

	Unit ID: 19
Domain	BRICKLAYING AND PLASTERING
Title:	Carry out reinforced concrete work
Level: 3	Credits: 8

Purpose

This unit standard specifies the competencies required to carry out reinforced concreting work for the construction of in-situ reinforced concrete structures such as slabs, columns, beams and steps. It includes setting out, reinforcing, erecting and dismantling formwork, placing, finishing and curing concrete. This unit standard is intended for those who work as bricklayers and plasterers.

Special notes

1. Entry information

Prerequisite:

- *Unit 1157 - Demonstrate basic knowledge of workplace health and safety or demonstrated equivalent knowledge and skills.*
- *Unit 1 - Plan and organise construction work.*
- *Unit 16 - Cast, finish and cure concrete.*

2. Concreting work is to include but not be limited to footpaths, repairing of kerb and channel, footings, slabs on ground, suspended slabs, beams, columns, stairs, ramps, pads, concrete walls, and lintels.

3. To demonstrate competence, at a minimum, requires evidence of completing at least two concreting projects (each a minimum of one cubic metre of concrete), incorporating a minimum of two different finishes. At least one project must contain angled formwork and bent reinforcement. Perform these tasks ensuring correct identification of requirements and finishing of the tasks, correct selection and use of appropriate processes, tools and equipment and completing all work to specification.

4. Formwork shutters and/or edge boxing are to include an edge rebate. Types of formwork are to include but not be limited to prefabricate or in-situ. Formwork is to be rigid to withstand the mass of wet concrete and actions imposed during placement. Formwork is critical to comply with specifications to height and level.

5. Assessment evidence may be collected from a real workplace or a simulated real workplace in which bricklaying operations are carried out.

6. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' guidelines and instructions.

7. '*Specifications*' refers to any, or all of the following: manufacturers' specifications and recommendations, site and workplace specific requirements.

8. Regulations and legislation relevant to this unit standard include the following:

- Labor Act 2007 (Act no 11, 2007)

- SABS 0400
- NOSA
- Local Authorities Act 23 1992
- Occupational Health and Safety Regulations under schedule 1(1) of Labour Act No. 11 of 2007 No. 18, 1997
- Government Notice No. 156 Labour Act, 1992: “Regulations Relating to the Health and Safety of Employees at Work”
- Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977)
- And all subsequent amendments

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority on www.nta.com.na

Elements and Performance Criteria

Element 1: Prepare materials for formwork and reinforced concrete

Range

Materials are to include but are not limited to water, sand, premix concrete, concrete blend, cement, curing compounds, form release agents, steel reinforcing, bar chairs, vapour barriers membranes, Boxing (timber, metal, masonry, fibre cement sheeting, steel shutters, expanded polystyrene and structural cardboard, plywood, fiberglass ,nails/spikes, bolts and nuts, coach screws, steel tie rods, metal brackets and patented metal fasteners).

Performance Criteria

- 1.1 Reinforcement is prepared according to drawings and specifications.
- 1.2 Formwork components/materials are selected consistent with job.
- 1.3 Fixing/fasteners are selected consistent with requirements of the job.

Element 2: Set out and Erect formwork.

Range

Tools and equipment are to include but are not limited to measuring tapes/rules, hammers, spirit levels, squares (combination/tri), nail bags, chisels, hand saws, saw stools, string lines, shovels, marking equipment, pinch bars, dumpy levels and may include but not be limited to power saws, power drills, nail guns, power leads, spanners, steel squares and levels.

Performance Criteria

- 2.1 Formwork is set out to requirements of drawings and specifications inclusive string lines, grades, falls and identification of existing services.
- 2.2 Fixing/fasteners are selected and used consistent with construction

requirements of the job

- 2.3 Formwork shutters and/or edge boxing are constructed and erected to site requirements and specifications.
- 2.4 Formwork support is braced to job requirements and specifications.
- 2.5 Block outs and cast in services are installed to specified locations.
- 2.6 Release agents are applied to formwork face, where specified, to manufacturers' specifications.

Element 3: Construct and install reinforcement

Range

Reinforcing is to include but not is limited to the use of fabric sheet mesh, bar chairs, spacers and may include reinforcing bars and trench mesh.

Performance Criteria

- 3.1 Reinforcing fabric and bars are cut and bent as required to project drawings and specifications.
- 3.2 Fabric and bars are tied/fixed to configuration from project drawings and specifications.
- 3.3 Stiffening rods are attached to panels as required to facilitate handling.
- 3.4 Reinforcement materials are located in formwork and placed on bar chairs/spacers as determined from drawings, noting clearance from formwork.
- 3.5 Control and dowel joints are positioned and installed to specification

Element 4: Cast concrete

Range

Transporting of concrete may include but is not limited to pre-mix truck, pumping equipment and wheelbarrow. Evidence of the use of two methods is required for assessment purposes.

Placing methods of concrete includes but is not limited to wheelbarrows, pumping equipment, truck placed, shovelling and includes vibrating. Evidence of the use of two methods is required for assessment purposes.

Finishing techniques for concrete are to include but are not limited to steel trowel, mechanical trowelling machine, broom finished, wood float, bull float and brushed.

Curing is to include but not be limited to ponding, coating with a membrane, applied moisture, steam, curing compound or plastic sheeting. Evidence of the use of two methods is required for assessment purposes.

Methods to avoid segregation are to include but are not limited to using through minimising the height of a vertical drop and using pumps with a flexible hose. Evidence of the use of two methods is required for assessment purposes.

Performance Criteria

- 4.1 Concrete is transported correctly and discharged into formwork, using correct manual handling techniques.
- 4.2 Concrete is placed correctly to instruction and screeded to specified levels and grades.
- 4.3 Pump line/chute is controlled and concrete placed.
- 4.5 Concrete is compacted to specification using immersion vibrator or other specified method.
- 4.6 Concrete is finished and curing process applied to specifications.
- 4.7 Control and dowel joints are positioned and installed to specification.
- 4.8 Concrete surface is adequately covered and protected.

Element 5: Strip formwork

Performance Criteria

- 5.1 Edge boxing and braces are removed carefully, safely and sequentially.
- 5.2 Timber components are derailed, cleaned and stored or stacked.
- 5.3 Steel components are cleaned, oiled and stored or stacked.
- 5.4 Damaged formwork components are discarded after stripping.

Registration Data

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