

**Domain****AIR CONDITIONING AND  
REFRIGERATION****Title:****Carry out electric wiring for cold and  
freezer rooms****Level: 3****Credits: 11****Purpose**

This unit standard specifies the competencies required to demonstrate electric wiring for cold and freezer rooms. It includes draw and interpret electric circuit diagram and/or symbols used in air conditioning refrigeration systems and wiring of cold room and freezer room. This unit standard is intended for those who work as air conditioning and refrigeration mechanics.

**Special Notes**

1. Entry information:

**Prerequisite**

- Unit 567 - *Apply health and safety routines in an air conditioning and refrigeration workplace* or demonstrated equivalent knowledge and skills.

2. Assessment evidence may be collected from a real workplace or a simulated real workplace or an appropriate simulated realistic environment in which air conditioning and refrigeration operations are carried out.

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

4. Glossary of terms:

- 'ACR' refers to air conditioning and refrigeration systems
- 'specifications' refers to any, or all of the following: manufacturer's specifications and recommendations, workplace specific requirements
- 'circuit' refers to a closed path through which an electric current flows or may flow
- '*electric circuit*' refers to an electric device that provides a path for electric current to flow.

5. Regulations and legislation 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.

6. Performance of all elements in this unit standard must comply with industry standards.
7. This unit standard applies to single-phase and three-phase air conditioning and refrigeration systems.

### **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 website [www.nta.com.na](http://www.nta.com.na).

## **Elements and Performance Criteria**

### **Element 1: Plan and prepare for work.**

#### **Range**

Tools and equipments may include but are not limited to multimeter, drill machine, drill bits, punch, cable knife, glands, trucking, wire strip, pliers and crimping tool.

Materials may include but are not limited to silicone, tray, cloth, insulation tape, connector block, cable ties saddle and lux.

#### **Performance Criteria**

- 1.1 Work instructions, including job cards, specifications and operational details are obtained, confirmed and applied.
- 1.2 Workplace inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements is carried out.
- 1.3 Safety requirements are followed in line with safety plans and policies.
- 1.4 Equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults rectified or reported prior to commencement.
- 1.5 Material requirements are identified and obtained in line with job card and/or specifications.
- 1.6 Materials are safely handled and located ready for use in line with workplace procedures.

- 1.7 Technical and/or calibration requirements for tools and equipment are sourced and implemented in line with workplace procedures.
- 1.8 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

### **Element 2: Plan and draw electric circuit diagram for cold and freezer rooms installations.**

#### **Range**

Electric circuit diagrams may include but is not limited to single circuit and three phase wiring for cold and freezer rooms

Components symbols may include but are not limited to contactors, overload, stop and start button, thermostats, pressure switch and solenoid valves.

#### **Performance Criteria**

- 2.1 Procedures and information required for drawing and interpreting electric circuit diagrams and symbols used in air conditioning and refrigeration systems are identified and sourced in line with workplace procedures.
- 2.2 Components symbols are drawn and interpreted with regard to air conditioning and refrigeration systems.
- 2.3 Electric circuit are drawn in line with manufacturer's specifications and workplace procedures.
- 2.4 Thoroughly explanation of circuit operation is given in line with workplace procedures.

### **Element 3: Wire cold room and freezer rooms.**

#### **Range**

Contactors and circuit breaker sizes are determined according to the type of ACR system.

Lock out procedures are carried out before working on the system.

Hand tools may include but are not limited to pliers, screw drivers, crimping tool and knives.

Equipment may include but is not limited to multimeter.

Materials may include but are not limited to two, three, four, and six core cables, insulation tape, block connectors, lux, glands and cable crimp.

### **Performance Criteria**

- 3.1 Procedures and information required for wiring cold and freezer room are obtained and source in line with workplace procedures.
- 3.2 Contactor and circuit breakers are mounted on trays in the control box.
- 3.3 Wiring is carried out in line with manufacturer's specifications and workplace procedures.
- 3.4 Circuits are verified for operations and run in line with workplace procedures.

### **Element 4: Complete work and clean up.**

#### **Range**

Work completion details may include but are not limited to job card and sign-out form for equipment.

### **Performance Criteria**

- 4.1 Work is completed and appropriate personnel notified in line with workplace procedures.
- 4.2 Work area is cleared of waste, cleaned, restored and secured in line with workplace procedures.
- 4.3 Reusable material is collected and stored in line with workplace procedures.
- 4.4 Equipment used is cleaned, checked, maintained and stored in line with workplace procedures.
- 4.5 Work completion details are finalised in line with workplace procedures.

### **Registration Data**

<b>Subfield:</b>	Mechanical Engineering
<b>Date first registered:</b>	27 May 2010
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<b>Body responsible for review:</b>	Namibia Training Authority