



Australian Government

UEERA0030 Develop specifications and prepare drawings for HVAC/R projects

Release: 1

UEERA0030 Develop specifications and prepare drawings for HVAC/R projects

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 develop specifications and prepare drawings for heating, ventilation and air conditioning/refrigeration (HVAC/R) system projects.

It includes working safely, following a design brief for HVAC/R systems, selecting system components, operating within established project budget, and developing project specifications and design drawings.

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

Pre-requisite Unit

UEERA0061 Produce HVAC/R system design drawings

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.

PERFORMANCE CRITERIA

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

1 Prepare to develop HVAC/R specifications and prepare drawings

- 1.1 Work health and safety (WHS)/occupational health and safety (OHS) processes and workplace procedures for a given work area are identified and applied
- 1.2 Extent of the project scope is determined from design brief and/or relevant documentation and from discussions with appropriate person/s
- 1.3 Appropriate person/s is consulted to ensure the work is coordinated effectively with others involved in the work
- 1.4 Information technology and software tools and equipment needed for the HVAC/R work are obtained in accordance with workplace procedures

2 Develop HVAC/R specifications and

- 2.1 Sources of components and materials needed for the HVAC/R project are determined and selected for their

prepare drawings		availability, suitability for purpose and cost in accordance with workplace policies and procedures
	2.2	HVAC/R specifications are developed to include necessary performance requirements for components and system
	2.3	Risk management strategies for the HVAC/R project are sought and obtained for incorporating in the specification
	2.4	Appropriate information technology and software tools are used to develop HVAC/R specifications and produce drawings based on standard protocols
	2.5	HVAC/R project specifications and drawings are reviewed against project inputs and adjusted to rectify any anomalies
	2.6	HVAC/R project specifications and drawings are documented in accordance with workplace policies and procedures
	2.7	Solutions to unplanned situation are provided in accordance with workplace policies
	2.8	HVAC/R work quality is monitored against performance agreement and/or organisational or industry standards
3 Obtain approval for HVAC/R specifications and drawings	3.1	HVAC/R project specifications and drawings are presented and discussed with relevant person/s
	3.2	Alterations to the project specifications and drawings resulting from the presentation/discussion are negotiated with relevant person/s in accordance with organisation policies
	3.3	Final HVAC/R project specifications and drawings are documented and approval obtained from appropriate person/s

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.

Developing HVAC/R specifications and preparing drawings must include at least the following:

- two different HVAC/R projects

Unit Mapping Information

This unit replaces and is equivalent to UEENEEJ139A Develop specifications and prepare drawings for HVAC/Refrigeration projects.

Links

Companion Volume implementation guides are found in VETNet - -

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

Assessment Requirements for UEERA0030 Develop specifications and prepare drawings for HVAC/R projects

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- determining the project requirements accurately
- establishing source and availability of components appropriately, including the performance requirements of components and the system and risk management strategies in the specifications
- negotiating alterations to the project specifications and drawings successfully
- documenting project specifications and drawings in accordance with organisation policies and procedures
- obtaining approval for the completed project specifications and drawings
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements workplace procedures and practices, including using risk control measures
- applying sustainable energy principles and practices
- developing specifications and preparing drawings for heating, ventilation and air conditioning/refrigeration (HVAC/R) system projects, including:
- using appropriate information technology in accordance with workplace procedures.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- specification development - specification writing; safe working practices and relevant standards, codes and regulations, including:
 - purpose and nature of specification
 - performance based specifications
 - prescriptive specifications
 - acceptable evidence of compliance
 - additional service required with the supply of equipment

- dealing with suppliers and manufacturer's
- documenting specification
- computer-aided drafting (CAD):
 - specific procedures:
 - creating symbols for library files
 - program specific commands
 - speed enhancement
 - configuring the digitising tablet
 - methodology for creating layers:
 - name
 - colour
 - line type
 - methodology for drawing variables:
 - limits
 - grid
 - snap
 - dimensions
 - text
 - units
 - ISO drawing sheets
 - advanced drawings
 - multiple three-dimensional views:
 - setting up environment on screen
 - top view
 - front and side views
 - three-dimensional views
 - movement through space:
 - draw on any created views
 - relocate coordinate system as necessary
 - creation of views:
 - creation of three-dimensional geometric shapes
 - creation of three-dimensional complex view by:
 - manipulation of drawing planes
 - location of geometric shapes
 - editing:
 - use of function to facilitate modification of geometric shapes in completion of a three-dimensional view
 - display of three-dimensional view:
 - wire line
 - solid face

- isometric
- perspective
- orthographic:
- saving:
 - use of assembly drawing file for plotting
- design brief requirements
- information technology
- relevant manufacturer specifications
- relevant safe work method statements (SWMS)/job safety assessments or risk mitigation processes
- relevant WHS/OHS legislated requirements
- relevant workplace policies and procedures.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and information technology currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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