Standard
L2: Stonemason

Institute for Apprenticeships & Technical Education

UOS reference number
ST0442

Title of occupation
Stonemason

Core and options
Yes

Resubmission
No

Level of occupation
Level 2

Route
Construction

Typical duration of apprenticeship
24 months

Target date for approval
30 April 2020

Occupational profile

Summary

This occupation is found in the Construction industry. The broad purpose of the occupation is to install new natural sustainable and ethically sourced stone or conserve, repair or replace existing natural stone in buildings and/or landscape projects where stonework is a key feature within the garden, including steps, walls, copings, water features, bespoke stone features and paved areas. Stonemasonry is a construction specialism and can be integral to both private and commercial projects and there are a number of specialist options within stonemasonry.

These are:

- Banker Masons who mainly work in workshops producing finished stone components to exacting tolerances from raw stone block ready for installation.
- Interior Stone Fixers who install stone components in kitchens, bathrooms, wet rooms, staircases and atria, including flooring and walling.
- Exterior Stone Fixers who install both solid masonry and hand-set stone cladding to the outside of structures.
- Memorial Masons who produce, install and repair memorial stonework for private customers and public institutions alike.
- Stone Facade Preservationists who assess, record and clean stone (and non-stone) building facades using chemical and non-chemical methods
- Heritage Stonemasons who conserve, repair and or replace stone in historic buildings many of which are of national and international importance.

Stonemasons carry out skilled work using quarried or mined natural stone. The work will be carried out either on construction sites involving new or existing buildings, indoors or outdoors, in a workshop or in an office. They will draw, create, cut, saw, carve, mason, install, or restore/conserve/clean and repair or replace natural stone. In their daily work, an employee may potentially interact with a number of other construction trades and may work alongside bricklayers, carpenters, glaziers, electricians, plumbers, roofers etc. as well as with architects and designers

An employee in this occupation will be responsible for carrying out specialist, skilled work to exacting tolerances following drawings, designs and given specifications against an established programme of work. In general, the Stonemason will work for a small to medium sized organisation, although their work may be part of a bigger overall project team. The employee will usually be subject to supervision although they may be expected to work unsupervised at times. They must also be able to identify problems and use their knowledge and skill to take appropriate action, but also recognise when advice and direction from a more qualified authority must be sought.

Typical job titles

Banker Stonemason, Interior Stone Fixer, Exterior Stone Fixer, Memorial Stonemason, Stone Facade Preservation, Heritage Stonemason

Core duties

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Duty	Knowledge	Skills	Behaviours
D1: Select, use and maintain tools, components and equipment appropriate to the task being carried out.	K1, K2	S1, S2, S3	B1, B7
D2: Interpret the appropriate work plan for the job, taking into account factors such as building age, listed status, accessibility, quality of surrounding structures, other trades in the work area, customers and related legislation and regulations.	K3	S4	B2, B4, B5, B6, B7
D3: Identify and confirm masonry requirements against surveys, job sheets, specifications and drawings/cad, and in accordance with building regulations.	K1, K3, K11, K12, K13	S5, S14, S15	B1, B2, B4, B6, B7
D4: Locate, handle, store, load, transport and position materials and tools safely, minimising damage ready for installation and where applicable, in accordance with health and safety regulations.	K1, K4	S1, S5	B1
D5: Produce or repair standard architectural enrichments, prepare backgrounds to receive masonry and to set out basic masonry on buildings/structures.	K1, K2, K3, K6	S1, S2, S3, S8, S9	B1
D6: Install/erect/repair masonry components and finish as required.	K1, K2, K3, K7	S1, S2, S3, S10, S12	B1, B3, B7
D7: Deliver work to the manufacturer's and customer's quality specifications.	K9	S12	B2, B3, B7
D8: Clear away leftover materials on completion of work and dispose of waste appropriately according to the appropriate code of practice.	K1, K10	S1, S4, S13	B1, B2, B5

Option 1: Banker Stonemason

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Duty	Knowledge	Skills	Behaviours
D9: Make moulds and templates in order to produce standard and bespoke stonemasonry components as required.	K5, K14, K15	S6, S7, S16, S17	—
D10: Conserve or restore stonemasonry, brickwork or earthen structures.	K5, K8	S11	—

Option 2: Interior Stone Fixer

Duty	Knowledge	Skills	Behaviours
D11: Prepare background surfaces for internal stone fixing.	K16	S18, S19	—
D12: Install internal stonework and stone flooring.	K17, K18, K21	S20, S21	—

Option 3: Exterior Stone Fixer

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Duty	Knowledge	Skills	Behaviours
D13: Prepare backgrounds to receive external stone cladding and set out basic external stonemasonry.	K17, K19	S22	—
D14: Remove, install and repair basic external stonemasonry structures and stone cladding.	K18, K20, K21	S21, S23	—

Option 4: Memorial Stonemason

Duty	Knowledge	Skills	Behaviours
D15: Prepare and mix lime mortars; fix and secure memorial stonemasonry.	K21, K22	S24, S25	—
D16: Provide details and finishing to memorial stones.	K23, K24	S26	—

Option 5: Stone Facade Preservation

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Duty	Knowledge	Skills	Behaviours
D17: Clean facade surfaces.	K25	S27	—
D18: Prepare and mix lime mortars; restore facade surfaces.	K15, K21, K26	S24, S28	—

Option 6: Heritage Stonemason

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Duty	Knowledge	Skills	Behaviours
D19: Prepare backgrounds to receive stone cladding and set out basic external stonemasonry on heritage buildings/structures.	K27, K28	S29, S30	—
D20: Conserve or restore existing stonemasonry, brickwork or earthen structures on heritage structures using appropriate heritage techniques and following conservation ethics and procedures.	K23, K29, K30	S31, S32	—

Knowledge

K1: Core - Health and safety: Health & Safety at Work Act 1974, approved codes of practice and industry guidance for the stone industry, reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR), personal protective equipment (PPE), manual handling, Control of Substances Hazardous to Health (COSHH), Provision and Use of Work Equipment Regulations (PUWER), and how they must be applied in the workplace. Risk assessments and dynamic risk assessment, manual handling and working at height.

K2: Core - Stonemasonry tools, components and equipment appropriate to the required methods of work; understanding of how to safely use and maintenance tools/equipment to achieve the required performance and finish quality; Pre/Post-use checks and how to apply safeguards when using and maintaining stonemasonry tools, components and equipment.

K3: Core - The overall program requirements, including procedures and resources available, sequencing of work to be completed and estimating timescales for work; how to maintain workflow documentation and when to report any circumstances which may affect the work program.

K4: Core - Movement of materials and movement/storage of stone and the problems/damage that can occur and avoidance methods.

K5: Banker Stonemason - Understand evidence of existing masonry to enable production of replacement components; templates and mould production for use in natural stone component manufacture; methods of obtaining true and square surfaces, stopped ends and curved mouldings with understanding of mould shape consistency; different stone types and the differing properties of the stone to be used e.g. limestone, sandstone, granite, marble, slate.

K6: Core - Methods of preparing surfaces to receive enrichments; methods of removing deteriorated and/or inappropriate materials; how to mix mortars and adhesives to agreed specification; the properties and applications of mortars and sand renders, adhesives, grouts, substrates, screeds (including self-levelling compounds), resins, quick lime, putty lime, hydraulic lime and lime washes.

K7: Core - Methods of erecting and dismantling shores, struts, props and supports to structures, whilst maintaining historical integrity; tooling surfaces to the required finish to match existing masonry; understand bedding plane position to suit the use of the stone component; positioning and securing stones in the required location.

K8: Banker Stonemason - Recognition and reporting of sensitive areas, endangered/protected flora and fauna, salvageable materials/components; how to source sustainable and ethically sourced stone; methods of recognised conservation techniques .

K9: Core - Interpreting the organisational and manufacturers' quality standards, how to check stone for faults to ensure work conforms to the customer's expectations; how to record and report any variations in expected quality and how to implement any necessary corrective action.

K10: Core - Environmental considerations in accordance with the Environmental Protection Act: safe disposal of waste, minimising waste (re-use and re-cycle), waste contractors permit, energy efficiency, how to contribute to zero/low carbon outcomes.

K11: Core - Other workshop or on-site functions that masons interact with, for example surveyors, designers, engineers; their purpose and inter-dependencies; Internal and external customers.

K12: Core - Relevant Building regulations and codes of practice.

K13: Core - Communication techniques; verbal, written and digital; use industry terminology.

K14: Banker Stonemason - The need for different components and the different types of moulds for natural stone which can be used to assist in their production.

K15: Banker Stonemason/Stone Facade Preservation - When and how to use bespoke natural stone components and how to accurately shape and prepare them.

K16: Interior Stone Fixer - The faults to look for and checks to be carried out on existing internal surfaces to receive stonework; how to clean, prepare and select and apply sealants and protection to surfaces prior to any installation.

K17: Interior Stone Fixer/Exterior Stone Fixer - Methods of preparing surfaces to receive stone fixings/components.

K18: Interior Stone Fixer/Exterior Stone Fixer - Methods of finishing and protecting stone fixings/components.

K19: Exterior Stone Fixer - Methods of installing load bearing support and restraint systems, insulation (membranes and fire stops), cavity trays and damp proof membranes (DPM); how to waterproof and protect existing external surfaces.

K20: Exterior Stone Fixer - Methods of installing, supporting and finishing external cladding, suitable to the location, environment and in-line with job specification.

K21: Interior Stone Fixer/Exterior Stone Fixer/Memorial Stonemason/Stone Facade Preservation - Different types of lime mortars; application methods.

K22: Memorial Stonemason - The importance of checking and recording ground and surface conditions; how to excavate area safely; how to lay foundations and install memorial stones & grave surrounds.

K23: Memorial Stonemason/Heritage Stonemason - The protocols relating to the bereaved and the public; specific requirements for sites of special interest, consecrated and non-consecrated ground, historical and environmental significance.

K24: Memorial Stonemason - Methods of adding details, lettering & ornamentation to stone; finishing techniques and hand polishing.

K25: Stone Facade Preservation - Surface condition of facades recording requirements (how and why) prior to commencing work; methods of chemical and non-chemical cleaning processes.

K26: Stone Facade Preservation - Methods of restoring facades and joints on flat, textured and moulded natural stone and on burnt clay, art stone and concrete.

K27: Heritage Stonemason - Photographic, written or digital record requirements in Heritage conservation projects prior to any work being carried out.

K28: Heritage Stonemason - Methods and tool selection for drilling and cutting stone backgrounds to receive fixings sympathetic to the existing condition of heritage masonry; how to form openings which conform to the requirements for heritage planning and buildings

regulations.

K29: Heritage Stonemason - Recognised conservation techniques to maintain heritage and archaeological integrity; the principles of minimum intervention and reversible alterations; how to identify stone type within existing building and how to refer for analysis as appropriate; the importance of the historical context of the project.

K30: Heritage Stonemason - Methods of matching masonry components with existing structures, straight walling returns and rakes for new build and for buildings that are not straight and true; How incorporate pre-prepared conservation masonry components, e.g. quoin, jamb, cill stones and coping; How to generate designs/lettering using computer equipment; The principles of selecting and applying hand cut ornamentation.

Skills

S1: Core - Carry out safe stonemasonry working practices, comply with health, safety and welfare legislation, conduct risk assessments; Report any workplace hazards, incidents, near misses, accidents or emergencies.

S2: Core - Apply all safeguards and complete pre-use checks when using tools.

S3: Core - Select and use the appropriate tools, components and equipment; Repair and maintain tools, components and equipment.

S4: Core - Plan the sequence of stonemasonry work required; Ensure work is completed safely within the allocated time and budget and report any situations which affect the work schedule.

S5: Core - Select the required type and quantity of materials, move, handle and store safely.

S6: Banker Stonemason - Measure, mark out, cut and finish standard templates and moulds.

S7: Banker Stonemason - Produce true and square natural stone components.

S8: Core - Set out and work stone to receive enrichments such as flat, moulded, straight and curved, internal and external mitres, stop ends and returned ends.

S9: Core - Produce enrichments such as repeated enrichment (egg and dart, or tongue and dart, or bead and reel), v-cut carving, high relief carving or low relief carving.

S10: Core - Position and secure the stones in the required locations and identify bedding planes to suit the use of the stone component; When securing stone, ensure correct measurement, marking out, shape, level, fit, finish and position.

S11: Banker Stonemason - Prepare, conserve, repair or refurbish existing stone masonry by replicating, removing, replacing or stabilising the existing structure; prepare mortars, joint finishing and applying surface finishes, all of which match existing masonry as close as possible or are in line with the conservation plan.

S12: Core - Comply with specific organisational and manufacturer's quality standards as required by the job specification and report any variation in quality, implementing agreed corrective actions where required.

S13: Core - Clean and tidy work area when work is finished; Store, transport and dispose of masonry waste; Reduce, reuse or recycle waste produced; Use work practices and resources which will contribute to zero/low carbon outcomes

S14: Core - Communicate with colleagues/customers; use industry terminology.

S15: Core - Ensure the products are the right size and fit to meet the design specification.

S16: Banker Stonemason - Produce basic section bed and face moulds for natural stone components.

S17: Banker Stonemason - Produce bespoke natural stone components: Shaped curved on plan, Tracery, Ramp and twist, Spheres, Entablature, Ionic components and Finials

S18: Interior Stone Fixer - Check and prepare existing internal surfaces to receive stonework; apply pre-sealants, water and solvent based final sealants and protection.

S19: Interior Stone Fixer - Mix and apply mortar and sand renders, adhesives and grouts, substrates and screeds (including self-levelling); install thermal, movement and expansion joints.

S20: Interior Stone Fixer - Form angles, reveals, cills and soffits, floor drainage and outlets; install membranes and lay natural stone flooring to regular and irregular surfaces, fix trims and movement joints including treads, risers and landings; fix internal stonework to vertical, horizontal and inclined wall and floor surfaces; fit internal treads, risers and work surfaces.

S21: Interior Stone Fixer/Exterior Stone Fixer - Grout, seal, clean, secure and finish stonework; bed, joint and point natural stone flooring, match finishes where possible and fix accessories (e.g. wire restraint fixings, channels) to wall slabs.

S22: Exterior Stone Fixer - Prepare backgrounds for load bearing support and restraint systems, insulation (e.g. membranes and fire stops), cavity trays and damp proof membranes (DPM); apply waterproof sealants to background surfaces; install and remove mechanical fixings, shims and spacers.

S23: Exterior Stone Fixer - Install and fix external cladding with load-bearing support and restraint systems; repair or replace defective stone cladding as required; identify and mix mortars, resins and adhesives; identify and fix suitable reinforcements and fixings; form suitable joint finishes which are sympathetic to existing building.

S24: Memorial Stonemason/Stone Facade Preservation - Prepare and mix lime mortars, hydraulic and non-hydraulic limes, lime mortars with additives or lime mortars with fibres (natural or synthetic) as appropriate.

S25: Memorial Stonemason - Install and secure memorial stones, ensuring that ground and surface conditions are checked and recorded, area is excavated and foundations are laid.

S26: Memorial Stonemason - Mark out, position, inscribe, ornament and finish details on memorial stones; produce and use templates for sandblasting; safely use sandblasting equipment to produce details, lettering and ornamentation; finish memorial work using gilding and hand polishing.

S27: Stone Facade Preservation - Dismantle facade surfaces to allow for safe and effective cleaning and preservation; brush, use jets and sprays to clean facades; effectively clean flat, textured & moulded stone and art stone using chemical and non-chemical methods; effectively clean non-masonry surfaces e.g. burnt clay, cast stone, metal, plastic, plastic-coated materials, wood, glass by chemical and non-chemical methods.

S28: Stone Facade Preservation - Measure, mark out, cut, fit, mix, spread, dress, descale, point, position and secure when restoring facade surfaces; Restore in-situ units, facades and

joints on flat, textured and moulded natural stone and on burnt clay, art stone and concrete.

S29: Heritage Stonemason - Collect records using photographic, written or digital collection methods prior to any work being carried out.

S30: Heritage Stonemason - Drill and cut stone backgrounds to receive fixings sympathetic to the existing condition of heritage masonry; safely form openings which conform to the requirements for heritage planning and buildings regulations.

S31: Heritage Stonemason - Apply conservation techniques to maintain heritage and archaeological accuracy, using heritage techniques and procedures where appropriate, with minimum intervention and minimum reversible alterations.

S32: Heritage Stonemason - Match new masonry components with existing structures and incorporate pre-prepared conservation masonry components; Finish by applying hand cut ornamentation or lettering where required.

Behaviours

B1: Core - Prioritises health, safety and environment-, for example, always ensuring the correct PPE is worn for the task being undertaken.

B2: Core - Professional, for example, develops good working relationships recognising dependencies, uses co-operative approaches to optimise workflow and productivity with limited supervision, shows respect for colleagues.

B3: Core - Takes responsibility, for example, completes own work to required quality standards and has eye for detail/accuracy.

B4: Core - Applies logical thinking, for example, uses clear and valid reasoning when making decisions related to undertaking the work instructions.

B5: Core - Works effectively, for example, undertakes work in a reliable, tidy and productive manner.

B6: Core - Effective time management, for example uses their time effectively to complete work to schedule and always arrives at, and ready to work on time.

B7: Core - Adjustable when required, for example adapts to changes to work instructions or variations in workplace contexts and environments.

Duty	Training requirement	Method of delivery	Provider type	OTJ days
D1: Select, use and maintain tools, components and equipment appropriate to the task being carried out.				0
D2: Interpret the appropriate work plan for the job, taking into account factors such as building age, listed status, accessibility, quality of surrounding structures, other trades in the work area, customers and related legislation and regulations.				0
D3: Identify and confirm masonry requirements against surveys, job sheets, specifications and drawings/cad, and in accordance with building regulations.				0
D4: Locate, handle, store, load, transport and position materials and tools safely, minimising damage ready for installation and where applicable, in accordance with health and safety regulations.				0
D5: Produce or repair standard architectural enrichments, prepare backgrounds to receive masonry and to set out basic masonry on buildings/structures.				0
D6: Install/erect/repair masonry components and finish as required.				0
D7: Deliver work to the manufacturer's and customer's quality specifications.				0
D8: Clear away leftover materials on completion of work and dispose of waste appropriately according to the appropriate code of practice.				0
D9: Make moulds and templates in order to produce standard and bespoke stonemasonry components as required.				0
D10: Conserve or restore stonemasonry, brickwork or earthen structures.				0
D11: Prepare background surfaces for internal stone fixing.				0

Duty	Training requirement	Method of delivery	Provider type	OTJ days
D12: Install internal stonework and stone flooring.				0
D13: Prepare backgrounds to receive external stone cladding and set out basic external stonemasonry.				0
D14: Remove, install and repair basic external stonemasonry structures and stone cladding.				0
D15: Prepare and mix lime mortars; fix and secure memorial stonemasonry.				0
D16: Provide details and finishing to memorial stones.				0
D17: Clean facade surfaces.				0
D18: Prepare and mix lime mortars; restore facade surfaces.				0
D19: Prepare backgrounds to receive stone cladding and set out basic external stonemasonry on heritage buildings/structures.				0
D20: Conserve or restore existing stonemasonry, brickwork or earthen structures on heritage structures using appropriate heritage techniques and following conservation ethics and procedures.				0

Entry requirements

No entry requirements specified

Professional recognition

No professional body recognition specified