

## Unit 43: Construction Technology and Design in Construction and Civil Engineering

Unit code: T/600/0283

QCF Level: 3

Credit value: 10

Guided learning hours: 60

### Unit aim

The aim of this unit is to enable learners to gain knowledge of construction methods and factors that influence design, and develop skills in communicating ideas between team members and in translating construction details into written and graphical instructions.

### Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria
1 Know the factors that influence the design process	1.1 Describe the factors that influence the design process
2 Be able to communicate ideas between various members of the design and production teams	2.1 Explain the roles and responsibilities of the design team
	2.2 Explain the roles and responsibilities of the production team
	2.3 Describe the legal implications that could arise from miscommunication
	2.4 Produce written communications between members of the design and production teams
3 Know about construction methods	3.1 Describe construction methods using relevant terminology
4 Be able to translate construction details into written and graphical	4.1 Create specifications for construction details, providing

instructions	suitable instructions for the construction team
	4.2 Produce sketch designs, plans, elevations, sections and details using standard conventions and symbols

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## Unit content

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### 1 Know the factors that influence the design process

*Factors:* financial; social; client needs; legal and environmental constraints for the design team (building regulations, health, safety and welfare); Construction Design and Management (CDM) Regulations; planning acts

*Design process:* need for and benefits of a structured framework for design eg RIBA (Royal Institute of British Architects) Plan of Work/Job Book; characteristics of individual stages; factors that affect each stage; ways in which various stages interconnect

### 2 Be able to communicate ideas between various members of the design and production teams

*Design team:* client; architect; architectural technologist; landscape architect; structural engineer; services engineer; facilities manager; qualifications

*Production team:* project manager; site manager; quantity surveyor; site engineer

*Legal implications:* legal position of each member of a design team; rights of client; damages; negligence; health, safety and welfare; environment

*Written communications:* brief (initial brief; after consideration of client's requirements; to aid design); decision-making process; factors that contribute to making design decisions; influence of such decisions on final project outcome

### 3 Know about construction methods

*Construction methods:* characteristics, applications and limitations of traditional and modern methods of construction; influence of these on design; identification of multiple construction options to satisfy requirements of a given design; variety of construction options available to satisfy the primary and secondary requirements of a design; sustainability

*Terminology:* construction and architectural terminology to describe traditional and modern building elements and methods; terminology associated with legislation; health and safety and environmental factors

### 4 Be able to translate construction details into written and graphical instructions

*Specifications:* to meet requirements of client, building control and production team

*Sketch designs:* multiple options in sketch form to satisfy given brief and comply with technical, financial, legal and environmental constraints; drawings and documentation needed to make a formal planning and Building Regulations application; working drawings and details to facilitate construction, to include variations and superseded drawings; compliance with current British Standards, eg BS1192, Drawing Office Practice