

Domain**AIR CONDITIONING AND REFRIGERATION****Title:****Carry out basic electrical installation****Level: 3****Credits: 10****Purpose**

This unit standard specifies the competencies required to carry out basic electrical installation. It includes plan and prepare for work; demonstrate knowledge of electrical installation; and install electrical circuits.

This unit standard is intended for those who works air conditioning and refrigeration artisans.

Special Notes

1. Entry information:

Prerequisite

- *Unit 1157 – Demonstrate basic knowledge of workplace health and safety.*

2. To demonstrate competence, at a minimum, evidence is required to perform two electrical installation

3. Assessment evidence may be collected from a real workplace or an appropriate simulated realistic environment in which electrical operations are carried out.

4. Competency under this unit standard does not entitle the candidate to perform prescribed electrical work without the supervision of a supervisor of electrical work, until the candidate has been registered and licensed.

5. This unit standard covers the following lightings: incandescent lighting, discharge lighting and recessed lighting lamps and luminaries.

6. Glossary of terms:

- *“Maintain”* refers to first line maintenance including the replacement of components.
- *“Open circuit”* refers to a circuit where the path has been interrupted or open at a point so that current will not flow.
- *“Close circuit”* refers to a circuit without interruption providing continuous path through which a current can flow.
- *“Electrical circuit”* refers to a system that allows flow of current between different points. Is also a complete route that an electrical current can flow around.

6. Performance of all elements in this unit standard must comply with industry requirements.

7. Regulations, legislation and standards relevant to this unit standard include the following:
- Labour Act, No. 11, 2007
 - Occupational Health and Safety Regulations No. 18, 1997 and all subsequent amendments.
 - Import and Export control act, 1994.
 - SANS 10147: 2014
 - NAMS/ESI LVEIWS 001: ed 1.0 2021
 - NAMS/ESI 002: ed 1.0 2021
 - NAMS 5149-3: 2021 (ISO 5149-3: 2014)
 - SANS 10147: 2014
8. Safety of personnel and plant must be a priority throughout the assessment. If the safety requirements are not met the assessment must stop.

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. All approved unit standards, qualifications and national assessment arrangements are available on the [Namibia Training Authority](http://www.nta.com.na) website www.nta.com.na.

Elements and Performance Criteria

Element 1: Plan and prepare for work

Range

Tools and equipment may include but not limited to screw drivers, pliers, cable knife, wire stripper, split level, multimeter, drill machine, grinder, spanners, fish tape, hack saw, pipe bender, plug tester, wire crimping tool, and ladder.

Materials may include but not limited to insulation tape, drill bit, cable ties, connector blocks, wire connectors, conduits pipes, PVC glue, lights, cables, plugs, isolator, switches, circuit breakers, coach screw, distribution box, terminal rail, terminal box, earth leakage, couplings, and elbows.

Performance Criteria

- 1.1 Work instructions including job cards, specifications and operational details are interpreted and confirmed.
- 1.2 Workplace inspection is carried out in line with safety standards.
- 1.3 Safety requirements are applied in line with safety and workplace policies.

- 1.4 Tools and equipment are selected in line with the job requirements.
- 1.5 Material required are selected and obtained in line with job specifications.
- 1.6 Calibration requirements for tools, instruments and equipment are carried out in line with job requirements.
- 1.7 Environmental protection requirements are outlined and followed in line with environmental legislative requirements.

Element 2: Demonstrate knowledge of electrical installation

Range

Installation terminologies may include but not limited to lighting circuit and switching circuit.

Circuit may include but not limited to alternating current and direct current.

Lockout procedures may include but not limited to legislative and workplace safety requirements.

Performance Criteria

- 2.1 Installation terminologies are explained.
- 2.2 Safety lockout procedures are outlined and applied in line with safety standards.
- 2.3 Circuit diagrams are drawn and interpreted.
- 2.4 Components are explained in line with the job specifications.

Element 3: Install electrical circuits

Range

Installation may include but not limited to open circuit; parallel circuit; close circuit and series circuit.

Performance Criteria

- 3.1 Procedures and information required for installation are outlined in line with job specifications.
- 3.2 Site Inspection is carried out in line with the job specifications.
- 3.3 Ancillary service connections are set up and verified in line with workplace procedures.
- 3.4 Integrity of building penetrations is confirmed in line with the workplace procedures.

- 3.5 Measurements are carried in line with job specifications.
- 3.6 Installation is carried out in line with job specifications.
- 3.7 Repairing and maintenance is carried out in line with job requirements.
- 3.8 Housekeeping is performed in line with workplace procedures

Registration Data

Subfield:	Electrical Engineering
Date first registered:	
Date this version registered:	
Anticipated review:	
Body responsible for review:	Namibia Training Authority