Australian Government

Department of Education, Employment and Workplace Relations

CPCPWT4013A Commission and maintain heated water temperature control devices

Release: 1

CPCPWT4013A Commission and maintain heated water temperature control devices

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency specifies the outcomes required to test, commission and maintain heated water temperature control devices, including thermostatic mixing valves in water services. It covers preparation for work, identification of testing and commissioning requirements, physical testing and commissioning of devices, maintenance of devices and completion of work finalisation processes.

Application of the Unit

Application of the unit	Site location for work application will be residential or commercial, and may be a new work site or an existing structure being renovated, extended, restored or maintained.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units	Nil

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. Prepare for work.	1.1. Drawings and specifications are obtained. 1.2. ***Safety*** (***OHS***) requirements associated with testing, commissioning and maintaining heated water temperature control devices, and workplace ***environmental requirements***, are adhered to throughout the work. 1.3. ***Quality assurance*** requirements are identified and adhered to in accordance with workplace requirements. 1.4. Tasks are planned and sequenced in conjunction with others involved in or affected by the work and ***statutory and regulatory authority*** requirements. 1.5. ***Tools and equipment***, including personal protective equipment, are selected and checked for serviceability. 1.6. Work area is prepared to support efficient commissioning of heated water temperature control devices.
2. Identify testing and commissioning requirements.	2.1. Service and system testing and commissioning requirements are identified from job specifications and in accordance with standards, using relevant ***information***. 2.2. Hot water temperature control device specifications and necessary ***materials*** are identified in accordance with standards, authorities' requirements and job specifications.
3. Test and commission device.	3.1. Service and system are checked to ensure device is appropriate and installed in accordance with standards, job specifications, manufacturer recommendations and authorities' requirements. 3.2. Operation of device is tested for correct flow rate, operation and compliance with specifications, manufacturer recommendations and authorities' requirements, and adjusted as required. 3.3. Documentation is completed in accordance with regulating authorities' requirements.
4. Maintain device.	4.1. Maintenance requirements are identified from manufacturer specifications or authorities' requirements. 4.2. Replacement components are checked and fitted periodically and as required in accordance with specification. 4.3. Maintenance of valves is conducted observing

ELEMENT	PERFORMANCE CRITERIA
	manufacturer and authorities' requirements.

ELEMENT	PERFORMANCE CRITERIA
5. Restore work area.	5.1. Work area is cleared and materials disposed of or recycled in accordance with state and territory legislation and workplace procedures. 5.2. Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and workplace procedures. 5.3. Documentation is completed in accordance with workplace requirements.

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:

- communication skills to:
  - access information
  - complete workplace documentation
  - determine requirements
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - follow instructions
  - plan and sequence tasks with others
  - read and interpret:
    - documentation from a variety of sources
    - drawings and specifications
  - report faults
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication, such as hand signals
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- numeracy skills to apply measurements and calculations
- organisational skills, including the ability to plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities

REQUIRED SKILLS AND KNOWLEDGE

- testing, commissioning and maintaining heated water temperature control devices, including thermostatic mixing valves, in heated water systems and appliances requiring temperature control
- technological skills to:
  - access and understand site-specific instructions in a variety of media
  - use mobile communication technology.

Required knowledge

Required knowledge for this unit is:

- accessing information and the processes for calculating material requirements
- bacteria in water and its effect on health
- basic hydraulics and mechanics relevant to water temperature control devices and their installation
- characteristics and applications of different types of heated water temperature control valves and devices
- characteristics of materials
- effective isolation procedures
- job safety analysis (JSA) and safe work method statements (SWMS)
- process of commissioning heated water temperature control devices
- properties of water, including pressure and flow rates
- relevant statutory and authority requirements related to commissioning heated water temperature control devices
- SI system of measurements
- standards applicable to the service
- testing techniques
- workplace and equipment safety requirements.

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 providing that simulated or project-based assessment techniques fully replicate plumbing and services 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:

- locating, interpreting and applying relevant information, standards and specifications to commission heated water temperature devices
- applying safety requirements throughout the work sequence, including the use of personal protective clothing and equipment
- as a minimum, the ability to test, commission and maintain three different types of thermostatic mixing valve, ensuring:
  - correct identification of location, design and details of proposed service
  - correct selection of valve for given application
  - completion of all work to specification
  - compliance with regulations, standards and organisational quality procedures and processes
  - communicating and working effectively and safely with others.

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 minimum task requirements

EVIDENCE GUIDE

- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe working practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

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,

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	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. 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.

Safety (***OHS***) is to be in accordance with commonwealth, state and territory legislation and regulations and may include:	• handling of materials
	• hazard control
	• personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
	• safe operating procedures, including recognising and preventing hazards associated with:
	  • hazardous materials and substances
	  • service lines
	  • surrounding structures and facilities
	  • trip hazards
	  • use of tools and equipment
	  • work site visitors and the public
	  • working in proximity to others
	• use of firefighting equipment
	• use of first aid equipment
	• workplace environment and safety.

Environmental requirements cover water quality management	• clean-up protection • waste management.

RANGE STATEMENT

and may include:

Quality assurance requirements may include:	• Environment Protection Authority (EPA) • internal company quality assurance policy and risk management strategy • International Standards Organisation • site safety plan • workplace operations and procedures.
Statutory and regulatory authorities include:	• state or territory statutory authority • statutory plumbing authority.
Tools and equipment may include:	• hand and power tools • test equipment.

Information may include:	• charts and hand drawings
	• diagrams or sketches
	• instructions issued by authorised organisational or external personnel
	• manufacturer specifications and instructions
	• material safety data sheets (MSDS)
	• memos
	• organisation work specifications and requirements
	• regulatory and legislative requirements, particularly those pertaining to:
	  • building codes
	  • OHS and environmental requirements
	  • plumbing regulations
	• relevant Australian standards, including AS/NZS3500 National plumbing and drainage set: Part 1.2 Water supply - Acceptable solutions
	• safe work procedures relating to commissioning heated water temperature control devices
	• signage
	• verbal, written and graphical instructions
	• work bulletins
	• work schedules, plans and specifications.

Materials include:	• heated water temperature control devices, including thermostatic mixing valves.

Unit Sector(s)

Unit sector Plumbing and services

Co-requisite units

Co-requisite units Nil

Functional area

Functional area