



**Australian Government**

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

# **CPC50611 Diploma of Hydraulic Services Design**

**Release: 1**

## CPC50611 Diploma of Hydraulic Services Design

### Modification History

Not Applicable

### Description

This qualification provides an outcome for:

- specialist hydraulic design consultants who design plumbing and services systems for residential and commercial buildings.

Occupational titles may include:

- Hydraulic design consultant.

The qualification has core and elective unit of competency requirements that cover common administration and plumbing industry skills plus specialist design competencies. **This qualification does not meet the competency requirements for plumbing registration or licensing.**

The plumbing industry strongly affirms that training and assessment leading to recognition of skills must be undertaken in a real or very closely simulated workplace environment and this qualification requires all units of competency to be delivered in this context.

NB: Completion of the general induction training program specified by the National Code of Practice for Induction Training for Construction Work (ASCC 2007) is required before entering a construction work site. Achievement of unit CPCCOHS1001A covers this requirement.

### Pathways Information

Not Applicable

### Licensing/Regulatory Information

Refer to Description

### Entry Requirements

Not Applicable

## Employability Skills Summary

EMPLOYABILITY SKILLS QUALIFICATION SUMMARY	
Employability skill	Industry/enterprise requirements for this qualification include:
Communication	<ul style="list-style-type: none"><li>• Interprets a range of complex documents, including plans and specifications, technical and hand drawings, charts, material safety data sheets, briefs, legislative and regulatory requirements, industry codes and standards, manufacturers' requirements, trade and technical manuals, and programs,</li><li>• Drafts detailed system specifications, including material, jointing and installation requirements; testing and commissioning schedules; project expenditure schedules; operations and maintenance manuals; safety procedures; control requirements; local authority inspection requirements for hydraulic systems; compliance reports; final cost reports; water and energy audit reports; technical plumbing system reports; and various quality control check lists</li><li>• Understands industry terminology, industry estimating and costing systems, and financial principles</li><li>• Communicates effectively with a range of people, including suppliers, staff, clients, subcontractors, local authority personnel.</li><li>• Researches documentation relevant to systems' design</li></ul>
Teamwork	<ul style="list-style-type: none"><li>• Works with others to plan, coordinate and complete tasks</li><li>• Works interactively with others to achieve a safe work site</li><li>• Uses appropriate dispute resolution procedures</li></ul>
Problem solving	<ul style="list-style-type: none"><li>• Conducts cost-benefit analysis of material and design options</li><li>• Performs complex calculations</li><li>• Resolves problems relating to project design issues</li><li>• Performs various calculations relating to measuring sanitary plumbing and drainage systems, velocities and flow, pressures, water volumes, catchment areas and run off, sizing of water heaters, pipe sizes and storage capacities</li><li>• Identifies typical design faults and takes corrective</li></ul>

**EMPLOYABILITY SKILLS QUALIFICATION SUMMARY**

	<p>action</p> <ul style="list-style-type: none"> <li>Rectifies service clashes through design modifications</li> </ul>
Initiative and enterprise	<ul style="list-style-type: none"> <li>Designs complex sanitary plumbing and drainage systems; cold water systems; stormwater and roof drainage systems; hot water systems; sewerage systems; rising mains systems; pump stations; fire compliant ducting systems and hydraulic services; water storage and sprinkler systems; smoke alarm systems; fire hydrant and hose reel systems; hydronic heating and cooling systems; gas bulk storage systems; industrial gas systems; gas reticulation systems; solar water heating systems; grey water use systems; rainwater collection, storage, distribution and re-use systems; irrigation systems; trade waste pre-treatment systems; pump systems; siphonic stormwater drainage systems; vacuum sewerage systems</li> <li>Identifies strategies for conserving and recycling water, harvesting and re-using rainwater</li> <li>Evaluates alternative solutions to improve plumbing systems and makes appropriate recommendations</li> </ul>
Planning and organising	<ul style="list-style-type: none"> <li>Scopes the extent of work required</li> <li>Monitors building or construction costs, including identifying critical phases of project expenditure and cash flows</li> <li>Plans systems' pipework layout and details systems' componentry as well as duct and penetration plans</li> <li>Ensures current building codes and standards are applied</li> </ul>
Self management	<ul style="list-style-type: none"> <li>Manages own work to ensure compliance with relevant codes and standards</li> </ul>
Learning	<ul style="list-style-type: none"> <li>Uses appropriate mechanisms to inform others of applicable standards and codes</li> </ul>
Technology	<ul style="list-style-type: none"> <li>Uses computers to design and detail plumbing and drainage systems; cold water systems; stormwater and roof drainage systems; hot water systems; fire sprinkler systems; fire hydrant and hose reel systems; hydronic systems; gas bulk storage systems; industrial gas systems; gas reticulation systems; solar water heating systems; grey water use systems; rainwater collection, storage, distribution and re-use systems; irrigation systems; trade waste pre-treatment systems; pump systems;</li> </ul>

**EMPLOYABILITY SKILLS QUALIFICATION SUMMARY**

	<p>siphonic stormwater drainage systems; and vacuum sewerage systems</p> <ul style="list-style-type: none"> <li>• Understands technological principles in the design of hydraulic systems; cold water reticulation and hydrant/hose reel systems; sewer systems; hydronic systems; gas bulk storage systems; industrial gas systems; gas reticulation systems; solar water heating systems; grey water use systems; rainwater collection, storage, distribution and re-use systems; irrigation systems; trade waste pre-treatment systems; pump systems; siphonic stormwater drainage systems; vacuum sewerage systems; and trade waste pre-treatment systems</li> <li>• Uses relevant hydraulic design systems software</li> </ul>
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**Packaging Rules****Packaging rules**

This qualification has an entry requirement of CPC40909 Certificate IV in Plumbing and Services - Hydraulic services design stream, or an equivalent qualification.

To achieve this qualification, the candidate must demonstrate competency in:

- 34 units of competency:
- 31 core units
- 3 elective units.

One of the three elective units may be selected from a Diploma qualification from CPC08 or another current Training Package, or from the core or elective units of another stream within CPC50408 Diploma of Plumbing and Services, ensuring both the integrity of the Australian Qualification Framework (AQF) alignment and the industry context of the qualification is maintained.

**Core units**

BSBITU201A	Produce simple word processed documents
BSBITU202A	Create and use spreadsheets
BSBITU301A	Create and use databases
BSBWRT401A	Write complex documents
CPCCBBC4012A	Read and interpret plans and specifications
CPCCBBC4034A	Apply codes and standards to building trade and services contracting

CPCPCM4003A	Produce 2-D architectural drawings using CAD software
CPCPCM4004A	Prepare simple sketches and drawings
CPCPCM5000A	Design complex sanitary plumbing and drainage systems
CPCPCM5001A	Design complex cold water systems
CPCPCM5002B	Design complex stormwater and roof drainage systems
CPCPCM5003B	Design complex (non-solar) heated water systems
CPCPDR4011A	Design and size sanitary drainage systems
CPCPDR4012A	Design and size stormwater drainage systems
CPCPDR4013A	Design and size domestic treatment plant disposal systems
CPCPFS4014A	Design residential and domestic fire sprinkler systems
CPCPFS5000A	Design fire-compliant hydraulic services
CPCPFS5002A	Design fire hydrant and hose reel systems
CPCPGS4011A	Design and size consumer gas installations
CPCPPS5000A	Design gas bulk storage systems
CPCPPS5001A	Design industrial gas systems
CPCPPS5002A	Design gas reticulation systems
CPCPPS5003A	Design solar water heating systems
CPCPPS5004A	Conduct a water audit and identify water-saving initiatives
CPCPPS5005A	Design grey water re-use systems in sewered areas
CPCPPS5006A	Design rainwater collection, storage, distribution and re-use systems
CPCPPS5008A	Design trade waste pre-treatment systems

CPCPPS5010A	Design pump systems
CPCPPS5012A	Design siphonic stormwater drainage systems
CPCPSN4011A	Design and size sanitary plumbing systems
CPCPWT4011A	Design and size heated and cold water services and systems

**Elective units**

CPCPCM5004A	Design sewer systems
CPCPFS5001A	Design fire sprinkler systems
CPCPMS5000A	Design steam distribution systems
CPCPMS5001A	Design air conditioning and ventilation systems
CPCPMS5002A	Design sound attenuated hydraulic services
CPCPMS5003A	Design hydronic heating and cooling systems
CPCPPS5007A	Design irrigation systems
CPCPPS5013A	Design vacuum sewerage systems
CPCPPS5014A	Locate and maintain piping systems
CPCPPS5015A	Inspect plumbing and drainage systems
CPCSUS5001A	Develop workplace policies and procedures for sustainability