

**THE REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARD**

**FOR**

**CARPENTER AND JOINER**

**LEVEL 3**

**PROGRAMME CODE: 0732 254 A**

**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 carpentry and joinery 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 Carpenter and Joiner 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**

PPEs- PERSONAL PROTECTIVE EQUIPEMENTS.

CBET- COMPITENCE BASED EDUCATION TRAINING.

TVET- TECHNICAL VOCATIONAL EDUCATION TRAINING

ISCED- INTERNATIONAL STANDARDS CLASSIFICATION OF EDUCATION

KEY TO UNIT CODE

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# OVERVIEW

Carpentry and Joinery Level 3 qualification consist of competencies that a person must achieve to enable him/her to perform carpentry and joinery works. It involves constructing temporary works, fixing door and door frames and installing cabinetry works.

SUMMARY OF UNITS OF COMPETENCY

|  |  |
| --- | --- |
| **Unit Code** | **Unit of Competency Title** |
| 0732 251 01A | Construct Temporary Works |
| 0732 251 02A | Fix Door & Window Frames |
| 0732 251 03A | Carry out Cabinetry Works |

### **CONSTRUCT TEMPORARY WORKS**

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

**UNIT DESCRIPTION**

This unit describes the competencies required to construct temporary works. It involves setting out and preparing for temporary works, installing trench timbering for excavation support, constructing and erecting formwork for concrete structures, installing and securing shuttering for concrete works, dismantling and removing temporary works.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT** | **PERFORMANCE CRITERIA**  *(Bold and italicized terms are elaborated in the Range)* |
| --- | --- |
| 1. Set out and prepare for temporary works | * 1. ***Personal protective equipment*** is selected, fitted and used according to safety rules and regulations   2. Drawings for temporary structures are interpreted according to the structural drawings.   3. ***Materials***, tools and equipment are identified and prepared as per the job task.   4. Materials are measured and marked out as per the drawings.   5. Safety regulations and risk management is ensured to comply with the site procedures as per safety requirements   6. Performed housekeeping practices as per workplace procedures |
| 1. Install trench timbering for excavation support | * 1. ***Trench timbering materials, tools and equipment*** are selected and prepared as per the drawings and instructions.   2. Timber walling boards, poling boards, struts for trench support are installed as per the drawings.   3. The structure is secured and braced depending with the ***soil type*** to prevent collapse according to the drawing   4. Ensured safe access and stability of trench timbering as per the building codes   5. Timbering is inspected and maintained throughout the excavation works as per the instructions   6. Performed housekeeping practices as per workplace procedures |
| 1. Construct and erect formwork for concrete structures | * 1. Personal protective equipment is selected, fitted and used according to safety rules and regulations   2. Formwork dimensions are determined as per the structural elements to be supported   3. Formwork material is identified as per structure complexity, job drawings or supervisor instructions   4. ***Formwork type*** is erected according to the structural element to be cast as per the structural drawing   5. Oiling of timber formwork surface is carried as per job instructions   6. Formwork is fixed into position in accordance with the construction rules and regulations   7. Formwork is dismantled according to site procedures and critical structural safety requirements   8. Performed housekeeping practices after construction of formwork as per workplace procedures |
| 1. Install and secure shuttering for concrete works | * 1. Shuttering boards or panels are cut and assembled to required sizes as per the drawing and instruction   2. Shuttering are positioned and fitted for vertical and horizontal elements as per the working drawings and site instructions   3. Provided reinforcement access and ensured proper sealing to prevent leaks as per site instructions   4. Inspected and reinforced shuttering before pouring concrete as per engineer’s instructions and approval   5. Performed housekeeping practices after construction of shuttering as per workplace procedures |
| 1. Dismantle and remove temporary works | * 1. Assessed and confirmed concrete curing before formwork/shuttering removal as per instructions   2. Supports are removed carefully without damaging concrete as per instructions   3. Reusable materials are cleaned, repaired and stored for future use as per site instructions   4. Restored work site condition and disposed waste materials as per regulations and instructions.   5. Performed housekeeping practices as per workplace procedures |

**Range**

| **Variable** | **Range** |
| --- | --- |
| 1. Personal protective equipment may include but is not limited to: | * Helmets * Safety boots * Gloves * Overall * Reflectors |
| 1. Formwork material may include but is not limited to: | * Timber * Metal plates * Plastic |
| 1. Formwork type may include but is not limited to: | * Column formwork * Beam formwork * Floor formwork * Wall formwork * Permanent formwork |
| 1. Trench timbering materials, tools and equipment may include but is not limited to: | * Timber * Hammer * Metal plates * Pliers * Nails * Binding wires |
| 1. Soil type may include but is not limited to: | * firm soil * Loose soil * Waterlogged soil |

**REQUIRED KNOWLEDGe and SKILLS**

**knowledge**

* Measurement
* Formwork
* Shuttering
* Soil properties
* Wall construction
* Trench excavation
* Basic arithmetic
* Technical drawings

**Skills**

* Measurement skills
* Basic mathematic skills
* Reading skills
* Communication skills
* Construction tools handling skills

**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. Drawings are interpreted and materials, tools and equipment prepared.   2. Constructed and dismantled trench timbering   3. Constructed and dismantled building formwork   4. Erected and dismantled building Shuttering.   5. Observed occupational health and safety procedures to create a safe working environment |
| 1. Resource Implications | The following resources should be provided:   * 1. Access to relevant workplace or appropriately simulated environment where assessment can take place   2. Measuring equipment   3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical assignment   2. Written   3. Oral interview   4. Demonstrations |
| 1. Context of Assessment | Competency may be assessed  4.1. On-the-job  4.2. Off-the –job  4.3. During Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

### **FIX DOOR AND WINDOW FRAMES**

**UNIT CODE :** **0732 251 02A**

**UNIT DESCRIPTION**

This unit describes the competence required to fix door and window frames. It involves setting out and preparing openings for frames, positioning and securing door and window frames, applying fixings and reinforcements and finishing and inspecting installed frames.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENTS**  These describe the key outcomes which make up the workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements  *(Bold terms are elaborated in the Range)* |
| --- | --- |
| 1. Set Out and Prepare Openings for Frames | * 1. Drawings are interpreted for door and window frame installation as per the working drawings.   2. Dimensions of openings are verified as per the design requirements.   3. ***Materials, tools and equipment*** are identified as per the job requirement.   4. Openings are aligned ensuring plumbness, levelness and squareness as per the site instructions.   5. Surfaces are prepared and necessary treatments are applied as per the instructions. |
| 1. Position and Secure Door and Window Frames | * 1. ***Type of door and window frames*** are identified as per the design requirements.   2. Lifting techniques are applied as per the instructions to prevent damage.   3. ***Door and Window Frames*** are temporarily secured using wedges and clamps as per the job requirement.   4. Plumbness, Levelness and Alignment are checked as per site instructions.   5. Allowed for expansion gaps and applied packing techniques as per instruction. |
| 1. Apply Fixings and Reinforcements | * 1. Appropriate fixings and reinforcements are selected as per the job requirements.   2. Fixings are installed to secure frames as per the instructions.   3. Structural stability is reinforced as per the job requirements and instructions.   4. Fixings and reinforcements are inspected and tested as per the requirements. |
| 1. Finish and Inspect Installed Frames | * 1. Surace is prepared for finishing as per the job requirement.   2. Protective and decorative finishes are applied as per the job requirement.   3. Installed frames are inspected for quality and compliance as per the job requirement.   4. Adjustments and corrections are made where necessary as per the instructions.   5. Performed housekeeping practices as per workplace procedures |

**RANGE**

| **Variable** | **Range** |
| --- | --- |
| 1. Materials may include but are not limited to: | * + Hardwood   + Soft wood   + Manufactured boards   + Ironmongery |
| 1. Tools & equipment may include but are not limited to: | * + Planes   + Square   + Saws   + Chisel saws   + Claw hammer   + Mallet   + Tape measure   + Screw driver |
| 1. Door frame members may include: | * + Jambs   + Posts   + Heads   + Horn   + Transome   + Vent light |
| 1. Window frame members may include but are not limited to: | * + Head   + Sill (or Cill)   + Jambs   + Mullion   + Transom |

**REQUIRED KNOWLEDGE and SKILLS**

**Knowledge**

* Building code
* Codes of practice
* Basic arithmetic
* Measurement
* Types of door and window frames
* Methods of finishing processes

**Skills**

* Measurement
* Basic arithmetic
* Design
* Planning

**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. Interpreted drawings and dimensions for door and window frame installation   2. Fixed door and window frames accurately   3. Applied fixings and reinforcements to the frames   4. Performed finishing processes accordingly |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Demonstration   2. Practical assignment/project   3. Interview/Oral Questioning   4. Written |
| 1. Context of Assessment | Competency may be assessed   * 1. On-the-job   2. Off-the –job   3. During Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the carpentry and joinery sector workplace and job role is recommended. |

### **CARRY OUT CABINETRY WORKS**

**UNIT CODE:** **0732 251 03A**

**UNIT DESCRIPTION**

This unit specifies the competencies required to carry out cabinetry works. It involves setting out and preparing work area, assembling and preparing cabinet units, installing built in cabinets, kitchen cabinets, and wardrobes.

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. Set out and prepare work area | * 1. Drawings and measurements are interpreted for cabinetry installation as per the drawings.   2. Site conditions, wall, and floor levels are verified for cabinet fitting as per the job requirement.   3. ***Materials, tools and equipment*** are identified and prepared as per the job requirement.   4. Cleaned the workspace as per the job requirement |
| * 1. Assemble and Prepare Cabinet Units | 1. PPEs are donned as per the job requirements. 2. Cabinet components are checked and sorted according to the design specifications. 3. Cabinet units are assembled using appropriate ***joinery techniques*** as per the job requirement. 4. Squareness, Levelness and Plumbness are checked to ensure sound assembly as per the job requirement. 5. Holes are pre-drilled for hardware, handles and fittings as per the job requirement. 6. Built-in cabinetry background is prepared as per the working design. |
| * 1. Install Built-in Cabinets, Kitchen Cabinets and Wardrobes | 1. Built-in cabinetry tools and equipment are assembled as per job requirement. 2. Built-in cabinetry materials are selected as per working design. 3. Built-in cabinetry frame is constructed per the working design. 4. ***Built-in cabinetry elements*** are fixed together by the use of carpentry ***fasteners and adhesive*** as per the working design. 5. Built-in cabinetry shelves, doors and drawers are installed using ***carpentry hardware*** as per the working design. 6. Housekeeping practices are performed after installing built-in cabinetry works as per workplace procedures |

**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. Cabinetry work tools, and equipment may include but are not limited to; | * Measuring tape * Mortise gauge * Rip saw * Claw hammer * Working bench * Bench vice * Drill * Clamps * Tenon saw * Jigsaw * Router * Sanders |
| * 1. Joinery techniques may include but are not limited to: | * Nails * Screws * Dowels * Bolts and Nuts * Clamps * Wood glue * Rivets |
| * 1. Cabinetry works materials may include but are not limited to; | * Sawn timber * MDF * Plywood * Batten boards * Chip boards * Marine boards |
| * 1. Cabinetry elements may include but are not limited to; | * Bookcase * Buffet cabinet * Shelving * Drawers * Doors * Office cabinets |
| * 1. Kitchen cabinetry works elements may include but are not limited to; | * Beaded * Shaker * Flat panel * Wall * Base * Tall-standing. |
| * 1. Carpentry fasteners and adhesives may include but are not limited to; | * Iron nails * Screws * Panel pins * Plates * Conta * Silicon * Wood glue |
| * 1. Carpentry hardware may include but not limited to; | * Hinges * Catches * Locks * Bolts |

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: s

* Communication skills
* Interpretation skills
* Problem-solving skills
* Critical thinking skills
* Joining and jointing skills
* Organizing skills
* Measuring skills
* Numeracy skills
* Cutting skills
* Interpersonal Relationship skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Interpretation of symbols
* Conversion of units
* Levelling
* Cabinetry materials and supplies
* Cabinetry tools and equipment
* Types of manufactured boards
* Materials and supplies
* Joining and jointing
* Mensuration
* Cabinetry types and systems
* Functionality tests
* Use of power tools

**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. Built-in cabinetry ***tools and equipment*** are assembled as per job requirement. 2. Built-in cabinetry ***materials*** are selected as per working design. 3. Built-in ***cabinetry elements*** are fixed together by the use of ***carpentry fasteners and adhesive*** as per the working design. 4. Built-in cabinetry shelves, doors and drawers are installed using ***carpentry hardware*** as per the working design. 5. Cabinetry elements are fixed together by the use of ***carpentry fasteners and adhesive*** as per the working design. 6. ***Cabinetry components*** are installed using ***carpentry hardware*** as per the working design. 7. Housekeeping practices are performed after installing built-in cabinetry works as per workplace procedures. |
| 1. Resource Implications | The following resources must be provided:   * 1. A functional workshop with carpentry and joinery tools, equipment, materials and supplies.   2. References and manuals including construction working drawings   3. Personal protective equipment |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Practical Tests   2. Oral Questioning   3. Written Tests   4. Third party report   5. Portfolio |
| 1. Context of Assessment | Assessment may be done:  4.1 On-the-job,  4.2 Off-the-job or  4.3 During Work placement. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended |