



Australian Government

UEERA0016 Design commercial refrigeration systems and select components

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to design commercial refrigeration systems and select components.

It includes applying processes and methods of refrigeration and food storage technology, refrigeration system components and piping, and safety and regulatory requirements. It also includes following design specifications and customer requirements, documenting system designs and obtaining approval for engineering computer applications design.

The skills and knowledge described in this unit may, in some jurisdictions, require a licence or permit to practice in the workplace subject to regulations for undertaking refrigeration and air conditioning work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

No other licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEERA0034 Establish heat loads for commercial refrigeration and/or air conditioning applications

UEERA0042 Evaluate thermodynamic and fluid parameters of refrigeration systems

UEERA0038 Establish the thermodynamic parameters of refrigeration and air conditioning systems

UEERA0001 Analyse the operation of HVAC air and hydronic systems

UEERA0002 Analyse the psychrometric performance of HVAC/R systems

and

UEERA0003 Analyse the thermodynamic performance of HVAC/R systems

or

UEERA0094 Verify functionality and compliance of refrigeration and air conditioning installations

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

- UEECD0019 Fabricate, assemble and dismantle utilities industry components
- UEECD0020 Fix and secure electrotechnology equipment
- UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications
- UEECD0016 Document and apply measures to control WHS risks associated with electrotechnology work
- UEERA0059 Prepare and connect refrigerant tubing and fittings
- UEERA0036 Establish the basic operating conditions of vapour compression systems
- UEERA0035 Establish the basic operating conditions of air conditioning systems
- UEERA0050 Install refrigerant pipe work, flow controls and accessories
- UEERA0081 Select refrigerant piping, accessories and associated controls
- UEERA0031 Diagnose and rectify faults in air conditioning and refrigeration control systems
- UEERA0092 Solve problems in low voltage refrigeration and air conditioning circuits
- UEERL0005 Locate and rectify faults in low voltage (LV) electrical equipment using set procedures
- UEERL0004 Disconnect - reconnect electrical equipment connected to low voltage (LV) installation wiring
- UEERL0001 Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply
- UEERL0002 Attach cords, cables and plugs to electrical equipment for connection to 1000 V a.c. or 1500 V d.c.

Competency Field

Refrigeration and air-conditioning

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to design commercial refrigeration systems

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 WHS/OHS procedures are identified, obtained and implemented in accordance with workplace procedures

- 1.2 Scope of the refrigeration system is identified from design specifications
 - 1.3 System safety, regulatory and compliance requirements are identified and applied
 - 1.4 Work supervisor and/or customer/s are consulted to determine functions and parameters of the system in accordance with relevant documentation
 - 1.5 Design development work is planned in consultation with relevant person/s involved to meet scheduled timelines
- 2 Design commercial refrigeration systems**
- 2.1 WHS/OHS risk control measures and procedures are followed in accordance with workplace procedures
 - 2.2 Relevant refrigeration, food storage, technology refrigeration system components, piping and performance standards are applied to the system design in accordance with relevant industry standards
 - 2.3 Safety, functionality and budgetary considerations are incorporated in the design specifications
 - 2.4 Equipment required is selected in accordance with design specifications and workplace procedures
 - 2.5 Location of components in the system is documented in accordance with workplace procedures and operation of system functions
 - 2.6 System design draft is checked for compliance in accordance with design brief and relevant industry standards
 - 2.7 System design is documented and submitted to relevant person/s for approval in accordance with workplace procedures
 - 2.8 Unplanned events are dealt with in accordance with problem-solving techniques and workplace procedures
- 3 Obtain approval for commercial refrigeration systems design**
- 3.1 System design is presented to customer and/or relevant person/s in accordance with workplace procedures
 - 3.2 Requests for alterations to the design are negotiated with relevant person/s in accordance with workplace

procedures

- 3.3 Final design is documented and approval obtained from relevant person/s in accordance with workplace procedures
- 3.4 Quality of work is monitored in accordance with workplace procedures and relevant industry standards

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Designing commercial refrigeration systems must include at least the following:

- two different commercial refrigeration systems with one of the following:
 - condenser
 - compressor
 - evaporator
 - associated components and controls

Unit Mapping Information

This unit replaces and is equivalent to UEENEEJ132A Design commercial refrigeration systems and select components.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>