

Unit 1

Safety and security in construction

Aim and purpose

Construction activities take place in many different contexts. Through this unit, students will gain the knowledge and understanding to be able to plan how to minimise risk to their own and others health and safety in different contexts.

Unit introduction

Is working in construction dangerous? Can some of the equipment and tools I use cause harm? Some of the equipment I used is expensive. How do I keep it secure? How do I make sure I am safe when working with electrical and mechanical equipment? Are there guidelines I can follow to make sure I am safe when I am carrying out tasks? Who can I rely on to keep me safe? What do I do with waste materials? Do I just put it in a skip or take it to a tip? Do I need to think about who is allowed to see designs and specifications I am given to work from? These are all important questions for anyone involved in construction.

There are many places where the construction process takes place. You will need to think about your environment, the equipment and materials you are using, and how they are being used and disposed of to make sure you keep yourself and those you are working with safe.

Knowing about possible hazards associated with construction processes is the starting point of working safely and securely. In this unit, you will learn how to look for and identify hazards to safety and security. You will learn how to measure the risk of these hazards so that you can plan ways in which you can limit the risk and work safely and securely, whatever your role or location.

Learning outcomes	Assessment criteria	Content
<i>The student will:</i>	<i>The student can:</i>	
LO1 Know health and safety legal requirements for working in the construction industry	AC1.1 Summarise responsibilities of health and safety legislation	Responsibilities <ul style="list-style-type: none"> • Of employees • Of employers Legislation <ul style="list-style-type: none"> • Health and Safety at Work Act 1974 • Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) • Control of Substances Hazardous to Health Regulations 2002 (COSHH) • Provision and Use of Work Equipment Regulations 1998 (PUWER) • Manual Handling Operations Regulations 1992 • Personal Protective Equipment at Work Regulations 1992 (PPER) • Working at Heights Regulations 2005 • Asbestos
	AC1.2 Identify safety signs used by construction industry	Safety signs <ul style="list-style-type: none"> • Meanings of colour coding • Meanings of sign shapes • Meanings of signs <ul style="list-style-type: none"> ○ Naked flames prohibited ○ Pedestrians prohibited ○ Head protection must be worn ○ Foot protection must be worn ○ Risk of fire ○ Risk of danger ○ First aid
	AC1.3 Identify fire extinguishers used in different situations	Fire extinguishers <ul style="list-style-type: none"> • Water • Foam • CO₂ • Dry powder

Learning outcomes	Assessment criteria	Content
<i>The student will:</i>	<i>The student can:</i>	
		<ul style="list-style-type: none"> • Vaporising liquids • Wet chemical • Fire blanket
LO2 Understand risks to health and safety in different situations	AC1.4 Describe role of the Health and Safety Executive	Role <ul style="list-style-type: none"> • When in breach of legislation • Providing support and advice
	AC2.1 Identify hazards to health and safety in different situations	Situations <ul style="list-style-type: none"> • On-site – substructure, superstructure • Off-site – workshop, office, travelling between sites
	AC2.2 Describe potential effects of hazards in different situations	Effects <ul style="list-style-type: none"> • Physical • Psychological • Financial • Environmental Who is affected <ul style="list-style-type: none"> • Self • Others working in the area • Employer • Local community • Environment • Users
LO3 Understand how to minimise risks to health and safety	AC2.3 Explain the risk of harm in two different situations	Risk <ul style="list-style-type: none"> • Likelihood • Severity • How risk is measured
	AC3.1 Explain existing health and safety control measures in different situations	Control measures <ul style="list-style-type: none"> • Method statements • Safe systems of work • Work permits • Competent persons • PPE

Learning outcomes	Assessment criteria	Content
<i>The student will:</i>	<i>The student can:</i>	
	AC3.2 Recommend health and safety control measures in different situations	Situations <ul style="list-style-type: none"> • Locations • Changes in work practice • Equipment • Scale Individual/business responsibilities
LO4 Know how risks to security are minimised in construction	AC4.1 Identify risks to security in construction in different situations	Security <ul style="list-style-type: none"> • Of tools and equipment • Personal belongings • Sensitive information
	AC4.2 Describe measures used in construction to minimise risk to security	Measures <ul style="list-style-type: none"> • Used by employees • Used by employers

Unit 2

Practical construction skills

Aim and purpose

Through this unit students will be able to interpret technical information to plan the refurbishment of a building, taking account of health and safety issues. They will use appropriate skills and techniques to carry out the refurbishment.

Unit introduction

How do I hang a door? Can I skim plasterboard? How do you gloss a panel door? What resources do I need to build a wall? How do I plan what needs to be done? Will I be safe? How do I keep equipment secure? How do you know if what has been done is good enough?

Any renovation project will need people with different skills. A new bathroom will need plumbing, tiling, plastering and decorating. An extension needs bricklayers, carpenters and interior designers. Whatever skill is applied, selecting and using the correct tools, materials and equipment in a safe manner is critical to the process. All projects involve drawings and/or specifications which use international standard symbols and terminology which must be interpreted before they can construct a given task. From this technical information, calculations have to be made for resources before the build process takes place.

Throughout this unit you will learn to interpret technical information in order to identify materials, tools and equipment needed to complete construction tasks. You will develop a range of construction skills which can be used during construction processes, ensuring you take account of any health and safety issues.

Learning outcomes	Assessment criteria	Content
<i>The student will:</i>	<i>The student can:</i>	
LO1 Be able to interpret technical information	AC1.1 Interpret technical sources of information	Interpret <ul style="list-style-type: none"> • Symbols • Conventions • Terminology Sources of information <ul style="list-style-type: none"> • Specifications • Building regulations • Drawings • Design briefs
	AC1.2 Plan sequence of work to meet requirements of sources of information	Sources of information <ul style="list-style-type: none"> • Specifications • Drawings • Design briefs • Building regulations • Oral communication Plan <ul style="list-style-type: none"> • Timescales • Sequence • Health and Safety
LO2 Know preparation requirements for construction tasks	AC2.1 Identify resources required to complete construction tasks	Resources <ul style="list-style-type: none"> • Tools • Equipment • PPE • Materials based on <ul style="list-style-type: none"> ○ Characteristics ○ Qualities ○ Sustainability ○ Limitations
	AC2.2 Calculate materials required to complete construction tasks	Calculate <ul style="list-style-type: none"> • Materials required <ul style="list-style-type: none"> ○ Volume

Learning outcomes	Assessment criteria	Content
<i>The student will:</i>	<i>The student can:</i>	
		<ul style="list-style-type: none"> ○ Area ○ Perimeter ○ Time ○ Ratio ● Costs
	AC2.3 Set success criteria for completion of construction tasks	Success criteria <ul style="list-style-type: none"> ● Level of tolerance ● Timescales ● Quality
	AC2.4 Prepare for construction tasks	Prepare Centres should teach the content relevant to the techniques selected from AC 3.1 <ul style="list-style-type: none"> ● Checking materials for defects ● Organising materials ● Measuring materials ● Marking out materials ● Cutting materials ● Setting out materials ● Dry bond materials ● Mix mortar materials

Learning outcomes	Assessment criteria	Content
<i>The student will:</i>	<i>The student can:</i>	
LO3 Be able to use construction processes in completion of construction tasks	AC3.1 Apply techniques in completion of construction tasks	<p>Students should be taught skills related to a minimum of three of the following techniques. The content provides examples of skills for each technique that could be taught. Skills should relate to refurbishment of a property.</p> <ul style="list-style-type: none"> • Textiles e.g. pelmets, curtains, wall coverings • Wood e.g. hang a door, make a frame, attach a skirting-board, create a timber stud wall • Brick e.g. use wall connectors, cut bricks, create wall no higher than a metre, stretcher bond • Plaster e.g. apply plasterboard, skim • Decorate e.g. emulsion a surface, gloss a panel door, paper an internal corner or around a switch • Tiling e.g. floor and wall, patch repair • Electrical e.g. lighting, add a new socket • Plumbing e.g. waste and taps to a sink • Heritage skills e.g. dry stone wall, roofing (change material or patch) These techniques should be taught in relation to the techniques selected from above <ul style="list-style-type: none"> • Removal and safe disposal of materials • Awareness and application of Health and Safety practices
	AC3.2 Apply health and safety practices in completion of construction tasks	Health and Safety <ul style="list-style-type: none"> • Cleanliness and safety of work area • Safe working practices • Use of correct PPE
	AC3.3 Evaluate quality of construction tasks	Evaluate <ul style="list-style-type: none"> • Self-evaluation • Against specified tolerances • Against success criteria

Unit 3

Planning construction projects

Aim and purpose

Through this unit, students will use learning from the development of practical skills and health and safety requirements of construction processes and gain the knowledge and understanding needed to plan straightforward built environment development projects.

Unit introduction

Who does what when refurbishing a property, building a new construction or improving a built environment? How long does a building development take? Is there a need for a project manager? Who is a project manager? What can stop a construction project from being successful?

Construction projects can vary from a small refurbishment of a bathroom to the development of a new town or motorway. All projects need to be planned. Some projects will need a Project Manager with several staff involved in planning and monitoring over months or years. Smaller scale projects, like refurbishments, might only involve one or two people throughout. The processes they follow are the same. Whether working for a large construction company or a self-employed trade's person, knowledge of project management and the skills that go with it are essential to make construction projects a success.

Through this unit you will learn about different types of jobs that exist in the construction sector and how these jobs contribute to successful projects. You will develop an understanding of the processes that are followed by people working in construction that ensure projects are successful. You will use the knowledge and understanding you have acquired through carrying out practical construction tasks and consideration of safety and security of construction processes, together with planning skills developed through this unit, so that you can plan construction projects.

Learning outcomes	Assessment criteria	Content
<i>The student will:</i>	<i>The student can:</i>	
LO1 Know job roles involved in realising construction and built environment projects	AC1.1 Describe activities of those involved in construction projects AC1.2 Describe responsibilities of those involved in construction projects AC1.3 Describe outputs of those involved in realising construction projects	Those involved <ul style="list-style-type: none"> • Client’s team (client, architect, engineer, quantity surveyor, project manager, designer) • Contractor’s team (builder/site engineer, site supervisor, safety officer, tradespersons, specialist sub-contractors) • Statutory personnel (building inspector, town planner, public health inspector) • General (administrator, finance officer, public liaison officer, purchasing/procurement officer, catering, security) Construction projects <ul style="list-style-type: none"> • Refurbishments • Extensions
LO2 Understand how built environment development projects are realised	AC2.1 Describe processes used in built environment development projects AC2.2 Calculate resources to meet requirements for built environment development projects	Processes <ul style="list-style-type: none"> • Planning (design, project planning, procurement) • Construction (secure site, site clearance, substructure, super-structure) • Handover to client (commissioning, handover) • Maintenance Calculate <ul style="list-style-type: none"> • Area • Volume • Percentages • Scaling • Best value • Tolerances • VAT • Tender price Resources <ul style="list-style-type: none"> • Plant • Labour • Materials

Learning outcomes	Assessment criteria	Content
<i>The student will:</i>	<i>The student can:</i>	
	AC2.3 Assess potential effect of factors on project success	Factors <ul style="list-style-type: none"> • Internal e.g. lack of qualified and certified key personnel, sourcing of finance, security • External e.g. penalty clauses, weather conditions
	AC2.4 Interpret sources of information	Sources of information <ul style="list-style-type: none"> • Drawings • Catalogues • Spreadsheets • Suppliers material lists • Specifications
LO3 Be able to plan built environment development projects	AC3.1 Sequence processes to be followed	Processes <ul style="list-style-type: none"> • Planning • Construction • Handover
	AC3.2 Apportion time to processes	
	AC3.3 Use project planning tools	Project planning tools <ul style="list-style-type: none"> • Project • Gantt charts • Spreadsheets
	AC3.4 Set project tolerances	Project tolerances <ul style="list-style-type: none"> • Time • Cost