



**REPUBLIC OF KENYA**

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

**PROGRAMME CODE:0722 554B**



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## CONSTRUCT & ERECT ROOF STRUCTURES

UNIT CODE: CON/OS/CAJ/CR/04/5/B

### UNIT DESCRIPTION

This unit describes the competence in constructing and erecting roof structures. It involves interpreting architectural drawings, selecting and preparing tools, materials and equipment, setting out roof trusses, cutting out the joints, assembling of truss members and erecting roof trusses. It also includes performing fixing of purlins, performing trimming of roof members, fixing roof covering materials, performing finishing at the eaves and other finishing processes

### ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA ( <i>Bold and italicized terms are elaborated in the Range</i> )
1. Interpret Architectural drawings	1.1 Working drawing is interpreted based on <b><i>building code</i></b> 1.2 Measurements are converted as required by the working drawing 1.3 Symbols are identified and interpreted based on International technical drawing standards
2. Select and prepare tools, materials and equipment	2.1 <b><i>Types of roofs</i></b> are identified according to the design/owner specification/ climatic conditions 2.2 Types of timber and nominal sizes are identified 2.3 Selected appropriate materials for a given special roof
3. Set out roof trusses	3.1 Secured tie with pegs according to job requirement 3.2 Marked the center of the truss according to architectural design 3.3 Marked the span of the building based on the architectural drawing 3.4 Marked the king post as per the architectural drawing 3.5 Made plumb cuts on rafters as per the pitch specifications 3.6 Joined the <b><i>truss members</i></b> as per architectural drawing 3.7 Fixed ties and braces according to the structural drawing

ELEMENT	PERFORMANCE CRITERIA ( <i>Bold and italicized terms are elaborated in the Range</i> )
4. Cut out the joints	4.1 Selected tools and equipment for cutting out as per job requirements 4.2 Cut out the joints as per job requirements
5. Assemble of truss members	5.1 Constructed heads of the two rafters as per truss design specifications 5.2 Joined rafters to the ties based on truss design specification 5.3 Constructed king post to the ties and rafters as per truss design specification 5.4 Joined braces to rafters according to truss design specification 5.5 Fixed struts and braces to ties and rafters based on truss design specification
6. Erect roof trusses	6.1 Identified types of trusses as per the architectural drawing 6.2 Placed the truss on the wall plate as per job requirements 6.3 plumbed first truss on the wall and fixed it to the wall plate based on job requirement 6.4 Plumbed the rest of the trusses temporarily on the wall plate as per the job requirement
7. Perform fixing of purlins	7.1 Cut splice joint on the purlins as per selected roofing material 7.2 Fixed the purlins on the rafters according to the roof covering material 7.3 Trimmed purlin according to eaves details
8. Perform trimming of roof members	8.1 <b><i>Roof members</i></b> are identified as per the selected roof covering materials 8.2 Trimmed the roof members according to the structural drawing

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>(Bold and italicized terms are elaborated in the Range)</i>
9. Fix roof covering material	9.1 Selected <b><i>roof covering materials</i></b> according to design specifications  9.2 Fixed the covering material with appropriate devices
10. Perform finishing at the eaves	10.1 <b><i>Eaves</i></b> are defined as per structural design  10.2 Identified the types of eaves based on structural design  10.3 Measured the sizes of eaves as per job requirement  10.4 Marked the plumb cuts based on the measured sizes  10.5 Cut the eaves plumb as marked
11. Construct ceiling	11.1 Constructed ceiling framework from a given drawing accurately 11.2 Fixed the <b><i>ceiling covering materials</i></b> to a given framework accurately
12. Perform finishing processes	12.1 Cut and fixed the fascial board according to work place procedures 12.2 Cut and fixed the soffits based on job requirements 12.3 Fixed the gutters and the down pipes as per

**RANGE**

Variable	Range
1. Building Code may include but is not limited to:	<ul style="list-style-type: none"><li>• Application of by-laws</li><li>• Siting and space about buildings</li><li>• Building materials</li><li>• Design and erection of certain buildings</li><li>• Ventilation of buildings</li></ul>
2. Truss members Code may include but is not limited to:	<ul style="list-style-type: none"><li>• Rafters</li><li>• Braces</li><li>• Struts</li><li>• Ties</li><li>• Ridge board</li></ul>
3. Roof members Code may include but is not limited to:	<ul style="list-style-type: none"><li>• Beams</li><li>• purlins</li><li>• wall plate</li><li>• ridge plate</li><li>• hip rafter</li><li>• valley rafter</li><li>• battens</li><li>• reapers</li></ul>
4. Roof covering materials Code may include but is not limited to:	<ul style="list-style-type: none"><li>• Thatch covering</li><li>• Wood shingles</li><li>• Tiles</li><li>• Asbestos cement sheets</li><li>• Galvanized corrugated Iron sheets</li></ul>
5. Eaves Code may include but is not limited to:	<ul style="list-style-type: none"><li>• Flush</li><li>• Open</li><li>• Closed</li><li>• Sprocket</li></ul>
6. Ceiling covering materials Code may	<ul style="list-style-type: none"><li>• Timber</li><li>• Soft boards</li><li>• Hard board</li><li>• Plywood</li></ul>

include but is not limited to:	<ul style="list-style-type: none"> <li>• Plastics</li> <li>• Plaster board</li> </ul>
7. Types of roofs Code may include but is not limited to:	<ul style="list-style-type: none"> <li>• Single roofs</li> <li>• Double/ purlins roofs</li> <li>• Trussed rafter roof</li> <li>• Triple/ framed roofs</li> <li>• Special roofs</li> </ul>

## **REQUIRED KNOWLEDGE**

- Construction Material
- Carpentry Tools And Equipment
- Site Management
- Safety rules and precautions
- Roof covering materials
- Roof members
- Truss members
- Types of eaves
- Maintenance of roofs
- Interpretation of drawing
- Design
- Calculations
- Estimation and costing

## **SKILLS**

- Communication skills
- Use of tools and equipments
- Safety

## 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: <ul style="list-style-type: none"><li>1.1 Interpreted Architectural drawings correctly</li><li>1.2 Selected and prepared tools, materials and equipment</li><li>1.3 Set out roof trusses appropriately</li><li>1.4 Demonstrated ability to cut out the joints</li><li>1.5 Assembled truss members</li><li>1.6 Erected roof trusses appropriately</li><li>1.7 Performed fixing of purlins</li><li>1.8 Performed trimming of roof members correctly</li><li>1.9 Fixed roof covering material</li><li>1.10 Performed finishing at the eaves</li><li>1.11 Constructed ceiling</li><li>1.12 Performed finishing processes</li></ul>
2. Resource Implications	The following resources should be provided: <ul style="list-style-type: none"><li>2.1 Calculator</li><li>2.2 Internet</li><li>2.3 Training workshops</li><li>2.4 Construction tools and equipment</li><li>2.5 Occupational Safety and health manuals</li><li>2.6 Construction materials</li><li>2.7 Reference textbooks</li><li>2.8 Qualified trainers</li></ul>
3. Methods of Assessment	Competency may be assessed through: <ul style="list-style-type: none"><li>3.1 Written text</li><li>3.2 Interview</li><li>3.3 Observation</li><li>3.4 Practical tests</li></ul>
4. Context of Assessment	Competency may be assessed <ul style="list-style-type: none"><li>4.1 On job</li><li>4.2 Off job</li><li>4.3 During Industrial Attachment.</li></ul>
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.