

**THE REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARD**

**FOR**

**MASON**

**LEVEL 3**

**PROGRAMME CODE: 0732 254A**

# FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social and economic development. Quality education and training contribute to the achievement of Kenya’s development blueprint and sustainable development goals.

Reforms in the education sector are necessary to achieve Kenya Vision 2030 and meet the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution, and this resulted in the formulation of the Policy Framework for Reforming Education and Training in Kenya (Sessional Paper No. 14 of 2012). A key feature of this policy is the radical change in the design and delivery of TVET training. This policy document requires that training in TVET be competency-based, curriculum development be industry-led, certification be based on demonstration of competence, and the mode of delivery allow for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this curriculum has been developed. For trainees to build their skills on foundational hands-on activities of the occupation, units of learning are grouped in modules. This has eliminated duplication of content and streamlined exemptions based on skills acquired as a trainee progresses in the up-skilling process, while at the same time allowing trainees to be employable in the shortest time possible through the acquisition of part qualifications.

It is my conviction that this curriculum will play a great role in developing competent human resources for the construction Sector’s growth and development.

**PRINCIPAL SECRETARY**

**STATE DEPARTMENT FOR TVET**

**MINISTRY OF EDUCATION**

# PREFACE

Kenya Vision 2030 aims to transform Kenya into a newly industrializing middle-income country, providing high-quality life to all its citizens by the year 2030. Kenya intends to create globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through lifelong education and training. TVET has a responsibility to facilitate the process of inculcating knowledge, skills, and worker behaviour necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency-Based Education and Training (CBET).

TVET Act, CAP 210A and Sessional Paper No. 1 of 2019 on Reforming Education and Training in Kenya for Sustainable Development emphasized the need to reform curriculum development, assessment, and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry, as well as increase the global competitiveness of the Kenyan labour force.

This curriculum has been developed in adherence to the Kenya National Qualifications Framework and CBETA standards and guidelines. The curriculum is designed and organized into Units of Learning with Learning Outcomes, suggested delivery methods, learning resources, and methods of assessing the trainee’s achievement. In addition, the units of learning have been grouped in modules to concretize the skills acquisition process and streamline upskilling.

I am grateful to all expert trainers and everyone who played a role in translating the Occupational Standards into this competency-based modular curriculum.

# ACKNOWLEDGMENT

This curriculum has been designed for competency-based training and has independent units of learning that allow the trainee flexibility in entry and exit. In developing the curriculum, significant involvement and support were received from expert trainers, institutions and organizations.

I recognize with appreciation the role of the construction National Sector Skills Committee (NSSC) in ensuring that competencies required by the industry are addressed in the curriculum. I also thank all stakeholders in the construction sector for their valuable input and everyone who participated in developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that individuals aspiring to work in the construction Sector acquire competencies to perform their work more efficiently and effectively.

TABLE OF CONTENTS

Contents

[FOREWORD ii](#_Toc197110523)

[PREFACE iii](#_Toc197110524)

[ACKNOWLEDGMENT iv](#_Toc197110525)

[ABBREVIATIONS AND ACRONYMS vi](#_Toc197110526)

[KEY TO UNIT CODE vii](#_Toc197110527)

[OVERVIEW viii](#_Toc197110528)

[PERFORM MASONRY WORKS viii](#_Toc197110529)

[UNITS OF COMPETENCY 9](#_Toc197110530)

[PERFORM MASONRY WORKS 10](#_Toc197110531)

[PERFORM MASONRY WORKS FINISHES 17](#_Toc197110532)

[PRODUCE MASONRY PRODUCTS 21](#_Toc197110533)

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# ABBREVIATIONS AND ACRONYMS

|  |  |
| --- | --- |
| CPU | Central Processing Unit |
| PPE | Personal Protective Equipment |
| TVET | Technical and Vocational Education and Training |
| ISCED | International Standard Classification of Education |

# KEY TO UNIT CODE

**Sector / Industry**

**Sub Sector**

**Occupational Area**

**Version Control**

**Unit of Competence Number**

**ISCED level, Programme Orientation and Level of Completion**

xx

x

xxx

x

xx

x

# OVERVIEW

Mason Level 3 occupational standard consists of competencies that an individual must possess to perform masonry works. It entails performing masonry works, performing masonry works finishes and producing masonry products. The occupational standard consists of the following core competencies:

**Core Units of Competency**

|  |  |
| --- | --- |
| **Code** | **Unit of Competency Title** |
| 0732 251 01A | PERFORM MASONRY WORKS |
| 0732 251 02A | PERFORM MASONRY WORKS FINISHES |
| 0732 251 03A | PRODUCE MASONRY PRODUCTS |

# 

# UNITS OF COMPETENCY

# PERFORM MASONRY WORKS

**UNIT CODE**: **0732 251 01A**

**Unit Description**

This unit specifies the competencies required to perform masonry works. It entails interpretation of drawings, setting out the building, laying of foundation concrete, construction of foundation walling, constructing superstructure wall, construct ground floor slab, construct reinforced concrete elements. It applies in the construction industry.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **Element** *These describe the key outcomes which make up workplace function* | **Performance Criteria**  *These are assessable statements, which specify the required level of performance for each of the elements.*  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Interpret Building drawings | * 1. Symbols are identified based on working drawings standards.   2. ***Measurements*** are interpreted in accordance with international standards.   3. ***Building elevations*** are identified based on type   4. ***Building sections*** are identified based on type |
| 1. Setting out Building | 1. ***Personal Protective Equipment*** is identified and used in line with occupational safety and health regulations manufacturer’s instructions. 2. ***Preliminary preparation activities*** are carried out as per drawings and standard procedures 3. ***Reference points*** are located on the ground as per drawings. 4. Profiles and profile boards are fixed and levelled on the ground according to drawings and standard procedures. 5. Measurement and square-ness are checked based on standard procedure. 6. Profile lines are fixed and marked on the ground according to the drawings. 7. Setting out tools and equipment are maintained and stored based on manufacturer’s instructions. 8. Over site excavation is carried out as per SOPs |
| 1. Lay building foundation concrete | * 1. ***Personal protective equipment*** are donned as per work requirement   2. ***Materials*** ***and tools*** are assembled as per work requirement   3. Excavation is carried out as per working drawing.   4. Preparation of foundation trenches is carried out as per working drawing.   5. Foundation trench is treated against termites as per manufacturer’s instruction.   6. Blinding is carried out as per work requirement. |
| 1. Construct foundation walls | * 1. Measurement transfer is performed based on working drawing.   2. ***Foundation*** ***walling units*** are laid as per working drawing.   3. Backfilling is performed as per the work requirement |
| 1. Construct ground floor slab | * 1. Personal protective equipment are donned as per work requirement   2. Hardcore is laid as per work requirement.   3. Murram blinding is laid as per work requirement.   4. Formwork is erected as per working drawing.   5. ***Damp proofing*** is carried out as per working drawing.   6. Concrete is casted according to working drawings.   7. Concrete slab is ***cured*** as per the job requirement. |
| 1. Construct reinforced concrete elements | * 1. Personal protective equipment are donned as per work requirement   2. Column concrete kicker is casted as per work requirement   3. ***Concrete elements*** are casted as per work requirement   4. Concrete elements are cured as per work requirement |
| 1. Construct superstructure walls | * 1. Personal protective equipment are donned as per work requirement   2. Damp Proof Course is laid as per working drawing   3. Masonry wall units are laid according to working drawing   4. ***Bridging of walls*** are constructed as per working drawing |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| * + - 1. Personal Protective Equipment may include but not limited to: | * Hard hat / helmet * Dust Mask * Goggles * Ear plugs / ear muffs * Dust coat / coverall * Gloves * Safety shoes / gum boots * Reflector jackets |
| * + - 1. Materials may include but not limited to: | * Ballast * Sand * Cement * Additives * Water * Timber * Deformed steel bars * Damp proofing materials and supplies * Lime * Chalk * Termite control chemicals * Hard core * Nails * Strings |
| * + - 1. Masonry tools and equipment may include but not limited to: | * Mason square * Spirit level * Plumb bob * Trowels * Spades * Wheel barrow * Dumper * Mason string * Straight edge * Float * Concrete mixer * Vibrator * Compactor * Hammer * Mattock * Machete * Sledge Hammer * Buckets * Mixing platform * Hose Pipe |
| * + - 1. Foundation walling units may include but not limited to: | * Masonry blocks * Bricks |
| * + - 1. Damp proofing may include but not limited to: | * Damp proofing membrane * Damp proof spray * Waterproofing additives |
| * + - 1. Curing may include but not limited to: | * Water * Jute Sacks * Blankets * Sand * Curing agents |
| * + - 1. Concrete elements may include but not limited to: | * Columns * Beams |
| * + - 1. Bridging of walls include but not limited to: | * Arches * Lintels |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication skills
* Measuring skills
* Numeracy skills
* Interpersonal skills
* Mortar handling skills
* Masonry Units Handling skills
* Proper tool and equipment use

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Measurement
* Squaring techniques
* Masonry units and its uses
* Proper use and maintenance of tools and equipment
* Wall construction techniques

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of competency | ***Assessment requires evidence that the candidate***   1. Used masonry tools and equipment as per work requirement. 2. Identified building elevations based on type. 3. Interpreted measurements in accordance with international standards. 4. Prepared foundation trenches as per working drawing. 5. Constructed foundation according to working drawings. 6. laidfoundation walling units as per working drawing. 7. Casted concrete slab as per work requirement 8. Casted Concrete elements as per work requirement 9. Laid masonry wall units according to drawings 10. Constructed Bridging of walls as per drawings |
| 1. Resource   Implications | The following resourcesshould be provided:   1. Access to relevant workplace where assessments can take place. 2. Appropriately simulated environment where assessments can take place 3. Resources relevant to the proposed activity or tasks |
| 1. Methods of   Assessment | Competency may be assessed through:   1. Practical 2. Projects 3. Portfolio of evidence 4. Third party report 5. Written tests 6. Oral tests |
| 1. Context of Assessment | Assessment may be done in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# PERFORM MASONRY WORKS FINISHES

**UNIT CODE: 0732 251 02A**

**Unit Description**

This unit specifies the competencies required to perform masonry works finishes. It entails applying wall plaster and rendering, laying of floor screed and carrying out keying and pointing. It applies in the construction industry.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **Element**  *These describe the key outcomes which make up*  *workplace function* | **Performance Criteria**  *These are assessable statements, which specify the required level of performance for each of the elements.* ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Carry out wall plastering | * 1. ***Personal protective equipment*** is donned as per work requirement   2. Wall Plumbness is checked as per work requirement.   3. Dot guides are laid following the plumb-ness as per work requirement   4. Plaster is applied as per work requirement   5. Plaster is cured as per work requirement. |
| 1. Lay floor screed | * 1. Personal protective equipment is donned as per work requirement   2. Floor is prepared for screed as per work requirement   3. ***Screed*** is laid as per work requirement   4. Screed is cured as per work requirement |
| 1. Carry out wall Rendering | * 1. Personal protective equipment are donned as per work requirement   2. Wall is prepared as per job specification   3. ***Rendering materials*** are applied as per work requirement   4. Rendering is ***cured*** as per work requirement |
| 1. Carry out keying and pointing. | * 1. Wall surface is prepared based on its condition and job requirements.   2. Mortar mix is prepared as per specification and working drawing.   3. Keying and **pointing** are done as per specification and standard procedure. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| Personal Protective Equipment may include but not limited to: | * Hard hat / helmet * Dust Mask * Goggles * Ear plugs / ear muffs * Dust coat / coverall * Gloves * Safety shoes / gum boots * Reflector jackets |
| Screed may include but not limited to: | * Bonded Screed * Unbonded Screed * Floating Screed |
| Rendering materials may include but not limited to: | * Cement * Aggregates |
| Curing may include but not limited to: | * Water * Jute Sacks * Blankets * Sand |
| Pointing may include but not limited to: | * Tuck * Flush * Recessed * Weathered |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication skills
* Measuring skills
* Numeracy skills
* Interpersonal skills
* Mortar handling skills
* Masonry Units Handling skills
* Proper tool and equipment use

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Measurement
* Squaring techniques
* Type of finishes and application
* Masonry units and its uses
* Proper use and maintenance of tools and equipment
* Type of rendering and its application

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of competency | ***Assessment requires evidence that the candidate***:   1. Used masonry tools and equipment appropriately. 2. Prepared walls for finishing and rendered as per specification. 3. Applied Plaster as per work requirement    1. Laid Screed as per work requirement    2. Applied Rendering materials as per work requirement    3. Keyed and pointed the wall as per the specifications and standard procedure. |
| 1. Resource   Implications | The following resourcesshould be provided:   * 1. Access to relevant workplace where assessments can take place.   2. Appropriately simulated environment where assessments can take place   3. Resources relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical   2. Projects   3. Portfolio of evidence   4. Third party report   5. Written tests   6. Oral tests |
| 1. Context of Assessment | Assessment may be done in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# PRODUCE MASONRY PRODUCTS

**UNIT CODE: 0732 251 03A**

**Unit Description**

This unit specifies the competencies required to produce simple masonry products. It entails interpretation of masonry units drawings, production of masonry clay units, production of concrete masonry products, production of stabilized soil masonry products and performing stone dressing.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **Element**  These describe the key outcomes which make up  workplace function | **Performance Criteria**  These are assessable statements, which specify the required level of performance for each of the elements*.*  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Interpret masonry units’ drawings | * 1. Dimensions are transferred based on working drawings standards.   2. ***Elevations*** are identified based on type   3. Angles are Measured based on working drawings standards. |
| 1. Produce clay masonry units | * 1. ***Personal protective equipment*** are donned as per work requirement   2. Clay is prepared as per work requirement   3. Clay bricks are prepared as per work procedure.   4. Clay bricks are dried as per work procedure   5. Kilning is performed as per work procedure. |
| 1. Produce concrete masonry   products | * 1. Personal protective equipment are donned as per work requirement   2. Concrete is prepared based on block specification.   3. Concrete blocks are prepared as per work procedure***.***   4. Concrete blocks are cured as per work procedure |
| 1. Produce stabilized soil masonry units | * 1. Personal protective equipment are donned as per work requirement   2. Materials are prepared based on job specification.   3. Soil blocks are prepared as per work procedure   4. Soil blocks are ***cured*** as per work procedure. |
| 1. Perform stone dressing | * 1. Required ***PPEs*** are identified and used based on job requirements and manufacturers’ instructions.   2. Required ***tools and equipment*** for production of hand dressed masonry units are identified based on the working drawings and specifications.   3. Dressed stones are sorted based on size and job requirements |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| * + - 1. Personal Protective Equipment may include but not limited to: | * Hard hat / helmet * Dust Mask * Goggles * Ear plugs / ear muffs * Dust coat / coverall * Gloves * Safety shoes / gum boots   Reflector jackets |
| * + - 1. Curing may include but not limited to: | * Water * Jute Sacks * Blankets * Sand * Curing agents |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication skills
* Measuring skills
* Numeracy skills
* Interpersonal skills
* Mortar handling skills
* Masonry Units Handling skills
* Proper tool and equipment use

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Measurement
* Squaring techniques
* Proper use and maintenance of tools and equipment
* Curing
* Different masonry products

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of competency | ***Assessment requires evidence that the candidate***:   1. Identified raw materials for production of various masonry products. 2. Measured angles based on working drawings standards. 3. Used and maintained masonry tools and equipment appropriately. 4. Prepared clay masonry units to specifications 5. Prepared concrete masonry products to specifications 6. Prepared stabilized soil masonry units to specifications 7. Dressed stones are based on size and job requirements |
| 1. Resource   Implications | The following resources should be provided:   * 1. Access to relevant workplace where assessments can take place.   2. Appropriately simulated environment where assessments can take place   3. Resources relevant to the proposed activity or tasks. |
| 1. Methods of   Assessment | Competency may be assessed through:   1. Practical 2. Projects 3. Portfolio of evidence 4. Third party report 5. Written tests 6. Oral tests |
| 1. Context of Assessment | Assessment may be done in a workplace or in a simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |