



Australian Government

CPC32512 Plumbing (Mechanical Services)

Release 1

CPC32512 Certificate III in Plumbing (Mechanical Services)

Modification History

Revised qualification deemed not equivalent to CPC32511

Change to core units in all streams, including:

- a number of units replaced with updated versions

water stream:

- CPCPCM2011A replaced with imported unit HLTFA211A

gas services stream:

- new unit CPCPGS3047A added
- CPCPGS3017A deleted

Change to elective units:

- native and imported units replaced with updated versions
- new unit CPCPWT3030A added to water stream
- Core and elective units revised resulting in a number of unit identifier changes

Description

This qualification provides a trade outcome in plumbing, specialising in mechanical services.

Occupational titles may include:

- Plumber.

The qualification has core and elective unit of competency requirements that cover mechanical services specialist skills and common and other specialist skills for the plumbing industry.

The qualification has options from six specialist streams:

Stream 1 Mechanical services

Stream 2 Water

Stream 3 Sanitary

Stream 4 Drainage

Stream 5 Roofing

Stream 6 Gas services.

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.

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

Entry Requirements

Not applicable.

Employability Skills Summary

Employability skill	Industry/enterprise requirements for this qualification include:
Communication	- Communicates with clients, colleagues and others using effective and appropriate communication techniques, including: - Clear and direct communication - Active listening - Verbal and non-verbal language - Questioning to identify and confirm requirements - Language and concepts appropriate to cultural differences - Follows instructions from supervisor and other relevant persons - Understands, interprets and applies information as required from: - Regulatory, legislative, licensing and organisational requirements - Environmental and OHS requirements, including material safety data sheets (MSDS) - Codes and standards - Plans, drawings and specifications - Schedules - Load tables - Designs - Safety signs and symbols - Organisational policies and procedures - Understands relevant definitions, terminology, symbols, abbreviations and language - Uses industry-accepted visual communications, including hand signals - Reports and records routine workplace and regulatory information including test data - Applies measurements and calculations using appropriate equipment, formulas and records as required - Reports and records hazards and risks
Teamwork	- Works as part of a team - Provides assistance and encouragement to other team members - Initiates and encourages improvements in team performance - Works with others to plan and sequence tasks - Identifies and utilises the strengths of other team members - Relates to people from diverse social, cultural and ethnic backgrounds and with varying physical and mental abilities

Employability skill	Industry/enterprise requirements for this qualification include:
	• Participates in workplace meetings
Problem solving	• Responds effectively to hazards, risks, emergencies and first aid situations • Examines tools and equipment prior to use for damage, missing components or other defects • Identifies typical faults and problems and takes remedial actions and/or reports to supervisor • Performance tests penetration to ensure correct fit and remedies as required • Rectifies simple faults with tools and equipment • Locates and clears plumbing blockages • Tests systems and services • Calculates water flow rates, ventilation requirements and gas storage capacity • Rectifies incorrect roofing installations • Assesses roof work site safety • Locates and repairs gas leaks
Initiative and enterprise	• Maximises use of resources by recycling, re-using or using appropriate disposal methods • Responds to change and workplace challenges • Designs domestic irrigation systems • Designs and fabricates roof coverings • Determines requirements for heating system installations, roof water storage, medical gas pipeline systems, appliance installations, flue installations and gas piping system purging
Planning and organising	• Prepares work area • Identifies and obtains necessary documentation • Collects, analyses and organises workplace information • Selects and uses appropriate materials, tools and equipment • Carries out site inspections • Determines material quantity requirements and conformity to requirements • Coordinates delivery of materials • Fabricates, sets out, installs and commissions components, equipment and systems • Plans drainage system layouts • Prioritises and sequences tasks

Employability skill	Industry/enterprise requirements for this qualification include:
	• Applies time management skills to ensure work is completed to time requirements
Self management	• Recognises obligations and accepts responsibility for own work and safety • Recognises quality requirements and completes work to expected standard • Identifies personal career development needs and sets own and team work goals • Participates in workplace induction • Cleans up work area, including tools and equipment • Seeks support to improve work performance
Learning	• Identifies own learning needs and seeks skill development as required • Is open to learning new ideas and techniques • Participates in workplace induction
Technology	• Uses electricity and electrical equipment safely • Uses and operates a range of tools and equipment correctly and safely • Properly starts up, operates and shuts down equipment • Identifies technological trends that may affect the plumbing and services sector • Carries out pre- and post-operational checks on tools and equipment • Performs tools, equipment and systems maintenance as required • Installs and adjusts a range of water service and gas controlling and regulating devices, as well as a variety of plumbing related pumps, systems, components and appliances • Installs, tests and maintains fire protection installations and component assemblies, domestic sprinkler systems, heating ventilation, and air conditioning and air cooling systems

Packaging Rules

Units of competency from a minimum of four of the following six plumbing streams are required for award of this qualification.

Stream 1 Mechanical services and Stream 2 Water are mandatory.

The following units of competency are required for award of this qualification:

Stream 1 Mechanical services (mandatory): 4 core units and 11 elective units from the mechanical services stream

and

Stream 2 Water (mandatory): 23 core units and 7 elective units from the water stream.

Plus two of the following four streams: Stream 3 Sanitary: 6 core units and 4 elective units from the sanitary stream

Stream 4 Drainage: 9 core units and 3 elective units from the drainage stream

Stream 5 Roofing: 8 core units and 4 elective units from the roofing stream

Stream 6 Gas services: 12 core units and 5 elective units from the gas services stream

NB: Units of competency achieved in one stream count as credit for the same unit in the core or elective requirements for any other stream.

Some units in this qualification may have prerequisite requirements, which must be met when packaging the qualification. Users are referred to the list of CPC08 units with prerequisite unit requirements available in this Training Package for this purpose.

Core units

Mechanical services stream

CPCPCM2048A	Cut and join sheet metal
CPCPMS2021A	Assemble mechanical services components

CPCPMS3031A	Fabricate and install steel pressure piping
CPCPMS3033A	Install small bore heating systems

Water stream

CPCPCM2039A	Carry out interactive workplace communication
CPCPCM2040A	Read plans and calculate plumbing quantities
CPCPCM2041A	Work effectively in the plumbing and services sector
CPCPCM2043A	Carry out WHS requirements
CPCPCM2045A	Handle and store plumbing materials
CPCPCM2046A	Use plumbing hand and power tools
CPCPCM2047A	Carry out levelling
CPCPCM2050A	Mark out materials
CPCPCM2052A	Weld using oxy-acetylene equipment
CPCPCM2053A	Weld using manual metal arc welding equipment
CPCPCM2054A	Carry out simple concreting and rendering
CPCPCM2055A	Work safely on roofs
CPCPCM3021A	Flash penetrations through roofs and walls
CPCPCM3022A	Weld polyethylene and polypropylene pipes using fusion method
CPCPCM3023A	Fabricate and install non-ferrous pressure piping
CPCPFS3031A	Fabricate and install fire hydrant and hose reel systems
CPCPWT3021A	Set out and install water services
CPCPWT3022A	Install and adjust water service controls and devices
CPCPWT3023A	Install and commission water heating systems
CPCPWT3025A	Install water pumpsets

CPCPWT3026A	Fit off and commission heated and cold water services
CPCPWT3027A	Connect irrigation systems from drinking water supply
HLTFA211A	Provide basic emergency life support

Sanitary stream

CPCPCM2048A	Cut and join sheet metal
CPCPDR2021A	Locate and clear blockages
CPCPSN3011B	Plan layout of a residential sanitary plumbing system
CPCPSN3022A	Install discharge pipes
CPCPSN3023A	Fabricate and install sanitary stacks
CPCPSN3024A	Install and fit off sanitary fixtures

Drainage stream

CPCPDR2021A	Locate and clear blockages
CPCPDR2022A	Install domestic treatment plants
CPCPDR2024A	Install stormwater and sub-soil drainage systems
CPCPDR2025A	Drain work site
CPCPDR2026A	Install prefabricated inspection openings and enclosures
CPCPDR3021A	Plan layout of a residential sanitary drainage system
CPCPDR3022A	Install below ground sanitary drainage systems
CPCPDR3023A	Install on-site disposal systems
RIICCM210A	Install trench support

Roofing stream

CPCPCM2048A	Cut and join sheet metal
CPCPRF2022A	Select and install roof sheeting and wall cladding
CPCPRF2023A	Collect and store roof water
CPCPRF3021A	Receive roofing materials
CPCPRF3022A	Fabricate and install roof drainage components
CPCPRF3023A	Fabricate and install external flashings
CPCPRF3024A	Install roof components
CPCPRF3026A	Install composite roof systems

Gas services stream

CPCPCM2048A	Cut and join sheet metal
CPCPGS3046A	Install LPG systems in caravans, mobile homes and mobile workplaces
CPCPGS3047A	Install LPG systems in marine craft
CPCPGS3048A	Install gas pressure control equipment
CPCPGS3049A	Install Type A gas appliance flues
CPCPGS3051A	Purge consumer piping
CPCPGS3053A	Disconnect and reconnect Type A gas appliances
CPCPGS3054A	Calculate and install natural ventilation for Type A gas appliances
CPCPGS3056A	Install gas piping systems
CPCPGS3057A	Size consumer gas piping systems
CPCPGS3058A	Install and commission Type A gas appliances

CPCPGS3059A	Install LPG storage of aggregate storage capacity up to 500 litres
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Elective units

Mechanical services stream

CPCCCM2008B	Erect and dismantle restricted height scaffolding
CPCCCM2010B	Work safely at heights
CPCCCM3001C	Operate elevated work platforms
CPCCPB3015A	Install acoustic and thermal environmental protection systems
CPCCRI3001A	Operate personnel and materials hoists
CPC CST2005A	Carry out load slinging of off-site materials
CPCPCM2049A	Cut using oxy-LPG-acetylene equipment
CPCPMS3032A	Select and fit insulation and sheathing
CPCPMS3034A	Install medical gas pipeline systems
CPCPMS3035A	Install and test ducting systems
CPCPMS3036A	Install air handling units
CPCPMS3037A	Install and test split system air conditioning
CPCPMS3038A	Install air conditioning control equipment
CPCPMS3039A	Maintain mechanical services equipment
CPCPMS3040A	Install and maintain evaporative air cooling systems
CPCPMS3041A	Install domestic solid fuel burning appliances
CPCPRF3023A	Fabricate and install external flashings
MEM05049B	Perform routine gas tungsten arc welding
MEM05050B	Perform routine gas metal arc welding

MEM10009B	Install refrigeration and air conditioning plant and equipment
MEM10010B	Install pipework and pipework assemblies
MEM18086B	Test, recover, evacuate and charge refrigeration systems
RIICCM210A	Install trench support

Water stream

AHCIRG306A	Troubleshoot irrigation systems
CPCCCM2008B	Erect and dismantle restricted height scaffolding
CPCCCM2010B	Work safely at heights
CPCCCM3001C	Operate elevated work platforms
CPCCPB3015A	Install acoustic and thermal environmental protection systems
CPCCRI3001A	Operate personnel and materials hoists
CPCCST2005A	Carry out load slinging of off-site materials
CPCPCM2048A	Cut and join sheet metal
CPCPCM2049A	Cut using oxy-LPG-acetylene equipment
CPCPFS2021A	Connect static storage tanks for fixed fire protection systems
CPCPFS2022A	Install portable fire equipment
CPCPFS3033A	Fit off sprinkler heads, controls and ancillary equipment
CPCPFS3034A	Install control valve assemblies, actuating devices and local alarms
CPCPFS3037A	Install domestic and residential life safety sprinkler systems
CPCPFS3038A	Test and maintain fire hydrant and hose reel installations
CPCPIG2021A	Design domestic urban irrigation systems
CPCPIG3021A	Set out, install and commission irrigation systems
CPCPIG3022A	Install and commission domestic irrigation pumps

CPCPMS3031A	Fabricate and install steel pressure piping
CPCPMS3032A	Select and fit insulation and sheathing
CPCPMS3033A	Install small bore heating systems
CPCPMS3040A	Install and maintain evaporative air cooling systems
CPCPRF2023A	Collect and store roof water
CPCPWT3024A	Install and maintain domestic water treatment equipment
CPCPWT3028A	Install water services
CPCPWT3029A	Install water pipe systems
CPCPWT3030A	Install home fire sprinkler systems
MEM05049B	Perform routine gas tungsten arc welding
MEM05050B	Perform routine gas metal arc welding
RIICCM210A	Install trench support

Sanitary stream

CPCCCM2008B	Erect and dismantle restricted height scaffolding
CPCCCM2010B	Work safely at heights
CPCCCM3001C	Operate elevated work platforms
CPCCPB3015A	Install acoustic and thermal environmental protection systems
CPCCRI3001A	Operate personnel and materials hoists
CPCCST2005A	Carry out load slinging of off-site materials
CPCPCM2049A	Cut using oxy-LPG-acetylene equipment
CPCPDR2022A	Install domestic treatment plants
CPCPDR2023A	Maintain effluent disinfection systems
CPCPDR2024A	Install stormwater and sub-soil drainage systems

CPCPDR2025A	Drain work site
CPCPDR2026A	Install prefabricated inspection openings and enclosures
CPCPDR3022A	Install below ground sanitary drainage systems
CPCPDR3023A	Install on-site disposal systems
CPCPMS3032A	Select and fit insulation and sheathing
CPCPSN3025A	Install pre-treatment facilities
CPCPSN3026A	Install sewerage pumpsets
RIICCM210A	Install trench support

Drainage stream

CPC CST2005A	Carry out load slinging of off-site materials
CPCPCM2048A	Cut and join sheet metal
CPCPCM2049A	Cut using oxy-LPG-acetylene equipment
CPCPDR2023A	Maintain effluent disinfection systems
CPCPSN3025A	Install pre-treatment facilities
CPCPWT3029A	Install water pipe systems

Roofing stream

CPCCCM2008B	Erect and dismantle restricted height scaffolding
CPCCCM2010B	Work safely at heights
CPCCCM3001C	Operate elevated work platforms
CPCCPB3015A	Install acoustic and thermal environmental protection systems
CPCCRI3001A	Operate personnel and materials hoists

CPCST2005A	Carry out load slinging of off-site materials
CPCPCM2049A	Cut using oxy-LPG-acetylene equipment
CPCPRF2024A	Fabricate roof coverings for curved structures
CPCPRF3025A	Install roof coverings to curved roof structures
MEM05049B	Perform routine gas tungsten arc welding
MEM05050B	Perform routine gas metal arc welding
RIICCM210A	Install trench support

Gas services stream

CPCCCM2008B	Erect and dismantle restricted height scaffolding
CPCCCM2010B	Work safely at heights
CPCCCM3001C	Operate elevated work platforms
CPCCRI3001A	Operate personnel and materials hoists
CPCST2005A	Carry out load slinging of off-site materials
CPCPCM2049A	Cut using oxy-LPG-acetylene equipment
CPCPGS3050A	Install Type B gas appliance flues
CPCPGS3052A	Maintain Type A gas appliances
CPCPGS3055A	Install gas sub-meters
CPCPGS3060A	Install LPG storage of aggregate storage capacity exceeding 500 litres and less than 8KL
CPCPMS2021A	Assemble mechanical services components
CPCPMS3031A	Fabricate and install steel pressure piping
CPCPMS3033A	Install small bore heating systems
CPCPMS3035A	Install and test ducting systems
CPCPMS3036A	Install air handling units

MEM05049B	Perform routine gas tungsten arc welding
MEM05050B	Perform routine gas metal arc welding
RIICCM210A	Install trench support

Custom Content Section

Not applicable.