



Australian Government

Department of Education, Employment and Workplace Relations

CPCPGS3024A Calculate and install natural ventilation for Type A gas appliances

Release: 1

CPCPGS3024A Calculate and install natural ventilation for Type A gas appliances

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to determine, install and test materials and equipment required to support natural ventilation of Type A gas appliances operating on 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 domestic or commercial, and may be a new work site or an existing structure being renovated, extended, restored or maintained.

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. Prepare for work.	<p>1.1. Design drawings, specifications and any special instructions are obtained.</p> <p>1.2. Safety (OHS) requirements associated with calculating and installing natural ventilation for Type A gas appliances, and 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. Appropriate work notices and required documentation are completed and dispatched in accordance with authorities' requirements.</p> <p>1.5. Tasks are planned in conjunction with others involved in or affected by the work.</p> <p>1.6. Tools and equipment, including personal protective equipment, are selected and checked for serviceability.</p> <p>1.7. Work area is prepared to support efficient calculation and installation of natural ventilation for Type A gas appliances.</p>
2. Identify natural ventilation requirements.	<p>2.1. Gas load and design requirements are determined from design drawings, plans, specifications and given information.</p> <p>2.2. Source and path of air supply are determined to comply with standards, plans and specifications of the job.</p> <p>2.3. Free ventilation area is calculated in required format and confirmed as being in accordance with standards, plans and specifications.</p> <p>2.4. Ventilation openings are calculated in required format and positioned in compliance with standards.</p> <p>2.5. Quantity and type of materials and other components required are estimated from design drawing or on-site dimensions and ordered in accordance with workplace requirements.</p>
3. Install ventilation and test appliance.	<p>3.1. Ventilation is installed in compliance with standards.</p> <p>3.2. Installation is completed without damage to the building structure, surrounding environment or other services.</p> <p>3.3. Appliance and flues are tested for operation and compliance with standards and adjusted.</p>
4. Clean up.	<p>4.1. Work area is cleared and materials disposed of or recycled in accordance with state or territory statutory and regulatory authority legislation and</p>

ELEMENT**PERFORMANCE CRITERIA**

workplace procedures.

4.2. Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and workplace procedures.

4.3. **Information** is accessed and documentation completed in accordance with workplace requirements.

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:

- calculating, installing and testing natural ventilation for Type A gas appliances
- 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
 - inform relevant authorities and supervisors of completion of job
 - plan work with others
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - record data in writing
 - 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
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental

REQUIRED SKILLS AND KNOWLEDGE

abilities

- 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:

- 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)
- mechanical ventilation and associated interlocks
- procedures for calculating, installing and testing natural ventilation for Type A gas appliances
- properties of gas, gas safety, combustion principles, pressure and flow rates
- relevant statutory and authority requirements related to natural ventilation requirements for Type A gas appliances
- 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 for calculating, installing and testing natural ventilation for Type A gas appliances
- 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, calculate natural ventilation for a water heater, space heater and a cooking appliance, ensuring:
 - correct identification of location, design and details of proposed installations
 - correct selection and use of 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.

EVIDENCE GUIDE

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
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances

EVIDENCE GUIDE

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
- personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including recognising and preventing hazards associated with:
 - hazardous materials and substances
 - service lines
 - surrounding structures and facilities

RANGE STATEMENT

- trip hazards
- use of tools and equipment
- work site visitors and the public
- working at heights
- working in proximity to others
- use of firefighting equipment
- use of first aid equipment
- workplace environment and safety.

RANGE STATEMENT

Ventilation:

- may be natural or mechanical
- may be required for:
 - decorative heaters
 - ducted heating systems
 - gas stoves and hot plates
 - heated water storage
 - instant heated water heaters
 - space heaters.

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.

Tools and equipment may
include:

- grinders
- hand and power tools
- ladders
- measuring equipment
- restricted height scaffolding
- test equipment and instruments.

Materials:

- are to comply with appropriate standards for installing and commissioning Type A gas appliances
- include Type A gas appliances and ventilation materials, including grills
- may include louvres and ducting.

Statutory and regulatory
authorities include:

- state or territory 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)

RANGE STATEMENT

- memos
- organisation work specifications and requirements
- regulatory and legislative requirements, particularly those pertaining to:
 - building codes
 - OHS and environmental requirements
 - plumbing and gasfitting authority regulations
- recognised formulas or tables accepted by the regulatory authority
- relevant Australian standards
- safe work procedures relating to calculating and installing natural ventilation for Type A gas appliances
- 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