

Title	Demonstrate knowledge of pumps used for water supply and disposal systems in plumbing		
Level	4	Credits	3

Purpose	<p>This unit standard is for people who 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 pumps used for water supply and disposal systems; – determine pumping requirements for water supply and disposal systems; and – demonstrate knowledge of regulatory requirements, selection of methods and materials, and underpinning concepts and principles, as applied to pumps and controls for water supply and disposal systems.
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Classification	Plumbing, Gasfitting and Drainlaying > Plumbing
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Available grade	Achieved
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Guidance Information

- 1 References

Building Act 2004;
 Health and Safety at Work Act 2015;
 Plumbers, Gasfitters, and Drainlayers Act 2006;
 Plumbers, Gasfitters, and Drainlayers Regulations 2010;
 Resource Management Act 1991;
 Water Supplies Protection Regulations 1961;
 The following standards, which are available at <http://www.standards.govt.nz>:
 AS/NZS 3500.1:2003 *Plumbing and drainage – Water services*
 AS/NZS 3500.2:2003 *Plumbing and drainage – Sanitary plumbing and drainage*,
 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 G10 Piped Services,
 New Zealand Building Code Clause G12 Water Supplies,
 New Zealand Building Code Clause G13 Foul Water;
 and their subsequent amendments and replacements.
- 2 Range

pumps – reciprocating, rotary (centrifugal, gear), hydraulic ram.

- 3 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.
- 4 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: manufacturers' 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.
- 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 pumps used for water supply and disposal systems.

Performance criteria

- 1.1 Identify types of pumps and explain their application to water supply and disposal systems in plumbing.

Outcome 2

Determine pumping requirements for water supply and disposal systems.

Performance criteria

- 2.1 Determine the pumping requirements of the system in accordance with user and/or owner's requirements and job specifications.
- 2.2 Describe appropriate pumps, filters, and controls for water supply and disposal systems in accordance with job specifications.
- Range may include but is not limited to – suction lift, viscosity, water type, delivery head, required flow rate, frictional head loss.

Outcome 3

Demonstrate knowledge of regulatory requirements, selection of methods and materials, and underpinning concepts and principles, as applied to pumps and controls for water supply and disposal systems.

Performance criteria

- 3.1 Describe the application of relevant sections of legislation, standards, and codes to the selection of pumps and controls for water supply and disposal systems.
- 3.2 Justify the selection of methods and materials.
- Range job specifications, operation of the installed system and components, prudent use and longevity of materials; may include job requirements.
- 3.3 Explain underpinning concepts and principles in terms of their application to pumps and controls for water supply and disposal systems.
- Range atmospheric pressure, corrosion, expansion and contraction, friction, hydrostatics and hydraulics, siphon.

Replacement information	This unit standard replaced unit standard 2149.
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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	26 October 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.