

# DRAFT Level 2 Trailblazer Apprenticeship in Bricklaying (On-Programme)

(9077-02)

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On-Programme Unit Pack

## Qualification at a glance

<b>Subject area</b>	Bricklaying Trailblazer Apprenticeship
<b>Age group approved</b>	16+
<b>Entry requirements</b>	None
<b>Assessment</b>	Multiple-choice test Portfolio of evidence Practical assignment Research assignment
<b>Approvals</b>	Not applicable
<b>Support materials</b>	Centre handbook

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## Qualification structure

To achieve the **Level 2 Trailblazer Apprenticeship in Bricklaying (On-Programme)** learners must achieve all units 201-214.

Unit number	Unit title	Proposed GLH	Type	Proposed assessment method
201	Basic principles in construction	40	Taught	Multiple-choice test
202	Health and safety for Bricklaying	40	Taught	Multiple-choice test
203	Communication and customer service in the construction industry	50	Taught	Multiple-choice test
204	Principles of setting out	30	Taught	Multiple-choice test/ Practical assignment
205	Principles of building masonry structures	60	Taught	Practical assignment
206	Repair and maintenance of masonry structures	60	Taught	Multiple-choice test/  Research assignment
207	Decorative brickwork	30	Taught	Multiple-choice test/ Practical assignment
208	Fireplaces chimneys and flues	40	Taught	Multiple-choice test/  Research assignment
209	Maintaining health and safety when bricklaying	20	Competency	Portfolio / Project
210	Providing effective communication and customer service in the construction industry	20	Competency	Portfolio / Project

211	Setting out	15	Competency	Portfolio / Project
212	Building masonry structures	60	Competency	Portfolio / Project
213	Repairs, maintenance and restoration of masonry structures	30	Competency	Portfolio / Project
214	Producing decorative brickwork	40	Competency	Portfolio / Project

<b>Level:</b>	2
<b>GLH:</b>	30
<b>Unit type:</b>	Taught based unit
<b>Assessment type:</b>	Multiple-choice test

### What is this unit about?

The purpose of this unit is for learners to understand the factors that have to be considered when bricklaying work takes place on a property. This includes the types of buildings and materials used and the era the buildings are likely to belong to. This unit also introduces learners to the environmental and sustainability considerations that relate to buildings to ensure that these factors are considered.

Learners should consider the following questions as a starting point to this unit:

- What type of structures are built in the construction industry?
- How to build energy efficient buildings?

### Learning outcomes

In this unit, learners will:

1. Know the building types
2. Understand environmental and sustainability considerations for buildings

## Learning outcome:

1. Know the building types

### Topics

1.1 Types of building from different eras

1.2 Types of construction

#### Topic 1.1

Types of building eras, and their types of construction methods and wall construction.

- Era building types– Victorian, Georgian, Edwardian, Elizabethan
- Building materials used in each era, eg density of materials used
- Types of buildings, terraced, semi-detached, detached, flats
- Restoration and heritage – listed buildings and their grading

#### Topic 1.2

Types of construction

- Modern methods of construction – timber frames, modular, thin-joint, monolithic
- Rapid build technology – pod construction, pre-fabricated, monolithic
- Cladding systems – steel frames, timber frames

## Learning outcome:

2. Understand environmental and sustainability considerations for buildings

### Topics

2.1 Environmental considerations

2.2 Sustainability considerations

#### Topic 2.1

Environmental considerations for buildings

- Water management – services, foul and surface water management, grey water systems, soakaways
- Heat loss – air tightness, ventilation systems, insulation, material considerations and their energy efficiency
- Waste management – recycling, segregation of waste
- Material procurement - carbon footprints, locally sourced
- Foundations – location of trees and their impact on the types of foundation

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by a multiple choice question test.

### Simulation guidance

- NA

### Ways in which the unit links to maths

- Heat loss calculations
- Costing of environmentally friendly and sustainable materials

### Ways in which the unit links to English

- Interpreting information required to be communicated to suppliers
- Reading and completion of regulation forms and documentation related to waste transfer

### Suggestions for delivery format of content – lesson ideas

- Providing case studies of different types of building
- SOLA

### Links to other units within the qualification

This unit underpins the college based taught units and links to the competence on-site units.



<b>Level:</b>	3
<b>GLH:</b>	40
<b>Unit type:</b>	Taught / College based
<b>Assessment type:</b>	Multiple-choice test

### What is this unit about?

The purpose of this unit is for learners to understand the principles of health and safety and identify how these can be applied in practice within bricklaying or construction related industries. Learners will be able to recognise common health and safety practices and processes which they will encounter within the workplace. Working in a construction environment is fast paced but presents many hazards and can be dangerous. Working in the industry requires essential health and safety knowledge in order to minimise harm to oneself and to improve attitudes and behaviour in the workplace.

This unit also introduces learners to specific legislation, codes of practice and ways of working that can contribute to safety and smooth running of a job. It also covers the specific health and safety considerations for bricklayers and how the risks of the job can be minimised.

Learners should consider the following questions as a starting point to this unit:

- How can working with tools and equipment be made safer?
- Where can details of current health and safety legislation be found?
- What are the specific safety considerations for working in bricklaying?

### Learning outcomes

In this unit, learners will:

1. know the health and safety regulations affecting bricklaying work
2. Understand how site procedures contribute to maintaining health and safety
3. Understand specific health and safety considerations relating to bricklaying work

## Learning outcome:

1. know the health and safety regulations affecting bricklaying work

## Topics

1.1 Health and safety legislation

1.2 Risk assessments

### Topic 1.1

Learners must be aware of the health and safety regulations that apply to the construction industry. Employee and employer responsibilities under regulations and legislation:

- Health and Safety at Work Act
- Reporting Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)
- Control of Substances Hazardous to Health (COSHH)
- Construction (Design and Management) (CDM) regulations
- Provision and Use of Work Equipment Regulations (PUWER)
- Manual Handling Operations Regulations
- Personal Protective Equipment (PPE) at Work Regulations
- Work at Height Regulations
- Control of Noise at Work Regulations
- Control of Vibration at Work Regulations
- Electricity at Work Regulations
- Lifting Operations and Lifting Equipment Regulations (LOLER)

### Topic 1.2

Risk assessment processes and considerations

- Identification of hazards and risks to the environment and individuals
- Recording and reporting requirements
- Legal requirement to carry out suitable and sufficient risk assessments, levels of responsibility

Stages in the risk assessment process

- Identification of the hazards and likelihood of causing harm
- Evaluation of the risks (low, medium, high) and decide how the level of risk may be controlled
- Recording and implementation of the results and communication to others
- Reviewing risk assessments and suggesting when risk assessments should be reviewed

Purpose and requirements of method statements

## Learning outcome:

2. Understand how site procedures contribute to maintaining health and safety

### Topics

2.1 Accidents and emergencies

2.2 Site procedures

2.3 General welfare on site

#### Topic 2.1

Employee and employer responsibilities under accident and emergency procedures:

- Types of emergencies
- Emergency procedures – first aid, evacuation
- Recording requirements
- First aid regulations – levels of response and recording

#### Topic 2.2

Principles of site set up to maintain a safe and healthy environment including employee and employer responsibilities for:

- Training – Induction, toolbox talks
- Access and site layout
- Site access, security and personnel access – signing in and signing out
- Signage – warning, prohibition, mandatory, information
- Safe waste disposal
- Safeguarding – people (e.g. members of the public, children, clients), the environment

#### Topic 2.3

Employer responsibilities in the provision of general welfare requirements on site including:

- Toilets and washing facilities
- Rest areas – canteen, drying room
- Designated areas – smoking, parking, assembly points, site information, site sign in
- PPE

## Learning outcome:

3. Understand specific health and safety considerations relating to bricklaying work

### Topics

3.1 Handling materials manually

- 3.2 Handling materials with machinery
- 3.3 Personal protective equipment
- 3.4 Hazardous working conditions
- 3.5 Working with hazardous substances
- 3.6 Using tools and equipment safely

### **Topic 3.1**

Safe lifting when handling materials manually

- Weight consideration
- Technique
- Weight limits
- Kinetic methods

Materials that can be handled manually

- Bricks
- Blocks
- Cement
- Mortar

### **Topic 3.2**

Handling materials with machinery and the considerations when working on site:

- Lifting and transporting techniques
- Mechanical lifting aids such as board trolley, pulleys, forklifts, lifts, hoists

Materials that should be handled with machinery

- Kirbs
- Pallets
- Concrete lintols
- Heavy loads
- Bricks, blocks, mortar

### **Topic 3.3**

Types and uses of personal protective equipment including employee and employer responsibilities:

- Respirators/dust masks
- Eye and ear protection
- Knee pads
- Gloves
- High visibility clothing
- Hard hats
- Work boots

### **Topic 3.4**

Considerations when working in potentially hazardous working conditions on site:

- Working at height – access equipment, limits of responsibility, checking scaffolding tags, assessing conditions, safety measures and checks
- Slips, trips and falls – following good housekeeping when working, not allowing a build-up of waste, clearing away equipment (trailing leads, pipes etc.)
- Awareness of surrounding area – other tradesmen and resources
- Noise exposure
- Environmental exposure – sun exposure, temperature considerations, dust

### **Topic 3.5**

Responsibilities and considerations when working with hazardous substances on site including:

- COSHH requirements
- Asbestos awareness – identification, reporting
- Safe disposal of waste
- Local ventilation extraction systems

### **Topic 3.5**

Considerations for working safely with tools and equipment on site including

- Testing - PAT testing requirements
- Safe storage
- Maintenance, repair and replacement – limits of responsibility
- Working procedures – voltages of electrical equipment, Residual Circuit Breaker (RCB)

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by a multiple-choice question test.

### Ways in which the unit links to maths

Understanding weight and the lifting requirements for individuals  
Calculation to exposure times e.g noise

### Ways in which the unit links to English

- Reading and understanding legislations
- Reading and understanding signage and evacuation plans
- Recording of accidents, form filling

### Suggestions for delivery format of content – lesson ideas

- Research and comparisons of statistics
- Group work with role play risk assessments
- Filling out sample paperwork

### Links to other units within the qualification

This unit underpins all practical skills within the college based taught units and links to the competence on-site units.

## Unit 203

## Communication and customer service in the construction industry

<b>Level:</b>	2
<b>GLH:</b>	50
<b>Unit type:</b>	Taught / College based
<b>Assessment type:</b>	Multiple-choice test

### What is this unit about?

The purpose of this unit is for learners to be able to use recognised communication processes within the construction industry. They will know about communication methods and be able to use the most appropriate method in a range of situations.

Learners should consider the following questions as a starting point to this unit:

- What sources of information are needed to plan effectively?
- What are the types of communications and how these can be effectively used in the workplace?
- Who are the key stakeholders in construction jobs?
- What are the progression routes and where can a career in the industry take you?

### Learning outcomes

In this unit, learners will:

1. Understand how to communicate with colleagues and customers in the workplace
2. Know company structures, professions and progression routes in the industry
3. Know the information and documentation required for completing construction projects
4. Know methods for construction project planning
5. Understand the expectations of the customer
6. Know methods of calculating using formulae for construction

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**Learning outcome:**

1. Understand how to communicate with colleagues and customers in the workplace

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**Topics**

- 1.1 Communication methods
- 1.2 Importance of clear communication in the work place

**Topic 1.1**

Advantages and disadvantages of a range of communication methods and their efficiency depending on the circumstances when liaising with customers and colleagues:

- Verbal and non-verbal communication
- Face to face
- Body language
- Remote communication
- E-platforms
- Written communication synchronous and asynchronous
- Multi-user web based project working platforms
- Signs

**Topic 1.2**

Importance of clear communication

- Cost efficiency
- Clearly presented
- Avoid mistakes
- Good working relationships

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**Learning outcome:**

2. Know company structures, professions and progression routes in the industry

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**Topics**

- 2.1 Sectors within construction
- 2.2 Types of companies
- 2.3 types of job roles within the building team
- 2.4 Roles and responsibilities of key personnel within the industry
- 2.5 Progression routes in the industry



## **Topic 2.1**

Types of sectors that fund construction within the industry

- Public
- Private
- Voluntary

## **Topic 2.2**

Range of organisations within the construction industry, including the types and features of companies and the role of those that provide specialist and support services:

- Small, medium and large companies
- Contractors, sub-contractors, sole traders
- Structure

## **Topic 2.3**

Job roles within the building teams including:

- Professionals
- Technicians
- Trade Operatives
- Specialist
- General Operatives

## **Topic 2.4**

The roles and responsibilities, lines of reporting and levels of accountability, of key personnel within the industry:

- Building Control Officer
- Planning Officer
- Clerk of Works
- Civil Engineer
- Site Manager
- Contracts Manager
- Supervisor
- Charge Hand
- Quantity Surveyor
- Surveyor
- Architect

## **Topic 2.5**

The progression routes in the industry

- Further education
- Self-employment
- Other roles within the industry

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**Learning outcome:**

3. Know the information and documentation required for completing construction projects
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**Topics**

- 3.1 Drawings used on construction projects
- 3.2 Common scales used in construction drawings
- 3.3 Graphic symbols and hatching used in the construction industry
- 3.4 Taking corrective actions to resolve discrepancies
- 3.5 Purpose of contract documents.
- 3.6 Types of information required when ordering materials
- 3.7 Types of information sources

**Topic 3.1**

The types of drawings used and the different types of information they provide for construction projects

- Site plans
- Assembly
- General location
- Sectional
- Detailed
- Orthographic projection (first angle)
- Isometric projection

**Topic 3.2**

Common scales used in construction drawings, their uses and why drawings are produced with different scales

- 1:1
- 1:5
- 1:10
- 1:50
- 1:500
- 1:1250
- 1:2500

**Topic 3.3**

Graphic symbols and hatching used in construction drawings and why they are used

- Brickwork
- Blockwork
- Concrete

- Hardcore
- Insulation
- Sub-soil
- Stone
- Timber
- Glass
- Sink
- Bath
- Wash basin
- Rain water pipe
- Gulley
- Vent pipe
- DPC
- DPM
- TBM
- OBM

#### **Topic 3.4**

Communicating with colleagues and customers to take corrective actions in order to resolve discrepancies within the drawings and documentation

- Verbal communication – escalating to line manager
- Written communication – confirmation of error

#### **Topic 3.5**

Purpose of contract documents including:

- Order requisitions and invoices
- Delivery notes
- Variation orders
- Permits to work
- Drawings
- Schedules
- Specifications
- Bills of quantities
- Variation orders
- Programmes of work
- Manufacturers technical information

#### **Topic 3.6**

Types of information required when ordering materials

- Size
- Quantity
- Quality
- Location and time

#### **Topic 3.7**

Sources of information that provide guidance and how they impact construction industry:

- British Standards

- Building regulations
- Manufacturers Information
- Planning regulations

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**Learning outcome:**

4 Know methods for construction project planning

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**Topics**

4.1 Methods used for planning and sequencing work activities for efficient construction

**Topic 4.1**

Methods used for planning and the order of work activities to communicate with others

- Bar charts
- Gantt chart
- Critical Path analysis
- Completion deadlines

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**Learning outcome:**

5 Understand the expectations of the customer

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**Topics**

5.1 Principles of customer service  
5.2 Prepare the working environment

**Topic 5.1**

Principles of how to deliver high quality customer service when dealing with stakeholders

- Behave in a manner that meets the requirements of the company and the client
- Personal hygiene
- Use of appropriate language, avoid acronyms and abbreviations, tone and situation
- Importance of good relationships with stakeholders (including other trades)
- Legal considerations and audit trails/records
- Establishing the needs of others - colleagues, customers and other trades
- Respect the working environment including customer's property ie keeping the work environment clean
- Good timekeeping
- Professional image and appearance

- Showing honesty and integrity to build trust
- Behaving in an ethical manner
- Transparency of work requirements
- Good morale
- Knowing when matters need to be escalating
- Reliability and professionalism

### Topic 5.2

Reasons for preparing and protecting the working environment, throughout the building process:

- Sheeting up
- Load out materials
- Plan and organise the siting of tools, plant and equipment
- Storage of materials
- Security of resources

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### Learning outcome:

6 Know methods of calculating using formulae for construction

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### Topics

6.1 Calculate costs and volumes in construction

6.2 Tendering and costing processes

### Topic 6.1

Methods of calculating using formulae for identifying costings in construction:

- Quantities
- Linear measurements
- Areas
- Volumes
- Circles
- Triangles
- Angles
- Percentages
- Ratios

### Topic 6.2

Tendering and costing processes in the construction industry

- Quotation
- Estimate
- Dayworks
- Priceworks
- Hourly rates
- Tax

- VAT
- National insurance
- Levies

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by a multiple choice question test.

### Simulation guidance

- Drawings can be provided
- Oral questioning could be through role play

### Ways in which the unit links to maths

- Costing and estimating of amounts
- Using units of measurement
- Calculating costings of materials

### Ways in which the unit links to English

- Reviewing and interpreting written tenders
- Interpreting information required to be communicated to suppliers and customers
- Completion of regulation forms and site documentation

### Suggestions for delivery format of content – lesson ideas

- Role play of client conversations
- Pricing from plans and producing written quotes
- Telephoning/contacting potential suppliers and clients

### Links to other units within the qualification

This unit links to the competence on-site unit 210.

## Unit 204

## Principles of setting out

<b>Level:</b>	2
<b>GLH:</b>	30
<b>Unit type:</b>	Taught / College based
<b>Assessment type:</b>	Multiple choice test /Practical assignment

### What is this unit about?

The purpose of this unit is for learners to understand all building types need to be properly set out within the early stages of construction. The setting out of a small building will be undertaken prior to any foundation being completed as it ensures the building is located precisely to the location/site plan, and all building lines are established.

The unit details the basic setting out procedures for a small square, or rectangular building, with all corners being correct and ready prior to any marking of the ground in readiness for excavation.

This unit will cover the following setting out procedures;

- Reading working drawings to position frontage and building lines
- Taking measurements from working drawings
- Interpreting drawings
- Establishing temporary profiles and pegs, frontage and building lines
- Calculating the length of the sides of a building
- Forming right angles using ranging lines
- Correcting errors regarding measuring lengths of sides and diagonal check
- Transferring building lines to the ground and concrete

### Learning outcomes

In this unit, learners will:

- 1 Read and follow a working drawing
- 2 Follow a working drawing to establish and position the frontage and building lines
- 3 Understand the methods used to establish the sub-structure of a building

## Learning outcome:

1 Read and follow a working drawing

### Topics

1.1 Types of working drawings

1.2 Establish the lengths and sizes of walls for a building

#### Topic 1.1

Read working drawings to establish accurate sizes and positions of internal and external walls and openings

- Location
- Site plans
- Elevation plans
- Orientation
- Frontage
- Building lines

#### Topic 1.2

Read measurements using meters and millimetres and use a tape to establish lengths of walls

## Learning outcome:

2 Follow a working drawing to establish and position the frontage and building lines

### Topics

2.1 Follow a working drawing establish the position of temporary profiles

2.2 Follow the working drawing to establish corner peg positions

2.3 Follow a working drawing to establish the frontage/building lines

2.4 Determine the position of the building on the building line

2.5 Square the building

2.6 Implement corrective measures

#### Topic 2.5

Squaring the building using the following standard methods:

- Builder square
- 3,4,5 method
- Optical site square
- Measure diagonals



## Learning outcome:

3 Understand the methods used to establish the sub-structure of a building

## Topics

3.1 Methods used to set out a building

3.2 Process used for transferring and positioning building lines on to the ground

3.3 Methods used to excavate foundation trenches

3.4 Methods of transporting and positioning concrete

3.5 Process for transferring building lines onto the foundation concrete

3.6 Process of establishing levels from temporary benchmarks

### Topic 3.1

The method used to set out the building using an optical square and tape measure

### Topic 3.2

Preparing for excavation for foundation trenches following standard processes:

- Fix lines to profiles
- Run sand line
- Transferred lines onto ground

### Topic 3.3

Methods used to set out and excavate foundation trenches and the conditions the different foundation types are used:

- Strip – stepped foundation
- Trench fill
- Raft
- Pad

### Topic 3.4

Considerations when transporting and placing concrete and the methods used:

- Transporting - hand wheelbarrow, lorry, pumping
- Placing – tamping, vibrating

### Topic 3.5

Methods used to mark the positions of building lines onto the foundation concrete from the setting out lines following standard process

- Plumbing down using a level and straight edge
- Marking wall positions on a foundation concrete in mortar

### Topic 3.6

Methods used to accurately transfer levels to the corners of a building from a temporary benchmark (TBM) using the following methods:

- Level and straight edge
- Optical level
- Laser level
- Water level

### **Guidance for delivery**

Training for this unit can be linked to the Functional skills elements of AON and Interpreting information.

The learner must be confident with the use of working drawings and tape measure. The learner must understand the measurement used when taking off sizes and positions from a drawing when setting out, when using a scale rule and working drawing must understand the conversion of the scales to transfer to full size using the tape measure.

### **Assessment suggestions for the unit**

This unit will be assessed by multiple choice question test and a summative practical assessment.

### **Simulation guidance**

Setting out can be simulated during training to square a small building

### **Ways in which the unit links to maths**

- Calculating amounts, lengths and areas
- Establishing to size and dimension from information off-plans

### **Ways in which the unit links to English**

- Referring to and interpreting drawings
- Interpretation of manufactures instructions and mixing requirements

### **Suggestions for delivery format of content – lesson ideas**

- Site visit to different types of construction projects
- Workshop based demonstration and practical application sessions

### **Links to other units within the qualification**

This unit links to the competence on-site unit 211

## Unit 205 Principles of building masonry structures

<b>Level:</b>	2
<b>GLH:</b>	60
<b>Unit type:</b>	Taught / College based
<b>Assessment type:</b>	Multiple choice test/practical assignment

### What is this unit about?

The purpose of this unit is for learners to understand how to prepare and set out masonry structures and understand the documentation that is used to assist them in this process.

The learner will gain an understanding of the documentation used in construction and how this assists them in the process of organising the building of the structure, they will also learn how to store the materials and stack them in preparation for the building process. The unit also covers how mortar and concrete are produced and the composition of a range of walls that are used in construction.

Learners should consider the following questions as a starting point to this unit:

- What is the best way to store materials prior to use?
- What is the best way to stack materials to allow efficient and safe working?

### Learning outcomes

In this unit, learners will:

- 1 Understand how to set up the work area
- 2 Build single skin walls
- 3 Understand the principles of building cavity walls
- 4 Build cavity walls
- 5 Know how to build solid walls
- 6 Set out and build solid walls
- 7 Know how to build isolated and attached piers
- 8 Building attached and isolated piers
- 9 Know a range of finishes for the top of walls and piers
- 10 Apply finishes to the top of walls and piers

## Learning outcome:

1 Understand how to set up the work area

## Topics

- 1.1 Stacking and storing materials
- 1.2 Load out materials in the work area
- 1.3 Set out the dimensions of the structure
- 1.4 Mix mortar in the correct proportions

### Topic 1.1

Stacking and storing materials to protect them from the elements and to ensure that they are in good condition for use

Materials:

- Bricks
- Blocks
- Cement
- Aggregate
- Sand
- Timber
- Frames
- Joists

### Topic 1.2

Load out materials in the work area to ensure that they are placed in the safest and most efficient position for working

- Bricks
- Blocks
- Mortar

### Topic 1.3

Setting out the position of the building to allow building to commence

- Tape measure site square
- Frames
- Lines
- Building line

### Topic 1.4

Mixing mortar onsite and ensuring that the mortar is properly gauged, mixed to the correct consistency and that any required additives are used

Gauging

- Batching
- Mixing by mixer
- Mixing by hand
- Weight batching

- Gauging by volume

#### Additives

- Plasticiser
- Lime
- Colour

### Learning outcome:

2 Build single skin walls

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### Topics

2.1 Set out and build single skin walls

2.2 Materials used to build single skin walls

2.3 Set out returns and junctions in single skin walls

#### Topic 2.1

Build a single skin wall to gauge, level, plumb and to line using the appropriate tools and equipment.

#### Topic 2.2

Materials

- Bricks
- Concrete blocks
- Lightweight blocks

#### Topic 2.3

Set out returns and junctions of a single skin wall with the correct bonding pattern

- Bonding at returns
- Bonding at T junctions

### Learning outcome:

3 Understand the principles of building cavity walls

### Topics

3.1 Design considerations

3.2 Components

3.3 Types and methods of insulating cavity walls

#### Topic 3.1

Reasons why cavity walls are used, how good insulation can be incorporated and the methods to ensure that water does not track to the inner leaf

- Treatments at opening
- Water tightness

- Air tightness
- Thermal insulation

### **Topic 3.2**

The range of components that are incorporated into cavity walls, their use and methods of installation

- Wall ties insulation
- DPC
- Lintels
- Weep holes
- Trays
- Lightweight blocks
- Insulation clips
- Fire stops
- Cavity closures
- Vents

### **Topic 3.3**

Insulation of cavity walls, the materials used and methods of installing various materials

Methods

- Full fill
- Partial fill
- Post applied

Materials

- Glass fibre
- Pir
- Sheep wool
- Insulation blocks
- Thin joint
- Hollow block

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## **Learning outcome:**

4 Build cavity walls

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## **Topics**

- 4.1 Setting out cavity walls
- 4.2 Materials used to build cavity walls
- 4.3 Methods used to insulate cavity walls

### **Topic 4.1**

Build a cavity wall to gauge, level, plumb and to line using the appropriate materials and equipment, and according to a specification and drawing

## Topic 4.2

Materials:

- Insulation Blocks
- Concrete Blocks
- Wall ties
- Vents
- DPC
- Insulation – full fill, partial fill
- Trays

## Topic 4.3

Methods used to insulate cavity walls and the materials that used to provide good insulation properties

Materials:

- Thin joint
- Hollow block
- Full fill
- Partial fill
- Post applied

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## Learning outcome:

5 Know how to build solid walls

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## Topics

- 5.1 Bonding arrangements for solid walls
- 5.2 Materials used to construct solid walls
- 5.3 Bonding solid walls at returns and junctions
- 5.4 Joint finishes

## Topic 5.1

Different types of bonding arrangements, their strengths and appearance and the ways that the bonds are used in wall construction

Types of bonding arrangements

- English bond
- Flemish bond
- English garden wall bond
- Flemish garden wall bond
- Bonding block work

## Topic 5.2

Suitability and range of materials used for constructing solid walls

- Bricks
- Blocks

- Engineering Bricks
- Specials

### **Topic 5.3**

Bonding arrangements for a variety of applications including the below:

- T junctions
- Intersections
- To attached piers
- Brick to block
- Returns

### **Topic 5.4**

Methods of producing the different types of joint finishes

- Half round
- Weatherstruck
- Flush
- Recessed

---

### **Learning outcome:**

6 Set out and build solid walls

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### **Topics**

6.1 Set out and build solid walls

6.2 Set out and build solid walls at returns and junctions

6.3 Apply joint finishes to walls

### **Topic 6.1**

Set out and build solid walls using the range of bonds listed below:

- English bond
- Flemish bond
- English garden wall bond
- Bonding blockwork

### **Topic 6.2**

Learner need to set out and build solid walls incorporating returns and junctions

- T junctions
- Intersections
- To attached piers
- Brick to block
- Returns

### **Topic 6.3**

Learners need to apply the range of joint finishes to walls listed below:



- Half round
- Weatherstruck
- Flush
- Recessed

### Learning outcome:

7 Know how to build isolated and attached piers

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### Topics

7.1 Bonding arrangements for isolated and attached piers

#### Topic 7.1

Learners need to know about the different types of bonding arrangements and their strengths and appearance for isolated (hollow/solid) and attached piers

Types of bonding arrangements

- English bond
- Flemish bond
- Bonding blockwork

### Learning outcome:

8 Building attached and isolated piers

### Topics

8.1 Isolated solid piers

8.2 Isolated hollow piers

8.3 Attached piers at the ends of brick and block walls

8.4 Attached piers in the middle of brick and block walls

#### Topic 8.1

Set out and build a pier ensuring it is square to the following size/bond

- Two brick square/English bond
- One Brick square

#### Topic 8.2

Set out and build a pier to the following size/bond

- Two brick square/stretcher bond

#### Topic 8.3

Set out and build a 102mm thick wall with 215mm pier for the following:

- Block walls with piers at end
- Brick walls with piers at end

## Topic 8.4

Set out and build a 102mm thick wall with 215mm pier for the following:

- Block with piers in middle
- Brick walls with piers in middle

## Learning outcome:

9 Know a range of finishes for the top of walls and piers

## Topics

9.1 Finishes for wall and piers

### Topic 9.1

The purpose of having finishes on the top of walls and the benefits of incorporating them in the construction

Types of finishes:

- Brick on edge
- Soldier course
- Specials
- Engineering bricks

## Learning outcome:

10 Apply finishes to the top of walls and piers

## Topics

10.1 Apply brick finishes

### Topic 10.1

Apply the following finishes on walls and piers

- Brick on edge
- Soldier course
- Specials
- Engineering bricks

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by a multiple choice question test and summative practical assessment.

### Simulation guidance

- Simulation in workshop is acceptable

### Ways in which the unit links to maths

- Working with units of measurement
- Calculating areas, perimeters and weights
- Calibration of measuring tools and equipment

### Ways in which the unit links to English

- Reading and following specifications
- Referring to and interpreting drawings when setting out
- Interpretation of manufactures requirements/specifications

### Suggestions for delivery format of content – lesson ideas

- Workshop based demonstration and practical application sessions

### Links to other units within the qualification

This unit links to the competence on-site unit 212.

## Unit 206

## Repair and maintenance of masonry structures

<b>Level:</b>	2
<b>GLH:</b>	60
<b>Unit type:</b>	Taught / College based
<b>Assessment type:</b>	Multiple-choice test Practical assignment

### What is this unit about?

The purpose of this unit is for learners to gain an understanding of the principles of maintaining and repairing masonry structures. Buildings suffer wear and tear during their lifespan and regular repair and maintenance is required if they are to withstand the test of time. Learners should gain a knowledge of the various faults that occur in masonry and how repairs can be properly affected.

Learners may be introduced to the unit by asking themselves questions, such as:

- How is masonry maintained and repaired?
- How do we select the correct material for repairs and maintenance?
- How do we select the proper materials to ensure that repairs match the original?
- How domestic drainage systems work?

In this unit the learner should gain an understanding of how buildings are maintained and repaired and how domestic drainage systems work.

### Learning outcome

1. Know a range of faults that occur in masonry structures
2. Understand how domestic drainage works
3. Be able to construct a manhole
4. Understand the safe use of a range of masonry saws used in construction
5. Correctly select and use a masonry saw
6. Understand how concrete is produced on site and its applications
7. Be able to produce and place concrete on-site

## Learning outcome:

---

1 Know a range of faults that occur in masonry structures

### Topics

1.1 Removing and replacing faulty materials in masonry structures

1.2 Cleaning down the face of buildings

#### Topic 1.1

Learners need to know the cause of faults and damages that occur in masonry structures and identify the cure and the remedial actions to take

- Cracked bricks
- Blowing render
- Spalling brick faces
- Efflorescence
- Lime leaching
- Wall ties
- Matching mortar
- Sulphate attack
- Freezing

Learners need identify appropriate methods of removing and replacing defective components

- Cutting - cold chisel, disc cutter, plugging chisel
- Drilling - hammer drill

Learners need to be aware of the considerations when replacing defective components:

- Reclaimed bricks – size, colour , texture
- Matching mortar – consistency, strength , colour, lime
- Sand – colour

#### Topic 1.2

Learners need to identify the correct process for cleaning the face of the building, the considerations required to protect the public and the environmental impact.

- Washing down
- Acid application
- Power/jet wash
- Brushing

Learners need to know the appropriate PPE when cleaning down the face of the building

- Gloves
- Goggles
- Oilskins
- Mask

## Learning outcome:

2 Understand how domestic drainage works

### Topics

2.1 Types of drainage systems used for domestic buildings

2.2 Materials used in domestic drainage

2.3 Types of inspection chambers

2.4 Falls or gradients for domestic drainage

#### Topic 2.1

The range of drainage systems used for domestic drainage, their features and how they can be recognized

- Combined
- Separate
- Partially combined
- Septic tanks
- Cesspits
- Soakaways

#### Topic 2.2

Materials used to construct domestic drainage systems

- Plastic pipe
- China/clay Pipe
- Bends
- Junctions
- Rodding eyes
- Half channels
- Manholes / inspection chambers
- Collars
- Covers

#### Topic 2.3

The range of inspection chambers and the components that are used to construct them

- Plastic
- Brick built
- Concrete section
- Frames
- Covers
- Step irons
- Benching
- Half channels
- Slipper bends

#### Topic 2.4

The purpose of falls in drainage runs, why drains are laid to falls, and the methods that are used to achieve a regular gradient

Falls

- 1-100
- 1-40
- 1-60

Methods of setting a fall

- Boning rods
- Lines
- Tapered straight edges

### Learning outcome:

3 Be able to construct a manhole

---

### Topics

3.1 Construct an inspection chamber, incorporating a half channel branches, and benching

3.2 Fit an inspection cover

#### Topic 3.1

Construct an inspection chamber with a half channel and branches, complete with benching to meet the specification and comply with building regulations

Materials

- Brick
- Engineering Brick
- Plastic

#### Topic 3.2

Fit an inspection cover on the completed inspection chamber

Types of inspection covers

- Cast Iron
- Steel
- Plastic

### Learning outcome:

4 Understand the safe use of a range of masonry saws used in construction

### Topics

4.1 Powered cutters and blades

4.2 Selecting the appropriate blade and process of fitting blades

4.3 Safety aspects of using the masonry saws correctly

### **Topic 4.1**

The learner will have an awareness of the types of masonry saw that are currently used in industry and the blades that can be fitted to them.

Powered Cutters – handheld, table mounted

- Air
- Electric
- Petrol

Blades

- Corborundum
- Diamond tipped

### **Topic 4.2**

Learners need to understand the type and suitability of a range of blades for the work activity, select the appropriate blade and the correct process of fitting the blade to a range of masonry saws in accordance to manufacturers guidelines

Types

- Size
- Fitting
- Peripheral speed
- Guard

Work activity cutting

- Concrete
- Bricks
- Steel
- Stone

### **Topic 4.3**

Learners need to understand the safety aspects including appropriate PPE when using masonry saws. Learners must adhere to the risk assessments and method statements for the work activity being carried out.

PPE

- Goggles/visor
- Workboots
- Ear protection
- Respirators/dust masks
- Gloves
- Hard hats



## Learning outcome:

5 Correctly select and use a masonry saw

### Topics

- 5.1 Identify a suitable masonry saw for the work
- 5.2 Identify the correct blade type for the given work
- 5.3 Select and use the correct PPE for the work
- 5.4 Correctly use the saw to cut a brick or block

#### Topic 5.1

The learner will select the appropriate type of saw for the work

##### Saws

- Petrol
- Air
- Electricity
- Hand held
- Table mounted

#### Topic 5.2

The learner will identify the correct type and size blade to fit to the saw to carry out the work safely and correctly fit it to the saw.

#### Topic 5.3

Correctly identify and select suitable PPE to wear when using a masonry saw to cut brick or blocks

##### PPE

- Gloves
- Protective boots
- Face mask
- Eye protection

#### Topic 5.4

Correctly use the saw to cut a brick or block to the correct size in a safe manner

## Learning outcome:

6 Understand how concrete is produced on-site and its applications

### Topics

- 6.1 Methods used to produce concrete
- 6.2 Materials used to make concrete
- 6.3 Range of defects that can occur in concrete
- 6.4 Methods of repairing concrete

### **Topic 6.1**

Learners need to understand the methods of gauging, mixing, placing and repairing concrete on site to suit the conditions

#### **Methods:**

- Gauging
- Hand mixing
- Small mixer
- Batching
- Ready mixed

### **Topic 6.2**

The range of materials that are used to make concrete on site

Materials:

- Coarse aggregate
- Fine aggregate
- Portland cement
- Additives
- Steel reinforcing
- Water

### **Topic 6.3**

The range of defects that occur in concrete

- Cracking
- Spalling
- Concrete cancer
- Blowing

### **Topic 6.4**

The methods used to repair concrete:

- Patching
- Refinishing
- Replacing reinforcement

### **Learning outcome:**

7 Be able to produce and place concrete on-site

### **Topics**

7.1 Select materials to make concrete

7.2 Produce concrete

7.3 Place and finish concrete

### **Topic 7.1**

Learners need to be able to correctly gauge, mix, place and finish concrete using correct methods

Materials:

- Coarse aggregate
- Fine aggregate
- Portland cement
- Additives
- Steel reinforcing
- Water

### **Topic 7.2**

Learners will understand the methods used to produce quantities of concrete in on site conditions

- Gauging
- Hand mixing
- Small mixer
- Batching

### **Topic 7.3**

Learners will know the methods used to place, compact and finish concrete and how concrete is cured.

Placing

- Pouring
- Pumping

Compacting

- Tamping
- Vibrating
- Floating

Curing

- Treating
- wetting

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by a multiple choice question test and practically assessed activities.

### Ways in which the unit links to maths

- Understanding weight and the lifting requirements for individuals
- Calculation to exposure times e.g noise
- Calculation of peripherals speeds for blades
- Understanding of falls and gradients

### Ways in which the unit links to English

- Reading and understanding health and safety
- Reading and understanding of manufacturers information

### Suggestions for delivery format of content – lesson ideas

- Researching existing types of equipment, systems and modern methods of construction
- Carrying out risk assessments

### Links to other units within the qualification

This unit underpins all practical skills within the college based taught units and links to the competence on-site units –such as masonry structures and the health and safety unit.

## Unit 207 Decorative brickwork

<b>Level:</b>	2
<b>GLH:</b>	30
<b>Unit type:</b>	Taught / College based
<b>Assessment type:</b>	Multiple-choice test Practical assignment

### What is this unit about?

The purpose of this unit is for learners to understand the knowledge and practical application used to build decorative brickwork and arch construction.

The learners would need to know about the different types of arch designs and the methods used to set out and build them.

Learners should consider the following questions as a starting point to the unit:

- Why arches are used in building?
- What is the purpose of arches ?
- What positions in the structure are decorative features incorporated?

### Learning outcomes

In this unit, learners will

- 1 Know decorative features and how they can be incorporated into a structure
- 2 Set out and build three courses of different decorative brickwork features
- 3 Understand how to set out and the methods of building decorative panels
- 4 Set out and build a basket weave panel
- 5 Know methods used to set out arches
- 6 Set out and build a small rough ringed arch
- 7 Be able to set out and build brickwork curved on plan (concave and convex)
- 8 Be able to how to set out and build battered brickwork
- 9 Understand the methods used to set out angled corners

---

## Learning Outcome

1 Know decorative features and how they can be incorporated into a structure

### Topic

1.1 Decorative features and their positions in structures

#### Topic 1.1

Decorative features and the positions where they may be incorporated into a structure

Decorative features

- Corbel courses
- Dog toothing
- Dentil courses
- Rough ringed arches
- Decorative brick panels, and margin brickwork
- Banding course
- Battered brickwork

### Learning outcome:

2 Set out and build three courses of different decorative brickwork features

### Topics

2.1 Set out and build a dentil course between two corbelled banding courses

#### Topic

Learner must set out and build two corbelled banding courses with a dentil course between them following the standard method of construction.

### Learning outcome:

3 Understand how to set out and the methods of building decorative panels

### Topics

3.1 Method of setting out

3.2 Method of placing reinforcement

### Topics 3.1

Methods used to set out for a range of decorative panels, to include:

- Basket weave
- Vertical herringbone
- Diagonal herringbone

### Topics 3.2

The method of placing reinforcement for decorative panels to bond the decorative panels to the surrounding wall, to include:

- Basket weave
- Vertical herringbone
- Diagonal herringbone

Reinforcement type

- Expanded metal lath (EML)
- Bricktor

### Learning outcome:

4 Set out and build a basket weave panel

### Topics

4.1 Set out and build a small decorative panel using basket weave

### Topics 4.1

Set out a small decorative panel, three brick square, using basket weave pattern

- Identifying the correct resources to be used
- Setting out the panel dry on the floor
- Preparing the surrounding brickwork inserting horizontal joint reinforcement to tie in the panel

**Learning outcome:**

5 Know methods used to set out arches

**Topics**

5.1 Method used to set out a rough ringed arch

5.2 Method used to set out an axed arch

**Topics 5.1**

The methods used to set out a rough ringed (segmental and semi-circular) arch including the following

- Geometrical setting out for semi-circular and segmental
- Setting angle of skew back for segmental arch
- Traversing

**Topics 5.2**

Method of setting out a semi-circular and segmental axed arch

- Segmental - geometrical setting out, template production
- Semi circular - geometrical setting out, template production

---

**Learning outcome:**

6 Set out and build a small rough ringed arch

**Topics**

6.1 Set out a two ringed, one brick thick, rough ringed arch

6.2 Build a two ringed, one brick thick, rough ringed arch



## Topics 6.1

Learners need to set out a full size rough ringed arch for either a semi-circular or a segmental arch to the following specifications:

- Span equals 3 stretchers long
- Two rings
- Rough ringed arch

## Topics 6.2

Building rough ringed arches using the standard method

- positioning of temporary support
- provide alignment of a face
- turn the two rings of the arch
- finishing of the joints to the specification
- methods of removing temporary support after completion
- finishing soffit joints
- complete surrounding brick work including cutting a neat joint to the extra dos of the arch

7 Be able to set out and build brickwork curved on plan (concave and convex)

## Topics

7.1 Set out on plan, both convex and concave curves

7.2 Build curved brickwork using trammel rods and profile boards

### Topic 7.1

Set out a convex and concave wall, curved on plan, using appropriate equipment and standard process.

Equipment :

- Trammel rod
- Tape measure
- Profile boards

### Topic 7.2

Constructing a wall half brick thick (curved, on-plan)

- Convex - Minimum radius 1.5 m
- Concave - Minimum radius 1.5 m

### Learning outcome:

8 Be able to how to set out and build battered brickwork

### Topics

8.1 Determine the angle of batter

8.2 Set out brickwork to batter

8.3 Build battered brickwork

#### Topic 8.1

Establish the method used to determine the angle of batter

- Battered boards
- Tapered straight edge
- Line and pins

#### Topic 8.2

Cut the first course of brickwork to the correct angle to form the batter to the wall

#### Topic 8.3

Build battered wall using the selected method

- Stretcher bond 6 bricks long, 9 courses high
- Line and pins
- batter boards
- tapered straight edge

### Learning outcome:

9. Understand the methods used to set out angled corners

### Topics

9.1 Principles of setting out angled corners in brickwork

9.2 Materials used to form angles

#### Topic 9.1

The common angles that are used when setting out quions for both acute and obtuse corners:

#### Angles

- acute – 30 degrees, 45 degrees
- obtuse – above 90 degrees, common angle used 135

#### Topic 9.1

Materials used to form angles:

- Purpose made – specials
- squint bricks
- dog legs

- cut and stuck bricks

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by a multiple choice question test and summative practical assessment.

### Ways in which the unit links to maths

- Using geometry principles to setting out angles
- Cutting to size and dimension as specified in specifications

### Ways in which the unit links to English

- Reading and following specifications
- Referring to and interpreting drawings

### Suggestions for delivery format of content – lesson ideas

- Workshop based demonstration and practical application sessions

### Links to other units within the qualification

This unit links to the competence on-site unit 214.

## Unit 208

## Chimneys flues and fireplaces

<b>Level:</b>	2
<b>GLH:</b>	40
<b>Unit type</b>	Taught based
<b>Assessment type</b>	Multiple choice test/ research assignment

### What is this unit about?

The purpose of this unit is for learners to gain an understanding of the principles of constructing a fireplace and chimney in a domestic dwelling using a range of methods and conforming to the building and other regulations. There should also be an understanding of how to use more modern methods of providing flues in buildings and how a fireplace is fitted.

Learners may be introduced to the unit by asking themselves questions, such as:

- How is masonry maintained and repaired?
- How do we construct a chimney breast?
- How do we waterproof a chimney stack where it leaves the building?
- What are the materials required to construct flues and chimneys?
- How do you fit a fireplace?

### Learning outcomes

In this unit, learners will:

- 1 Know types of flashings and leadworks for chimneys
- 2 Understand the method of constructing a chimney stack from drawings and specifications
- 3 Understand the methods of positioning a hearth and surround
- 4 Understand modern methods of providing chimneys and flues

## Learning outcome:

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1 Know types of flashings and leadworks for chimneys

### Topics

1.1 Identify a range of flashings and leadwork for chimneys

#### Topic 1.1

Identify the various types of lead trays and flashings that are used to waterproof the area where the chimney leaves the roof structure

- Aprons
- Back gutters
- Trays
- Step Flashings

## Learning outcome:

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2 Understand the method of constructing a chimney stack from drawings and specifications

### Topics

2.1 Construction methods of chimney stacks

2.2 Interpret drawings and information from specifications and documentation

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## Topic 2.1

Methods of how chimney stacks are constructed

Materials

- Bricks
- Clay/ concrete liners
- Pots
- Mortar

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## Topic 2.2

Interpret drawings, extracting information from specifications applying the appropriate regulations.

Documentation:

- Building Regulation approved Document J
- Drawings
- Specifications

### Learning outcome:

3 Understand the method of positioning a hearth and surround

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## Topic

3.1 Methods of positioning hearth and surround

### Topics 3.1

Methods adopted to position a superimposed hearth and fire surround according to the regulations ensuring good practice.

Materials

- Fireback
- Surround
- Hearth
- Vermiculite fill
- Throat unit

Regulations:

- Building Regulations Approved Document J
- HEATAS Regulations

Methods:

- Bedding
- Fixing
- Filling

## Learning outcome:

4 Understand modern methods of providing chimneys and flues

## Topic

4.1 Modern methods of providing chimney and flues

### Topic .1

Methods used to provide chimneys and flues to modern buildings, and the range of modern methods used.

Modern methods

- Gas flues
- Ducted flues
- Enclosed appliances
- Pre-cast flues
- Pre -fabricated flues

Materials:

- Flue blocks
- Metal Liners
- Ducting

Methods:

- Hollow block construction
- Ducted
- Balanced Flue

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by multiple choice and written research assignment.

### Simulation guidance

- NA

### Ways in which the unit links to maths

- Costing of materials
- Calculations of square meterage

### Ways in which the unit links to English

- Reviewing and interpreting written tenders
- Interpreting information required to be communicated to suppliers
- Completion of regulation forms and documentation

### Suggestions for delivery format of content – lesson ideas

- Providing case studies of different types of building
- Research of government portal for planning permission
- Visits to trade shows – e.g. home build show



## Unit 209

# Maintaining health and safety when Bricklaying

<b>Level:</b>	2
<b>GLH:</b>	20
<b>Unit type:</b>	Competency / Site based
<b>Assessment type:</b>	Portfolio

### What is this unit about?

The purpose of this unit is for learners to demonstrate practically the skills and knowledge they have been taught in unit 202 Health and Safety for bricklaying.

This unit will be assessed in a real working environment and learners will have to complete different tasks a number of times in order to achieve the unit.

The unit will provide the learner with the skills to work in the bricklaying environment safely and consider the safety aspects that impact them, their colleagues and others around them.

Learners should consider the following questions as a starting point to this unit:

- What are the risks and hazards when working?
- How can risks and hazards be minimized for self and others?

### Learning outcomes

In this unit, learners will:

1. Produce a risk assessment and method statement for a work activity
2. Use appropriate PPE for work activity
3. Be able to work safely at height for work activity
4. Be able to move materials using lifting techniques

**Learning outcome:**

1. Produce a risk assessment and a method statement for a work activity

**Topic**

1.1 Produce a risk assessment for a work activity

1.2 Produce a method statement for a work activity

**Topic**

Considerations for risk assessments:

- Hazards - slips, trips, falls, plant and machinery, falling from height, falling objects, asbestos
- Dust, chemicals, inhalation
- Likelihood – high, medium, low
- Control measures

**Learning outcome:**

2. Use appropriate PPE for work activity

**Topic**

2.1 Select the appropriate PPE for work activity

**Topic 2.1**

PPE

- Work boots
- Gloves
- High visibility vest

**Learning outcome:**

3 Be able to work safely at height for work activity

**Topic**

3.1 Demonstrate ability to work off the ground

3.2 Carry out safety measures and checks when working at height

3.3 Access and egress to and from the platform safely

## Learning outcome:

4 Be able to move materials using lifting techniques

### Topic

- 4.1 Plan the move of materials
- 4.2 Select the correct method of moving materials
- 4.3 Use safe lifting methods when moving materials
- 4.4 Select the correct PPE when moving materials

#### Topic 4.1

Planning the move of materials

- How to assess a load
- Moving the load
- Route safety
- Duration of lift
- Informing others

#### Topic 4.1

Selecting the appropriate method for lifting materials safely

- Manual handling
- Mechanic - eg kirbs, pallets, concrete lintols

#### Topic 4.3

Safe lifting methods without incurring injury

- Weight consideration
- Techniques
- Weight limits
- Kinetic methods

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by direct observation in the workplace and can supported by witness testimony.

### Evidence requirements for the unit

Learners must carry out work in accordance to the risk assessment and method statement, considering the safety of self and others. They must follow the health and safety legislation and the organisations policy at all times.

### Links to other units within the qualification

This unit links to the taught based unit 202.

## Unit 210

# Providing effective communication and customer service in the construction industry

<b>Level:</b>	2
<b>GLH:</b>	20
<b>Unit type:</b>	On-site /competency
<b>Assessment type:</b>	Portfolio / project

### What is this unit about?

The purpose of this unit is for learners to demonstrate practically the skills and knowledge they have been taught in Unit 203 - Communication and customer service in the construction industry.

This unit will be assessed in a real working environment and learners will have to complete different tasks a number of times in order to achieve the unit.

The unit will provide the learner with the skills to communicate effectively with customers and stakeholders, as well as learners identifying own development needs and producing a development plan.

Learners should consider the following questions as a starting point to this unit:

- What sort of documentation would be used on a construction project?
- How can I meet customer expectations?

### Learning outcomes

In this unit, learners will:

- 1 Communicate with colleagues and customers in the workplace
- 2 Demonstrate good customer service
- 3 Maintain a safe and secure work environment for customers during construction works
- 4 Produce a development plan

---

**Learning outcome:**

1 Communicate with colleagues and customers in the workplace

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**Topics**

1.1 Communicate effectively with colleagues and stakeholders using a range of methods

**Topic 1.1**

Communication methods

- Verbal and non-verbal communication
- Face to face
- Body language
- Remote communication
- E-platforms
- Written communication synchronous and asynchronous
- Multi-user web based project working platforms
- Signs

Stakeholders

- Colleagues
  - Clients
  - Architects
  - Contract managers
  - Line managers
  - Building control officers
  - Other trades
- 

**Learning outcome:**

2 Demonstrate good customer service

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**Topics**

2.1 Demonstrate good customer service

**Topic 2.1**

- Behaving in a manner that meets the requirements of the company and the client
  - Personal hygiene
-

- Use of appropriate language, avoid acronyms and abbreviations, tone and situation
  - Cleaning the working environment
  - Importance of good relationships with stakeholders (including other trades)
  - Showing respect for customers property
  - Good timekeeping
  - Professional image and appearance
  - Behaving in an ethical manner
  - Transparency of work requirements
  - Good morale
  - Knowing when matters need to be escalating
  - Being punctual and reliable and conscientious
- 

**Learning outcome:**

3 Maintain a safe and secure work environment for customers during construction works

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**Topics**

- 3.1 Maintain the security of the work area
- 3.2 Store tools and equipment to ensure customer safety
- 3.3 Clean the work area when required

**Topic 3.1**

Ensuring the working environment is safe and secure to ensure customers and their property is safe during the construction process

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**Learning outcome:**

4 Produce a development plan

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**Topics**

- 4.1 Identify own development needs
  - 4.2 Produce and complete a plan based on individual development needs
-

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by direct observation in the workplace and can be supported by work evidence diary records and witness testimony.

Learners need to produce a development plan identifying their personal development needs.

### Simulation guidance

Simulation is not allowed for this unit.

### Evidence requirements for the unit

Learners should provide evidence of written and verbal communication with customers on a minimum of two occasions.

### Links to other units within the qualification

This unit links to the taught based unit 203.



## Unit 211

## Setting out

<b>Level:</b>	2
<b>GLH:</b>	15
<b>Unit type:</b>	Competency - onsite
<b>Assessment type:</b>	Portfolio / Project

### What is this unit about?

The purpose of this unit is for learners to demonstrate practically the skills and knowledge they have been taught in Unit 204 – Principles of the setting out. This unit will be assessed in a real working environment and learners will have to complete different tasks in order to achieve the unit.

The unit will provide the learner with the skills for setting out of a small building. The learner will be able to read and follow a working drawing and establish both frontage and building lines for the building. The learner will also be able to transfer the building line from the ranging line to foundation concrete.

Learners should consider the following questions as a starting point to this unit:

- What drawing/s are being read to take off measurements?
- What are the tools and equipment required to complete the unit?
- Is there enough floor area for the setting out unit?

### Learning outcomes

In this unit, learners will:

- 1 Read and follow a working drawing.
- 2 Set out a building to square

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**Learning outcome:**

1 Read and follow a working drawing

**Topics**

1.1 Use working drawings to establish wall positions

1.2 Use measurements to establish walling positions

**Topic 1.1**

Interpret working drawings to position profiles, corner pegs, and frontage/building lines

- Location
- Site plans
- Elevation plans
- Orientation

**Topic 1.2**

Using a tape measure calculate and record all measurements to position both the building and frontage lines

Measurements

- Millimetres
- Meters

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**Learning outcome:**

2 Set out a building to square

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**Topics**

2.1 Form right angles using profiles and ranging lines

2.2 Transfer building line positions to the ground/concrete

2.3 Check and correct calculations to horizontal/diagonal measurements

**Topic 2.1**

Use a range of methods to square a building

- Builder square
- 3,4,5 method
- Optical site square
- Measure diagonals

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by direct observation in the workplace and can be supported by work evidence diary records and witness testimony.

### Simulation guidance

Simulation is not allowed for this unit.

### Evidence requirements for the unit

Learners are required to set out a small building locating the frontage and building line of a structure. The learner only has to complete this practical exercise once if completed correctly.

The learner must read and follow the working drawing and successfully take measurements from the same drawing. The measurements will locate the frontage and building lines of a small building.

The learner will locate the corner temporary profiles, and locate the corner pegs.

The learner will position the ranging lines for all four sides of a small building.

The learner will transfer the building line from one side to the ground.

### Links to other units within the qualification

This unit links to the taught based unit 204.

## Unit 212

## Building masonry structures

<b>Level:</b>	2
<b>GLH:</b>	60
<b>Unit type:</b>	Competency - onsite
<b>Assessment type:</b>	Portfolio / Project

### What is this unit about?

The purpose of this unit is for learners to demonstrate practically the skills and knowledge they have been taught in Unit 205 – Principles of building masonry structures.

The learners will be able to apply the knowledge and skills that they have already gained in other units to constructing cavity walls, isolated and attached piers and wall finishing's.

### Learning outcomes

In this unit, learners will:

- 1 Prepare for building a masonry structure
- 2 Build cavity walls
- 3 Build solid walls
- 4 Build isolated and attached piers
- 5 Construct walls with attached piers in brick and block
- 6 Apply finishes to the top of walls

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## Learning outcome:

1 Prepare for building a masonry structure

### Topics

- 1.1 Set up the work area
- 1.2 Load out materials in the work area
- 1.3 Set out the dimensions of the structure
- 1.4 Mix mortar
- 1.5 Cut bricks-blocks using hand and power tools

#### Topic 1.1

1.1 Prepare the work area to carry out work

- Above ground
- Below ground
- On platforms

#### Topic 1.2

Loading out materials by placing safely and conveniently to allow efficient and safe working

- Bricks
- Blocks
- Insulation blocks
- DPC
- Lintols
- Insulation
- Wall ties
- Frames

#### Topic 1.3

Set out the position and size of the structure according to the information provided

- Plans
- Site square

#### Topic 1.4

Mix mortar according to the specification using a suitable method

- Guaging
- Plasticiser
- Mixer
- Potable water

#### Topic 1.5

Cut building materials correctly and safely using a range of tools and equipment

- Hammer
- Bolster
- Petrol disc cutter
- Electric disc cutter

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**Learning outcome:**

2 Build cavity walls

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**Topics**

- 2.1 Set out cavity walls below and above ground level
- 2.2 Construct cavity walls using a range of materials
- 2.3 Install insulation to full and partial fill cavity walls
- 2.4 Construct cavity walls and install a range of components

**Topic 2.1**

Set out cavity walls below ground and above ground level to ensure correct bond and positioning of openings and components

Bonds

- Half bond
- Reverse bond
- Broken bond

Components

- Windows
- Doors
- Vents
- Service entries
- Meter boxes

**Topic 2.2**

Construct cavity walls using selected materials as per the drawings and specifications and as required by regulations

Materials

- Brick
- Block
- Insulation Block
- Thin Joint

**Topic 2.3**

Install insulation into cavity wall as the work proceeds in accordance with the specification, manufacturers information and regulations

Insulation

- Full fill
- Partial fill
- Retaining clips
- Joint tape
- Wall ties

## Topic 2.4

Construct cavity walling and install a range of components during the process according to drawings, specification and regulations

Construct cavity walls using materials according to the specification and place components as required by the drawings and regulations.

Components

- Lintols
- Trays
- DPC
- Ties
- Clips
- Vents
- Frames
- Weep holes
- Restraint straps

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### Learning outcome:

3 Build solid walls

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### Topics

3.1 Set out and build solid walls using a range of materials and bonds

3.2 Bond walls correctly at corners and junctions

3.3 Finish joints with a range of joint finishes

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## Topic 3.1

Set out and build solid walls using a range of bricks blocks in bonds as specified by the drawings and specifications

Bricks and Blocks

- Concrete blocks
- Insulation blocks
- Trench Blocks
- Cellular blocks
- Clay blocks
- Clay bricks
- Facing bricks
- Engineering bricks
- Common bricks

Bonds

- Half bond
- Quarter bond
- English bond
- Flemish bond

- Stretcher bond
- Broken bond
- Reverse bond

### Topic 3.2

Construct walls at corners and junctions using the correct methods of bonding and to provide the strongest and the most attractive bond.

### Topic 3.2

Finish the joints with a range of joint finishes according to the specification and to form a full joint

Joint finishes

- Half round
- Cut from the trowel
- Raked
- Weatherstruck
- Recessed

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### Learning outcome:

4 Build isolated and attached piers

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### Topics

4.1 Build a two brick square pier in stretcher bond

#### Topic 4.1

Build a two brick square pier in stretcher bond using the materials specified and with joint finishes to comply with the specification

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### Learning outcome:

5 Construct walls with attached piers in brick and block

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### Topics

5.1 Bond attached piers at the end of half brick and block walls

5.2 Bond attached piers in the centre of brick and block walls

5.1 Build walls in brick and blockwork with an attached pier bonded at the end of the wall using good practice

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5.2 Build brick walls and block walls with piers in the centre, bonded using good practice

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**Learning outcome:**

6 Apply finishes to the top of walls

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**Topics**

6.1 Apply a range of finishes in brick

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**Topic 6.1**

Apply brick finishes to the top of walls to provide protection from the weather and to form an attractive finish.

**Finishes**

- Brick on edge
- Soldier courses
- Special bricks
- Engineering bricks

**Guidance for delivery**

**Assessment suggestions for the unit**

This unit will be assessed by direct observation in the workplace and can be supported by witness testimony.

**Evidence requirements**

Learners can carry out a range of work on site which can be recorded in work evidence diaries

Alternatively employers could consider 'partnering up' in order to provide apprentices with the opportunity of a real working environment.

**Evidence requirements for the unit**

Learners should provide evidence of carrying out a range of practical activities on site according to the specifications, drawings and to building regulations.

**Simulation guidance**

- Drawings can be provided

**Links to other units within the qualification**

This unit links to the taught based unit 205.

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## Unit 213

## Repairs, maintenance and restoration of masonry structures

<b>Level:</b>	2
<b>GLH:</b>	30
<b>Unit type:</b>	Competency - onsite
<b>Assessment type:</b>	Portfolio / Project

### What is this unit about?

The purpose of this unit is for learners to demonstrate practically the skills and knowledge they have been taught in Unit 206 – Repair and maintenance of masonry structures.

The learner will demonstrate the skills to be able to select materials to mix place compact and finish concrete on site.

The learner will also demonstrate safe practice in selecting a masonry saw for given work, selecting suitable blades and wearing the correct PPE to carry out a basic cutting task on site.

### Learning outcomes

In this unit, learners will:

- 1 Construct a brick inspection chamber
- 2 Produce and place concrete on-site
- 3 Select and use a masonry saw

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**Learning outcome:**

1 Construct a brick inspection chamber

**Topics**

- 1.1 Construct a brick inspection chamber
- 1.2 Incorporate a half channel and branches
- 1.3 Produce benching
- 1.4 Fit an inspection cover

**Topic 1.1**

Construct a brick inspection chamber to comply with the specification and building regulations and fit a cover

Materials

- Brick
- Engineering Brick
- Plastic

Inspection cover

- Cast Iron
- Steel
- Plastic

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**Learning outcome:**

2 Produce and place concrete on-site

**Topics**

- 2.1 Select materials to make concrete
- 2.2 Produce concrete
- 2.3 Place and finish concrete

**Topic 2.1**

Select materials for concrete production and gauge to the correct ratios

Materials

- Coarse aggregate
- Fine aggregate
- Portland cement
- Additives
- Steel reinforcing
- Water

### Topic 2.2

Produce concrete on site using correct methods to gauge materials and mix in a mixer ready for use

- Gauging
- Hand mixing
- Small mixer
- Batching

### Topic 2.3

Place concrete for a work activity , properly compact the concrete and produce a specified surface finish

Compacting methods

- Tamping
- Vibrating
- Floating

Finishes

- Tamped
- Floated
- Trowelled

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### Learning outcome:

3 Correctly Select and use a masonry saw

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### Topics

- 3.1 Identify a suitable masonry saw for the work
- 3.2 Correctly fit the blade to saw
- 3.3 Select and use the correct PPE for the work
- 3.4 Correctly use the saw to cut a brick or block

### Topic 3.1

Choose the correct masonry saw for a given work activity and select the correct blade size and type for the work

- Air
- Petrol
- Electric
- Blade

Blade Types

- Diamond Tipped
- Carborundum

PPE

- Goggles/visor
- Workboots
- Ear protection

- Respirators/dust masks
- Gloves
- Hard hats

### **Topic 3.2**

Correctly fit a saw blade to a masonry saw for a given piece of work

### **Topic 3.3**

Select the correct PPE to carry out cutting of a brick or block

PPE

- Goggles
- Mask
- Protective footwear
- Helmet
- Gloves

### **Topic 3.4**

Correctly use a masonry saw to cut a brick or block to a given size.

## **Guidance for delivery**

### **Assessment suggestions for the unit**

This unit will be assessed by observation of work activity and recording actual working a record diary

### **Evidence requirements**

Candidates should be able to show competence of building an inspection chamber on site to specification and fitting an appropriate cover.

The candidate should also show the ability to select appropriate materials and mixing systems to carry out concreting work on site to a specified finish.

Candidates will show that they are able to use a range of mechanical cutters to cut masonry materials in site safely and considering the environment.

### **Links to other units within the qualification**

This unit links to the taught based unit 206.

## Unit 214

## Producing decorative brickwork

<b>Level:</b>	2
<b>GLH:</b>	40
<b>Unit type:</b>	Competency – on-site
<b>Assessment type:</b>	Portfolio/project

### What is this unit about?

The purpose of this unit is for learners to demonstrate practically the skills and knowledge they have been taught in Unit 207 - Decorative brickwork.

Learners will understand their role in the construction when completing decorative brickwork on site.

In this unit, learners will:

1. Be able to set out and build decorative features to include over-sailing courses and a dentil course
2. Be able to set out and build a basic rough ringed semi circled arch
3. Be able to set out and build a small decorative panel using basket weave bond

**Learning outcome:**

1. Be able to set out and build a decorative feature using over-sailing and dentil courses.

**Topics**

1.1 Bond different decorative bonds and features

**Topic 1:1**

Use decorative bonds to build a feature into a wall

- Over-sailing courses in stretcher or header bond at any location on a structure.
- Dentil course inserted between Banded courses (over sailing) at any location on a structure.

**Learning outcome:**

2. Be able to set out and build a small rough ringed semi circled arch

**Topics**

2.1 Set and build a two ringed, one brick thick on the face, rough ringed arch.

**Topic 2:1**

- The span of the opening should be no larger than 3 stretchers long.
- The arch has two rough rings.
- The arch is to be one brick thick on the face. (215mm)
- The rough ringed arch is to show wedge shaped joints.

**Learning outcome:**

3. Be able to set out and build a decorative brick panel using basket weave bond

**Topics**

3:1 Set out and build a small decorative panel, using basket weave.

**Topic 3.1**

- The panel is to be built 3 stretchers in length with a minimum of 9 courses high .
- The panel is to be built using basket weave.

## Guidance for delivery

### Assessment suggestions for the unit

This unit will be assessed by multiple choice / short answer question paper and summative practical assessment.

### Links to other units within the qualification

This unit links to the taught based unit 207.

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