislative requirements	4.4.1 Key requirements a) Safely seal and store unused resources b) Remove all used materials, tools and equipment
4.5 Clean and reinstate the working area after completing repair	4.5.1 Key requirements a) Ensure work area is clean and free from waste material b) Ensure any electrical outlets/sockets/lighting are reinstated and tested by a trained competent person c) Provide customer handover, as required
4.6 Dispose of all waste materials safely and in accordance with manufacturer's guidance and legislative requirements	4.6.1 Key requirements a) Refer to the manufacturer's instructions regarding disposal of waste b) Segregate resources/waste for reuse, recycling and disposal.
4.7 Complete required paperwork	4.7.1 Key requirements a) Job sheets b) Customer signed off, where necessary

Supporting information

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	Health and Safety and planning of work are common themes across all of the technical units. There are also common tools and equipment within different technical units.
Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:	A reflective approach by learners is encouraged throughout the units when completing practical tasks to support their improvement and ability to recognise whether the completion of holistic tasks is to the required standard.
Opportunities for visits/engagement with local industry and employers:	Research, work placements, in-house demonstrations by industry professionals, careers and job role information provided by local employers.
Considerations for innovative methods of delivery:	Students could have a work bay each to support their learning and application of practical application; the work bay could include multiple technical applications in one place eg patch plastering, painting, tiling, skirting board and architrave, a door that can have hinges and locks changed etc, a sink in which a trap could be replaced and a new tap fitted.
Ways of ensuring content is delivered in line with current, up-to-date industry practice:	Assessors should be up to date with current industry best practice and new methods of work. 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. Providers should ensure adherence to current relevant regulations.
EDI or accessibility considerations:	Providers must deliver the unit in line with their EDI policy and organisational procedures.
Digital initiative considerations:	Use of video streaming channels to provide multi-technical content relevant to the expectations of the Maintenance Operative role.
Sustainability considerations:	Encouraging paperless working practices – printing materials only when necessary. Learners should consider approaches to sustainability throughout the construction process in order to minimise environmental impact. These would include recycling of materials where possible, minimising waste and reusing materials for practical tasks where possible.
Books:	N/A
Websites:	www.hse.gov.uk www.bsigroup.com www.gov.uk www.nhmf.co.uk

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)**	**LO3: 3.1** **LO4: 4.7**
Produces documents of different types that are appropriate (eg in terms of length, style and language use) for the purpose and intended audience **(CSW2)**	**LO3: 3.1** **LO4: 4.7**
Accurately and appropriately uses terminology associated with a particular workplace or sector in written communication **(CSW5)**	**LO3: 3.1** **LO4: 4.7**
Workplace conduct	**LO and Topic**
Identifies and follows codes of conduct (eg for personal presentation, timekeeping) as appropriate to own role **(CW1**)	**LO4: 4.1**
Applies sufficient effort to enable them to complete tasks set to the standard required **(CW3)**	**LO4: 4.5**
Demonstrates initiative in carrying out own role **(CW4)**	**LO3: 3.1**
Problem solving	
Presents a clear action plan, including tasks and timelines, for implementing a chosen solution to a specific work-related problem **(PSW4)**	**LO3: 3.1**
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: 3.1**
Works at an appropriate pace to carry out tasks in accordance with plan **(TMS2)**	**LO4: 4.3**
Adjusts approach in response to any change of circumstance (eg one task overrunning), as appropriate, to ensure remaining time is spent effectively **(TMS3)**	**LO4: 4.3**

Unit 241 Plastering and render maintenance and repairs

Unit level:	2
Guided Learning Hours (GLH):	54
Unit aim:	The purpose and aim of this unit is to provide the learner with the knowledge and skills to undertake repairs to plastered and rendered surfaces within a 'maintenance contract' work environment.
Assessment method:	Multiple choice question (MCQ) assessment Practical Assignment
Links to Occupational Standard:	ST0171 (Property Maintenance Operative)

Learning outcomes

1. Understand how to identify common defective and damaged plastered and rendered surfaces and causes
2. Understand how to plan repairs to plastered and rendered surfaces
3. Carry out repairs to plastered and rendered surfaces

Learning outcome 1

Understand how to identify common defective and damaged plastered and rendered surfaces and causes

Topics	Content elements
1.1 Common defects and damage to plastered and rendered surfaces	1.1.1 Types and causes of defects and damage a) Loose plaster b) Damp c) Holes d) Cracking e) Loose render f) Staining g) Frost attack h) Spalling i) Subsidence j) Poor workmanship 1.1.2 Indications that a defect or damage has taken place a) Sagging b) Hollow plaster

Topics	Content elements
	c) Cracks d) Mould e) Uneven surface f) Marks on the surface g) Efflorescence h) Wet walls 1.1.3 Methods and equipment required for identification a) Observation b) Removal of area of plaster/render to observe wall underneath c) Damp meter
1.2 Defects and damage to plastered and rendered surfaces which require specialist support	1.2.1 Types of defects that following investigation are beyond the scope of the Maintenance Operative job role and the reasons a) Extreme dampness (dry rot, penetrating/rising damp)– damp requires a Maintenance Operative with specialist knowledge or methods b) Defective plaster mouldings– specialist Maintenance Operative required to repair mouldings in situ c) Defective pre-1919 plaster– pre-1919 buildings are historical and sometimes listed or protected buildings which requires a Maintenance Operative with specialist knowledge d) Asbestos-based products including Artex– specialist asbestos surveying/removal companies required to carry out the works e) Subsidence– may be a result of something more sinister which may require structural engineers or surveyors' reports 1.2.2 Sources of specialist support a) Historic England, CADW, Historic Environment Scotland b) Local Council c) Specialist companies/contractors 1.2.3 Action to be taken by the Maintenance Operative a) Document defect b) Report defect to supervisor

Learning outcome 2

Understand how to plan repairs to plastered and rendered surfaces

Topics	Content elements
2.1 Tools and materials required to carry out work to defective plastered and rendered surfaces	2.1.1 Types of tools used to complete plasterwork repairs and maintenance and their uses a) Padsaw b) Tape measure c) Filling knife d) Stud detector e) Spirit level f) Utility knife g) Screwdriver h) Plastering trowel i) Hawk board j) Paddle mixer drill k) Power drill 2.1.2 Types of materials used to complete plasterwork repairs and maintenance and their uses a) Filler b) Plasterboard: i. Fire rated ii. Moisture resistant iii. Sound bloc iv. Standard. c) PVA adhesive d) Sandpaper e) Drywall screws f) Timber noggins g) Self-adhesive jointing tape h) Finishing plaster 2.1.3 Types of tools used to complete render repairs and maintenance and their uses a) Hammer b) Chisel and bolster c) Plastering/rendering trowel d) Polyurethane float e) Hawk board f) Plasterers darby/straight edge g) Scratch comb h) Bucket and sponge i) Small paint brush

Topics	Content elements
	2.1.4 Types of materials used to complete render repairs and maintenance and their uses a) Sharp sand b) Cement
2.2 Calculating materials and costs required to carry out work to defective plastered and rendered surfaces	2.2.1 Calculate materials required for plastering and masonry work a) Measuring in mm, m, inches and feet and conversion of one to the other b) Perimeter c) Area d) Volume e) Ratios 2.2.2 Calculate materials required for plastering products a) Plasterboard sizes and coverage per board b) Plaster bags and coverage per bag c) Converting volume into kg or ton to work out quantities required

Learning outcome 3

Carry out repairs to plastered and rendered surfaces

Topics	Content elements
3.1 Completing maintenance work to defective plastered and rendered surfaces	3.1.1 Repair a damaged section of plasterboard a) Complete a risk assessment and method statement b) Identify the defective plasterwork c) Select the correct tools and materials to complete the repair, ensuring compliance with manufacturer's specifications, installation instructions and regulatory requirements d) Protect the surrounding area from damage e) Remove defective plastered surface f) Prepare background surface to allow for sound fix of replacement plasterboard to studs g) Prepare replacement plasterboard and studwork h) Fix plasterboard in place i) Prepare plasterboard for applying plaster j) Mix plaster k) Apply finishing plaster to the repaired area l) Complete the task within the required timescale and to an acceptable standard

Topics	Content elements
	3.1.2 Repair a damaged section of render a) Complete a risk assessment and method statement b) Identify the defective render c) Select the correct tools and materials to complete the repair d) Protect the surrounding area from damage e) Remove damaged render f) Prepare the surface to be rendered g) Mix first coat render to correct proportions and consistency h) Apply first coat of render to the area to the required thickness i) Prepare the surface for the second coat of render j) Mix second coat render to correct proportion and consistency k) Apply top coat of render to the area to the required thickness l) Complete the task within the required timescale and to an acceptable standard

Supporting information

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	Health and Safety and planning of work are common themes across all of the technical units. There are also common tools and equipment within different technical units.
Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:	A reflective approach by learners is encouraged throughout the units when completing practical tasks to support their improvement and ability to recognise whether the completion of holistic tasks is to the required standard.
Opportunities for visits/engagement with local industry and employers:	Research, work placements, in-house demonstrations by industry professionals, careers and job role information provided by local employers.
Considerations for innovative methods of delivery:	Students could have a work bay each to support their learning and application of practical application; the work bay could include multiple technical applications in one place eg patch plastering, painting, tiling, skirting board and architrave, a door that can have hinges and locks changed etc, a sink in which a trap could be replaced and a new tap fitted.
Ways of ensuring content is delivered in line with current, up-to-date industry practice:	Assessors should be up to date with current industry best practice and new methods of work. 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. Providers should ensure adherence to current relevant regulations.
EDI or accessibility considerations:	Providers must deliver the unit in line with their EDI policy and organisational procedures.
Digital initiative considerations:	Use of video streaming channels to provide multi-technical content relevant to the expectations of the Maintenance Operative role.
Sustainability considerations:	Encouraging paperless working practices – printing materials only when necessary. Learners should consider approaches to sustainability throughout the construction process in order to minimise environmental impact. These would include recycling of materials where possible, minimising waste and reusing materials for practical tasks where possible.
Books:	N/A
Websites:	www.hse.gov.uk www.bsigroup.com www.gov.uk www.nhmf.co.uk

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)**	**LO3: 3.1**
Produces documents of different types that are appropriate (eg in terms of length, style and language use) for the purpose and intended audience **(CSW2)**	**LO3: 3.1**
Accurately and appropriately uses terminology associated with a particular workplace or sector in written communication **(CSW5)**	**LO3: 3.1**
Workplace conduct	**LO and Topic**
Identifies and follows codes of conduct (eg for personal presentation, timekeeping) as appropriate to own role **(CW1**)	**LO3: 3.1**
Applies sufficient effort to enable them to complete tasks set to the standard required **(CW3)**	**LO3: 3.1**
Demonstrates initiative in carrying out own role **(CW4)**	**LO3: 3.1**
Problem solving	
Gathers appropriate information or advice from different sources to help solve a specific work-related problem **(PSW1)**	**LO3: 3.1**
Assesses a range of potential solutions, applying appropriate problem-solving strategies **(PSW2)**	**LO3: 3.1**
Selects a specific solution, justifying why this one is the most likely to prove effective **(PSW3)**	**LO3: 3.1**
Presents a clear action plan, including tasks and timelines, for implementing a chosen solution to a specific work-related problem **(PSW4)**	**LO3: 3.1**
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: 3.1**
Works at an appropriate pace to carry out tasks in accordance with plan **(TMS2)**	**LO3: 3.1**

Unit 242 Remedial painting and decorating works

Unit level:	2
Guided Learning Hours (GLH):	52
Unit aim:	The purpose and aim of this unit is to provide the learner with the knowledge and skills to undertake repairs to plastered surfaces and render within a 'maintenance contract' work environment.
Assessment method:	Multiple choice question (MCQ) assessment Practical Assignment
Links to Occupational Standard:	ST0171 (Property Maintenance Operative)

Learning outcomes

1. Understand the common causes of painting and decorating defects in relation to maintenance works
2. Understand the types of materials, chemicals and processes used in remedial painting and decorating works including sustainable methods, safe storage and disposal
3. Prepare surfaces and work areas for remedial painting and decorating
4. Apply the required finishes

Learning outcome 1

Understand the common causes of painting and decorating defects in relation to maintenance works

Topics	Content elements
1.1 Common causes of paint defects	1.1.1 Types of defects and their characteristics a) Cissing b) Crazing/cracking c) Flaking d) Curtaining/sagging/running e) Bittiness f) Bleeding g) Blistering h) Blooming i) Chalking j) Discolouration k) Surface contaminants l) Ageing m) Ropiness 1.1.2 Common causes of defects and how to resolve them a) Poor preparation

Topics	Content elements
	b) Poor application techniques c) Wear and tear d) Suitable sealer not applied to the prepared area e) Surface painted contains moisture f) Atmospheric changes while the paint is drying g) Porous surface h) Non-porous surface i) Surface paint applied is contaminated j) Selected paint not suitable for the surface k) Paint not applied evenly or too thickly l) Damage m) Decay
1.2 Common causes of wall covering defects	1.2.1 Types of defects and their characteristics a) Creases b) Overlapping joints c) Rips d) Surface contaminants e) Delamination f) Tears g) Staining h) Stretching i) Lifting j) Bubbles k) Fading l) Oversoaking 1.2.2 Common causes of defects and how to identify and resolve them a) Air trapped under the wall covering b) Insufficient or inadequate adhesive c) Poor quality wall covering d) Shrinkage as the wall covering dries following application e) Poor preparation f) Poor application g) Incorrect equipment selection or poorly maintained equipment h) Wear and tear i) Atmospheric conditions j) Sunlight

Learning outcome 2

Understand the types of materials, chemicals and processes used in remedial painting and decorating works including sustainable methods, safe storage and disposal

Topics	Content elements
2.1 Materials used in remedial painting and decorating work	2.1.1 Types of materials and their uses when carrying out painting and decorating work a) Solvent-based paints b) Water-based paints c) Thinners/solvents d) Abrasive papers e) Fillers f) Stoppers g) Patch repair kits h) Resins and putty i) Knotting solution j) Rust remover k) Specialist treatments l) Liquid paint removers m) Different grades of lining papers n) Textured wall coverings o) Vinyls p) Adhesives q) Silicones and sealants
2.2 Equipment used in remedial painting and decorating work	2.2.1 Types of equipment and their uses when applying paint and completing decorating work a) Scissors b) Trimming knife c) Scraper d) Filling knife e) Access equipment f) Paint brushes g) Pasting brush h) Extension pole i) Roller sleeves and arms j) Kettles and scuttles k) Roller trays l) Shave hook m) Chisel knife n) Putty knife o) Sanding block p) Caulking/Mastic gun q) Wallpapering table r) Bucket

Topics	Content elements
	s) Dusting brushes t) Power sander u) Steam stripper v) Heat gun w) Trowel x) Tape measure y) Steam roller z) Plumb line aa) Laser level bb) Spirit level cc) Wire brush
2.3 Methods of safe storage, use and disposal of materials	2.3.1 Sources of information about safe storage, use and disposal of materials and their uses a) COSHH safety data sheet b) Manufacturer's specification c) Health and Safety at Work Act d) Material checklist e) Risk assessment f) Method statements g) Toolbox talks h) Local authority i) Specialist disposal services 2.3.2 Methods of safe use a) Personal protective equipment (PPE) b) Adequate ventilation of work area c) Adequate fire prevention methods d) Adequate evacuation procedures e) Adherence with Working at Height regulations f) Correct manual handling processes g) Use of lifting aids, if required 2.3.3 Methods of safe storage a) COSHH lockable container b) Site lockable compound c) Chemically resistant structures or container d) Inventory and stock control 2.3.4 Methods of safe disposal a) Local authority b) Follow manufacturer's guidance c) Specialist removal by licensed or permitted contractor d) On-site waste management

Topics	Content elements
	2.3.5 Methods of sustainable practice a) Select reusable or recyclable methods of surface protection b) Utilise services for recycling excess paint and paint containers c) Dispose of products correctly and in an environmentally conscious way d) Store products correctly so that they can be reused e) Maintain equipment and tools correctly to prolong their life

Learning outcome 3

Prepare surfaces and work areas for remedial painting and decoration

Topics	Content elements
3.1 Methods of preparing the work and surrounding area for painting and decorating works	3.1.1 Protect items and surfaces using effective methods a) Self-adhesive covering b) Plastic-backed sheets c) Cotton-backed sheets d) Liquid masking e) Masking tapes f) Barriers g) Signage h) Remove items, if required 3.1.2 Prepare the work area to ensure it is protected, suitable for the task and safe to work within: a) Heating b) Ventilation c) Masking materials d) Sheeting materials e) Removal of components f) Source and use the required personal protective equipment (PPE) g) Display required signage h) Utilise barriers where needed
3.2 Removal or preparation to protect existing materials and components from the work and surrounding area	3.2.1 Types of components requiring removal or preparation and their characteristics a) Ironmongery b) Light switches c) Wall sockets d) Radiators e) Wall heaters f) Window coverings g) Wall lights/spotlights

Topics	Content elements
	3.2.2 Types of materials requiring removal or preparation and their characteristics a) Solvent-based paints b) Water-based paints c) Wall coverings d) Adhesives e) Sealants f) Fillers and stoppers g) Contaminants h) Timber defects 3.2.3 Use the correct methods of removal for each type of component or material a) Stripping (heat and steam) b) Sanding c) Raking, hacking out d) Cutting out e) Washing down of the surface f) Solvent wipe g) Isolation of power source h) Isolation of water source i) Use of hand tools j) Use of power tools
3.3 Preparing surfaces for painting and decorating	3.3.1 Types of surfaces which need to be prepared and their characteristics a) New plaster b) Previously painted/coated surfaces c) Porous surfaces d) Non-porous surfaces e) Metal f) Timbers g) Sheet materials h) Brick and blockwork i) Render 3.3.2 Surface preparation techniques and the circumstances each would be used for: a) Hand sanding b) Hand stripping c) Filling and stopping d) Steam stripping e) Heat removal f) Mechanical abrading g) Applying wall sealer (wall size) h) Removing any previous wall coverings

Topics	Content elements
	i) Remove and repair any defects to the surface j) Clean the surface k) Apply primer or sealer if required
3.4 Planning and preparing materials and equipment needed for painting and decorating works	3.4.1 Calculating quantities of materials needed and how to use the information a) Calculate area of work for coverage b) Manufacturer's information c) Complete a risk assessment and method statement 3.4.2 Preparing materials and equipment a) Stir, strain, thin to correct viscosity, decant b) Mix to manufacturer's guidance to ensure consistency of the product c) Check tools and equipment to ensure safe to use d) Check access equipment to ensure safe to use

Learning outcome 4

Apply the required finishes

Topics	Content elements
4.1 Applying paint to the required area	4.1.1 Method of application for paint a) Select correct paint type for the surface ensuring compliance with manufacturer's specifications, installation instructions and regulatory requirements b) Select the correct equipment for application c) Prepare the paint ready to use d) Apply paint to match existing finishes by brush or roller e) Cut in to adjacent surfaces, as required f) Complete sealing activities using gun appliance, as required g) Complete task in required timescale and to an acceptable standard
4.2 Applying wall coverings to the required area	4.2.1 Method of application for wall coverings a) Select correct paper type for the surface b) Measure and cut wall covering to the required length c) Apply adhesive according to manufacturer's instructions d) Hang the lengths of paper ensuring it is vertically or horizontally correct, as required e) Brush down using a smoothing brush f) Trim drop to fit g) Match pattern as required h) Safely cut wall covering around obstacles i) Ensure the wall covering is free from defects

	j) Complete sealing activities using gun appliance, as required k) Complete task in required timescale and to an acceptable standard
4.3 Maintain safe working practices	4.3.1 Methods of maintaining safe working practices: a) Follow current legislation and regulation b) Follow the risk assessment and method statement c) Maintain a clean and tidy work area d) Protect surroundings e) Work in a safe manner f) Consider environmental and sustainable practices

Supporting information

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	Health and Safety and planning of work are common themes across all of the technical units. There are also common tools and equipment within different technical units.
Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:	A reflective approach by learners is encouraged throughout the units when completing practical tasks to support their improvement and ability to recognise whether the completion of holistic tasks is to the required standard.
Opportunities for visits/engagement with local industry and employers:	Research, work placements, in-house demonstrations by industry professionals, careers and job role information provided by local employers.
Considerations for innovative methods of delivery:	Students could have a work bay each to support their learning and application of practical application; the work bay could include multiple technical applications one place eg patch plastering, painting, tiling, skirting board and architrave, a door that can have hinges and locks changed etc, a sink in which a trap could be replaced and a new tap fitted.
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EDI or accessibility considerations:	Providers must deliver the unit in line with their EDI policy and organisational procedures.
Digital initiative considerations:	Use of video streaming channels to provide multi-technical content relevant to the expectations of the Maintenance Operative role.
Sustainability considerations:	Encouraging paperless working practices – printing materials only where necessary. Learners should consider approaches to sustainability throughout the construction process in order to minimise environmental impact. These would include recycling of materials where possible, minimising waste and reusing materials for practical tasks where possible.
Books:	The City & Guilds textbook: Painting and decorating Level 1 and 2
Websites:	www.hse.gov.uk www.bsigroup.com www.gov.uk www.nhmf.co.uk

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**)	**LO4: 4.1, 4.2**
Applies sufficient effort to enable them to complete tasks set to the standard required **(CW3)**	**LO3: 3.4** **LO4: 4.1, 4.2**
Demonstrates initiative in carrying out own role **(CW4)**	**LO3: 3.4** **LO4: 4.1, 4.2**
Problem solving	
Gathers appropriate information or advice from different sources to help solve a specific work-related problem **(PSW1)**	**LO3: 3.4** **LO4: 4.3**
Assesses a range of potential solutions, applying appropriate problem-solving strategies **(PSW2)**	**LO3: 3.4** **LO4: 4.3**
Selects a specific solution, justifying why this one is the most likely to prove effective **(PSW3)**	**LO3: 3.4** **LO4: 4.3**
Presents a clear action plan, including tasks and timelines, for implementing a chosen solution to a specific work-related problem **(PSW4)**	**LO3: 3.4**
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: 3.4**
Works at an appropriate pace to carry out tasks in accordance with plan **(TMS2)**	**LO4: 4.1. 4.2**
Adjusts approach in response to any change of circumstance (eg one task overrunning), as appropriate, to ensure remaining time is spent effectively **(TMS3)**	**LO4: 4.1, 4.2**

Unit 243 Maintenance of plumbing and drainage systems

Unit level:	2
Guided Learning Hours (GLH):	73
Unit aim:	The aim of this unit is to provide the learner with the knowledge and skills to undertake maintenance to plumbing and drainage systems within a 'maintenance contract' work environment
Assessment method:	Multiple choice question (MCQ) assessment Practical Assignment
Links to Occupational Standard:	ST0171 (Property Maintenance Operative)

Learning outcomes

1. Understand the principles and components of the maintenance and repairs to plumbing systems
2. Understand the principles and components of maintenance of drainage systems
3. Understand the principles of water hygiene within water systems
4. Carry out maintenance and repairs to plumbing
5. Carry out maintenance to above-ground drainage systems

Learning outcome 1

Understand the principles and components of the maintenance and repairs to plumbing systems

Topics	Content elements
1.1 Basic principles of the water supply system	1.1.1 Types of basic water supply systems and their uses a) Indirect (hot or cold) water supply systems b) Direct (hot or cold) water supply systems 1.1.2 Features of an indirect cold water supply system a) Requires the installation of storage cisterns (CWSC 115 litres) b) Allows for stored water during peak periods of use c) Can provide water to a hot water cylinder d) Water is available in the storage cistern when the water main is turned off e) Drinking water is not supplied to all taps f) Kitchen tap must be mains fed for food preparation g) Low-pressure system 1.1.3 Features of an indirect hot water supply system a) Vented type system b) Requires the installation of storage cisterns (CWSC 230 litres) c) Allows for stored water during peak periods of use

	d) Water is available in the storage cistern when the water main is turned off e) Low-pressure system f) Isolation valve usually found in an airing cupboard 1.1.4 Features of a direct cold water supply system a) Drinking water is supplied from the mains to every cold tap in the property b) Reduces the chance of bacterial contamination c) Easier to isolate in an emergency d) No cold-water supply to the house if the mains supply is turned off e) High-pressure system f) Greater risk of contamination to the water main without backflow prevention 1.1.5 Features of a direct hot-water supply system a) Unvented type system b) Easier to isolate in an emergency c) No hot-water supply to the house if the mains supply is turned off d) High-pressure system e) Greater risk of contamination to the water main without backflow prevention
1.2 Rules and regulations relating to the maintenance of water supply and drainage	1.2.1 Rules and regulations for the maintenance of water supply and drainage relevant to a Maintenance Operative job role: a) The Water Supply (Water Fittings) Regulations 1999 provides information about safely storing water supplies b) Building Regulations Approved Document G provides information about hygiene, sanitations, hot-water safety and water efficiency c) Building Regulations Approved Document H provides information about drainage, waste disposal and surface water d) Fluid categories (1–5) describes the cleanliness of water e) British Standards BS806–5 provides information about the maintenance of hot and cold-water supplies f) Building Regulations part M provides information about access arrangements
1.3 Planned preventative maintenance and reactive maintenance requirements for plumbing and water systems	1.3.1 Types of planned preventative maintenance and their importance a) Periodic system inspection b) Operation of isolation valves c) Inspection and cleaning of cisterns d) Checking water levels in cisterns e) Check flow rates and pressure at outlets f) Adjustment of thermostatic mixing valves g) Cleaning of filters (tap spout) h) Temperature checks at point of use 1.3.2 Types of reactive maintenance or repairs and the process of carrying out the repairs a) Burst pipes or leaks b) Running overflows

	c) Dripping taps d) Faulty or dripping valves e) Faulty float-operated valves f) Noise in the system g) Faulty components within a WC 1.3.3 Sources of information on system faults a) End user b) Manufacturer's instructions and support service c) Fault diagnosis flow chart d) Service history
1.4 Components of a water supply system and isolating water supplies	1.4.1 Common components found in a water supply system and their uses a) Storage cistern (cold-water storage system CWSC) b) Terminal fittings (faps) c) Thermostatic mixing valves (TMV) d) Frost protection (lagging system pipes) e) Float-operated valve (FOV) f) Drain-off valve (DOV) g) Backflow prevention (mechanical and non-mechanical) 1.4.2 Components used to isolate water supplies and their uses: a) External isolation valve (water undertakers external stop valve) b) Internal stop valve (high pressure only) c) Internal gate valve (low pressure only) d) Spherical plug valves: i. slotted ii. lever iii. butterfly.
1.5 Principles and components of safely storing and draining down water supplies	1.5.1 Components of hot- and cold-water storage system and their function a) Service valve b) Float-operated valve c) Rubber sealing grommet around vent d) Screened vent e) Fully supported cistern base (CWSC) f) Fully insulated g) Tight-fitting lid h) Overflow pipe i) Warning pipe 1.5.2 Draining down water supplies key stages a) Indirect (cold): i. isolate cold distribution pipe, using gate valve, from the storage cistern ii. drain system contents at all outlets iii. open system drain-off valve (DOV), if required. b) Indirect (hot – open vented): i. isolate cold water inlet to the hot water cylinder using the gate valve ii. drain system contents at all outlets iii. open system drain-off valve (DOV), if required.

	c) Direct (cold): i. isolate cold main at the property stop valve ii. drain system contents at all outlets iii. open system drain-off valve (DOV), if required. d) Direct (hot – unvented): i. isolate service valve on inlet to cylinder ii. drain system contents at all outlets iii. open system drain-off valve (DOV), if required. e) Appliance/component: i. isolate appliance at appliance/component isolation valve ii. drain contents at the appliance or suitable water receptacle. f) Equipment required to drain down water supplies and their uses: i. adjustable spanner ii. water pump pliers iii. flathead screwdriver iv. hose with hose clamp v. water receptacle vi. dust sheet to protect fabric of the building vii. personal protective equipment (PPE) (gloves, dust mask, goggles).
1.6 Principles and components of diagnosing faults within plumbing systems	1.6.1 Common faults within a plumbing system and their characteristics a) Dripping taps b) Dripping isolation valves c) Seized valves d) WC faults: i. fill valve ii. float valve iii. flush iv. overflow running. e) Faulty shower mixing valve: i. poor flow ii. poor temperature control. f) Limescale deposit build up on shower head (contamination risk) 1.6.2 Ways to diagnose faults a) Discussion with the end user b) Visual inspection c) Isolate taps hot and cold separately to diagnose which system is dripping d) Start from the high part of the system pipework/components when looking for a leak e) Check the operation of the component f) Check all other outlets/components are working correctly g) Manufacturer's instructions/fault finding flow chart 1.6.3 Equipment needed to diagnose and repair faults and their uses a) Adjustable spanner b) Water pump pliers c) Box spanner d) Tap spanner

	e) Basin wrench f) Tap reseating tool g) Pipe cutter h) Screwdrivers i) Access equipment (ladder, hop up) j) Torch k) Personal Protective Equipment (PPE) (gloves, dust mask, goggles) 1.6.4 Components needed to repair faults and their uses a) Push-fit fittings b) Compression fittings c) Replacement component d) Soldered fitting (subject to a hot works permit)
1.7 Maintenance and repairs requiring liaising with specialist competent operative	1.7.1 Planned preventative maintenance a) Gas inspections require a Gas Safe registered engineer b) Hot-water cylinders require a G3 Qualified Engineer c) Renewable technologies require a suitably competent and qualified engineer d) Legionella testing contractor e) Electrical engineer (immersion heater, electric shower) 1.7.2 Reactive maintenance system repairs a) Gas inspections require a Gas Safe registered engineer b) Hot-water safety components require a G3 Qualified Engineer c) Renewable technologies require a suitably competent and qualified engineer d) Electrical engineer (immersion heater, electric shower) 1.7.3 Drainage maintenance and repairs a) Blockages that cannot be rectified by the Maintenance Operative b) Underground faults and repairs c) Larger or complex systems and faults

Learning outcome 2

Understand the principles and components of the maintenance of above-ground drainage systems

Topics	Content elements
2.1 Basic components of drainage systems	2.1.1 Features of a soil pipe a) Carry waste water and solid products away from building b) Connected to main sewer system c) Must have a fall d) Is self-cleaning 2.1.2 Features of a vent pipe a) Dry part of the drainage installation b) Allows air into the system c) Allows odours to be released to atmosphere

	d) Air Admittance Valve (AAV) on internal vent pipe 2.1.3 Features of a waste pipe a) Carry waste water away from appliances to the soil pipe b) Various jointing type: i. mechanical ii. solvent weld iii. push fit. c) Poor installation can cause maintenance requirements 2.1.4 Features of a trap a) Connects appliance to waste pipes b) Has a seal to prevent foul odours entering the property from the waste system c) Varies in size, type and material: i. S trap ii. P trap iii. running trap iv. appliance trap v. self-sealing trap (waterless) vi. anti-vac trap vii. pedestal trap
2.2 Planned preventative maintenance and reactive maintenance requirements of drainage systems	2.2.1 Types of planned preventative maintenance and their importance a) Periodic system visual inspection b) Operation of appliances c) Trap seal depth (performance testing) d) Inspection of rodding eyes and access covers 2.2.2 Types of reactive maintenance or repairs and process of repair a) Broken or leaking pipe or traps (sink, basin and WC) b) Blocked pipes or traps (sink, basin and WC) c) Dripping toilet syphon or flush valve d) Water constantly running in WC bowl e) Dripping pan connector 2.2.3 Sources of information on drainage system faults a) Manufacturer's instructions b) End user c) Fault diagnosis flow chart d) Service history 2.2.4 Health and safety concerns when maintaining drainage systems and ways to manage the risks a) Scalding from hot water b) Chemical burns and fume inhalation c) Working at height d) Infection from foul water
2.3 Principles and components of safely isolating drainage systems	2.3.1 Components used to isolate drainage systems, their characteristics and uses a) Appliance isolation valve (at point of use) b) System isolation valve (stop valve)

	c) Warning signage 2.3.2 Tools and equipment required to isolate drainage systems and their uses a) Adjustable spanner b) Water pump pliers c) Screwdrivers d) Access equipment (ladders, hop up) e) Torch
2.4 Principles and components of diagnosing faults within drainage systems	2.4.1 Ways to diagnose faults a) Visual inspection b) Performance test c) Discussion with end user 2.4.2 Equipment and tools needed to diagnose faults a) Ladders b) Torch c) Personal protective equipment (PPE) (gloves, dust mask, goggles) 2.4.3 Common faults within a drainage system and their characteristics a) Broken or leaking pipe and traps b) Blocked pipework c) Blocked traps d) Water constantly running in WC bowl e) Dripping pan connector f) Loss of seal between cistern and WC pan g) Trap seal loss h) Faulty air admittance valve

Learning outcome 3

Understand the principles of water hygiene within water systems

Topics	Content elements
3.1 Types of water supply and water supply regulations	3.1.1 Types of water supply, their key features and uses a) Wholesome water (provided by the water undertaker) b) Private supplies (bore hole) c) Recycled water (grey water) d) Rainwater harvesting 3.1.2 Regulations of water hygiene and their key points relevant to the Maintenance Operative role a) The water supply (water fittings) regulations: i. prevent the contamination of water ii. prevent waste of water iii. prevent misuse of water iv. prevent undue consumption v. prevent erroneous measurement.
3.2 Water categories	3.2.1 Water categories and their definitions 1. Wholesome water 2. Aesthetically impaired 3. Slight health risk 4. Significant health risk 5. Serious health risk
3.3 Causes of poor water hygiene	3.3.1 Causes of poor water hygiene and their definitions a) Stagnation is a situation when water does not move in pipes or a cistern for an extended period of time b) Back flow is water travelling in an unintended direction c) Back siphonage is contamination of a water supply as result of a drop in pressure on the water undertaker main d) Cross connection is the incorrect connection of cold-water pipework 3.3.2 Impact of poor water hygiene a) Illness b) Disease c) Death
3.4 Prevention of poor water hygiene	3.4.1 Methods of prevention and their uses a) Air gaps (non-mechanical) types b) Mechanical protection types c) Periodic testing of water quality

Learning outcome 4

Carry out maintenance and repairs to plumbing systems

4.1 Basic planned preventative maintenance to plumbing systems	4.1.1 Periodic system inspection a) Select and use the correct equipment and personal protective equipment (PPE) required to carry out the inspection b) Visually inspect the plumbing systems and their component's conditions and record results c) Check the location of appliance isolation valves and record locations d) Report any faults to a supervisor 4.1.2 Operation of isolation valves a) Select and use the correct equipment required b) Turn isolation valves on and off to check correct operation in case of an emergency c) Record outcomes d) Report any faults to a supervisor 4.1.3 Inspection and cleaning of cisterns a) Check for debris or issues within cold-water storage cisterns (CWSC) b) Check water levels in cisterns c) Inspect cold-water storage cisterns water levels are appropriate and adjust, if necessary, using the correct equipment d) Check the operation of float-operated valve (FOV) e) Record outcomes f) Report any faults to a supervisor 4.1.4 Check flow rates and pressure at outlets a) Check flow rates at outlets using a weir cup and check results against specifications, manufacturer's instructions b) Check system pressures at outlets and check results against specifications and the manufacturer’s instructions c) Record outcomes d) Report any faults to a supervisor 4.1.5 Adjustment of thermostatic mixing valves a) Use a temperature probe to check the thermostatic mixing valves (TMV) temperatures b) Check results against building regulations and building specifications and adjust if necessary c) Record outcomes d) Report any faults to a supervisor 4.1.6 Cleaning of filters a) Remove and clean system filters using correct equipment b) Record outcomes c) Report any faults to a supervisor

4.2 Basic repairs to plumbing systems	4.2.1 Plan the work required including completing a method statement to a) Carry out a risk assessment to identify hazards and risks associated to the repair b) Identify requirements for managing risk: i. personal protective equipment (PPE) ii. making the work area safe. c) Select suitable materials and components for the repair ensuring compliance with the manufacturer's specifications, installation instructions and regulatory requirements d) Select what equipment will be needed e) Plan the work required to complete in the required timescale 4.2.2 Burst pipes or leaks a) Inform the end user that the supply is to be isolated b) Select the correct tools to carry out the repair c) Isolate appropriate pipework/component isolation valve d) Drain system contents at appliances e) Open all system outlets f) Cut out pipework and repair g) Visually check completion h) Close system outlets and turn on isolation valves i) Check for correct operation j) Return the work area to the required standard 4.2.3 Running overflows a) Inform the end user that the supply is to be isolated b) Isolate the system isolation valve c) Empty system contents to a level below overflow d) Diagnose system fault and repair: i. faulty float-operated valve ii. blockage iii. debris in the cistern iv. adverse weather conditions. e) Return the work area to the required standard 4.2.4 Dripping taps a) Inform the end user that the supply is to be isolated b) Isolate the tap at a suitable isolation point c) Drain contents at the appliance d) Repair the fault by replacing the tap e) Turn on the isolation valve f) Check for correct operation g) Return the work area to the required standard 4.2.5 Faulty or dripping components a) Inform the end user that the supply is to be isolated b) Isolate the system pipework at a suitable isolation point c) Drain the system contents at appliances d) Open all system outlets

	e) Open the pipework drain-off and safely dispose of the contents f) Repair or replace components g) Turn on the isolation valve h) Check for correct operation i) Return the work area to the required standard 4.2.6 Faulty float-operated valves (FOV) a) Inform the end user that the supply is to be isolated b) Isolate system isolation valve c) Diagnose system fault d) Stiff washer e) Float f) Debris g) Seized h) Repair the fault i) Return the work area to the required standard 4.2.7 Noise in the system a) Locate system noise: i. banging pipes ii. water velocity. b) Rectify system fault c) Install additional/replace pipe clips d) Install flow restrictor at outlet e) Return the work area to the required standard

Learning outcome 5

Carry out maintenance to drainage systems

Topics	Content elements
5.1 Basic planned preventative maintenance to drainage systems	5.1.1 Periodic system inspection a) Visual inspection of drainage systems b) Check areas and components c) Check for damage d) Record results e) Report any faults to a supervisor 5.1.2 Operation of appliances a) Check the correct operation of drainage appliances b) Record results c) Report any faults to a supervisor 5.1.3 Performance test a) Trap seal depth b) Record results c) Report any faults to a supervisor 5.1.4 Inspection of drainage hatches a) Remove/list inspection hatches b) Check for build-up/blockages or damage

	c) Report any faults to a supervisor
5.2 Basic repairs to drainage systems	5.2.1 Plan the work required including completing a method statement to a) Carry out a risk assessment to identify hazards and risks associated to the repair b) Identify requirements for managing risk: i. personal protective equipment (PPE) ii. making the work area safe. c) Selecting suitable materials and components for the repair ensuring compliance with the manufacturer's specifications, installation instructions and regulatory requirements d) Selecting what equipment will be needed e) Planning the work required to complete in the required timescale 5.2.2 Broken or leaking pipe a) Isolate appliances on drainage system b) Place warning notices on isolated appliances c) Identify section of broken or leaking pipe d) Repair or replace required section of pipe e) Reinstate the supply to system appliances f) Test for correct operation g) Return the work area to the required standard 5.2.3 Blocked pipework a) Isolate appliances on drainage system b) Place warning notices on isolated appliances c) Access pipework via inspection hatches to access fittings, if required d) Rod pipework to remove blockage e) Flush pipework f) Reinstate supply to appliances g) Test for correct operation h) Return the work area to the required standard 5.2.4 Blocked or leaking traps a) Isolate appliance b) Place warning notices on isolated appliances c) Remove traps d) Dispose of trap contents into an appropriate place e) Disassemble trap f) Clean trap of all debris g) Reassemble trap h) Reinstall trap/fit new washers, if required i) Reinstate supply and check for correct operation j) Return the work area to the required standard 5.2.5 Water constantly running in WC bowl a) Isolate WC supply pipework b) Flush toilet to remove contents of cistern c) Remove WC flush valve and replace washer d) Refit WC flush valve and check for correct operation e) Return the work area to the required standard

5.2.6 Dripping pan connector

a) Isolate toilet supply pipework
b) Flush toilet to drain toilet
c) Remove toilet (if required)
d) Replace pan connector
e) Reinstall toilet and supply pipework
f) Check for correct operation
g) Return area to an acceptable standard

5.2.7 Loss of seal between cistern and WC pan

a) Isolate WC supply pipework
b) Flush WC to drain toilet
c) Remove WC cistern
d) Replace WC doughnut seal
e) Reinstall WC cistern and supply pipework
f) Check for correct operation
g) Return the work area to the required standard

5.2.8 Trap seal loss

a) Identify cause of trap seal loss:
    i. self-syphon
    ii. induced syphon
    iii. wavering out
    iv. evaporation
    v. capillary action
    vi. momentum.
b) Rectify identified fault
c) Performance test installation
d) Return the work area to the required standard

5.2.9 Faulty air admittance valve (AAV)

a) Identify faulty AAV
b) Replace AAV in accordance with the manufacturer's instructions
c) Performance test installation and check for correct operation
d) Return the work area to the required standard

Supporting information

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	Health and Safety and planning of work are common themes across all of the technical units. There are also common tools and equipment within different technical units.
Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:	A reflective approach by learners is encouraged throughout the units when completing practical tasks to support their improvement and ability to recognise whether the completion of holistic tasks is to the required standard.
Opportunities for visits/engagement with local industry and employers:	Research, work placements, in-house demonstrations by industry professionals, careers and job role information provided by local employers.
Considerations for innovative methods of delivery:	Students could have a work bay each to support their learning and application of practical application; the work bay could include multiple technical applications in one place eg patch plastering, painting, tiling, skirting board and architrave, a door that can have hinges and locks changed etc, a sink in which a trap could be replaced and a new tap fitted.
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EDI or accessibility considerations:	Providers must deliver the unit in line with their EDI policy and organisational procedures.
Digital initiative considerations:	Use of video streaming channels to provide multi-technical content relevant to the expectations of the Maintenance Operative role.
Sustainability considerations:	Encouraging paperless working practices – printing materials only where necessary. Learners should consider approaches to sustainability throughout the construction process in order to minimise environmental impact. These would include recycling of materials where possible, minimising waste and reusing materials for practical tasks where possible.
Books:	N/A
Websites:	www.hse.gov.uk www.bsigroup.com www.gov.uk www.nhmf.co.uk

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)**	**LO4: 4.1** **LO5: 5.1**
Produces documents of different types that are appropriate (eg in terms of length, style and language use) for the purpose and intended audience **(CSW2)**	**LO4: 4.1** **LO5: 5.1**
Accurately and appropriately uses terminology associated with a particular workplace or sector in written communication **(CSW5)**	**LO4: 4.1** **LO5: 5.1**
Workplace conduct	**LO and Topic**
Identifies and follows codes of conduct (eg for personal presentation, timekeeping) as appropriate to own role **(CW1**)	**LO4: 4.1** **LO5: 5.1**
Applies sufficient effort to enable them to complete tasks set to the standard required **(CW3)**	**LO4: 4.2** **LO5: 5.2**
Demonstrates initiative in carrying out own role **(CW4)**	**LO4: 4.2** **LO5: 5.2**
Problem solving	
Gathers appropriate information or advice from different sources to help solve a specific work-related problem **(PSW1)**	**LO4: 4.2** **LO5: 5.2**
Assesses a range of potential solutions, applying appropriate problem-solving strategies **(PSW2)**	**LO4: 4.2** **LO5: 5.2**
Selects a specific solution, justifying why this one is the most likely to prove effective **(PSW3)**	**LO4: 4.2** **LO5: 5.2**
Presents a clear action plan, including tasks and timelines, for implementing a chosen solution to a specific work-related problem **(PSW4)**	**LO4: 4.2** **LO5: 5.2**
Time-management skills	
Plans work: • according to priority • taking into account length of time needed to complete tasks • in order to meet deadlines. **(TMS1)**	**LO4: 4.2** **LO5: 5.2**
Works at an appropriate pace to carry out tasks in accordance with plan **(TMS2)**	**LO4: 4.2** **LO5: 5.2**
Adjusts approach in response to any change of circumstance (eg one task overrunning), as appropriate, to ensure remaining time is spent effectively **(TMS3)**	**LO4: 4.2** **LO5: 5.2**

Unit 244 Preventative and corrective maintenance on building systems

Unit level:	Level 2
Guided Learning Hours (GLH):	33
Unit aim:	This unit provides knowledge about the common components and safe isolation of electrical systems and types of lighting. Learners will gain knowledge about the requirements for periodic and electrical testing and the principles and components of common environmental management systems. They will be able to carry out safe isolation on electrical circuits, electrical and appliance periodic tests and periodic testing of fire alarms and emergency lighting.
Assessment method:	Multiple choice question (MCQ) assessment Practical Assignment
Link to Occupational Standard:	Property Maintenance Operative ST0171

Learning outcomes

1. Understand the principles of electricity and safe isolation of electrical systems
2. Understand the requirements for periodic and electrical testing
3. Know the principles and components of common energy management systems
4. Carry out safe isolation on electrical circuits
5. Carry out electrical testing and periodic testing

Learning outcome 1

Understand the principles of electricity and safe isolation of electrical systems

Topics	Content elements
1.1 Measurement relating to electricity	1.1.2 Units of measurement and their definition a) current (amps) b) voltage (volts) c) resistance (ohms) d) power (watts)
1.2 Purpose and components of consumer units and distribution boards	1.2.1 Key purpose and features of consumer units and distribution boards a) Circuit protection device: i. protects people and properties if an electrical fault occurs ii. reduces the risk of a fire caused by an electrical fault iii. protects a circuit from either overcurrent or overvoltage conditions iv. automatically disconnects the supply of electricity to the part of the circuit where the fault has occurred.

Topics	Content elements
	b) Main switch: i. main connecting link between external supply and wiring within the built environment ii. allows for the electricity supply to be turned on and off to the fuse box iii. there may be more than one mains switch linked to different fuse boxes. c) Circuit isolation: i. disconnects the circuit from the live supply ii. ensures a circuit is safe for an operative to work on iii. has two clear stages – switching off the supply and proving it is dead. 1.2.2 Types of circuit protection devices for electrical systems and their uses a) Miniature circuit breakers (MCB) b) Residual current devices (RCD) c) Cartridge fuses d) Rewirable fuses e) Residual current breaker overload (RCBO)
1.3 Isolation of electrical system circuits	1.3.1 Test equipment required to carry out safe isolation of electrical supplies and their uses a) Proving devices b) Label informing that work is in progress c) Store removable fuses in secure location/on person d) Locking-off devices e) Plug-in testing device 1.3.2 Safe isolation procedure and the requirements of each stage 1. Identify the source of supply and suitable point(s) for isolation. 2. Test your voltage detector to make sure it is working properly. 3. Carry out the safe isolation process, disconnecting the circuit from the mains. 4. Secure or 'lock off' the point of isolation. 5. Use your voltage detector to determine that the system is dead. 6. Prove that your voltage detector is functioning correctly as in Step 2. 7. Put up visible warning signs to indicate to end users that the circuit has been isolated. 8. Re-prove that the system is dead before beginning work. 1.3.3 Locations for isolating system circuits a) Consumer unit or fuse box b) Fuse spurs c) Electrical isolators d) Emergency power stop button (EPO)
1.4 Types of lighting	1.4.1 Types of lighting used within buildings

Topics	Content elements
	a) Compact fluorescent lamp (CFL): i. energy efficient ii. softer and diffused light. b) Light-emitting diode (LED): i. energy efficient ii. long lasting iii. instant bright light. c) High-intensity discharge (HID): i. very bright bulbs ii. produce heat. d) Linear fluorescent: i. long tube ii. cool and bright light.

Learning outcome 2

Understand the requirements for periodic and electrical testing

Topics	Content elements
2.1 Electrical and appliance testing	2.1.1 Types of electrical and appliance testing and their purpose a) Portable appliance test (PAT): i. ensures that electrical appliances are safe to use ii. supports companies in complying with the regulatory requirements for the inspection of electrical appliances and equipment. b) Functional testing: i. ensures the safety, reliability and performance of the electrical system or device ii. validates the compliance with the relevant standards and regulations iii. tests system against functional requirements and specifications iv. tests circuits, such as lights and sockets, to ensure that they perform as expected. 2.1.2 Checks, tests and legislation for the safety of electrical equipment within domestic and commercial settings a) Provision and use of work equipment regulations (PUWER) b) Requirements of the organisational policy requirements c) User checks d) Visual inspections (damaged sheathing, cracked plug, cracked casing, exposed conductor) e) Portable appliance testing (PAT) f) Effective testing intervals

	2.1.3 Actions to take when equipment fails portable appliance testing (PAT) a) Remove from use b) Mark as failed using recognised process c) Report to a supervisor
2.2 Periodic system testing	2.2.1 Safety systems within the built environment and their uses a) Fire alarm control panel monitors and controls the components of the fire safety system b) Fire alarm call point (manual break glass call point) allows the fire alarm to be triggered manually c) Fire door release mechanism releases a fire door to allow it to close if the fire alarm is activated to help to prevent the spread of fire through a building d) Emergency lighting provides sufficient lighting so occupants can evacuate a building safely and to illuminate fire safety features e) Smoke and heat detectors automatically trigger the fire alarm system when smoke or heat is detected f) Carbon monoxide detectors automatically trigger an alarm when carbon monoxide is detected g) Functioning of bells, sirens and alarms are activated by the fire safety system to alert building occupants of the need to evacuate 2.2.2 Requirements for the periodic testing of safety systems a) British Standard BS 5839 states that fire alarm systems in commercial buildings should be tested weekly b) A different call point should be tested each week c) Weekly testing should be recorded in a logbook d) All other maintenance, tests and repairs should be recorded in the logbook

Learning outcome 3

Know the principles and components of common energy management systems

Topics	Content elements
Building management systems (BMS)	3.1.1 Uses of system controls and Building Management Systems (BMS) a) Improve energy efficiency in buildings b) Monitoring patterns of usage within the building c) Reduce building energy costs by analysing the data and identifying possible savings d) Reduce the carbon footprint 3.1.2 Systems a BMS can control and monitor a) heating, ventilation and air conditioning (HVAC and AHU) b) lighting

Topics	Content elements
	c) energy d) fire systems (smoke detection and alarms) e) security systems (CCTV, motion detectors and access controls) f) ICT (information and communications technology) systems g) lifts h) weather compensate 3.1.3 Types of information and functionality provided by a BMS system a) Building data reports, allowing comparisons between buildings and benchmark data b) Time scheduling of building operations function, such as lighting, heating and security controls c) Notification of faults and failures through a set of alarms and alerts
3.2 Automated controls for energy efficiency	3.2.1 Types of automated controls that can be used to maximise energy efficiency and conserve water in a building and uses for them a) Lighting (infrared lighting sensor – Passive Infrared (PIR) sensor) b) Heating (thermostatic radiator valve and room thermostat) c) Ventilation (air handling unit sensor for static pressure) d) Infrared taps e) Infrared WC flushing f) Urinal controls 3.2.2 Types of automated controls that can be used to conserve water in a building and uses for them a) Infrared taps b) Infrared WC flushing c) Urinal controls

Learning outcome 4

Carry out safe isolation on electrical circuits

Topics	Content elements
4.1 Carry out safe isolation	4.1.1 Select tools required to complete the safe isolation of the electrical circuit (safe isolation equipment stated in LO 1.4) 4.1.2 Carry out safe isolation of an electrical appliance a) Light switch b) Plug socket c) Faulty appliance to ensure safety while waiting for authorised Maintenance Operative to repair

Topics	Content elements
	4.1.3 Complete actions required if the fault, repair or task is beyond the scope of the Maintenance Operative a) Ensure safe isolation of the faulty appliance/circuit b) Report to their supervisor immediately

Learning outcome 5

Carry out electrical testing and periodic testing

Topics	Content elements
5.1 Electrical and appliance periodic testing	5.1.1 Check portable electrical appliances to make sure they are safe to use a) Visually check for visible faults b) Check the appliance functions correctly c) Record outcome from portable electrical appliance check using required documentation
5.2 Periodic testing	5.2.1 Complete periodic testing of fire alarms and emergency lighting a) Select and use appropriate equipment to carry out test b) Follow statutory guidance for the test procedure c) Record outcomes of testing on required documentation d) Report faults or issues to a supervisor

Supporting information

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	Health and Safety and planning of work are common themes across all of the technical units. There are also common tools and equipment within different technical units.
Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:	A reflective approach by learners is encouraged throughout the units when completing practical tasks to support their improvement and ability to recognise whether the completion of holistic tasks is to the required standard.
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Books:	N/A
Websites:	https://www.hse.gov.uk/pubns/books/hsg107.htm https://www.bafe.org.uk/bafe-fire-safety-guidance/fire-detection-and-fire-alarm-system-guidance https://www.bafe.org.uk/bafe-fire-safety-guidance/emergency-lighting-system-guidance www.hse.gov.uk www.bsigroup.com www.gov.uk www.nhmf.co.uk

Transferable employability skills

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Accurately and appropriately uses terminology associated with a particular workplace or sector in written communication **(CSW5)**	**LO5: 5.1, 5.2**
Workplace conduct	**LO and Topic**
Demonstrates initiative in carrying out own role **(CW4)**	**LO4: 4.1** **LO5: 5.1, 5.2**

Unit 245 Using carpentry and joinery skills for repairs and refurbishment

Unit level:	Level 2
Guided Learning Hours (GLH):	63

Unit aim:	The aim of this unit is to provide the learner with the knowledge and skills to undertake remedial carpentry and joinery repairs and refurbishment within a 'maintenance contract' work environment
Assessment method:	Multiple choice question (MCQ) assessment Practical Assignment
Links to Occupational Standard:	(ST0171) Property Maintenance Operative

Learning outcomes

1. Understand which materials and equipment are required to carry out carpentry and joinery repairs and refurbishment
2. Understand how to carry out carpentry repairs and refurbishment
3. Carry out carpentry and joinery skills for repairs and refurbishment

Learning outcome 1

Understand which materials and equipment are required to carry out carpentry and joinery repairs and refurbishment

Topics	Content elements
1.1 Types of timber and their application	1.1.1 Types of timber, their applications and characteristics a) Types of timber: i. hardwood (oak, sapele) ii. softwood (pine, redwood) iii. sheet material (plywood, MDF, OSB, chipboard, melamine-facing chipboard). b) Common applications of timber in the built environment: i. flooring ii. doors iii. window frames iv. door frames v. skirting boards vi. architrave vii. stairs. c) Key characteristics of timber: i. durability ii. stability iii. weight iv. workability v. strength to weight ratio vi. aesthetics vii. ability to take preservatives and finishes. viii. grades of sheet material ix. Sustainability.
1.2 Tools and equipment required to carry out	1.2.1 Types of hand tools and their uses a) Tape measure

Topics	Content elements
carpentry and joinery repairs and refurbishment	b) Combination square c) Sliding bevel d) Pencil e) Hammer/Mallet f) Chisels g) Screwdrivers h) Mortice gauge i) Saw: i. hand saw ii. tenon saw iii. coping saw. j) Planes k) Scribe and profile l) Nail punch 1.2.2 Types of power tools and their uses a) Drill b) Screwdriver c) Flat bits d) Chop saw e) Sander f) Planer g) Multi tool h) Nail gun i) Jigsaw j) Circular saw
1.3 Common consumable materials and components used in carpentry and joinery repairs and refurbishment	1.3.1 Types of materials and components and their uses a) Adhesives (Polyvinyl acetate, Epoxy resin, Contact adhesive) b) Sealants (water-based, acrylic, silicone, polyurethane) c) Preservatives (water-borne, organic solvent-based, creosote) d) Ironmongery (euro barrels, window-locking handles, letter plates, mortice, latch, lever handles, escutcheon, hinges) e) Fixings (screws, nails, bolts, dowels, metal plate fasteners) f) Wood fillers (water-based, latex-based, epoxy) 1.3.2 Types of locks and their uses a) Types of locks: i. mortice ii. tubular latch iii. hasp and staple iv. dead bolt v. rim lock vi. uPVC Euro barrel

Topics	Content elements
	b) Considerations that may impact their use: i. cost ii. aesthetics iii. door/window material iv. purpose - security vs convenience v. strength vi. weight 1.3.3 Fire-rated products and their uses a) Hinges b) Doors c) Door linings d) Door frames e) Glass f) Intumescent strips 1.3.4 Type of mouldings used for skirting and architrave and their uses a) Types of mouldings: i. pencil round ii. chamfered iii. taurus iv. ogee b) Considerations for their use: i. cost ii. aesthetics iii. age of building iv. listed building status v. weight vi. availability vii. building/room purpose 1.3.5 Types of finishing products for wood a) Paint b) Stain c) Varnish d) Oil

Learning outcome 2

Understand how to carry out carpentry repairs and refurbishment

Topics	Content elements
2.1 Hazards associated with using materials and equipment	2.1.1 Potential hazards and risks that may be encountered when carrying out carpentry repair and refurbishment activities a) Hazards: i. flying debris ii. unclear workspace/uneven floor iii. abrasive materials and chemicals. b) Risks: i. cuts ii. skin irritation iii. slips, trips and falls. 2.1.2 Minimising risks from hazards a) Using correct personal protective equipment (PPE) b) Planning of works c) Making the work area safe: i. warning signs ii. barrier. d) Risk assessment e) Method statement f) Alerting a supervisor to issues/concerns identified g) Complying with all relevant health and safety legislation, regulations and organisational procedures h) Sufficient training for required task
2.2 Defective and damaged timber work, ironmongery and glazing systems	2.2.1 Types of damage and defects to timber work and ironmongery and their characteristics a) Knots (live and dead) b) Wet and dry rot c) Insect infestation d) Shakes and splits in timber e) Weathering f) Incorrect application or use of materials g) Defective materials used h) Corrosion i) Malicious damage 2.2.2 Types of damage and defects to glazing systems and their characteristics a) Condensation b) Drafts or air leaks c) Noise transmission d) Water ingress through frame joints e) Deterioration and rot to window frames f) Jammed windows g) Peeling or cracking paint h) Broken glass

Topics	Content elements
	2.2.3 Methods of identifying damage a) Observation b) Internal/external survey c) Damp meter
2.3 Preparing timber surfaces for repairs and refurbishment	2.3.1 Options for repairs and refurbishment of timber surfaces a) Remove whole item b) Repair in situ by removing damaged area c) Splicing d) Replace with like-for-like component 2.3.2 Considerations when selecting the best approach a) Cost b) Time c) Materials needed d) Skill level needed e) Aesthetics requirements of repair f) Strength of repair g) Longevity requirements for repair 2.3.3 Types of preparation techniques for timber surfaces a) Materials and equipment required b) Techniques to be used: i. Splicing timber ii. Cutting back timber iii. Filling iv. Sanding

Learning outcome 3

Carry out carpentry and joinery skills for repairs and refurbishment

Topics	Content elements
3.1 Plan work required	3.1.1 Plan work required including completing a method statement a) Carry out a risk assessment to identify hazards and risks associated to the repair b) Identify requirements for managing risk: i. personal protective equipment (PPE) ii. making the work area safe. c) Calculate and select the materials required, ensuring compliance with the manufacturer's specifications, installation instructions and regulatory requirements d) Selecting what equipment will be needed e) Planning the work required to complete in the required timescale
3.2 Remove and replace locks, hinges and ironmongery on windows and doors	3.2.1 Remove locks, hinges and ironmongery on windows and doors a) Identify the type of lock, hinge or ironmongery which needs to be replaced b) Select and use tools to remove existing ironmongery without damaging the surrounding area 3.2.2 Replace locks, hinges and ironmongery on windows and doors a) Prepare the surface for new ironmongery to be fitted b) Position ironmongery correctly to: i. meet the brief/information given regarding the repair ii. enable it to be fitted securely iii. allow functionality of the ironmongery. c) Use the correct tools for the task and use them safely: i. inspect tools before and after use to ensure they are safe for use ii. ensure safety guards are in place and undamaged iii. use the correct personal protective equipment (PPE). d) Check that replacement part(s) work(s) correctly on completion: i. working smoothly ii. oiled, greased iii. spare key numbers recorded if relevant. e) Leave the work area tidy and safe: i. debris removed and safely disposed of ii. room contents replaced. f) Demonstrate replaced item works to end user and provide any necessary information g) Complete required paperwork (organisational and legislative)

Topics	Content elements
3.3 Repair and replace internal mouldings	3.3.1 Identify the type of moulding needed a) Use measuring tools and replated information to identify the type of moulding needed: i. measure sizes ii. identify moulding shape. 3.3.2 Remove existing moulding a) Remove existing moulding with minimal damage to the surrounding area: i. remove screws ii. remove nails from reverse side to avoid damage to face side. 3.3.3 Repair with replacement moulding a) Prepare surface for new moulding to be fitted: i. fill holes with suitable filler ii. repair damaged plaster to a smooth finish iii. sand and smooth surfaces to re-paint. b) Measure and cut the moulding to the required proportions: i. select and use equipment to measure (combination square sliding bevel, mark moulding with appropriate equipment, mitre box, tape measure) ii. safely use equipment to cut the moulding to the correct size (mitre box, tenon saw, mitre saw) iii. use type of cut (scribe, mitre, bisecting angle). c) Position moulding correctly: i. meet the brief/information given regarding the repair ii. enable it to be fitted securely. d) Attach the moulding using fixings (punching nails, pins or countersunk screws) e) Select and safely use appropriate tools for the task f) Finish moulding to the required standard: i. fill holes and gaps ii. prepare woodwork for finish iii. apply finish. g) Leave the work area tidy and safe: i. remove debris ii. segregate resources/waste for reuse, recycling and disposal iii. dispose of hazardous waste as per the manufacturer's COSHH instructions. h) Complete the required paperwork (organisational and legislative)
3.4 Replace laminate/LVT flooring	3.4.1 Prepare to replace the laminate/LVT flooring a) Select suitable replacement flooring to match existing flooring, ensuring compliance with the manufacturer's specifications, installation instructions and regulatory requirements

Topics	Content elements
	b) Mark the edges of the damaged plank using tape c) Select required tools to remove the damaged area of flooring, causing minimal damage to the surrounding area d) Cut a hole in the middle of the plank that needs replacing e) Remove the damaged plank f) Ensure that the sub-floor is clean and level g) Replace the underlay, as required 3.4.2 Replace area of floor with replacement laminate/LVT a) Read the manufacturer's instructions to identify any required fitting techniques b) Cut the tongue off the replacement plank to be installed c) Apply wood adhesive around the edges of the underside of the replacement plank d) Position the board and gently hammer into place until it is in the required position e) Remove any excess adhesive f) Weigh down the replacement plank until the adhesive has set g) Check that the plank is secure and safe

Supporting information

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Books:	N/A
Websites:	www.hse.gov.uk www.bsigroup.com www.gov.uk www.nhmf.co.uk

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)**	**LO3 3.1**
Produces documents of different types that are appropriate (eg in terms of length, style and language use) for the purpose and intended audience **(CSW2)**	**LO3 3.1**
Accurately and appropriately uses terminology associated with a particular workplace or sector in written communication **(CSW5)**	**LO3 3.1**
Workplace conduct	**LO and Topic**
Identifies and follows codes of conduct (eg for personal presentation, timekeeping) as appropriate to own role **(CW1**)	**LO3 3.1, 3.2, 3.3, 3.4**
Applies sufficient effort to enable them to complete tasks set to the standard required **(CW3)**	**LO3 3.1, 3.2, 3.3, 3.4**
Demonstrates initiative in carrying out own role **(CW4)**	**LO3 3.1, 3.2, 3.3, 3.4**
Problem solving	
Gathers appropriate information or advice from different sources to help solve a specific work-related problem **(PSW1)**	**LO3 3.1**
Assesses a range of potential solutions, applying appropriate problem-solving strategies **(PSW2)**	**LO3 3.1**
Selects a specific solution, justifying why this one is the most likely to prove effective **(PSW3)**	**LO3 3.1**
Presents a clear action plan, including tasks and timelines, for implementing a chosen solution to a specific work-related problem **(PSW4)**	**LO3 3.1**
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 3.1**
Works at an appropriate pace to carry out tasks in accordance with plan **(TMS2)**	**LO3 3.1, 3.2, 3.3, 3.4**
Adjusts approach in response to any change of circumstance (eg one task overrunning), as appropriate, to ensure remaining time is spent effectively **(TMS3)**	**LO3 3.1, 3.2, 3.3, 3.4**

Unit 246 Corrective maintenance of external property areas

Unit level:	Level 2
Guided Learning Hours (GLH):	62
Unit aim:	The aim and purpose of this unit is to provide the learner with the knowledge and skills to undertake corrective maintenance of external property areas within a 'maintenance contract' work environment
Assessment method:	Multiple choice question (MCQ) assessment Practical Assignment
Links to Occupational Standard:	ST0171 (Property Maintenance Operative)

Learning outcomes

1. Understand the types of construction and the materials used with regards to fencing, groundworks and landscaping
2. Understand how to identify common defective and damaged external property areas
3. Understand how to plan repairs to external property areas
4. Carry out repairs to external property areas

Learning outcome 1

Understand the types of construction and the materials used with regards to fencing. groundworks and landscaping

Topics	Content elements
1.1 Common types of fencing and railing	1.1.1 Types of fencing and railing and their key features a) Panel b) Picket c) Rail and board d) Metal railing systems 1.1.2 Types of materials used in fencing and railing systems and their uses a) Posts: i. timber ii. concrete. b) Timber rails c) Timber boards d) Timber fence panels

Topics	Content elements
	e) Concrete
1.2 Common types of ground works and landscaping	1.2.1 Types of groundworks and landscaping and their key features a) Drainage – combined, surface water and foul b) Foundations c) Path and driveway maintenance d) Weed prevention 1.2.2 Types of materials in ground works and landscaping systems and their uses a) Aggregates: i. Sand – s harp and building ii. gravels iii. ballast iv. MOT/DOT1. b) Slabs and paviours c) Cement d) Concrete e) Drainpipes and fittings f) Geo-textile weed membrane

Masonry knowledge is contained in Unit 201 :Learning outcome 4.

Learning outcome 2

Understand how to identify common defective and damaged external property areas

Topics	Content elements
2.1 Common defects and damage to fencing and railings	2.1.1 Types of defects and damage to fencing and railings a) Damaged, loose or missing fencing can be identified through observation/visual checks and assessment b) Rotten posts can be identified by unstable fencing using observation/visual checks and by probing to test the resistance and integrity of the material c) Rust can be identified by discoloured or flaking paint using observation/visual checks and assessment

Topics	Content elements
2.2 Common defects and damage to ground works and landscaping	2.2.1 Types of defects and damage to groundworks and landscaping a) Leaking drainage b) Blocked drainage c) Broken path and driveways d) Poor workmanship e) Root damage 2.2.2 Indications that a defect or damage has taken place to groundworks and landscaping a) Fencing damaged/missing b) Mould/damp c) Broken, loose or missing slabs or concrete d) Subsidence or ground heave e) Flooding f) Poor drainage 2.2.3 Methods of identifying defects and/or damage to groundworks and landscaping a) Observation/visual checks and assessment
2.3 Common defects and damage to masonry structures	2.3.1 Types of defects and damage a) Spalling b) Frost attack c) Damp d) Holes e) Cracking f) Subsidence g) Staining h) Poor workmanship 2.3.2 Indications that a defect or damage has taken place a) Sunken walls b) Broken/damaged bricks/blocks c) Cracks in bricks or mortar d) Cracks in plasterwork e) Missing mortar f) Wet walls g) Efflorescence 2.3.3 Methods and equipment of identification a) Observation b) Damp meter

Topics	Content elements
2.4 Common defects to roofing	2.4.1 Types of defects and damage a) Lack of insulation b) Poor ventilation c) Punctures and penetrations d) Roof tile movement including broken tiles and slates e) Blocked drainage (gutter, downpipe, valley) f) Damaged flashing around chimneys, vents and skylights g) Chimney pointing defects h) Loose ridge tiles 2.4.2 Indications that a defect or damage has taken place a) Higher than expected energy bills b) Mould growth in the roof space c) Timber rot d) Leaks e) Walter infiltration causing moisture and water damage 2.4.3 Methods of identification a) Regular visual roof inspections b) Moisture meter
2.5 Defects and damage to external property areas that are beyond the scope of a maintenance operative role	2.5.1 Types of defects and damage that are beyond the scope of the Maintenance Operative's job role and action that should be taken a) Defects and damage: i. extreme dampness (wet/dry rot, penetrating/rising damp) extreme damp requires specialist knowledge or methods ii. damaged gas main, water main or main drains requires registered workers authorised to work on gas mains, water mains and main drains iii. subsidence or ground heave would need to be confirmed and advised by a structural engineer iv. roof damage requiring working at height beyond trained level v. defective decorative brick/stonework – specialist will be required to repair decorative masonry vi. defective pre-1919 masonry – pre-1919 buildings are historical and sometimes listed or protected buildings which require specialist knowledge of a conversation officer/specialist. b) Action to be taken by the Maintenance Operative: i. discuss action with client

Topics	Content elements
	ii. report and refer issues to a supervisor.

Learning outcome 3

Understand how to plan maintenance and repairs to external property areas

Topics	Content elements
3.1 Tools required to carry out external property repairs to fencing and railings, groundworks and landscaping and masonry	3.1.1 Types of hand tools and their uses a) Shovels, spades, post hole diggers and drain spade b) String line (pins and corner blocks) c) Spirit level/laser level d) Hammer: i. brick ii. club/lump iii. claw iv. sledge. e) Trowel: i. bricklaying ii. gauging iii. pointing. f) Tape measure/laser measure g) Crow/wrecking bar h) Socket set i) Bolster, plugging and cold chisels j) Gauge staff k) Hawk board 3.1.2 Types of power tools and their uses a) Cement mixer b) Grinder, petrol/battery cut-off saw c) Circular saw d) Cordless drills including impact driver, combination, SDS drill/breaker e) Paddle mixer drill f) First-fix nail gun g) Hydraulic breaker
3.2 Materials required for external property repairs to fencing and railings, groundworks and landscaping and masonry	3.2.1 Types of materials and their uses a) Treated timber: i. feather edge ii. posts iii. rails

Topics	Content elements
	iv. pickets. b) Soil boards/gravel boards c) Cement, mortar, postmix and concrete: i. ready mixed ii. mixed by hand iii. sand and aggregates. d) Screws and nails: i. clout ii. ring shank iii. round wire iv. collated nails. e) Gate ironmongery: i. hinges ii. latches iii. locks. f) Aggregates: i. pea gravel ii. hardcore iii. sand and gravel mix. g) Temporary batons h) Drainage pipes, gulleys, manholes and surface drains i) Mortar, postmix and concrete j) Pavers and slabs k) Lintels and tie wires l) Bonding agent m) Bricks: i. engineering ii. common iii. facing. n) Blocks: i. thermal ii. hollow iii. solid. o) Mortar additives: i. plasticiser ii. frost proofer iii. water proofer iv. dye v. retardant vi. accelerant

Topics	Content elements
3.3 Calculations required to carry out work to fencing, masonry, groundworks and landscaping	3.3.1 Calculations required to calculate materials required for fencing, masonry, groundworks and landscaping repairs a) Conversion of metric and imperial measurements b) Perimeter c) Area d) Volume e) Ratios 3.3.2 Calculations in relation to fencing, masonry, groundworks and landscaping a) Quantity of fence panels and posts required for given perimeter b) Converting volume into kg or ton to work out quantities of concrete/sand/cement required c) Brick and block sizes and how many required for a square metre 3.3.3 Sources of information when completing calculations a) Drawings containing measurements b) Live site measurements c) Scaling from plans using ratios and plan keys

Learning outcome 4

Carry out repairs to external property areas

Topics	Content elements
4.1 Completing maintenance work on defective fencing and railings	4.1.1 Prepare to repair fencing and railings (using tools and materials stated in LO 3.1) a) Identify the damaged section/components b) Complete a risk assessment and method statement c) Identify the materials/components required to carry out the repair, ensuring compliance with the manufacturer's specifications, installation instructions and regulatory requirements d) Select appropriate tools/equipment to carry out the repair e) Make work area safe f) Check relevant documentation and job requirements 4.1.2 Carry out required repairs

	a) Remove damaged fencing/railings/posts causing minimal damage to surrounding area b) Prepare area, as required, to fit replacement components c) Replace the required components, as required d) Check that they are fixed securely and stable e) Ensure that the replacement components meet the required standard f) Dispose of materials in line with location-specific procedures
4.2 Completing maintenance work on defective groundwork	4.2.1 Prepare for maintenance on defective drainage (using tools and materials stated in LO 3.3) a) Identify the damaged section/components b) Complete a risk assessment and method statement c) Identify the materials/components required to carry out the repair, ensuring compliance with the manufacturer's specifications, installation instructions and regulatory requirements d) Select appropriate tools/equipment to carry out the repair e) Make work area safe f) Check relevant documentation and job requirements 4.2.2 Install replacement groundwork components to defective drainage a) Preparing slab and drainage and select correct tools: i. remove broken slab ii. dig area around gully and pipe iii. removal of broken gully and pipe. b) Install new slab, gully and pipe and select correct tools: i. cut and install pipes to correct fall ii. install gully iii. cover pipe with pea gravel iv. fit new slab. c) Dispose of damaged groundwork components safely and appropriately
4.3 Completing maintenance work on defective masonry	4.3.1 Prepare surfaces for masonry work and select correct tools a) Complete a risk assessment and method statement b) Remove of damaged bricks/blocks c) Identify potential problems such as damp/frost 4.3.2 Mix materials and select correct tools

	a) Mechanically mix sand and cement mortar 4.3.3 Install bricks/blocks and select correct tools a) Install brick/block to defective area ensuring they are plumb, level and to gauge b) Point brick/blockwork to match existing

Supporting information

Unit guidance for delivery

Opportunities for efficiencies in delivery across/between units:	Health and Safety and planning of work are common themes across all of the technical units. There are also common tools and equipment within different technical units.
Suggestions for formative assessment opportunities, both for knowledge and practical outcomes:	A reflective approach by learners is encouraged throughout the units when completing practical tasks to support their improvement and ability to recognise whether the completion of holistic tasks is to the required standard.
Opportunities for visits/engagement with local industry and employers:	Research, work placements, in-house demonstrations by industry professionals, careers and job role information provided by local employers.
Considerations for innovative methods of delivery:	Students could have a work bay each to support their learning and application of practical application; the work bay could include multiple technical applications in one place eg patch plastering, painting, tiling, skirting board and architrave, a door that can have hinges and locks changed etc, a sink in which a trap could be replaced and a new tap fitted.
Ways of ensuring content is delivered in line with current, up-to-date industry practice:	Assessors should be up to date with current industry best practice and new methods of work. 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. Providers should ensure adherence to current relevant regulations.
EDI or accessibility considerations:	Providers must deliver the unit in line with their EDI policy and organisational procedures
Digital initiative considerations:	Use of video streaming channels to provide multi-technical content relevant to the expectations of the Maintenance Operative role.
Sustainability considerations:	Encouraging paperless working practices – printing materials only where necessary. Learners should consider approaches to sustainability throughout the construction process in order to minimise environmental impact. These would include recycling of materials where possible, minimising waste and reusing materials for practical tasks where possible.
Books:	N/A
Websites:	www.hse.gov.uk www.bsigroup.com www.gov.uk www.nhmf.co.uk

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)**	**LO4: 4.1, 4.2, 4.3**
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Adjusts approach in response to any change of circumstance (eg one task overrunning), as appropriate, to ensure remaining time is spent effectively **(TMS3)**	**LO4: 4.1, 4.2, 4.3**

Appendix 1 Qualification content mapping to Occupational Standard

The table below contain the mapping of the Occupational Standard ST0171 V1.1 Knowledge, Skills and Behaviours (KSBs) to the City & Guilds Level 2 Extended Technical Occupational Entry in Maintenance Operations (Diploma).

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	K4
201 Principles of welfare, health and safety in construction environments	K3, K6, K7, K9
202 Principles of working in the construction industry	K2, K5, K19, K20, K23, K24, K25, K26, K27, K28, K29, K30, K31
240 Tiling repairs and maintenance	K2, K4, K7, K17, K18, K19, S1, S2, S3, S4, S5, S6, S7, S16, S17, S19, S20, S21, S22, S23, S24, S25, B1, B2, B3, B4, B5, B6
241 Plastering and render maintenance and repairs	K2, K7, K15, S1, S2, S3, S4, S5, S6, S7, S14, S19, S20, S21, S22, S23, S25, B1, B2, B3
242 Remedial painting and decorating works	K2, K7, K16, S1, S2, S3, S4, S5, S6, S7, S15, S19, S20, S21, S22, S23, B1, B2, B3
243 Maintenance of plumbing and drainage systems	K1, K2, K5, K7, K10, K11, K12, S1, S2, S3, S4, S5, S6, S7, S10, S19, S20, S21, S22, S23, S24, B1, B2, B3
244 Preventative and corrective maintenance on building systems	K7, K8, K9, K13, S3, S4, S5, S6, S8, S9, S12, S21, S22, S24, S25, B1, B2
245 Using carpentry and joinery skills for repairs and refurbishment	K2, K4, K7, K14, K18, S1, S2, S3, S4, S5, S6, S7, S13, S17, S19, S20, S21, S22, S23, S24, B1, B2, B3
246 Corrective maintenance of external property areas	K2, K7, K19, K21, K22, S1, S2, S3, S4, S5, S6, S7, S11, S18, S19, S20, S21, S22, S23, S24, S25, 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 Handbook: 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.

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