



Ascentis Level 2 Award, Certificate & Diploma in

Skills for Employment in the Construction Industries

Unit Booklet

Ofqual Accreditation Number:	Award:	601/0970/1
	Certificate:	601/0995/6
	Diploma:	601/0996/8
Ofqual Start Date:	01/09/2013	
Ofqual Review Date:	31/07/2021	
Ofqual Certification Review Date:	31/07/2022	

ABOUT ASCENTIS

Ascentis was originally established in 1975 as OCNW, a co-operative scheme between Universities and Colleges of Further Education. Ascentis was the first 'Open College' in the UK and served the needs of its members for over 34 years. Throughout this period, OCNW grew yet maintained its independence in order that it could continue to respond to the requirements of its customers and provide a consistently high standard of service to all centres across the country and in recent years to its increasing cohorts of overseas learners.

In 2009 OCNW became Ascentis - a company limited by guarantee and a registered educational charity.

Ascentis is distinctive and unusual in that it is both

- **An Awarding Organisation** regulated by the Office of Qualifications and Examinations Regulation (Ofqual)

and

- **an Access Validating Agency (AVA)** for 'Access to HE Programmes' licensed by the Quality Assurance Agency for Higher Education (QAA).

Ascentis is therefore able to offer a comprehensive ladder of opportunities to centres and their students, including Foundation Learning, vocational programmes and progressing to QAA recognised Access to HE qualifications. The flexible and adult-friendly ethos of Ascentis has resulted in centres throughout the UK choosing to run its qualifications.

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UNIT SPECIFICATIONS

Working Safely in Construction

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Know about the hazards and risk in the construction workplace	1.1	Define the terms accident, harm, hazard and risk
		1.2	Identify hazards in the construction workplace
		1.3	State how hazards in the construction workplace can cause harm or damage to people
		1.4	State the relationship between the nature of a hazard, exposure to that hazard and risk
2	Know about emergency procedures in the construction industry	2.1	Identify the fire and emergency procedures used in the construction workplace
		2.2	Distinguish between different types of fire extinguisher
		2.3	Select appropriate fire extinguishers for use in a variety of fires
		2.4	Identify standard first aid procedures used in the construction workplace
3	Know about safe working practices in construction crafts	3.1	Identify hazards associated with a variety of construction craft tasks
		3.2	Select appropriate personal protective equipment for a variety of construction craft task
		3.3	Identify safe working practices for a variety of construction craft tasks

Indicative Content

Hazards and risk

- Importance of health and safety in the workplace, what it is and who it affects
- Responsibilities of employers, managers and employees
- Definitions of accident, harm, hazard and risk
- Range of hazards and the harm they may cause: e.g. manual handling, repetitive work, noise and vibration, hazardous substances, slips, trips and falls, falling from height, machinery/equipment, electricity, transport/vehicles, fire/explosions, confined spaces, pressure systems, people/stress
- Conditions in the workplace: e.g. housekeeping, access and exit routes, lighting, ventilation, noise, temperature, dust/fumes
- Relationship between hazard and risk, the likelihood that exposure to a hazard will lead to a negative outcome

Emergency procedures

- Fire drills and procedures; what to do if you discover a fire or other emergency, evacuation procedures, safety signs, fire extinguishers (contents, identifying colours and safe use)
- First aid: legal requirements and protection of employees

Safe working procedures

- Personal Protective Equipment to Include: protective clothing, head protection, eye protection, hearing protection, respiratory protection, hand protection, foot protection
- Maintenance of clean and tidy work space, identification of any hazards associated with given tasks, use of safe practices to minimise risks from identified hazards
- Construction crafts tasks to include bricklaying, carpentry and joinery, painting and decorating, plastering, plumbing and electrical installation, tiling, drylining and flooring.

Tutor Guidance

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

Centres offering this qualification to 14-18 year old learners can refer to the HSE, Young People and work experience leaflet.

UNIT SPECIFICATIONS

Health, Safety and Welfare in Construction

Credit Value of Unit: 5

GLH of Unit: 50

Level of Unit: 2

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Understand the importance of health, safety and welfare in construction	1.1	Explain the importance of health and safety in the construction workplace
		1.2	Explain the importance of making provision for the welfare of construction employees
		1.3	Differentiate between the legal responsibilities of employers and employees for health and safety in the construction workplace
		1.4	Analyse the common causes of construction workplace accidents and ill-health
		1.5	Explain the importance of reporting construction workplace accidents, ill-health and other incidents
2	Know the common safety signs found in the construction workplace	2.1	Identify different safety signs used in construction
		2.2	Describe the hazards indicated by the different safety signs used in construction
3	Be able to perform risk assessments in the construction workplace	3.1	Identify hazards in the construction workplace
		3.2	Identify how hazards can harm construction employees
		3.3	Assess the risks associated with the hazards
		3.4	Record the findings of the risk assessment
		3.5	Carry out reviews of risk assessments
4	Be able to specify control measures in the construction workplace	4.1	Contribute to construction workplace policy statements and safe systems of work
		4.2	Specify personal protective equipment for a variety of construction operations
		4.3	Specify control measures to minimise hazards in construction operations due to changes in human and workplace factors

Indicative Content

- Health, safety and welfare in construction
- What health and safety in the construction workplace implies and why it is important for everyone.
- Welfare provision: requirement for toilets, washing facilities, drinking water, places to eat and drink, changing rooms, drying rooms and lockers, rest facilities, heating
- Legal responsibilities of employers and employees in construction: according to Health and Safety at Work Act 1974 and The Construction (Health, Safety & Welfare) Regulations 1996
- Construction workplace accidents and ill-health: analysis of incidence of causes including slips, trips and falls, falling materials, collapsing structures and excavations, electrical accidents, poor manual handling, mobile plant, noise and vibration, hazardous substances (including asbestos)
- Reporting accidents: legal requirement under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR); use of information by HSE and local authorities, identification of where and how risks arise, investigation of serious accidents; use of outcomes to provide guidance and advice on how to reduce injury and ill-health in the workplace.
- Safety signs
- Safety signs and the hazards they indicate including: prohibition signs, warning signs, safe condition signs, mandatory signs, fire signs
- Risk assessments
- Five steps to risk assessment in construction: identify the hazards, decide who might be harmed and how, evaluate the risks and decide on precautions, record findings and implement them, review assessment and update as and when necessary
- Control measures
- Construction workplace policy statements: written statements comprising three elements of work equipment, hazardous substances and manual handling and other workplace issues
- Safe systems of work in construction: method statements (instructions on how to safely perform a work related task or operate a piece of plant or equipment), issues associated with change of work systems
- Personal Protective Equipment (PPE) used in construction: protective clothing, head protection, eye protection, hearing protection, respiratory protection, hand protection, foot protection
- Selection of appropriate PPE for specified tasks
- Hazards in the construction workplace due to human factors (attitude, maturity, training, experience) and workplace factors (temperature, humidity, dust, noise and vibration, on-site traffic, working at height, working below ground, working in confined spaces)

Assessment Method

Please note that this unit is assessed by portfolio

Tutor Guidance

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Performing trowel operations

Credit Value of Unit: 8

GLH of Unit: 80

Level of Unit: 2

Learning Outcomes The learner will be able to	Assessment Criteria The learner can	Assessment Method
1 Be able to prepare perform trowel operations	1.1 Describe the principles that underpin trowel repairs	Portfolio of evidence
	1.2 Describe the principles that underpin trowel operations	Portfolio of evidence
	1.3 Review the regulations to be observed when performing trowel operations	Portfolio of evidence
	1.4 Perform risk assessments	Appendix 4 in the specification
2 Know the tools, materials and equipment required to perform trowel operations	2.1 Select appropriate tools and equipment to perform trowel repairs	Practical assessment
	2.2 Select appropriate tools and equipment to perform trowel operations	Practical assessment
	2.3 Select the materials needed to perform trowel operations	Practical assessment
3 Be able to calculate quantities and prices for a range of trowel operations	3.1 Calculate the quantity of materials needed to perform trowel operations	Practical assessment
	3.2 Estimate the price of performing trowel operations including human resources	Portfolio of evidence
4 Be able to perform trowel operations	4.1 Perform trowel repair tasks to specified tolerances	Practical assessment
	4.2 Perform trowel operation tasks to specified tolerances	Practical assessment
	4.3 Carry out work in a safe and responsible manner	Practical assessment

Indicative Content

Trowel Repairs

- surveying the extent of the repair
- cutting out defective brickwork
- cutting out defective blockwork
- cutting out toothing for brick bonding
- matching bricks for repair
- undertaking installation of brickwork or blockwork repair
- pointing to match existing finishes
- clean working area

Trowel Operations

- analysis of drawings for trowel operations
- setting up working area, mixer, mortar boards, barrows
- stacking materials prior to commencement
- calculation of courses, lengths, heights and bonding
- establishing starting levels
- construction of brickwork and blockwork external cavity walls in accordance with drawn information
- construction of internal blockwork partition walls in accordance with drawn information
- work to tolerances for the installation of brickwork and blockwork to include plumb, height, length and level

Health & Safety Regulations

- Health and Safety at Work Act 1974
- employee responsibilities
- employer responsibilities
- duties of manufacturers and designers
- Control of Substances Hazardous to Health
- manufacturers safety data sheets associated with cement and mortar additives
- identification of material hazards
- application of suitable and sufficient control measures
- completion of appropriate risk assessments
- use of appropriate PPE

Manual Handling Regulations

- assessment of material weight, size and quantity to be moved
- appropriate methods of lifting, mixing and application of brickwork and blockwork materials
- completion of appropriate risk assessment
- wearing of appropriate PPE for manual handling

Working at Height Regulations

- assessment of risk from working at height
- appropriate control measures

Risk Assessments

- identification of hazards associated with trowel operations
- assessment of the initial risks from the hazards
- application of appropriate control measures
- re-assessment of residual risk
- recording of risk assessment findings

Trowel Tools, Equipment and Materials

- mixers
- walling trowel
- pointing trowel
- jointer
- string line and pins
- corner blockers
- corner profiles
- gauge rods

- tape measure
- builders level
- tingle
- mortar board
- brick bolster
- lump hammer
- brick hammer

Materials

- soft sand
- cement
- plasticizers
- facing bricks
- blockwork; solid, lightweight
- wall ties

Estimation

- calculation of areas of brickwork and blockwork
- calculation of quantities of brickwork and blockwork materials required
- material costs from suppliers
- craftsperson outputs
- craftsperson labour rates

Assessment Method

Please note that this unit is assessed by practical assessment set by Ascentis

Tutor Guidance

It is expected that learners will have no prior knowledge and understanding of trowel principles and techniques.

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Performing carpentry and joinery operations

Credit Value of Unit: 8

GLH of Unit: 80

Level of Unit: 2

Learning Outcomes	Assessment Criteria	Assessment Method
The learner will be able to	The learner can	
1 Be able to prepare to perform carpentry and joinery operations	1.1 Describe the principles that underpin carpentry and joinery repairs	Portfolio of evidence
	1.2 Describe the principles that underpin carpentry and joinery operations	Portfolio of evidence
	1.3 Review the regulations to be observed when performing carpentry and joinery operations	Portfolio of evidence
	1.4 Perform risk assessments	Appendix 4 in the specification
2 Know the tools, materials and equipment required to perform carpentry and joinery operations	2.1 Select appropriate tools and equipment to perform carpentry and joinery repairs	Practical assessment
	2.2 Select appropriate tools and equipment to perform carpentry and joinery installations	Practical assessment
	2.3 Select the materials needed to perform carpentry and joinery operations	Practical assessment
3 Be able to calculate quantities and prices for a range of carpentry and joinery operations	3.1 Calculate the quantity of materials needed to perform carpentry and joinery operations	Practical assessment
	3.2 Estimate the price of performing carpentry and joinery operations including human resources	Portfolio of evidence
4 Be able to perform carpentry and joinery operations	4.1 Perform carpentry and joinery repair tasks to specified tolerances	Practical assessment
	4.2 Perform carpentry and joinery tasks to specified tolerances	Practical assessment
	4.3 Carry out work in a safe and responsible manner	Practical assessment

Indicative Content

Preparation

- General repair principles: cutting out of defective timber, preparation for the splicing in of new timber, cutting and fitting spliced timbers; door frames, window sills: general repairs to ironmongery attached to doors, easing of doors and windows by planing
- General installation principles: fitting of door frame or lining into a prepared opening, hanging of door within frame or lining on hinges, fitting of mortise lock and handles, assembly of kitchen base unit and fitting of work tops with wall unit to drawn information, installation of a run of guttering with all brackets and downpipe connection to drain, fascia boards, soffit boards.
- Regulations: HSWA 1974 employees duties, Working at Height Regulations precautions to be taken for fitting guttering, COSHH Regulations for using any external adhesives for joinery repairs

- Risk assessment: identify hazards, decide who might be harmed and how, evaluate the risks and decide on precautions, record findings and implement them, review and update as necessary

Tools, equipment and materials

- Tools and equipment: pencil, carpenters square, panel saw, chisel, mallet, cordless drill, drill bits, carpenters level, string line, screwdrivers, cordless drill and bits, masonry drill bits
- Materials: suitably machined timber for repairs for frames and sills, screws, external wood adhesive, oval nails, mortice lock, mortice lock handles, escutcheons, 100mm hinges x 3, door frame, 44mm flush door, 100mm half round guttering, stop ends x 2, running outlet, gutter brackets, downpipe, pipe bends, brackets, shoe, kitchen base unit 1000mm wide, worktop, wall unit

Quantities

- Materials: techniques to determine material quantities, adjustments to quantities for cutting, waste and breakage
- Estimates of price: material costs, hire costs, labour costs, Value Added Tax (VAT)

Carpentry and Joinery operations

- Repair tasks: processes involved in the removal of an area of defective timber and its replacement with a spliced new piece of timber to match existing in cross section and or profile. Obtaining a suitable flush finish with minimal use of fillers and glues
- Installation tasks: installation of a door frame with external door including all associated ironmongery with a five level mortise lock installed. Installation of a run of guttering to include the fascia and soffit boards, guttering brackets and associated downpipe connection to a drain. Installation of a kitchen self assembled base unit, work top and self assembled wall unit
- Tolerances: Repair; the gap between new and existing timber should be no more than 3mm, and not contain excessive filler and or adhesives. The finished repair should not project forward of the existing surrounding timber and should be flush on all edges. Installation: Door frame/lining should be vertical with the head horizontal. Door should fit with a tolerance of 3mm on all edges and swing freely. Mortise lock plate to have a gap no more than 1mm around it. Lock to work correctly and the bolt to swing into the lock keep within the frame. Lever handles and latch to work correctly and spring back when operated
- Working safely: comply with risk assessments and workshop safety policies, maintain a clean and tidy workspace, use appropriate Personal Protective Equipment, behave in a satisfactory manner

Assessment Method

Please note that this unit is assessed by practical assessment set by Ascentis

Tutor Guidance

It is expected that learners will have no prior knowledge and understanding of carpentry and joinery principles and techniques.

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Performing painting and decorating operations

Credit Value of Unit: 8

GLH of Unit: 80

Level of Unit: 2

Learning Outcomes The learner will be able to	Assessment Criteria The learner can	Assessment Method
1 Be able to prepare perform painting and decorating operations	1.1 Describe the principles that underpin painting and decorating repairs	Portfolio of evidence
	1.2 Describe the principles that underpin painting and decorating operations	Portfolio of evidence
	1.3 Review the regulations to be observed when performing painting and decorating operations	Portfolio of evidence
	1.4 Perform risk assessments	Appendix 4 in the specification
2 Know the tools, materials and equipment required to perform painting and decorating operations	2.1 Select appropriate tools and equipment to perform painting and decorating repairs	Practical assessment
	2.2 Select appropriate tools and equipment to perform painting and decorating operations	Practical assessment
	2.3 Select the materials needed to perform painting and decorating operations	Practical assessment
3 Be able to calculate quantities and prices for a range of painting and decorating operations	3.1 Calculate the quantity of materials needed to perform painting and decorating operations	Practical assessment
	3.2 Estimate the price of performing painting and decorating operations including human resources	Portfolio of evidence
4 Be able to perform painting and decorating operations	4.1 Perform painting and decorating repair tasks to specified tolerances	Practical assessment
	4.2 Perform painting and decorating tasks to specified tolerances	Practical assessment
	4.3 Carry out work in a safe and responsible manner	Practical assessment

Indicative Content

Preparation

- General principles: clean and clear working area, preparation of the area of the area to be decorated, different paints, stains, varnishes and their uses/applications and appropriate surfaces, methods of application of paints, stains and varnishes and the range of finishes and styles, different types and style of wallpaper, methods of hanging different papers and appropriate paste, cleaning tools, equipment and work area on completion, health safety and welfare
- Regulations: health and safety legislation in particular COSHH and Working at Height Regulations, PPE and Manual Handling Regulations, British Standards, Euro Codes, and codes of practice.
- Risk assessment: identify hazards, ascertain risk levels, decide who might be harmed, and implement appropriate control measures, monitor, review and revise

Tools, equipment and materials

- Tools and equipment: paint brushes, paint roller, roller tray an scuttle, paint kettle, shavehook, scraper, putty knife, hacking knife, caulking board, hot air stripper, trimming knife, paper hanging brush, paste brush, buckets, seam roller, paste table, tape measure, sponge, spirit level, plumb line and straight edge.
- Materials: water based paints, acrylic based paints and solvent based paints, liquid paint removers

Quantities

- Materials: techniques to determine material quantities, adjustments to quantities for cutting, waste and breakage
- Estimates of price: material costs, hire costs, labour costs, Value Added Tax (VAT)

Painting and decorating operations

- Repair tasks: rake out and fill cracks, make good damaged surface finishes (paint, varnish and coatings), to masonry, plaster, metal and timber substrates, piece in to replace damaged wallpaper
- Installation tasks: prepare substrates (masonry, plaster, timber and metal) to receive paint, varnish and stains, prepare substrates to receive wallpaper, undercoat, wet and dry, finish coats, wallpaper hanging (horizontal and vertical).
- Tolerances: no paint runs, drips or nibs, consistency of colour and finish with no misses, wallpaper to be plumb (± 5 mm) with no gaps and pattern matched, work to be undertaken in a professional manner and area left clean and tidy
- Working safely: comply with risk assessments and workshop safety policies, maintain a clean and tidy workspace, use appropriate Personal Protective Equipment, behave in a satisfactory manner

Assessment Method

Please note that this unit is assessed by practical assessment set by Ascentis

Tutor Guidance

It is expected that learners will have no prior knowledge and understanding of painting and decorating principles and techniques.

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Performing plumbing operations

Credit Value of Unit: 8

GLH of Unit: 80

Level of Unit: 2

Learning Outcomes	Assessment Criteria	Assessment Method
The learner will be able to	The learner can	
1 Be able to prepare perform plumbing operations	1.1 Describe the principles that underpin plumbing repairs	Portfolio of evidence
	1.2 Describe the principles that underpin plumbing operations	Portfolio of evidence
	1.3 Review the regulations to be observed when performing plumbing operations	Portfolio of evidence
	1.4 Perform risk assessments	Appendix 4 in the specification
2 Know the tools, materials and equipment required to perform plumbing operations	2.1 Select appropriate tools and equipment to perform plumbing repairs	Practical assessment
	2.2 Select appropriate tools and equipment to perform plumbing operations	Practical assessment
	2.3 Select the materials needed to perform plumbing operations	Practical assessment
3 Be able to calculate quantities and prices for a range of plumbing operations	3.1 Calculate the quantity of materials needed to perform plumbing operations	Practical assessment
	3.2 Estimate the price of performing plumbing operations including human resources	Portfolio of evidence
4 Be able to perform plumbing operations	4.1 Perform plumbing repair tasks to specified tolerances	Practical assessment
	4.2 Perform plumbing tasks to specified tolerances	Practical assessment
	4.3 Carry out work in a safe and responsible manner	Practical assessment

Indicative Content

Preparation

- You may ask your tutor questions at any point during the activities which relate to clarification; however, your tutor will not be able to help you with the planning, construction or verification
- Risk assessment: identify hazards, decide who might be harmed and how, evaluate the risks and decide on precautions, record findings and implement them, review and update as necessary

Tools, equipment and materials

- You must list the tools and equipment you need. Check with your tutor that you have chosen the correct tools and equipment before you carry on
- Select the correct amount of materials and tools in order to complete the tasks
- Carry out the task in a way that reduces the amount of materials wasted.
- Ensure correct use of all Personal Protective Equipment (PPE). Always use a brush when applying flux and remove all flammable materials before using a Blow torch
- When you have completed the task you must clean your tools and work area. Return all tools and equipment to the correct storage place. Wash hands at the end

Quantities

- Materials: techniques to determine material quantities, adjustments to quantities for cutting, waste and breakage

Plumbing operations

Repair tasks: maintaining a WC siphon ensuring that it is leak free

- Installation task: the completed task to meet the required dimensional standards
- Tolerances: Angles and measurements are within reasonable tolerances (+/- 3mm)
- Working safely: comply with risk assessments and workshop safety and COSHH procedures, maintain a clean and tidy workspace, use appropriate Personal Protective Equipment, and behave in a satisfactory manner

Assessment Method

Please note that this unit is assessed by practical assessment set by Ascentis

Tutor Guidance

It is expected that learners will have no prior knowledge and understanding of plumbing principles and techniques.

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Performing electrical operations

Credit Value of Unit: 8

GLH of Unit: 80

Level of Unit: 2

Learning Outcomes The learner will be able to	Assessment Criteria The learner can	Assessment Method
1 Be able to prepare to perform electrical operations	1.1 Describe the principles that underpin electrical repairs	Portfolio of evidence
	1.2 Describe the principles that underpin electrical installations	Portfolio of evidence
	1.3 Review the regulations to be observed when performing electrical operations	Portfolio of evidence
	1.4 Perform risk assessments	Appendix 4 in the specification
2 Know the tools, materials and equipment required to perform electrical operations	2.1 Select appropriate tools and equipment to perform electrical repairs	Practical assessment
	2.2 Select appropriate tools and equipment to perform electrical installations	Practical assessment
	2.3 Select the materials needed to perform electrical operations	Practical assessment
3 Be able to calculate quantities and prices for a range of electrical operations	3.1 Calculate the quantity of materials needed to perform electrical operations	Practical assessment
	3.2 Estimate the price of performing electrical operations including human resources	Portfolio of evidence
4 Be able to perform electrical operations	4.1 Perform electrical repair tasks to specified tolerances	Practical assessment
	4.2 Perform electrical installation tasks to specified tolerances	Practical assessment
	4.3 Carry out work in a safe and responsible manner	Practical assessment

Indicative Content

Preparation

- General principles: isolation of supply, marking out, installing components, fittings and cables, clipping, connecting (cables to run either vertically or horizontally), completing circuits, testing
- Regulations: PUWER Regulations 1998, Building Regulations Part P 2006, Electricity at Work Regulations 1989
- Risk assessment: identify hazards, decide who might be harmed and how, evaluate the risks and decide on precautions, record findings and implement them, review and update as necessary

Tools, equipment and materials

- Tools and equipment: pencil, tape measure, spirit level, ball pen hammer, hacksaw, pliers, side cutters, stripping knife, cable stripper, cordless drill and screwdriver, test equipment
- Materials: light fitting, junction box, double socket, doorbell, cables, conduit, jointing materials, fittings, switches, solder, 13A three-pin plug

Quantities

- Materials: techniques to determine material quantities, adjustments to quantities for cutting, waste and breakage
- Estimates of price: material costs, hire costs, labour costs, Value Added Tax (VAT)

Electrical operations

- Repair tasks: replacing a switched pendant light fitting, replacing socket outlets, replacing a light switch, fitting a door bell, rewiring a plug
- Installation tasks: construction of a switched lighting circuit with a minimum of three light fittings in parallel; construction of a ring final circuit with three 13A fused and earthed sockets; testing of both of above under supervision
- Tolerances: all components securely mounted within 10mm of specified position, all cables running either horizontally or vertically, all connections safe and correct with no conducting cables showing
- Working safely: comply with risk assessments and workshop safety policies, maintain a clean and tidy workspace, use appropriate Personal Protective Equipment, behave in a satisfactory manner

Assessment Method

Please note that this unit is assessed by practical assessment set by Ascentis

Tutor Guidance

It is expected that learners will have no prior knowledge and understanding of electrical principles and techniques. It is recommended that all electrical work be done through connection to a power pack, so that the voltage can be stepped down to a safe level, rather than to a mains supply.

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Performing flooring operations

Credit Value of Unit: 8

GLH of Unit: 80

Level of Unit: 2

Learning Outcomes	Assessment Criteria	Assessment Method
The learner will be able to	The learner can	
1 Be able to prepare to perform flooring operations	1.1 Describe the principles that underpin flooring repairs	Portfolio of evidence
	1.2 Describe the principles that underpin flooring operations	Portfolio of evidence
	1.3 Review the regulations to be observed when performing flooring operations	Portfolio of evidence
	1.4 Perform risk assessments	Appendix 4 in the specification
2 Know the tools, materials and equipment required to perform flooring operations	2.1 Select appropriate tools and equipment to perform flooring repairs	Practical assessment
	2.2 Select appropriate tools and equipment to perform flooring operations	Practical assessment
	2.3 Select the materials needed to perform flooring operations	Practical assessment
3 Be able to calculate quantities and prices for a range of flooring operations	3.1 Calculate the quantity of materials needed to perform flooring operations	Practical assessment
	3.2 Estimate the price of performing flooring operations including human resources	Portfolio of evidence
4 Be able to perform flooring operations	4.1 Perform electrical repair tasks to specified tolerances	Practical assessment
	4.2 Perform flooring tasks to specified tolerances	Practical assessment
	4.3 Carry out work in a safe and responsible manner	Practical assessment

Indicative Content

Preparation

- General repair principles: removal of existing floor finishes, fixing additional floor board bearers required to support the ends of new boards by screwing to existing joists, cutting out damaged sections of floor boards without touching existing services, preparing ends of existing boards to receive new floor board, measuring, marking and cutting new boards to replace damaged, replacement of the floor finishes back into position stretching carpet over grippers
- General installation principles: setting out the flooring; tongue and grooved, chipboard sheet flooring, staggering of joints across supporting joists, method of fixing boards, use of floorboard cramps
- Regulations: Confined spaces, Health and Safety at Work Act, Working at Height Regulations; principles of these applied to working on ground and intermediate floors
- Risk assessment: identify hazards, decide who might be harmed and how, evaluate the risks and decide on precautions, record findings and implement them, review and update as necessary

Tools, equipment and materials

- Tools and equipment: pencil, panel saw, floorboard saw, circular saw, chisel, carpenters square, cordless drill, hammer, nail extractor, floor board cramp, knee kicker, floor stair tool, measuring tape, mallet, carpenters square, cordless drill and flat bit, carpet shears, trimming knife
- Materials: screws, nails, t+g softwood floor boards, chipboard sheet floorboards, softwood bearers, carpet grippers

Quantities

- Materials: techniques to determine material quantities, adjustments to quantities for cutting, waste and breakage
- Estimates of price: material costs, hire costs, labour costs, Value Added Tax (VAT)

Flooring operations

- Repair tasks: cutting out and replacing a section of at least 500 mm long of damaged floor boarding in softwood including any additional supports required
- Installation tasks: installation of at least three lengths of t+g floor boarding, installation of at least three chipboard flooring panels in 600 mm widths all fixed with screws for extraction and re-use of materials
- Tolerances: Repair; all components securely fixed into position with no gaps to the flooring repair of more than 5 mm. Flooring installation; all joints to be tight and all boards secured to floor joists. Joints staggered between floor board runs. No damage to any tongues or grooves.
- Working safely: comply with risk assessments and workshop safety policies, maintain a clean and tidy workspace, use appropriate Personal Protective Equipment, behave in a satisfactory manner

Assessment Method

Please note that this unit is assessed by practical assessment set by Ascentis

Tutor Guidance

It is expected that learners will have no prior knowledge and understanding of flooring principles and techniques.

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Performing tiling operations

Credit Value of Unit: 8

GLH of Unit: 80

Level of Unit: 2

Learning Outcomes	Assessment Criteria	Assessment Method
The learner will be able to	The learner can	
1 Be able to prepare to perform tiling operations	1.1 Describe the principles that underpin tiling repairs	Portfolio of evidence
	1.2 Describe the principles that underpin tiling operations	Portfolio of evidence
	1.3 Review the regulations to be observed when performing tiling operations	Portfolio of evidence
	1.4 Perform risk assessments	Appendix 4 in the specification
2 Know the tools, materials and equipment required to perform tiling operations	2.1 Select appropriate tools and equipment to perform tiling repairs	Practical assessment
	2.2 Select appropriate tools and equipment to perform tiling operations	Practical assessment
	2.3 Select the materials needed to perform tiling operations	Practical assessment
3 Be able to calculate quantities and prices for a range of tiling operations	3.1 Calculate the quantity of materials needed to perform tiling operations	Practical assessment
	3.2 Estimate the price of performing tiling operations including human resources	Portfolio of evidence
4 Be able to perform tiling operations	4.1 Perform tiling repair tasks to specified tolerances	Practical assessment
	4.2 Perform tiling tasks to specified tolerances	Practical assessment
	4.3 Carry out work in a safe and responsible manner	Practical assessment

Indicative Content

Preparation

- General repair principles: breaking out of a single cracked tile, preparation of the background, replacing the tile, tile spacing, grouting of the finished repair. Removal of tiles for plumbing installations and pipework, cutting of tiles for new plumbing installation to suit pipework and mixer tap installation. Regrouting of tiles to match existing
- General installation principles: preparation of tile backgrounds, spreading adhesive to the correct depth for small and large tile installations. Fixing of different size tiles and feature bands, tile spacing, cutting of tiles to suit, cutting holes for pipework, grouting of finished tiled area, polishing of finished tile surfaces
- Regulations: HSWA 1974 provisions for employees, Confined Space Regulations for working in small bathrooms with no windows, Control of Substances Hazardous to health with regard to the application of tile adhesive and tile grout
- Risk assessment: identify hazards, decide who might be harmed and how, evaluate the risks and decide on precautions, record findings and implement them, review and update as necessary

Tools, equipment and materials

- Tools and equipment: hammer, bolster, dustpan and brush, tile cutter, tile adhesive spreader, tile nibbler, tile saw, sponge, bucket, plumb bob, level, pencil, measuring tape, polishing cloths
- Materials: tiles various sizes, tile adhesive, tile grout – white, tiling spacers, masking tape, white silicone

Quantities

- Materials: techniques to determine material quantities, adjustments to quantities for cutting, waste and breakage
- Estimates of price: material costs, hire costs, labour costs, Value Added Tax (VAT)

Tiling operations

- Repair tasks: removal of a minimum of four tiles and replacement, removal of two tiles adjacent to each other and their replacement to include the cutting of holes for hot and cold water pipework installation
- Installation tasks: Installation of 1m² of wall tiling to include a border tile, features tiles, and cutting to a corner on two long edges. Silicone sealant against the two cut edges to represent a seal against a plumbing appliance
- Tolerances: Repair; aesthetically pleasing finish with negligible differences in the grouting against the existing finishes, all tile spacers positioned so tiling is vertical and horizontal
- Installation: setting out of tiles is accurate to within +/- 3 mm of drawn information, all tile spacers positioned so tiling joints are vertical and horizontal, Grouting is clean, all joints filled and no grout left on tile surfaces. Silicone finish is clean with a straight joint to both surfaces
- Working safely: comply with risk assessments and workshop safety policies, maintain a clean and tidy workspace, use appropriate Personal Protective Equipment, behave in a satisfactory manner

Assessment Method

Please note that this unit is assessed by practical assessment set by Ascentis

Tutor Guidance

It is expected that learners will have no prior knowledge and understanding of tiling principles and techniques.

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Performing plastering operations

Credit Value of Unit: 8

GLH of Unit: 80

Level of Unit: 2

Learning Outcomes	Assessment Criteria	Assessment Method
The learner will be able to	The learner can	
1 Be able to prepare to perform plastering operations	1.1 Describe the principles that underpin plastering repairs	Portfolio of evidence
	1.2 Describe the principles that underpin plastering operations	Portfolio of evidence
	1.3 Review the regulations to be observed when performing plastering operations	Portfolio of evidence
	1.4 Perform risk assessments	Appendix 4 in the specification
2 Know the tools, materials and equipment required to perform plastering operations	2.1 Select appropriate tools and equipment to perform plastering repairs	Practical assessment
	2.2 Select appropriate tools and equipment to perform plastering operations	Practical assessment
	2.3 Select the materials needed to perform plastering operations	Practical assessment
3 Be able to calculate quantities and prices for a range of plastering operations	3.1 Calculate the quantity of materials needed to perform plastering operations	Practical assessment
	3.2 Estimate the price of performing plastering operations including human resources	Portfolio of evidence
4 Be able to perform plastering operations	4.1 Perform plastering repair tasks to specified tolerances	Practical assessment
	4.2 Perform plastering tasks to specified tolerances	Practical assessment
	4.3 Carry out work in a safe and responsible manner	Practical assessment

Indicative Content

Plaster Repairs

- assessment of plastering resources required for location of repair, areas of damp
- removal of any wall finishes covering plaster
- cutting back areas of defective plastering to a clean bonded edge
- cleaning any mould growth using fungicidal washes
- appropriate disposal of defective plaster materials
- application of bonding agent to plaster background
- application of bonding coat of plaster
- application of finishing coat of plaster
- cleaning of work area

Plastering Installations

- preparation of solid backgrounds to be plastered
- preparation of stud walls to be plastered

- calculation of material quantities
- fixing of plasterboards to solid backgrounds via dot and dab procedures
- fixing of plasterboards to stud work using dry wall screws
- application of sand and cement render backgrounds
- application of undercoat plasters
- application of skim coats to undercoat plasters and rendering

Health & Safety Regulations

Health and Safety at Work Act 1974

- employee responsibilities
- employer responsibilities
- duties of manufacturers and designers

Control of Substances Hazardous to Health

- manufacturers safety data sheets
- identification of product hazards
- application of control measures
- completion of appropriate risk assessment
- use of appropriate PPE

Manual Handling Regulations

- assessment of material weight, size and quantity to be moved
- appropriate methods of lifting, mixing and application of plastering materials
- completion of appropriate risk assessment
- wearing of appropriate PPE for manual handling

Working at Height Regulations

- assessment of risk from working at height
- appropriate control measures

Risk Assessments

- identification of hazards associated with plastering
- assessment of the initial risks from the hazards
- application of appropriate control measures
- re-assessment of residual risk
- recording of risk assessment findings

Plastering Tools, Equipment and Materials

- mixing equipment, drill operated and manual plaster mixing
- plastering hawk
- finishing trowels
- plastering float
- steel feather edge

Plastering Materials

- sand and cement rendering undercoats
- undercoat plasters, bonding, browning
- finishing plasters, finish and board finish
- plaster beads, angle, stop, thin coat

Estimation

- calculation of areas
- calculation of volumes of materials required
- material costs from suppliers
- labour outputs
- labour rates

Assessment Method

Please note that this unit is assessed by practical assessment set by Ascentis

Tutor Guidance

It is expected that learners will have no prior knowledge and understanding of plastering principles and techniques.

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Performing dry lining operations

Credit Value of Unit: 8

GLH of Unit: 80

Level of Unit: 2

Learning Outcomes	Assessment Criteria	Assessment Method
The learner will be able to	The learner can	
1 Be able to prepare to perform dry lining operations	1.1 Describe the principles that underpin dry lining repairs	Portfolio of evidence
	1.2 Describe the principles that underpin dry lining operations	Portfolio of evidence
	1.3 Review the regulations to be observed when performing dry lining operations	Portfolio of evidence
	1.4 Perform risk assessments	Appendix 4 in the specification
2 Know the tools, materials and equipment required to perform dry lining operations	2.1 Select appropriate tools and equipment to perform dry lining repairs	Practical assessment
	2.2 Select appropriate tools and equipment to perform dry lining operations	Practical assessment
	2.3 Select the materials needed to perform dry lining operations	Practical assessment
3 Be able to calculate quantities and prices for a range of dry lining operations	3.1 Calculate the quantity of materials needed to perform dry lining operations	Practical assessment
	3.2 Estimate the price of performing dry lining operations including human resources	Portfolio of evidence
4 Be able to perform dry lining operations	4.1 Perform dry lining repair tasks to specified tolerances	Practical assessment
	4.2 Perform dry lining tasks to specified tolerances	Practical assessment
	4.3 Carry out work in a safe and responsible manner	Practical assessment

Indicative Content

Preparation

- General principles: clean and clear work area, preparation of work area, preparation of substrate, different plasterboard types and appropriate uses, different finish options, methods of application an finishing, internal and external angles, cleaning tool and equipment and work area after completion, health safety and welfare.
- Regulations: Relevant British Standards, Codes of Practice, European Standards, and health and safety legislation
- Risk assessment: identify hazards, ascertain risk levels, decide who might be harmed, implement appropriate control measures, monitor, review and revise.

Tools, materials and equipment

- Tools and equipment: Board hammer, board knife, straight edge, feather edge, board lifter, level, tape measure, steel tape, square, hand board, trowels, hammer, screw driver (manual and electric), brushes, sponges, sanding pad
- Materials: Tapered edge boards, foil boards, insulation boards, vapour check boards, board adhesive,

dry wall screws, clout nails, tape, jointing compound, beading

Quantities

- Materials: techniques to determine material quantities, adjustments to quantities for cutting, waste and breakage
- Estimates of price: material costs, hire costs, labour costs, Value Added Tax (VAT)

Dry lining operations

- Repair tasks: affect repairs to cracks, indentations, scuffs (which have damaged the surface of the finish), damp patches and impact damaged areas to dry lined walls.
- Installation tasks: install square and tapered edge boards, tape/scrim and fill joints, fix beading, fill nail heads, prepare boards and skim finish.
- Tolerances: boards and beading to be fixed plumb and vertical and corners to be square to a tolerance of $\pm 5\text{mm}$, work to be finished flat and smooth with no plaster build up in corners or at edges all work to be left in a suitable state for decoration.
- Working safely: comply with risk assessments and workshop safety policies, maintain a clean and tidy workspace, use appropriate Personal Protective Equipment, behave in a satisfactory manner

Assessment Method

Please note that this unit is assessed by practical assessment set by Ascentis

Tutor Guidance

It is expected that learners will have no prior knowledge and understanding of dry lining principles and techniques.

This unit may be studied at any age from 14 years upwards. However, the training of young persons under the age of eighteen demands an especially thorough approach to health and safety. Young people are likely to be inexperienced, unaware of health and safety risks and physically or mentally immature, and this must be taken into account when assessing the risks involved.

UNIT SPECIFICATIONS

Introduction to the importance of heritage construction

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Introduction

This unit will introduce learners to the concept of protecting historic buildings and why it is important. They will learn about how damage can be caused to historic buildings, how they can be maintained, the crafts and skills required to maintain them and the laws in place to ensure that they are maintained.

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Understand the importance of protecting historic buildings	1.1	Explain the importance of historic buildings in the community
		1.2	Identify key points in the main regulations protecting historic buildings
		1.3	Describe how changes to historic buildings are controlled
2	Know the causes of damage to historic buildings	2.1	Describe the common causes of damage to historic buildings
3	Understand how to protect the heritage of historic buildings	3.1	Explain why it is important to keep the original features of historic buildings
		3.2	Explain how to keep the original quality of historic buildings
4	Understand the importance of using the appropriate skills and materials for work on historic buildings	4.1	Identify appropriate trades and craft skills to work on historic buildings
		4.2	Identify appropriate materials for use in construction work on historic buildings and their basic characteristics
5	Understand the health and safety hazards when working on historic buildings	5.1	Identify main health and safety laws
		5.2	Identify main hazards arising from work on historic buildings
6	Understand the health and safety hazards when working on historic buildings	6.1	Describe the basic principles of sustainability relevant to heritage construction
		6.2	Explain why the continued use of historic buildings support sustainable principles
		6.3	Describe how the sustainability of historic buildings can be improved

Indicative Content

Understand the Importance of Protecting Historic Buildings

Importance of Historic Buildings: cultural, social and historic importance; creation of sense of place and local identity; continuity with the past; sustainability and regeneration issues; inspiration for design; promotion of local tourism and economy; where to find information on listed buildings (Local authorities' conservation department, listing description, English Heritage).

Regulations Protecting Historic Buildings: awareness of legislation; listed building legislation, conservation areas; different grades of listing (I, II* and II, listed landscape, scheduled ancient monuments and conservation areas); a Listed building is designated as a building of special architectural or historic interest; why sites are protected by law (to prevent the demolition of historic structures, impose a duty upon the owner to maintain the building and to preserve the special architectural and historic interest of sites); role of English Heritage and local authorities (English Heritage – Government statutory advisor on the

historic environment, Local Authority – responsible for development control and enforcement relating to the historic environment).

Planning Laws and Controls: planning consent; listed building consent is required for all acts of alteration to a historic structure; when working on a historic building it is important to know this consent has been given to avoid legal action; ignorance is not a defence; Planning (Listed Building and Conservation Areas) Act 1990, PPG15 and PPG 16.

Know the Causes of Damage to Historic Buildings

Causes of Damage: storms; weathering; fire; flood; collapse; vandalism; theft; interaction of materials how they cause damage to buildings.

Understand How to Protect the Heritage of Historic Buildings

Keeping Original Features: uniqueness, rarity and quality of original features; examples of original features e.g. fireplaces, ceilings etc; examples of artistry and craftsmanship.

Keeping Original Quality: avoidance of making unnecessary changes to historic buildings; sympathetic restoration, repair and use – making the new work fit the old and not the other way around.

Understand the Importance of Using the Appropriate Skills And Materials for Work on Historic Buildings

Trades and Craft Skills: career opportunities (carpenter/builder, associated trades – joiner, cabinet maker, form worker, 1st and 2nd fixer, carver, heavy timber carpenter, grainer/marbler, stone mason, banker mason, plasterer).

Materials: wood, stone, different types of plaster, distemper, lime wash, gold leaf, wall paper, metal; when different materials are used; who works with different materials (link to trades and skills); characteristics of materials (basic properties and decay mechanisms).

Understand the Risks to Health and Safety when Working on Historic Buildings

Health and Safety Law: awareness of main health and safety principles of Health and Safety at Work Acts and of COSHH, RIDDOR, Manual handling, PPE, work equipment and construction safety legislation - Construction (Design and Management) Regulations 1994, The Construction (Health, Safety and Welfare) Regulations 1996; employer and employee responsibilities; role of Health and Safety Executive.

Hazards: main hazards related to heritage construction work - working at heights, working in partly demolished and damaged buildings, working off scaffolding, working in trenches, working with power tools, working with chemicals, working with other hazardous substances such as lead and lead-based products, asbestos and mould.

Understand the Importance of Sustainability in Relation to Historic Buildings

Principles of Sustainability: definition of sustainability; why sustainability is important; re-use, re-cycle, reduce waste

Continued Use: sustainability of re-using buildings rather than building new; using property more resourcefully; whole life cycle values; energy since originally constructed; retaining and re-using building materials and reduced impact on society and environment; ensuring future use of existing heritage building stock

Improving Sustainability: carbon footprint of buildings; reducing carbon footprint; using new technologies to improve sustainability

Assessment Method

Please note that this unit is assessed by portfolio

UNIT SPECIFICATIONS

Introduction to conservation in heritage construction

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Introduction

This unit will introduce learners to the different periods of architecture and different architectural features and the materials and techniques that are used to construct those features. They will also learn about the different ways to look after historic buildings.

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Know the main historical styles of architecture	1.1	Describe early periods of historic architecture
		1.2	Describe the main periods of British historic architecture
2	Know the different construction features and materials used in historic buildings	2.1	Describe historic construction features
		2.2	Describe materials used to construct each feature and their properties
3	Understand craft skills used to create historic features and how they need to work together	3.1	Identify the craft skills used to create each historic feature
		3.2	Explain how the craft skills need to work together
4	Understand how to look after an historic building	4.1	Explain what is meant by the terms conservation, restoration, rehabilitation, repair and maintenance
		4.2	Describe how to keep a building wind and watertight

Indicative Content

Know the Main Historical Styles of Architecture

Learners should have an awareness of the main features of each style of architecture.

Early Historic Styles of Architecture: Egyptian; Greek; Roman; Gothic; Renaissance

Main Periods of British Historic Architecture: Georgian; Victorian; Arts and Crafts; Art Nouveau; Modern

Know the Different Construction Features and Materials Used in Historic Buildings

Learners should have an awareness of the main features and materials used in historic buildings

Features: Roofs (roof shapes, gables, dormers); Walls (chimneys, parapets); windows and doors (sash and case, casement, bays, fanlights); room features (fireplaces, cupboards, floors, ceilings); hallways (stairs, balustrades, landings, cupolas, cupboards)

Materials and Properties: Roofs (slates, tiles, metals, timber, thatch); walls (different types of stone, brick, timber, earth, plaster, render); windows and doors (moulded wood, glass, metal); room features (brick, timber, plaster, paints, wallpapers); hallways (timber, plaster, paint)

Understand craft skills used to create different construction features and how they need to work together

Learners should have an awareness of the craft skills used to create construction features

Craft Skills: skills in each area; roof (carpenter, slater, tiler, thatcher, lead worker, zinc worker, copper worker, plumber); walls (stone mason, bricklayer, carpenter, plasterer); windows and doors (joiner, glazier, stained glass maker, leaded-light maker); rooms (carpenter, joiner, plasterer, painter, fresco artist, wood grainer, gilder).

Working Together: how the different crafts need to work together to ensure the integrity, protection and sympathetic construction for the whole building

Understand How to Look After an Historic Building

Definitions: definitions of conservation, restoration, rehabilitation, repair and maintenance (BS7913 gives explanation of terms and English Heritage); what each means in practical terms

Keeping Buildings Wind and Watertight: techniques and materials; maintenance guidelines; checklists; why it is important to keep wind and rain out

Assessment Method

Please note that this unit is assessed by portfolio

UNIT SPECIFICATIONS

Working in the construction industry

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Learning Outcomes		Assessment Criteria
The learner will be able to		The learner can
1	Know about the work done by the construction industry	1.1 List the different areas of work that comprise the construction industry
		1.2 Identify the different kinds of work done by the construction industry
		1.3 Describe the clients that commission and pay for the work done in the construction industry
2	Understand how the construction industry works	2.1 Analyse the factors that influence the work done in the construction industry
		2.2 Explain the various stages of construction work
		2.3 Evaluate the importance of the construction industry
3	Understand sustainability issues in the construction industry	3.1 Describe how planning, land-use and conservation impact on the construction industry
		3.2 Explain how internal environmental issues impact on the construction industry
		3.3 Outline how pollution and hazardous substances impact on the construction industry
		3.4 Discuss how issues of resources, waste and recycling impact on the construction industry
4	Know about careers in the construction industry	4.1 Identify career paths in the construction industry
		4.2 Describe how the nature of construction work affects those employed in the industry
		4.3 Identify the qualifications needed to support progression in the construction industry

Indicative Content

Nature of work done

- Areas of work: domestic, retail, commercial, industrial, leisure, health, educational, public, services and transport infrastructure
- Kinds of work: architecture (new build, regeneration, conservation, redevelopment); civil and structural engineering (geotechnical, structural, transport infrastructure, power, water, public health); construction and building services (construction management, design and build, facilities management, building services design and management); housing and property (property development, property management, housing, interior design); surveying and planning (building surveying, land surveying, quantity surveying, town planning)
- Clients: national government, local government, companies, associations, sole traders, individuals

How the construction industry works

- Factors that influence the work done: physical, technical, financial, legal, environmental, aesthetic
- Stages of work: planning, design, procurement, construction, maintenance
- Contribution made by the construction industry: investment opportunities, effect on employment and Gross Domestic Product, driver for growth in other sectors, use of local resources, limited import of materials and labour, community developments, improved housing stock

Sustainability issues

- How sustainability issues impact on the construction industry and how they interact with each other.
- Issues include planning, land-use and conservation; the internal environment; pollution and hazardous substances; resources, waste and recycling

Careers in the construction industry

- Career opportunities: operative, craft, technical, supervisory, professional and management
- Working in the industry: working in teams, culture of change, early starts, long hours, working away, working at weekends, high pressure, need to meet targets and deadlines, can be very physical work
- Qualifications: How to progress within the industry (qualifications and experience); competence-based qualifications (craft, technical and professional) such as National Vocational Qualifications at Levels 1, 2 and 3; technical and supervisory qualifications (Levels 1, 2, 3, 4 and 5); first degrees and post-graduate degrees; professional qualifications; licences to practice

Assessment Method

Please note that this unit is assessed by portfolio

UNIT SPECIFICATIONS

Construction design and planning

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Understand construction design processes and practices	1.1	Identify the factors that influence the construction design process
		1.2	Identify the various stages of the design process from initial concept to final design solution
		1.3	Describe the types of technical information used in construction
2	Understand the influence of planning and building control in construction design	2.1	Identify the important functions of a planning authority
		2.2	Describe the importance of effective building control procedures
		2.3	Explain how planning legislation influences the construction design process
		2.4	Outline the influence of the building regulations on the construction design process
3	Know about the main issues in sustainable construction design	3.1	Identify the benefits of sustainable building design methods
		3.2	Describe the construction design and planning strategies used to optimise the energy performance of buildings
		3.3	Explain how construction design and planning strategies help to minimise impacts on the natural environment
4	Know about the main professions in construction design and planning	4.1	Identify the range of career options available in construction design and planning
		4.2	Identify the roles and responsibilities of members of the construction design and planning teams
		4.3	Describe the qualifications required by the members of the construction design and planning team

Indicative Content

Construction design processes and practices

- Factors that influence construction design: the building needs of communities (for example, housing, employment, education, health and welfare, leisure and recreation, transport and infrastructure). Statutory and regulatory controls, environmental impacts of development, site location and traditional building form (building aesthetic), project funding (budget), client requirements for building design quality and project timescale
- Materials and construction design: common construction materials (for example, hardwood and softwood timber, cement, concrete, lime render, bricks, metals, stone, concrete blocks, paints, glazing and thermal insulation). Construction materials and their properties (for example, structural strength in different loading conditions, porosity, durability, acoustic properties, fire, thermal and weather resistance properties). Materials tests and engineering analysis to show that a building component is appropriate (for example, timber or steel beam strength under a bending load or concrete foundation compressive strength). The construction materials supply chain and manufacturing processes
- Design process: initial idea development, standard design principles of architects related to space requirements, building function and other client requirements (for example, external works or a specific

drive for structural strength, building aesthetic quality or sustainable design and construction). Design solution options, alternative ideas being evaluated, options for materials choices and a final agreed construction solution

- Technical information used in construction design: sketches and drawings showing a site location, site plan, elevations and building plans as proposed for a planning application. A written materials specification and construction details in sections and plans for a building warrant application. A site Masterplan showing a range of building types as well as new infrastructure

Planning and building control in construction design

- Functions of a planning authority: matching building development to community functional and aesthetic needs, upholding the planning laws, preparing and implementing a local development plan, making planning decisions that are justifiable to communities through the planning laws and local development plan in primary applications and appeal procedures, protecting historic buildings
- Functions of a building control authority: ensuring that architects and engineers design buildings that are comfortable, safe, secure and sustainable and that the sections of the building regulations are understood and adhered to in construction design
- Influences of the planning laws: planning is the fundamental system within which all construction projects are allowed or not allowed to be built. This covers matters as basic as the function of a proposed building, its size, shape and external appearance and its probable effect upon the site location, including neighbouring properties and their amenity
- Influences of the building regulations: structural engineering integrity, fire safety (for example, building compartmentation and active fire extinguishment systems where necessary), resistance to contaminants and moisture, building sound insulation, ventilation needs of building users, sanitation, drainage, waste disposal, water supply, building energy efficiency, building amenity for all people

Sustainable construction design

- Benefits of sustainable building design and construction: the triple benefit to people, planet and profit. For example, healthier and safer buildings for people from the use of materials that do not contain harmful substances, the design of effective fresh air ventilation strategies and of appropriate levels of natural light. Also, buildings that are structurally sound are more likely to withstand storm level wind forces and other dangerous weather events. Secondly, sustainable building design and construction will reduce carbon and other GHG emissions which will in turn reduce the risk of climate change. The final part of the triple benefit is financial. Low energy buildings (e.g. those that are super-insulated and airtight and have a dedicated heating fuel and power supply) cost less to run than buildings design according to 20th century convention. Business profits are therefore higher and communities are less exposed to fuel poverty
- Strategies for optimising the energy performance of buildings: for example, high levels of building insulation, airtightness, high efficiency heating and hot water technologies such as heat pumps, solar thermal panels, CHP and district heating, micro-generation systems (hydro-electric, photovoltaic, wind) and efficient cooling strategies such as natural ventilation and mechanical ventilation with heat recovery
- Minimising impacts upon the natural environment: at a local level a sustainable approach to designing built environment drainage systems will help reduce flood risk from surface water run-off, for example, rainwater collection and recycling and the use of green roofs. Also of importance is careful protection of construction site trees and other natural habitats

Professions in construction design and planning

- Career options in construction design and planning: the range and characteristics of careers in for example, architecture, structural engineering, building services engineering (mechanical and electrical), quantity surveying and civil engineering
- Contribution of design and planning professionals: roles and responsibilities associated with various professions in a construction design and planning context. For example, the form (aesthetic) of a design usually comes from an architectural professional (building shape, scale, materials colour, space, layout, window arrangement) whereas the energy performance is very much dependent upon the mechanical and electrical services design of the building services engineer

The importance of qualifications: The qualifications and accreditation required to practice in the construction design and planning professions. The qualifications required for the range of professionals described above and their associated professional lead body institutions (for example, the RIBA, CIBSE, RICS and others)

Assessment Method

Please note that this unit is assessed by portfolio

UNIT SPECIFICATIONS

Construction methods and techniques

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Understand the function and form of low-rise buildings	1.1	Describe the functions of low-rise buildings
		1.2	Describe the different structural forms used in low-rise buildings
		1.3	Explain how the functions of low-rise buildings affect their form.
2	Know the methods and techniques used in the substructure of low-rise buildings	2.1	Identify the various stages of substructure work
		2.2	Describe the methods and techniques used in substructure work
		2.3	Describe health and safety issues associated with substructure work
3	Know the methods and techniques used in the superstructure of low-rise buildings	3.1	Identify the various stages of superstructure work
		3.2	Describe the methods and techniques used in superstructure work
		3.3	Describe the health and safety issues associated with superstructure work
4	Understand how building services are integrated into low-rise buildings	4.1	Explain how hot and cold water services are distributed around a building
		4.2	Explain how gas services are distributed around a building
		4.3	Explain how electrical services are distributed around a building
		4.4	Explain arrangements made for foul water and surface water drainage systems

Indicative Content

Function and Form

- Functions of a building: strength, stability, climate protection, fire resistance, thermal and sound insulation
- Common structural forms: traditional and modern
- How function affects form, use of typical examples to support explanations

Substructure activities

- Various stages of substructure work: site and soil investigations, site security and welfare facilities
- Different types of foundations: strip, deep strip, trench fill, raft, pad, short bored piles
- Health and safety issues associated with excavations and trenches (hazards, risks, persons at risk)

Superstructure activities

- Various stages of superstructure work: walls, floors, roofs, internal finishes, external works
- Health and safety issues associated with superstructures (hazards, risks, persons at risk)

Building services

- Entry and distribution of indirect hot and cold water services within a building
- Entry and distribution of gas services (gas fires, central heating boilers, cookers) in buildings, removal of products of combustion
- Entry and distribution of electrical services within a building; single-phase supply, ring mains, radial circuits
- Disposal of foul and surface water drainage: above and below ground, stack systems, discharge from roofs, patios, gutters, downpipes and gullies

Assessment Method

Please note that this unit is assessed by portfolio

UNIT SPECIFICATIONS

Modern methods of construction

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Know about traditional methods of construction for low-rise buildings	1.1	Identify traditional methods of construction used for low-rise domestic buildings
		1.2	Describe issues associated with the use of traditional methods of construction for low-rise domestic buildings
2	Understand the benefits of modern methods of construction for low-rise buildings	2.1	Identify modern methods of construction used for low-rise buildings
		2.2	Describe the advantages of using modern methods of construction for low-rise buildings
		2.3	Compare traditional and modern methods of construction
3	Understand the impact of legislation on modern methods of construction	3.1	Identify legislation and regulations relevant to modern methods of construction
		3.2	Describe how modern methods of construction meet legislative and regulative requirements
		3.3	Explain the impact of legislation relevant to modern methods of construction on sustainability

Indicative Content

Traditional Methods of Construction

- Methods: brick for outside and inside skins of cavity walls, cavity closed at openings, no insulation in cavities, one-brick solid wall construction, no-fines concrete domestic buildings, traditional constructed timber purlin roof with ceiling joists, traditional suspended timber floors on honeycomb walls, timber joists to first floor, timber windows and doors
- Issues: lack of ventilation, cold bridging of cavity, high heat losses through superstructure, excessive cold in winter, damp and decay, humidity, mould growth, timber rot, insect attack, labour intensive, all work done on site, variable quality control, limited use of construction plant or modular components

Modern methods of Construction

- Methods: insulated concrete formwork construction, timber-framed construction, thin joint masonry, structural insulated panels (SIPS), prefabricated brickwork, volumetric construction using steel channel studs, greater use of construction plant, modularisation of components, off-site manufacture of prefabricated components
- Advantages: enhanced sustainability (reduction in landfill, lower carbon emissions, improved heat losses, improved ventilation and air quality, recycling, concept of embedded and embodied energy, use of renewable materials); project costs and duration (enhanced rate of working, reduced project time, reduced labour costs, reduced project costs); enhanced quality (off-site production implies higher quality, modularisation improves and simplifies construction methods)
- Comparison of modern methods of construction and traditional methods: in terms of energy efficiency, resources required, waste production, environmental impact, quality of work, project duration, labour requirements, modularisation, quality of work, use of construction plant, overall project costs

Climate Change Legislation and Regulations

- Legislation and regulations: Building Regulations, Climate Change Act, Planning and Energy Act, Waste Management Plans Regulations, Code for Sustainable Homes
- Meeting legal requirements: use of recycling sustainable technologies, reduction in embodied energy in material manufacture, recycling of construction waste, grey water/rainwater harvesting, use of alternative energy sources in modern methods of construction
- Impact on sustainability and carbon reduction : reduction in the use of cement-based products, use of timber-based cladding, timber-based structural materials and engineered timber products

Assessment Method

Please note that this unit is assessed by portfolio

UNIT SPECIFICATIONS

Maintenance of modern buildings

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Understand the importance of maintaining modern buildings	1.1	Describe the reasons why modern buildings must be maintained
		1.2	Describe different approaches to maintenance of modern buildings
		1.3	Explain the benefits of an effective maintenance policy
		1.4	Explain the consequences of an ineffective maintenance policy
		1.5	Describe methods used to minimise the need for maintenance
2	Know which elements of modern buildings and building services require maintenance	2.1	List the structural elements of buildings that require maintenance
		2.2	Describe the mechanisms by which structural elements of buildings fail
		2.3	List the building services that require maintenance
		2.4	Describe the mechanisms by which building services fail
3	Understand the methods used to inspect modern buildings to assess maintenance requirements.	3.1	Describe the methods used to inspect buildings
		3.2	Explain the use of schedules of maintenance
		3.3	Assess health and safety issues associated with the inspection of buildings

Indicative Content

Importance of maintaining modern buildings

- Reasons for maintenance: deterioration of fabric, wear and tear, poor construction methods, physical damage, changes in loading, technological advances, revised/updated regulations, legislative requirements, poor design, poor quality workmanship, inappropriate materials, age of property
- Approaches to maintenance: cyclical, planned preventive, scheduled, condition-based, emergency (unplanned)
- Benefits of maintenance: increase in longevity of building fabric, improved value for owners and users of buildings, lower running costs, improved sustainability
- Consequences of non-maintenance: increased running costs, failure of structure, health issues (damp, poor ventilation, draughts, fungal growth, insect/rodent infestation), aesthetic impact on the neighbourhood, increased vandalism.
- Methods used to minimise maintenance: good design, specification of high quality materials, good workmanship and supervision during construction and subsequent works, regular scheduled maintenance requirements, modularisation, quality of work, use of construction plant, overall project costs

Elements of a building and building services that will require maintenance

- Structural elements: roof, chimneys, rainwater systems, external walls (buttresses, pillars and piers), floors, doors and windows, external joinery items (soffits, fascia, barge boards), internal walls
- Building services, electricity, gas, hot and cold water, heating and cooling systems, drainage
- Mechanisms of failure (structure and services): age, water damage, rot, structural failure, material failure, mechanical failure, wear and tear, use, vandalism, over-loading, failure of sub-structure, poor design, poor workmanship.

Inspection

- Inspection methods: systematic inspection, recording of details, tools and equipment (notepad, pencil, camera, torch, camera, screwdrivers, drain keys, damp meter, hammer, spirit level)
- Schedules of maintenance: schedules detailing immediate and on-going (future) maintenance requirements, repairs relevant to defects/maintenance requirements, scheduled and planned maintenance requirements
- Health and safety issues: safe surveying/working techniques, qualified personnel for electrical and gas installation, working at height, working in confined spaces, lone working, use of appropriate Personal Protective Equipment

Assessment Method

Please note that this unit is assessed by portfolio

UNIT SPECIFICATIONS

Impact and use of buildings

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Know the impact of buildings	1.1	Identify the various impacts of buildings
		1.2	Describe the impact of energy costs
		1.3	Describe the impact of maintenance costs
		1.4	Describe the environmental impact of buildings
		1.5	Describe the social impact of buildings
2	Understand the different types of building used by modern communities	2.1	Describe the different types of building used by modern communities
		2.2	Explain why different types of buildings are needed
		2.3	Assess the importance of different types of building to the community
3	Understand the added value provided by building facilities management	3.1	Explain the principles of building facilities management
		3.2	Discuss the added value provided by building facilities management
		3.3	Explain how facilities management contributes to a safe environment for building users
4	Understand the importance of effective building maintenance	4.1	Describe common building faults and defects
		4.2	Explain the importance of effective building maintenance strategies
		4.3	Explain different management approaches to building maintenance
		4.4	Describe safe working practices in building maintenance

Indicative Content

Impact of buildings

- General: positive contribution of built environment to economic growth, local community activity and wellbeing (schools provide social interaction, sports centres promote health and wellbeing); negative impact of both carbon emissions/other pollutants and poor quality housing on health and wellbeing
- Financial impact of energy costs: heating, hot water, ventilation, cooling, refrigeration, electricity
- Financial impact of maintenance: repairs to walls, roofs and other major building components, painting surfaces, repairing roads and pavements; cost of damage (accidental and criminal) to doors and windows; extreme weather (strong winds, heavy rain, flooding, snow)
- Environmental impact: air pollution from industrial processes, atmospheric pollution from built environment, carbon emissions and other greenhouse gases; water pollution from rivers, seas and building waste processes; environmental impact of the construction supply chain
- Social impact of buildings: health and wellbeing for individuals, families and communities in the home, at work and during social interaction; effect of good quality buildings on community pride; protection and maintenance of historic buildings educational buildings and sport and recreational buildings

Building types used by communities

- Different types of building: commercial buildings, public buildings (libraries and museums), housing, industrial and commercial buildings, leisure and recreation buildings, transport hubs (railway and

underground stations), historic buildings (listed buildings and structures), educational buildings (schools, universities and colleges), healthcare buildings (hospitals, clinics)

- Reasons why various types of buildings are needed: to enhance the lives of communities both economically and socially, to provide variation in the visual impact of the built environment, to improve the welfare of communities in terms of health, safety, security and financial wealth
- Importance of different types of buildings used by communities: financial (property investment); individual (employment and learning opportunities); community (health, wellbeing and contentment provided by shared experiences in schools, stadiums and other sports centres)

Value of building facilities management

- Principles: optimising the functional and commercial value of a building after construction, maintaining the building fabric and the mechanical and electrical services, ensuring that the building works properly according to the design criteria of the client and building users (for example, doors and windows open and close properly and ventilation, lighting, heating and ICT systems all work)
- The benefits of building facilities management: building user safety and satisfaction, building value enhancement, protecting and maintaining the built environment without the need for costly repair or even re-builds (especially important in historic buildings)
- Contribution to a safe environment for building users: health, safety and welfare legislation (roof inspections, maintenance of heating systems, cleaning operations minimising risk of slips, trips and falls in buildings, fire safety management risk assessment and training for all building users)

Effective building maintenance

- Building faults and defects: fungal and insect attack, gaps in window and door frames), damaged brickwork, spalling, efflorescence, damaged pointing, cracked stone lintels, loss of roof slates or tiles, metal corrosion (drainage pipework, guttering, roof or wall cladding), loss of water seal in a w/c, flat roof failure (ponding, bitumen deterioration, cracking of lead covering), damaged paintwork (interior and exterior), low water pressure, heating system failure, electrical wiring faults
- Importance of successful building maintenance strategies: commercial and financial value in good maintenance (keeps building users safe and content, encourages new building users, reduces workplace absences, reduces risk of building user accidents), routine maintenance, regular inspections to identify building defects, planned preventative maintenance, corrective (emergency) maintenance, building design that allows for adaptability according to changing user needs
- Management approaches: in-house building maintenance, outsourced contractors for specialist work (security, ICT, window cleaning, building cleaning), use of external facilities management service companies to provide full range of building maintenance, security and janitorial services
- Safe working practices: procedures to ensure compliance with construction health, safety and welfare legislation, risk assessments, method statements, appropriate PPE, site checklists and induction (toolbox talks), education and training on the causes and consequences of accidents

Assessment Method

Please note that this unit is assessed by portfolio

UNIT SPECIFICATIONS

Safe use of access equipment

Credit Value of Unit: 4

GLH of Unit: 40

Level of Unit: 2

Learning Outcomes		Assessment Criteria	
The learner will be able to		The learner can	
1	Know the access equipment used in the construction	1.1	Identify the low-level access equipment used in the construction industry
		1.2	Select low-level access equipment for access equipment for specific tasks in the construction industry
2	Understand the general principles that underpin the safe use of access equipment	2.1	Describe the importance of good design and specification of low-level access equipment
		2.2	Discuss the need to avoid failure of low-level access equipment in use
		2.3	Explain the need to avoid operator error when using low-level access equipment
3	Understand the risks involved in the use of access equipment	3.1	Describe the factors that can lead to unsafe use of low-level access equipment
		3.2	Explain the procedures used to assess the risks involved in the use of low-level access equipment
4	Understand how to use access equipment	4.1	Describe the safe erection of low-level access equipment
		4.2	Describe the use of low-level access equipment
		4.3	Describe the safe dismantling of low-level access equipment
		4.4	Explain the importance of storing low-level access equipment safety

Indicative Content

Types of access equipment used in the construction industry

- Ladders, stepladders, trestles, hop-ups
- Selection of low-level access equipment on the basis of the work to be done, the duration of the task, the working environment and the capabilities of the operator

General principles that underpin the safe use of access equipment

- Good design and specification (effective, fault-free design; selection of most appropriate type of low-level access equipment)
- Avoidance of failure of equipment (base support, suspension equipment, components; overloading, overturning, overbalancing; structural failure arising out of poor erection, inspection and/or maintenance)
- Avoidance of operator error (instability of structure due to misuse and/or poor understanding of good practice; unauthorised alterations to equipment; overbalancing, over-reaching; inappropriate footwear, slippery surfaces, carrying loads; trips, slips and falls)

Risks involved in the use of access equipment

- Factors: incorrect or inappropriate selection, erection, use, dismantling, maintenance and/or storage of equipment
- Five step risk assessment procedures: identify the hazards, decide who might be harmed and how, evaluate the risks and decide on precautions, record findings and implement them, review assessment and update as and when necessary. Issues to include nature of work to be done, duration of task, working environment and capabilities of operator

Safe use of access equipment

- Erection, use, dismantling and storage of ladders, stepladders, trestles and hop-ups
- Ladders: inspected before use; stored horizontally in cool, dry area; unpainted, no deposits or substances that might cause slips; tied at top, secured at bottom or footed by a second person; ladder extending 1m above access point; at angle of 75° (1 in 4); uprights even and adequately supported
- Stepladders: inspected for defects before use, unpainted, levelled for stability on a firm base, no working from top step, over-reaching minimised by moving stepladder, no side loading, fitted with chains or ropes to prevent overspreading, used by one person at a time
- Trestles: inspected for defects before use, levelled for stability on a firm base, used for short duration work only as board supports, adequately supported, edge protection as necessary, safe access by stepladder
- Hop-ups: inspected for defects before use, clean and free of excessive debris, all feet securely founded, no slippery surfaces, step on and off from centre, avoid standing on edge or corners, no over-reaching
- Safe storage: minimises damage from vandalism, fungal and insect attack, corrosion, overloading and moisture movement; easier to access and return to storage; facilitates planned maintenance

Assessment Method

Please note that this unit is assessed by portfolio