

BTEC

HIGHER NATIONALS

**Construction and the
Built Environment**

UNIT DIRECTORY 2022/23



**Higher National
Certificate Lvl 4**

HNC Construction & The Built Environment Programme Structure 2022-23

60 Credits

Unit Number	Unit Title	Credits	Level	Core/ Optional
2	Construction Technology	15	4	Core
3	Science & Materials	15	4	Core
5	Legal & Statutory Responsibilities in Construction	15	4	Optional
6	Construction Information (Drawing, Detailing, Specification)	15	4	Optional

Unit 2: Construction Technology

Unit code	Y/615/1388
Unit type	Core
Unit level	4
Credit value	15

Introduction

The basic principles of construction technology have not changed for hundreds of years. However, the materials and techniques used to achieve these basic principles are constantly evolving; to enable the construction industry to deliver better quality buildings. Scarcity of resources and the continuing demand of more sophisticated clients, end users and other stakeholder interests, are driving the construction industry to provide buildings which facilitate enhanced environmental and energy performance, and greater flexibility, in response to ever increasing financial, environmental, legal and economic constraints.

This unit will introduce the different technological concepts used to enable the construction of building elements; from substructure to completion, by understanding the different functional characteristics and design considerations to be borne in mind when selecting the most suitable technological solution.

Topics included in this unit are: substructure, superstructure, finishes, building services and infrastructure components. On successful completion of this unit a student will be able to analyse scenarios and select the most appropriate construction technology solution.

Learning Outcomes

By the end of this unit, a student will be able to:

- 1 Explain the terminology used in construction technology
- 2 Describe the different techniques used to construct a range of substructures and superstructures, including their function and design selection criteria
- 3 Identify the different types of civil engineering/infrastructure technology used in support of buildings
- 4 Illustrate the supply and distribution of a range of building services and how they are accommodated within the building.

Essential Content

LO1 Explain the terminology used in construction technology

Types of construction activity:

Low, medium and high-rise buildings, domestic buildings, for example house, flats and other multi-occupancy buildings, commercial buildings, for example offices and shops, industrial buildings, for example, light industrial and warehouses.

Construction technology terminology:

Loadbearing and non-loadbearing, structural stability, movement and thermal expansion, durability, weather and moisture resistance, aesthetics, fire resistance, sound insulation, resistance to heat loss and thermal transmission, dimensional co-ordination and standardisation, sustainability and scarcity of availability, on-site and off-site construction, legal requirements, buildability, health & safety.

Construction information:

Drawings, specification, schedules, CAD, Building Information Modelling (BIM).

Sustainability:

Supply chain

Lifecycle

'Cradle-to-grave'

'Cradle-to-cradle'

Circular economies.

LO2 Describe the different techniques used to construct a range of substructures and superstructures, including their function and design selection criteria

Pre-design studies:

Desk-top, Site Reconnaissance, Direct Soil Investigation techniques.

Substructure functions and design considerations:

Different methods for gathering disturbed and undisturbed samples, influence of soil type on foundation design, including water and chemical content, potential loads, position of trees and the impact on foundations, economic considerations, legal considerations (health & safety work in excavations), building regulations, plant requirements.

Types of foundations:

Shallow and deep foundations, strip and deep strip foundations, pad foundations, raft foundations, piled foundations (replacement and displacement piles).

Types of superstructure:

Traditional construction, framed construction: steel, composite concrete and steel, timber.

Walls; roofs; structural frames; claddings; finishes; services.

Walls:

External walls: traditional cavity, timber frame, lightweight steel.

Cladding: panel systems, infill systems, composite panel systems, internal partition walls.

Roofs:

Pitched and flat roof systems, roof coverings.

Floors:

Ground floors, intermediate floors, floor finishes.

Staircases:

Timber, concrete, metal staircases, means of escape.

Finishes:

Ceiling, wall and floor finishes.

LO3 Identify the different types of civil engineering/infrastructure technology used in support of buildings

Site remediation and de-watering:

Contamination management: cut-off techniques, encapsulation.

Soil remediation: stone piling, vibro-compaction.

De-watering: permanent sheet piling, secant piling, grout injection freezing, temporary techniques, such as pumping, wells, electro-osmosis.

Substructure works:

Basement construction: steel sheet piling, concrete diaphragm walls, coffer dams, caissons, culverts.

Superstructure works:

Reinforced concrete work: formwork, reinforcement, fabrication, concrete, steel.

LO4 Illustrate the supply and distribution of a range of building services and how they are accommodated within the building

Primary service supply

Cold water

Gas

Electricity.

Services distribution

Hot and cold water

Single-phase and 3-phase electricity

Air conditioning ductwork.

Services accommodation:

Raised access flooring

Suspended ceilings

Partitioning

Rising ducts.

Learning Outcomes and Assessment Criteria

Pass		Merit	Distinction
L01 Explain the terminology used in construction technology			
P1 Describe the differences between residential, commercial and industrial buildings P2 Explain how the functional characteristics and design selection criteria are informed by proposed building use P3 Discuss the ways in which sustainability can be promoted in building projects	M1 Apply the terminology used in construction technology to a given building construction project	D1 Evaluate how the functional characteristics and design selection criteria impact on the eventual design solution	
L02 Describe the different techniques used to construct a range of substructures and superstructures, including their function and design selection criteria			
P4 Describe the pre-design studies carried out and types of information collected for a given construction site P5 Explain the functional characteristics and design criteria for primary and secondary elements of a building substructure and superstructure	M2 Analyse how site conditions impact on the design of foundations M3 Illustrate how the component parts of an element allow it to fulfil its function	L02 and L03 D2 Prepare a design report identifying superstructure, substructure and civil engineering structures necessary for a given building construction project	
L03 Identify the different types of civil engineering/infrastructure technology used in support of buildings			
P6 Describe techniques used for remediating the site prior to construction commencing P7 Describe the types of substructure works carried out by civil engineers	M4 Compare different types of structural frame used to carry the primary and secondary elements of the superstructure		

Pass	Merit	Distinction
LO4 Illustrate the supply and distribution of a range of building services and how they are accommodated within the building.		D3 Appraise how the distribution of the primary services impact on the overall design of the building
P8 Describe the supply arrangements for primary services P9 Explain the distribution arrangements for primary services	M5 Demonstrate the elements of the superstructure used to facilitate the primary services	

Recommended Resources

Textbooks

- BRYAN, T. (2010) *Construction Technology: Analysis and Choice*, Oxford: Blackwell.
- CHARTLETT, A. and MAYBERY-THOMAS, C. (2013) *Fundamental Building Technology*. 3rd ed. Abingdon: Routledge.
- CHUDLEY, R. et al. (2012) *Advanced Construction Technology*. 5th ed. Harlow: Pearson Education Limited.
- CHUDLEY, R. and GRENN, R. (2016) *Building Construction Handbook*. Abingdon: Routledge.
- FLEMING, E. (2005) *Construction Technology: An Illustrated Introduction*. Oxford: Blackwell.

Links

This unit links to the following related units:

Unit 3: Science & Materials

Unit 6: Construction Information (Drawings, Detailing, Specification)

Unit 7: Surveying, Measuring & Setting-out

Unit 14: Building Information Modelling

Unit 15: Principles of Refurbishment

Unit 18: Civil Engineering Technology

Unit 25: Management for Complex Building Projects

Unit 27: Construction Technology for Complex Building Projects

Unit 35: Alternative Methods of Construction

Unit 46: Advanced Materials

Unit 3: Science & Materials

Unit code	D/615/1389
Unit type	Core
Credit value	15

Introduction

Science and material performance are intrinsically linked through the need to create structures and spaces that perform in both mechanical operation and in providing human comfort.

This unit aims to support students to make material choices to achieve the desired outcomes of a brief. This is approached from the perspective of materials being fit for purpose; as defined by testing standards and properties, but also by consideration of the environmental impact and sustainability. Awareness of Health & Safety is considered alongside the need to meet legislative requirements.

The topics covered in this unit include: Health & Safety; storage and use of materials; handling, and problems associated with misuse and unprotected use; environmental and sustainable consideration in material choices; and human comfort performance parameters. Material choice is developed through the understanding of testing procedures to establish conformity to standards and define performance properties. The performance of materials to satisfy regulations and provide appropriate comfort levels is addressed through design and calculations.

Upon successful completion of this unit students will be able to make informed decisions regarding material choices; based on understanding the structural behaviour of materials established through recognised testing methods, sustainability, context of build, and Health & Safety. Students will also be able to perform the calculations necessary to establish anticipated performance of the materials in-use and therefore determine their compliance with regulations and suitability.

Learning Outcomes

By the end of this unit, a student will be able to:

- 1 Review health & safety regulations and legislation associated with the storage, handling and use of materials on a construction site
- 2 Discuss the environmental and sustainability factors which can impact on and influence the material choices for a construction project
- 3 Present material choices for a given building using performance properties, experimental data, sustainability and environmental consideration
- 4 Evaluate the performance of a given building in respect of its human comfort requirements.

Essential Content

LO1 **Review health & safety regulations and legislation associated with the storage, handling and use of materials on a construction site**

Regulations and guidance:

Health & safety management regulations

Design management regulations

Provision and use of equipment regulations

Control and management of hazardous materials through storage, movement and use.

Materials handling and installation:

Risk assessments and method statements (qualitative and quantitative)

Materials storage: moving materials safely; working in confined spaces; working at height

Occupational health risks associated with materials: asbestos-related and respiratory disease; dermatitis and skin problems; musculoskeletal disorders; hand arm vibration

Personal Protective Equipment (PPE).

LO2 **Discuss the environmental and sustainability factors which can impact and influence the material choices for a construction project**

Environmental considerations:

Lifecycle assessment

Environmental profile methodology

Environmental product declaration and certification

Embodied energy

Waste management: the economics and technologies of construction waste disposal.

Sustainability:

Resource availability and depletion: renewable and non-renewable materials

Reuse and recycling of construction and demolition waste

Waste and Resources Action Programme (WRAP).

Environmental assessment methods:

Building Research Establishment Environmental Assessment Method (BREEAM)

Leadership in Energy and Environmental Design (LEED)

Green Star

Estidama, or other forms of environmental assessment

Construction Industry Research Information Association.

LO3 Present material choices for a given building using performance properties, experimental data, sustainability and environmental consideration

Material testing:

Testing methods, interpreting test data

Codes and standards.

Structural behaviours

Performance properties: strength, elasticity, toughness, hardness, creep, fatigue, porosity, brittleness, density, thermal conductivity, durability

Inherent material properties.

Relationship between material properties, behaviour and use

LO4 Evaluate the performance of a given building in respect of its human comfort requirements

Human comfort provision:

Indoor environmental quality: thermal, illumination, sound, ventilation

Thermal losses and gains

Passive and active design: design solutions, environmental benefit vs implementation cost

Calculations of u-values, lux levels, acoustic and ventilation.

Learning Outcomes and Assessment Criteria

Pass	Merit	Distinction
LO1 Review health & safety regulations and legislation associated with the storage, handling and use of materials on a construction site		D1 Discuss how multiple regulations and legislation would apply to a given site activity, highlighting how to plan and manage for safe handling and use
P1 Explain how regulations impact on the use, storage and handling of a selection of vocationally typical construction materials	M1 Assess how risk assessments can be used to address significant hazards posed by selected materials or activities	

Pass		Merit	Distinction
L02 Discuss the environmental and sustainability factors which impact on and influence the material choices for a construction project			L02 and L03 D2 Illustrate how the use of sustainable practices and considerations for material choice can improve the environmental rating of the completed building
P2 Explain material environmental profiling and lifecycle assessment Use a relevant material to exemplify your explanation P3 Discuss the benefits of product declaration and environmental certification	M2 Produce a waste management plan for a given project, taking into account a typical range of relevant waste materials		
L03 Present material choices for a given building using performance properties, experimental data, sustainability and environmental consideration			
P4 Present the results of relevant testing procedures to identify performance characteristics of selected construction materials P5 Discuss the results in terms of the material properties and regulatory requirements, highlighting any unexpected results and why these may occur P6 Select construction materials for a given building based upon their performance properties in use	M3 Assess the effects of loading structural materials and compare the behaviours and performance of materials which could be used for the same function		

Pass	Merit	Distinction
L04 Evaluate the performance of a given building in respect of its human comfort requirements.		D3 Evaluate how the use of passive or active strategies can minimise energy, materials, water, and land use
P7 Define a material selection strategy with regard to human comfort requirements P8 Identify materials for a selected area within a building and explain how these contribute to a balanced indoor environment	M4 Perform calculations which relate to a selected area (lux levels, u-values, acoustic and ventilation)	

Recommended Resources

Textbooks

- BLANC, A. (2014) *Internal Components*. Abingdon: Routledge.
- BUXTON, P. (2015) *Metric Handbook: Planning and Design Data*. Abingdon: Routledge.
- CASINI, M. (2016) *Smart Buildings: Advanced Materials and Nanotechnology to Improve Energy*. Duxford: Woodhead Publishing.
- CLAISSE, P.A. (2015) *Civil Engineering Materials*. Kidlington: Butterworth-Heinemann.
- DEAN, Y. (1996) *Materials Technology* (Mitchells Building Series). Abingdon: Routledge.
- DORAN, D. and CATHER, B. (2013) *Construction Materials Reference Book*. Abingdon: Routledge.
- EVERETT, A. (1994) *Materials*. (Mitchells Building Series). 5th ed. Abingdon: Routledge.
- KATIB, J.M. (2009) *Sustainability of Construction Materials*. Abingdon: Woodhead Publishing Ltd.
- LYONS, A. (2014) *Materials for Architects and Builders*. 5th ed. Abingdon: Routledge.
- PACHECO-TORGA, F. and JALALI, S. (2011) *Eco-Efficient Construction and Building Materials*. London: Springer.
- PACHECO-TORGA, F. et al. (2013) *Eco-efficient Construction and Building Materials, Life Cycle Assessment (LCA), Eco-Labeling and Case Studies*. London: Springer.
- THOMAS, R. (ed.) (2006) *Environmental design: An Introduction for Architects and Engineers*. 3rd ed. London: Taylor & Francis.

Links

This unit links to the following related units:

Unit 2: Construction Technology

Unit 9: Principles of Heating Services Design & Installation

Unit 15: Principles of Refurbishment

Unit 16: Principles of Alternative Energy

Unit 35: Alternative Methods of Construction

Unit 46: Advanced Materials

Unit 5: Legal & Statutory Responsibilities in Construction

Unit code	Y/615/1391
Unit level	4
Credit value	15

Introduction

The construction industry is perceived to be a dangerous, noisy and disruptive area of work which impacts on the use of land and buildings. It is, however, governed by a range of areas of law to ensure that professionals; such as architects, quantity surveyors and contractors, comply with legal and statutory requirements to design, construct and deliver buildings and alterations using safe working practices and utilising land appropriately.

This unit will introduce the different areas of law that are relevant to the construction industry throughout the development process. This includes applying for planning approval to undertake construction activities and using building control regulations to evaluate building design and alterations at the preconstruction stage. The unit will explore the laws of occupiers' liability, trespass and nuisance to manage construction activities on-site, and the legal aspects of the sale and leasing process involved in the disposal of buildings; using the law of contract and land law.

Topics included in this unit are: planning law, building control regulations, insurance, the law of tort and the law of contract and land law.

On successful completion of this unit students will be able to apply legal and statutory requirements and processes common to the construction sector.

Learning Outcomes

By the end of this unit, a student will be able to:

- 1 Examine the process used to obtain planning permission for the construction and alteration of buildings
- 2 Discuss the processes and regulations used to control design and to ensure safe buildings
- 3 Assess the laws used to ensure that construction sites operate safely and consider adjoining land-users
- 4 Analyse how the law of contract and land law are used to sell and lease land and buildings.

Essential Content

LO1 **Examine the process used to obtain planning permission for the construction and alteration of buildings**

Gaining planning permission:

The legal framework, legislation and regulatory agencies involved in applying for planning permission

Types of development and types of permitted development where approval is not required

Stages and requirements of the application process, including statutory and public notification requirements

Approval process and conditions.

Appealing planning decisions:

The right of appeal open to applicants and the general public, and legal timeframes for appeal

The stages in planning appeal processes, and procedures and notification periods.

Planning enforcement:

Notification processes and procedures

Right of appeal and timeframes.

LO2 **Discuss the processes and regulations used to control design and to ensure safe buildings**

Building control systems:

History and development.

Legal framework, legislation and regulatory agencies.

Requirements of building control and regulations:

Building regulation standards and areas of jurisdiction

Obtaining approval and right of appeal processes

Approvals, inspection and compliance

Enforcement and dangerous buildings.

LO3 Assess the laws used to ensure that construction sites operate safely and consider adjoining land-users

Administration of the law:

Courts, personnel, sources of law, including legislation and case law, speciality courts and alternative dispute resolution methods.

Occupiers' liability:

Duty of care, breach of duty, damage, defences, dangerous premises, visitors, children, independent contractors, trespassers and non-visitors, case law and legislation.

Vicarious liability:

Recognising who is an employer and an employee and application of the course of employment rule.

Independent contractors, general principles and non-delegable duties.

Trespass to land:

Intrusion, possession, defences, remedies, including damages, injunction and ejection

The operation of the construction industry and trespass

Mitigating measures and the Considerate Contractors Scheme.

Nuisance:

Private nuisance, including interference, unlawfulness, impact of continuity, sensitivity and locality, liability, defences and remedies

Public nuisance, including the operation of the construction industry, nuisance mitigating measures and the Considerate Contractors Scheme.

Insurance:

Types of insurance, including public liability insurance

Employers' liability insurance

Contractors' All Risks insurance

Latent Defects insurance

Machinery insurance

Personal accident insurance and contract bonds.

LO4 Analyse how the law of contract and land law are used to sell and lease land and buildings

History and development of land ownership:

Types of land ownership and registration of ownership

Tenure restrictions on ownership, including restrictive covenants and easements.

Law of contract and property conveyancing:

Key stages in the law of contract, including offer, intention, capacity and consideration

The stages and requirements of the property conveyancing process.

Landlord and tenant law:

Legislation, construction and types of leases

Lease terms and conditions, rent and repair responsibilities and management of other agreed terms

Terminating and ending a lease

Lease disputes and mediation processes.

Construction activity and party and boundary walls:

Types of wall, including party walls, party structures, boundary and retaining walls

Key legislation, regulations and case law

Trespass and nuisance considerations

Procedures and obligations on neighbour notification and agreement.

Learning Outcomes and Assessment Criteria

Pass		Merit	Distinction
LO1 Examine the process used to obtain planning permission for the construction and alteration of buildings			LO1 and LO2 D1 Evaluate the impact of planning systems and building regulations agencies in managing the development of land and buildings
P1 Explain the key legislation and agencies in the planning process P2 Explain how planning decisions are made and processes available to appeal and monitor them	M1 Analyse the role of planning systems and agencies in managing the development of land and buildings		
LO2 Discuss the processes and regulations used to control design and to ensure safe buildings			
P3 Explain the key legislation and agencies in the building control process P4 Discuss how building decisions are determined and the processes available to appeal and monitor them	M2 Analyse the application of building regulations in low and medium rise residential and commercial buildings.		

Pass		Merit	Distinction
L03 Assess the laws used to ensure that construction sites operate safely and consider adjoining land-users			
P5 Explain how the law of trespass and nuisance relate to the construction industry		M3 Produce a plan for a contractor to manage the legal impacts of a large urban construction project	D2 Design a detailed plan for a contractor to reduce the legal impacts of a large urban construction project
P6 Discuss how the laws of occupiers' liability and vicarious liability apply to the construction industry			
L04 Analyse how the law of contract and land law are used to sell and lease land and buildings.			
P7 Analyse how land law has evolved to shape modern land ownership and the role of contract law in buying and selling property		M4 Evaluate how the application of land law and landlord and tenant law control the disposal and use of property	D3 Assess the impact of land law and property law in the development and disposal of a large urban construction project
P8 Discuss how landlord and tenant law is used to manage property			

Recommended Resources

Textbooks

CARD, R., MURDOCH, J. and MURDOCH, S. (2011) *Real Estate Management Law*. 7th ed. Oxford: Oxford University Press.

CLOUGH, R.H., SEARS, G.A., SEARS, K.S., SEGNER, R.O. and ROUNDS, J.L. (2015) *Construction Contracting: A Practical Guide to Company Management*. 8th ed. Hoboken: John Wiley & Sons.

MASON, J. (2016) *Construction Law: From Beginner to Practitioner*. London: Routledge.

UFF, J. (2013) *Construction Law*. London: Sweet & Maxwell.

Links

This unit links to the following related units:

Unit 12: Financial Management & Business Practices in Construction

Unit 13: Tender & Procurement

Unit 14: Building Information Modelling

Unit 23: Contracts & Management

Unit 24: Project Management

Unit 36: Advanced Building Information Modelling

Unit 6: Construction Information (Drawing, Detailing, Specification)

Unit code	D/615/1392
Unit level	4
Credit value	15

Introduction

To achieve successful projects in the built environment requires a range of different types of information: to describe the project, quantify the materials, provide clear instructions for assembly and erection, and to allow for accurate costing and management. Throughout the process of design, construction and post-occupancy management, information is critical.

Through this unit students will develop their awareness of different types of construction information and their uses in the process. Students will engage in the production, reading and editing of construction information, in order to understand how this information informs different stages of the process. Using industry standard tools and systems, students will consider the ways that information may be shared and, through this, the value of collaboration in the information process.

Topics included in this unit are: construction drawing, detailing, Computer Aided Design (CAD), Building Information Modelling (BIM), schedules (door, window, hardware, etc.), specifications, schedules of work, bills of quantities and information distribution and collaboration.

Learning Outcomes

By the end of this unit, a student will be able to:

- 1 Evaluate different types of construction information in the context of diverse project types
- 2 Develop construction drawings, details, schedules and specifications in support of a given construction project
- 3 Interpret different types of construction information in order to explain a construction project
- 4 Assess ways in which construction professionals collaborate in the production of construction information.

Essential Content

LO1 **Evaluate different types of construction information in the context of diverse project types**

Construction drawings

Site plans

Floor plans, roof plans, ceiling plans

General arrangement

Elevations

Assembly drawings

Component drawings/details

Schedules

Door schedules

Window schedules

Hardware schedules

Specifications

Performance specification

Outline specification

Full specification

Specification templates/standards

LO2 **Develop construction drawings, details, schedules and specifications in support of a given construction project**

Computer Aided Design (CAD)

Templates

Title blocks

Annotation

Building Information Modelling (BIM)

Specification software

Bills of quantities

Schedules of works

LO3 Interpret different types of construction information in order to explain a construction project

Reading construction drawings

Information co-ordination

Clash detection

'Red-lining'

LO4 Assess ways in which construction professionals collaborate in the production of construction information

Project roles

Information production

Hierarchy of roles and information

Project collaboration

Document sharing/distribution

Online/cloud-based collaboration

Building Information Modelling (BIM).

Learning Outcomes and Assessment Criteria

Pass	Merit	Distinction
LO1 Evaluate different types of construction information in the context of diverse project types		LO1 and LO2 D1 Justify the use of specific types of construction information in support of a given project
P1 Explain the use of construction information in the context of a project P2 Describe the different types of construction information and their uses	M1 Compare different types of construction information to identify their suitability in specific contexts.	
LO2 Develop construction drawings, details, schedules and specifications in support of a given construction project		
P3 Develop a set of general arrangement drawings, selected details and door/window schedules P4 Produce an outline bill of quantities	M2 Compose a schedule of works	

Pass		Merit	Distinction
LO3 Interpret different types of construction information in order to explain a construction project			LO3 and LO4 D2 Propose corrections to construction drawings and specifications using industry standard forms of notation
P5 Relate a set of construction drawings to a specification P6 Evaluate construction drawings and details to identify 'clashes'	M3 Critique a body of construction information, identifying errors and discrepancies		
LO4 Assess ways in which construction professionals collaborate in the production of construction information.			
P7 Assess the types of information produced by different participants in a construction project P8 Examine the relationship between different bodies of information and how they work in conjunction	M4 Compare the roles of CAD and BIM in the collaborative production of construction information		

Recommended Resources

Textbooks

CHING, F.D.K. (2014) *Building Construction Illustrated*. Chichester: John Wiley & Sons.

CHUDLEY, R. (2016) *Building Construction Handbook*. Abingdon, Oxon: Routledge.

Construction Specifications Institute (2011) *The CSI Construction Specifications Practice Guide*. Chichester: John Wiley & Sons.

HUTH, M.W. (2009) *Understanding Construction Drawings*. Delmar Cengage.

KALIN, M. and WEYGANT, R.S. (2010) *Construction Specification Writing: Principles and Procedures*. Chichester: John Wiley & Sons.

KUBBA, S. (2008) *Blueprint Reading: Construction Drawing for the Building Trade*. McGraw-Hill.

Websites

www.designingbuildings.co.uk	Designing Buildings Wiki (General Reference)
www.thenbs.com	The NBS Knowledge (General Reference)
www.csinet.org	CSI (General Reference)

Links

This unit links to the following related units:

Unit 1: Individual Project

Unit 14: Building Information Modelling

Unit 26: Advanced Construction Drawing & Detailing

Unit 36: Advanced Building Information Modelling