



Australian Government

Department of Education, Employment and Workplace Relations

CPCPGS3012A Size consumer gas piping systems

Release: 1

CPCPGS3012A Size consumer gas piping systems

Modification History

Not Applicable

Unit Descriptor

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) up to 200kPa.

Application of the Unit

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

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units

CPCPCM2023A	Carry out OHS requirements
-------------	----------------------------

Employability Skills Information

Employability skills 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

ELEMENT	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. Safety (OHS) requirements associated with sizing consumer piping systems, and the workplace environmental requirements, are adhered to throughout the work.</p> <p>1.3. Quality assurance requirements for company operations are identified and adhered to.</p> <p>1.4. Piping materials are selected in compliance with appropriate standards, workplace and statutory and regulatory authority requirements.</p> <p>1.5. Gas loads and pipe lengths or instructions are calculated and determined from design drawings, instructions or site inspection.</p>
2. Size gas piping systems.	<p>2.1. Pressure drop is selected in accordance with 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 and workplace requirements.</p>
3. Clean up.	<p>3.1. Work area is cleared.</p> <p>3.2. Information is accessed and documentation completed in accordance with workplace requirements.</p>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills for this unit are:

REQUIRED SKILLS AND KNOWLEDGE

- communication skills to:
 - access information
 - complete workplace documentation
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - seek information from relevant authorities
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- numeracy skills to apply measurements and calculations
- organisational skills, including the ability to plan and set out work
- sizing consumer gas piping supplying appliances at an operating pressure not exceeding 200 kPa
- technological skills to:
 - access and understand site-specific instructions in a variety of media
 - use mobile communication technology.

Required knowledge

Required knowledge for this unit is:

- 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

EVIDENCE GUIDE

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 design of gas piping systems
- applying safety requirements throughout the work sequence, including the use of personal protective clothing and equipment
- as a minimum the ability to, given the plans and specifications, size 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:
 - 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.

EVIDENCE GUIDE

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 working 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

EVIDENCE GUIDE

- 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

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.

Safety (OHS) is to be in accordance with 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

RANGE STATEMENT

- use of tools and equipment
 - workplace environment and safety.
- Environmental requirements*** 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:
- state or territory and local statutory authority
 - statutory gasfitting authority
 - statutory plumbing authority.
- Information*** may include:
- charts and hand drawings
 - diagrams or sketches
 - 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
 - recognised formulas or tables accepted by the regulatory authority
 - regulatory and legislative requirements, particularly those pertaining to:
 - building codes
 - OHS and environmental requirements
 - plumbing and 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)

Unit sector Plumbing and services

Co-requisite units

Co-requisite units Nil

Functional area

Functional area