Australian Government

Department of Education, Employment and Workplace Relations

CPCCSI3011A Use LED technology for signage

Release: 1

CPCCSI3011A Use LED technology for signage

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to use light emitting diode (LED) technology for signage.

No licensing (less than 240 volts), legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit

This unit of competency supports the achievement of skills and knowledge to use LED technology and equipment, and includes working with others and as a member of a team.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units

CPCCOHS2001A	Apply OHS requirements, policies and procedures in the construction industry

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare work.	1.1. ***Quality assurance requirements*** of signage operations are recognised and adhered to.
	1.2. ***Safety*** (***OHS***) requirements in accordance with application tasks and workplace operations are recognised and adhered to.
	1.3. ***Job requirements*** are identified from drawings and specifications/instructions and/or ***client*** brief.
	1.4. Product range assessed and selected in accordance with job requirements and ***relevant Australian standards***.
	1.5. ***Tools and equipment*** and materials are selected to carry out tasks consistent with job requirements.
	1.6. Routine maintenance requirements of equipment are identified and implemented in accordance with workplace and quality assurance procedures.
	1.7. Temporary or permanent application of materials is determined from job requirements.
	1.8. Potential material shrinkage is determined to ensure quality of completed work.
2. Use LED technology.	2.1. LED systems appropriate to specified job are identified and evaluated for use.
	2.2. LED system packages available for the work are identified, evaluated and appropriate choices are made.
	2.3. LED semi-conductor chip technology and characteristics are evaluated for the specified application.
	2.4. LED colour systems are identified and applied in the appropriate environments.
	2.5. Expected lifetime of different LED systems is evaluated and communicated to clients.
	2.6. Electrical current feed to the LED system is regulated according to manufacturer specifications.
	2.7. Heat emanating from LED signage systems is calculated and managed according to manufacturer specifications.
3. Clean up finished sign.	3.1. Sign and surrounding surface environment/area is cleaned and waste materials removed in accordance with ***statutory and regulatory authority requirements***.
	3.2. Tools and equipment, including personal protective

ELEMENT	PERFORMANCE CRITERIA
	equipment, are cleaned, maintained and stored.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills for this unit are:

- ability to calculate heat from LED systems and apply appropriate managing techniques
- ability to evaluate and use a variety of LED systems for correct signage applications
- ability to recognise procedures, respond to change and contribute to workplace responsibilities, such as current work site environmental and sustainability frameworks or management systems
- communication skills to:
  - determine requirements
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - follow instructions
  - read and interpret:
    - charts and hand drawings
    - job drawings
    - manufacturer specifications and instructions
    - organisational work specifications
    - requirements and instructions issued by authorised organisational or external personnel
  - report faults
  - use and interpret non-verbal communication
  - use language and concepts appropriate to cultural differences
- innovation skills to select appropriate tools and equipment, respond to workplace challenges and put ideas into action
- organisational skills, including the ability to plan and set out work
- problem solving skills to recognise, and take action to rectify, minor faults and problems
- teamwork skills to be able to coordinate with others, action tasks and relate to people from a range of social, cultural, ethnic backgrounds and with varying

REQUIRED SKILLS AND KNOWLEDGE

physical and mental abilities.

Required knowledge

Required knowledge for this unit is:

- job safety analysis (JSA) and safe work method statements
- LED colour types and limitations
- LED components
- LED lifetime characteristics
- LED semi-conductor chip technology characteristics
- LED systems and system packages
- management of heat in LED signage
- material safety data sheets (MSDS)
- regulation of electrical current in LED systems
- relevant Australian and New Zealand standards, and:
  - manufacturer specifications
  - OHS requirements
  - other applicable codes or standard operating procedures relevant to the sector
- statutory and regulatory authority requirements, particularly those relating to:
  - removal of waste products
  - storage of chemicals and materials
- terminology and definitions used in signage.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of:

- understanding of and techniques for evaluating and using:
  - LED systems and packages
  - LED components
  - regulation of electrical current in LED systems
- management of heat in LED signage.

Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the mandatory task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to using LED technology for illuminated signage
- support materials appropriate to activity
- workplace instructions relating to using LED technology for illuminated signage
- material safety data sheets
- research resources, including industry-related systems information.

EVIDENCE GUIDE

	Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.
Method of assessment	Assessment methods must: • satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package • include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application • reinforce the integration of employability skills with workplace tasks and job roles • confirm that competency is verified and able to be transferred to other circumstances and environments. Validity and sufficiency of evidence requires that: • competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace • where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge • all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence. Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

EVIDENCE GUIDE

	Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Quality assurance requirements include:	• attention to work specifications • Australian and international standards relevant to the sign industry • control of handling procedures • internal company quality assurance policy and risk management strategies • procedures for installing and finishing • quality of materials • use and maintenance of equipment • workplace operations and procedures.

Safety (***OHS***) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:	• emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
	• hazard control
	• hazardous materials and substances
	• organisational first aid
	• PPE prescribed under legislation, regulations and workplace policies and practices
	• safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
	  • concealed services (water, power and gas)
	  • lighting
	  • restricted access barriers

RANGE STATEMENT

	• traffic control • work site visitors and the public • working at heights • working in confined spaces • working in proximity to others • use of firefighting equipment • use of machines • use of tools and equipment • workplace environmental requirements and safety.
Job requirements include:	• assessment of conditions and hazards • determination of work requirements • equipment defect identification • safety plans and policies • work site inspection.
Clients include:	• business owners • printers • property owners • sign manufacturers • statutory bodies.
Relevant Australian standards include:	• regulatory requirements • standard drawings and details • urban design manuals.
Tools and equipment include:	• circuit testing equipment • electrical connection tools • hand and power tools.
Statutory and regulatory authority requirements include:	• federal, state and local authorities administering applicable Acts, regulations and codes of practice and also can pertain to: • removal of waste products • storage of chemicals.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area