



Australian Government

CPCPDR3022A Install below ground sanitary drainage systems

Release 1

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Modification History

Prerequisite unit updated

Changes to descriptor, performance criteria, required skills and knowledge, range statement and critical aspects

Not equivalent to CPCPDR3012A

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 the authorities' approved point of connection.

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

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

Pre-Requisites

CPCPCM2043A Carry out WHS requirements

Employability Skills Information

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

- | | | |
|---|-------------------------------------|---|
| 1 | Prepare for work. | <p>1.1 Plans and specifications are obtained.</p> <p>1.2 <i>Work health and safety</i> (WHS) and <i>environmental requirements</i> associated with installing sanitary drainage systems are adhered to throughout the work.</p> <p>1.3 <i>Quality assurance requirements</i> are identified and adhered to according to 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 <i>Tools and equipment</i>, including personal protective equipment, are selected and checked for serviceability.</p> <p>1.6 Location of underground services is identified.</p> <p>1.7 Work area is prepared to support efficient installation of sanitary drainage systems.</p> |
| 2 | Identify installation requirements. | <p>2.1 Quantity and type of <i>materials</i> 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 according to workplace procedures.</p> <p>2.4 Materials and equipment are checked for compliance with standards, docket and order form, and for acceptable condition.</p> |

- 2.5 ***Sustainability principles and concepts*** are applied throughout the installation process.
- 3 Install sanitary drainage systems.
- 3.1 Pipework is set out according to plans and specifications, site requirements or job instructions, with consideration given to the location of existing services and the ***authority's approved point of connection***.
- 3.2 Pipework is installed according to plans, specifications, standards and workplace procedures and without damage to surrounding environment, existing pipework or other services.
- 3.3 Connections for alterations, additions or repairs to existing systems are made according to standards and manufacturer specifications.
- 3.4 Installation is checked for compliance with design drawings, specifications, site requirements, standards and authorities' requirements.
- 3.5 Installation is ***tested*** to comply with standards and relevant authorities' requirements.
- 4 Clean up.
- 4.1 Installation is backfilled according to standards, and work area is cleared and materials disposed of, reused or recycled according to legislation, regulation, codes of practice and job specification.
- 4.2 Tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations and workplace procedures.
- 4.3 ***Information*** is accessed and documentation completed according to regulatory authorities and workplace requirements.

Required Skills and Knowledge

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

Required skills

- communication skills to:
 - access information
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- initiative and enterprise skills to identify and report to appropriate personnel any faults in tools, equipment or materials
- literacy skills to:
 - complete workplace documentation
 - read and interpret:
 - plans and specifications
 - documentation from a variety of sources
- numeracy skills to apply measurements and calculations
- planning and organising skills to:
 - plan and sequence tasks with others
 - 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
- technical skills to:
 - install and test below ground sanitary drains
 - transfer sewage from sanitary fixtures to a sewage authority's point
 - make alterations to existing sanitary drainage
- technology skills to:
 - access and understand site-specific instructions in a variety of media
 - use mobile communication technology

Required knowledge

- 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 installing and fitting off 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

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 electrical safety requirements and the use of personal protective clothing and equipment
- given the plans and specifications, installing and testing 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:
 - application of sustainability principles and concepts
 - 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 This competency is to be assessed using standard and

for assessment

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
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work 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, 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

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.

Work health and safety is to be according to commonwealth, state and territory legislation and regulations and may include:

- handling of materials
- hazard control
- hazardous materials and substances
- personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including recognising and preventing hazards associated with:
 - identifying and testing for electrical hazards
 - dirt mounds
 - other machines
 - recently filled trenches
 - services
 - surrounding structure and facilities

- traffic control
- trench support
- 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.

Environmental requirements cover water quality management and may include:

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

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
- hand excavation tools
- hand trolleys
- heating equipment
- hoists and jacks
- levelling equipment and threading
- lifting and load shifting equipment
- measuring equipment
- mechanical excavation equipment

- pipe relining equipment
- rollers
- trench shoring equipment.

Materials may include:

- fixtures, which may include all approved residential fixtures as identified in AS/NZS3500 National plumbing and drainage
- polymer pipes and fittings
- other approved materials.

Sustainability principles and concepts:

- cover the current and future social, economic and environmental use of resources
- may include:
 - efficient use of material
 - efficient use of water
 - selecting appropriate components and material to ensure minimal environmental impact
 - consideration given to relocation of excess soil.

Authority's approved point of connection may include:

- boundary traps
- non-boundary traps
- on-site treatment plant.

Testing may include:

- air, water or vacuum testing.

Information may include:

- charts and hand drawings
- instructions issued by authorised organisational or external personnel
- job plans
- manufacturer specifications and instructions
- material safety data sheets (MSDS)
- memos
- organisation work specifications and requirements
- plans and sketches
- regulatory and legislative requirements, particularly those pertaining to:
 - building codes
 - WHS and environmental requirements
 - plumbing regulations

- relevant Australian standards
- safe work procedures relating to installing sanitary drainage systems
- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

Unit Sector(s)

Functional area

Unit sector Plumbing and services

Custom Content Section

Not applicable.