Unit 4: The Construction Environment

Level: 4

Credits: 15

Ofqual Code: R/618/8083

Introduction

Construction is a complex and dynamic sector of the local, regional, national and international economy. In many countries it is a driving force in the growth of finance, property and employment. This also means that it has considerable impact on many factors beyond its direct influence on the buildings and infrastructure that are created and maintained.

The construction industry is one of the major contributors to CO2 emissions. Also, the way that buildings are designed, constructed and maintained means they have an ongoing impact on the environment. Similarly, as a major employer, the industry has an ongoing impact on the working conditions of those in the sector and the way that people are educated, trained and supported through their careers.

In this unit, students will explore the make-up and the impact of the construction industry on the environment and society. By exploring the roles and relationships of individuals and organisations in the construction sector, students will gain an overview of the organisational and the personal ways in which the sector works to continue to improve the built environment and limit its impact on the environment, while maintaining economic sustainability and growth.

Learning Outcomes

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

LO1 Explore the development of the construction industry through the roles and relationships of the professionals involved

LO2 Assess the impact of the construction industry

LO3 Discuss the ways in which the construction industry ensures quality, timely completion and safety

LO4 Examine the routes to employment and progression within the construction industry.

Essential Content

LO1 **Explore the development of the construction industry through the roles and relationships of the professionals involved**

History of the industry

Roles

Architect

General contractor

Sub-contractor

Engineer (e.g., structural, civil, building services, traffic, fire)

Project manager

Quantity surveyor

Others

Collaboration

Relationships between organisations/roles

Individuals and collaboration

Collaboration through technology (e.g., project sharing, BIM, email)

Avoiding conflict in collaboration

Professional bodies

The purpose of professional bodies

Chartered Institute of Building (CIOB)

Chartered Institution of Building Service Engineers (CIBSE)

Chartered Association of Building Engineers (CABE)

Chartered Institute of Architectural Technologists (CIAT)

Institution of Civil Engineers (ICE)

Royal Institute of British Architects (RIBA)

Royal Institution of Chartered Surveyors (RICS)

Others

Codes of conduct

Professional ethics

LO2 **Assess the impact of the construction industry**

Construction and economy

Employment

Direct

Supply chain

Skills gaps

Construction and sustainability

Definitions of sustainability (e.g., environmental, social, economic, cultural)

Connections between forms of sustainability

Environmental sustainability

Carbon emissions

Carbon footprint

Embodied energy

Carbon reduction

Targets (government/global)

Environmental Strategies in Construction

Material selection

Local supply

Renewables

Energy

'Retrofit First'

Diversity and inclusion

The current state of the industry (e.g., gender representation, minority representation, 'an aging industry')

Promoting diversity and inclusion (e.g., benefits, challenges)

Equality and diversity legislation

Organisation for equality and diversity (e.g., professional bodies, Women into Construction, GoConstruct)

LO3 **Discuss the ways in which the construction industry ensures quality, timely completion and safety**

History of safety in construction

Pre-regulations

Post-regulations

Ensuring safety

Safety pre-construction (e.g., design and planning, building regulations)

Site safety (e.g., legislation, regulations)

Safety in use

Cost control and cost monitoring

Material costs

Plant costs (e.g., purchase, lease)

Labour costs (e.g., direct labour, subcontractors)

Cost overrun (e.g., caused by defects, caused by changes, caused by weather)

Contracts, safety and quality, safety and quality

Types of contract relationship (e.g., services contracts, works contracts)

Contract requirements (e.g., time, cost, quality)

Contracts and statutory requirements

Timely completion and quality

Quality and value (e.g., defining value, increasing value, increasing safety)

Project 'sign-off' and quality (e.g., documenting completion of work, certifying safe work, hand-over of relevant information)

Professional standards and professional bodies

LO4 **Examine the routes to employment and progression within the construction industry**

Technical skills

Employability skills

Communication

Collaboration

Resilience

Adaptability

Independence

Stages of employment

Professional bodies

Technician

Chartered

Fellow

Progressing in employment

Education and training

Continuing Professional Development

Personal development plans

Lifelong learning

Leadership and management

Developing as a manager

Leadership skills

Supporting the development of others

Learning Outcomes and Assessment Criteria

Pass	Merit	Distinction
LO1 Explore the development of the construction industry through the roles and relationships of the professionals involved		
P1 Discuss the development of the construction industry using historic and contemporary examples. **P2** Explain the roles and responsibilities of those that work in the construction industry.	**M1** Analyse the purpose of professional bodies in supporting the industry and protecting the public.	**D1** Evaluate the ways in which professionalism, diversity and inclusion are important to the growth of the construction sector.
LO2 Assess the impact of the construction industry		
P3 Explain the different types of sustainability and how the construction industry is reflected in these. **P4** Define potential strategies to promote equality, diversity and inclusion and ensure fairness at work.	**M2** Illustrate the challenges of the construction industry in regard to diversity and inclusion.	
LO3 Discuss the ways in which the construction industry ensures quality, timely completion and safety		
P5 Discuss the processes and requirements for project handover, ensuring the safety and quality of work. **P6** Explain the importance of monitoring costs in construction projects.	**M3** Analyse the ways in which legislation and regulation work to ensure safety during construction and occupation.	**D2** Critically analyse the role of professional bodies in supporting quality and safety in construction.

Pass	Merit	Distinction
LO4 Examine the routes to employment and progression within the construction industry		
P7 Prepare a personal development plan, highlighting routes to achieve subject relevant technical and employability skills. **P8** Examine the role of professional bodies and routes into employment.	**M4** Assess the ways in which CPD and lifelong learning support employment progression.	**D3** Evaluate the ways in which education, training and CPD are used to build leadership and management capacity in construction organisations.

Recommended Resources

Print resources

FEWINGS, P. (2008), *Ethics for the Built Environment*, Routledge

GRUNEBERG, S., FRANCIS, N. (2019), *The Economics of Construction*, *Economics of Big Business*

MCDONOUGH, W., BRAUNGART, M. (2010), *Cradle to Cradle: Remaking the Way We Make Things*, North Point Press

MIRSKY, R., SCHAUFELBERGER, J. (2014), *Professional Ethics for the Construction Industry*, Routledge

MURRAY, M., DAINTY, A., MURRAY, M. (2008), *Corporate Social Responsibility in the Construction Industry*, Routledge

SCHLEIFER, T. (1990), *Construction Contractors' Survival Guide*, John Wiley & Sons

Web resources

https://www.cbuilde.com	**Chartered Association of Building Engineers** (Professional Body)
https://www.ciat.org.uk	**Chartered Institute of Architectural Technologists** (Professional Body)
https://www.cibse.org	**Chartered Institution of Building Services Engineers** (Professional Body)
https://www.ice.org.uk	**Institution of Civil Engineers** (Professional Body)
https://www.architecture.com	**Royal Institute of British Architects** (Professional Body)
https://www.rics.org	**Royal Institution of Chartered Surveyors** (Professional Body)

Links

This unit links to the following related units:

- Unit 1: Construction Design Project (Pearson-set)
- Unit 4001CE: Construction Design Project Civil Engineering (Pearson-set)
- Unit 5: Legal and Statutory Requirements in Construction
- Unit 11: Financial Management & Business Practices in Construction
- Unit 12: Tender & Procurement
- Unit 20: Site Supervision & Operations
- Unit 25: Quantity Surveying Practice
- Unit 27: Law & Legal Frameworks in Quantity Surveying
- Unit 28: Group Project (Pearson-set)
- Unit 29: Contracts & Management
- Unit 39: Personal Professional Development
- Unit 54: Advanced Quantity Surveying Practice.