



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **CPCPDR3012A Install below ground sanitary drainage systems**

**Release: 1**

## **CPCPDR3012A Install below ground sanitary drainage systems**

### **Modification History**

Not Applicable

### **Unit Descriptor**

**Unit descriptor** This unit of competency specifies the outcomes required to install below ground sanitary drainage systems for sewage and waste discharge from sanitary fixtures to an authorities' approved point of discharge or on-site disposal system.

### **Application of the Unit**

**Application of the unit** Site location for work application may be either domestic 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**

|             |                            |
|-------------|----------------------------|
| CPCPCM2023A | Carry out OHS requirements |
|-------------|----------------------------|

## Employability Skills Information

**Employability skills**      This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

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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. Plans and specifications are obtained.</p> <p>1.2. <b>Safety (OHS)</b> requirements associated with installing sanitary drainage systems and workplace <b>environmental requirements</b> are adhered to throughout the work.</p> <p>1.3. <b>Quality assurance</b> 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.</p> <p>1.5. <b>Tools and equipment</b>, including personal protective equipment, are selected and checked for serviceability.</p> <p>1.6. Work area is prepared to support efficient installation of sanitary drainage systems.</p>                                                                                                                                                        |
| 2. Identify installation requirements. | <p>2.1. Quantity and type of <b>materials</b> required are calculated from existing installations, plans, specifications and site inspections.</p> <p>2.2. Allowances for fabrication and assembly are correctly determined and transferred.</p> <p>2.3. Materials and equipment are identified, ordered and collected in accordance with workplace procedures.</p> <p>2.4. Materials and equipment are checked for compliance with standards, docket and order form, and for acceptable condition.</p>                                                                                                                                                                                                                                                                                                                                                                |
| 3. Install sanitary drainage systems.  | <p>3.1. Pipework is set out in accordance with drawings and specifications, site requirements or job instructions, with consideration to the location of existing services, including <b>sewage authority utility points</b>.</p> <p>3.2. Pipework is installed in accordance with plans, specifications, standards and workplace procedures and without damage to surrounding environment, existing pipework or other services.</p> <p>3.3. Connections for alterations, additions, relining or repair to existing systems are made in accordance with standards and manufacturer specifications.</p> <p>3.4. Installation is checked for compliance with design drawings, specifications, site requirements, standards and authorities' requirements.</p> <p>3.5. Installation is <b>tested</b> to comply with standards and relevant authorities' requirements.</p> |

| ELEMENT      | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Clean up. | <p>4.1. Installation is backfilled in accordance with standards and work area is cleared, with materials disposed of or recycled in accordance with state or territory <b>statutory and regulatory authority</b> legislation.</p> <p>4.2. Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and workplace procedures.</p> <p>4.3. <b>Information</b> is accessed and documentation completed in accordance with regulatory authorities and 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:
    - drawings and specifications
    - documentation from a variety of sources
  - 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
- installing and testing below ground sanitary drains
- transferring sewage from sanitary fixtures to a sewage authority's point

## **REQUIRED SKILLS AND KNOWLEDGE**

- making alterations to existing sanitary drainage
- 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
- 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:

- characteristics and application of different pipe fittings and fixture supports, including fixing and joining techniques
- excavation processes and procedures
- hazardous materials
- job safety analysis (JSA) and safe work method statements (SWMS)
- levelling and alignment processes
- materials relevant to sanitary drainage
- principles of drainage design
- process of installing and testing sanitary drains
- relevant statutory and authority requirements related to the installation and fitting off of sanitary fixtures
- SI system of measurements
- sources of information and processes for calculating material requirements
- standards applicable to the installation
- water and air test systems and procedures
- workplace and equipment safety requirements.

# Evidence Guide

## EVIDENCE GUIDE

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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 install and test sanitary drainage systems
- applying safety requirements throughout the work sequence, including the use of personal protective clothing and equipment
- as a minimum the ability to, given the plans and specifications, install and test a below ground sanitary drain to connect a bathroom, WC, kitchen, laundry and soil or waste stack (to a minimum of 30 fixture units), where the drain is to be at least 10 metres long and terminate at ground level
- cutting in a branch to connect a new water closet and fixture, ensuring:
  - correct identification of location, design and details of the proposed installation
  - correct selection and use of appropriate processes, tools and equipment
  - completing 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

## EVIDENCE GUIDE

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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
- 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:

## EVIDENCE GUIDE

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- 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.

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

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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
- hazardous materials and substances
- personal protective clothing and equipment

## RANGE STATEMENT

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prescribed under legislation, regulations and workplace policies and practices

- safe operating procedures, including recognising and preventing hazards associated with:
  - dirt mounds
  - other machines
  - recently filled trenches
  - services
  - shoring requirements
  - surrounding structure and facilities
  - traffic control
  - trees and roots
  - trip hazards
  - uneven and unstable terrain
  - work site visitors and the public
  - working in confined spaces
  - working in proximity to others
- use of firefighting equipment
- use of first aid equipment
- use of tools and 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.

***Tools and equipment*** may include:

- bending equipment
- chain blocks
- compression cutters
- dropsaws
- forklifts
- grinders
- hacksaws
- hand and power tools

## RANGE STATEMENT

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|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      | <ul style="list-style-type: none"> <li>• hand excavation tools</li> <li>• hand trolleys</li> <li>• heating equipment</li> <li>• hoists and jacks</li> <li>• levelling equipment and threading</li> <li>• lifting and load shifting equipment</li> <li>• measuring equipment</li> <li>• mechanical excavation equipment</li> <li>• pipe relining equipment</li> <li>• rollers</li> <li>• trench shoring equipment.</li> </ul>                                                                                                                                                                                                                                                                                                                                   |
| <b>Materials</b> may include:                        | <ul style="list-style-type: none"> <li>• fixtures, which may include all approved residential fixtures as identified in AS/NZS3500 National plumbing and drainage set</li> <li>• polymer pipes and fittings</li> <li>• other approved materials.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Sewage authority utility points</b> may include:  | <ul style="list-style-type: none"> <li>• boundary traps</li> <li>• jump-ups.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Testing</b> may include:                          | <ul style="list-style-type: none"> <li>• air, water or vacuum testing.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Statutory and regulatory authorities</b> include: | <ul style="list-style-type: none"> <li>• state or territory statutory authority</li> <li>• statutory plumbing authority.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Information</b> may include:                      | <ul style="list-style-type: none"> <li>• charts and hand drawings</li> <li>• diagrams or sketches</li> <li>• instructions issued by authorised organisational or external personnel</li> <li>• job drawings</li> <li>• manufacturer specifications and instructions</li> <li>• material safety data sheets (MSDS)</li> <li>• memos</li> <li>• organisation work specifications and requirements</li> <li>• regulatory and legislative requirements, particularly those pertaining to:             <ul style="list-style-type: none"> <li>• building codes</li> <li>• OHS and environmental requirements</li> <li>• plumbing regulations</li> </ul> </li> <li>• relevant Australian standards</li> <li>• safe work procedures relating to installing</li> </ul> |

**RANGE STATEMENT**

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sanitary drainage systems

- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

**Unit Sector(s)**

**Unit sector** Plumbing and services

**Co-requisite units**

**Co-requisite units** Nil

**Functional area**

**Functional area**