



Australian Government

Department of Education, Employment and Workplace Relations

CPC32511 Certificate III in Plumbing (Mechanical Services)

Release: 2

CPC32511 Certificate III in Plumbing (Mechanical Services)

Modification History

V6.1 code update:

CPCPGS3011A changed to CPCPGS3031A Install gas piping systems

CPCPGS3012A changed to CPCPGS3032A Size consumer gas piping systems

CPCPGS3013A changed to CPCPGS3033A Install and commission Type A gas appliances

CPCPGS3014A changed to CPCPGS3034A Install LPG storage of aggregate storage capacity up to 500 litres

CPCPGS3015A changed to CPCPGS3035A Install LPG storage of aggregate storage capacity exceeding 500 litres and less than 8KL

CPCPCM2018A changed to CPCPCM2028A Cut and join sheet metal

CPCPCM2019A changed to CPCPCM2029A Cut using oxy-LPG-acetylene equipment

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

Not Applicable

Entry Requirements

Not Applicable

Employability Skills Summary

EMPLOYABILITY SKILLS QUALIFICATION 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

EMPLOYABILITY SKILLS QUALIFICATION SUMMARY

	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 • 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

EMPLOYABILITY SKILLS QUALIFICATION SUMMARY

- Coordinates delivery of materials
- Fabricates, sets out, installs and commissions components, equipment and systems
- Plans drainage system layouts
- Prioritises and sequences tasks
- Applies time management skills to ensure work is completed to time requirements
- 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
- Identifies own learning needs and seeks skill development as required
- Is open to learning new ideas and techniques
- Participates in workplace induction
- 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

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.

Core units

Mechanical services stream

CPCPCM2028A	Cut and join sheet metal
CPCPMS2011A	Assemble mechanical services components
CPCPMS3011A	Fabricate and install steel pressure piping
CPCPMS3013A	Install small bore heating systems

Water stream

CPCPCM2002A	Carry out interactive workplace communication
CPCPCM2004A	Read plans and calculate plumbing quantities
CPCPCM2011A	Apply first aid in the workplace
CPCPCM2021A	Work effectively in the plumbing and services sector
CPCPCM2023A	Carry out OHS requirements
CPCPCM2025A	Handle and store plumbing materials
CPCPCM2026A	Use plumbing hand and power tools
CPCPCM2027A	Carry out levelling
CPCPCM2030A	Mark out materials
CPCPCM2032A	Weld using oxy-acetylene equipment

CPCPCM2033A	Weld using arc welding equipment
CPCPCM2034A	Carry out simple concreting and rendering
CPCPCM2035A	Work safely on roofs
CPCPCM3011A	Flash penetrations through roofs and walls
CPCPCM3012A	Weld plastic pipe using fusion method
CPCPCM3013A	Fabricate and install non-ferrous pressure piping
CPCPFS3011A	Fabricate and install fire hydrant and hose reel systems
CPCPWT3011A	Set out and install water services
CPCPWT3012A	Install and adjust water service controls and devices
CPCPWT3013A	Install and commission water heating systems
CPCPWT3015A	Install water pump sets
CPCPWT3016A	Fit off and commission heated and cold water services
CPCPWT3017A	Connect irrigation systems from drinking water supply
<i>Sanitary stream</i>	
CPCPCM2028A	Cut and join sheet metal
CPCPDR2011A	Locate and clear blockages
CPCPSN3011A	Plan layout of a residential sanitary plumbing system
CPCPSN3012A	Install discharge pipes
CPCPSN3013A	Fabricate and install sanitary stacks
CPCPSN3014A	Install and fit off sanitary fixtures
<i>Drainage stream</i>	
CPCPDR2011A	Locate and clear blockages
CPCPDR2012A	Install domestic treatment plants
CPCPDR2014A	Install stormwater and sub-soil drainage systems
CPCPDR2015A	Drain work site
CPCPDR2016A	Install prefabricated inspection openings and enclosures

CPCPDR3011A	Plan layout of a residential sanitary drainage system
CPCPDR3012A	Install below ground sanitary drainage systems
CPCPDR3013A	Install on-site disposal systems
RIICCM210A	Install trench support
<i>Roofing stream</i>	
CPCPCM2028A	Cut and join sheet metal
CPCPRF2012A	Select and install roof sheeting and wall cladding
CPCPRF2013A	Collect and store roof water
CPCPRF3011A	Receive roofing materials
CPCPRF3012A	Fabricate and install roof drainage components
CPCPRF3013A	Fabricate and install external flashings
CPCPRF3014A	Install roof components
CPCPRF3016A	Install composite roof systems
<i>Gas services stream</i>	
CPCPCM2028A	Cut and join sheet metal
CPCPGS3016A	Install LPG systems in caravans, mobile homes, water craft and mobile workplaces
CPCPGS3017A	Install gas detection devices
CPCPGS3018A	Install gas pressure control equipment
CPCPGS3019A	Install Type A gas appliance flues
CPCPGS3021A	Purge consumer piping
CPCPGS3023A	Disconnect and reconnect Type A gas appliances
CPCPGS3024A	Calculate and install natural ventilation for Type A gas appliances
CPCPGS3031A	Install gas piping systems
CPCPGS3032A	Size consumer gas piping systems
CPCPGS3033A	Install and commission Type A gas appliances

CPCPGS3034A Install LPG storage of aggregate storage capacity up to 500 litres

Elective units*Mechanical services stream*

CPCCCM2008A Erect and dismantle restricted height scaffolding

CPCCCM2010A Work safely at heights

CPCCCM3001B 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

CPCPCM2029A Cut using oxy-LPG-acetylene equipment

CPCPMS3012A Select and fit insulation and sheathing

CPCPMS3014A Install medical gas pipeline systems

CPCPMS3015A Install and test ducting systems

CPCPMS3016A Install air handling units

CPCPMS3017A Install and test split system air conditioning

CPCPMS3018A Install air conditioning control equipment

CPCPMS3019A Maintain mechanical services equipment

CPCPMS3020A Install and maintain evaporative air cooling systems

CPCPMS3021A Install domestic solid fuel burning appliances

CPCPRF3013A 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
<i>Water stream</i>	
CPCCCM2008A	Erect and dismantle restricted height scaffolding
CPCCCM2010A	Work safely at heights
CPCCCM3001B	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
CPCPCM2028A	Cut and join sheet metal
CPCPCM2029A	Cut using oxy-LPG-acetylene equipment
CPCPFS2011A	Connect static storage tanks for fixed fire protection systems
CPCPFS2012A	Install portable fire equipment
CPCPFS3013A	Fit off sprinkler heads, controls and ancillary equipment
CPCPFS3014A	Install control valve assemblies, actuating devices and local alarms
CPCPFS3017A	Install domestic and residential life safety sprinkler systems
CPCPFS3018A	Test and maintain fire hydrant and hose reel installations
CPCPIG2011A	Design domestic urban irrigation systems
CPCPIG3011A	Set out, install and commission irrigation systems
CPCPIG3012A	Install and commission domestic irrigation pumps
CPCPMS3011A	Fabricate and install steel pressure piping
CPCPMS3012A	Select and fit insulation and sheathing
CPCPMS3013A	Install small bore heating systems

CPCPMS3020A	Install and maintain evaporative air cooling systems
CPCPRF2013A	Collect and store roof water
CPCPWT3014A	Install and maintain domestic water treatment equipment
CPCPWT3018A	Install water service
CPCPWT3019A	Install water pipe systems
MEM05049B	Perform routine gas tungsten arc welding
MEM05050B	Perform routine gas metal arc welding
RIICCM210A	Install trench support
RTE3605A	Troubleshoot irrigation systems
<i>Sanitary stream</i>	
CPCCCM2008A	Erect and dismantle restricted height scaffolding
CPCCCM2010A	Work safely at heights
CPCCCM3001B	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
CPCPCM2029A	Cut using oxy-LPG-acetylene equipment
CPCPDR2012A	Install domestic treatment plants
CPCPDR2013A	Maintain effluent disinfection systems
CPCPDR2014A	Install stormwater and sub-soil drainage systems
CPCPDR2015A	Drain work site
CPCPDR2016A	Install prefabricated inspection openings and enclosures
CPCPDR3012A	Install below ground sanitary drainage systems
CPCPDR3013A	Install on-site disposal systems

CPCPMS3012A	Select and fit insulation and sheathing
CPCPSN3015A	Install pre-treatment facilities
CPCPSN3016A	Install sewerage pump sets
RIICCM210A	Install trench support
<i>Drainage stream</i>	
CPC CST2005A	Carry out load slinging of off-site materials
CPCPCM2028A	Cut and join sheet metal
CPCPCM2029A	Cut using oxy-LPG-acetylene equipment
CPCPDR2013A	Maintain effluent disinfection systems
CPCPSN3015A	Install pre-treatment facilities
CPCPWT3019A	Install water pipe systems
<i>Roofing stream</i>	
CPCCCM2008A	Erect and dismantle restricted height scaffolding
CPCCCM2010A	Work safely at heights
CPCCCM3001B	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
CPCPCM2029A	Cut using oxy-LPG-acetylene equipment
CPCPRF2014A	Fabricate roof coverings for curved structures
CPCPRF3015A	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
<i>Gas services stream</i>	
CPCCCM2008A	Erect and dismantle restricted height scaffolding

CPCCCM2010A	Work safely at heights
CPCCCM3001B	Operate elevated work platforms
CPCCRI3001A	Operate personnel and materials hoists
CPCCST2005A	Carry out load slinging of off-site materials
CPCPCM2029A	Cut using oxy-LPG-acetylene equipment
CPCPGS3020A	Install Type B gas appliance flues
CPCPGS3022A	Maintain Type A gas appliances
CPCPGS3025A	Install subsidiary gas meters
CPCPGS3035A	Install LPG storage of aggregate storage capacity exceeding 500 litres and less than 8KL
CPCPMS2011A	Assemble mechanical services components
CPCPMS3011A	Fabricate and install steel pressure piping
CPCPMS3013A	Install small bore heating systems
CPCPMS3015A	Install and test ducting systems
CPCPMS3016A	Install air handling units
MEM05049B	Perform routine gas tungsten arc welding
MEM05050B	Perform routine gas metal arc welding
RIICCM210A	Install trench support