



# WJEC LEVEL 1/2 VOCATIONAL AWARD IN CONSTRUCTION AND THE BUILT ENVIRONMENT (TECHNICAL AWARD)

## SPECIFICATION

For teaching from 2022

For Award from 2024

## SUMMARY OF AMENDMENTS

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## 1. Qualification Overview

Qualification Title	Construction and the Built Environment
DfE Qualification Type	Technical Award
Ofqual QN	603/7015/4
WJEC Qualification Code	
DfE Discount Code	
Age group approved for	14+
First teaching	September 2022
First certification	January 2024
Key documents	Sample Assessment Materials Administration Guide
Guidance for Teaching	Assessment Guide Delivery Guide Unit 1 Guidance for Teaching Unit 2 Guidance for Teaching Unit 3 Guidance for Teaching

## 1.1 Who is this for?

WJEC Level 1/2 Vocational Awards (Technical Awards) provide learners with opportunities to study vocational subjects alongside GCSEs and other general and vocational qualifications as part of a broad programme of study.

They are primarily designed for learners aged 14-16 and offer an experience that focuses on applied learning, i.e. acquiring and applying knowledge, skills and understanding through purposeful tasks set in sector or subject contexts that have many of the characteristics of real work.

Level 1/2 Vocational Awards (Technical Awards) are available in 9 subject areas. Subjects marked with an \* below meet Ofqual and DfE requirements for the KS4 performance table qualifications:

- Construction and the Built Environment
- Engineering
- Events
- Health and Social Care
- Hospitality and Catering
- ICT
- Performing Arts
- Retail Business
- Sport and Coaching Principles.

## 1.2 Sector overview for WJEC Level 1/2 Vocational Award in Construction and the Built Environment (Technical Award)

The built environment sector is a very diverse sector covering an extremely wide range of occupations from handyman services to major infrastructure projects.<sup>1</sup> According to the UK Standard Industrial Classification of Economic Activities (2007), the construction industry, including building services occupations, involves general and allied construction activities for buildings and civil engineering works. In addition to the erection of building and structures, these works also include repairing and renovating.<sup>2</sup> The sector is expansive, comprising 10% of the UK economy. However, only a third of employers in the construction sector believe that there is a talent pool sufficient to meet the industry's needs. This is despite construction being considered an increasingly attractive industry to young people, and despite there being more and more young people who are actively considering a career in construction. There are many employment opportunities in the construction industry and the demand for workers is not currently being met; in 2018, more than two fifths of employers said that they had tried to recruit skilled workers and of those, nearly half had difficulties filling the positions. The wide and diverse range of careers in construction include manual and professional occupations, and many require further education and training either through apprenticeships or further and higher education.

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<sup>1</sup> Killip, G. (2020). A reform agenda for UK construction education and practice. *Buildings and Cities*, 1(1), 525–537. DOI: <http://doi.org/10.5334/bc.43>

<sup>2</sup> Office for National Statistics (2015) Construction Statistics. [Online]. Available from: <https://www.ons.gov.uk/ons/rel/construction/construction-statistics/no--16--2015-edition/pdf-construction-statistics-appendix-2.pdf> , cited in <https://www.qualificationswales.org/media/3176/building-the-future.pdf>.

### 1.3 Qualification objective

The Vocational Award in Construction and the Built Environment (Technical Award) has been designed to support learners in schools who want to learn about this vocational sector and the potential it can offer them for their careers or further study. It is most suitable as a foundation for further study. This further study would provide learners with the opportunity to develop a range of specialist and general skills that would support their progression to employment.

### 1.4 Prior learning requirements

Although there are no formal entry requirements, learners would find the following learning skills and aptitudes helpful: basic proficiency in literacy and numeracy, problem solving and enterprise, and motivation to work independently.

### 1.5 What will learners study?

This is a unitised qualification through which there are two routes. Learners must follow one route and study two units.

Unit 1 is mandatory, and Unit 2 and Unit 3 are optional units from which centres will choose one:

Unit	Title	Assessment	GLH
1	Introduction to the Built Environment	External	48
2	Designing the Built Environment	Internal	72
3	Constructing the Built Environment	Internal	72

## 2. Specification at a glance

### 2.1 Subject content

Unit 1 introduces learners to the built environment and provides them with the opportunity to develop skills, knowledge and understanding in identifying, explaining and evaluating different ideas and concepts of the built environment. Learners will explore a range of profession and trade roles, and some of the different structures and buildings of the built environment (page 9).

Unit 2 offers learners the opportunity to develop skills, knowledge and understanding of the design of the built environment, including exploring what is needed to interpret and produce drafts, drawings, and models of design plans (page 27).

Unit 3 offers learners the opportunity to develop skills, knowledge and understanding of three construction trade areas of the built environment, including planning, undertaking and evaluating construction tasks (page 37).

Summary of Assessment	
Unit 1: Introduction to the Built Environment On-screen examination: 1 hour 30 minutes 40% of qualification	80 marks
Questions requiring objective responses, short and extended answers, based around applied situations. Learners may be required to use stimulus material to respond to questions.	
Unit 2: Designing the Built Environment Controlled assessment: 30 hours 60% of qualification	120 marks
An assignment brief will be provided by WJEC that will include a scenario and several tasks available via the WJEC Secure Website.	
Unit 3: Constructing the Built Environment Controlled assessment: 30 hours 60% of qualification	120 marks
An assignment brief will be provided by WJEC that will include a scenario and several tasks available via the WJEC Secure Website.	



The table below shows the possible routes to a Level 1/2 Construction and the Built Environment qualification.

	Unit 1	Unit2	Unit 3
Level 1/2 Construction in the Built Environment (Design)	✓	✓	
<b>OR</b>			
Level 1/2 Construction in the Built Environment (Construction)	✓		✓

### 2.3 Assessment objectives

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

#### AO1

Demonstrate knowledge and understanding from across the specification.

#### AO2

Apply skills (including practical skills), knowledge and understanding in a variety of contexts and in planning and carrying out investigations and tasks.

#### AO3

Analyse and evaluate information, making reasoned judgements and presenting conclusions.

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

	AO1	AO2	AO3	Total
<b>Unit 1</b>	24%	11%	5%	40%
<b>Unit 2</b>	3%	39%	18%	60%
<b>Unit 3</b>	3%	39%	18%	60%
<b>Overall weighting</b>	27%	50%	23%	100%

## 3. Units

### 3.1 Unit format

<b>Unit title</b>	Summarises, in a concise manner, the content of the unit.
<b>Guided learning hours (GLH)</b>	Guided learning means activities such as classroom-based learning, tutorials and online learning, which is directly supervised by a teacher, tutor or invigilator. It also includes all forms of assessment which take place under the immediate guidance or supervision of a teacher, supervisor or invigilator. GLH has been allocated per unit to support delivery. It is acceptable for centres to deliver this qualification holistically and therefore, hours per unit are a recommendation only.
<b>Vocational context</b>	Provides a vocational rationale for the content of the unit.
<b>Areas of content</b>	Includes the list of topics covered by the unit.
<b>Overview of unit</b>	Provides a summary of the unit content. It sets the context of the unit and highlights the purpose of the learning in the unit.
<b>Assessment</b>	Summarises the assessment method for the unit.

### 3.2 Amplification

The amplification provided in the right-hand column uses the following four stems:

- ‘Learners should know’ has been used for the recall of facts such as legislation and definitions
- ‘Learners should know and understand’ has been used for the majority of the unit content where knowledge needs to lead to a sense of understanding
- ‘Learners should be aware of’ has been used when the volume of content is quite extensive, and learners do not need to understand all aspects in detail
- ‘Learners should be able to’ has been used when learners need to apply their knowledge to a scenario or practical situation.

The subject content is presented in xx 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. The use of the word ‘including’ indicates compulsion (i.e. a question could be specifically set on that aspect). The use of the words ‘e.g.’ or ‘such as’ are for guidance only, and an alternative can be chosen.

## Unit 1

<b>Unit title</b>	Introduction to the built environment
<b>Unit entry code</b>	
<b>GLH</b>	48
<b>Vocational context</b>	The construction industry is large and very diverse. This unit provides an appropriate foundation which reflects this size and diversity. Learners are required to demonstrate their knowledge and understanding of eight specified areas of content, all of which are critical to the industry.
<b>Overview of unit</b>	This unit introduces learners to the construction sector and the type of professional and trade roles and activity that is undertaken. The learner will explore the different types of buildings and structures that the built environment forms. Sustainability and the impact of the built environment on the local community is explored along with reduction measures that can be employed.
<b>Areas of content</b>	<ul style="list-style-type: none"> <li>1.1 The sector</li> <li>1.2 The built environment life cycle</li> <li>1.3 Types of building and structure</li> <li>1.4 Technologies and materials</li> <li>1.5 Building structures and forms</li> <li>1.6 Sustainable construction methods</li> <li>1.7 Trades, employment and careers</li> <li>1.8 Health and safety</li> </ul>
<b>Assessment</b>	<p>This unit is externally assessed through a written examination available in January/February and May/June each year.</p> <p>Duration: 1 hour 30 minutes                      Number of marks: 80                      Format: objective responses, short and extended answer questions based around applied situations. Learners may be required to use stimulus material to respond to questions.</p> <p>This assessment contributes 40% to the overall qualification grade.</p>

## 1.1 The sector

In this topic, 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
- professional and managerial roles and responsibilities associated with the built environment sector.

Content	Amplification
<p>1.1.1. Buildings and structures</p>	<p>Learners should know:</p> <ul style="list-style-type: none"> <li>• the main types of buildings and structures covered within the sector: residential and non-residential buildings, bridges and roads</li> <li>• typical component parts of buildings and structures, including walls, floors and openings.</li> </ul>
<p>1.1.2. Infrastructure and civil engineering products</p>	<p>Learners should be aware of the following facilities and systems:</p> <ul style="list-style-type: none"> <li>• roads</li> <li>• railways</li> <li>• bridges</li> <li>• tunnels</li> <li>• water supply and sewerage systems</li> <li>• electrical grids</li> <li>• telecommunications.</li> </ul>
<p>1.1.3. Building services engineering</p>	<p>Learners should be aware of the function of the following services in buildings:</p> <ul style="list-style-type: none"> <li>• mechanical services, including escalators and lifts, heating, ventilation, air conditioning</li> <li>• electrical services, including energy supply, lighting and low voltage (LV) systems, communication lines, telephones and IT networks, fire detection and protection, security and alarm systems</li> <li>• services that support public health, including plumbing for water supply, and domestic hot water, drainage of wastewater (sewage) and stormwater drainage.</li> </ul>
<p>1.1.4. Professional and managerial roles and responsibilities associated with the built environment sector</p>	<p>Learners should know the following professional roles and be aware of the responsibilities of each (listed below) regarding the design and construction of a project through to its completion and handover:</p> <ul style="list-style-type: none"> <li>• designer/architect</li> <li>• civil/structural engineering</li> <li>• contracts manager and site manager</li> <li>• surveyor</li> <li>• quantity surveyor.</li> </ul>

	Learners should be aware of the professional associations such as CIOB, RICS, RIBA <sup>3</sup> , and the benefits of membership.
<ul style="list-style-type: none"> <li>• Designer/architect</li> </ul>	<p>Learners should be aware that an architect:</p> <ul style="list-style-type: none"> <li>• creates new buildings and/or renovations or changes existing buildings</li> <li>• produces designs to meet client requirements along with regulations, legislation and environmental requirements</li> <li>• produces detailed drawings for the contractor</li> <li>• manages the post design stages of the project for the client.</li> </ul>
<ul style="list-style-type: none"> <li>• Civil/structural engineering</li> </ul>	<p>Learners should be aware that a civil and structural engineer:</p> <ul style="list-style-type: none"> <li>• designs, plans and manages construction projects</li> <li>• solves design and development problems</li> <li>• produces a structural solution in terms of the design codes, such as Building Regulations or British Standards</li> <li>• assesses potential risks within a project.</li> </ul>
<ul style="list-style-type: none"> <li>• Contracts manager and site manager</li> </ul>	<p>Learners should be aware that a contracts manager or site manager:</p> <ul style="list-style-type: none"> <li>• is responsible for coordinating construction site activities</li> <li>• manages the progress of the site and undertakes site meetings</li> <li>• organises resources of labour, plant and materials</li> <li>• undertakes the day-to-day activities on site</li> <li>• is responsible for health and safety on site and for the welfare of workers.</li> </ul>
<ul style="list-style-type: none"> <li>• Surveyor</li> </ul>	<p>Learners should be aware that a surveyor:</p> <ul style="list-style-type: none"> <li>• surveys land, measuring existing features of the natural and built environment</li> <li>• sets out construction works in accordance with the drawings and specification</li> <li>• produces built data and drawings for architects and structural engineers.</li> </ul>
<ul style="list-style-type: none"> <li>• Quantity surveyor</li> </ul>	<p>Learners should be aware that a quantity surveyor:</p> <ul style="list-style-type: none"> <li>• is responsible for the financial management of a project</li> <li>• makes payment to subcontractors and suppliers</li> <li>• produces a final account at the end of a project</li> <li>• is responsible for the control of budgets and control of cost.</li> </ul>

<sup>3</sup> RSUA is the equivalent professional association in Northern Ireland and this should be taught in centres there.  
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## 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
<p>1.2.1 Raw material extraction</p>	<p>Learners should know that the following industries extract raw materials:</p> <ul style="list-style-type: none"> <li>• oil and gas</li> <li>• forestry</li> <li>• quarrying</li> <li>• mining.</li> </ul>
<p>1.2.2 Manufacturing</p>	<p>Learners should be aware of the following means of transforming raw materials into finished goods:</p> <ul style="list-style-type: none"> <li>• timber: felled logs are cut into ‘boards’ and then seasoned to remove excess water</li> <li>• engineered wood products (EWP): designed to overcome limitations on size of sawn timber, including trussed rafters, structural sections and manufactured boards such as plywood and oriented strand board (OSB)</li> <li>• steel:             <ul style="list-style-type: none"> <li>• structural steel – made into standard column and beam sections</li> <li>• stainless steel – made into fixings and fastenings</li> <li>• lightweight mild steel sections – lintels, purlins and rails</li> <li>• profiled sheeting – wall and roof cladding.</li> </ul> </li> <li>• copper: manufactured to produce building services products such as electric cable and water/gas pipes</li> <li>• plastic: manufactured to produce building services products such as water pipes</li> <li>• crushed rock materials: used as hardcore and granular fill materials reduced to 20mm crushed grading</li> <li>• clay: natural clay minerals are crushed, shaped, dried and then fired in ovens to produce bricks</li> <li>• cement: raw materials such as limestone are crushed, blended and heated in a kiln to make cement</li> <li>• mortar: sand, cement and water are mixed to make a paste used to bind and point building blocks.</li> </ul>

	<ul style="list-style-type: none"> <li>• concrete:             <ul style="list-style-type: none"> <li>• cement, water and aggregate (gravel, sand or rock) are mixed together to make concrete</li> <li>• combined with steel bars or mesh to make reinforced concrete lintels and pre-stressed products such as floor beams.</li> </ul> </li> </ul>
<p>1.2.3 Construction</p>	<p>Learners should know and understand the following forms of construction activities:</p> <ul style="list-style-type: none"> <li>• new buildings and structures and the assembly on site of prefabricated elements</li> <li>• alteration, conversion, and renovation of existing buildings and structures</li> <li>• civil engineering works such as roads and bridges</li> <li>• mass concrete foundations and large diameter drainage schemes</li> <li>• installation of mechanical, electrical, gas and communication services.</li> </ul>
<p>1.2.4 Operation and maintenance</p>	<p>Learners should know and understand that:</p> <ul style="list-style-type: none"> <li>• operation can involve:             <ul style="list-style-type: none"> <li>• controlling and monitoring of heating, cooling and lighting systems</li> <li>• the provision of security, cleaning and other ancillary services, including testing and evacuation procedures</li> </ul> </li> <li>• maintenance may take the form of:             <ul style="list-style-type: none"> <li>• planned and preventive maintenance: carried out on a regular basis, in order to keep something in working order or extend its life</li> <li>• cyclical maintenance: replacing over a cycle of work as an investment in stakeholders' comfort levels</li> <li>• emergency or reactive maintenance due to safety reasons for stakeholders.</li> </ul> </li> </ul> <p>Learners should be aware that a building operation and maintenance manual:</p> <ul style="list-style-type: none"> <li>• is given to the client or end user on completion in accordance with the Construction, Design and Management (CDM) Regulations relevant sections</li> <li>• contains information regarding the operation, maintenance, decommissioning and subsequent demolition of a building.</li> </ul>

<p>1.2.5 Demolition</p>	<p>Learners should know that:</p> <ul style="list-style-type: none"><li>• a pre-demolition plan includes details of:<ul style="list-style-type: none"><li>• hazardous materials such as asbestos, foam insulation, and medium density fibre board</li><li>• live utilities and disconnections</li><li>• structures and load bearing party walls</li><li>• site conditions and constraints</li></ul></li><li>• statutory requirements need to be considered</li><li>• demolition may involve the use of explosives, hand demolition or machine demolition.</li> <li>• procedures include:<ul style="list-style-type: none"><li>• site security set up</li><li>• disconnection of utilities</li><li>• removal of hazardous materials</li><li>• soft strip of non-structural elements</li><li>• taking down superstructure</li><li>• onsite crushing of demolition materials into filling that can be recycled</li><li>• dust suppression measures</li><li>• removal of slab and foundations.</li></ul></li></ul>
<p>1.2.6 Disposal, reuse or recycling</p>	<p>Learners should know that:</p> <ul style="list-style-type: none"><li>• waste materials may be sent directly to landfill or salvaged for reuse or for recycling</li><li>• waste materials can be retained on site in embankments and landscape bunding</li><li>• excavation materials can be retained on site by a balanced cut and fill excavation</li><li>• construction can produce a significant amount of waste so there are benefits to be gained from encouraging more reuse or recycling, including preservation of natural resources, creation of jobs and reduction in pollution</li><li>• sustainable construction methods may include specifying materials that are sustainable and renewable from managed sources.</li></ul>



### 1.3 Types of building and structure

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

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

Content	Amplification
<p><b>1.3.1</b> Different forms of infrastructure construction</p>	<p>Learners should know and understand that infrastructure construction:</p> <ul style="list-style-type: none"> <li>• covers a range of functions such as roads, motorways, services such as electrical distribution, harbour works, rail cycle paths, bridges and tramways</li> <li>• may have significant benefits to quality of life by providing economic, social and environmental benefits on a local or national scale</li> <li>• may have significant drawbacks, including economic, social and environmental, on a local or national scale.</li> <li>• projects are often controversial because developers, planning authorities and communities have to weigh the benefits against drawbacks.</li> </ul>
<p><b>1.3.2</b> Residential dwellings</p>	<p>Learners should be aware that residential dwellings:</p> <ul style="list-style-type: none"> <li>• are used as places of habitation</li> <li>• are among the smallest types of building</li> <li>• often vary by location with multi-dwelling structures such as apartment blocks in urban areas and single detached properties in rural areas</li> <li>• are often made of block or timber frame construction</li> <li>• are in demand because there is a shortage of available, affordable homes in the UK.</li> </ul>
<p><b>1.3.3</b> Commercial buildings</p>	<p>Learners should be aware that commercial buildings:</p> <ul style="list-style-type: none"> <li>• are used to provide services or retail products to customers</li> <li>• accommodate business activities, usually undertaken to make a profit for the owners</li> <li>• are usually adapted to fulfil the purpose of the business</li> <li>• may be purpose-built or converted to enable a change of use</li> <li>• are often located in retail centres, in or out of town/city centres.</li> </ul>

<p>1.3.4 Industrial buildings</p>	<p>Learners should be aware that industrial buildings:</p> <ul style="list-style-type: none"> <li>• are usually larger buildings, adapted to specific functions</li> <li>• are often used for storing, processing, engineering or manufacturing materials</li> <li>• may be part of a new development, such as in a modern industrial park, or a refurbished older building or site.</li> </ul>
<p>1.3.5 Agricultural buildings</p>	<p>Learners should be aware that agricultural buildings:</p> <ul style="list-style-type: none"> <li>• are associated with farming and the agricultural industry</li> <li>• may be older buildings constructed using traditional materials and techniques</li> <li>• may be large modern buildings, designed to suit a particular function and the rural landscape/environment in which they are situated.</li> </ul>
<p>1.3.6 Community buildings</p>	<p>Learners should be aware that community buildings:</p> <ul style="list-style-type: none"> <li>• are used by members of a community</li> <li>• are usually located in a convenient location for the community using the building</li> <li>• may be modern or older buildings, sometimes converted to enable a change of use.</li> </ul>
<p>1.3.7 Religious buildings</p>	<p>Learners should be aware that religious buildings:</p> <ul style="list-style-type: none"> <li>• usually serve as places of worship</li> <li>• vary considerably in terms of age, size and architectural style</li> <li>• 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.</li> </ul>
<p>1.3.8. Recreational buildings</p>	<p>Learners should be aware that recreational buildings:</p> <ul style="list-style-type: none"> <li>• vary considerably in terms of size and style</li> <li>• may be buildings in their own right or extensions to other buildings to enable an existing business to offer recreational activities</li> <li>• may be designed for a specific function or versatile to accommodate a range of functions.</li> </ul>

## 1.4 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:

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

Content	Amplification
<p><b>1.4.1</b> Main elements and components of low-rise buildings</p>	<p>Learners should know the functions of the following elements and components of low-rise buildings:</p> <ul style="list-style-type: none"> <li>• foundations</li> <li>• substructure</li> <li>• ground floor</li> <li>• super structure:                             <ul style="list-style-type: none"> <li>• walls</li> <li>• upper floors</li> <li>• frame</li> <li>• roof supports</li> </ul> </li> <li>• wall cladding</li> <li>• roof finishes.</li> </ul>
<p><b>1.4.2</b> Main materials involved in constructing walls, installing building services, fitting roofs and finishing interiors</p>	<p>Learners should be aware that the following materials and components are used in the construction of walls, installing building services, fitting roofs and finishing interiors.</p> <p>External walls:</p> <ul style="list-style-type: none"> <li>• structural element: load bearing masonry (insulating blockwork), structural frame (steel or timber), structural insulated panels (SIP)</li> <li>• insulation: mineral fibre rolls, sprayed foam, rigid foam slabs</li> <li>• external cladding: brick or rendered blockwork, steel sheeting, aluminium faced insulated panels, curtain walling.</li> </ul> <p>Internal walls and floors:</p> <ul style="list-style-type: none"> <li>• block or stud (timber or steel) partitions</li> <li>• timber, concrete or steel floor joists.</li> </ul> <p>Secondary structures:</p> <ul style="list-style-type: none"> <li>• steel lintels, joists and timber trussed rafters for masonry walls</li> <li>• sheeting rails and purlins for steel frames.</li> </ul> <p>Roof finishes:</p> <ul style="list-style-type: none"> <li>• slate or concrete tiles for timber trussed roofs</li> <li>• steel sheeting over insulated lining trays for steel framed structures</li> <li>• rubber based sheeting or fibreglass for flat roofs.</li> </ul> <p>Internal finishes:</p> <ul style="list-style-type: none"> <li>• floor screeds and boards</li> </ul>

	<ul style="list-style-type: none"><li>• plasterboard for walls and ceilings</li><li>• wall plaster and decorations.</li></ul> <p>Building services:</p> <ul style="list-style-type: none"><li>• incoming services run through sub-structure walls and then extended for internal distribution</li><li>• internal drainage run through external walls for connection to underground systems.</li></ul> <p>Building services materials:</p> <ul style="list-style-type: none"><li>• plastic and copper pipework for plumbing and heating services</li><li>• plastic rainwater goods and drainage systems</li><li>• copper cable for electricity and communication systems.</li></ul>
<p><b>1.4.3</b> 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 know and 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"><li>• Solar Energy:<ul style="list-style-type: none"><li>• solar photovoltaic: conversion of sunlight into electricity using photovoltaic (PV) cells/panels</li><li>• solar thermal: conversion of sunlight into thermal energy (or heat).</li></ul></li><li>• Wind turbines:<ul style="list-style-type: none"><li>• harness the power of the wind to generate electricity</li><li>• domestic wind turbines may be pole mounted or building mounted.</li></ul></li><li>• Heat pumps:<ul style="list-style-type: none"><li>• ground source: uses pipes that are buried underground to transfer heat from the ground into the building</li><li>• air source: transfers heat from the air outside of a building into the building</li><li>• water source: transfers heat from a source of water outside of a building into the building.</li></ul></li><li>• Water:<ul style="list-style-type: none"><li>• rainwater harvesting</li><li>• grey water re-use</li><li>• hydro-generation of electricity (tidal/hydroelectric).</li></ul></li></ul>

## 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
<p><b>1.5.1</b> Cellular constructions</p>	<p>Learners should know that in cellular constructions:</p> <ul style="list-style-type: none"> <li>• load bearing walls provide the main vertical support and lateral stability for floors</li> <li>• external wall panels, lift shafts or staircases are used to provide stability</li> <li>• bridging components such as floors, roofs and beams are supported by load bearing walls</li> <li>• prefabricated modular construction, such as pods, may be used.</li> </ul>
<p><b>1.5.2</b> Rectangular frame constructions</p>	<p>Learners should know that in rectangular frame constructions:</p> <ul style="list-style-type: none"> <li>• weight is carried by a skeleton or framework of columns and beams, rather than being supported by walls.</li> </ul> <p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>• a lightweight timber-frame is a common structure used in the construction of contemporary housing</li> <li>• steel and reinforced concrete frames are used in larger structures</li> <li>• contemporary commercial framed buildings have replaced traditional external walls with the use of metal and glass screens, or curtain walls, as exterior cladding.</li> </ul>
<p><b>1.5.3</b> Portal frame constructions</p>	<p>Learners should know that in portal frame constructions:</p> <ul style="list-style-type: none"> <li>• beams or rafters are supported at either end by columns</li> <li>• columns are secured to pad foundations using holding down bolts</li> <li>• the joints between the beams and columns are 'rigid' so the beam can be reduced in size and can span large distances.</li> </ul> <p>Learners should know the terminology of the components of a portal frame detail drawing, including:</p> <ul style="list-style-type: none"> <li>• columns on base plates</li> <li>• rafters</li> <li>• apex and knee details</li> <li>• eaves beam</li> <li>• wind bracing</li> <li>• cold formed sections and connections.</li> </ul>

	<p>Learners should be aware that portal frame constructions are:</p> <ul style="list-style-type: none"><li>• often fabricated from structural steel, reinforced pre-cast concrete, or laminated timber</li><li>• lightweight and can be fabricated off-site, then bolted to a substructure.</li></ul>
<p>1.5.4 Heritage and traditional methods</p>	<p>Learners should be aware of:</p> <ul style="list-style-type: none"><li>• the importance of heritage and traditional methods in the maintenance of the historic built environment:<ul style="list-style-type: none"><li>• to maintain the history and character of a building</li><li>• to comply with planning regulations within conservation areas</li><li>• to preserve our heritage for the benefit of present and future generations.</li></ul></li><li>• the maintenance methods used by heritage and traditional trades:<ul style="list-style-type: none"><li>• having a regular programme of maintenance to help prevent small problems escalating, or further deterioration occurring</li><li>• matching existing materials and methods of construction where possible</li><li>• retaining as much of the original fabric as possible in historically significant buildings.</li></ul></li></ul>

## 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
- sustainable materials used to create building frames, walls, roofs
- waste disposal, re-use and recycling
- planning permission, brownfield sites and greenfield sites.

Content	Amplification
<p><b>1.6.1</b></p> <p>The environmental, financial, cultural and social benefits of sustainable construction methods</p>	<p>Learners should be aware of the following benefits of using sustainable construction methods:</p> <ul style="list-style-type: none"> <li>• financial benefits:                             <ul style="list-style-type: none"> <li>• minimising waste</li> <li>• reducing energy consumption</li> <li>• improving water efficiency</li> <li>• reducing operating costs</li> <li>• optimising the life cycle of buildings</li> </ul> </li> <li>• cultural and social benefits:                             <ul style="list-style-type: none"> <li>• protection of the environment</li> <li>• helps avoid the depletion of natural resources</li> <li>• improving environmental quality may:                                     <ul style="list-style-type: none"> <li>• improve occupants' comfort</li> <li>• create an aesthetically pleasing environment</li> <li>• improve air quality</li> <li>• improve productivity.</li> </ul> </li> </ul> </li> </ul>
<p><b>1.6.2</b></p> <p>Pollution and the preservation of the natural environment and natural habitats</p>	<p>Learners should know and 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"> <li>• limiting the pollution released into water, air or the ground during construction and use of the built environment</li> <li>• places may be made into protected areas by organisations in each of the devolved countries of the UK (England, Scotland, Wales and Northern Ireland) such as Natural Resources Wales, Natural England, Scottish National Heritage or Department of Agriculture, Environment and Rural Affairs in Northern Ireland, which place restrictions on activities and developments</li> <li>• 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</li> <li>• reducing carbon dioxide emissions during construction and use of the built environment.</li> </ul>

<p>1.6.3</p> <p>Sustainable materials used to create building frames, walls, roofs</p>	<p>Learners should know that:</p> <ul style="list-style-type: none"> <li>• wood is a renewable construction material and is commonly used in homebuilding</li> <li>• steel used in construction contains recycled content and steel can be recovered and recycled again</li> <li>• recycled bricks may be used to create walls or crushed to be used as hard-core</li> <li>• straw bales can be used to create walls inside a frame</li> <li>• wool may be used as insulation instead of fibreglass or polyurethane</li> <li>• reclaimed slates or tiles, thatch or timber shingles can be used on roofs.</li> </ul>
<p>1.6.4</p> <p>Waste disposal, re-use and recycling</p>	<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"> <li>• Waste disposal             <ul style="list-style-type: none"> <li>• includes the classification of waste materials: hazardous, non-hazardous, origin, properties</li> <li>• the costs of landfill: financial, environmental and social</li> </ul> </li> <li>• Re-use             <ul style="list-style-type: none"> <li>• salvaged construction products are re-used with little or no reprocessing, typically: bricks, slates, steel sections</li> <li>• the environmental impact of reprocessing is minimised</li> </ul> </li> <li>• Recycling             <ul style="list-style-type: none"> <li>• processes typically include crushing, smelting, decontamination, sorting</li> <li>• there are a wide variety of potential end uses of recycled concrete, wood, metals, glass and plastic.</li> </ul> </li> </ul>
<p>1.6.5.</p> <p>Planning permission, brownfield sites and greenfield sites</p>	<p>Learners should know that:</p> <ul style="list-style-type: none"> <li>• planning permission is a system that enables Local Planning Authorities (LPA) to control the development of the built environment in their area.</li> </ul> <p>Learners should know and understand the characteristics, benefits and drawbacks of brownfield sites, including that:</p> <ul style="list-style-type: none"> <li>• they have been used before and tend to be disused or derelict land</li> <li>• existing buildings may have to be demolished and there may be clean-up costs for land decontamination</li> <li>• redevelopment of brownfield sites can clean up environmental health hazards and eyesores</li> <li>• access roads, drainage and services may already be available onsite, reducing the cost of a new development.</li> </ul> <p>Learners should know and understand the characteristics, benefits and drawbacks of greenfield sites, including that:</p> <ul style="list-style-type: none"> <li>• they have not been built upon previously</li> <li>• they tend to be cheaper to develop, subject to legal and planning constraints.</li> <li>• infrastructure works, including new roads and utility connections must be taken into account.</li> </ul>



## 1.7 Trades, employment and careers

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

- bricklaying
- stonemasonry
- plastering
- carpentry and joinery
- electrical installation
- plumbing installation
- painting and decorating
- flooring and tiling.

Content	Amplification
<p><b>1.7.1</b> Bricklaying</p>	<p>Learners should be aware that a bricklayer:</p> <ul style="list-style-type: none"> <li>• works from plans and specifications</li> <li>• constructs structures by spreading layers of mortar, placing bricks/blocks, checking vertical and horizontal alignment</li> <li>• constructs brickwork using traditional bonding patterns.</li> </ul>
<p><b>1.7.2</b> Stonemasonry</p>	<p>Learners should be aware that a stonemason:</p> <ul style="list-style-type: none"> <li>• dresses, carves and lays traditional stonework, including dry-stone walling</li> <li>• repairs and cleans existing traditional stone mouldings and other features.</li> </ul>
<p><b>1.7.3</b> Plastering</p>	<p>Learners should be aware that a plasterer:</p> <ul style="list-style-type: none"> <li>• applies wet finishes and protective coverings on external walls</li> <li>• applies plaster to inside walls and ceilings</li> <li>• dry lines internal studs of walls</li> <li>• replicates traditional ornamental plasterwork using plaster, moulds and casts.</li> </ul>
<p><b>1.7.4</b> Carpentry and joinery</p>	<p>Learners should be aware that a joiner:</p> <ul style="list-style-type: none"> <li>• joins pieces of wood in a workshop, which a carpenter fixes on site.</li> </ul> <p>Learners should be aware that a carpenter:</p> <ul style="list-style-type: none"> <li>• installs floor joists, floorboards, roof trusses, wall partitions</li> <li>• fits interior woodwork – staircases, doors, skirting boards, cupboards, kitchens</li> <li>• replicates traditional ornamental mouldings.</li> </ul>

<p>1.7.5 Electrical installation</p>	<p>Learners should be aware that an electrician:</p> <ul style="list-style-type: none"><li>• installs, inspects and tests electrical services and equipment</li><li>• follows relevant safety regulations.</li></ul>
<p>1.7.6 Plumbing installation</p>	<p>Learners should be aware that a plumber:</p> <ul style="list-style-type: none"><li>• installs cold water, hot water, sanitation (toilets), boilers, and central heating systems</li><li>• follows relevant safety regulations, (e.g. 'Gas Safe')</li><li>• installs traditional lead flashings and roof coverings.</li></ul>
<p>1.7.7 Painting and decorating</p>	<p>Learners should be aware that a painter and decorator:</p> <ul style="list-style-type: none"><li>• prepares and applies paint, wallpaper and other finishes to interior surfaces</li><li>• prepares and applies paint and other finishes to exterior surfaces</li><li>• follows relevant safety regulations.</li></ul>
<p>1.7.8 Flooring and tiling</p>	<p>Learners should be aware that a floor layer:</p> <ul style="list-style-type: none"><li>• prepares and applies levelling compounds</li><li>• lays carpet and vinyl floor finishes to internal surfaces</li><li>• installs ceramic wall and floor tiles.</li></ul>

## 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 Health and Safety at Work Act and Control of Substances Hazardous to Health (COSHH) regulations
- using personal protective equipment (PPE)
- safely working with gas, water and electricity
- working at height and in enclosed spaces.

Content	Amplification
<p><b>1.8.1</b> Risks for employees, employers and the public during construction and the built environment projects</p>	<p>Learners should know and understand that construction sites are hazardous environments with many risks:</p> <ul style="list-style-type: none"> <li>• workers are at risk from heavy construction equipment and vehicles, working at height, manual handling and slips, trips and falls</li> <li>• employers have the responsibility for the safe operation of sites and may be held to account in the case of accidents or incidents</li> <li>• 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.</li> </ul>
<p><b>1.8.2</b> Following procedures and carrying out risk assessments</p>	<p>Learners should know and 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"> <li>• general assessments of health and safety risks on construction sites and associated control measures</li> <li>• specific assessments for particular hazards such as working at height, manual handling and noise, and associated control measures.</li> </ul>
<p><b>1.8.3</b> Relevant legislation<sup>4</sup>, including Health and Safety at Work Act and Control of Substances Hazardous to Health (COSHH) regulations</p>	<p>Learners should know and understand that regulations require employers to protect the wellbeing of workers, visitors and members of the public, and control exposure to hazards in order to prevent illness or injury, including by:</p> <ul style="list-style-type: none"> <li>• preparing risk assessments</li> <li>• deciding what control measures are necessary</li> <li>• preventing (or controlling) exposure to hazards</li> <li>• ensuring that the hierarchy of control is followed</li> <li>• monitoring the level of exposure to hazards</li> <li>• preparing procedures to deal with accidents</li> <li>• training and supervising employees.</li> </ul>

<sup>4</sup> Centres in Northern Ireland should teach the equivalent Northern Irish legislation.

<p><b>1.8.4</b> Using personal protective equipment (PPE)</p>	<p>Learners should know and understand that regulations require employers to control exposure to hazards to prevent illness or injury by:</p> <ul style="list-style-type: none"> <li>• assessing the use of PPE as a control measure</li> <li>• preventing (or controlling) exposure to dangerous environments, such as heat, cold, chemicals, biological risks, falls from height and working in enclosed spaces, by the selection of the correct PPE for the task</li> <li>• training and supervising employees in the correct use, storage and maintenance of PPE.</li> </ul>
<p><b>1.8.5</b> Safely working with gas, water and electricity</p>	<p>Learners should know and understand the importance of following the correct safety procedures when working with gas, water and electricity:</p> <ul style="list-style-type: none"> <li>• gas and electric should only be worked on by a competent person who holds the necessary qualifications and accreditations (e.g. Gas Safe and NICEIC)</li> <li>• follow appropriate working practices, safety procedures and precautions</li> <li>• use the correct protective equipment</li> <li>• know the means of cutting off the supply of gas, water or electricity for isolation prior to carrying out work.</li> </ul>
<p><b>1.8.6</b> Working at height and in enclosed spaces</p>	<p>Learners should know and understand that to ensure safety:</p> <ul style="list-style-type: none"> <li>• those working at height must:             <ul style="list-style-type: none"> <li>• be properly planned and use an appropriate method of access (e.g. MEWP, Scaffold or access platform)</li> <li>• take account of weather conditions (if appropriate)</li> <li>• use equipment which is appropriately inspected</li> <li>• control risks from fragile surfaces and falling objects.</li> </ul> </li> <li>• those working in enclosed spaces must manage risks from:             <ul style="list-style-type: none"> <li>• exposure to fumes</li> <li>• reduced oxygen levels</li> <li>• flooding/drowning</li> <li>• the risk of fire and explosive atmospheres</li> <li>• entrapment in machinery (if appropriate)</li> </ul> </li> </ul> <p>PPE (e.g. harnesses) 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>

## Unit 2

Unit title	Designing the built environment
Unit entry code	
GLH	72
Vocational context	Construction design is about creating a solution to a client brief. This unit requires learners to interact with a realistic client brief and to demonstrate their design and drawing skills in the production of appropriate information.
Areas of content	<p>2.1 Identifying and calculating information</p> <p>2.2 Writing and setting success criteria</p> <p>2.3 Drawing plans</p> <p>2.4 Drawing elevations</p> <p>2.5 Using the language of drafting</p> <p>2.6 Drawing two dimensional (2D) plans</p> <p>2.7 Creating three dimensional (3D) virtual models and plans</p> <p>2.8 Evaluating design tasks.</p>
Overview of unit	<p>In this unit learners will gain knowledge and understanding of the design of the built environment, encompassing what information is required in order to produce a drawing, and the different types of media used in both approval and planning of the built environment.</p> <p>Learners will need to make use of their knowledge and understanding gained from Unit 1 throughout this unit, including:</p> <p>1.1.4 Professional and managerial roles &amp; responsibilities associated with the built environment sector</p> <p>1.2.3 Building life cycle: Construction</p> <p>1.3 Types of building and structure</p> <p>1.4.1 Main elements and components of low-rise buildings</p> <p>1.4.2 Main materials involved in constructing walls, installing building services, fitting roofs and finishing interiors</p> <p>1.4.3 Renewable technologies and materials, including heat pumps, wind turbines and solar panels</p> <p>1.6.1 The environmental, financial, cultural and social benefits of sustainable construction methods</p> <p>1.6.2 Pollution and the preservation of the natural environment and natural habitats</p> <p>1.6.3 Sustainable materials used to create building frames, walls, roofs</p> <p>1.8.1 Risks for employees, employers and the public during construction and the built environment projects</p> <p><b>This unit is an optional unit that learners will study in addition to Unit 1 unless Unit 3 is studied.</b></p>
Assessment	<p>This unit is internally assessed through controlled assessment available in January and May each year.</p> <p>This assessment contributes 60% to the overall qualification grade.</p>

## 2.1 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
- levels
- high-level design requirements.

Content	Amplification
2.1.1. Area	Learners should be able to calculate areas to: <ul style="list-style-type: none"> <li>• work out quantities of materials required in estimating costs.</li> </ul>
2.1.2 Volume	Learners should be able to calculate volumes to: <ul style="list-style-type: none"> <li>• work out quantities of materials required in estimating costs.</li> </ul>
2.1.3 Length	Learners should be able to measure distances for design considerations such as: <ul style="list-style-type: none"> <li>• evacuation routes</li> <li>• boundary clearances</li> <li>• spans to estimate structural depths.</li> </ul>
2.1.4 Angles	Learners should be able to calculate the effect of changing pitches on spans, volume and quantities of materials such as roof tiles.
2.1.5 Levels	Learners should be able to vary out levelling to measure vertical distances, including: <ul style="list-style-type: none"> <li>• levels in terms of forming level access to homes</li> <li>• falls for drainage</li> <li>• excavation topography</li> <li>• filling materials</li> <li>• establish heights from differences in levels.</li> </ul>
2.1.6 High-level design requirements	Learners should be able to carry out calculations related to the following high-level design requirements of construction designs: <ul style="list-style-type: none"> <li>• area</li> <li>• ceiling height</li> <li>• layout of rooms</li> <li>• outdoor space</li> <li>• energy use.</li> </ul>

## 2.2 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:

- interpreting the client brief
- accuracy of the design work
- quality of presentation.

Content	Amplification
<p><b>2.2.1</b> Interpreting the client brief</p>	<p>Learners should be able to produce appropriate success criteria for interpreting a client brief in terms of:</p> <ul style="list-style-type: none"> <li>• identifying requirements</li> <li>• meeting user needs</li> <li>• the local environment.</li> </ul>
<p><b>2.2.2</b> Accuracy of the design work</p>	<p>Learners should know and understand that appropriate success criteria means that learners should consider the following:</p> <ul style="list-style-type: none"> <li>• takes into consideration the requirements of the brief</li> <li>• scale and dimensions</li> <li>• use of appropriate conventions.</li> </ul>
<p><b>2.2.3</b> Quality of presentation</p>	<p>Learners should be able to produce appropriate success criteria that considers the quality of their presentation, including how their presentation:</p> <ul style="list-style-type: none"> <li>• puts the design in the context of the environment</li> <li>• add elements that give a sense of realism</li> <li>• is comprehensive in its detail and scope.</li> </ul>

## 2.3 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
<p><b>2.3.1</b> Block plans</p>	<p>Learners should be aware that block plans are drawn to scale and illustrate:</p> <ul style="list-style-type: none"> <li>• location</li> <li>• local infrastructure</li> <li>• site layout, including pedestrian and vehicular access routes, parking and landscaping</li> <li>• requirements for planning applications.</li> </ul> <p>Learners should be able to produce accurate block plans using drawing instruments or a Computer Aided Design (CAD) package.</p>
<p><b>2.3.2</b> Floor plans</p>	<p>Learners should be aware that floor plans are drawn to scale and illustrate:</p> <ul style="list-style-type: none"> <li>• room layouts</li> <li>• furniture arrangements</li> <li>• horizontal circulation routes</li> <li>• vertical circulation facilities</li> <li>• internal fittings</li> <li>• windows and doors</li> <li>• fire exits.</li> </ul> <p>Learners should be able to produce accurate 2D floor plans using drawing instruments or a CAD package.</p>
<p><b>2.3.3</b> Cross-sections</p>	<p>Learners should be aware that cross-sections are drawn to scale and illustrate:</p> <ul style="list-style-type: none"> <li>• floors and ceilings</li> <li>• external walls</li> <li>• service voids</li> <li>• vertical circulation routes</li> <li>• structural floor depths</li> <li>• roof structures.</li> </ul> <p>Learners should be able to produce accurate 2D cross-sections using drawing instruments or a CAD package.</p>
<p><b>2.3.4</b> Scale drawings</p>	<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"> <li>• 1:1, 1:5 and 1:10 for construction details</li> <li>• 1:50, 1:100, 1:200 for layout and site plans</li> <li>• 1:1250 for location plans.</li> </ul> <p>Learners should be able to produce accurate scale drawings using drawing instruments or a CAD package.</p>



## 2.4 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
2.4.1 Internal	<p>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:</p> <ul style="list-style-type: none"> <li>• doors</li> <li>• fireplaces</li> <li>• windows</li> <li>• wall lights</li> <li>• kitchen layouts</li> <li>• electrical outlets and switches</li> </ul> <p>using drawing instruments or a CAD package.</p>
2.4.2 External	<p>Learners should be able to produce accurate 2D representations of external wall and roof surfaces including:</p> <ul style="list-style-type: none"> <li>• windows</li> <li>• doors</li> <li>• finishes</li> <li>• the roof layout</li> <li>• roof trims and rainwater goods</li> </ul> <p>using drawing instruments or a CAD package.</p> <p>Learners should be able to produce an external elevation rear (north), front (south), left (east) and right (west) facing, including details as outlined above.</p>
Rear (north)	Learners should be able to produce an external elevation north facing, including details as outlined above.
Front (south)	Learners should be able to produce an external elevation south facing, including details as outlined above.
Left (east)	Learners should be able to produce an external elevation east facing, including details as outlined above.
Right (west)	Learners should be able to produce an external elevation west facing, including details as outlined above.

## 2.5 Using the language of drafting

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

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

Content	Amplification
<p><b>2.5.1</b> BS standards (BS 1992:2007 + A2:2016 and subsequent updates, Building Information Modelling)</p>	<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.</p> <p>Learners should be able to produce a formal layout of a drawing with a border, title block and other considerations as a template.</p> <p>Learners should be aware of Building Information Modelling in terms of:</p> <ul style="list-style-type: none"> <li>• that Building Information Modelling (BIM) is a framework for a collaborative working environment in BIM teams, often with a coordinator</li> <li>• the production and sharing digital information using standardised processes and agreed standards and methods in a model</li> <li>• the process of clash detection used across structural, architectural and building services designs and how this enables efficient designs to be produced that are error free.</li> </ul>
<p><b>2.5.2</b> Presentation techniques</p>	<p>Learners should be able to:</p> <ul style="list-style-type: none"> <li>• produce a viewport with a templated drawing presentation containing a border and completed title block</li> <li>• produce a range of scaled views, such as 1:50, 1:100 within a viewport.</li> </ul>
<p><b>2.5.3</b> Conventions</p>	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>• rules about annotation, lines, hatching and use of symbols are standardised throughout the industry</li> <li>• use of rules (or conventions) reduce drawing time and space needed to convey information.</li> </ul>
<ul style="list-style-type: none"> <li>• Annotation</li> </ul>	<p>Learners should be aware of printing and common abbreviations, such as:</p> <ul style="list-style-type: none"> <li>• GL (ground level)</li> <li>• FFL (finished floor level)</li> <li>• DPC (damp proof course)</li> <li>• DPM (damp proof membrane).</li> </ul>

<ul style="list-style-type: none"> <li>• Lines</li> </ul>	<p>Learners should be aware of the following uses of lines:</p> <ul style="list-style-type: none"> <li>• use of different line weights in CAD</li> <li>• thick lines for outline of close objects</li> <li>• thin lines for dimensions, hatching and outline of distant objects</li> <li>• dotted or dashed lines for centre lines or outline of obscured or hidden objects.</li> </ul>
<ul style="list-style-type: none"> <li>• Hatching</li> </ul>	<p>Learners should be aware of the use of hatching to show the following in section:</p> <ul style="list-style-type: none"> <li>• brickwork</li> <li>• blockwork</li> <li>• timber</li> <li>• concrete</li> <li>• damp proof course</li> <li>• hardcore.</li> </ul>
<ul style="list-style-type: none"> <li>• A range of symbols</li> </ul>	<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"> <li>• sanitary fittings</li> <li>• kitchen fittings</li> <li>• doors</li> <li>• windows</li> <li>• external walls</li> <li>• fire detection and fittings such as fire extinguishers and detectors</li> <li>• extraction fans to bathrooms and kitchens</li> <li>• electrical outlets and switches.</li> </ul>
<p>2.5.4 Consolidation and Presentation</p>	<p>Learners should be able to produce a 2D draft drawing using manual techniques containing:</p> <ul style="list-style-type: none"> <li>• scales</li> <li>• a standard templated drawing sheet, title block and border</li> <li>• conventions</li> <li>• annotated details</li> <li>• lines</li> <li>• graphical construction materials – hatching</li> <li>• symbols.</li> </ul>

## 2.6 Drawing two dimensional (2D) plans

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

- the conventions and requirements of 2D plans of construction designs
- scales used in different applications

Content	Amplification
<p><b>2.6.1</b></p> <p>The conventions and requirements of 2D plans of construction designs</p>	<p>Learners should be able to use a CAD package to:</p> <ul style="list-style-type: none"> <li>• develop plans and other design drawings to illustrate building design proposals</li> <li>• refine concepts and initial design ideas in response to feedback and to illustrate refined building design proposals</li> <li>• produce technical drawings for use in the construction of building design proposals.</li> </ul>
<p><b>2.6.2</b></p> <p>Scales used in different applications</p>	<p>Learners should be able to plot developed draft and developed designs into a transferrable medium to an appropriate scale for:</p> <ul style="list-style-type: none"> <li>• planning submission at a scale of 1:1250</li> <li>• for drawn details at a scale of 1:50 or 1:5</li> <li>• for client approval, annotation and revisions.</li> </ul> <p>Learners should be able to print to pdf from a software package and place designs into a supplied formal drawing template suitably completed for client approval.</p>

## 2.7 Creating three dimensional (3D) virtual models and plans

In this section learners will gain knowledge, understanding and skills in conventions and requirements of 3D virtual models and plans of construction designs to be able to create 3D models from building design drawings.

Content	Amplification
<p><b>2.7.1</b> The conventions and requirements of 3D virtual models and plans of construction designs.</p>	<p>Learners should be able to use a CAD package to develop 3D models from 2D building design drawings:</p> <ul style="list-style-type: none"> <li>• applying scenes, backgrounds and surroundings to a 3D building model</li> <li>• rendering the external finishes (colour and texture) of a 3D building model using standard conventions</li> <li>• adding features such as images of people, vehicles and landscaping to enhance a 3D building model</li> <li>• creating 360° views of a 3D building model, including rotation</li> <li>• adding building components, other details and colour to a 3D building model</li> <li>• importing fixture models from a library and scaling to fit their 3D model.</li> </ul>

## 2.8 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
<p><b>2.8.1</b> Requirements of the brief</p>	<p>Learners should be able to evaluate a finished design task against the project requirements, considering:</p> <ul style="list-style-type: none"> <li>• obtaining a brief from a client</li> <li>• recording the requirements from a client in a formal briefing document</li> <li>• producing simple sketches for approval</li> <li>• working up drawings</li> <li>• possible further design improvements</li> <li>• possible further enhancements in presentation</li> <li>• obtaining client approval.</li> </ul>
<p><b>2.8.2</b> Personally-set success criteria</p>	<p>Learners should be able to evaluate a finished design task against personally-set success criteria considering:</p> <ul style="list-style-type: none"> <li>• interpreting the client brief</li> <li>• accuracy of the design work</li> <li>• quality of presentation.</li> </ul>
<p><b>2.8.3</b> Needs of end users, including their safety</p>	<p>Learners should be able to evaluate a finished design task against the needs of end users, considering:</p> <ul style="list-style-type: none"> <li>• their health and safety</li> <li>• the intended purpose and functionality of the outcome of the design task</li> <li>• feedback on a design highlighting any areas of commendation or improvement.</li> </ul>

## Unit 3

Unit title	Constructing the Built Environment
Unit entry code	
GLH	72
Vocational context	The realisation of construction projects requires the services of many construction specialists. A significant number of these specialists will be engaged in what are often referred to as 'trades' (see unit 1 - 1.7). This unit requires learners to complete a construction project which focusses on the preparation and completion of three realistic trade-based tasks.
Areas of content	<p>3.1 Interpreting technical sources of information</p> <p>3.2 Planning and organising work</p> <p>3.3 Identifying resource requirements</p> <p>3.4 Calculating the materials required</p> <p>3.5 Writing and setting success criteria</p> <p>3.6 Prepare for construction tasks</p> <p>3.7 Carrying out techniques</p> <p>3.8 Removing and disposing of materials</p> <p>3.9 Working practices that promote health and safety</p> <p>3.10 Evaluating construction tasks.</p>
Overview of unit	<p>In this unit, learners are required to develop knowledge, skills and understanding in <b>three</b> areas, selected from:</p> <ul style="list-style-type: none"> <li>• textiles</li> <li>• wood</li> <li>• brick</li> <li>• plaster</li> <li>• decoration</li> <li>• tiles</li> <li>• electrical</li> <li>• plumbing</li> <li>• heritage.</li> </ul> <p>Learners will need to make use of their knowledge and understanding gained from Unit 1 throughout this unit, including:</p> <p>1.1.4 Professional and managerial roles &amp; responsibilities associated with the built environment sector</p> <p>1.2.3 Building life cycle: construction</p> <p>1.2.6 Disposal, reuse or recycling</p> <p>1.6.4 Waste disposal, re-use and recycling</p> <p>1.7 Trades, employment and careers</p> <p>1.8.1 Risks for employees, employers and the public during construction and the built environment projects</p> <p>1.8.2 Following procedures and carrying out risk assessments</p>

Assessment

1.8.4 Using personal protective equipment (PPE).

**This unit is an optional unit that learners will study in addition to Unit 1 unless Unit 2 is studied.**

This unit is internally assessed through controlled assessment available in January and May each year.

This assessment contributes 60% to the overall qualification grade.

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### 3.1 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
<p><b>3.1.1</b> Specifications</p>	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• specifications include: <ul style="list-style-type: none"> <li>• materials</li> <li>• scope of work</li> <li>• installation process</li> <li>• quality.</li> </ul> </li> </ul>
<p><b>3.1.2</b> Building Regulations</p>	<p>Learners should be aware that building regulations:</p> <ul style="list-style-type: none"> <li>• protect people's safety, health and welfare in and around buildings</li> <li>• improve conservation of fuel and power, protect and enhance the environment and promote sustainable development</li> <li>• cover the construction and extension of buildings</li> <li>• may also cover alteration projects so it is important to check before work begins.</li> </ul>
<p><b>3.1.3</b> Drawings</p>	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>• drawings produced to recognised (British Standards) scales as specified in BS 1192 are generally: <ul style="list-style-type: none"> <li>• 1:1, 1:5 and 1:10 for construction details</li> <li>• 1:50, 1:100, 1:200 for layout and site plans</li> <li>• 1:1250 for location plans.</li> </ul> </li> <li>• drawings may be 2D or 3D and include constructional details and the location of components.</li> </ul>
<p><b>3.1.4</b> Design Briefs</p>	<p>Learners should be aware that a design brief for a construction project:</p> <ul style="list-style-type: none"> <li>• is developed by the project designer/design team in consultation with the client</li> <li>• outlines the deliverables and the scope of the project including any products or works, the timeline and budget.</li> </ul>

### 3.2 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
<p><b>3.2.1</b> How work is sequenced, planned to meet deadlines and compliant with relevant health and safety practices</p>	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>• in construction projects the sequencing is linked to the specification, the design brief and the drawings</li> <li>• sequencing is time-framed and needs to meet building regulations and health and safety requirements</li> <li>• 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</li> <li>• 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.</li> </ul>

### 3.3 Identifying resource requirements

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

**3.3.1** tools

**3.3.2** equipment

**3.3.3** personal protective equipment (PPE)

**3.3.4** materials based on characteristics, qualities, sustainability, and limitations.

Content	Amplification
<p><b>3.3.1</b> Tools</p>	<p>Learners should understand:</p> <ul style="list-style-type: none"> <li>• that the tools, equipment, PPE and materials required will be dependent on the trade areas selected in addition to the tasks to be undertaken in those areas</li> <li>• 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</li> <li>• that the list of tools should cover all stages of the construction task, including preparation and finishing of materials</li> <li>• how and why each tool is used and the safety considerations for each item.</li> </ul>

<p>3.3.2 Equipment</p>	<p>Learners should understand:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• that the list of equipment should cover all stages of the construction task including preparation and finishing of materials</li> <li>• how and why each piece of equipment is suitable for the scale and nature of the task, and the safety considerations for each item.</li> </ul>
<p>3.3.3 Personal protective equipment (PPE)</p>	<p>Learners should know and understand that:</p> <ul style="list-style-type: none"> <li>• the selection and correct use of appropriate personal protective equipment is essential when undertaking a construction task</li> <li>• 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"> <li>• respiratory protection</li> <li>• eye protection</li> <li>• hearing protection</li> <li>• hand protection</li> <li>• head protection</li> <li>• fall-arresting.</li> </ul> </li> </ul>
<p>3.3.4 Materials based on:</p>	
<ul style="list-style-type: none"> <li>• Characteristics</li> </ul>	<p>Learners should know and understand that:</p> <ul style="list-style-type: none"> <li>• the selection of materials is based on their fitness for purpose for the construction task, taking account of the requirements within the specification</li> <li>• relevant characteristics may include: <ul style="list-style-type: none"> <li>• physical properties</li> <li>• mechanical properties</li> <li>• thermal properties.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Qualities</li> </ul>	<p>Learners should be aware that relevant qualities of materials may be linked to the project's:</p> <ul style="list-style-type: none"> <li>• quality objectives</li> <li>• budget.</li> </ul>
<ul style="list-style-type: none"> <li>• Sustainability</li> </ul>	<p>Learners should be aware that:</p> <ul style="list-style-type: none"> <li>• 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"> <li>• production</li> <li>• placing</li> <li>• maintenance</li> </ul> </li> <li>• a long-term view may also consider how the materials may be recycled.</li> </ul>

<ul style="list-style-type: none"><li>• Limitations</li></ul>	<p>Learners should be aware that limitations may be related to:</p> <ul style="list-style-type: none"><li>• cost</li><li>• availability</li><li>• characteristics/properties</li><li>• regulations.</li></ul>
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### 3.4 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
<p>3.4.1 Volume</p>	<p>Learners should know and 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"> <li>• the number of specific lengths of materials (e.g. tongue and groove wood, copper tube)</li> <li>• the number of bricks, blocks</li> <li>• the volume of concrete.</li> </ul>
<p>3.4.2 Area</p>	<p>Learners should know how to calculate areas to quantify materials required, such as:</p> <ul style="list-style-type: none"> <li>• tins of paint</li> <li>• bags of plaster</li> <li>• rolls of wallpaper</li> <li>• carpet tiles.</li> </ul>
<p>3.4.3 Perimeter</p>	<p>Learners should know how to calculate perimeters to quantify materials required, such as:</p> <ul style="list-style-type: none"> <li>• fencing</li> <li>• cabling.</li> </ul>
<p>3.4.4 Time</p>	<p>Learners should know how to calculate the time required to complete tasks, taking into account:</p> <ul style="list-style-type: none"> <li>• the number of people working on the task</li> <li>• the complexity of the task</li> <li>• time-dependent factors such as drying time.</li> </ul>
<p>3.4.5 Ratio</p>	<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"> <li>• concrete</li> <li>• plaster</li> <li>• mortar.</li> </ul> <p>Learners should be aware that the result may be expressed as a percentage or ratio.</p>

### 3.5 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
<p>3.5.1 Levels of tolerance</p>	<p>Learners should be aware that project tolerance may involve:</p> <ul style="list-style-type: none"> <li>• increase or decrease from planned cost or time</li> <li>• deviations from quality and scope.</li> </ul> <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"> <li>• dimensions</li> <li>• strength, stability, mix and performance.</li> </ul>
<p>3.5.2 Timescales</p>	<p>Learners should know and 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"> <li>• setting of realistic timescales</li> <li>• development of plans and Gantt charts</li> <li>• critical path analysis</li> <li>• resource allocation</li> <li>• setting of milestones</li> <li>• use of contingencies.</li> </ul>
<p>3.5.3 Quality</p>	<p>Learners should know and 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"> <li>• reference to standards</li> <li>• specification of attributes</li> <li>• nominating suppliers.</li> </ul> <p>Learners should be aware that in relation to standard of workmanship, quality can be defined by:</p> <ul style="list-style-type: none"> <li>• compliance with manufacturers' requirements</li> <li>• reference to a code of practice or standards</li> <li>• approval of samples</li> <li>• testing and inspection.</li> </ul>

### 3.6 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 **three** selected trade areas).

Content	Amplification
<p><b>3.6.1</b></p> <p>The properties of common materials required to complete construction tasks (for the three selected trade areas)</p>	<p>Learners should be able to prepare materials, which may be:</p> <ul style="list-style-type: none"> <li>• textiles</li> <li>• wood</li> <li>• brick</li> <li>• plaster</li> <li>• decorations</li> <li>• tiles</li> <li>• electrical</li> <li>• plumbing</li> <li>• heritage</li> </ul> <p>to undertake construction tasks in the <b>three</b> 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"> <li>• selecting materials</li> <li>• checking quantity</li> <li>• checking for defects</li> <li>• organising materials</li> <li>• measuring</li> <li>• marking out</li> <li>• cutting</li> <li>• setting out.</li> </ul> <p>Learners should know and understand that preparation needs to be undertaken with regard to:</p> <ul style="list-style-type: none"> <li>• the main properties of the materials involved</li> <li>• stock forms, types and sizes in order to determine the quantity of materials or components required</li> <li>• some tasks may require the pre-mixing of materials so that they are ready for use (e.g. plaster).</li> </ul>

### 3.7 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 three selected trade areas).

Content	Amplification
<p><b>3.7.1</b></p> <p>The processes involved in carrying out simple construction tasks (in each of the three selected trade areas)</p>	<p>Learners should be able to carry out simple construction tasks<sup>5</sup> 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 from those given in the Unit 3 controlled assessment assignment brief to suit their resources and learners' needs and interests.)</p> <ul style="list-style-type: none"> <li>• textiles (cut fabric to size, finish edges, including a means of hanging, to make a pair of pleated curtains)</li> <li>• wood (cut wood to size, to make section of stud partition with 3 vertical studs, sole plate, intermediate noggin, head plate and horizontal section of standard door lining to one edge, with architrave over plasterboard to one side)</li> <li>• brick (mix mortar and construct brickwork panel, approximately 900 x 450 mm, to required wall thickness, using specified bond and pointing)</li> <li>• plaster (prepare surface, fit edge beads and apply 2 coat gypsum plaster with skim finish suitable for painting)</li> <li>• decorations (prepare, prime, and decorate new plaster wall surface, approx. 1 m<sup>2</sup>, with 2 coats emulsion, including cutting in at edges)</li> <li>• tiles (prepare, set out and tile wall area of approx. 1 m<sup>2</sup>, with balanced cut tiles to sides and grout in contrasting colour)</li> <li>• electrical (run cable between an imaginary supply and a wall socket; a light switch and lamp holder)</li> <li>• plumbing (cut and join four lengths of copper tube using a selection of end feed fittings)</li> <li>• heritage (dry stone wall building, with through stones, facing, pinning and copings).</li> </ul> <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"> <li>• measuring</li> <li>• marking</li> <li>• cutting</li> <li>• joining</li> <li>• shaping</li> <li>• assembling</li> <li>• mixing</li> </ul>

<sup>5</sup> relevant to the **three** selected trade areas



	<ul style="list-style-type: none"> <li>• finishing</li> <li>• applying surface treatments.</li> </ul>
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### 3.8 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 three of the above techniques, focussing on safe and environmentally responsible means of disposing or recycling of materials.

Content	Amplification
<p><b>3.8.1</b></p> <p>Safe and environmentally responsible means of disposing or recycling of materials</p>	<p>Learners should know and understand that:</p> <ul style="list-style-type: none"> <li>• preparation for construction, and the construction task itself, should aim to minimise waste</li> <li>• where possible, waste should be reused or recycled</li> <li>• non-reusable waste should be handled, stored and disposed of appropriately and in compliance with good practice and relevant regulations</li> <li>• where appropriate, shelf-life should be considered before and after use of products.</li> </ul>

### 3.9 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 three selected trade areas, including:

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

Content	Amplification
<p><b>3.9.1</b></p> <p>Ensuring the cleanliness and safety of work areas</p>	<p>Learners should understand:</p> <ul style="list-style-type: none"> <li>• the importance of ensuring the cleanliness and safety of work areas</li> <li>• that work areas should be clean and free of any obstructions or trip hazards</li> <li>• that the area should be adequately sized for the task allowing for safe completion of all activities</li> <li>• that first aid facilities should be easily reached.</li> </ul>
<p><b>3.9.2</b></p> <p>Correct personal protective equipment</p>	<p>The learner should know and understand that:</p> <ul style="list-style-type: none"> <li>• the correct personal protective equipment should be selected as part of the planning process and adhered to prior to starting, and during, construction tasks</li> <li>• personal protective equipment should be checked for damage and to ensure it is fit for purpose</li> <li>• personal protective equipment may be required for:                             <ul style="list-style-type: none"> <li>• respiratory protection (e.g. masks)</li> <li>• eye protection (e.g. goggles, visors)</li> <li>• hearing protection (e.g. ear plugs, earmuffs)</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• hand protection (e.g. gloves, barrier cream)</li> <li>• feet protection (e.g. steel toe-cap footwear)</li> <li>• head protection – (e.g. hard hats).</li> </ul>
<b>3.10 Evaluating construction tasks</b>	
<p>In this section learners will gain knowledge, understanding and skills in evaluating the quality of completed construction tasks, including how outcomes can be evaluated:</p> <ul style="list-style-type: none"> <li>• requirements of the brief</li> <li>• personally-set success criteria</li> <li>• needs of end users, including their safety.</li> </ul>	
Content	Amplification
<p><b>3.10.1</b> Requirements of the brief</p>	<p>Learners should be able to evaluate a finished construction task against the project requirements considering:</p> <ul style="list-style-type: none"> <li>• possible further improvements</li> <li>• areas of the project that were challenging.</li> </ul>
<p><b>3.10.2</b> Personally-set success criteria</p>	<p>Learners should be able to evaluate a finished construction task against personally-set success criteria considering whether:</p> <ul style="list-style-type: none"> <li>• all aspects of the task were within the levels of tolerance</li> <li>• the task was completed to the set timescale</li> <li>• the task was completed to the required quality.</li> </ul>
<p><b>3.10.3</b> Needs of end users, including their safety</p>	<p>Learners should be able to evaluate a finished construction task against the needs of end users, considering:</p> <ul style="list-style-type: none"> <li>• their health and safety</li> <li>• the intended purpose of the outcome of the construction task.</li> </ul>

## 4 Assessment

### 4.1 External assessment (Unit 1)

Unit 1 is assessed through an external examination available in January and May/June each year (first assessment in January 2024).

Each external examination will:

- be set and marked by WJEC
- consist of a 1 hour, 30 minute on-screen examination
- assess content from each topic in the unit each series
- include 80 marks
- include a balance of short and extended answer questions, based on stimulus material and applied contexts
- only use the command verbs listed in the Assessment Guide (Chapter 4)
- be graded Level 1 Pass, Level 1 Merit, Level 1 Distinction, Level 1 Distinction\*, Level 2 Pass, Level 2 Merit, Level 2 Distinction, Level 2 Distinction\*

All content in each topic area will be assessed over the lifespan of the specification. WJEC will produce a mark scheme which will be used as the basis for marking the examination papers.

For external assessments, centres must follow the Joint Council for Qualifications (JCQ) *Instructions for Conducting Examinations*, a copy of which can be accessed from the JCQ website. ([www.jcq.org.uk](http://www.jcq.org.uk)).

### 4.2 Internal assessment (Units 2 and 3)

Units 2 and 3 are assessed through controlled assessment, submitted for external moderation in January and May each year (first submission in January 2023). Centres must follow the instructions for running controlled assessments in the Administration Guide and within each Unit Guide. In line with these instructions, centres are required to have in place a controlled assessment policy (which can be part of a centre's NEA policy); this will be checked as part of the centre and qualification approval process.

### 4.3 Synoptic assessment

Unit 2 and Unit 3 are synoptic in nature and require learners to draw on knowledge and experience gained through Unit 1. See page 27 (Unit 2) or page 37 (Unit 3) for details.

#### 4.4 Candidate and assessor packs

Candidate and Assessor Assessment Packs are available on the secure website for centres to download. Candidates must not have access to the Candidate Packs until the start of the assessment which will be available during the September of each academic year. Sample Assessment Materials are available on the [wjec.co.uk](http://wjec.co.uk) website.

#### 4.5 Managing the assessments

Centres are required to manage and conduct internal assessments in line with the arrangements outlined in the Administration Guide. There are four areas that are controlled: supervision, guidance, and time collaboration. Specific details for Unit 2 and Unit 3 can be found in the SAMs and the corresponding unit guide.

## 5 Guided learning hours and total qualification time

### 5.1 Guided Learning Hours

Guided Learning Hours (GLH) means activities such as classroom-based learning, tutorials and online learning, which are directly supervised by a teacher, tutor or invigilator. It also includes all forms of assessment which take place under the immediate guidance or supervision of a teacher, supervisor or invigilator.

The total number of GLH assigned to this qualification is 120 hours.

Guided Learning Hours are allocated per unit to support centre planning and delivery. It is acceptable for centres to deliver this qualification holistically and, therefore, guided learning hours per unit are a recommendation only.

### 5.2 Total Qualification Time

Total Qualification Time (TQT) is the total amount of time, in hours, expected to be spent by a learner to achieve a qualification. It includes both the Guided Learning Hours (GLH) and additional time spent in preparation, study and some formative assessment activities.

The Total Qualification Time for this qualification has been calculated as 180 hours. This includes:

- 120 hours of guided learning and/or supervised assessment
- 60 hours of self-directed study which may include additional assignments and tasks set by the teacher (homework) and independent use of online learning resources.

## 6 Entries

### 6.1 Centre approval

In order to offer our qualifications, centres must have WJEC centre approval. The approval process involves completion of the relevant application form(s) and an assessment of the ability of the centre to meet WJEC and relevant JCQ requirements.

If your centre already offers General Qualifications and has been issued with an NCN centre number, please read the WJEC Conditions for Registered Centres and contact us to request an application form.

If you are a new institution, please read the following documents before contacting us to discuss your prospective centre:

- JCQ General Regulations for Approved Centres
- JCQ Instructions for Conducting Examinations
- WJEC Conditions for Registered Centres

If your centre wishes to submit entries and is not yet registered as a centre, please contact the Centre Support department at WJEC ([centres@WJEC.co.uk](mailto:centres@WJEC.co.uk)) for an application form. The completed form must be returned to WJEC no less than five months prior to the relevant entry deadline.

WJEC approved centres must adhere to the General Conditions for WJEC Centres and the appropriate JCQ regulations. All WJEC approved centres with a National Centre Number (NCN) must complete the annual declaration sent by NCN. Failure to do so will result in suspension of WJEC registration.

### 6.2 Entry procedure

WJEC Level 1/2 in Construction and the Built Environment will be available for certification from January 2024. Thereafter, each qualification will be available for certification each January and June.

#### Unit entry

Entry for individual units must be made by submitting the relevant unit codes as indicated on each unit of the specification.

### Qualification entry

Learners will be entered for the qualification when entering for aggregation (cash-in).

Aggregation does not take place automatically; it is necessary to enter the relevant code for aggregation to take place.

### Entry codes

		Entry code
Unit 1	External assessment	
Unit 2	Internal assessment	
Unit 3	Internal assessment	
Cash in code		

## 7 Awarding, grading and reporting

Vocational Awards are awarded on an 8-point scale: Level 2 Distinction\*, Level 2 Distinction, Level 2 Merit, Level 2 Pass, Level 1 Distinction\*, Level 1 Distinction, Level 1 Merit, Level 1 Pass. Candidates who do not achieve the uniform marks required to achieve a Level 1 Pass will have their achievement recorded as U (unclassified) and will not receive a certificate.

Individual units are recorded on a Uniform Mark Scale (UMS) with the following grade equivalences:

Unit	Max	Level 2				Level 1			
		D*	D	M	P	D*	D	M	P
Unit 1	120	108	96	84	72	60	48	36	24
Unit 2	180	162	144	126	108	90	72	54	36
Unit 3	180	162	144	126	108	90	72	54	36
<b>Qualification</b>	300	270	240	210	180	150	120	90	60



## 8 Resit arrangements

### 8.1 Resitting units prior to certification

Candidates may resit each **internally** assessed unit prior to certification but cannot improve previously submitted work. The best uniform mark score from the attempts will be used in calculating the final overall grade.

Candidates may resit the **externally** assessed unit prior to certification; however, this qualification has a 40% terminal requirement which must be satisfied by the externally assessed unit. Therefore, only the uniform mark score from the attempt made in the series in which the candidate is cashing in the qualification will be used in calculating the final overall grade, even if this is lower than the previous attempt.

### 8.2 Resitting units following certification

Candidates who are unhappy with the grade awarded for the qualification may choose to resit one or more units following certification.

Where the candidate resits the **externally** assessed unit, only the uniform mark score from the resit attempt will be used in calculating the final overall grade, even if this is lower than the previous attempt. The candidate does not need to resit the internally assessed unit as marks for the internally assessed unit may be carried forward for the lifetime of the specification.

Where the candidate resits the **internally** assessed unit, the higher of the uniform mark score from either the initial attempt or the resit attempt will be used in calculating the overall grade. The candidate will also need to resit the externally assessed unit to satisfy the terminal rule requirement for the qualification and only the uniform mark score from the resit attempt will be used in calculating the final overall grade, even if this is lower than the previous attempt.

### 8.3 Post-results services

Following the publication of results for each examination series, WJEC offers a range of post-results services relating to reviews of marking and moderation and access to examination scripts. Information on post-results services can be found on the Eduqas website.

## 9 Malpractice

Information regarding malpractice is available in our [Malpractice, A Guide for Centres](#) document.

All cases of suspected or actual malpractice must be reported to WJEC. If candidates commit malpractice they may be penalised or disqualified from the examinations.

In all cases of malpractice, centres are advised to consult the JCQ booklet [Suspected Malpractice: Policies and Procedures](#).

### 9.1 Preventing malpractice

Candidates must not:

- submit work which is not their own
- make available their work to other candidates through any medium
- allow other candidates to have access to their own independently sourced material
- assist other candidates to produce work
- use books, the internet or other sources without acknowledgement or attribution
- submit work that has been word processed by a third party without acknowledgement
- include inappropriate, offensive or obscene material.

Candidates are not prohibited from lending books or other resources to one another, but they must not plagiarise the research of others.

Candidates must not post their work on social media. They should be made aware of the JCQ document *Information for Candidates – Guidelines* when referring to examinations/assessments through the Internet – <http://www.jcq.org.uk/exams-office/information-for-candidates-documents/information-for-malpractice>

Heads of centre and senior leaders must ensure that those members of teaching staff involved in the direct supervision of candidates producing controlled assessment are aware of the potential for malpractice.

Teaching staff must be reminded that failure to report allegations of malpractice or suspected malpractice constitutes malpractice itself.

Teaching staff must:

- be vigilant in relation to candidate malpractice and be fully aware of the published regulations
- report any alleged, suspected or actual incidents of malpractice to the senior leadership team or directly to WJEC.