EXECUTE CONSTRUCTION WORKS

UNIT CODE: ENG/OS/QS/CR/04/6/A

UNIT DESCRIPTION

This unit describes the competence in executing construction works. It involves investigating construction site, performing building substructure works, performing civil works, performing superstructure works, installing building windows and doors, applying building/civil finishes and carrying out construction maintenance works.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
1 Investigate construction site	1.1 Site boundary is determined based on land survey maps 1.2 ***Auxiliary services*** are identified as per site location 1.3 Trial pits are excavated based on ground conditions 1.4 ***Existing services*** are determined based on service provider's information 1.5 ***Existing structures*** are identified based on the site location 1.6 Labour and construction materials sources are identified based on the project scope and site location
2 Perform building substructure works	2.1 ***Site clearance*** is carried out based on the nature of the site 2.2 Excavation method is determined based on the nature of the works 2.3 Vegetable/top soil is excavated based on working drawings and nature of the site 2.4 Excavation to formation level/reduced level is carried out based on the working drawings 2.5 Foundation is marked based on ***profile board measurements*** and working drawings 2.6 Foundation is excavated based on the working drawings 2.7 Foundation is levelled as per SOPs 2.8 ***Substructure concrete works*** is carried out as per SOPs 2.9 Foundation walling is constructed based on the working drawings 2.10 Hard core is placed and compacted as per SOPs 2.11 Blinding layer is applied based on design specifications 2.12 Anti-termite treatment is carried out as per SOPs 2.13 Damp proofing is carried out as per design specifications 2.14 Formwork is erected as per SOPs 2.15 Concrete is cast as per SOPs
3 Perform civil works	3.1 Site clearance is carried out based on the nature of the site 3.2 Excavation method is determined based on the nature of the works 3.3 Vegetable/top soil is excavated based on working drawings and nature of the site

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicized terms are elaborated in the Range)*
	3.4 Excavation to formation level/reduced level is carried out based on the working drawings 3.5 Foundation is marked based on profile board measurements and working drawings 3.6 Foundation is excavated based on the working drawings 3.7 Foundation is levelled as per SOPs 3.8 Sub grade is laid and compacted as per SOPs 3.9 Sub base is laid and compacted as per SOPs 3.10 Base course is laid and compacted as per SOPs 3.11 Wearing course is laid as per SOPs
4 Perform superstructure works	4.1 ***Setting out of superstructure works*** is carried out as per SOPs 4.2 ***Superstructure concrete works*** is carried out as per SOPs 4.3 Superstructure walling is constructed based on the working drawings 4.4 ***Roof construction*** is carried out as per working drawings 4.5 ***Roof cover*** is applied as per design specifications 4.6 ***Eaves and verges*** are constructed as per design specifications 4.7 ***Rain water goods*** are installed as per SOPs
5 Install building doors and windows	5.1 Door and window schedule is prepared based on design specifications 5.2 Door and window frames are set in position as per design details 5.3 Door linings are set in position as per design details 5.4 Doors and windows are fitted and fixed based on the design details
6 Apply building/civil finishes	6.1 Schedule of finishes is prepared as per design specifications 6.2 ***Method of application*** is determined based on the ***type of finish*** and place of application 6.3 Application surface is prepared based on the type of finish 6.4 Building/civil finishes are applied as per SOPs
7 Carry out construction maintenance works	7.1 ***Building inspection*** is carried out based on the type of facility and Occupational Safety and Health Act 7.2 Inspection report is prepared based on inspection carried out 7.3 ***Maintenance program*** is prepared based on inspection report 7.4 Building maintenance is carried out as per maintenance program

RANGE

Variable	Range *May include but is not limited to:*
1. Auxiliary services	1.1 Banks 1.2 Hospitals 1.3 Access roads 1.4 Electricity

	1.5 Sewer lines 1.6 Water pipes 1.7 Communication cables
2. Existing services	2.1 Telecommunication 2.2 Electrical 2.3 Sewer lines 2.4 Water supply lines 2.5 Mechanical services
3. Site clearance	2.1 clear bushes 2.2 cut trees 2.3 removal of stumps 2.4 demolish unwanted existing structures
4. Existing structures	4.1 Buildings 4.2 Tunnels 4.3 Railway tracks 4.4 Bridges
5. Profile board measurements	5.1 Trench width 5.2 Wall thickness 5.3 Column sizes 5.4 Column base sizes
6. Substructure concrete works	1.1 Blinding 1.2 concrete to • bases • strip footing • wall • columns • slabs • ground beams 1.3 formwork to • bases • strip footing • wall • columns • slabs • ground beams 1.4 reinforcement to • bases

	• strip footing • wall • columns • slabs • ground beams
7. Setting out of superstructure works	7.1 Superstructure walls 7.2 Columns 7.3 Suspended slabs 7.4 Stairs 7.5 Chimneys 7.6 Roofs
8. Superstructure concrete works	8.1 Concrete to • Walling • Columns • Suspended slabs • Beams 8.2 Formwork to • Walling • Columns • Suspended slabs • Beams 8.3 reinforcement to • Walling • Columns • Suspended slabs • Beams
9. Roof construction	9.1 Tie beams 9.2 Wall plates 9.3 Rafters 9.4 Ties and struts 9.5 Purlins 9.6 Ridge piece/boards 9.7 Hangers 9.8 King post
10. Roof cover	10.1Tiles 10.2Sheets 10.3Roof underlays
11. Eaves and verges	11.1 Fascia board

	11.2 Barge board 11.3 Runners 11.4 Bearers 11.5 Hanger 11.6 Boarding
12. Rain water goods	12.1 Gutters 12.2 Down pipes 12.3 Shoe 12.4 Swan neck
13. Method of application	13.1 Spraying 13.2 Fixing 13.3 Dipping
14. Type of finish	14.1 Tiles 14.2 Terrazzo 14.3 Granolithic finish 14.4 Cladding 14.5 Painting 14.6 Timber parquet 14.7 Carpet 14.8 Plaster 14.9 Marble chips 14.10 Floor screed 14.11 Road markings 14.12 Guide posts 14.13 Light posts 14.14 Warning signs 14.15 Traffic signs 14.16 Painting
15. Building inspection	15.1 Functionality 15.2 Condition of the facility 15.3 Physical examination 15.4 Mechanical examination
16. Maintenance program	16.1 Routine 16.2 Ad hoc (emergency) 16.3 Planned

REQUIRED KNOWLEDGE

- Soil analysis
- Map interpretation
- Local Culture

- Construction by-laws
- Construction
- Occupational Safety and Health
- Construction plant
- Work programs
- Materials science
- Plumbing works
- Specifications
- Construction drawings
- Code of practice
- Formwork
- Bar bending
- Masonry
- Construction tools and equipment
- Method of application
- Construction technology
- Tools and equipment
- Carpentry and joinery
- Building diagnosis
- Report writing
- Computer literacy
- MS Project

SKILLS

- Report writing
- Digital
- Planning
- Painting
- Plastering
- Tile fixing
- Screeding
- Masonry
- Carpentry and joinery
- Management
- Bar bending
- Brick laying
- Management
- Analytical
- Map interpretation

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 1.1 Conducted site investigation 1.2 Carried out site clearance 1.3 Performed excavation 1.4 Carried out substructure concrete works 1.5 Constructed substructure walls 1.6 Carried out anti termite treatment 1.7 Carried out setting out of superstructure works 1.8 Carried out superstructure concrete works 1.9 Executed roofing works 1.10 Constructed superstructure walling 1.11 Installed rain water goods 1.12 Installed building doors and windows 1.13 Applied building finishes 1.14 Carried out building maintenance
2. Resource Implications	The following resources should be provided: • Workshop • Storage facilities • Construction materials • Stationery • Construction tools and equipment • Workshop technician
3. Methods of Assessment	Competency may be assessed through: 3.1 Written text 3.2 Interview 3.3 Observation
4. Context of Assessment	Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.