



**Australian Government**

# **CPCPGS3057A Size consumer gas piping systems**

**Release 1**

## **CPCPGS3057A Size consumer gas piping systems**

### **Modification History**

Prerequisite unit updated

Changes to descriptor, performance criteria, required skills and knowledge, range statement and critical aspects

Not equivalent to CPCPGS3032A

### **Unit Descriptor**

This unit of competency specifies the outcomes required to size consumer gas piping carrying natural gas (NG), liquefied petroleum gas (LPG) or tempered liquefied petroleum gas (TLPG) not exceeding 200kPa.

### **Application of the Unit**

Site location for work application may be either a workplace or customer's premises.

### **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 | Identify job requirements. | <p>1.1 Installation requirements are determined from plans, load and specifications or site inspection.</p> <p>1.2 <b><i>Work health and safety</i></b> (WHS) and <b><i>environmental requirements</i></b> associated with sizing consumer piping systems are adhered to throughout the work.</p> <p>1.3 <b><i>Quality assurance requirements</i></b> for company operations are identified and adhered to.</p> <p>1.4 Piping materials are selected in compliance with appropriate standards, workplace and <b><i>statutory and regulatory authorities'</i></b> requirements.</p> <p>1.5 Gas loads and pipe lengths or instructions are calculated and determined from design drawings, instructions or site inspection.</p> <p>1.6 <b><i>Sustainability principles and concepts</i></b> are applied throughout the sizing process.</p> |
| 2 | Size gas piping systems.   | <p>2.1 Pressure drop is selected according to standards, regulating authorities' requirements, specifications and workplace requirements after authorities have been contacted for information regarding capacity of gas main and available meter outlet pressure.</p> <p>2.2 Appropriate sizing table is selected for gas supply type, piping material and pressure drop.</p> <p>2.3 Sizing procedure is undertaken consistent with standards, regulating authorities' requirements, specifications, manufacturer requirements and</p>  |

workplace requirements.

- 3      Clean up.
  - 3.1      Work area is cleared.
  - 3.2      **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:
  - access information
  - determine requirements
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - follow instructions
  - seek information from relevant authorities
  - 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
- technical skills to size consumer gas piping supplying appliances at an operating pressure not exceeding 200 kPa
- technology skills to:
  - access and understand site-specific instructions in a variety of media
  - use mobile communication technology

### Required knowledge

- appliance pressure requirements and gas consumption requirements
- characteristics of piping materials, joining methods, fittings and sealants
- electrical safety and requisite precautions
- how to access relevant information, including codes and technical standards
- job safety analysis (JSA) and safe work method statements (SWMS)
- procedures for sizing consumer gas piping systems
- properties of gas, gas safety, combustion principles, pressure and flow rates
- relevant statutory and authority requirements related to sizing consumer gas piping

systems

- SI system of measurements
- workplace and equipment safety requirements

## Evidence Guide

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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, standards and specifications to determine requirements and sizing of gas piping systems
- 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, sizing consumer gas piping systems of at least two materials for up to five appliances each, at least one of them being a two-stage LPG system, ensuring:
  - application of sustainability principles and concepts
  - correctly identifying the sizing requirements of proposed piping system
  - correctly selecting and using appropriate processes, tools and equipment
  - completing all work to specification
  - compliance with regulations, standards and organisational quality procedures and processes
  - communicating and working effectively and safely with others.

### Context of and specific resources for assessment

This competency is to be assessed using standard and 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.

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

- handling of materials
- hazard control
- hazardous materials and substances
- personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- 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:

- Australian standards
- Environment Protection Authority (EPA)
- internal company quality assurance policy and risk management strategy
- International Standards Organisation
- site safety plan
- workplace operations and procedures.

***Statutory and regulatory authorities***  
include:

- commonwealth, state or territory, and local authorities administering applicable Acts, regulations and codes of practice.

***Sustainability principles and concepts:***

- cover the current and future social, economic and environmental use of resources
- may include:
  - selecting appropriate material to ensure minimal environmental impact
  - efficient use of material.

***Information*** may include:

- charts and hand drawings
- instructions issued by authorised organisational or external personnel
- job drawings
- manufacturer specifications and instructions
- material safety data sheets (MSDS)
- memos
- organisation work specifications and requirements
- plans and sketches
- recognised formulas or tables accepted by the regulatory authority
- regulatory and legislative requirements, particularly those pertaining to:
  - building codes
  - WHS and environmental requirements
  - plumbing and/or gasfitting authority regulations
- relevant Australian standards
- safe work procedures relating to determining requirements and sizing consumer piping systems
- signage
- verbal, written and graphical instructions
- work bulletins

- work schedules, plans and specifications.

## **Unit Sector(s)**

### **Functional area**

**Unit sector** Plumbing and services

## **Custom Content Section**

Not applicable.