



Australian Government

Assessment Requirements for UEEEL0008 Evaluate and modify low voltage heating equipment and controls

Release: 2

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Modification History

Release 2. This is the second release of this unit of competency in the UEE Electrotechnology Training Package.

Performance criteria numbering error corrected in element 3.

Workplace evidence requirements updated in Performance Evidence and Assessment Conditions.

Assessor requirements updated in Assessment Conditions.

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

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 two separate occasions and include:

- # applying work health and safety (WHS)/occupational health and safety (OHS) workplace procedures, including identifying hazards, assessing risks and implementing control measures
- # checking circuits are isolated in accordance with workplace procedures and regulatory requirements
- determining the operating parameters of existing heating circuits and equipment
- testing the function of a thermostat
- calculating the heat energy in a simple heating process
- testing the operation of an over temperature cut-out of the safety thermostat
- altering existing heating circuits and equipment to comply with specified operating parameters
- selecting heating circuits and equipment to comply with a specified function and operating parameters
- determining the cause of low efficiency in existing heating circuit and equipment
- determining conditions causing an existing heating circuits and equipment to be unsafe
- # connecting heating equipment and appliances
- identifying faulty components in heating appliances and controls from test results
- testing heating appliances and controls for serviceability
- ensuring all work complies with relevant Australian Standards and legislation
- completing work and documenting activities
- dealing with unplanned events/situations.

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:

- electrical heating control devices, including:
 - methods of manual heat control
 - methods of automatic heat control
 - types and application for common thermostats
 - operation of common thermostats, thermal cut-outs and pressure relief valves, flow switches and checking sacrificial anodes
 - sensitivity and differential of thermostats
 - techniques for testing a thermostat, including differential and correct operation
 - applications and operation of simmerstats
 - electronic heat control
- fixed electrical heating appliances, including:
 - terminology: heat energy, temperature, specific heat capacity, thermal conductivity and thermal stability
 - methods to test the heat energy in a simple heating process
 - methods of heat transfer
 - connections to a two phase stove
 - operation of reverse cycle air conditioning
- electrical water heater operation, including:
 - types of water heaters (instantaneous and storage) and their methods of control
 - intrinsic safety (pressure relief and thermal cut-out)
 - techniques for testing of over temperature cut-out of a thermostat
 - switchboard requirements to supply a controlled load water heater
 - internal circuit of a twin element water heater and supply connections
 - solar heating system and its integration into an electrical installation
 - heat pump
- faults in heating equipment and controls, including:
 - circuit diagrams of common heating equipment and controls
 - single phase and three phase element resistance values
 - techniques for testing single and three phase elements for correct insulation resistance and continuity
 - equipment replacement techniques
 - techniques for identifying and locating faulty components in heating equipment/controls
 - common types of faults
 - techniques for repairing/replacing faulty heating equipment components
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications

- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- relevant industry standards.

Assessment Conditions

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

Assessors must also hold the occupational licence for the jurisdiction the assessment is occurring where the activity being assessed requires a licence to practice.

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 suitable workplace operational situations where it is appropriate to do so, where this is not appropriate, assessment must occur in suitable 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, facilities, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals.

In addition, evidence of Performance Evidence items of this unit marked with a hash (#) must be gathered in authentic workplace operational conditions (not simulated) before final determination of competence in this unit can be made.

Links

Companion Volume Implementation Guides are found in VETNet -

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