



Australian Government

Assessment Requirements for CPCPPS5032 Design siphonic stormwater drainage systems

Release: 1

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Modification History

- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
- Supersedes and is equivalent to CPCPPS5032A Design siphonic stormwater drainage systems. Updated to meet the Standards for Training Packages 2012.

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria for this unit by:

- designing, sizing and documenting the layout details, including a specification for two siphonic stormwater drainage system that include:
 - a site incorporating a high-rise mixed development building
 - a wide span project (such as a large bulk goods warehouse)
- preparing documentation which includes:
 - evaluation and details of design parameters relevant to codes and manufacturer requirements for siphonic stormwater drainage systems
 - evaluation of health risks associated with the siphonic system
 - materials and components that are compliant, fit for purpose, durable, compatible and cost-effective.
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Knowledge Evidence

To be competent in this unit, a person must demonstrate knowledge of:

- common terminology and definitions used in the design of siphonic stormwater drainage systems for residential, commercial and industrial buildings
- drafting principles
- nature of materials used and effects of performance under various conditions
- procedures for estimating volume of stormwater run-off from rainwater collection areas
- principles of technology in the design of siphonic stormwater drainage systems
- work health and safety (WHS) requirements, including relevant statutory regulations, codes and standards
- scope of work:
 - calculation of rainfall intensities in given catchment areas:
 - average rainfall intervals

- meteorological information
- rainfall intensities
- stormwater collection area calculations
- time and concentration
- interpretation of plans and specifications
- sizing and documenting layout of siphonic stormwater drainage systems for residential, commercial and industrial applications
- design requirements:
 - owner requirements
 - architectural plans
 - building specifications
 - pipework identification
 - catchment area
 - approved point of discharge
 - acoustic performance
- siphonic system attributes:
 - availability
 - cost
 - installation requirements
 - risks
 - site conditions
- cost–benefit analysis to enable cost-effective choices to be made without compromising integrity of project:
 - design styles
 - expected design life
 - labour costs
 - material costs
 - safety factors
 - speed of installation
- statutory and regulatory requirements and relevant Australian Standards and codes:
 - AS/NZS 3500 Plumbing and drainage set
 - AS 2200 Design charts for water supply and sewerage
 - Geberit or equivalent approved siphonic drainage system design criteria
 - Commonwealth, state or territory requirements and local governments requirements
 - National Construction Code (NCC)
 - other relevant Australian Standards and codes
- manufacturer requirements:
 - material specifications
 - sizing tables
 - technical and trade manuals

- special siphonic drainage collection inlets
- information gathered during desktop study:
 - architectural and building plans
 - manufacturer data
 - developer plans
 - applications
 - brochures
 - forms
 - policies
 - reports
- performance requirements, including pipe flow velocities, flow conditions and discharge requirements established using relevant Australian Standards, codes and local authorities' requirements
- layout of pipework systems:
 - acoustic performance
 - amenity of the building
 - clipping and pipe support
 - fireproofing
 - function of the building
 - impingement on floor heights
 - location of pipework (fire rating of enclosure)
 - materials to be used
 - size of penetrations
 - type of building structure
 - principles of economy, serviceability, durability and fit for use
 - design which does not unduly affect building integrity and aesthetic appeal
- fittings:
 - bends
 - junctions
- pipe size and flow requirement calculations:
 - discharge
 - flow
 - manufacturers' tables
 - sizing, according to relevant Australian Standards and codes
 - velocity
 - volumes
- pipe supports:
 - anchors
 - bracket spacing
 - corrosion protection

- cover
- hanging brackets
- material requirements
- saddles
- wall and ceiling brackets
- acoustic resilient mounts
- appropriate materials specified, based on fit for purpose, durability, compatibility and cost-effectiveness:
 - copper (Cu)
 - polyethylene (PE)
 - polypropylene (PP)
 - stainless steel
 - other approved material
 - clips
 - fasteners
 - fittings
 - pipework
 - siphonic collection inlets
- jointing methods:
 - brazing
 - electrofusion welding
 - mechanical joints
 - rubber ring
 - other approved jointing methods
- installation requirements:
 - fire rating
 - level of workmanship
 - manufacturer-recommended specific fixings
 - pipe support
 - provision for expansion
 - serviceability and access
 - pipe protection:
 - corrosion
 - impact
- computer software packages:
 - manufacturer software
 - proprietary design software
- methods of applying sustainability principles and concepts:
 - selecting appropriate material to ensure minimal environmental impact
 - efficient use of material

- efficient energy usage/capital outlay comparison
- effect on the environment due to overflow or leakage
- consideration of the Green Building Council of Australia rating scheme
- types of plans:
 - axonometrics
 - elevations
 - details
 - cross-sections
 - isometrics
 - schematics
 - sections
- plans produced using:
 - computer generation
 - drawing equipment
- specification:
 - commissioning
 - bedding
 - support
 - jointing
 - manufacturer requirements
 - materials
 - testing
 - workmanship
 - WHS
- testing:
 - hydrostatic test
 - inspection
 - performance
 - quality assurance (QA) audit
- commissioning schedule information:
 - system certification
 - checking for foreign material
 - checking leaks
 - cleaning grates
 - system defects
 - system functions as per design
- operation and maintenance information:
 - as installed drawings
 - certification documentation
 - results of commissioning test

- maintenance schedules
- manufacturer brochures and technical information
- check for blockages
- leak detection
- regular inspection
- regular maintenance requirements.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

This unit must be assessed in the workplace or a close simulation using realistic workplace conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>