



THE REPUBLIC OF KENYA

**NATIONAL OCCUPATIONAL STANDARDS
FOR
BUILDING TECHNICIAN**

**KNQF LEVEL 6
ISCED PROGRAM CODE: 0732 554B**



**TVET CDACC
P.O BOX 15745-00100
NAIROBI**

PRODUCE BUILDING DRAWINGS

UNIT CODE : CON/OS/BUT/CR/01/6/A

UNIT DESCRIPTION

This unit describes the competence required to produce building drawings. It involves designing architectural drawings and plumbing layouts, preparing structural, electrical and mechanical drawings.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENTS 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 (<i>Bold terms are elaborated in the Range</i>)
1. Design/prepare architectural drawings	1.1. Construction dimensions are identified according to the size of the proposed site, construction regulations, planning requirements and client specifications 1.2. Proposed project plan is sketched according to the construction dimensions 1.3. Architectural drawings are produced in accordance with the architectural code of design, building code , local authority by laws, regulatory requirements and client specification
2. Prepare structural and civil drawings	2.1. Structural elements are designed according to the codes of practice 2.2. Detailed plans and sections of designed elements are drawn as per dimensions and relevant standards 2.3. Bar bending schedule is prepared as per the code of practice
3. Prepare electrical drawings	3.1. Electrical circuits drawings are sketched in accordance with the electrical code of practice and the architectural layout 3.2. Electrical connection layout is drawn in accordance with the electrical code of practice
4. Prepare plumbing layout	4.1. Building dimensions are identified as per the architectural drawings, structural and electrical drawings

ELEMENTS 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 (<i>Bold terms are elaborated in the Range</i>)
	4.2. Pipe sizes are determined as per consumption requirements and design requirements 4.3. Pipe types are determined according to the design requirements 4.4. Pipe fittings are determined according to the mode of connection or the pipe layout plan 4.5. Pipe layout plan is drawn as per the building design
5. Prepare mechanical drawings	5.1. Mechanical component dimensions are obtained as per structural and architectural drawings 5.2. Mechanical components are sketched as per architectural and structural drawings 5.3. Mechanical designs are drawn as per specifications

RANGE

Variable	Range
1. Construction dimensions may include but is not limited to:	<ul style="list-style-type: none"> vertical dimensions horizontal dimensions
2. building codes may include but is not limited to:	<ul style="list-style-type: none"> BS 8110 Eurocodes Kenya Building Codes, 1968 Civil engineering codes
3. structural elements may include but is not limited to:	<ul style="list-style-type: none"> Slabs Beams Columns Foundation Stairs
4. Consumption requirements may include but is not limited to:	<ul style="list-style-type: none"> Residential Commercial Institution Hospitals
5. Pipe types may include but is not limited to:	<ul style="list-style-type: none"> PVC GI pipes Mild steel PPR

Variable	Range
6. Pipe fittings may include but is not limited to:	<ul style="list-style-type: none"> • Union • Bends • Sanitary fittings
7. Mechanical components may include but is not limited to:	<ul style="list-style-type: none"> • Gas supply • Cold and hot water supply systems • Plumbing layout • Sewer system • Firefighting • Ventilation system • Water treatment system • Refrigeration • Building automation system

REQUIRED KNOWLEDGE AND SKILLS

Knowledge

- Construction dimensions
- Architectural drawing
- Local authority by-laws
- Building code
- Structural elements
- Codes of practice
- Basic arithmetic
- Measurement
- Engineering drawing
- Plumbing
- Structural design
- Mechanical systems
- Engineering software
- Civil engineering drawings

Skills

- Measurement
- Basic arithmetic
- Design
- Computer
- Computer aided 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	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Designed architectural drawings 1.2 Prepared structural drawings 1.3 Prepared civil engineering drawings 1.4 Prepared electrical drawings 1.5 Designed plumbing layout 1.6 Interpreted architectural and structural drawings 1.7 Identified mechanical service requirements 1.8 Sketched mechanical drawings 1.9 Prepared sections, layout, elevations and as fixed drawings of mechanical items
2. Resource Implications	<ul style="list-style-type: none"> 2.1 Measuring and drawing tools 2.2 Laptops 2.3 Desktop PCs 2.4 Printer/plotting device 2.5 Calculator 2.6 Internet 2.7 Codes of practice 2.8 Mechanical conventions
3. Methods of Assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Practical Tests/project 3.2 Interview/Oral Questioning 3.3 Written Tests/
4. Context of Assessment	Competency may be assessed in an off and/or on the job setting
5. Guidance information for assessment	Holistic assessment with other units relevant to the building sector workplace and job role is recommended.