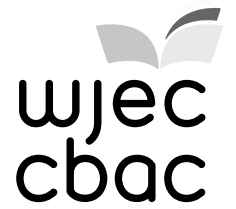


GCSE



WJEC GCSE in
BUILT ENVIRONMENT

APPROVED BY QUALIFICATIONS WALES

SPECIFICATION

Teaching from 2021
For award from 2023



SUMMARY OF AMENDMENTS

Version	Description	Page number
2	UMS values for each unit have been added to section 4.2	56



WJEC GCSE in BUILT ENVIRONMENT

For teaching from 2021
For award from 2023

This specification meets the requirements of the following regulatory documents published by Qualifications Wales:

- [Approval Criteria for GCSE Qualifications](#) which set out the requirements for all new or revised GCSE specifications developed to be taught in Wales from September 2017.
- [Approval Criteria for GCSE Built Environment](#) which set out the requirements for all qualifications in this subject to be taught in Wales from September 2021.

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GCSE BUILT ENVIRONMENT (Wales)

SUMMARY OF ASSESSMENT

Unit 1: Introduction to the built environment

On-screen examination: 1 hour 30 minutes

35% of qualification

70 marks: 140 UMS

An assessment (taken on-screen), comprising of a range of question types to assess specification content related to ideas and concepts in the built environment and evidence related to the built environment.

All questions are compulsory.

Unit 2: Creating the built environment

Non-exam assessment (NEA): approximately 25 hours

40% of qualification

80 marks: 160 UMS

Learners have a choice of two pathways within Unit 2: *designing the built environment* or *constructing the built environment*, from which they select one.

The task in each pathway assesses the learner's knowledge, understanding and skills in relation to identifying, interpreting and calculating information; writing success criteria; carrying out a range of techniques appropriate to the pathway; evaluating tasks.

Unit 3: Exploring the built environment

Non-exam assessment (NEA): approximately 15 hours

25% of qualification

50 marks: 100 UMS

This case study assesses the learner's knowledge, skills and understanding in relation to the stages of the building life cycle; the stages and processes involved in the design, construction, value and use of their built environment.

This unitised qualification is untiered. It will be available in the summer series each year. Unit 1 will be assessed for the first time in 2022; Unit 2 and Unit 3 will be assessed for the first time in 2023. The qualification will be awarded for the first time in summer 2023.

The table below shows the two routes to a GCSE Built Environment qualification.

Unit 1 from 2022	Unit 2 Pathway A ¹ from 2023	Unit 2 Pathway B ² from 2023	Unit 3 from 2023
✓	✓	-	✓
✓	-	✓	✓

Qualification Approval Number: C00/3965/5

¹ Designing the built environment

² Constructing the built environment

GCSE BUILT ENVIRONMENT

1 INTRODUCTION

1.1 Aims and objectives

The WJEC GCSE qualification in Built Environment introduces learners to, and develops their understanding of, the built environment, including the trades and roles within it, the tools, technologies and materials used in its construction and maintenance, and the processes involved in its design.

The qualification allows learners to develop the practical skills involved in different stages of the building life cycle and encourages them to investigate their own built environment and understand the impact it has on the economy, society, culture and the natural environment. The qualification may be taken by learners who wish to begin their journey towards a career in the construction and built environment sector, whether in trade-based, professional or managerial roles, or by learners who want to increase their understanding of the built environment more generally.

The qualification will provide opportunities for centres with different facilities, resources and skills amongst their staff to deliver it. It is also designed to appeal to a broad range of learners with different interests and characteristics. Overall, it will allow choice over how learners will develop their knowledge, skills and understanding in the subject area. It encourages subsidiarity in centres and allows learners to explore their own communities and it promotes partnership working with employers.

This WJEC GCSE specification in Built Environment will enable learners to develop:

- knowledge and understanding of theories, ideas and concepts related to the built environment
- knowledge and understanding of the different stages within the life cycle of the built environment
- knowledge and understanding of how different trades and services relate to each other within the built environment
- an appreciation of the built environment, including its design, creation, use and maintenance, and its role in their daily lives
- enquiry skills by exploring the built environment in the community and world in which they live
- skills in planning projects relating to the built environment, using the appropriate equipment to do so
- practical skills in designing or constructing elements of the built environment
- skills in using evidence to evaluate the use, performance and impact of the built environment, both in relation to their own work and that of others
- knowledge and understanding of the tools, materials and processes used in designing, constructing, valuing and using the built environment, including how they change over time.

1.2 Prior learning and progression

There are no previous learning requirements for this specification. Any requirements set for entry to a course based on this specification are at the school/college's discretion.

This specification provides a suitable foundation for the study of Built Environment at either AS or A level.

This specification provides a coherent, satisfying and worthwhile course of study for learners who do not progress to further study in this subject. In addition, this specification will help learners make informed decisions about a wide range of career pathways.

1.3 Equality and fair access

This specification may be followed by any learner, irrespective of gender, ethnic, religious or cultural background. It has been designed to avoid, where possible, features that could, without justification, make it more difficult for a learner to achieve because they have a particular protected characteristic.

The protected characteristics under the Equality Act 2010 are age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex and sexual orientation, marriage and civil partnership.

The specification has been discussed with groups who represent the interests of a diverse range of learners, and the specification will be kept under review.

Reasonable adjustments are made for certain learners in order to enable them to access the assessments (e.g. candidates are allowed access to a Sign Language Interpreter, using British Sign Language). Information on reasonable adjustments is found in the following document from the Joint Council for Qualifications (JCQ): *Access Arrangements and Reasonable Adjustments: General and Vocational Qualifications*.

This document is available on the JCQ website (www.jcq.org.uk). As a consequence of provision for reasonable adjustments, very few learners will have a complete barrier to any part of the assessment.

1.4 Welsh Baccalaureate

In following this specification, learners should be given opportunities, where appropriate, to develop the skills that are being assessed through the Skills Challenge Certificate within the Welsh Baccalaureate:

- Literacy
- Numeracy
- Digital Literacy
- Critical Thinking and Problem Solving
- Planning and Organisation
- Creativity and Innovation
- Personal Effectiveness.

1.5 Welsh perspective

In following this specification, learners must consider a Welsh perspective if the opportunity arises naturally from the subject matter and if its inclusion would enrich learners' understanding of the world around them as citizens of Wales as well as the UK, Europe and the world.

The built environment in Wales offers a broad range of contexts for the delivery of subject content in all three units. Additionally, the Unit 2 NEA tasks within Pathway A and Pathway B may be based on contexts within Wales. The Unit 3 NEA case study must be based on learners' local built environment in Wales, unless there are compelling reasons to base this work on a different context.

2 SUBJECT CONTENT

The subject content and assessment requirements are designed to ensure learners develop an appropriate breadth and depth of knowledge, understanding and skills in the built environment.

The subject content is presented in three units, each sub-divided into clear and distinct topic areas. Within each topic area the knowledge, understanding and skills are set out with an initial overview and then in two columns. The left hand column identifies the content to be studied. The right hand column provides amplification of the knowledge, understanding and skills that learners should develop in this area. Together, these two columns give the full content of the specification. There is no hierarchy implied by the order in which the content is presented, and the order does not imply a prescribed teaching order.

The amplification provided in the right hand column includes all of the assessable content for the relevant section, unless it states, 'e.g.', 'including' or 'such as'. In these cases, the amplification lists relevant content, which should be expanded upon in an appropriate way, taking account of learners' needs and interests.

2.1 Unit 1

Introduction to the built environment

On-screen examination: 1 hour 30 minutes
35% of qualification
70 marks

The examination must be conducted in accordance with *Instructions for Conducting Examinations*, available at www.jcq.org.uk.

Overview of unit

In this unit learners will develop knowledge, skills and understanding in:

- identifying and describing ideas and concepts in the built environment
- explaining concepts in the built environment
- evaluating evidence, ideas and concepts in the built environment
- comparing and contrasting ideas, concepts in, and evidence related to the built environment.

Areas of content

Learners should be given the opportunity to develop their knowledge and understanding of the eight areas of content set out on pages 8 to 21.

2.1.1	The sector
2.1.2	The built environment life cycle
2.1.3	Types of building and structure
2.1.4	Tools, technologies and materials
2.1.5	Building structures and forms
2.1.6	Sustainable construction methods
2.1.7	Trades, employment and careers
2.1.8	Health and safety

2.1.1 The sector

In this section learners will gain knowledge and understanding of the following areas in construction and the built environment sector:

- buildings and structures
- infrastructure and civil engineering products
- building services engineering.

Content	Amplification
(a) Buildings and structures	Learners should know: <ul style="list-style-type: none"> • the main types of buildings and structures covered within the sector: residential and non-residential buildings, bridges and roads • typical component parts of buildings and structures, including walls, floors and openings.
(b) Infrastructure and civil engineering products	Learners should be aware of the following facilities and systems: <ul style="list-style-type: none"> • roads • railways • bridges • tunnels • water supply and sewerage systems • electrical grids • telecommunications.
(c) Building services engineering	Learners should be aware of the function of the following services in buildings, in order to ensure their safe, comfortable and environmentally friendly operation: <ul style="list-style-type: none"> • mechanical services, i.e. escalators and lifts, heating, ventilation, air conditioning • electrical services, i.e. energy supply, lighting and low voltage (LV) systems, communication lines, telephones and IT networks, fire detection and protection, security and alarm systems • services that support public health, i.e. plumbing for water supply, and domestic hot water, drainage of waste water (sewage) and stormwater drainage.

2.1.2 The built environment life cycle

In this section learners will gain knowledge and understanding of the built environment life cycle, specifically:

- raw material extraction
- manufacturing
- construction
- operation and maintenance
- demolition
- disposal, reuse or recycling.

Content	Amplification
(a) Raw material extraction	<p>Learners should know that the following industries extract raw materials:</p> <ul style="list-style-type: none"> • oil and gas • forestry • quarrying • mining.
(b) Manufacturing	<p>Learners should be aware of the following means of transforming raw materials into finished goods:</p> <ul style="list-style-type: none"> • timber: felled logs are cut into 'boards' and then seasoned to remove excess water • engineered wood products (EWP): designed to overcome limitations on size of sawn timber, i.e. trussed rafters, structural sections and manufactured boards such as plywood and oriented strand board (OSB) • steel: <ul style="list-style-type: none"> • structural steel – made into standard column and beam sections • stainless steel – made into fixings and fastenings • lightweight mild steel sections – lintels, purlins and rails • profiled sheeting – wall and roof cladding. • copper: manufactured to produce building services products such as electric cable and water/gas pipes • plastic: manufactured to produce building services products such as water pipes • clay: natural clay minerals are crushed, shaped, dried and then fired in ovens to produce bricks • cement: raw materials such as limestone are crushed, blended and heated in a kiln to make cement • mortar: sand, cement and water are mixed to make a paste used to bind and point building blocks • concrete: <ul style="list-style-type: none"> • cement, water and aggregate (gravel, sand or rock) are mixed together to make concrete • combined with steel bars or mesh to make reinforced concrete lintels and pre-stressed products such as floor beams.

Content	Amplification
(c) Construction	<p>Learners should understand the following forms of construction activities:</p> <ul style="list-style-type: none"> ● new buildings and structures and the assembly on site of prefabricated elements. ● alteration, conversion, and renovation of existing buildings and structures. ● civil engineering works such as roads and bridges. ● installation of mechanical, electrical, gas and communication services.
(d) Operation and maintenance	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> ● operation can involve: <ul style="list-style-type: none"> ● controlling and monitoring of heating, cooling and lighting systems ● the provision of security, cleaning and other ancillary services, including testing and evacuation procedures. ● maintenance may take the form of: <ul style="list-style-type: none"> ● planned and preventive maintenance: carried out on a regular basis, in order to keep something in working order or extend its life ● corrective maintenance: repairing something that has broken. <p>Learners should be aware that a Building Operation and Maintenance Manual:</p> <ul style="list-style-type: none"> ● is given to the client or end user on completion ● contains information regarding the operation, maintenance, decommissioning and subsequent demolition of a building.
(e) Demolition	<p>Learners should understand that:</p> <ul style="list-style-type: none"> ● a pre-demolition plan includes details of: <ul style="list-style-type: none"> ● hazardous materials ● utilities and disconnections ● structures and party walls ● site conditions and constraints. ● statutory requirements need to be taken into account ● demolition may involve the use of explosives, hand demolition or machine demolition ● procedures include: <ul style="list-style-type: none"> ● site security set up ● disconnection of utilities ● removal of hazardous materials ● soft strip of non-structural elements ● taking down superstructure ● removal of slab and foundations ● site finish.

Content	Amplification
(f) Disposal, reuse or recycling	<p>Learners should understand that:</p> <ul style="list-style-type: none"> waste materials may be sent directly to landfill or salvaged for reuse or for recycling. construction can produce a significant amount of waste so there are benefits to be gained from encouraging more reuse or recycling, i.e. preservation of natural resources, creation of jobs and reduction in pollution.

2.1.3 Types of building and structure

In this section learners will gain knowledge and understanding of the features and characteristics of:

- low-rise:
 - residential dwellings
 - commercial buildings
 - industrial buildings
 - agricultural buildings
 - communal buildings
 - religious buildings
 - recreational buildings
- different forms of infrastructure construction.

Content	Amplification
(a) Residential dwellings	<p>Learners should be aware that residential dwellings:</p> <ul style="list-style-type: none"> are used as places of habitation are among the smallest types of building often vary by location with multi-dwelling structures such as apartment blocks in urban areas and single detached properties in rural areas are often made of block or timber frame construction are in demand because there is a shortage of available, affordable homes in the UK.
(b) Commercial buildings	<p>Learners should be aware that commercial buildings:</p> <ul style="list-style-type: none"> are used to provide services or retail products to customers accommodate business activities, usually undertaken to make a profit for the owners are usually adapted to fulfil the purpose of the business may be purpose-built or converted to enable a change of use are often located in retail centres, in or out of town/city centres.
(c) Industrial buildings	<p>Learners should be aware that industrial buildings:</p> <ul style="list-style-type: none"> are usually larger buildings, adapted to specific functions are often used for storing, processing, engineering or manufacturing materials may be part of a new development, such as in a modern industrial park, or a refurbished older building or site.

Content	Amplification
(d) Agricultural buildings	Learners should be aware that agricultural buildings: <ul style="list-style-type: none"> ● are associated with farming and the agricultural industry ● may be older buildings constructed using traditional materials and techniques ● may be large modern buildings, designed to suit a particular function and the rural landscape/environment in which they are situated.
(e) Communal buildings	Learners should be aware that communal buildings: <ul style="list-style-type: none"> ● are used by members of a community ● are usually located in a convenient location for the community using the building ● may be modern or older buildings, sometimes converted to enable a change of use.
(f) Religious buildings	Learners should be aware that religious buildings: <ul style="list-style-type: none"> ● usually serve as places of worship ● vary considerably in terms of age, size and architectural style ● often include elaborate architecture, with towers or domes, and may therefore be one of the most expressive and influential structures in the local built environment.
(g) Recreational buildings	Learners should be aware that recreational buildings: <ul style="list-style-type: none"> ● vary considerably in terms of size and style ● may be buildings in their own right or extensions to other buildings to enable an existing business to offer recreational activities ● may be designed for a specific function or versatile to accommodate a range of functions.
(h) Different forms of infrastructure construction	Learners should be aware that infrastructure construction: <ul style="list-style-type: none"> ● covers a broad range of functions ● may have a significant impact on the quality of life by providing economic and social benefits on a local or national scale ● can be controversial because developers, planning authorities and communities have to weigh the benefits against drawbacks, including potential damage to the natural environment and increased carbon emissions.

2.1.4 Tools, technologies and materials

In this section learners will gain knowledge and understanding of tools, technologies and materials used in the construction and built environment sector:

- the main elements and components of low-rise buildings
- the main materials involved in constructing walls, installing building services, fitting rooves and finishing interiors
- renewable technologies and materials, including heat pumps, wind turbines and solar panels.

Content	Amplification
(a) Main elements and components of low-rise buildings	<p>Learners should know that the main elements and components of low-rise buildings are:</p> <ul style="list-style-type: none"> • foundations • substructure • ground floor • super structure: <ul style="list-style-type: none"> • walls • upper floors • frame • roof supports • wall cladding • roof finishes.
(b) Main materials involved in constructing walls, installing building services, fitting rooves and finishing interiors	<p>Learners should be aware that the following materials and components are used in the construction of walls, installing building services, fitting rooves and finishing interiors.</p> <p>External walls:</p> <ul style="list-style-type: none"> • structural element: load bearing masonry (insulating blockwork), structural frame (steel or timber), insulated panels (SIP) • insulation: mineral fibre rolls, sprayed foam, rigid foam slabs • external cladding: brick or rendered blockwork, steel sheeting, aluminium faced insulated panels, curtain walling. <p>Internal walls and floors:</p> <ul style="list-style-type: none"> • block or stud (timber or steel) partitions • timber, concrete or steel floor joists. <p>Secondary structures:</p> <ul style="list-style-type: none"> • steel lintels, joists and timber trussed rafters for masonry walls • sheeting rails and purlins for steel frames. <p>Roof finishes:</p> <ul style="list-style-type: none"> • slate or concrete tiles for timber trussed rooves • steel sheeting over insulated lining trays for steel framed structures • rubber based sheeting or fibreglass for flat rooves.

Content	Amplification
<p>(b) Main materials involved in constructing walls, installing building services, fitting rooves and finishing interiors (continued)</p>	<p>Internal finishes:</p> <ul style="list-style-type: none"> • floor screeds and boards • plasterboard for walls and ceilings • wall plaster and decorations. <p>Building services:</p> <ul style="list-style-type: none"> • incoming services run through sub-structure walls and then extended for internal distribution • internal drainage run through external walls for connection to underground systems. <p>Building services materials:</p> <ul style="list-style-type: none"> • plastic and copper pipework for plumbing and heating services • plastic rainwater goods and drainage systems • copper cable for electricity and communication systems.
<p>(c) Renewable technologies and materials, including heat pumps, wind turbines and solar panels</p>	<p>Learners should know that energy may be generated or collected from renewable sources, as opposed to generated by burning finite resources such as fossil fuels.</p> <p>Learners should understand the main principles of the following forms of renewable technologies and be aware of the main benefits and limitations of their use:</p> <ul style="list-style-type: none"> • solar energy: <ul style="list-style-type: none"> • solar photovoltaic: conversion of sunlight into electricity using photovoltaic (PV) cells/panels • solar thermal: conversion of sunlight into thermal energy (or heat). • wind turbines: <ul style="list-style-type: none"> • harness the power of the wind to generate electricity • domestic wind turbines may be pole mounted or building mounted. • heat pumps: <ul style="list-style-type: none"> • ground source: uses pipes that are buried underground to transfer heat from the ground into the building • air source: transfers heat from the air outside of a building into the building • water source: transfers heat from a source of water outside of a building into the building. • water: <ul style="list-style-type: none"> • rainwater harvesting • grey water re-use • hydro-generation of electricity (tidal/electric).

2.1.5 Building structures and forms

In this section learners will gain knowledge and understanding of the following building structures and forms:

- cellular constructions
- rectangular frame constructions
- portal frame constructions
- heritage and traditional methods.

Content	Amplification
(a) Cellular constructions	<p>Learners should know that in cellular constructions:</p> <ul style="list-style-type: none"> • load bearing walls provide the main vertical support and lateral stability for floors • external wall panels, lift shafts or staircases are used to provide stability • bridging components such as floors, rooves and beams are supported by load bearing walls.
(b) Rectangular frame constructions	<p>Learners should know that in rectangular frame constructions:</p> <ul style="list-style-type: none"> • weight is carried by a skeleton or framework of columns and beams, rather than being supported by walls. <p>Learners should be aware that:</p> <ul style="list-style-type: none"> • a lightweight timber-frame is a common structure used in the construction of contemporary housing • steel and reinforced concrete frames are used in larger structures • contemporary commercial framed buildings have replaced traditional external walls with the use of metal and glass screens, or curtain walls, as exterior cladding.
(c) Portal frame constructions	<p>Learners should know that in portal frame constructions:</p> <ul style="list-style-type: none"> • beams or rafters are supported at either end by columns • the joints between the beams and columns are 'rigid' so the beam can be reduced in size and can span large distances <p>Learners should be aware that portal frame constructions are:</p> <ul style="list-style-type: none"> • often fabricated from steel, reinforced pre-cast concrete, or laminated timber • lightweight and can be fabricated off-site, then bolted to a substructure.

Content	Amplification
(d) Heritage and traditional methods	<p>Learners should be aware of the maintenance methods used by heritage and traditional trades:</p> <ul style="list-style-type: none"> ● having a regular programme of maintenance to help prevent small problems escalating, or further deterioration occurring ● matching existing materials and methods of construction where possible ● retaining as much of the original fabric as possible in historically significant buildings. <p>Learners should understand the importance of heritage and traditional methods in the maintenance of the historic built environment:</p> <ul style="list-style-type: none"> ● to maintain the history and character of a building ● to preserve our heritage for the benefit of present and future generations ● to reduce the need for new materials / preserve existing high quality materials.

2.1.6 Sustainable construction methods

In this section learners will gain knowledge and understanding of issues related to sustainable construction methods:

- the environmental, financial, cultural and social benefits of sustainable construction methods
- pollution and the preservation of the natural environment and natural habitats, including through decarbonisation
- sustainable materials used to create building frames, walls, rooves
- waste disposal, re-use and recycling
- planning permission, brownfield sites and greenfield sites.

Content	Amplification
(a) The environmental, financial, cultural and social benefits of sustainable construction methods	<p>Learners should be aware of the following benefits of using sustainable construction methods:</p> <ul style="list-style-type: none"> ● financial benefits: <ul style="list-style-type: none"> ● minimising waste ● reducing energy consumption ● improving water efficiency ● reducing operating costs ● optimising the life cycle of buildings ● cultural and social benefits: <ul style="list-style-type: none"> ● protection of the environment ● helps avoid the depletion of natural resources ● improving environmental quality may: <ul style="list-style-type: none"> ● improve occupants' comfort ● create an aesthetically pleasing environment ● reduce pressure on local infrastructure ● improve productivity.

Content	Amplification
(b) Pollution and the preservation of the natural environment and natural habitats, including through decarbonisation	<p>Learners should understand that construction methods should take account of factors including pollution, preservation of the natural environment and natural habitats.</p> <p>Learners should be aware of the following approaches to preserving the natural environment and natural habitats:</p> <ul style="list-style-type: none"> ● limiting the pollution released into water, air or the ground during construction and use of the built environment ● places may be made into protected areas by organisations such as Natural Resources Wales, which place restrictions on activities and developments ● developers may try to reduce the impact on nature by building tunnels under roads for newts to use, or creating new roosts for bats when their original roosts are lost because of development ● reducing carbon dioxide emissions during construction and use of the built environment.
(c) Sustainable materials used to create building frames, walls, rooves	<p>Learners should understand that:</p> <ul style="list-style-type: none"> ● wood is a renewable construction material and is commonly used in homebuilding ● steel used in construction contains recycled content and steel can be recovered and recycled again ● recycled bricks may be used to create walls ● straw bales can be used to create walls inside a frame. ● wool may be used as insulation instead of fibreglass or polyurethane. ● reclaimed slates or tiles, thatch or timber shingles can be used on rooves.
(d) Waste disposal, re-use and recycling	<p>Learners should be aware of the following in relation to waste disposal, re-use and recycling of materials:</p> <ul style="list-style-type: none"> ● waste disposal <ul style="list-style-type: none"> ● includes the classification of waste materials: hazardous, non-hazardous, origin, properties ● the costs of landfill: financial, environmental, social. ● re-use <ul style="list-style-type: none"> ● salvaged construction products are re-used with little or no reprocessing, typically bricks, slates, steel sections ● the environmental impact of reprocessing is minimised. ● recycling <ul style="list-style-type: none"> ● processes typically include crushing, smelting, decontamination, sorting ● there are a wide variety of potential end uses of recycled concrete, wood, metals, glass and plastic.

Content	Amplification
(e) Planning permission, brownfield sites and greenfield sites	<p>Learners should know that:</p> <ul style="list-style-type: none"> planning permission is a system that enables Local Planning Authorities (LPA) to control the development of the built environment in their area. <p>Learners should understand that brownfield sites:</p> <ul style="list-style-type: none"> have been used before and tend to be disused or derelict land existing buildings may have to be demolished and there may be clean-up costs for land decontamination redevelopment of brownfield sites can clean up environmental health hazards and eyesores. <p>Learners should understand that greenfield sites:</p> <ul style="list-style-type: none"> have not been built upon previously tend to be cheaper to develop, subject to legal and planning constraints infrastructure works i.e. new roads and utility connections must be taken into account.

2.1.7 Trades, employment and careers

In this section learners will gain knowledge and understanding of the following areas:

- architecture
- civil and structural engineering
- construction site management
- surveying
- bricklaying
- plastering
- carpentry and joinery
- electrical
- gas engineering
- plumbing
- painting, decorating and finishing.

Content	Amplification
(a) Architecture	<p>Learners should be aware that an architect:</p> <ul style="list-style-type: none"> creates new buildings and/or renovates or changes existing buildings produces designs to meet client requirements along with regulations, legislation and environmental requirements produces detailed drawings for the contractor.
(b) Civil and structural engineering	<p>Learners should be aware that a civil and structural engineer:</p> <ul style="list-style-type: none"> designs, plans and manages construction projects solves design and development problems assesses potential risks within a project.

Content	Amplification
(c) Construction site management	Learners should be aware that a construction site manager: <ul style="list-style-type: none"> ● is responsible for most activities on a construction site ● manages the site and the workforce, including with regard to health and safety and quality ● liaises with clients and reports on progress.
(d) Surveying	Learners should be aware that a surveyor: <ul style="list-style-type: none"> ● surveys land, measuring existing features of the natural and built environment ● produces data and drawings for architects and engineers.
(e) Bricklaying	Learners should be aware that a bricklayer: <ul style="list-style-type: none"> ● works from plans and specifications ● constructs structures by spreading layers of mortar, placing bricks/blocks, checking vertical and horizontal alignment ● seals foundations using damp-resistant materials
(f) Plastering	Learners should be aware that a plasterer: <ul style="list-style-type: none"> ● applies wet finishes and protective coverings on external walls ● applies plaster to inside walls and ceilings ● creates ornamental plasterwork using plaster, moulds and casts.
(g) Carpentry and joinery	Learners should be aware that a joiner: <ul style="list-style-type: none"> ● joins pieces of wood in a workshop, which a carpenter fixes on site. Learners should be aware that a carpenter: <ul style="list-style-type: none"> ● installs floor joists, floorboards, roof trusses, wall partitions ● fits interior woodwork – staircases, doors, skirting boards, cupboards, kitchens.
(h) Electrical	Learners should be aware that an electrician: <ul style="list-style-type: none"> ● installs, inspects and tests electrical equipment ● follows relevant safety regulations.
(i) Gas engineering	Learners should be aware that a gas engineer: <ul style="list-style-type: none"> ● installs, inspects and tests gas services and equipment ● follows relevant safety regulations
(j) Plumbing	Learners should be aware that a plumber: <ul style="list-style-type: none"> ● installs cold water, hot water, sanitation (toilets), and central heating systems ● follows relevant safety regulations.
(k) Painting, decorating and finishing	Learners should be aware that a painter and decorator: <ul style="list-style-type: none"> ● prepares and applies paint, wallpaper and other finishes to interior surfaces ● prepares and applies paint and other finishes to exterior surfaces.

2.1.8 Health and safety

In this section learners will gain knowledge and understanding of health and safety in relation to:

- risks for employees, employers and the public during construction and the built environment projects
- following procedures and carrying out risk assessments
- relevant legislation, including Control of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended)
- using personal protective equipment
- safety working with gas, water and electricity
- working at height and in enclosed spaces.

Content	Amplification
(a) Risks for employees, employers and the public during construction and the built environment projects	<p>Learners should understand that construction sites are hazardous environments with many risks:</p> <ul style="list-style-type: none"> • workers are at risk from working at height, manual handling and slips, trips and falls • employers have the responsibility for the safe operation of sites and may be held to account in the case of accidents or incidents • the public may be at risk when close to a construction site, or if they gain access to the site, from harmful materials and site traffic.
(b) Following procedures and carrying out risk assessments	<p>Learners should understand the importance of following the correct procedures (rules) so that contractors and employees work safely and prevent accidents and injuries.</p> <p>Learners should know that risk assessments include:</p> <ul style="list-style-type: none"> • general assessments of health and safety risks on construction sites • specific assessments for particular hazards – working at height, manual handling, noise.
(c) Relevant legislation, including Control of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended)	<p>Learners should understand that regulations require employers to control exposure to hazardous substances to prevent illness or injury by:</p> <ul style="list-style-type: none"> • assessing risks • deciding what precautions are necessary • preventing (or controlling) exposure • ensuring that control measures are followed • monitoring the level of exposure • preparing procedures to deal with accidents • training and supervising employees.
(d) Using personal protective equipment	<p>Learners should understand the importance of using the correct personal protective equipment (PPE) to protect the wearer from health and safety risks, including the risk of injury to the:</p> <ul style="list-style-type: none"> • skin • lungs • head • eyes • ears.

Content	Amplification
(e) Safely working with gas, water and electricity	<p>Learners should understand the importance of applying the following safety procedures when working with gas, water and electricity:</p> <ul style="list-style-type: none"> ● should only be worked on by a competent person ● follow appropriate procedures and precautions ● use protective equipment ● know the means of cutting off the supply of gas, water or electricity.
(f) Working at height and in enclosed spaces	<p>Learners should understand that to ensure safety:</p> <ul style="list-style-type: none"> ● those working at height must: <ul style="list-style-type: none"> ● be appropriately trained and follow a properly planned and organised process ● take account of weather conditions (if appropriate) ● use equipment which is appropriately inspected ● control risks from fragile surfaces and falling objects ● those working in enclosed spaces must manage risks from: <ul style="list-style-type: none"> ● exposure to fumes ● reduced oxygen levels ● flooding/drowning ● fire. <p>Learners should be aware that there must be arrangements in place to get the person out of the enclosed space safely and promptly if they become unwell.</p>

2.2 Unit 2

Creating the built environment

Non-exam assessment: approximately 25 hours
40% of qualification
80 marks

Overview of unit

In this unit learners will develop knowledge and understanding of, and skills in, creating the built environment. Learners follow one pathway through this unit; either *designing the built environment* or *constructing the built environment*.

This non-exam assessment (NEA) is composed of a task set by WJEC for each of the available pathways, shown in Appendix B. WJEC will publish suggested contexts for each of Unit 2 Pathway A and Unit 2 Pathway B within Appendix B of the specification, and refresh both every two examinations series. Learners will have the option of using these contexts, modifying them, or devising a context of their own.

The evidence presented by learners will differ for each of the pathways:

- In Pathway A, *designing the built environment*, learners are required to present their work in an A4 or A3 sized document (or a document made up of a combination of both sizes, e.g. with drawings and plans on A3 paper and the remainder of the task on A4 paper).
- In Pathway B, *constructing the built environment*, learners are required to present their written and drawing work in an A4 or A3 sized document (or a document made up of a combination of both sizes). Additionally, learners are required to present evidence of their construction work using coloured photographic images. It is important that the images are of sufficient quality and quantity to clearly show relevant features/detail of the construction work.

Within the task, learners may include short and extended prose, digital images/photographs, annotated images/diagrams to suit the nature of the task and their interests. Whilst the form of presentation is flexible, teachers should ensure that learners' work has the potential to address all of the relevant assessment criteria.

Learners should be given the opportunity to develop their knowledge, skills and understanding of either:

- the eight areas of content set out on pages 24 to 30 for *designing the built environment*, or
- the ten areas of content set out on pages 31 to 40 for *constructing the built environment*.

The areas of content are summarised in the tables below. Full details are presented in the content sections which follow.

Areas of content

Pathway A	
Designing the built environment	
2.2.1a	Identifying and calculating information
2.2.2a	Writing and setting success criteria
2.2.3a	Drawing plans
2.2.4a	Drawing elevations
2.2.5a	Using the language of drafting
2.2.6a	Drawing two-dimensional plans
2.2.7a	Creating three-dimensional virtual models and plans
2.2.8a	Evaluating design tasks

Pathway B	
Constructing the built environment	
2.2.1b	Interpreting technical sources of information
2.2.2b	Planning and organising work
2.2.3b	Identifying resource requirements
2.2.4b	Calculating materials required
2.2.5b	Writing and setting success criteria
2.2.6b	Prepare for construction tasks
2.2.7b	Carrying out techniques
2.2.8b	Removing and disposing of materials
2.2.9b	Using working practices that promote health and safety
2.2.10b	Evaluating construction tasks

Pathway A – designing the built environment

2.2.1a Identifying and calculating information

In this section learners will gain knowledge, understanding and skills in identifying and calculating the information required for construction designs, in relation to:

- area
- volume
- length
- angles
- high-level design requirements.

Content	Amplification
(a) Area	Learners should know how to calculate areas to: <ul style="list-style-type: none"> • work out quantities of materials required • estimate costs.
(b) Volume	Learners should know how to calculate volumes to: <ul style="list-style-type: none"> • work out quantities of materials required • estimate costs.
(c) Length	Learners should know how to measure distances for design considerations such as: <ul style="list-style-type: none"> • evacuation routes • boundary clearances • spans to estimate structural depths.
(d) Angles	Learners should know how to calculate the effect of changing pitches on spans, volume and quantities of materials such as roof tiles.
(e) High-level design requirements	Learners should know how to carry out calculations related to the following high-level design requirements of construction designs: <ul style="list-style-type: none"> • area • ceiling height • layout of rooms • outdoor space • energy use.

2.2.2a Writing and setting success criteria

In this section learners will gain knowledge, understanding and skills in writing and setting appropriate project success criteria to meet defined parameters, with regard to:

- levels of tolerance
- timescales
- quality.

Content	Amplification
(a) Levels of tolerance	<p>Learners should be aware that project tolerance may involve:</p> <ul style="list-style-type: none"> • increase or decrease from planned cost or time • deviations from quality and/or scope. <p>Learners should be aware that construction tolerances may involve allowable variations in terms of:</p> <ul style="list-style-type: none"> • dimensions • strength, stability, mix, and performance <p>that are not considered to be defects.</p>
(b) Timescales	<p>Learners should understand that a critical success factor for a project is to meet the deadline.</p> <p>Learners should be aware of the following project management techniques designed to help achieve deadlines:</p> <ul style="list-style-type: none"> • setting of realistic timescales • development of plans and Gantt charts • critical path analysis • resource allocation • setting of milestones • use of contingencies.
(c) Quality	<p>Learners should understand that construction projects are a balance between cost, time and quality.</p> <p>Learners should be aware that in relation to products and materials, quality can be defined by:</p> <ul style="list-style-type: none"> • reference to standards • specification of attributes • nominating suppliers. <p>Learners should be aware that in relation to standard of workmanship, quality can be defined by:</p> <ul style="list-style-type: none"> • compliance with manufacturers' requirements • reference to a code of practice or standards • approval of samples • testing and inspection.

2.2.3a Drawing plans

In this section learners will gain knowledge, understanding and skills in drawing different types of plans, including enlarging and reducing scale drawings, using the conventions of:

- block plans
- floor plans
- cross-sections
- scale drawings.

Content	Amplification
(a) Block plans	<p>Learners should be aware that block plans are drawn to scale and illustrate:</p> <ul style="list-style-type: none"> • location • local infrastructure • site layout, including pedestrian and vehicular access routes, parking and landscaping. <p>Learners should be able to produce accurate block plans using drawing instruments or a Computer Aided Design (CAD) package.</p>
(b) Floor plans	<p>Learners should be aware that floor plans are drawn to scale and illustrate:</p> <ul style="list-style-type: none"> • room layouts • furniture arrangements • horizontal circulation routes • vertical circulation facilities • internal fittings. <p>Learners should be able to produce accurate floor plans using drawing instruments or a CAD package.</p>
(c) Cross-sections	<p>Learners should be aware that cross-sections are drawn to scale and illustrate:</p> <ul style="list-style-type: none"> • floor heights • service voids • vertical circulation routes • structural floor depths • roof structures. <p>Learners should be able to produce accurate cross-sections using drawing instruments or a CAD package.</p>
(d) Scale drawings	<p>Learners should be aware that drawings produced to recognised (British Standards) scales as specified in BS 1192 are generally:</p> <ul style="list-style-type: none"> • 1:1, 1:5 and 1:10 for construction details • 1:50, 1:100, 1:200 for layout and site plans • 1:1250 for location plans. <p>Learners should be able to produce accurate scale drawings using drawing instruments or a CAD package.</p>

2.2.4a Drawing elevations

In this section learners will gain knowledge, understanding and skills in drawing elevations, using the conventions and requirements of elevations that are:

- internal
- external – rear (north); front (south); left (east); right (west).

Content	Amplification
(a) Internal	Learners should be able to produce accurate 2D representations of wall surfaces to illustrate arrangements such as kitchen units and appliances, and position fixtures, including: <ul style="list-style-type: none"> • doors • fireplaces • windows • wall lights • electrical outlets and switches using drawing instruments or a CAD package.
(b) External:	Learners should be able to produce accurate 2D representations of external wall and roof surfaces including: <ul style="list-style-type: none"> • windows • doors • finishes • roof trims and rainwater goods using drawing instruments or a CAD package.
<ul style="list-style-type: none"> • Rear (North) 	Learners should be able to produce an external elevation north facing, including details as outlined above.
<ul style="list-style-type: none"> • Front (South) 	Learners should be able to produce an external elevation south facing, including details as outlined above.
<ul style="list-style-type: none"> • Left (East) 	Learners should be able to produce an external elevation east facing, including details as outlined above.
<ul style="list-style-type: none"> • Right (West) 	Learners should be able to produce an external elevation west facing, including details as outlined above.

2.2.5a Using the language of drafting

In this section learners will gain knowledge, understanding and skills in the language of drafting, including:

- an awareness of BS standards (BS 1992:2007 + A2:2016 and subsequent updates, Building Information Modelling)
- conventions – annotations; lines; hatching
- a range of symbols.

Content	Amplification
(a) BS standards (BS 1992:2007 + A2:2016 and subsequent updates, Building Information Modelling)	<p>Learners should be aware that BS 1992:2007 as updated to BS EN ISO 19650, 2018 is a code of practice for the production, formats and standards of architectural, engineering and construction information used in building information modelling.</p> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> • Building Information Modelling (BIM) is a framework for a collaborative working environment • in BIM, teams produce and share digital information using standardised processes and agreed standards and methods.
(b) Conventions:	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> • rules about annotation, lines, hatching and use of symbols are standardised throughout the industry • use of rules (or conventions) reduce drawing time and space needed to convey information.
<ul style="list-style-type: none"> • Annotation 	<p>Learners should be aware of printing and common abbreviations including:</p> <ul style="list-style-type: none"> • FFL (finished floor level) • DRG (drawing) • DIM (dimension).
<ul style="list-style-type: none"> • Lines 	<p>Learners should be aware of the following uses of lines:</p> <ul style="list-style-type: none"> • thick lines for outline of close objects • thin lines for dimensions, hatching and outline of distant objects • dotted or dashed lines for centre lines or outline of obscured objects.
<ul style="list-style-type: none"> • Hatching 	<p>Learners should be aware of the use of hatching to show the following in section:</p> <ul style="list-style-type: none"> • brickwork • blockwork • timber • concrete • hardcore.
(c) A range of symbols	<p>Learners should be aware of the use of symbols in construction drawings to reduce drawing time and to show the position and type of specific equipment including:</p> <ul style="list-style-type: none"> • sanitary fittings • electrical outlets and switches.

2.2.6a Drawing two-dimensional plans

In this section learners will gain knowledge, understanding and skills in drawing 2D plans of construction designs by:

- developing plans
- refining concepts
- sketching technical drawings.

Learners are introduced to:

- the conventions and requirements of 2D plans of construction designs.

Content	Amplification
(a) The conventions and requirements of 2D plans of construction designs.	Learners should be able to use a CAD package to: <ul style="list-style-type: none"> • develop plans and other design drawings to illustrate building design proposals • refine concepts and initial design ideas in response to feedback and to illustrate refined building design proposals • produce technical drawings for use in the construction of building design proposals.

2.2.7a Creating three-dimensional virtual models and plans

In this section learners will gain knowledge, understanding and skills in creating 3D virtual models and plans of construction designs and:

- applying scenes, backgrounds and surroundings
- rendering
- enhancing proposals
- creating 360° views
- adding building components, details and colour.

Learners are introduced to:

- the conventions and requirements of 3D virtual models and plans of construction designs.

Content	Amplification
(a) The conventions and requirements of 3D virtual models and plans of construction designs.	Learners should be able to use a CAD package to develop 3D models from 2D building design drawings: <ul style="list-style-type: none"> • applying scenes, backgrounds and surroundings to a 3D building model • rendering the external finishes (colour and texture) of a 3D building model • adding features such as images of people, vehicles and landscaping to enhance a 3D building model • creating 360° views of a 3D building model, including rotation • adding building components, other details and colour to a 3D building model.

2.2.8a Evaluating design tasks

In this section learners will gain knowledge, understanding and skills in evaluating the quality of completed design tasks, including how outcomes can be evaluated against:

- requirements of the brief
- personally-set success criteria
- needs of end users, including their safety.

Content	Amplification
(a) Requirements of the brief	Learners should be able to evaluate a finished design task against the project requirements considering: <ul style="list-style-type: none"> • possible further design improvements • possible further enhancements in presentation • areas of the project that were challenging.
(b) Personally-set success criteria	Learners should be able to evaluate a finished design task against personally-set success criteria considering whether: <ul style="list-style-type: none"> • all aspects of the task were within the levels of tolerance • the task was completed to the set timescale • the task was completed to the required quality.
(c) Needs of end users, including their safety	Learners should be able to evaluate a finished design task against the needs of end users, considering: <ul style="list-style-type: none"> • their health and safety • the intended purpose of the outcome of the design task.

Pathway B – constructing the built environment

In *constructing the built environment*, candidates are required to develop knowledge, skills and understanding in two areas, selected from:

- textiles
- wood
- brick
- plaster
- decoration
- tiles
- electrical
- plumbing
- heritage.

Of these experiences, one should be undertaken with a contemporary focus and one should be undertaken with a traditional focus (where relevant to the chosen areas).

2.2.1b Interpreting technical sources of information

In this section learners will gain knowledge, understanding and skills in interpreting a range of technical sources of information, using the symbols, conventions and terminology of:

- specifications
- building regulations
- drawings
- design briefs.

Content	Amplification
(a) Specifications	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> • specifications are precise details of requirements, presented in textual form, and/or drawings using international standard symbols and terminology which must be interpreted before construction begins. • specifications include: <ul style="list-style-type: none"> • materials • scope of work • installation process • quality.
(b) Building regulations	<p>Learners should be aware that building regulations:</p> <ul style="list-style-type: none"> • protect people's safety, health and welfare in and around buildings • improve conservation of fuel and power, protect and enhance the environment and promote sustainable development • cover the construction and extension of buildings • may also cover alteration projects so it is important to check before work begins.

Content	Amplification
(c) Drawings	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> drawings produced to recognised (British Standards) scales as specified in BS 1192 are generally: <ul style="list-style-type: none"> 1:1, 1:5 and 1:10 for construction details 1:50, 1:100, 1:200 for layout and site plans 1:1250 for location plans. drawings may be 2D or 3D and include constructional details and the location of components.
(d) Design briefs	<p>Learners should be aware that a design brief for a construction project:</p> <ul style="list-style-type: none"> is developed by the project designer/design team in consultation with the client outlines the deliverables and the scope of the project including any products or works, the timeline and budget.

2.2.2b Planning and organising work

In this section learners will gain knowledge, understanding and skills in planning and organising work that meets specific requirements, including:

- how work is sequenced, planned to meet deadlines and compliant with relevant health and safety practices.

Content	Amplification
(a) How work is sequenced, planned to meet deadlines and compliant with relevant health and safety practices	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> in construction projects the sequencing is linked to the specification, the design brief and the drawings. sequencing is time-framed and needs to meet building regulations and health and safety requirements. sequencing of work needs to consider the essential stages of any activity undertaken. This includes having the right tools, equipment and personal protective equipment (PPE) as well as the correct materials to complete the activity. a well-designed sequence of work will create a logical and efficient flow of work which takes account of the time taken to complete specific tasks and when one task is dependent on another being completed first.

2.2.3b Identifying resource requirements

In this section learners will gain knowledge, understanding and skills in identifying resource requirements, for the two selected trade areas, to meet design requirements:

Content	Amplification
(a) Tools	<p>Learners should understand:</p> <ul style="list-style-type: none"> ● that the tools, equipment, PPE and materials required will be dependent on the trade areas selected and also the tasks to be undertaken in those areas ● that a list of all tools required should be completed before working on a construction task, to ensure that every stage of the task can be undertaken as efficiently and effectively as possible ● that the list of tools should cover all stages of the construction task, including preparation and finishing of materials ● how and why each tool is used and the safety considerations for each item.
(b) Equipment	<p>Learners should understand:</p> <ul style="list-style-type: none"> ● that a list of all equipment required should be completed before working on a construction task, to ensure that every stage of the task can be undertaken as efficiently and effectively as possible ● that the list of equipment should cover all stages of the construction task, including preparation and finishing of materials. ● how and why each piece of equipment is suitable for the scale and nature of the task, and the safety considerations for each item.
(c) Personal protective equipment	<p>Learners should understand that:</p> <ul style="list-style-type: none"> ● the selection and correct use of appropriate personal protective equipment is essential when undertaking a construction task ● depending on the task being undertaken, and the materials and processes being used, personal protective equipment may be required for: <ul style="list-style-type: none"> ● respiratory protection ● eye protection ● hearing protection ● hand protection.

Content	Amplification
(d) Materials based on:	
<ul style="list-style-type: none"> • Characteristics 	<p>Learners should understand that:</p> <ul style="list-style-type: none"> • the selection of materials is based on their fitness for purpose for the construction task, taking account of the requirements within the specification • relevant characteristics may include: <ul style="list-style-type: none"> • physical properties • mechanical properties • thermal properties.
<ul style="list-style-type: none"> • Qualities 	<p>Learners should be aware that relevant qualities of materials may be linked to the project's:</p> <ul style="list-style-type: none"> • quality objectives • budget.
<ul style="list-style-type: none"> • Sustainability 	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> • sustainability is an increasingly important consideration in the selection of materials, taking into account their environmental impact in terms of: <ul style="list-style-type: none"> • production • placing • maintenance. • a long-term view may also consider how the materials may be recycled.
<ul style="list-style-type: none"> • Limitations 	<p>Learners should be aware that limitations may be related to:</p> <ul style="list-style-type: none"> • cost • availability • characteristics/properties • regulations.

2.2.4b Calculating the materials required

In this section learners will gain knowledge, understanding and skills in calculating the materials required to complete construction tasks that meet design requirements, in relation to:

- volume
- area
- perimeter
- time
- ratio.

Content	Amplification
(a) Volume	<p>Learners should understand that calculations of quantities of materials required to complete construction tasks should be accurate and allow for rounding up and acceptable wastage.</p> <p>Learners should know how to calculate volumes to quantify materials required, such as:</p> <ul style="list-style-type: none"> • the number of specific lengths of materials, e.g. tongue and groove wood, copper tube • the number of bricks, blocks • the volume of concrete.
(b) Area	<p>Learners should know how to calculate areas to quantify materials required, such as:</p> <ul style="list-style-type: none"> • tins of paint • bags of plaster • rolls of wallpaper • carpet tiles.
(c) Perimeter	<p>Learners should know how to calculate perimeters to quantify materials required, such as:</p> <ul style="list-style-type: none"> • fencing • cabling.
(d) Time	<p>Learners should know how to calculate the time required to complete tasks, taking into account:</p> <ul style="list-style-type: none"> • the number of people working on the task • the complexity of the task • time-dependent factors such as drying time.
(e) Ratio	<p>Learners should know how to calculate the volume/proportion of different components required to complete a whole, such as mixing:</p> <ul style="list-style-type: none"> • concrete • plaster • mortar. <p>Learners should be aware that the result may be expressed as a percentage or ratio.</p>

2.2.5b Writing and setting success criteria

In this section learners will gain knowledge, understanding and skills in writing and setting appropriate project success criteria to meet the requirements of set briefs, with respect to:

- levels of tolerance
- timescales
- quality.

Content	Amplification
(a) Levels of tolerance	<p>Learners should be aware that project tolerance may involve:</p> <ul style="list-style-type: none"> • increase or decrease from planned cost or time • deviations from quality and scope. <p>Learners should be aware that construction tolerance may involve allowable variations that are not considered to be defects, in terms of:</p> <ul style="list-style-type: none"> • dimensions • strength, stability, mix, and performance.
(b) Timescales	<p>Learners should understand that a critical success factor for a project is to meet the deadline.</p> <p>Learners should be aware of the following project management techniques designed to help achieve deadlines:</p> <ul style="list-style-type: none"> • setting of realistic timescales • development of plans and Gantt charts • critical path analysis • resource allocation • setting of milestones • use of contingencies.
(c) Quality	<p>Learners should understand that construction projects are a balance between cost, time and quality.</p> <p>Learners should be aware that in relation to products and materials, quality can be defined by:</p> <ul style="list-style-type: none"> • reference to standards • specification of attributes • nominating suppliers. <p>Learners should be aware that in relation to standard of workmanship, quality can be defined by:</p> <ul style="list-style-type: none"> • compliance with manufacturers' requirements • reference to a code of practice or standards • approval of samples • testing and inspection.

2.2.6b Prepare for construction tasks

In this section learners will gain knowledge, understanding and skills in preparing materials and undertaking any other required preparations for each selected task, with regard to:

- the properties of common materials required to complete construction tasks (for the two selected trade areas).

Content	Amplification
<p>(a) The properties of common materials required to complete construction tasks (for the two selected trade areas)</p>	<p>Learners should be able to prepare materials, which may be:</p> <ul style="list-style-type: none"> • textiles • wood • brick • plaster • decorations • tiles • electrical • plumbing • heritage <p>to undertake construction tasks in the two selected trade areas.</p> <p>Learners should be aware that the nature of the preparation will depend on the areas chosen and the tasks themselves.</p> <p>Learners should be able to undertake appropriate preparatory work, which may typically involve:</p> <ul style="list-style-type: none"> • selecting materials • checking quantity • checking for defects • organising materials • measuring • marking out • cutting • setting out. <p>Learners should understand that:</p> <ul style="list-style-type: none"> • preparation needs to be undertaken with regard to: <ul style="list-style-type: none"> • the main properties of the materials involved • stock forms, types and sizes in order to determine the quantity of materials or components required • some tasks may require the pre-mixing of materials so that they are ready for use (e.g. plaster).

2.2.7b Carrying out techniques

In this section learners will gain knowledge, understanding and skills in carrying out techniques, focussing on:

- the processes involved in carrying out simple construction tasks (in each of the two selected trade areas).

Content	Amplification
<p>(a) The processes involved in carrying out simple construction tasks (in each of the two selected trade areas).</p>	<p>Learners should be able to carry out simple construction tasks³ which may involve the use of any of the following trade areas. (An example of a simple construction task is shown in brackets in each case. These are provided as examples only, to illustrate the expected level of demand. Centres are free to choose construction tasks to suit their resources and learners' needs and interests.)</p> <ul style="list-style-type: none"> textiles (cut fabric to size, finish edges, including a means of hanging, to make a curtain) wood (cut wood to size, to make a shelf and support brackets, and join together) brick (mix mortar and lay approximately 12 bricks over three courses) plaster (prepare plaster and approximately 1m² of wall, apply plaster, skim and smooth) decorations (prepare adhesive and wall, hang 3 lengths of patterned wall paper) tiles (prepare adhesive and wall or floor, apply approximately 12 tiles and grout) electrical (run cable between an imaginary supply and a wall socket; a light switch and lamp holder) plumbing (cut and join four lengths of copper tube using a selection of end feed fittings) heritage (forge steel to make a bracket for suspending a hanging basket) <p>The processes involved will depend on the areas chosen and the tasks themselves. Typically this will involve the learner:</p> <ul style="list-style-type: none"> measuring marking cutting joining shaping assembling mixing finishing applying surface treatments.

³ relevant to the two selected trade areas.

2.2.8b Removing and disposing of materials

In this section learners will gain knowledge, understanding and skills in removing and safely disposing of materials used in carrying out two of the above techniques, focussing on:

- safe and environmentally responsible means of disposing or recycling of materials.

Content	Amplification
(a) Safe and environmentally responsible means of disposing or recycling of materials.	Learners should understand that: <ul style="list-style-type: none"> • preparation for construction, and the construction task itself, should aim to minimise waste • where possible, waste should be reused or recycled. • non-reusable waste should be handled, stored and disposed of appropriately and in compliance with good practice and relevant regulations • where appropriate, shelf-life should be considered before and after use of products.

2.2.9b Working practices that promote health and safety

In this section learners will gain knowledge, understanding and skills in working practices that promote their own health and safety and that of others, developing an awareness of health and safety practices related to each of the two selected trade areas, including:

- ensuring the cleanliness and safety of work areas
- correct personal protective equipment.

Content	Amplification
(a) Ensuring the cleanliness and safety of work areas	Learners should understand: <ul style="list-style-type: none"> • the importance of ensuring the cleanliness and safety of work areas • that work areas should be clean and free of any obstructions or trip hazards • that the area should be adequately sized for the task allowing for safe completion of all activities • that first aid facilities should be easily reached.
(b) Correct personal protective equipment	The learner should understand that: <ul style="list-style-type: none"> • the correct personal protective equipment should be selected as part of the planning process and adhered to prior to starting, and during construction tasks • personal protective equipment should be checked for damage and to ensure it is fit for purpose. • personal protective equipment may be required for: <ul style="list-style-type: none"> • respiratory protection – masks • eye protection – goggles, visors • hearing protection – ear plugs, ear muffs • hand protection – gloves, barrier cream • feet protection – steel toe-cap footwear • head protection – hard hats.

2.2.10b Evaluating construction tasks

In this section learners will gain knowledge, understanding and skills in evaluating the quality of completed construction tasks, including how outcomes can be evaluated against:

- requirements of the brief
- personally-set success criteria
- needs of end users, including their safety.

Content	Amplification
(a) Requirements of the brief	Learners should be able to evaluate a finished construction task against the project requirements considering; <ul style="list-style-type: none"> • possible further improvements • possible further enhancements in presentation • areas of the project that were challenging.
(b) Personally-set success criteria	Learners should be able to evaluate a finished construction task against personally-set success criteria considering whether; <ul style="list-style-type: none"> • all aspects of the task were within the levels of tolerance • the task was completed to the set timescale • the task was completed to the required quality.
(c) Needs of end users including their safety	Learners should be able to evaluate a finished construction task against the needs of end users, considering: <ul style="list-style-type: none"> • their health and safety • the intended purpose of the outcome of the design task.

2.3 Unit 3

Exploring the built environment

Non-exam assessment: approximately 15 hours
25% of qualification
50 marks

Overview of unit

In this unit learners will gain knowledge and understanding in:

- identifying and describing the factors which affect each stage of the building life cycle
- evaluating and analysing each stage within the building life cycle
- researching the stages and processes involved in the design, construction, value and use of their built environment
- presenting their findings in appropriate ways
- comparing and contrasting the processes involved in designing, constructing, valuing and using buildings from different periods.

This non-exam assessment (NEA) is composed of a case study set by WJEC, shown in Appendix B.

Where possible, the case study should be based on learners' local environment in Wales. If this is not possible, when candidates' work is submitted for moderation, centres must provide an explanation why learners have investigated buildings or structures which are not based in their local environment.

The case study may be presented in a variety of ways, including:

- a word-processed A4 or A3 sized document
 - a presentation created using PowerPoint or other application
 - a blog
 - an infographic
- or a combination of these formats.

Within the case study, learners may include short and extended prose, digital images/photographs and/or annotated images/diagrams to suit the context and their interests. Whilst the form of presentation is flexible, teachers should ensure that learners' work has the potential to address all of the relevant assessment criteria.

Learners should be given the opportunity to develop their knowledge, skills and understanding of the seven areas of content set out on pages 42 to 49.

Areas of content

2.3.1	Planning and design stages of buildings and structures
2.3.2	Construction processes
2.3.3	Well-being of communities
2.3.4	Post-occupancy evaluations
2.3.5	Building maintenance and repair
2.3.6	Change of use
2.3.7	Changing practices

2.3.1 Planning and design stages of buildings and structures

In this section learners will gain an awareness of planning and design stages of buildings and structures, focussing on RIBA Stages 0,1,2,3 and 4:

- strategic definition
- preparation and brief
- concept design
- developed design
- technical design

and the ways in which their built environment has been planned and designed to meet given needs.

Learners should outline relevant features from each of the RIBA Stages in their case study for Unit 3.

Content	Amplification
(a) Royal Institute of British Architects (RIBA) Stages 0, 1, 2, 3 and 4:	Learners should be aware of the structure used within the RIBA Plan of Work 2013: <ul style="list-style-type: none"> • core objective • procurement • programme • (town) planning • suggested key support tasks • sustainability checkpoints • information exchanges (at stage completion) • UK Government Information Exchanges https://www.ribaplanofwork.com/PlanOfWork.aspx
(b) Strategic definition	Learners should be aware that at the strategic definition stage, the project is appraised and defined so that a brief can be created.
(c) Preparation and brief	Learners should be aware that the preparation and brief stage includes the development of: <ul style="list-style-type: none"> • key objectives and outcomes • overall budget.
(d) Concept design	Learners should be aware that the concept design stage includes outline proposals for: <ul style="list-style-type: none"> • structural design • building services • specifications • costs.
(e) Developed design	Learners should be aware that the developed design stage includes developed proposals for: <ul style="list-style-type: none"> • structural design • building services • specifications • costs.
(f) Technical design	Learners should be aware that at the technical design stage, technical details are prepared for the architect and subcontractors.

Content	Amplification
(g) and the ways in which their built environment has been planned and designed to meet given needs.	Learners should be aware of how their own built environment meets users' needs, considering factors such as: <ul style="list-style-type: none"> • environmental impact • transportation • location of shops and facilities • disabled users as relevant to the learners' built environment.

2.3.2 Construction processes

In this section learners will gain knowledge and understanding of construction processes, focussing on RIBA Stage 5:

- construction
- and the ways in which their built environment has been constructed to meet given needs.

Content	Amplification
(a) Construction	Learners should be aware that the construction stage includes offsite manufacturing and onsite construction.
(b) and the ways in which their built environment has been constructed to meet given needs.	Learners should be aware of how their own built environment has been constructed to meet needs which are relevant to them.

2.3.3 Well-being of communities

In this section learners will gain knowledge and understanding of the well-being of communities, focussing on:

- the impact of their built environment on the social, economic, environmental and cultural well-being of communities.

Content	Amplification
(a) The impact of their built environment on the social, economic, environmental and cultural well-being of communities.	Learners should be aware that the built environment must meet the needs of the community or it is likely to go into decline as: <ul style="list-style-type: none"> • facilities are used less • shops close • houses become empty • value declines – both financial and intrinsic • the community may have little pride in the environment and begin to abuse it.

Content	Amplification
<p>(a) The impact of their built environment on the social, economic, environmental and cultural well-being of communities. (continued)</p>	<p>Learners should be aware that a built environment which successfully meets the needs of the community can have a range of positive impacts:</p> <ul style="list-style-type: none"> ● social impacts: <ul style="list-style-type: none"> ● the community will have pride in the environment ● aesthetically pleasing environment in which to live and work ● may improve community cohesion ● economic impacts: <ul style="list-style-type: none"> ● encourage investment from outside of the community ● community members spend their time and money within the local environment instead of other places ● may have a positive influence on the value of properties as there will be greater interest from businesses and home-seekers to move to the area ● cultural well-being impacts: <ul style="list-style-type: none"> ● the built environment can help people feel that they belong in the local community ● taking part in activities within the built environment can help people socialise, gain new skills, improve their physical and mental well-being ● the built environment can encourage people's interest and value in their history and beliefs <p>Learners should be aware that the built environment has a significant impact on the natural environment, and that the design, use and maintenance of the built environment affects:</p> <ul style="list-style-type: none"> ● the use of resources and energy consumption ● the generation of a range of forms of pollution.

2.3.4 Post-occupancy evaluations

In this section learners will gain knowledge and understanding of the process of evaluating a building or asset's impact on:

- running costs
- staff and client satisfaction
- performance
- health and safety
- comfort
- the ways in which post-occupancy evaluations can be used to correct mistakes, inform decision-making and provide benchmarks for further evaluations.

Content	Amplification
(a) Running costs	<p>Learners should be aware that post-occupancy evaluations include consideration of costs such as:</p> <ul style="list-style-type: none"> • maintenance: <ul style="list-style-type: none"> • decorations • building fabric and services. • operation: <ul style="list-style-type: none"> • cleaning • utilities (water and energy).
(b) Staff and client satisfaction	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> • post-occupancy evaluations include consideration of the building or asset's function from the perspective of the client and those living or working in it • client/occupant satisfaction surveys may include questions on: <ul style="list-style-type: none"> • spatial conditions (amount of space/layout) • light (natural and artificial) • acoustics/noise • air quality • temperature.
(c) Performance	<p>Learners should be aware that post-occupancy evaluations include consideration of the performance of the building or asset, in terms of:</p> <ul style="list-style-type: none"> • suitability for purpose • efficiency • energy performance.
(d) Health and safety	<p>Learners should be aware that post-occupancy evaluations include consideration of health and safety issues related to the occupancy/use of the building or asset, such as:</p> <ul style="list-style-type: none"> • the provision of safety features/equipment • the function of the building/asset • risks associated with the use of the building/asset • compliance with relevant legislation

Content	Amplification
(e) Comfort	<p>Learners should be aware that post-occupancy evaluations include consideration of comfort, taking account of:</p> <ul style="list-style-type: none"> ● personal factors of occupants such as: <ul style="list-style-type: none"> ● age ● gender ● activities undertaken ● health and well-being ● thermal comfort ● air quality ● visual comfort ● ergonomics.
(f) and the ways in which post-occupancy evaluations can be used to correct mistakes, inform decision-making and provide benchmarks for further evaluations.	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> ● if a built environment does not perform as planned, there can be impacts on client/occupant satisfaction, productivity, efficiency, health and safety and comfort ● post-occupancy evaluations provide an important way of gaining feedback on the built environment's performance in use by: <ul style="list-style-type: none"> ● identifying immediate problems which need to be resolved ● identifying any gaps in communication which impact on the building operation ● providing lessons that can be learned to improve the design and construction of future projects ● acting as a benchmarking aid to compare across projects and over time.

2.3.5 Building maintenance and repair

In this section learners will gain knowledge and understanding of:

- the processes involved in: identifying and carrying out maintenance and repairs of buildings
- the impact on users of carrying out these repairs.

Content	Amplification
(a) The processes involved in identifying and carrying out maintenance and repairs of buildings	<p>Learners should understand that:</p> <ul style="list-style-type: none"> • appropriate maintenance ensures that buildings do not deteriorate visually and continue to operate efficiently • maintenance is most effective when organised through a cyclical programme • maintenance can be: <ul style="list-style-type: none"> • planned • preventative • corrective • maintenance and repair may involve: <ul style="list-style-type: none"> • painting • landscaping and gardening • building services maintenance • window and door repairs • gutter clearance and repair • carpentry • carpeting and flooring cleaning and repair.
(b) The impact on users of carrying out these repairs.	<p>Learners should be aware of the maintenance and repair impacts on users in terms of:</p> <ul style="list-style-type: none"> • cost • inconvenience • productivity • health and well-being.

2.3.6 Change of use

In this section learners will gain knowledge and understanding of:

- the processes involved in refurbishing, recycling and re-using building stock and assets in their local environment
- the impact of these actions on individuals and/or communities
- the requirement to ensure that changes of use processes do not negatively impact pre-existing safety features.

Content	Amplification
<p>(a) The processes involved in refurbishing, recycling and re-using building stock and assets in their local environment.</p>	<p>Learners should be aware of the following in relation to refurbishing, recycling and re-use of building stock and assets:</p> <ul style="list-style-type: none"> • refurbishing involves: <ul style="list-style-type: none"> • assessing current condition • preventing further decay • ensuring structural stability • demolition • first fix • plastering • second fix • decorating • snagging • recycling involves the salvage of materials that can be recycled, including: <ul style="list-style-type: none"> • metals • wood • vegetation and topsoil • re-use covers: <ul style="list-style-type: none"> • re-use of a building for a different purpose, for example, converting an historic industrial building into residential accommodation • salvage of materials and components that can be re-used, including: <ul style="list-style-type: none"> • appliances • plumbing fixtures • cabinets and stairs • doors and windows • wood • bricks • electrical fittings • roof tiles.
<p>(b) The impact of these actions on individuals and/or communities</p>	<p>Learners should be aware of the potential impact of refurbishing, recycling and re-use on individuals and/or communities:</p> <ul style="list-style-type: none"> • refurbishment and re-use of buildings can help to retain the character/heritage of a built environment. • recycling of materials reduces: waste and demand for new resources. • The re-use of building materials and components: <ul style="list-style-type: none"> • reduces waste • reduces demand for new resources • makes more affordable building materials and components available to the community.

Content	Amplification
(c) The requirement to ensure that changes of use processes do not negatively impact pre-existing safety features	<p>Learners should be aware of:</p> <ul style="list-style-type: none"> the requirement for planning permission/adherence to building regulations for significant changes of use to a building. the importance of ensuring that the change of use does not negatively impact on: <ul style="list-style-type: none"> stability of the structure, e.g. by demolishing an internal wall the safety of occupants, e.g. fire safety and evacuation in a residential house converted to multiple occupation/self-contained flats.

2.3.7 Changing practices

In this section learners will gain knowledge and understanding of the changes in designing and construction processes in their built environment, including:

- contemporary buildings
- pre-1919 buildings.

Content	Amplification
(a) Contemporary buildings	<p>Learners should be aware:</p> <ul style="list-style-type: none"> of the design and construction of contemporary buildings, considering the materials used and their properties, including: <ul style="list-style-type: none"> concrete steel glass wood thermal insulation materials that contemporary buildings may include heritage materials, structure and processes if specified by the client.
(b) Pre-1919 buildings	<p>Learners should be aware of the design and construction of heritage buildings, considering the traditional materials used and their properties, including:</p> <ul style="list-style-type: none"> wood brick and stone slate, tile and thatch lead lime mortar and lime plaster architectural metalwork (casting) blacksmith metalwork (wrought iron).

3 ASSESSMENT

3.1 Assessment objectives and weightings

Below are the assessment objectives for this specification. Learners must:

AO1

Demonstrate knowledge and understanding of the roles, sectors, concepts and processes within the built environment using relevant terminology.

AO2

Apply skills, knowledge and understanding of the built environment in a range of contexts.

AO3

Analyse and evaluate evidence, make reasoned judgements and present conclusions in relation to:

- learners' own products/outcomes
- the built environment and its impact on people, the economy and the natural environment.

The table below shows the weighting of each assessment objective for each unit and for the qualification as a whole.

	AO1	AO2	AO3	Total
Unit 1	25%	5%	5%	35%
Unit 2	5%	30%	5%	40%
Unit 3	10%	5%	10%	25%
Overall weighting	40%	40%	20%	100%

3.2 Arrangements for non-examination assessment

Unit 2 and Unit 3 are non-exam assessments (NEA) which are internally assessed by the centre and externally moderated by WJEC. The NEA must be conducted in accordance with the JCQ *Instructions for Conducting Non-examination Assessments*, available at www.jcq.org.uk.

Tasks

The tasks for assessment within Unit 2 and Unit 3 are presented in Appendix B of this specification. They will remain the same for the lifetime of this specification, to allow scope for learners to focus on an area of particular interest and/or the built environment local to them. WJEC will publish suggested contexts for each of Unit 2 Pathway A and Unit 2 Pathway B within Appendix B of the specification, and refresh both every two examinations series. Learners will have the option of using these contexts, modifying them, or devising a context of their own.

Preparation for NEA

NEA tasks may be completed and assessed at any suitable time during the course. However, centres need to ensure they have delivered the content needed for candidates to be able to access marks allocated to all aspects of the relevant NEA.

Before the course starts, the teacher is responsible for informing candidates of WJEC's regulations concerning malpractice. Candidates must not take part in any unfair practice in the preparation of work for GCSE Built Environment.

Candidates must understand that information from published sources must be referenced. They should be given guidance on setting out references and be aware that they must not plagiarise other material. They should know that to present material copied directly from books or other sources without acknowledgement will be regarded as deliberate deception. Centres must report suspected malpractice to WJEC.

It is important that NEA activity is monitored by centres to ensure that candidates' work is their own. All candidates are required to sign that the work submitted is their own and teachers are required to confirm that the work is solely that of the candidate concerned and was conducted under the required conditions.

Candidates must not work together on either of their NEA tasks.

Time available for NEA

Learners should spend approximately 25 hours on their NEA task for Unit 2 and approximately 15 hours on their NEA task for Unit 3. These times refer to work completed under direct supervision in the classroom.

Investigative work may be undertaken outside the supervised time and should not be logged as counting towards the times noted above. However, all work other than investigation must be completed under direct supervision and does count towards the times noted above.

The NEA tasks do not have a required or recommended length in words or pages.

Supervision and Monitoring of NEA

- Once the NEA is underway, candidates' work should remain within the centre at all times, and be stored securely between timetabled sessions to mitigate the risks of malpractice taking place.
- Candidates **do not** need to be directly supervised at all times.
- During their NEA, the use of resources, including the internet, is not tightly prescribed and candidates may have access to such resources. However, the centre **must** ensure that:
 - there is sufficient supervision of every candidate to enable work to be authenticated
 - the work that an individual candidate submits for assessment is their own.
- Investigative work may be completed outside of the centre without direct supervision, provided that the centre is confident that the work produced is the candidate's own. Outside of the centre, candidates may:
 - have unlimited access to electronic and printed resources
 - use the internet without restriction.
- Teachers may provide guidance and support to candidates to ensure that they have a clear understanding of the requirements of the NEA tasks, the assessment and the associated marking criteria.
- Teachers may advise candidates on the suitability of the context chosen for their NEA work, with regard to the opportunity for the resulting work to address all relevant assessment requirements. This is particularly important if learners choose to devise their own context for Unit 2 NEA. Once work is underway, feedback must be limited to general advice on what needs to be improved. Teachers must not provide specific guidance on how to make these improvements.
- 'General advice' in the context of GCSE Built Environment NEA includes:
 - ensuring that candidates understand the requirements of the relevant task, including the required outcome and the time available
 - ensuring that candidates' routes through the NEA have the potential to meet the requirements of the marking criteria and be of sufficient demand to achieve marks from the highest bands
 - providing guidance on the safe use of tools and materials, and the ICT hardware and software available to candidates undertaking NEA activities.
- Within the context of 'general advice' teachers are **not allowed** to:
 - give a candidate detailed advice and take the lead through the NEA process
 - specify the context for the NEA activity, it must be the candidate's own decision
 - correct or modify a candidate's work
 - give specific direction to a candidate in order to achieve higher marks
 - produce any form of writing frame for use within NEA activities.
- Candidates are allowed access to resources which may include information gathered outside of school/college, e.g. as part of their investigation or research activities.
- During the time candidates are working on their NEA, teachers must monitor progress sufficiently to be able to authenticate the work as the candidate's own (see also the information on authentication below).
- Once the task is finished and the final assessment made, no further amendments may be made.

The time spent working on each NEA task should be recorded by the teacher as a log and this may be requested by WJEC in addition to the work submitted for moderation. The log should be monitored by the centre to ensure that candidates spend approximately 25 hours and 15 hours on their relevant NEA tasks for Unit 2 and Unit 3 respectively.

Authentication

It is important that NEA work is rigorously monitored by centres to ensure that candidates' work is their own. Centres should monitor candidates' work by:

- keeping a careful record of progress during the timetabled sessions
- carefully considering whether the written evidence submitted is characteristic of the candidates' ability/attainment
- keeping work secure in the centre once the evidence is handed in
- ensuring work is not returned to the candidate to make changes.

References

References to sources of information used in NEA tasks must be acknowledged. This can be through an appended bibliography using a conventional in-text referencing system, or through footnotes.

Evidence to be submitted

Centres must assure WJEC that the evidence submitted is the work of the candidates concerned. Other than investigation activities, all work must be undertaken under direct supervision.

The teacher responsible for the supervision of the candidate's work must complete a declaration that she/he is satisfied that the evidence submitted is that of the candidate concerned.

Unit 2 Pathway A/Pathway B

A task completed by the candidate, a mark sheet completed by the assessor, signed declarations of authentication (by the teacher and the candidate) submitted to the moderator.

Unit 3

A case study completed by the candidate, a mark sheet completed by the assessor, signed declarations of authentication (by the teacher and the candidate) submitted to the moderator.

Where appropriate, an explanation why learners have investigated buildings or structures which are not based in their local environment.

NEA coversheets must be completed for all candidates, not just those selected for moderation. The forms can be downloaded from WJEC's secure website.

Security of candidates' work

Candidates' work **must** be kept securely between timetabled NEA sessions, and until the deadline for a review of moderation has passed or until a review of moderation or appeal or malpractice investigation has been completed, whichever is the later.

Assessment criteria for Unit 2 Pathway A, Unit 2 Pathway B and Unit 3

The assessment criteria for Unit 2 Pathway A, Unit 2 Pathway B and Unit 3 are summarised in the tables below and shown in detail in Appendix A.

Unit 2 Pathway A

Assessment Criteria		Assessment objective	Marks
(a)	identifying and calculating information	AO2	10
(b)	writing and setting success criteria	AO1	10
(c)	drawing plans and elevations	AO2	20
(d)	drawing two-dimensional plans and three-dimensional virtual models and plans	AO2	20
(e)	using the language of drafting	AO2	10
(f)	evaluating the design task	AO3	10
			Total 80

Unit 2 Pathway B

Assessment Criteria		Assessment objective	Marks
(a)	interpreting technical sources of information identifying resource requirements calculating materials required	AO2	20
(b)	writing and setting success criteria	AO1	10
(c)	planning and organising work working practices that promote health and safety	AO2	10
(d)	preparing for construction tasks removing and disposing of materials	AO2	10
(e)	carrying out techniques	AO2	20
(f)	evaluating the construction tasks	AO3	10
			Total 80

Unit 3

Assessment Criteria		Assessment objective	Marks
(a)	planning and design stages of buildings and structures construction processes	AO1	10
(b)	well-being of communities	AO3	10
(c)	post-occupancy evaluations	AO3	10
(d)	building maintenance and repair change of use	AO2	10
(e)	changing practices	AO1	10
			Total 50

4 TECHNICAL INFORMATION

4.1 Making entries

This is a unitised qualification which allows for an element of staged assessment. A minimum of 40% of the overall assessment must be taken at the end of the course to satisfy the requirement for terminal assessment and the results from the terminal assessment must contribute to the subject award. Centres may determine which unit(s) are used to meet this rule. Alternatively, all units may be taken at the end of the course.

Assessment opportunities will be available in May/June each year, until the end of the life of this specification.

Summer 2022 will be the first assessment opportunity for Unit 1. Summer 2023 will be the first assessment opportunity for units 2 and 3, and the first award of the qualification.

Candidates may resit an individual unit once only. The better uniform mark score from the two attempts will be used in calculating the final overall qualification grade(s) subject to terminal assessment requirements being satisfied first; i.e. that candidates must complete 40% of the overall assessment in the series in which they are cashing in. If the assessment being re-taken contributes to the 40% terminal assessment requirement, the mark for the new assessment will count.

A qualification may be taken more than once. However, if any unit has been attempted twice and a candidate wishes to enter the unit for the third time, the candidate will have to re-enter all units and the appropriate cash-in(s). This is referred to as a 'fresh start'. When retaking a qualification (fresh start), a candidate may have up to two attempts at each unit. However, no results from units taken prior to the fresh start can be used in aggregating the new grade(s).

Marks for either or both of the NEA units may be carried forward for the life of this specification.

If a candidate has been entered for but is absent for a unit, the absence does not count as an attempt. The candidate would, however, qualify as a resit candidate.

The entry codes appear overleaf.

	Title	Entry codes	
		English-medium	Welsh-medium
Unit 1	Introduction to the Built Environment	3509U1	3509N1
Unit 2	Creating the Built Environment (Designing the Built Environment)	3509UA	3509NA
Unit 2	Creating the Built Environment (Constructing the Built Environment)	3509UB	3509NB
Unit 3	Exploring the Built Environment	3509U3	3509N3
GCSE Built Environment cash-in		3509QS	3509CS

The current edition of our *Entry Procedures and Coding Information* gives up-to-date entry procedures.

4.2 Grading, awarding and reporting

GCSE qualifications are reported on an eight-point scale from A*-G, where A* is the highest grade. Results not attaining the minimum standard for the award will be reported as U (unclassified).

Individual unit results are reported on a uniform mark scale (UMS) with the following grade equivalences:

	MAX.	A*	A	B	C	D	E	F	G
Unit 1	140	126	112	98	84	70	56	42	28
Unit 2	160	144	128	112	96	80	64	48	32
Unit 3	100	90	80	70	60	50	40	30	20
Subject Award	400	360	320	280	240	200	160	120	80

Appendix A

Marking Grids for Unit 2 Pathway A

(a) identifying and calculating information (2.2.1a)		[10 marks]
Band	AO2: <i>Apply skills, knowledge and understanding of the built environment in a range of contexts.</i>	
	9-10 marks	
4	<ul style="list-style-type: none"> ● Thorough and effective identification of information relevant to the design task. ● Excellent application of knowledge and understanding to accurately calculate all relevant information required for the design task. ● Excellent use of a range of appropriate techniques to develop high-level design requirements for the design task in question. 	
	6-8 marks	
3	<ul style="list-style-type: none"> ● Effective identification of information relevant to the design task. ● Good application of knowledge and understanding to accurately calculate relevant information required for the design task. ● Good use of appropriate techniques to develop high-level design requirements for the design task in question. 	
	3-5 marks	
2	<ul style="list-style-type: none"> ● Basic identification of information relevant to the design task. ● Basic application of knowledge and understanding to calculate information required for the design task. ● Basic use of techniques to develop some high-level design requirements for the design task in question. 	
	1-2 marks	
1	<ul style="list-style-type: none"> ● Limited identification of information relevant to the design task. ● Limited application of knowledge and understanding to calculate information. ● Limited use of techniques to develop any high-level design requirements for the design task in question. 	
	0 marks	
	Not credit worthy or not attempted.	

(b) writing and setting success criteria (2.2.2a)		[10 marks]
Band	AO1: <i>Demonstrate knowledge and understanding of the roles, sectors, concepts and processes within the built environment using relevant terminology.</i>	
4	<p style="text-align: center;">9-10 marks</p> <ul style="list-style-type: none"> ● Excellent knowledge and understanding of how to set and write success criteria. ● Clear and detailed consideration of issues related to levels of tolerance, timescales and quality. ● A detailed, relevant set of success criteria, including a range of objective and measurable criteria to clearly inform evaluation. 	
3	<p style="text-align: center;">6-8 marks</p> <ul style="list-style-type: none"> ● Good knowledge and understanding of how to set and write success criteria. ● Appropriate consideration of issues related to levels of tolerance, timescales and quality. ● A relevant set of success criteria, including a range of objective criteria to inform evaluation. 	
2	<p style="text-align: center;">3-5 marks</p> <ul style="list-style-type: none"> ● Basic knowledge and understanding of how to set and write success criteria. ● Some consideration of issues related to levels of tolerance, timescales and/or quality. ● A set of success criteria, including some objective criteria to inform evaluation. 	
1	<p style="text-align: center;">1-2 marks</p> <ul style="list-style-type: none"> ● Limited knowledge and understanding of how to set and write success criteria. ● Little consideration of issues related to levels of tolerance, timescales or quality. ● A limited set of success criteria, including some points which could be used in evaluation. 	
	<p style="text-align: center;">0 marks</p> <p style="text-align: center;">Not credit worthy or not attempted.</p>	

(c) drawing plans and elevations (2.2.3a & 2.2.4a)		[20 marks]
Band	AO2: Apply skills, knowledge and understanding of the built environment in a range of contexts.	
5	<p style="text-align: center;">17-20 marks</p> <ul style="list-style-type: none"> ● Excellent application of knowledge and understanding and sophisticated use of a range of skills to accurately produce: <ul style="list-style-type: none"> ● a broad range of clear plans and cross-sections, drawn to appropriate scales ● two-dimensional representations of internal and external wall and roof surfaces, illustrating clearly a broad range of appropriate features and fittings relevant to the design task. 	
4	<p style="text-align: center;">13-16 marks</p> <ul style="list-style-type: none"> ● Good application of knowledge and understanding and good use of a range of skills to accurately produce: <ul style="list-style-type: none"> ● a range of plans and cross-sections, drawn to appropriate scales ● two-dimensional representations of internal and external wall and roof surfaces, illustrating a range of appropriate features and fittings relevant to the design task. 	
3	<p style="text-align: center;">9-12 marks</p> <ul style="list-style-type: none"> ● Satisfactory application of knowledge and understanding and appropriate use of a small range of skills to produce: <ul style="list-style-type: none"> ● a small range of plans and cross-sections, drawn to scale ● two-dimensional representations of internal and external wall and roof surfaces, illustrating features and fittings relevant to the design task. 	
2	<p style="text-align: center;">5-8 marks</p> <ul style="list-style-type: none"> ● Basic application of knowledge and understanding and appropriate use of straightforward skills to produce: <ul style="list-style-type: none"> ● plans and cross-sections, drawn to scale ● two-dimensional representations of wall and roof surfaces, illustrating features and/or fittings relevant to the design task. 	
1	<p style="text-align: center;">1-4 marks</p> <ul style="list-style-type: none"> ● Limited application of knowledge and understanding and limited skills used to produce: <ul style="list-style-type: none"> ● plans and/or cross-sections ● two-dimensional representations of wall and roof surfaces. 	
	<p style="text-align: center;">0 marks</p> <p style="text-align: center;">Not credit worthy or not attempted.</p>	

(d) drawing two-dimensional plans and three-dimensional virtual models and plans (2.2.6a & 2.2.7a) [20 marks]	
Band	AO2: <i>Apply skills, knowledge and understanding of the built environment in a range of contexts.</i>
	17-20 marks
5	<ul style="list-style-type: none"> ● Excellent application of knowledge and understanding of two-dimensional and three-dimensional conventions and requirements to: <ul style="list-style-type: none"> ● develop plans, refine concepts and produce technical drawings ● apply scenes, backgrounds and surroundings, enhancing proposals in appropriate ways. ● Sophisticated use of a broad range of skills and techniques to clearly communicate ideas and proposals to a third party.
	13-16 marks
4	<ul style="list-style-type: none"> ● Good application of knowledge and understanding of two-dimensional and three-dimensional conventions and requirements to: <ul style="list-style-type: none"> ● develop plans, refine concepts and produce technical drawings ● apply scenes, backgrounds and surroundings, enhancing proposals in appropriate ways. ● Good use of a range of skills and techniques to communicate ideas and proposals to a third party.
	9-12 marks
3	<ul style="list-style-type: none"> ● Satisfactory application of knowledge and understanding of two-dimensional and three-dimensional conventions and requirements to: <ul style="list-style-type: none"> ● develop plans, refine concepts and produce technical drawings ● apply scenes, backgrounds and surroundings. ● Satisfactory use of a small range of skills and techniques to communicate ideas and proposals to a third party.
	5-8 marks
2	<ul style="list-style-type: none"> ● Basic application of knowledge and understanding of two-dimensional and three-dimensional conventions and requirements to: <ul style="list-style-type: none"> ● develop plans, refine concepts and produce technical drawings ● apply scenes, backgrounds and/or surroundings. ● Basic use of skills and techniques to communicate ideas and proposals to a third party.
	1-4 marks
1	<ul style="list-style-type: none"> ● Limited application of knowledge and understanding of two-dimensional or three-dimensional conventions and requirements to: <ul style="list-style-type: none"> ● develop plans, refine concepts or produce technical drawings ● apply scenes, backgrounds or surroundings. ● Limited evidence of ability to communicate ideas to a third party.
	0 marks
	Not credit worthy or not attempted.

(e) using the language of drafting (2.2.5a)		[10 marks]
Band	AO2: Apply skills, knowledge and understanding of the built environment in a range of contexts.	
	9-10 marks	
4	<ul style="list-style-type: none"> • Excellent application of knowledge and understanding of relevant British Standards, conventions for annotation, lines and hatching, and symbols to clearly and accurately represent ideas and proposals. • Sophisticated use of a broad range of skills and techniques to communicate comprehensive and relevant details of components, features, materials, dimensions and finishes. 	
	6-8 marks	
3	<ul style="list-style-type: none"> • Good application of knowledge and understanding of relevant British Standards, conventions for annotation, lines and hatching, and symbols to represent ideas and proposals. • Good use of a range of skills and techniques to communicate relevant details of components, features, materials, dimensions and finishes. 	
	3-5 marks	
2	<ul style="list-style-type: none"> • Basic application of knowledge and understanding of relevant British Standards, conventions for annotation, lines and hatching, and/or symbols to represent ideas and proposals. • Basic use of skills and techniques to communicate details of components, features, materials, dimensions or finishes. 	
	1-2 marks	
1	<ul style="list-style-type: none"> • Limited application of knowledge and understanding of relevant British Standards, conventions or symbols. • Limited use of skills or techniques to communicate details of designs. 	
	0 marks	
	Not credit worthy or not attempted.	

(f) evaluating the design task (2.2.8a)		[10 marks]
Band	AO3: <i>Analyse and evaluate evidence, make reasoned judgements and present conclusions in relation to:</i> <ul style="list-style-type: none"> ● <i>learners' own products/outcomes</i> ● <i>the built environment and its impact on people, the economy and the natural environment.</i> 	
4	9-10 marks	
	<ul style="list-style-type: none"> ● A critical and objective analysis and evaluation of outcomes against: <ul style="list-style-type: none"> ● the requirements of the brief ● personally-set success criteria ● the needs of end users including their safety. ● Clear identification of the potential for a range of further improvements, with suggestions for how these may be made. 	
3	6-8 marks	
	<ul style="list-style-type: none"> ● A generally objective analysis and evaluation of outcomes against: <ul style="list-style-type: none"> ● the requirements of the brief ● personally-set success criteria ● the needs of end users including their safety. ● Identification of the potential for a small range of further improvements, with some suggestions for how these may be made. 	
2	3-5 marks	
	<ul style="list-style-type: none"> ● Some analysis and evaluation of outcomes against: <ul style="list-style-type: none"> ● the requirements of the brief ● personally-set success criteria ● the needs of end users. ● An outline of some further improvements which could be made. 	
1	1-2 marks	
	<ul style="list-style-type: none"> ● A limited evaluation of outcomes against: <ul style="list-style-type: none"> ● the requirements of the brief ● personally-set success criteria ● the needs of end users. ● Little or no evidence of considering improvements. 	
	0 marks	
	Not credit worthy or not attempted.	

Mapping of NEA Unit 2 Pathway A to specification content and assessment objectives

Assessment criteria	Specification content (main focus)								Mark allocation			
	Section								Total Marks	AO1 Marks	AO2 Marks	AO3 Marks
	2.2.1a	2.2.2a	2.2.3a	2.2.4a	2.2.5a	2.2.6a	2.2.7a	2.2.8a				
(a)	✓								10	0	10	0
(b)		✓							10	10	0	0
(c)			✓	✓					20	0	20	0
(d)						✓	✓		20	0	20	0
(e)					✓				10	0	10	0
(f)								✓	10	0	0	10
	Total marks								80	10	60	10

Marking Grids for Unit 2 Pathway B

(a) interpreting technical sources of information identifying resource requirements calculating materials required (2.2.1b, 2.2.3b & 2.2.4b) [20 marks]	
Band	AO2: <i>Apply skills, knowledge and understanding of the built environment in a range of contexts.</i>
5	<p style="text-align: center;">17-20 marks</p> <ul style="list-style-type: none"> Thorough and effective interpretation of technical sources of information relevant to the construction task, such as: specifications, building regulations, drawings and design briefs, as appropriate. Clear and detailed identification of a comprehensive range of tools, equipment, PPE and materials required for the construction task. Excellent application of knowledge and understanding to accurately calculate all relevant materials required for the construction task.
4	<p style="text-align: center;">13-16 marks</p> <ul style="list-style-type: none"> Effective interpretation of technical sources of information relevant to the construction task, such as: specifications, building regulations, drawings and design briefs, as appropriate. Clear identification of a range of tools, equipment, PPE and materials required for the construction task. Good application of knowledge and understanding to accurately calculate relevant materials required for the construction task.
3	<p style="text-align: center;">9-12 marks</p> <ul style="list-style-type: none"> Satisfactory interpretation of technical sources of information relevant to the construction task, such as: specifications, building regulations, drawings, and/or design briefs, as appropriate. Generally appropriate identification of some tools, equipment, PPE and materials required for the construction task. Satisfactory application of knowledge and understanding to calculate relevant materials required for the construction task.
2	<p style="text-align: center;">5-8 marks</p> <ul style="list-style-type: none"> Basic interpretation of some technical sources of information relevant to the construction task, such as: specifications, building regulations, drawings or design briefs, as appropriate. Basic identification of tools, equipment, PPE and/or materials required for the construction task. Basic application of knowledge and understanding to calculate materials required for the construction task.
1	<p style="text-align: center;">1-4 marks</p> <ul style="list-style-type: none"> Limited interpretation of sources of information relevant to the construction task. Little identification of any resources required for the construction task. Limited application of knowledge and understanding to calculate materials relevant to the construction task.
	<p>0 marks</p> <p>Not credit worthy or not attempted.</p>

(b) writing and setting success criteria (2.2.5b)		[10 marks]
Band	AO1: <i>Demonstrate knowledge and understanding of the roles, sectors, concepts and processes within the built environment using relevant terminology.</i>	
4	<p style="text-align: center;">9-10 marks</p> <ul style="list-style-type: none"> ● Excellent knowledge and understanding of how to set and write success criteria. ● Clear and detailed consideration of issues related to levels of tolerance, timescales and quality. ● A detailed, relevant set of success criteria, including a range of objective and measurable criteria to clearly inform evaluation. 	
3	<p style="text-align: center;">6-8 marks</p> <ul style="list-style-type: none"> ● Good knowledge and understanding of how to set and write success criteria. ● Appropriate consideration of issues related to levels of tolerance, timescales and quality. ● A relevant set of success criteria, including a range of objective criteria to inform evaluation. 	
2	<p style="text-align: center;">3-5 marks</p> <ul style="list-style-type: none"> ● Basic knowledge and understanding of how to set and write success criteria. ● Some consideration of issues related to levels of tolerance, timescales and/or quality. ● A set of success criteria, including some objective criteria to inform evaluation. 	
1	<p style="text-align: center;">1-2 marks</p> <ul style="list-style-type: none"> ● Limited knowledge and understanding of how to set and write success criteria. ● Little consideration of issues related to levels of tolerance, timescales or quality. ● A limited set of success criteria, including some points which could be used in evaluation. 	
	<p style="text-align: center;">0 marks</p> <p style="text-align: center;">Not credit worthy or not attempted.</p>	

(c) planning and organising work working practices that promote health and safety (2.2.2b & 2.2.9b) [10 marks]	
Band	AO2: <i>Apply skills, knowledge and understanding of the built environment in a range of contexts.</i>
	9-10 marks
4	<ul style="list-style-type: none"> • Very good evidence of planning and organising work, including how work is sequenced, planned and meets appropriate deadlines and relevant health and safety practices. • Clear and effective communication of a logical, efficient sequence and achievable timeline for the construction task, in two selected trade areas. • Very good evidence of adopting working practices which promote learners' health and safety, and that of others, including cleanliness and safety of work areas, and appropriate use of correct PPE.
	6-8 marks
3	<ul style="list-style-type: none"> • Good evidence of planning and organising work, including how work is sequenced, planned and meets deadlines and relevant health and safety practices. • Clear communication of a generally appropriate sequence and timeline for the construction task, in two selected trade areas. • Good evidence of adopting working practices which promote learners' health and safety, and that of others, including cleanliness and safety of work areas, and appropriate use of correct PPE.
	3-5 marks
2	<ul style="list-style-type: none"> • Some evidence of planning and organising work, including how work is sequenced, planned and generally meets deadlines and/or health and safety practices. • Communication of a basic sequence and/or timeline for the construction task, in two selected trade areas. • Some evidence of adopting working practices which promote health and safety, including cleanliness and safety of work areas, and/or appropriate use of correct PPE.
	1-2 marks
1	<ul style="list-style-type: none"> • Little evidence of planning or organising work, of how it is sequenced, planned or meets deadlines or health and safety practices. • Communication of a superficial sequence and/or timeline for the construction task. • Little evidence of adopting working practices which promote health and safety or appropriate use of PPE.
	0 marks
	Not credit worthy or not attempted.

(d) preparing for construction tasks removing and disposing of materials (2.2.6b & 2.2.8b)		[10 marks]
Band	AO2: <i>Apply skills, knowledge and understanding of the built environment in a range of contexts.</i>	
4	<p style="text-align: center;">9-10 marks</p> <ul style="list-style-type: none"> • Thorough and effective preparation of materials, demonstrating very good application of knowledge and understanding of: <ul style="list-style-type: none"> • the properties of materials • the stock forms, types and sizes of materials and/or components. • Very good evidence of: <ul style="list-style-type: none"> • selecting, organising and thoroughly checking appropriate materials • measuring, marking out, cutting and setting out, with a high level of accuracy, as appropriate to the materials and construction task • minimising waste and disposing of materials safely and responsibly. 	
3	<p style="text-align: center;">6-8 marks</p> <ul style="list-style-type: none"> • Effective preparation of materials, demonstrating good application of knowledge and understanding of: <ul style="list-style-type: none"> • the properties of materials • the stock forms, types and sizes of materials and/or components. • Good evidence of: <ul style="list-style-type: none"> • selecting, organising and checking materials • measuring, marking out, cutting and setting out, with accuracy, as appropriate to the materials and construction task • minimising waste and disposing of materials safely and responsibly. 	
2	<p style="text-align: center;">3-5 marks</p> <ul style="list-style-type: none"> • Basic preparation of materials, demonstrating some application of knowledge and understanding of: <ul style="list-style-type: none"> • the properties of materials • the stock forms, types and sizes of materials and/or components. • Some evidence of: <ul style="list-style-type: none"> • selecting and/or organising materials • measuring, marking out, cutting and/or setting out, generally with accuracy, as appropriate to the materials and construction task • minimising waste and disposing of materials safely. 	
1	<p style="text-align: center;">1-2 marks</p> <ul style="list-style-type: none"> • Limited preparation of materials, and limited application of knowledge and understanding of: <ul style="list-style-type: none"> • the properties of materials • the stock forms, types and/or sizes of materials and/or components. • Limited evidence of: <ul style="list-style-type: none"> • selecting or organising materials • measuring, marking out, cutting or setting out with any accuracy • disposing of materials safely. 	
	<p style="text-align: center;">0 marks</p> <p style="text-align: center;">Not credit worthy or not attempted.</p>	

(e) carrying out techniques (2.2.7b)		[20 marks]
Band	AO2: <i>Apply skills, knowledge and understanding of the built environment in a range of contexts.</i>	
	17-20 marks	
5	<ul style="list-style-type: none"> ● Selected and worked with appropriate materials to successfully complete the construction task to a defined schedule. ● Evidence of using tools, techniques, processes and equipment with a high level of accuracy and precision. ● Sophisticated use of a broad range of appropriate making skills and processes to produce a high quality outcome that is fit for purpose. 	
	13-16 marks	
4	<ul style="list-style-type: none"> ● Selected and worked with appropriate materials to successfully complete the construction task, generally to a defined schedule. ● Evidence of using tools, techniques, processes and equipment with accuracy and precision. ● Good use of a range of appropriate making skills and processes to produce a good quality outcome that is fit for purpose. 	
	9-12 marks	
3	<ul style="list-style-type: none"> ● Selected and worked with materials to complete the construction task, broadly to schedule. ● Evidence of using tools, techniques, processes and equipment, generally with accuracy and satisfactory precision. ● Satisfactory use of a small range of appropriate making skills and processes to produce an outcome that is generally fit for purpose. 	
	5-8 marks	
2	<ul style="list-style-type: none"> ● Selected and worked with materials to generally complete the construction task. ● Evidence of using tools, techniques, processes and equipment with some accuracy. ● Basic use of a small range of appropriate making skills and processes to produce a generally complete outcome. 	
	1-4 marks	
1	<ul style="list-style-type: none"> ● Worked with materials to partly complete the construction task. ● Limited evidence of using tools, techniques, processes and equipment with any accuracy. ● Limited use of some making skills and processes to produce a partially complete outcome. 	
	0 marks	
	Not credit worthy or not attempted.	

(f) evaluating the construction tasks (2.2.10b)		[10 marks]
Band	AO3: <i>Analyse and evaluate evidence, make reasoned judgements and present conclusions in relation to:</i> <ul style="list-style-type: none"> learners' own products/outcomes the built environment and its impact on people, the economy and the natural environment. 	
4	<p style="text-align: center;">9-10 marks</p> <ul style="list-style-type: none"> A critical and objective analysis and evaluation of outcomes against: <ul style="list-style-type: none"> the requirements of the brief personally-set success criteria the needs of end users including their safety. Clear identification of the potential for a range of further improvements, with suggestions for how these may be made. 	
3	<p style="text-align: center;">6-8 marks</p> <ul style="list-style-type: none"> A generally objective analysis and evaluation of outcomes against: <ul style="list-style-type: none"> the requirements of the brief personally-set success criteria the needs of end users including their safety. Identification of the potential for a small range of further improvements, with some suggestions for how these may be made. 	
2	<p style="text-align: center;">3-5 marks</p> <ul style="list-style-type: none"> Some analysis and evaluation of outcomes against: <ul style="list-style-type: none"> the requirements of the brief personally-set success criteria the needs of end users. An outline of some further improvements which could be made. 	
1	<p style="text-align: center;">1-2 marks</p> <ul style="list-style-type: none"> A limited evaluation of outcomes against: <ul style="list-style-type: none"> the requirements of the brief personally-set success criteria, or the needs of end users. Little or no evidence of considering improvements. 	
	<p style="text-align: center;">0 marks</p> <p style="text-align: center;">Not credit worthy or not attempted.</p>	

Mapping of NEA Unit 2 Pathway B to specification content and assessment objectives

Assessment criteria	Specification content (main focus)										Mark allocation			
	Section										Total Marks	AO1 Marks	AO2 Marks	AO3 Marks
	2.2.1b	2.2.2b	2.2.3b	2.2.4b	2.2.5b	2.2.6b	2.2.7b	2.2.8b	2.2.9b	2.2.10b				
(a)	✓		✓	✓							20	0	20	0
(b)					✓						10	10	0	0
(c)		✓								✓	10	0	10	0
(d)						✓		✓			10	0	10	0
(e)							✓				20	0	20	0
(f)										✓	10	0	0	10
	Total marks										80	10	60	10

Marking Grids for Unit 3

(a) planning and design stages of buildings and structures construction processes (2.3.1 & 2.3.2)		[10 marks]
Band	AO1: <i>Demonstrate knowledge and understanding of the roles, sectors, concepts and processes within the built environment using relevant terminology.</i>	
	9-10 marks	
4	<ul style="list-style-type: none"> ● Excellent knowledge and understanding of: <ul style="list-style-type: none"> ● the planning and design stages of buildings and structures, including RIBA stages 0 to 4 ● construction, including RIBA stage 5. ● A well-selected range of appropriate examples which clearly illustrate how the candidate's built environment has been: <ul style="list-style-type: none"> ● planned and designed to meet given needs ● constructed to meet given needs. 	
	6-8 marks	
3	<ul style="list-style-type: none"> ● Good knowledge and understanding of: <ul style="list-style-type: none"> ● the planning and design stages of buildings and structures, including RIBA stages 0 to 4 ● construction, including RIBA stage 5. ● A range of appropriate examples which illustrate how the candidate's built environment has been: <ul style="list-style-type: none"> ● planned and designed to meet given needs ● constructed to meet given needs. 	
	3-5 marks	
2	<ul style="list-style-type: none"> ● Basic knowledge and understanding of: <ul style="list-style-type: none"> ● the planning and/or design stages of buildings and structures, including some aspects of RIBA stages 0 to 4 ● construction, including RIBA stage 5. ● Some examples which show in general terms how the candidate's built environment has been: <ul style="list-style-type: none"> ● planned and designed to meet given needs, and/or ● constructed to meet given needs. 	
	1-2 marks	
1	<ul style="list-style-type: none"> ● Limited knowledge and understanding of: <ul style="list-style-type: none"> ● the planning or design stages of buildings and structures ● construction. ● Some examples which show in general terms how the candidate's built environment has been planned, designed or constructed. 	
	0 marks	
	Not credit worthy or not attempted.	

(b) well-being of communities (2.3.3)		[10 marks]
Band	AO3: <i>Analyse and evaluate evidence, make reasoned judgements and present conclusions in relation to:</i> <ul style="list-style-type: none"> ● <i>learners' own products/outcomes</i> ● <i>the built environment and its impact on people, the economy and the natural environment.</i> 	
4	9-10 marks	
	<ul style="list-style-type: none"> ● A critical and objective analysis and evaluation of the social, economic, environmental and cultural impact of the candidate's built environment. ● Strong evidence of reasoned judgements and relevant conclusions about the effects of these factors on the well-being of communities. 	
3	6-8 marks	
	<ul style="list-style-type: none"> ● A generally objective analysis and evaluation of the social, economic, environmental and cultural impact of the candidate's built environment. ● Secure evidence of reasoned judgements and conclusions about the effects of these factors on the well-being of communities. 	
2	3-5 marks	
	<ul style="list-style-type: none"> ● Some analysis and evaluation of the social, economic, environmental and/or cultural impact of the candidate's built environment. ● Some evidence of judgements about the effects of these factors on the well-being of communities. 	
1	1-2 marks	
	<ul style="list-style-type: none"> ● Limited evaluation of the social, economic, environmental or cultural impact of the candidate's built environment. ● Little or no evidence of judgements about the effects of these factors on the well-being of communities. 	
	0 marks	
	Not credit worthy or not attempted.	

(c) post-occupancy evaluations (2.3.4)		[10 marks]
Band	AO3: <i>Analyse and evaluate evidence, make reasoned judgements and present conclusions in relation to:</i> <ul style="list-style-type: none"> ● <i>learners' own products/outcomes</i> ● <i>the built environment and its impact on people, the economy and the natural environment.</i> 	
4	9-10 marks	
	<ul style="list-style-type: none"> ● A critical and objective analysis and evaluation of a building or asset with regard to running costs, staff and client satisfaction, performance, health and safety and comfort. ● Strong evidence of reasoned judgements and relevant conclusions about the value of post-occupancy evaluations to identify existing issues and inform future work. 	
3	6-8 marks	
	<ul style="list-style-type: none"> ● A generally objective analysis and evaluation of a building or asset with regard to running costs, staff and client satisfaction, performance, health and safety and comfort. ● Secure evidence of reasoned judgements and conclusions about the value of post-occupancy evaluations to identify existing issues and inform future work. 	
2	3-5 marks	
	<ul style="list-style-type: none"> ● Some analysis and evaluation of a building or asset with regard to running costs, staff and client satisfaction, performance, health and safety and comfort. ● Some evidence of judgements about the value of post-occupancy evaluations to identify existing issues and/or inform future work. 	
1	1-2 marks	
	<ul style="list-style-type: none"> ● Limited evaluation of a building or asset with regard to running costs, staff and client satisfaction, performance, health and safety or comfort. ● Little or no evidence of judgements about the value of post-occupancy evaluations to identify existing issues or inform future work. 	
	0 marks	
	Not credit worthy or not attempted.	

(d) building maintenance and repair change of use (2.3.5 & 2.3.6)		[10 marks]
Band	AO2: Apply skills, knowledge and understanding of the built environment in a range of contexts.	
	9-10 marks	
4	<ul style="list-style-type: none"> ● Excellent application of knowledge and understanding to provide a clear and detailed explanation of: <ul style="list-style-type: none"> ● the processes involved in carrying out maintenance and repair of a selected building ● the potential impact on users of carrying out these repairs ● the processes involved in refurbishing, recycling and re-using identified buildings or assets for change of use or potential change of use. ● Sophisticated use of a broad range of skills and techniques to present findings in engaging and appropriate ways. 	
	6-8 marks	
3	<ul style="list-style-type: none"> ● Good application of knowledge and understanding to provide a clear explanation of: <ul style="list-style-type: none"> ● the processes involved in carrying out maintenance and repair of a selected building ● the potential impact on users of carrying out these repairs ● the processes involved in refurbishing, recycling and re-using identified buildings or assets for change of use or potential change of use. ● Good use of a range of ICT skills and techniques to present findings in appropriate ways. 	
	3-5 marks	
2	<ul style="list-style-type: none"> ● Basic application of knowledge and understanding to provide a straightforward explanation of: <ul style="list-style-type: none"> ● the processes involved in carrying out maintenance and/or repair of a selected building ● the potential impact on users of carrying out repairs ● the processes involved in refurbishing, recycling or re-using identified buildings or assets for change of use or potential change of use. ● Basic use of ICT skills and techniques to present findings in mainly appropriate ways. 	
	1-2 marks	
1	<ul style="list-style-type: none"> ● Limited application of knowledge and understanding to explain: <ul style="list-style-type: none"> ● the processes involved in carrying out maintenance or repair of buildings ● the potential impact of carrying out repairs ● the processes involved in any refurbishing, recycling or re-using buildings or assets for change of use or potential change of use. ● Limited use of ICT to present findings. 	
	0 marks	
	Not credit worthy or not attempted.	

(e) changing practices (2.3.7)		[10 marks]
Band	AO1: <i>Demonstrate knowledge and understanding of the roles, sectors, concepts and processes within the built environment using relevant terminology.</i>	
4	<p style="text-align: center;">9-10 marks</p> <ul style="list-style-type: none"> Excellent knowledge and understanding of practices in designing and constructing the built environment, with regard to contemporary buildings and pre-1919 buildings. A clear and detailed comparison of: <ul style="list-style-type: none"> the design and construction of contemporary buildings, including the materials used and relevant properties of those materials the design and construction of heritage buildings, including the traditional materials used and relevant properties of those materials. 	
3	<p style="text-align: center;">6-8 marks</p> <ul style="list-style-type: none"> Good knowledge and understanding of practices in designing and constructing the built environment, with regard to contemporary buildings and pre-1919 buildings. A sound comparison of: <ul style="list-style-type: none"> the design and construction of contemporary buildings, including the materials used and the properties of those materials the design and construction of heritage buildings, including the traditional materials used and the properties of those materials. 	
2	<p style="text-align: center;">3-5 marks</p> <ul style="list-style-type: none"> Basic knowledge and understanding of practices in designing and constructing the built environment, with some reference to contemporary buildings and/or pre-1919 buildings. A straightforward comparison of: <ul style="list-style-type: none"> the design and construction of contemporary buildings, including the materials used and some properties of those materials the design and construction of heritage buildings, including the traditional materials used and some properties of those materials. 	
1	<p style="text-align: center;">1-2 marks</p> <ul style="list-style-type: none"> Limited knowledge and understanding of practices in designing and constructing the built environment. A limited outline of the design and construction of buildings, including some reference to materials used. 	
	<p style="text-align: center;">0 marks</p> <p style="text-align: center;">Not credit worthy or not attempted.</p>	

Mapping of NEA Unit 3 to specification content and assessment objectives

Assessment criteria	Specification content (main focus)							Mark allocation			
	Section							Total Marks	AO1 Marks	AO2 Marks	AO3 Marks
	2.3.1	2.3.2	2.3.3	2.3.4	2.3.5	2.3.6	2.3.7				
(a)	✓	✓						10	10	0	0
(b)			✓					10	0	0	10
(c)				✓				10	0	0	10
(d)					✓	✓		10	0	10	0
(e)							✓	10	10	0	0
	Total marks							50	20	10	20

Appendix B

NEA Tasks



GCSE BUILT ENVIRONMENT

UNIT 2

CREATING THE BUILT ENVIRONMENT

PATHWAY A

DESIGNING THE BUILT ENVIRONMENT TASK

Approximately 25 hours

INSTRUCTIONS FOR CANDIDATES

Read the information overleaf carefully to make sure that you understand what is needed.

It is important that you work independently from other candidates and make sure that what you hand in is your own unaided work.

Make sure that you check your work carefully to ensure that it is accurate and correct.

INFORMATION FOR CANDIDATES

Teachers and candidates will be required to sign a declaration that all work presented is the work of the candidate alone.

Information about the assessment of this unit is shown in Appendix A of the specification.

This task is about the design of an extension for a building in Wales.

You are required to set an outline brief and complete the activities below. A context for this task is provided in the shaded box. You may use this context for the task, modify it or devise a context of your own. If you decide to use your own context, you must ensure it will allow you to gain marks in each of the sections (a) to (f) of the mark scheme.

This task is about the design of a single storey extension for a community hall. Some information about the extension is provided for you, the rest is left for you to decide.

The extension to the community hall must include a main room that can hold up to 40 people. The extension must also have:

- a kitchen
- male and female toilets
- a hard pedestrian area outside, around three sides of the extension.

Specification requirements include:

- total floor area of between 90 and 120 square metres
- kitchen floor area of between 10 and 15 square metres
- pitched roof.

The extension is to be constructed using sustainable construction methods. Solar panels are to be installed on the pitched roof and rainwater harvesting should supply some of the water for the building.

You need to specify:

- the main materials for the walls and type of construction
- the main material for the roof and type of construction
- details of the outdoor space.

Your task is to draw plans of the proposed design so that they can be shown to the client.

This will include:

- block plans
- floor plans
- cross sections
- scale drawings
- internal and external elevations
- 2D and 3D plans.

You are also required to:

- identify and calculate information relevant to the design
- write and set success criteria
- evaluate the design task.

Marks are awarded for:

(a)	identifying and calculating information relevant to the design, such as area, volume, dimensions, angles and high-level design requirements	[10]
(b)	writing and setting success criteria for the task to include levels of tolerance, timescales and quality	[10]
(c)	drawing plans and elevations to include block plans, floor plans, cross-sections, scale drawings, internal and external elevations	[20]
(d)	drawing two-dimensional plans and three-dimensional virtual models and plans to develop plans, refine concepts, apply scenes, backgrounds and surroundings, enhancing proposals in appropriate ways	[20]
(e)	using the language of drafting , by applying relevant British Standards, conventions for annotation, lines and hatching, and using symbols to represent ideas and proposals	[10]
(f)	evaluating the design task preparing a report which evaluates against the requirements of the brief, personally-set success criteria and the needs of end users including their safety, suggesting improvements where appropriate.	[10]
Total marks		[80]



GCSE BUILT ENVIRONMENT

UNIT 2

CREATING THE BUILT ENVIRONMENT

PATHWAY B

CONSTRUCTING THE BUILT ENVIRONMENT TASK

Approximately 25 hours

INSTRUCTIONS FOR CANDIDATES

Read the information overleaf carefully to make sure that you understand what is needed.

It is important that you work independently from other candidates and make sure that what you hand in is your own unaided work

Make sure that you check your work carefully to ensure that it is accurate and correct.

INFORMATION FOR CANDIDATES

Teachers and candidates will be required to sign a declaration that all work presented is the work of the candidate alone.

Information about the assessment of this unit is shown in Appendix A of the specification.

This task is about the construction of an extension on a building in Wales.

You are required to set an outline brief and complete the activities below. A context for this task is provided in the shaded box. You may use this context for the task, modify it or devise a context of your own. If you decide to use your own context, you must ensure it will allow you to gain marks in each of the sections (a) to (f) of the mark scheme.

This task is about the construction of an extension for a youth hostel. Some information about the extension is provided for you, the rest is left for you to decide.

The extension to the youth hostel must accommodate up to 20 people. It must have:

- a kitchen
- a dining room
- two shower rooms with toilets
- two dormitories (each to accommodate eight people)
- four single rooms.

The extension is to be constructed using sustainable construction methods. Solar panels are to be installed on the pitched roof and rainwater harvesting should supply some of the water for the building.

Your task is to construct a component part/parts of the extension, using two trade areas. One trade area must be undertaken with a contemporary focus and, where relevant, the other trade area should be undertaken with a traditional focus. You may produce scale models of the component part/parts, providing they require the same construction skills and techniques as the full sized part/parts.

You need to:

Produce a plan to show how the work will be completed, including evidence of:

- interpreting technical sources of information, such as: building regulations, drawings and design briefs⁴
- planning and organising your work
- identifying resource requirements
- calculating materials required
- writing and setting success criteria.

Complete the specified construction work, including evidence of:

- preparing for construction tasks
- carrying out techniques (in two areas)
- removing and safely depositing of materials
- using working practices which promote health and safety.

Evaluate the construction task.

⁴ You may devise the specifications, building regulations, drawings and design briefs (as appropriate to your task) or you may source them from elsewhere.

Marks are awarded for:

(a)	<p>interpreting technical sources of information such as specifications building regulations, drawings and design briefs, as appropriate</p> <p>identifying resource requirements such as tools, equipment PPE and materials</p> <p>calculating materials required in relation to volume, area, perimeter, time and ratio</p>	[20]
(b)	<p>writing and setting success criteria for the task to include levels of tolerance, timescales and quality</p>	[10]
(c)	<p>planning and organising work including how work is sequenced, planned and meets deadlines and relevant health and safety practices</p> <p>working practices that promote health and safety including cleanliness and safety of work areas and correct use of PPE</p>	[10]
(d)	<p>preparing for construction tasks including preparing materials (with regard to their properties)</p> <p>removing and disposing of materials in a safe and environmentally responsible way</p>	[10]
(e)	<p>carrying out techniques in construction tasks (in each of the two selected trade areas)</p>	[20]
(f)	<p>evaluating the construction tasks preparing a report which evaluates against the requirements of the brief, personally-set success criteria and the needs of end users including their safety, suggesting improvements where appropriate.</p>	[10]
Total marks		[80]



GCSE BUILT ENVIRONMENT

UNIT 3

EXPLORING THE BUILT ENVIRONMENT

Approximately 15 hours

INSTRUCTIONS FOR CANDIDATES

Read the information overleaf carefully to make sure that you understand what is needed.

It is important that you work independently from other candidates and make sure that what you hand in is your own unaided work.

Make sure that you check your work carefully to ensure that it is accurate and correct.

INFORMATION FOR CANDIDATES

Teachers and candidates will be required to sign a declaration that all work presented is the work of the candidate alone.

Information about the assessment of this unit is shown in Appendix A of the specification.

Use of ICT will be assessed in part (d) building maintenance and repair, and change of use.

This case study is based on buildings in your local environment.

You are required to select two buildings* in your local environment; one pre-1919 building and one contemporary building, and produce a case study which:

- identifies and describes the factors which affect each stage of the building life cycle
- evaluates and analyses the stages within each stage of the building life cycle
- researches the stages and processes involved in the design, construction, value and use of your built environment
- compares and contrasts the processes involved in designing, constructing, valuing and using buildings pre-1919 and contemporary buildings
- includes the use of ICT to present your findings in appropriate ways.

* *There is no requirement to consider both buildings in all five points noted above, only in the fourth point which compares and contrasts processes involved in pre-1919 and contemporary buildings.*

Marks are awarded for:

(a)	Describing: <ul style="list-style-type: none"> • planning and design stages of buildings and structures with reference to RIBA, Stages 0 to 4 and how your built environment has been planned and designed to meet given needs • construction processes with reference to RIBA Stage 5 and how your built environment has been constructed to meet given needs. 	[10]
(b)	Analysing and evaluating: <ul style="list-style-type: none"> • well-being of communities – the impact of your built environment on the social, economic, environmental and cultural well-being of communities. 	[10]
(c)	Analysing and evaluating the value of: <ul style="list-style-type: none"> • post-occupancy evaluations on a building or asset's impact on running costs, staff and client satisfaction, performance, health and safety, comfort and the value of such evaluations. 	[10]
(d)	Explaining: <ul style="list-style-type: none"> • building maintenance and repair – the processes involved in carrying out maintenance and repair and the impact on users of carrying out repairs • change of use or potential change of use – the processes involved in refurbishing, recycling and reusing buildings and assets, the impact of these actions and the need to ensure that changes or potential changes do not negatively impact on safety. 	[10]
(e)	Describing: <ul style="list-style-type: none"> • changing practices in designing and constructing the built environment, comparing pre-1919 buildings and contemporary buildings, including the materials used in each, and the properties of those materials. 	[10]
Total marks		[50]