

Domain

SOLAR INSTALLATION

Title:

Install basic solar home systems

Level: 1

Credits: 6**Purpose**

This unit standard specifies the competencies required to install solar home systems (12v up to 300 Watts inverter). It includes the following elements: Plan and prepare for the work; Install and connect components; Complete work and clean up. This unit standard is intended for those who work in a solar energy installation environment.

Special Notes

1. Entry information:

Prerequisite:

- 1641: *Apply safety rules and regulations in a solar energy installation environment* or demonstrated equivalent knowledge and skills.

2. This unit standard is to be delivered and assessed in the context of solar system operations and should be assessed in conjunction with other relevant technical unit standards selected from this domain.

3. To demonstrate competence at minimum, evidence is required of correctly identifying requirements, finishing of the tasks, correctly selecting and using appropriate processes, tools and equipment and completing all work to specification.

4. Assessment evidence may be collected at a real workplace or a simulated real workplace or an appropriate simulated realistic environment in which Solar Home System operations are carried out.

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

6. Glossary of terms:

- 'SHS' refers to Solar Home System
- 'SWH' refers to Solar Water Heating
- 'PVP' refers to Photo Voltaic Pump
- 'DC' refers to Direct Current supply
- 'AC' refers to Alternating Current supply

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

8. Regulations and legislation relevant to this unit standard include the following:
- Labour Amendment Act, 2012 (Act No. 2 of 2012)
 - SANS 10142-1 and SANS 10142-2 electrical wiring codes
 - IEC 60061.
 - IEC 61360.

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 the work

Range:

Work planning and preparation include all measures to perform a complete job on site thus providing for a functional system installation and avoiding unnecessary trips to site. Identification of SHS components includes the description of these components and their purpose.

Performance criteria

- 1.1 The importance of planning the work is explained.
- 1.2 The correct DC components are selected, in line with job requirements
- 1.3 The correct AC components are selected, in line with job requirements.
- 1.4 The SHS components' working conditions are verified.
- 1.5 The correct tools and instruments are selected.
- 1.6 The installation schedule is correctly prepared.
- 1.7 The system completeness is verified and an installation check list is completed.

Element 2: Install and connect components

Range:

Installation of the main system components includes but is not limited to mounting them at appropriate locations and interconnecting them. Components include but are not limited to module or array, charge controller, battery and inverter.

Performance criteria

- 2.1 Modules are located and fixed.
- 2.2 Charge controller is located and fixed.
- 2.3 Inverter is located and fixed.
- 2.4 Batteries are located and fixed.
- 2.5 The wiring of the system is performed according to SANS 10142-1 standards.

Element 3: Complete work and clean up

Range:

Completion of work and cleaning up include all tasks of necessary notifications, site clean-up and proper packing of tools and equipment.

Performance Criteria

- 3.1 Work is completed and appropriate personnel notified in line with workplace procedures.
- 3.2 Work area is cleared of waste, cleaned, restored and secured in line with workplace procedures.
- 3.3 Plant, tools and equipment are cleaned, checked and maintained in line with workplace procedures.

Registration Data

Subfield:	Electrical Engineering
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