

Domain**ELECTRICAL INSTALLATION****Title:****Inspect and test a single phase domestic, industrial and commercial installations****Level: 3****Credits: 10****Purpose**

This unit standard is intended for those inspect and test a single phase domestic, industrial and commercial installations. People credited with this unit standard are able to plan and prepare for work; inspect electrical installation; test electrical installation; and clean-up work area.

This unit standard is intended for those who work in an electrical workplace environment.

Special Notes

1. Entry information:

Prerequisite

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

2. This unit standard is to be delivered and assessed in the context of electrical operations and should be assessed in conjunction with other relevant technical units selected from this domain.
3. This unit standard is pre requisite for registration as an accredited person and does not give the learner the legal right to issue a Certificate of Compliance.
4. To demonstrate competence, at a minimum, evidence is required of planning and preparing for work, inspecting electrical installation work and testing electrical work. Candidate should perform these tasks ensuring correct identification of requirements, selection and use of appropriate processes, tools and equipment and completing all work to specification.
5. Inspection and testing of single phase include domestic, commercial and industrial installations
6. Assessment evidence may be collected from a real workplace or a simulated workplace environment in which electrical operations are carried out.
7. Inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers and company guidelines, instructions, and reasonable flat rate time.
8. Glossary of terms:
 - *'Isolation and lockout procedures'* refer to isolating an electrical circuit from the source of supply

- 'Specifications' refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements, national and international standards and legislations
 - 'ISO' refers to International Organization for Standards
 - 'SANS' refers to South African National Standards
 - 'TT system' refers to terra and terra where terra is a direct connection point to earth
 - 'TN-S system' refers to terra and neutral separate
 - 'TN-C-S system' refers to terra and neutral combined from the supply and then separated in an installation
 - 'TN-C system' refers to *terra* and *neutral combined*
9. Regulations and legislation relevant to this unit standard include the following:
- Labour Act No. 11 of 2007
 - Petroleum Products and Energy Amendment Act No. 2 of 2005
 - National Energy Fund Act of 2000
 - Gas Act (Draft 2b)
 - Regulations relating to the health & safety of employees at work under Schedule 1 (2) of the Labour Act No.11 of 2007 ISO 14001 (Environmental Management Standard)
 - Electricity Act No.4 of 2007
 - SANS 10142-1 and SANS 10142-2 electrical wiring codes and all subsequent amendments to any of the above.

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 on www.namqa.org and the Namibia Training Authority on www.nta.com.na.

Elements and Performance Criteria

Element 1: Plan and prepare for work

Performance Criteria

- 1.1 Work instructions, including plans, specifications, job cards, quality requirements and operational details are obtained, confirmed and interpreted.
- 1.1 Safety requirements are followed in line with safety plans and policies.
- 1.3 Personal protective equipment are selected in line job and safety requirements.

- 1.4 Tools and equipment selected to carry out tasks are consistent with job requirements, checked for serviceability, and any faults are rectified or reported prior to commencement.
- 1.2 Signage and barricade requirements are identified and implemented, where necessary.
- 1.3 Material quantity requirements are calculated in line with plans, specifications and quality requirements.
- 1.4 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

Element 2: Inspect electrical installation

Performance Criteria

- 2.1 Installation is inspected for compliance according to industry and environmental requirements.
- 2.2 Non-compliant components within the installation are identified and recorded.
- 2.3 Safety requirements are observed during the inspection according to workplace procedures.

Element 3: Test electrical installation

Range

The tests to be conducted include but not limited to insulation resistance test, continuity test, polarity test, earth electrode resistance test, earth fault loop impedance test and earth leakage circuit breaker test.

Situations that may require corrective action include but not limited to under voltage, over voltage and earth leakage currents.

Performance Criteria

- 3.1 Installation is tested according to workplace procedures.
- 3.2 Defects and non-conformity is recorded according to work procedures.
- 3.3 Corrective action is carried out according to workplace procedures.
- 3.4 Work is completed and appropriate personnel notified in line with workplace procedures.
- 3.5 A defect list is compiled and corrective action is taken where necessary as per quality requirements.

Element 4: Clean-up work area

Performance Criteria

- 4.1 Work area is cleared, cleaned, restored and secured in line with workplace procedures.
- 4.2 Tools and equipment are cleaned, checked and stored in line with manufacturer specifications and workplace procedures.
- 4.3 Materials and wastes are disposed of, reused, or recycled in accordance with legislation, regulations, codes of practice and job specifications.

Registration Data

Subfield:	Electrical Engineering
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Body responsible for review:	Namibia Training Authority