

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

Purpose	<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"> – the installation of mechanical gas appliances and equipment; – the commissioning of mechanical gas appliances and equipment; – the maintenance of mechanical gas appliances and equipment in accordance with job specifications; and – 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.
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Classification	Plumbing, Gasfitting and Drainlaying > Gasfitting
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Available grade	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.

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.

Replacement information	This unit standard and unit standard 30726 replaced unit standard 21890.
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Planned review date	31 December 2022
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 November 2017	N/A

Consent and Moderation Requirements (CMR) reference	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact The Skills Organisation reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.