



REPUBLIC OF KENYA

**NATIONAL OCCUPATIONAL STANDARDS
FOR
CARPENTRY AND JOINERY CRAFTSPERSON
KNQF LEVEL 5**

PROGRAMME CODE:0722 554B



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PREPARE AND INTERPRET TECHNICAL DRAWINGS

UNIT CODE: CON/OS/CAJ/CC/02/5/B

UNIT DESCRIPTION

This unit covers the competencies required to prepare and interpret technical drawings. It involves competencies to perform general communication. It also involves producing plain geometry drawings, orthographic and pictorial drawings, solid geometry, working drawings for building and producing perspective drawing.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicised terms are elaborated in the Range)</i>
1. Perform General Communication	<ul style="list-style-type: none">1.1 Role of drawing as means of communication is stated according to task requirements1.2 Drawing equipment are identified and gathered according to task requirements1.3 Drawing materials are identified and gathered according to task requirements1.4 Drawing equipment are used and maintained as per manufacturer's instructions1.5 Drawing materials are used as per workplace procedures1.6 Waste materials are disposed in accordance with workplace procedures and environmental legislations1.7 Personal Protective Equipment is used according to occupational safety and health regulations1.8 Demonstrated procedure of laying out and folding drawing paper1.9 Drew and printed quality lines and letters as per building standards1.10 Identified dimensions of given drawing according to building standards1.11 Drew given figures to a given scale as per the task requirements

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicised terms are elaborated in the Range)</i>
	1.12 Different types of angles are constructed according to principles of trigonometry
2. Produce plane geometry drawings	<p>2.1 Constructed pre-determined scale for a given task</p> <p>2.2 Reduced/ Enlarged figures by construction method</p> <p>2.3 Constructed given figures to other shapes of equal area</p> <p>2.4 Constructed ellipse using different methods of construction</p> <p>2.5 Constructed the loci of a point of sliding and rotating mechanism</p> <p>2.6 Constructed a parabola from given lines and a fixed point</p> <p>2.7 Constructed helix using given dimensions</p> <p>2.8 Determined the true length of lines in space and lamina</p>
3. Produce orthographic and pictorial drawings	<p>3.1 Symbols and abbreviations are identified and their meaning interpreted according to standard drawing conventions</p> <p>3.2 Converted pictorial views into orthographic projections</p> <p>3.3 First and third angle orthographic drawings are interpreted and produced in accordance with the standard conventions</p> <p>3.4 Orthographic elevations are dimensioned in accordance with standard conventions</p> <p>3.5 Produced orthographic views of assembled drawing</p> <p>3.6 Assembled exploded views and drew in orthographic projection</p> <p>3.7 Isometric drawings are interpreted and produced in accordance with standard conventions</p> <p>3.8 Oblique drawings are interpreted as per standard conventions</p>

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicised terms are elaborated in the Range)</i>
	3.9 Freehand sketching of different types of geometric forms, tools, equipment, diagrams is conducted
4. Produce solid geometry drawings	4.1 Drew the front elevation and plan of a sectioned solid 4.2 Produced an auxiliary view from a given elevation and plan 4.3 Developed surfaces of truncated regular solids 4.4 Projected the points of intersecting solids 4.5 Developed surfaces of intersecting solids
5. Produced working drawings for building	5.1 Identified symbols for building materials 5.2 Drew details of foundations, walls, floors and openings 5.3 Drew details of roofs and trusses as per the given scale 5.4 Drew floor plans of simple domestic houses 5.5 Constructed the elevations of a simple domestic house 5.6 Designed simple and functional objects as per the working drawing 5.7 Designed drawings of a simple building as per the working drawing
6. Produced perspective drawing	6.1 Defined meaning of perspective drawings 6.2 Drew objects using one-point perspective drawing 6.3 Drew points using two-point perspective drawing

RANGE

Variable	Range
1. Drawing equipment may include but is not limited to:	<ul style="list-style-type: none">• Drawing boards, T and set squares, drawing sets,
2. Drawing materials may include but is not limited to:	<ul style="list-style-type: none">• Drawing papers, pencils, erasers, masking tapes, paper clips
3. Environmental legislations may include but is not limited to:	<ul style="list-style-type: none">• EMCA 1999
4. Personal Protective Equipment may include but is not limited to:	<ul style="list-style-type: none">• Dust coats, closed leather shoes

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:

- Drawing
- Interpretation
- Drawing equipment handling
- Communication
- Dimensions

Required knowledge

The individual needs to demonstrate knowledge of:

- Drawing equipment and materials
- Freehand sketching

- Lettering
- Geometrical constructions
- Types of drawings
- Types of lines
- Isometric drawing conventions, features, characteristics, components
- Orthographic drawing conventions, features, characteristics, components
- Sketches and drawings of simple patterns
- Simple calculations

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Performed General Communication appropriately 1.2 Demonstrated ability to produce plane geometry drawings 1.3 Produced orthographic and pictorial drawings accurately 1.4 Produced solid geometry drawings correctly 1.5 Produced working drawings for building 1.6 Produced perspective drawing
2. Resource Implications	<p>Resources the same as that of workplace are advised to be applied.</p> <ul style="list-style-type: none"> 2.1 Drawing room 2.2 Drawing equipment and materials 2.3 Computers
3. Methods of Assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Observation 3.2 Oral questioning 3.3 Written test 3.4 Portfolio of Evidence 3.5 Interview 3.6 Third party report

4. Context of Assessment	<p>Competency may be assessed</p> <p>4.1 On job</p> <p>4.2 Off job</p> <p>4.3 During industrial Attachment</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>