

<b>Title</b>	<b>Demonstrate knowledge of the installation, commissioning, and maintenance of mechanical gas appliances and equipment</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	<p>This unit standard is for people who work in the gasfitting industry.</p> <p>People credited with this unit standard are able to demonstrate knowledge of:</p> <ul style="list-style-type: none"> <li>– the installation of mechanical gas appliances and equipment;</li> <li>– the commissioning of mechanical gas appliances and equipment;</li> <li>– the maintenance of mechanical gas appliances and equipment in accordance with job specifications; and</li> <li>– regulatory requirements, selection of methods and materials, and underpinning concepts and principles, as applied to the installation, commissioning, and maintenance of mechanical gas appliances and equipment.</li> </ul>
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<b>Classification</b>	Plumbing, Gasfitting and Drainlaying > Gasfitting
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 References
  - Building Act 2004;
  - Electricity Act 1992;
  - Gas Act 1992;
  - Gas (Safety and Measurement) Regulations 2010;
  - Health and Safety at Work Act 2015;
  - Plumbers, Gasfitters, and Drainlayers Act 2006;
  - Plumbers, Gasfitters, and Drainlayers Regulations 2010;
  - The following standards, which are available at <http://www.standards.govt.nz>:
    - AS/NZS 5601.1:2013 *Gas installation*,
    - AS/NZS 5601.2:2013 *LP Gas installations in caravans and boats for non-propulsive purposes*,
    - NZS 3604:1999 *Timber Framed Buildings*;
  - The following clauses, and any related compliance documents, which are available at <https://www.building.govt.nz/>:
    - New Zealand Building Code Clause E2 External moisture,
    - New Zealand Building Code Clause G11 Gas as an Energy Source;
  - and all subsequent amendments and replacements.

- 2 Range  
Two gas cooking appliances which may include but are not limited to – domestic and commercial ovens, ranges, gas hobs, grills, fryers, ring burners, barbecues;  
Three gas heating appliances which may include but are not limited to – natural draught, balanced flue, power flued, portable heaters, flueless heaters, radiant panel heaters;  
Two gas water heating appliances which may include but are not limited to – instantaneous water heaters, storage water heaters, pool heaters, spa pool heaters.
- 3 Definitions  
*Job requirements* – specific requirements of the job at hand not covered by job specifications.  
*Job specifications* – instructions (oral, written, graphic) and may include any of the following: manufacturer instructions; design drawing detail specifications; specifications from a specialist source such as an architect, designer, engineer, or a supervisor; and site or work specific requirements. Where job specifications are in conflict with applicable legislation, standards, and/or codes, such legislation, standards, and/or codes shall take precedence for the purpose of assessment.  
*Maintenance* may refer to all or any of – repair, upgrade, alter, remove, replace.  
*Mechanical gas appliances* – mechanically controlled gas appliances that do not rely on supplied electricity, and are generally below 250MJ per hour rated input.
- 4 Credit for this unit standard does not entitle the candidate to legally perform certain electrical aspects of this work unless registered or supervised by a registered person under the provisions of the Electricity Act 1992.
- 5 Candidates must hold a current limited certificate or exemption under supervision as issued under the Plumbers, Gasfitters, and Drainlayers Act 2006.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of the installation of mechanical gas appliances and equipment.

### Performance criteria

- 1.1 Describe appropriate gas appliances, flues, and ventilation in accordance with job specifications and AS/NZS 5601:2013, Part 1 and Part 2.
- Range includes verifying that the appliances provided by the customer are appropriate for the intended purpose.
- 1.2 Describe the correct location of gas appliances, flues, and ventilation in accordance with job specifications and AS/NZS 5601:2013, Part 1 and Part 2.
- 1.3 Describe the methods and processes to verify that the gas type and supply pressure is suitable and safe for the appliance to be installed.
- 1.4 Describe the methods and processes to verify that gas is available at an

adequate flow rate to meet the anticipated maximum load.

- 1.5 Explain the installation of mechanical gas appliances, flues, and ventilation.
- 1.6 Explain the correct processes and methods to connect gas appliances and associated fittings to gas supply connection points.
- 1.7 Explain appropriate and required soundness tests in accordance with AS/NZS 5601:2013, Part 1 and Part 2.

## **Outcome 2**

Demonstrate knowledge of the commissioning of mechanical gas appliances and equipment.

### **Performance criteria**

- 2.1 Explain the commissioning processes for gas appliances in accordance with manufacturer instructions.
- 2.2 Explain tests of flues and ventilation in accordance with AS/NZS 5601:2013, Part 1 and Part 2.  
  
Range        smoke test or draft gauge.
- 2.3 Identify and explain the post installation documentation to be completed for mechanical gas appliances and equipment.  
  
Range        includes – information for gas certificates, guarantees, checklists; may also include other company requirements such as checklists and photographs of completed work.
- 2.4 Explain the consumer instruction process to be followed on completion of installation and commissioning.

## **Outcome 3**

Demonstrate knowledge of the maintenance of mechanical gas appliances and equipment in accordance with job specifications.

### **Performance criteria**

- 3.1 Describe gas appliance isolation and cleaning methods and processes.
- 3.2 Describe processes to test flues and ventilation.

- 3.3 Describe common causes of faults and possible means of rectification.
- Range faults include poor gas supply, regulator problems, ignition problems, flame failure device problem, heat exchanger, flue; considerations relating to repair may include but are not limited to – component availability, repair costs, cost of equivalent new appliance.
- 3.4 Explain operational tests to confirm correct repair in accordance with job specifications and AS/NZS 5601:2013, Part 1 and Part 2.
- 3.5 Describe documentation and customer communication in accordance with job specifications.

#### Outcome 4

Demonstrate knowledge of regulatory requirements, selection of methods and materials, and underpinning concepts and principles, as applied to the installation, commissioning, and maintenance of mechanical gas appliances and equipment.

#### Performance criteria

- 4.1 Describe applicable sections of legislation, standards, and codes in terms of their application to the installation, commissioning, and maintenance of mechanical gas appliances and equipment.
- 4.2 Justify selection of methods and materials.
- Range job specifications, operation of the installed gas appliances and equipment; may include job requirements.
- 4.3 Explain underpinning concepts and principles in terms of their application to the installation, commissioning, and maintenance of mechanical gas appliances and equipment.
- Range combustion, disposal of condensation.

<b>Replacement information</b>	This unit standard and unit standard 30726 replaced unit standard 21890.
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**This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.**

**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	23 November 2017	31 December 2028
Review	2	25 July 2024	31 December 2028

**Consent and Moderation Requirements (CMR) reference**

0003

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.