Criteria for the Diploma Qualifications in Construction and the Built Environment at Levels 1, 2 and 3

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Contents

The criteria

Introduction

1. The purpose of this document is to record a full set of criteria for principal learning for the Diploma in Construction and the Built Environment at levels 1, 2 and 3.

2. The Ofqual document *Criteria for Foundation, Higher and Advanced Diploma Qualifications* which defines the overarching criteria for all Diplomas at levels 1, 2 and 3, and should be read in conjunction with this document.

Aims

3. The general aims of the Diplomas are identified in Section 2 of the document *Criteria for Foundation, Higher and Advanced Diploma Qualifications*. The Diploma in Construction and the Built Environment is for all learners, and has particular relevance to 14- to 19-year-old learners who seek to acquire knowledge and develop skills in the broad context of the construction and the built environment industries.

Themes

4. The principal learning of the Diploma in Construction and the Built Environment is centred around the following three themes.

   - Design the built environment;
   - Create the built environment;
   - Value and use the built environment.

   This applies at all three levels.

5. The thematic approach provides, for the first time within construction and the built environment qualification design, an opportunity to make explicit the whole built environment cycle. All programmes of learning must provide the thematic approach to the built environment and include:

   - how solutions to needs are designed;
   - what processes are involved in creating buildings and structures;

- the value and uses of those buildings and structures, and the impact they have on communities and individuals.

6. The three themes must reflect the complexity and nature of construction and the built environment.

7. At level 1, learners can choose to undertake all their principal learning within the Construction and the Built Environment line of learning or 60 GLH can be selected by the learner from another line or lines of learning.. To achieve a level 1 Diploma in Construction and the Built Environment, all learners must complete topics 1 to 5 at level 1 (180 GLH). To complete principal learning of 240 GLH, learners can either select topics 6 and 7 (each 30 GLH) or 60 GLH from another line of learning.

8. At level 3, the principal learning external assessment will be180 GLH.

Structure

Structure of Diplomas in Construction and the Built Environment			
Level	*Foundation*	*Higher*	*Advanced*
Total GLH	600	800	1,080
Principal learning (GLH)	240	420	540
Generic learning (GLH)	240	200	180
Additional/specialist learning	120	180	360

Foundation level

Summary of topic titles

Topic no.	**Title**	**GLH**
	Theme A: Design the built environment	
1.1	Design the built environment: design influences	30
1.2	Design the built environment: applying design principals	30

	Theme B: Create the built environment	
1.3	Create the built environment: using tools	30
1.4	Create the built environment methods and materials	30
	Theme C: Value and use the built environment	
1.5	Value and use built environment	60
1.6	Maintenance of the built environment	30
1.7	Modern methods of construction	30

Topic 1.1: Design the built environment: design influences (30 GLH)

Purpose

9. Learners will be introduced to social, economic and infrastructure factors influencing design. They will be able to explain how planning of the built environment impacts on design, understand the need for sustainability and environmental protection, and describe the properties of a range of materials and their impact on the design of the built environment.

Scope of content

Learners will have an introduction to the broad human and physical factors to be taken into consideration in the design process.

Learners must know and understand:

- how the size and composition of the community will influence the design of buildings and structures;
- the role of the existing infrastructure and transport services;
- the intended use and users;
- economic influences (for example materials, labour and land costs).

Learners will be introduced to the role of planning in the design process. This will include:

- an introduction to how planning legislation (local and national) can affect design;
- how designs can be presented at each stage of the planning process;
- the need for different design solutions for different functions and purposes;
- how planning takes account of the local environment and local public opinion.

Learners will be introduced to how good design can help create a sustainable protected environment. This will include:

- an understanding of the importance of flora and fauna in the design process;
- sourcing materials from sustainable supplies;
- use of recycled materials and the need to preserve limited natural resources.

10. Learners will also gain an introduction to how the design process has to take into account the properties of different materials. This will involve exploring the basic properties of materials available for construction in terms of appearance, strength, durability, sound insulation, thermal insulation, fire resistance, suitability in relation to required function, sustainability and costs.

Topic 1.2: Design the built environment: applying design principles (30 GLH)

Purpose

11. Learners will understand why a range of structures are designed in the way that they are and apply this understanding to the design of a simple structure. In so doing, learners will be introduced to the range of job roles available to those involved in the design of the built environment.

Scope of content

Learners will be introduced to the broad range of factors that influence the design solution. This will include an introduction to how design needs to take account of:

- topography;
- ground conditions and movement;
- weather conditions;
- how structures need to meet the needs of local communities;
- how land availability and local population (for example density, nature) influence design solutions.

Learners will also be introduced to the processes involved in the creation of a realistic design for a specific structure. This involves:

- establishing the function of the structure;
- understanding the need to explore alternative design solutions and different materials;
- understanding whether the design can actually be built (buildability);
- establishing the skills needed to implement the design.

12. Learners will be introduced to career opportunities available to those involved in the design of the built environment. This will involve identifying the occupations that make up the areas of craft, technical, supervisory and management, their relationship with each other and progression opportunities.

Topic 1.3: Create the built environment: using tools (30 GLH)

Purpose

13. Learners will be introduced to a range of basic technical information and skills. They will identify and describe the major requirements for health and safety and environmental protection, use a range of hand tools and

equipment available to the construction crafts and building services, and apply safe working practices to undertake basic operations within the built environment.

Scope of content

Learners will be:

a) introduced to written and graphical information used in construction and the built environment; this will include simple specifications, schedules, drawing and manufacturer's information used at operative and craft levels;

b) have an opportunity to carry out a range of basic work activities, which will involve the selection of personal protective equipment (PPE) and safe methods of work;

c) gain an introduction to the contribution of good housekeeping, safety and protection of the environment, including knowledge of how the segregation and disposal of waste is carried out and how good lighting, temperature control and welfare facilities contribute to maintaining good methods of working;

d) be introduced to how to use hand tools when working with different materials, which will involve sharpening and maintaining hand tools and using hand tools and equipment for basic activities.

Topic 1.4: Create the built environment: methods and materials (30GLH)

Purpose

14. Learners will be introduced to the changes in construction methods and materials, including the current use of sustainable materials and processes. In so doing, learners will be introduced to job-roles available to those involved in the construction industry.

Scope of content

Learners will be

a) introduced to how mechanisation and new materials have influenced construction methods; this will include identifying the types of mechanical equipment and modern materials available, their use and how this has led to increased productivity;

b) develop knowledge of how to make best use of materials and processes to help sustain the built environment; this will involve developing understanding of sustainable materials, how they are processed and formed for use, which materials can be re-cycled and re-used, and where they can be incorporated in the build process;

c) introduced to career opportunities available to those involved in construction, which will involve identifying the occupations which make up the areas of craft, technical, supervisory and management, their relationship with each other and progression opportunities.

Topic 1.5: Value and use the built environment (60 GLH)

Purpose

15. Learners will identify how the existing infrastructure and transport services impact on people and places around them, and describe how the welfare of those who use the built environment can be ensured. They will also understand where and how sustainable materials and processes can be used in maintaining the built environment. Learners will develop a basic understanding of the life cycle of structures in the built environment and their local contribution (for example social and economic development). In so doing, learners will be introduced to a range of specific career opportunities available to those involved in this sector of construction and the built environment.

Scope of content

Learners will be introduced to:

a) the visual and social impact of the built environment, which involves knowing that different functions need different structures, and that they contribute in different ways to the built environment and the community; the impact of landmark structures and transport; and how individuals and communities can influence the built environment around them;

b) how the built environment can add to the wellbeing, happiness, safety, security and wealth of people: learners will identify ways in which the built environment can be made safer and more secure for people, and how the built environment can be changed to improve health, and will recognise the relationship between buildings and quality of life, and understand the role of the built environment in providing economic opportunities;

c) the ways in which a built environment can be maintained so that it protects the environment and minimises the use of scarce natural resources (this links with topics where learners develop understanding of the impact of the built environment on the natural environment, where renewable materials can be used and be recycled and re-used, and how individuals can contribute to the protection and maintenance of a protected environment);

d) how buildings and structures are planned, built, used and removed (life-cycle of structures), which introduces the ways in which land is used for different purposes and identifies the stages of design, planning, building, maintenance, operation and demolition of buildings and structures, and the economic importance of buildings;

e) career opportunities available to those involved in this area, through their understanding of the value and use of the built environment, which will involve identifying the occupations which make up the areas of craft, technical, supervisory and management, their relationship with each other and progression opportunities.

Topic 1.6: Maintenance of the built environment (30 GLH)

Purpose

16. Learners will be introduced to the principles and practices of basic building maintenance.

Scope of content

Learners will develop:

a) knowledge and understanding of the need for building maintenance and the importance of good design and workmanship;

b) the skills to identify common building defects and apply safe working practices when undertaking basic building maintenance operations.

Topic 1.7: Modern methods of construction (30 GLH)

Purpose

17. Learners will be introduced to modern methods of construction and their impact on traditional forms of construction.

Scope of content

Learners will:

a) be introduced to a range of traditional construction methods and the modern methods that have superseded them;

b) develop an understanding of why this has occurred, and the impact of modern methods of construction on speed, quality and costs.

Higher level

Summary of topic titles

Topic no	Title	GLH
	Theme A: Design the built environment	
2.1	Design the built environment: the design process	60
2.2	Design the built environment: materials and structures	60
2.3	Design the built environment: applying design principals	60
	Theme B: Create the built environment	
2.4	Create the built environment: structures	60
2.5	Create the built environment: using tools	60
	Theme C: Value and use the built environment	
2.6	Value and use the built environment: communities	60
2.7	Value and use the built environment: facilities management	60

Topic 2.1: Design the built environment: the design process (60 GLH)

Purpose

18. Learners will gain knowledge and understanding of the factors influencing the design process, identify planning requirements and their impact on design, examine the nature and use of utilities in the design of the built environment and learn to apply a range of technical information available to design the built environment.

Scope of content

Learners will:

a) acquire understanding of the wider factors that need to be taken into consideration during the design process: this will include the needs of the community, the social impact of the proposed structure, economic and infrastructure factors (including project funding and the lifespan of the structure);

b) understand how design can minimise the impact on the environment and the restrictions on design imposed by regulation and development policies;

c) understand and apply the processes involved in responding to planning requirements in the design process, including different types of planning requirements for a wide range of developments of different function and scale;

d) explore the implications of legislation and planning decisions on designs, alternative design solutions and designs to meet regulatory requirements will also be explored;

e) develop knowledge and understanding of the processes involved in accommodating the availability and location of utilities in the design process;

f) consider how, during the design process, the location and accessibility of utilities are taken into account, how utilities are distributed and scaled down, how maintenance requirements for utilities are considered and the environmental impact of utilities' provision;

g) acquire knowledge and understanding of, and apply relevant skills to, the major categories of technical information considered in the design process (that is, appropriate standards for material production, quality, methods of working and manufacturers' product information);

h) acquire and apply skills to interpret environmental information on climatic conditions;

i) consider the impact of local authority guidelines and requirements.

Topic 2.2: Design the built environment: materials and structures (60 GLH)

Purpose

19. Learners will investigate the use and properties of materials used in construction of the built environment, including how the use of sustainable materials can influence the design process, and explore a range of common structural forms and building elements used in the design process.

Scope of content

Learners will:

a) acquire understanding of the processes involved in using different materials, relevant to different structures and properties in the construction of the built environment, and how they influence the design process;

b) explore the different functions that materials can perform including inter-relationships between materials;

c) acquire knowledge of the manufacture, preparation, location and securing of materials, and apply skills by using selected materials;

d) develop knowledge and understanding of the principles involved in making best use of materials that protect and sustain the built environment and, in particular, how sustainable raw materials are processed to form materials for sustainable use, how eco-friendly materials and those that can be re-cycled are used, and how the structural properties of sustainable materials influence the design process;

e) review various alternative structures and components and their influence on the design process, including the benefits of different frame structures and how they impact on design, the nature and use of prefabricated elements and the common structural forms and materials

associated with them, and traditional on-site construction processes and their suitability for particular types of structures.

Topic 2.3: Design the built environment: applying design principles (60 GLH)

Purpose

20. Learners will apply design principles through the design and consideration of a complex structure. In so doing, learners will examine career pathways available to those involved in the design of the built environment.

Scope of content

Learners will

a) have the opportunity to apply their knowledge and understanding of the processes involved in the creation of a realistic design to a specific structure, either in terms of multiple components or functions;

b) establish the function of the structure and explore alternative design solutions, investigate the possibilities of different materials, consider the 'buildability' (whether it can be built) of the design, and identify the skills needed to implement the design;

c) explore job-roles, career progression and relevant qualifications for those involved in the design of the built environment; this will include craft, technical, supervisory and management job-roles, career progression opportunities, qualification requirements and the range and role of professional institutions.

Topic 2.4: Create the built environment: structures (60 GLH)

Purpose

21. Learners will identify and use a range of technical information used in the construction of the built environment. Learners will have the opportunity to investigate a range of methods, techniques, plant and tools used in the construction of groundworks, substructure, superstructure and external works.

Scope of content

Learners will:

a) acquire knowledge and understanding of technical information available and the ways in which it is presented;

b) be able to apply their skills to identify and explore different formats of graphical and written information, including accessing specifications, schedules and drawings from electronic databases;

c) acquire knowledge and understanding of the methods involved in forming the foundations of a structure and erecting the main framework; through this they will be able to understand how structures can be built entirely in-situ or be part fabricated off-site.

Topic 2.5: Create the built environment: using tools (60 GLH)

Purpose

22. Learners will understand a range of hazards and risks commonly encountered in the construction of the built environment and show how they can be minimised. Learners will apply good practice in safe working techniques by appropriate selection and use of a range of tools, materials and personal protective equipment to perform construction activities. In so doing, learners will develop knowledge and understanding of career pathways in the construction industry.

Scope of content

Learners will

a) develop knowledge and understanding of the likely hazards and risks encountered on-site and, through practical application of skills, in the workshop;

b) develop understanding of which materials have inherent hazards associated with their use, how methods of work should be devised to overcome them, and of the risks associated with work activities in confined spaces, below ground level, at height and in using equipment covered by legislation;

c) apply acquired skills to use appropriate hand-powered tools, natural and manufactured materials and associated personal protective equipment

related to operative, craft and technical occupations for a limited range of basic work activities and associated materials, and in so doing develop knowledge and understanding of the principles of safe working;

d) explore the occupational structure of the construction industry in relation to craft, technical, supervisory and management job-roles, career progression opportunities, qualification requirements and the range and role of professional institutions.

Topic 2.6: Value and use the built environment: communities (60 GLH)

Purpose

23. Learners will gain knowledge and understanding of the contribution that the built environment makes to the physical, spiritual and emotional wellbeing, and the economic prosperity of individuals and sustainable communities, as well as the way in which individuals and communities can contribute to sustainability. Learners will also understand the contribution of property services and housing to the development of the built environment and the wider community. In so doing, learners will examine key career pathways within this area of construction and the built environment.

Scope of content

Learners will:

a) understand the principles of sustainability and its contribution to the built environment, including how sustainable materials and processes are used, their contribution to environmental protection, and how the use of local materials (and those from renewable sources) and services can contribute to the local community, and reduce emissions and pollution;

b) explore the role of local infrastructure and transport services in influencing the local environment, and the ways of balancing the social, environmental and economic impacts on the environment;

c) apply their knowledge to review how the built environment can be improved to enhance the safety and health of individuals and communities, and investigate how the planning and development of the built environment can contribute to the creation of sustainable communities;

d) understand the role of public and private housing and its contribution to social policy and the wellbeing of communities by investigating the residential, industrial and commercial property market and its contribution to personal and organisational wealth (including the sale and purchase of assets);

e) review how the private and public use of built assets makes a direct contribution to local economies and communities;

f) acquire knowledge and understanding of job-roles, career progression and relevant qualifications available to those involved in this sector of the built environment, including craft, technical, supervisory and management job-roles, career progression opportunities, qualification requirements and the range and role of professional institutions.

Topic 2.7: Value and use the built environment: facilities management (60 GLH)

Purpose

24. Learners will understand the contribution of facilities management and support services to the maintenance, development and economic benefit of the built environment.

Scope of content

Learners will:

a) understand the processes involved in preserving, maintaining and managing the built environment, and how this contributes to wealth creation and quality of life

b) investigate ways in which a wide range of building maintenance and management services are contracted and delivered, including the financial contribution of managed services to the economy, the contribution of maintenance and support services to enhancing the lifespan of buildings and structures, and the economic and social benefits this brings.

c) apply their knowledge and understanding to explore the ways in which built structures are operated, managed and protected to ensure effective functioning as well as complying with relevant health and safety legislation

d) investigate how a range of building maintenance and service support functions are provided.

Advanced level

Summary of topic titles

Topic no.	Title	GLH
	Theme A: Design the built environment	
3.1	Design the built environment: design factors	60
3.2	Design the built environment: stages in design and planning processes	90
3.3	Design the built environment: physical and environmental influences	90
	Theme B: Create the built environment	
3.4	Create the built environment: health, safety and environmental influences	60
3.5	Create the built environment: management processes	90
	Theme C: Value and use the built environment	
3.6	Value and use the built environment: adding value to the wider community	90
3.7	Value and use the built environment: protecting and maintaining	60

Topic 3.1: Design the built environment: design factors (60 GLH)

Purpose

25. Learners will gain an understanding of the historical, political and infrastructure-related elements, including transport, economic, social and aesthetic factors influencing the design process.

Scope of content

Learners will

a) gain an understanding of the impact of a wide range of factors influencing the development and design of the built environment; this will enable learners to understand how the built environment has developed and changed over time, and the factors influencing changing styles and approaches to design, including the impact of different political policies and priorities, the impact of different forms of private and public funding on built environment projects, and the influence of the cyclical nature of economic growth and recession;

b) understand how the built environment responds to community needs and social integration, how it contributes to social engineering, including the impact of infrastructure requirements such as transport on design and the relationship between function, form and visual appearance on various architectural styles and landmark projects.

Topic 3.2: Design the built environment: stages in the design and planning processes (90 GLH)

Purpose

26. Learners will understand and apply the skills needed to explore urban design and its influence on the urban environment, the stages of the design processes and the stages of the planning process, and review the important factors that affect planning procedures and decisions. Through this topic, learners will gain knowledge and understanding of the career pathways available to those involved in the design of the built environment.

Scope of content

Learners will:

a) understand and apply the skills needed to explore principles and methods involved in urban design, and the factors influencing the existing and future spatial structure of urban form;

b) explore the design and governance of urban spaces and their contribution to social inclusion, economic growth, environmental sustainability, transport strategies and quality of life;

c) apply design skills in order to manipulate space and produce alternative strategic and detailed representation of the urban environment;

d) understand the interdisciplinary nature of the urban environment;

e) understand the principles involved in taking a design through the complete design cycle, understanding the need to establish and verify client requirements, explore the visual impact of the proposed design in relation to function and develop preliminary and refined design solutions;

f) identify different relationships in the process (including client/agent and design team);

g) understand the regulatory and planning requirements, and the technical and physical processes involved in realising the design;

h) know how to brief structural engineers and contractors;

i) explore the ways in which the design solutions are translated into working drawings and specifications to permit their construction;

j) ensure that through the planning cycle they can demonstrate knowledge of:

- the wider processes involved in major project planning (including the primary social, political and economic factors that influence the planning process);
- planning requirements and strategies to achieve an acceptable design solution;
- appropriate treatments of the design solution at each stage of the planning process;

- how to respond to circumstances to ensure continuing compliance with planning permission;
- the monitoring and approval requirements to ensure compliance with planning permission.

k) explore job roles, career progression and relevant qualifications for those involved in the design of the built environment, including craft, technical, supervisory and management job roles, career progression opportunities, qualification requirements and the range and role of professional institutions.

Topic 3.3: Design the built environment: physical and environmental influences (90 GLH)

Purpose

27. Learners will gain an understanding of health, safety and environmental factors influencing the design of the built environment, and investigate the provision of primary services and utilities to the design of buildings in terms of the main features, basic operating principles and the materials used. Learners will also understand the impact of projected climate change on the design of the built environment, and ways of minimising energy demand and reducing emissions to air, land and water.

Scope of content

Learners will:

a) gain knowledge and understanding of the principles involved in ensuring that health, safety and environmental protection (HSE) are fully reflected in the design process; this will include an understanding of how to incorporate HSE factors that ensure the safety and wellbeing of people using the built environment, and the need to ensure the security of people using the built environment;

b) respond to regulatory requirements for HSE, conduct risk assessments and incorporate risk management in the design process;

c) understand the design implications of maximising energy efficiency and environmental protection;

d) gain knowledge and understanding of processes that ensure the external supply of utilities and the functioning of the built structure are accommodated within the design process; this will include:

- how the provision, location, accessibility and maintenance of utilities influence the design process;
- how utilities are scaled down to provide effective supply;
- the implications for design relating to how utilities are distributed;
- how to ensure that environmental and energy efficiency is taken into account during design;
- how to build in factors which will enhance the management of the built environment;

e) gain knowledge and understanding of principles which ensure that the design process takes full account of environmental and climatic changes and future predictions; this will involve understanding:

- the influence of global warming on the built environment
- how to 'design in' protection of the built environment against changes in the water table and drought;
- how design processes can minimise emissions to the air and contribute to energy efficiency;
- how waste disposal can affect land pollution and how the design process can minimise this;
- ways of designing-in the most effective form of heat exhaust;

f) gain an understanding of the role of energy use, sourcing, management and renewal and their contribution to the built environment;

g) understand the principles of renewable energy and their impact on technical, economic and social factors in the design process;

h) explore sources of energy and ways in which energy performance can be enhanced in order to contribute to responsible design.

Topic 3.4: Create the built environment: health, safety and environmental influences (60 GLH)

Purpose

28. Learners will gain an understanding of:

- how to protect and maintain the environment during construction;
- the health, safety and environmental factors influencing the creation of the built environment;
- how to conserve natural resources and recycle waste;
- the principles of renewable energy and its technical and social implications.

Scope of content

Learners will:

a) gain knowledge and understanding of the principles involved in safeguarding structures and their surrounding areas during construction, including knowledge of regulatory requirements and planning conditions governing the construction process, and how companies and employees implement procedures to comply with given requirements and conditions;

b) gain an understanding of how to monitor the magnitude of health and safety and environmental issues created by the construction process, including:

- knowledge of current legislation and information on non-fatal injuries and fatalities;
- their influence on the construction process in terms of the cost of safety;
- the cost implications associated with the supply chain, sustainability of resources and implementation of modern methods of construction;

c) gain knowledge and understanding of the principles involved in making best use of materials to sustain resources for the built environment, which will involve an understanding of:

- how sustainable raw materials are processed to form resources for sustainable use;
- which materials are eco-friendly and can be recycled;
- the uses of sustainable materials and how they influence the construction of the built environment;

d) gain knowledge and understanding of energy production and conservation in relation to renewable energy sources, and apply relevant audit skills.

Topic 3.5: Create the built environment: management processes (90GLH)

Purpose

29. Learners will gain an understanding of the construction processes required to create sub- and superstructures. Through application of skills, learners will gain knowledge and understanding of a range of project management tools and techniques, as well as a range of quality-assurance and project-monitoring processes. Through this topic, learners will gain knowledge and understanding of the career pathways available to those involved in the construction of the built environment.

Scope of content

Learners will:

a) develop knowledge of, and apply skills in, the technology required to bring a construction project (including finishes and services) to its successful conclusion;

b) explore key methods used in the creation of the built environment, compare modern methods and traditional techniques, and investigate their impact on cost, duration of project time, health, safety and environmental risks, and the needs of society;

c) develop knowledge and understanding of, and skills in, the processes involved in the management of projects, including application of personal skills required for dealing with individuals and groups of employees, as well as the skills required to manage strengths, weaknesses, opportunities and threats associated with construction and the built environment projects;

d) develop knowledge and understanding of, and skills in, the procedures needed to ensure the quality of work meets the given specification and of how the project is monitored throughout the construction cycle; this will include how to 'snag' the work during, and on completion of, the work programme, and how to monitor and evaluate material and labour costs, work in process, plant hire costs and production costs as part of the project process;

e) explore job-roles, career progression and relevant qualifications for those involved in the construction of the built environment, including craft, technical, supervisory and management job-roles, career progression opportunities, qualification requirements and the range and role of professional institutions.

Topic 3.6: Value and use the built environment: adding value to the wider community (90GLH)

Purpose

30. Learners will gain an understanding of how to engage stakeholders and communities in the development and use of the built environment and the local infrastructure, including transport. Learners will also understand the social, economic and commercial contribution of the built environment to the wider community. Through this topic learners will gain knowledge and understanding of the career pathways available to those involved in this area of construction of the built environment.

Scope of content

Learners will:

a) gain knowledge of principles and practices in relation to engagement of the whole community in the creation and use of the built environment, including:

- the role and contribution of the primary stakeholders in the built environment and their different perspectives and interests;
- how to balance the needs of different stakeholders and communities;

- alternative ways in which individuals and communities can contribute to, and influence, decisions about the development of the built environment;\

b) understand principles and practices in relation to the contribution of the built environment to economic activity, prosperity and social cohesion, including:

- the economic and business drivers within the built environment and how they influence its development;
- the financial contribution of built environment activities to the broader economy;
- the contribution of the built environment in achieving social objectives and community development;

c) gain an understanding of the contribution made by planning to the wellbeing of individuals and communities, social cohesion and community development.

d) understand the primary social, political and economic factors that influence the planning process and how they relate to other components of the design process;

e) explore job-roles, career progression and relevant qualifications for those involved in this area of the built environment, including craft, technical, supervisory and management job-roles, career progression opportunities, qualification requirements and the range and role of professional institutions.

Topic 3.7: Value and use the built environment: protecting and maintaining (60GLH)

Purpose

Learners will gain knowledge and understanding of:

- how to protect and maintain the environment during use of the built environment
- how to protect the physical structure of the built environment
- the role of asset management in the economic and social development of the built environment.

Scope of content

Learners will:

a) gain knowledge and understanding of the principles and practices in relation to ensuring that the use of buildings and structures protects the environment, including an understanding of how to minimise energy demand and reduce emissions to air, land and water;

b) understand sustainable processes which optimise social, economic and environmental benefits;

c) understand the contribution of the local infrastructure, including transport services, to the maintenance of the built environment;

d) understand technologies and materials that can contribute directly to sustainability;

e) understand how to engage stakeholders and communities in protecting the built environment;

f) understand methods of ensuring that buildings and structures are protected from damage and kept secure;

g) understand the principles and practices in relation to keeping the physical fabric of the built environment secure, which will include:

- techniques for maintaining the integrity of the structure from damage from the elements and people;
- ways of protecting the built environment in order to extend its period of usefulness;
- the contribution of protecting the built environment to social and community objectives;

h) gain knowledge and understanding of principles and practices in relation to the management of built assets to achieve economic and social benefits, which will include:

- the full range of asset management activities for both private and public provision;
- the financial value of asset management services and their contribution to the national and local economy;

- the impact of asset management services on the lifespan, financial viability and social utility of built assets;
- the impact of well-managed assets on the safety, comfort and wellbeing of individuals and communities.

Level 1 specialist areas

Specialist areas	**Purpose**
Impact of construction and the built environment on individuals and communities	Learners will be introduced to the contribution of the built environment to individuals and the wider community.
Handling and storing resources	Learners will be introduced to the safe manual handling of construction materials and their storage.
Living in the built environment	Learners will be introduced to the role of property and housing in our lives and its contribution to quality of life and prosperity.
Supporting the built environment	Learners will be introduced to the support services involved in maintaining and protecting the built environment.
Building services engineering	Learners will be introduced to building services engineering (air conditioning and refrigeration, electrical installation, heating and ventilation, plumbing) and the range of career pathways within this sector.
Engineering construction	Learners will be introduced to the breadth and scale of the engineering construction sector.

Level 2 group/pathway: construction

Group/pathway	Specialist areas	Purpose
Construction	Wood-related construction operations	Learners will develop knowledge, understanding and relevant skills in processes and techniques required to perform a range of wood-related construction operations.
	Trowel-related construction operations	Learners will develop knowledge, understanding and relevant skills in processes and techniques required to perform a range of trowel-related construction operations.
	Decorative-related construction operations	Learners will develop knowledge, understanding and relevant skills in processes and techniques required to perform a range of decorative-related construction operations.
	Construction and civil engineering operations	Learners will develop knowledge, understanding and relevant skills in processes and techniques required to perform a range of construction

		and civil engineering operations.
	Industrial pipe-fitting operations	Learners will develop knowledge, skills and understanding and develop relevant skills in the principles of industrial pipe-fitting.
	Metal-related operations	Learners will develop knowledge, understanding and relevant skills in the use of tools, equipment, techniques and processes involved in the preparation, shaping, joining and finishing of metals and metal products used within the construction process.
	Management of resources, plant and equipment	Learners will develop knowledge, understanding and relevant skills in the management of resources, plant and equipment.
	Installation and assembly of prefabricated units	Learners will develop knowledge, understanding and relevant skills in the installation of prefabricated factory produced units.
	Structural steel-working operations	Learners will develop knowledge,

		understanding and relevant skills in the principles of structural steel-working.
	Glazing operations	Learners will develop knowledge, understanding and relevant skills in the techniques of glazing in the construction and maintenance of buildings.
	Welding and fabrication	Learners will develop knowledge, understanding relevant skills in principles and techniques of welding and fabrication.

Level 2 group/pathway: building services engineering

Group/pathway	Specialist areas	Purpose
Building services engineering	Building services engineering (NB: This topic is a mandatory requirement for learners undertaking level 2 performing and plumbing operations, performing refrigeration and air-conditioning operations, performing heating and ventilating operations, and performing electrical installation	Learners will develop knowledge, understanding and relevant skills in building services engineering, and the range of occupations and careers available within the sector.

	operations.)	
	Plumbing operations	Learners will develop knowledge, understanding and relevant skills in plumbing systems, their operational features and characteristics.
	Refrigeration and air-conditioning operations	Learners will develop knowledge, understanding and relevant skills in refrigeration and air-conditioning (RAC) operations, RAC systems, their operational features and characteristics.
	Electrical installation operations	Learners will develop knowledge, understanding and relevant skills in electrical installation systems, and their operational features and characteristics.
	Heating and ventilating operations	Learners will develop knowledge, understanding and relevant skills in heating and ventilating systems, and their operational features and characteristics.

Level 2 group/pathway: management of built assets

Group/pathway	Specialist areas	Purpose
Management of built assets	Facilities management and support services	Learners will develop knowledge, understanding and relevant skills in the management and delivery of support services in buildings and other structures and their immediate surroundings, including cleaning and the maintenance of a safe and hygienic environment.
	Housing services	Learners will develop knowledge, understanding and relevant skills in the allocation, letting and maintenance of the housing stock in the public and private sector.
	Surveying for the built environment	Learners will develop knowledge, understanding and relevant skills in surveying techniques and activities used in the built environment.
	Sale and letting of residential, industrial and commercial property	Learners will develop knowledge, understanding and relevant skills in the sale, letting and management of residential, industrial

		and commercial property.
	Planning construction and the built environment	Learners will develop knowledge, understanding and relevant skills in the processes involved in planning the development of the built environment.
	Introduction to valuation	Learners will develop knowledge, understanding and relevant skills in establishing the value of physical assets within the built environment.
	Community management and regeneration	Learners will develop knowledge, understanding and relevant skills in relation to the contribution of housing services to community development and regeneration.

Level 2 group/pathway: generic topics

Group/pathway	**Specialist areas**	**Purpose**
Generic topics	Performing built environment maintenance operations	Learners will develop knowledge, understanding and relevant skills in the principles and practices of basic building maintenance.

	Relationship of construction and the built environment to the wider community	Learners will develop knowledge, understanding and relevant skills in the impact of the built environment on local communities, and on the quality of life of individuals within the communities.

Level 3 group/pathway: construction

Group/pathway	Specialist areas	Purpose
Construction	The relationship of the built environment to the wider community	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the way in which the built environment influences, and is influenced by, communities and individuals.
	Site surveying	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the full range of surveying and related support services involved in performing a range of surveying

		activities.
	Civil engineering construction	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices, in relation to the fundamental techniques, processes and materials associated with civil engineering construction. The role and responsibilities of the civil engineer within the construction industry will also be examined.
	Energy and utility supply	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the installation and maintenance of utilities services.
	Construction health and safety	Learners will develop knowledge and understanding, and apply relevant skills, in the hazards, risks and legislative requirements associated with health, safety and welfare in construction work.

	Setting out processes	Learners will develop knowledge and understanding, and apply relevant skills in, the mathematical and practical site surveying skills to perform the typical 'setting out' processes required in construction work.
	Transport	Learners will develop knowledge and understanding, and apply relevant skills, in the scope and the activities of the transport sector, its key features, its role in the development of society, the planning, design, construction, installation and operation of traffic and transport systems.

Level 3 group/pathway: building services engineering

Group/pathway	**Specialist areas**	**Purpose**
Building services engineering	Integrated facilities management and support services	Learners will develop knowledge and understanding, and apply relevant skills, in principles and practices in relation to the full range of services involved in delivering a broad range of discrete and integrated support

		services, including building maintenance, space management, catering, cleaning and security.
	Building services engineering (electrical)	Learners will develop knowledge and understanding, and apply relevant skills, in the underlying regulations, standards, industry codes of practice and principles associated with the design and installation of low voltage electrical systems for buildings and structures.
	Building services engineering (mechanical)	Learners will develop knowledge and understanding, and apply relevant skills, in regulations, standards, industry codes of practice and principles associated with the design and installation of mechanical engineering services systems (air conditioning and refrigeration, heating and ventilation and plumbing) for buildings and structures.

Level 3 group/pathway: management of built assets

Group/pathway	Specialist areas	Purpose
Management of built assets	Sale, letting and management of built assets	Learners will develop knowledge and understanding, and apply relevant skills, in the range of services involved in the sale, letting and management of built assets, including residential and commercial property.
	Valuation services	Learners will develop knowledge and understanding, and apply relevant skills, in the full range of services involved in establishing the value of property in the built environment for sale, lending and asset purposes.
	The relationship of the built environment to the wider community*	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the way in which the built environment influences and is influenced by communities and individuals.

	Integrated facilities management and support services*	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the full range of services involved in delivering a broad range of discrete and integrated support services, including building maintenance, space management, catering, cleaning and security.
	Community management and regeneration	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the role of housing in contributing to the development of sustainable communities.
	Housing management services	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the full range of activities involved in managing housing

		processes and activities in the built environment.
	Site surveying*	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the full range of surveying and related support services involved in performing a range of surveying activities.
	Residential block management	Learners will develop knowledge and understanding, and apply relevant skills, in the processes involved in the management of residential blocks, including negotiating management agreements, providing services, preparing service provision bids, managing finances and providing the full range of block management services.
	Building surveying and support services	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the full range of building

		surveying services, including surveying the internal and external fabric of a building as well as its internal services.

* These topics appear in more than one pathway at level 3. They can only contribute once to the total number of units/GLH for the level 3 Diploma in Construction and the Built Environment.

Level 3 group/pathway: management in the built environment

Group/pathway	**Specialist areas**	**Purpose**
Management in the built environment	Financial management and control	Learners will develop knowledge and understanding, and apply relevant skills, in techniques used to manage finances and control spending within projects.
	Supply chain relationship management	Learners will develop knowledge and understanding, and apply relevant skills, in the various types of supply chain operating in the built environment and the skills required to manage the supply process.
	Managing the built environment	Learners will develop knowledge and understanding, and

		apply relevant skills, in the principles and practices in relation to the generic skills involved in the management of all aspects of the built environment.
	Team leadership and participation	Learners will develop knowledge and understanding, and apply relevant skills, in the ways in which teams are formed, managed and operated.

Level 3 group/pathway: generic topics

Group/pathway	Specialist areas	Purpose
	Heritage	Learners will develop knowledge and understanding, and apply relevant skills, in conservation construction work. Learners will develop an understanding of the requirements of using traditional methods of construction and materials that are sympathetic to the period of work.
	The regulatory framework and compliance	Learners will develop knowledge and understanding, and apply relevant skills,

		in the principles and practices in relation to the main legislative and regulatory requirements, and their impact on the processes and practices within the built environment.
	Planning the built environment	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the full range of services involved in planning the design, building and maintenance of the built environment, including infrastructure services.
	Technical drawing	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to reading and understanding drawings and details, and the basic skills required to produce graphical information using manual techniques.
	CAD	Learners will develop knowledge and understanding, and

		apply relevant skills, in the principles and practices in relation to CAD within built environment design.
	Client, customer and supplier management in the built environment	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to basic economic principles, the various types of chain supplies operating in the built environment and customer service practices.
	Mathematical techniques in construction and the built environment	Learners will develop knowledge and understanding, and apply relevant skills, in using mathematical techniques to solve typical construction and the built environment problems.
	Measuring, tendering and estimating processes in construction and the built environment	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the measurement, estimating and tendering processes that are used in a typical project in the construction

		industry, in both the pre- and post-contract stages.
	Science and materials in construction and the built environment	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to the basic factors that affect human comfort in the internal environment, the nature of forces acting on structures and their effects.
	Structural mechanics	Learners will develop knowledge and understanding of structural behaviour, beams, columns, frameworks and retaining walls, and apply relevant skills in simple beam and column design.
	Renewable energy sources	Learners will develop knowledge and understanding, and apply relevant skills, in the principles and practices in relation to energy production and energy conservation with regard to renewable energy sources.

Personal, learning and thinking skills

31. Awarding organisations must design learning outcomes and assessment criteria that clearly include opportunities for the development of personal, learning and thinking skills (PLTS). At all levels of the Diploma, principal learning must include all six PLTS. These should be integrated as a minimum within the assessment criteria for principal learning to explicitly recognise the application of these skills within sector-relevant contexts.

32. Awarding organisations must also provide a clear mapping of the coverage of PLTS within their submission. This should be at the level requested under each topic within the criteria, such as 'independent enquirers', 'creative thinkers' and so on.

33. Learners will explore job-roles, career progression and relevant qualifications for those involved in the design of the built environment. This includes craft, technical, supervisory and management job-roles, career progression opportunities, qualification requirements and the range and role of professional institutions.

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