

Title	Demonstrate knowledge of installing, securing, and maintaining water supply pipework in buildings		
Level	4	Credits	7

Purpose	<p>This unit standard is for people who work, or intend to work, in the drainlaying industry.</p> <p>People credited with this unit standard are able to demonstrate knowledge of:</p> <ul style="list-style-type: none"> – determining water supply requirements in buildings; – the installation and securing of water supply pipework in buildings; – the maintenance and repair of water supply pipework in buildings; and – regulatory requirements, selection of methods and materials, and underpinning concepts and principles, as applied to the installation, securing, and maintenance of water supply pipework in buildings.
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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 Act 1956;

Health and Safety at Work Act 2015;

Plumbers, Gasfitters, and Drainlayers Act 2006;

Plumbers, Gasfitters, and Drainlayers Regulations 2010;

Resource Management Act 1991;

The following standards, which are available at <http://www.standards.govt.nz>:

AS/NZS 3500.1:2015 *Plumbing and drainage – Part 1: Water services*,

AS/NZS 3500.4:2015 *Plumbing and drainage – Part 4: Heated water services*,

NZS 3604:2011 *Timber-framed buildings*,

NZS 5807:1980 *Code of practice for industrial identification by colour, wording or other coding*;

The following guides, which are available at <http://www.worksafe.govt.nz>:

Excavation Safety – Good practice Guidelines,

Underground services – Guide for safety with underground services;

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;

and all subsequent amendments and replacements.

2 Range

water supply pipework includes but is not limited to – copper, galvanised mild steel, polybutylene, polyethylene, unplasticised polyvinylchloride (uPVC), cross-linked polyethylene, polypropylene, and associated fittings; jointing methods – are determined according to the material being joined, and may include brazing, compression, crimp, crox, flange, fusion weld, glued, push fit, screwed thread.

For assessment, where skills are the same across different materials, it is not necessary to demonstrate knowledge of the skill in respect of each of those different materials.

3 This unit standard applies to the installation of water supply pipework above and below the ground but does not apply to the installation of water mains under control of a network utility operator.

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: 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.

Maintain may refer to all or any of – repair, upgrade, alter, remove.

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 determining water supply requirements in buildings.

Performance criteria

- 1.1 Describe how to select size of pipe taking into account factors such as available pressure (head), delivery rate requirements, water velocity rate and/or limit, loading rates, source and type of supplied water, and probable simultaneous flow rate.

Outcome 2

Demonstrate knowledge of the installation and securing of water supply pipework in buildings, in accordance with job specifications, relevant codes and standards, and the requirements of the Building Act 2004.

Performance criteria

- 2.1 Determine pipe lengths accurately.
- 2.2 Describe methods and fittings used for jointing pipes according to the material to be joined.
- Range includes one example of jointing pipes of different materials.
- 2.3 Describe soundness tests appropriate to pipework installations.
- 2.4 Describe requirements and methods of protecting water supply pipework against physical damage.
- Range protection is for – corrosion, ultra-violet light, expansion, contraction, traffic, seismic activity, freezing, heating.
- 2.5 Describe requirements and methods for protecting the building structure from damage when installing pipework.
- Range protection from – condensation on pipework, penetrations through structural elements, insulation of pipework.
- 2.6 Explain requirements and methods to identify pipework by label and/or colour.
- 2.7 Explain requirements and methods to secure water supply pipework.

Outcome 3

Demonstrate knowledge of the maintenance and repair of water supply pipework in buildings, in accordance with maintenance requirements, job specifications, and relevant standards and codes.

Performance criteria

- 3.1 Explain common methods and processes for ongoing maintenance of water supply pipework systems.
- 3.2 Explain methods and processes to assess installed water supply pipework to identify the causes of faults.
- 3.3 Explain methods and processes to rectify faults.
- 3.4 Describe appropriate post maintenance commissioning processes.

Outcome 4

Demonstrate knowledge of regulatory requirements, selection of methods and materials, and underpinning concepts and principles, as applied to the installation, securing, and maintenance of water supply pipework in buildings.

Performance criteria

4.1 Describe the application of relevant sections of legislation, standards, and codes to the installation, securing, and maintenance of water supply pipework in buildings.

4.2 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.

4.3 Explain the application of underpinning concepts and principles to the installation, securing, and maintenance of water supply pipework in buildings.

Range capillary attraction, corrosion, electrical earthing and bonding, expansion and contraction, freezing, friction, hydrostatics and hydraulics, pH, properties of metals, relative density, siphon, water hardness and softness, condensation, thermal insulation.

Replacement information	This unit standard and unit standard 30606 replaced unit standard 2143.
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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.