



**Australian Government**

**Assessment Requirements for MEM10024  
Install and troubleshoot luminaires and  
ancillary equipment**

**Release: 3**

# Assessment Requirements for MEM10024 Install and troubleshoot luminaires and ancillary equipment

## Modification History

### Release 3. Prerequisite units updated

Release 2. Minor adjustments to reflect ERAC requirements for electrician licensing and revision of Essential Performance Capabilities

Release 1. New unit

## Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting circuits, drawings, specifications and plans relevant to the work to be undertaken
- determining the electrical and non-electrical isolation requirements to prevent the creation of hazards linked from the loss of machine/system/process control according to established procedures
- using lock out tag procedures with appropriate tags/signs
- proving electrical isolation and following established safety rules prior to working on electrical equipment or wiring
- ensuring all electrical equipment and tools are tested and tagged and up to date
- installing accessories ensuring that they are straight and square in the required location
- using safe working practices and take additional care when working with lights that operate at high voltage or contain capacitors
- terminating two (2) or more of the following lighting circuits:
  - single light controlled by a single switch
  - multiple lights controlled by a single switch
  - two and three-way switching using:
    - loop at the light method
    - loop at the switch method
- complying with the Australian/New Zealand Wiring Rules requirements for the installation and termination of lighting equipment and accessories, including related hazards and safety requirements including maintaining fire integrity
- measuring and recording illumination for comparison against lighting standard AS/NZS 1680.1:2006 Interior and workplace lighting – General principles and recommendations, using a suitable light meter
- locating and repairing faults in luminaires and ancillary equipment

- troubleshooting and repairing faults in common lighting circuits
- replacing lamps with 'like for like'
- performing periodic servicing of emergency lighting and smoke detector systems and recording intervals of servicing, including remedial action taken
- disposing of discharge lamps according to environmental guidelines and established procedures
- documenting installation and troubleshooting, including remedial action taken in accordance with SOPs.

## Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- lighting applications, including:
  - basic principles, terminology and units in describing process and concepts of illumination
  - the major design requirements of luminaires regarding reflection or diffusion of light and direct the light onto the working place
  - functional category types of luminaires:
    - direct with 90-100% downward light component
    - indirect with 90-100% upward light component
    - general diffusing with approximately equal upward and downward components
    - semi direct with 10-40% upward and 60-90% downward
    - semi direct with 60-90% upward and 10-40% downward
  - maintenance of luminaires, including lamp replacement and cleaning
  - common faults in luminaires
  - disposal of discharge lamps in accordance with environmental guidelines and established procedures
  - elementary lighting design, including:
    - requirements to clearly show up the task or work area
    - recommended maintenance luminance
    - the advantages of the use of reflectors and diffusers
    - determining illuminance on a working plane using the 'point by point' method and lumen method
    - the use of a lux meter to determine lighting and illumination requirements
  - emergency evacuation lighting in buildings, including:
    - escape and standby lighting
    - installation requirements of emergency lighting luminaires
    - installation of smoke detection in domestic and residential premises
    - inspection and maintenance of emergency lighting and smoke detectors
    - recording requirements

- light sources, including:
  - lamp type and their characteristics
  - the operating principles of various types of lamps and luminaires and the purpose of their auxiliary control equipment
  - energy efficiency
  - the cause of low power factor and the measures used to improve power factor in discharge lighting
  - Australian/New Zealand Wiring Rules requirements for the installation of lighting equipment and accessories, including related hazards and safety requirements
  - application of various types of lamps and luminaires
  - ‘stroboscopic effect’ and the methods used to overcome, including:
    - ‘non-stroboscopic’ circuit (inclusion of a capacitor in one fluorescent lamp circuit to provide phase shift in relation to the other lamp circuit)
    - connecting adjacent lamps to different phases in large installations
    - electronic lamp circuits operating at high frequencies
- lighting circuits, including:
  - single light controlled by a single switch
  - multiple lights controlled by a single switch
  - two and three-way switching using the loop at the light method and the loop at the switch method
- lighting control, including:
  - manual control involving the use of two-way and intermediate switches
  - time switches both analogue and digital for programmed control
  - time delay switches that are adjustable and may be air-valve or electronic type
  - photo-sensitive electronic control used to control outdoor and street lighting
  - passive infrared (PIR) technology used in scanning devices to detect movement of a hot or cold body and automatically switch on security or convenience lighting
  - various types light dimmers, including electronic
  - lighting management systems, e.g. C-Bus.

## Assessment Conditions

- Assessors must:
  - have vocational competency in installing and troubleshooting luminaires and ancillary equipment at least to the level being assessed with relevant industry knowledge and experience
  - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* and comply with the *National Vocational Education and Training Regulator Act 2011* or equivalent legislation covering VET regulation in a non-referring State as the case requires.

- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications.
- 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.

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>