

Title	Demonstrate knowledge of the installation and maintenance of water main systems		
Level	4	Credits	4

Purpose	<p>This unit standard is for people who work, or intend to work, in the plumbing industry.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – demonstrate knowledge of regulatory requirements, selection of methods and materials, and the concepts of hydrostatics and hydraulics, as applied to the installation and maintenance of water main systems; – describe the installation and commissioning of water main systems; – describe treatment methods for household water purification; and – describe the maintenance of water main systems.
----------------	--

Classification	Plumbing, Gasfitting and Drainlaying > Plumbing
-----------------------	---

Available grade	Achieved
------------------------	----------

Guidance Information

- 1 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the:
 Building Act 2004;
 Health and Safety at Work Act 2015;
 Plumbers, Gasfitters, and Drainlayers Act 2006;
 Plumbers, Gasfitters, and Drainlayers Regulations 2010;
 Water Supplies Protection Regulations 1961.

The following standards, which are available at <http://www.standards.govt.nz>:
 AS/NZS 3500.1:2021 *Plumbing and drainage, Part 1: Water services*,
 NZS 3604:2011 *Timber-framed buildings*,
 NZS 4302:1987 *Code of practice for the control of hygiene in air and water systems in buildings*.

The following Building Code clauses, and any related Acceptable Solution and Verification Method documents, which are available at <https://www.building.govt.nz/>:
 New Zealand Building Code Clause G10 Piped Services,
 New Zealand Building Code Clause G12 Water Supplies.

Any new, amended or replacement referenced standards, codes of practice, guidelines, Building Code Acceptable Solutions and Verification Methods, or authority requirements affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.

2 Definitions

Job requirements refer to specific requirements of the job at hand not covered by job specifications.

Job specifications refer to 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.

Maintenance may refer to all or any of – repair, upgrade, alteration, removal.

Water main systems refers to water mains and associated fittings, metering equipment and pipework to buildings and other connection and termination points.

3 Candidates must hold a current limited certificate trainee authorisation or exemption under supervision as issued under the Plumbers, Gasfitters, and Drainlayers Act 2006.

4 This unit standard relates to both reticulated network authority mains and self-contained water supply systems. Self-contained water supply systems may refer to private water collection or bore and distribution systems.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of regulatory requirements, selection of methods and materials, and the concepts of hydrostatics and hydraulics, as applied to the installation and maintenance of water main systems.

Performance criteria

1.1 Describe applicable sections of legislation, standards, and codes in terms of their application to the installation and maintenance of water main systems.

1.2 Justify selection of methods and materials.

Range job specifications, operation of the installed system and components, suitability and durability of materials.

1.3 Explain the concepts and principles of hydrostatics and hydraulics in terms of their application to the installation and maintenance of water main systems.

Range material compatibility, thrust/anchor blocks, sizing and flow rates.

Outcome 2

Describe the installation and commissioning of water main systems.

Performance criteria

- 2.1 Describe the construction of water mains and the installation of associated fittings in accordance with job specifications and with particular reference to fire applications such as the capacity to deliver sprinkler and riser mains for fire purposes.
- 2.2 Describe the installation of water mains, hydrants, thrust block/s, and valve/s and their connection to connections and discharge points in accordance with job specifications.
- 2.3 Describe the commissioning of water mains and associated fittings to ensure they operate to design function and comply with network utility operator requirements.
- 2.4 Describe processes and required results for flushing and purification of new installed water mains.

Outcome 3

Describe treatment methods for household water purification.

Range chemical, distillation, filtration, straining, UV lighting.

Performance criteria

- 3.1 Describe treatment methods in accordance with relevant standards and codes.

Outcome 4

Describe the maintenance of water main systems.

Performance criteria

- 4.1 Describe how to identify faults in terms of causes and means of rectification.
- 4.2 Describe the rectification of faults in accordance with maintenance requirements, job specifications, and relevant standards and codes.

Replacement information	This unit standard and unit standard 30615 replaced unit standard 23849.
Planned review date	31 December 2029

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	26 October 2017	31 December 2028
Review	2	30 May 2024	N/A

Consent and Moderation Requirements (CMR) reference

0003

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

Comments on this unit standard

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council qualifications@waihangaararau.nz if you wish to suggest changes to the content of this unit standard.