Unit ID 1673

Domain SOLAR INSTALLATION
Title: Manufacture mounting structures
Level: 3 Credits: 4

Purpose

This unit standard specifies the competencies required to manufacture mounting structures. It includes the following elements: read and interpret technical drawings; cut and grind material; prepare materials and accessories for structures; weld, solder and join material; paint or coat structures and customize structures. This unit is intended for those who work as solar technicians.

Special Notes

1. Entry information:

   Prerequisites
   - *1641: Apply safety rules and regulations in a solar energy installation environment or* demonstrated equivalent knowledge and skills
   - *1647: Draw and interpret basic technical drawings*
   - *1650: Use and maintain electrical and mechanical tools for solar equipment installation*
   - *1643: Demonstrate basic knowledge of environmental issues relating to solar energy installations.*
   - *1649: Perform basic estimations, measurements and calculations.*

2. To demonstrate competency, at a minimum, evidence is required of calculating correct sizes of modules, storage, cables and control units as well as drawing and interpreting schematic drawings of complete systems using common and standard symbols including labelling all components and connections correctly.

3. Tools, equipment, accessories and materials may include but are not limited to removing/fixing tools, calculators, pencil/pen, manufacturers' manuals and guides.

4. Assessment evidence may be collected from drawings, real workplace or an appropriate simulated realistic environment in which system designs are carried out.

5. Performance of all elements in this unit standard must comply with all relevant workplace requirements and manufacturers' specifications.

6. Glossary of terms:
   - '*SHS'* refer to Solar Home System
   - *'AC'* refers to Alternating Current
   - *'DC'* refers to Direct Current.

7. Regulations and legislation relevant to this unit standard include the following:
   - Labour Act No. 11 of 2007

- Occupational Health and Safety Regulations No. 18, 1997 and all subsequent amendments.
- ISO 14001 (Environmental Management Standard)

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: Read and interpret technical drawings

Performance criteria

1.1. Information from the drawing is obtained.

1.2. Standard of the drawing is explained.

1.3. Drawing techniques are identified.

Element 2: Cut and grind material

Performance criteria

2.1. Cutting and Gridding safety are explained.

2.2. Types of cutting and grinding are identified.

2.3. Cutting and Gridding procedures are demonstrated.

2.4. Different types of cutting and grinding tools and machines are identified.

Element 3: Prepare materials and accessories for structures

Performance criteria

3.1. Bending, Folding and Drilling safety is explained.

3.2. Bends, Folds and Drill types are defined.

3.3. Different types of bending, folding and drilling tools are explained.

Element 4: Weld, solder and join material

Range:

Jointing methods include Welding, soldering, tying and bolts jointing.

Performance criteria

4.1. Welding, soldering and joining processes are explained.

4.2. Welding, soldering and joining processes are defined.

4.3. Welding, soldering and joining techniques are demonstrated.

4.4. Welding, soldering and joining procedures are demonstrated.

4.5. Different types of welding, soldering and joining tools are demonstrated.

Element 5: Paint or coat structures

Performance criteria

5.1. Painting and coating procedures are defined and explained.

5.2. Advantages and disadvantages of painting and coating are explained.

5.3. Painting and coating techniques are demonstrated.

5.4. Painting and coating procedures are demonstrated.

5.5. Use of different tools and equipment for painting are demonstrated.

Element 6: Customize structures

Performance criteria

6.1. Economic status of different structures are explained.

6.2. Simplest of customise is demonstrated and explained.

6.3. Safety of customised structure is explained.

6.4. Flexibility of the structure is demonstrated and explained.

Registration Data

Subfield:	Electrical Engineering
Date first registered:	28 March 2018
Date this version registered:	28 March 2018
Anticipated review:	2023
Body responsible for review:	Namibia Training Authority