



Australian Government

CPCPDR3021A Plan layout of a residential sanitary drainage system

Release 1

CPCPDR3021A Plan layout of a residential sanitary drainage system

Modification History

Prerequisite unit updated plus minor changes to unit
Not equivalent to CPCPDR3011A

Unit Descriptor

This unit of competency specifies the outcomes required to plan the layout of sanitary drainage systems for residential buildings.

Application of the Unit

This unit of competency supports development of planning skills for sanitary systems. Site location for application of the design will be domestic, 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 <i>Information</i>, plans and specifications are obtained.</p> <p>1.2 <i>Work health and safety</i> (WHS) and <i>environmental requirements</i> associated with planning the layout of 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 Work area is prepared to support efficient planning of sanitary drainage systems' layouts.</p> |
| 2 | Plan system layout. | <p>2.1 Site inspection is undertaken to determine job requirements.</p> <p>2.2 Quantity, location and type of fixtures are determined from design drawings, plans and elevations.</p> <p>2.3 Layout of sanitary drainage system is planned according to plans and relevant Australian standards.</p> <p>2.4 <i>Sustainability principles and concepts</i> are applied to the plan.</p> <p>2.5 <i>Materials</i> and <i>fixtures</i> required are determined from the proposed design.</p> |

- 2.6 Plans are recorded according to workplace requirements.
- 3 Clean up.
 - 3.1 Work area is cleared and materials disposed of, reused or recycled according to legislation, regulations, codes of practice and job specification.
 - 3.2 Tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations and workplace procedures.
 - 3.3 Information is accessed and documentation completed according to workplace requirements.

Required Skills and Knowledge

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

Required skills

- communication skills to:
 - confirm job specifications and client requirements
 - communicate with others to ensure safe and effective work practices
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - 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:
 - documentation from a variety of sources
 - plans and specifications
- numeracy skills to apply measurements and calculations
- planning and organising skills 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
- technical skills to interpret a design to plan the layout of a sanitary drainage system for residential buildings, connecting to the authority's sewer or on-site disposal system
- technology skills to:
 - access and understand site-specific instructions in a variety of media
 - use mobile communication technology

Required knowledge

- application of various sanitary fixtures and appliances
- characteristics and application of different pipe systems, including their fittings and fixture supports and fixing and joining techniques
- design concepts and performance measures for sanitary drainage installations
- job safety analysis (JSA) and safe work method statements (SWMS)
- principles of drainage design
- process of planning the layout of sanitary drainage systems
- properties and characteristics of sewage, including temperature implications and

discharges

- pumped discharges
- relevant statutory requirements related to sanitary drainage systems
- SI system of measurements
- 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, Australian standards and specifications to planning the layout of a sanitary drainage system for a residential type building
- 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, planning the layout of a sanitary drainage system for a two-storey building requiring connection of five points, including a stack from the second floor to an approved point of discharge, or on-site disposal system, ensuring:
 - application of sustainability principles and concepts when planning the layout of a residential draining system
 - correct identification of details of proposed layout
 - correct selection and use of appropriate processes, tools and equipment
 - completing all work to specification
 - compliance with regulations, relevant Australian 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.

Information may include:

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

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

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

- handling of materials
- hazard control
- protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including recognising and preventing hazards associated with:
 - dangerous materials and hazardous substances
 - electricity
 - services
 - surrounding structure and facilities
 - trip hazards
 - work site visitors and the public
 - 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 may include:

- clean-up protection
- waste management.

Quality assurance requirements may include:

- environment policy
- 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:
- approved testing equipment
 - chain blocks
 - forklifts
 - hand and power tools
 - hand excavation tools
 - hand trolleys
 - hoists and jacks
 - levelling equipment
 - lifting and load shifting equipment
 - measuring equipment
 - mechanical excavation equipment
 - rollers
 - trench shoring equipment.

- Sustainability principles and concepts:**
- cover the social, economic and environmental use of resources to meet current and future needs
 - may include:
 - efficient energy and water use
 - efficient use and recycling of material
 - correct handling of hazardous materials
 - disposing of waste material to ensure minimal environmental impact
 - selecting appropriate components to ensure minimal environmental impact.

- Materials** may include:
- drawing instruments
 - measuring equipment and plans, including building plans
 - sanitary plans and drainage plans.

- Fixtures** may include:
- all approved residential fixtures in AS/NZS3500 National plumbing and drainage.

Unit Sector(s)

Functional area

Unit sector Plumbing and services

Custom Content Section

Not applicable.