



Australian Government

Department of Education, Employment and Workplace Relations

CPCPWT4012A Commission and maintain backflow prevention devices

Release: 1

CPCPWT4012A Commission and maintain backflow prevention devices

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to test, commission and maintain backflow prevention devices 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 either 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.	<p>1.1. Drawings and specifications are obtained.</p> <p>1.2. Safety (OHS) requirements associated with testing, commissioning and maintaining backflow prevention devices, and workplace environmental requirements, are adhered to throughout the work.</p> <p>1.3. Quality assurance requirements are identified and adhered to in accordance with workplace requirements.</p> <p>1.4. Tasks are planned and sequenced in conjunction with others involved in or affected by the work and statutory and regulatory authority requirements.</p> <p>1.5. Tools and equipment for testing, commissioning and maintaining backflow prevention devices, including personal protective equipment, are selected and checked for serviceability.</p> <p>1.6. Work area is prepared to support efficient testing, commissioning and maintenance of backflow prevention devices.</p>
2. Identify testing and commissioning requirements.	<p>2.1. Service and system design, and testing and commissioning requirements, are identified and confirmed from job specifications and in accordance with standards and relevant information.</p> <p>2.2. Backflow prevention device specifications and necessary installation materials are identified in accordance with standards, authorities' requirements and job specifications.</p>
3. Test and commission device.	<p>3.1. Installation is checked to ensure device is appropriate and installed in accordance with standards, job specifications, manufacturer recommendations and authorities' requirements.</p> <p>3.2. Operation of device is tested in accordance with job specifications, manufacturer recommendations and authorities' requirements, and adjusted as required.</p> <p>3.3. Documentation is completed in accordance with regulating authorities' requirements.</p>
4. Maintain device.	<p>4.1. Service and maintenance requirements are identified from manufacturer specifications or authorities' requirements.</p> <p>4.2. Replacement components are checked and fitted periodically and as required in accordance with specification.</p>

ELEMENT	PERFORMANCE CRITERIA
5. Restore work area.	<p>4.3. Maintenance and repair of devices are conducted observing manufacturer and authorities' requirements.</p> <p>5.1. Work area is cleared and materials disposed of or recycled in accordance with state and territory legislation and workplace procedures.</p> <p>5.2. Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and workplace procedures.</p> <p>5.3. Documentation is completed in accordance with workplace requirements.</p>

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

REQUIRED SKILLS AND KNOWLEDGE

- 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
- testing, commissioning and maintaining high, medium and low hazard backflow prevention devices in water services.
- 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
- basic hydraulics and mechanics relevant to backflow prevention devices in water services
- characteristics and applications of the materials and backflow prevention devices
- effective isolation procedures
- job safety analysis (JSA) and safe work method statements (SWMS)
- process of testing, commissioning and maintaining backflow prevention devices
- properties of water, including pressure and flow rates
- relationship with other service controls and devices
- relevant statutory and authority requirements related to testing and commissioning backflow prevention devices
- SI system of measurements
- standards applicable to the service
- testing equipment and 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 the commissioning of backflow prevention devices
- applying safety requirements throughout the work sequence, including the use of personal protective clothing and equipment
- as a minimum, the ability to test and commission at least two different double check valves, two different pressure type vacuum breakers and two different reduced pressure zone devices, indicating the ongoing maintenance requirements for each of them, ensuring:
 - correct identification of location, design and details of proposed service
 - correct selection and use of appropriate processes, tools and equipment
 - 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

EVIDENCE GUIDE

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
- 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

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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.

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

RANGE STATEMENT

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.
- clean-up protection
- stormwater protection
- waste management.

Environmental requirements cover water quality management 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.
- state or territory statutory authority
- statutory plumbing authority.

Statutory and regulatory authorities include:

Tools and equipment may include:

- hand and power tools
- test equipment.

Backflow prevention devices include:

- check valves
- pressure type vacuum breakers
- reduced pressure zone devices
- registered air gaps (RAG)
- registered break tanks (RBT).

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,

RANGE STATEMENT

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 backflow prevention devices
- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.
- approved backflow prevention devices.

Materials include:

Unit Sector(s)

Unit sector Plumbing and services

Co-requisite units

Co-requisite units Nil

Functional area

Functional area