

**THE REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARD**

**FOR**

**TILE FIXER**

**LEVEL 3**

**PROGRAMME CODE: 0732 254**

**FOREWORD**

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

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution and this resulted to the formulation of the Policy Framework for Reforming Education and Training (Sessional Paper No. 4 of 2016). A key feature of this policy is the radical change in the design and delivery of the TVET training. The policy document requires that training in TVET shall be competency based, curriculum development shall be industry led, certification shall be based on demonstration of competence and mode of delivery shall allow for multiple entry and exit in TVET programs.

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 Occupational Standard has been developed for the purpose of informing development of a competency-based Tile Fixer level 3 Curriculum. This Occupational Standard will also form the basis for assessment of an individual for competency certification.

It is my conviction that this Occupational Standard will play a great role towards development of a competent human resource for the Construction Sector’s growth and sustainable development.

**CABINET SECRETARY**

**MINISTRY OF ………**

**PREFACE**

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

The Technical and Vocational Education and Training Act, CAP 210A and the Sessional Paper No. 4 of 2016 on Reforming Education and Training in Kenya, 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 Kenyan labour force.

The industry in conjunction with national polytechnics and other national agencies have developed this Tile Fixer Level 3 Occupational Standard. The Standard is designed and organized with clear performance criteria for each element of a unit of competency. It also outlines the required knowledge and skills for the performance of prescribed tasks as well as evidence guide for assessment purposes.

**PRINCIPAL SECRETARY**

# **ABBREVIATIONS AND ACRONYMS**

1. PPEs- PERSONAL PROTECTIVE EQUIPEMENTS.

2. CBET- COMPITENCE BASED EDUCATION TRAINING.

3. TVET- TECHNICAL VOCATIONAL EDUCATION TRAINING

4. OS- OCCUPATIONAL STANDARDS

5. ISCED- INTERNATIONAL STANDARDS CLASSIFICATION OF EDUCATION

6. POE- PORTIFOLIO OF EVIDENCE

**KEY TO UNIT CODE**



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# **OVERVIEW**

Tile fixer Level 3 qualification consists of competencies that an individual must achieve to perform tiling activities. It involves perform tiling works estimates, preparing surfaces and setting out, and carrying out tile installation.

**UNITS OF COMPETENCY**

|  |  |
| --- | --- |
| **UNIT OF COMPETENCY CODE** | **UNIT OF COMPETENCY TITLE** |
| 0732 251 01A | PERFORM TILING  WORKS ESTIMATES |
| 0732 251 02A | PREPARE SURFACE AND SET OUT |
| 0732 251 03A | CARRY OUT TILE INSTALLATION |
| 0732 251 04A | INDUSTRIAL ATTACHMENT |

# **PERFORM TILING WORKS ESTIMATES**

**UNIT CODE**: 0732 251 01A

**Unit Description**

This unit specifies the competencies required to Perform Tiling Works Estimates. It entails Identifying tile types, estimating tile quantities and per area, preparing tiling work schedule. 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. Identify tile types | * 1. ***Personal protective equipment*** is donned as per work requirement.   2. ***Tile types*** are identified based on material composition.   3. Tile types are classified according to surface finish.   4. Tile types are categorized based on intended ***tile application surfaces***.   5. Tiles are differentiated based on size, thickness, and shape.   6. Tile absorption rates and durability are assessed as per manufacturer’s specifications.   7. ***Special-purpose tiles*** are identified as per work requirements. |
| 1. Estimate tile quantities as per area | * 1. Area to be tiled is measured accurately as per site specifications.   2. Construction of **plane figures** as per tile layout.   3. ***Tile dimensions*** are identified as per manufacturer’s specifications.   4. Total number of tiles required is calculated based on area coverage.   5. Tile wastage factor is determined and included in the estimation.   6. ***Adhesive types***, ***grout types***, and other tiling materials are estimated as per work requirement.   7. Estimated tile quantities are documented as per project specifications. |
| 1. Prepare tiling work schedule | * 1. Time allocation for each tiling task is estimated based on work requirements.   2. ***Required materials, tools***, and workforce are scheduled as per project timeline.   3. Contingency time for curing, drying, and unforeseen delays is included in the schedule.   4. Work schedule is documented and communicated to relevant personnel.   5. Tiling progress is monitored, and adjustments to the schedule are made as necessary. |

**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: | * Dust Mask * Helmet * Goggles * Ear plugs / ear muffs * Dust coat / coverall * Gloves * Safety shoes / gum boots * Reflector jackets |
| * + - 1. Tile types may include but not limited to: | * Ceramic Tiles * Porcelain Tiles * Vitrified Tiles * Marble Tiles * Granite Tiles * Limestone Tiles * Sandstone Tiles * Mosaic Tiles * Glass Tiles * Cement Tiles (Encaustic Tiles) * Terrazzo Tiles * Quarry Tiles * Wooden Tiles |
| * + - 1. Tile application surfaces may include but not limited to: | * Wall * Floor * Outdoor * wet areas |
| * + - 1. Special-purpose tiles may include but not limited to: | * Anti-Skid Tiles * Heat-Resistant Tiles * Acid-Resistant Tiles * Heavy-Duty Industrial Tiles * Soundproof Tiles |
| * + - 1. Tile dimensions may include but not limited to: | * **Standard Floor Tile Sizes**   + 300 × 300 mm   + 400 × 400 mm   + 600 × 600 mm   + 800 × 800 mm   + 1000 × 1000 mm * **Standard Wall Tile Sizes**   + 200 × 300 mm   + 250 × 400 mm   + 300 × 450 mm   + 300 × 600 mm * **Large Format Tiles**   + 800 × 1600 mm   + 900 × 1800 mm   + 1200 × 2400 mm * **Subway Tiles**   + 75 × 150 mm   + 100 × 200 mm * **Mosaic Tile Sizes**   + 10 × 10 mm   + 25 × 25 mm   + 50 × 50 mm * **Plank Tiles (Wood-Look Tiles)**   + 150 × 600 mm   + 200 × 900 mm   + 200 × 1200 mm |
| * + - 1. Adhesive types may include but not limited to: | * Cement-Based Adhesive * Polymer-Modified Cement Adhesive * Epoxy Tile Adhesive * Ready-Mixed Tile Adhesive * Fast-Setting Tile Adhesive * Waterproof Tile Adhesive * Heat-Resistant Tile Adhesive |
| * + - 1. Grout may include but not limited to: | * Cement-Based Grout * Epoxy Grout * Furan Resin Grout * Acrylic Grout * Silicone Grout |
| * + - 1. Required materials, tools may include but not limited to: | * Notched Trowel * Tile Cutter * Tile Nippers * Tile Spacers * Rubber Mallet * Spirit Level * Measuring Tape * Chalk Line * Grout Float * Sponge * Bucket * Mixing Paddle * Tile Pliers * Safety Gloves |
| * + - 1. Prepare tiling work schedule. | * Tools and materials required * Surface preparation * Materials preparation (soaking, batching) * Laying of tiles * Grouting * Protection * House keeping |

**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
* Grout and adhesive handling skills
* Waste Handling skills
* Proper tool and equipment use

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Measurement
* Squaring techniques
* Tile types and its uses
* Proper use and maintenance of tools and equipment
* Tile application 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. Donned personal protective equipment as per work requirement. 2. Identified tile types based on material composition. 3. Classified tile types according to surface finish. 4. Categorized tile types based on intended tile application surfaces. 5. Differentiated tiles based on size, thickness, and shape. 6. Assessed tile absorption rates and durability as per manufacturer’s specifications. 7. 1dentified special-purpose tiles (anti-slip, decorative, heat-resistant) as per work requirements. 8. Measured the area to be tiled accurately as per site specifications. 9. Identified tile dimensions as per manufacturer’s specifications. 10. Calculated the total number of tiles required based on area coverage. 11. Determined tile wastage factor and included it in the estimation Documented and communicated work schedules to relevant personnel. |
| 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. |

# **PREPARE SURFACE AND SET OUT**

**UNIT CODE**: 0732 251 02A

**Unit Description**

This unit equips specifies the competencies required to perform tiling works. It entails levelling receiving surfaces, interpreting working drawings layouts, setting out tile layouts and carrying out water proofing and damp proofing. 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 asses sable statements, which specify the required level of performance for each of the elements.*  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Level receiving surfaces | * 1. ***Surface condition*** is inspected to determine levelling requirements.   2. ***Appropriate tools and materials for levelling*** are selected as per work specifications.   3. Surface is cleaned and primed to enhance adhesion.   4. Levelling compound or screed is applied evenly as per manufacturer’s instructions.   5. Surface is checked for uniformity using a straightedge or spirit level.   6. Curing time is observed before proceeding with tiling work. |
| 1. Interpret working drawing layouts | 2.1 Tile layouts  2.2 Tile scale drawings  2.3 symbols |
| 1. Set out tile layouts | * 1. ***Work area is measured and dimensioned to*** determine tile layout dimensions.   2. Reference lines are established using chalk lines or laser level as per work specifications.   3. Tile layout is planned to minimize cuts and maintain symmetry.   4. Tile positioning is marked to ensure proper alignment and spacing.   5. Dry laying of tiles is performed to verify the layout before fixing.   6. Adjustments are made to accommodate expansion joints and architectural features.   7. Final tile layout is confirmed and approved as per project requirements. |
| 1. Carry out water proofing and damp proofing | * 1. ***Surface is inspected*** and prepared for waterproofing or damp proofing application.   2. **Suitable waterproofing or damp-proofing** materials are selected as per site conditions and specifications.   3. ***Waterproofing membranes, coatings, or sealants*** are applied as per manufacturer’s instructions.   4. Joints, corners, and penetrations are sealed to prevent water infiltration.   5. Application is checked for uniformity and complete coverage.   6. Curing time is observed before proceeding with tiling or other finishes.   7. Waterproofed or damp-proofed area is tested for effectiveness as per project 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. Surface conditions may include but not limited to: | * Uneven surfaces * Cracks * Loose materials * Contaminated surfaces |
| 1. Appropriate tools and materials but not limited to: | * Spirit level * Straightedge * Notched trowel * Spacers * Rubber mallet * Screed board * Chalk line /Laser level * Sand-cement screed * Mortar * Bonding agent * Grout * Expansion joints |
| 1. Work area dimensioning methods may include but not limited to: | * Tape measure method * Grid method * Laser method * Chalk line method * Diagonal measurement method * Reference points and datum line * Dry laying method |
| 1. Surface deformities may include but not limited to: | * Uneven surfaces * Cracks * Loose materials * Contaminated surfaces |
| 1. Waterproofing methods may include but not limited to: | * Damp-proof membranes * Cementitious waterproofing compounds. * Bitumen-based coatings. * Epoxy and polyurethane coatings. * Silicone sealants and waterproof grouts. |
| 1. Application methods for waterproofing may include but not limited to: | * Brush or Roller Application * Spray Application * Trowel Application * Peel-and-Stick Method * Sealing Joints and Corners |
| 1. Inspection for waterproofing may include but not limited to: | * Gaps * Cracks * Flood test |
| 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:

* 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. 1. Critical aspects of competency | ***Assessment requires evidence that the candidate***   1. Inspected surface conditions to determine levelling requirements. 2. Selected appropriate tools and materials for levelling and tiling. 3. Cleaned, primed, and prepared the surface to enhance adhesion. 4. Applied levelling compound or screed evenly as per manufacturer’s instructions. 5. Measured and marked tile layout to ensure proper alignment and spacing   1.6 Performed dry laying of tiles to verify the layout before fixing  1.7 Applied waterproofing or damp-proofing materials as per specifications.  1.8 Sealed joints, corners, and penetrations to prevent water infiltration  1.9 Checked waterproofing application for uniformity and complete coverage  1.10 Tested bonding strength before proceeding with tiling work  1.11 Protected the primed and bonded surface from contamination until tiling begins |
| 2. 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 |
| 3. 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. |

# **CARRY OUT TILE INSTALLATION**

**UNIT CODE**: 0732 251 03A

**Unit Description**

This unit specifies the competencies required to carry out Tile Installation. It entails Applying adhesives, installing tiles, Performing Joint Filling and Performing House Keeping. It applies in the construction industry.

|  |  |
| --- | --- |
| **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. Apply adhesives | * 1. Surface is inspected and cleaned to ensure proper adhesion.   2. Appropriate tiling adhesive is selected based on tile type and substrate.   3. Adhesive is prepared and mixed according to manufacturer’s instructions.   4. Adhesive is spread evenly using a notched trowel to achieve uniform coverage.   5. Adhesive thickness is maintained as per work requirements.   6. Open time of the adhesive is monitored to prevent premature drying.   7. Applied adhesive is inspected for consistency and readiness for tile placement. |
| 1. Install tiles | * 1. Tiles are inspected for quality, size, and consistency before installation.   2. ***Appropriate tools and materials for tiling*** are selected as per work specifications.   3. Tile layout drawing isinterpreted as per the working drawing.   4. Tiles are positioned as per the predetermined layout and reference lines.   5. Tiles are placed onto the adhesive within the recommended open time.   6. Tiles are cut and placed as per space requirement.   7. Spacing between tiles is maintained using appropriate spacers.   8. Tiles are pressed and adjusted to ensure full contact with the adhesive.   9. Tile edges are installed with edge strips   Alignment and levelness of tiles are checked using a straightedge or spirit level. |
| 1. Perform joint filling | * 1. Joint filling material is identified according to job requirement   2. Joint filling material is selected according to job requirement   3. Joints are filled according to job requirement |
| 1. Perform House Keeping | * 1. Tiled surface is properly cleaned   2. Tile remains are properly stored according to storage requirement   3. Waste materials are properly disposed according to OSHA regulations |

**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:

* Measuring skills
* Layout and Positioning skills
* Interpersonal skills
* Adhesive Application skills
* Tile Placement
* Adjustments and Corrections
* Proper tool and equipment use

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Measurement
* Squaring techniques
* Tile types and its uses
* Proper use and maintenance of tools and equipment
* Tile application 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. Inspected and cleaned the surface to ensure proper adhesion.   2. Selected and prepared tiling adhesive according to manufacturer’s instructions.   3. Applied adhesive evenly using a notched trowel, maintaining the required thickness.   4. Checked tiles for quality, size, and consistency before installation.   5. Positioned tiles accurately according to the predetermined layout and reference lines.   6. Maintained uniform tile spacing using appropriate spacers.   7. Pressed and adjusted tiles to ensure full contact with the adhesive.   8. Checked and adjusted tile alignment and levelness using a straightedge or spirit level.   9. Identified, selected, and applied joint filling material according to job requirements.   10. Cleaned the tiled surface properly after installation.   11. Stored leftover tiles and disposed of waste materials according to storage requirements and OSHA regulation |
| 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. |