

Title	Pre-commission mechanical building services under supervision		
Level	3	Credits	10

Purpose	<p>This unit standard is intended primarily for use in the training of personnel in the mechanical building services industry and covers pre-commissioning of mechanical building services.</p> <p>People credited with this unit standard are able to, under supervision: prepare for pre-commissioning of mechanical building services, and pre-commission water side and air side of mechanical building services.</p>
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Classification	Mechanical Engineering > Heating, Ventilating, and Air Conditioning
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Available grade	Achieved
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Guidance Information

- 1 Reference and legislation
Health and Safety at Work Act 2015.
NZS 4219:2009, *Seismic performance of engineering systems in buildings*.
- 2 Definitions
Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the mechanical building services industry sector as examples of best practice.
Company practice refers to operational procedures put in place by the candidate's employer. These include site safety procedures, equipment operating procedures, job procedures, quality assurance, and procedures for the purchase, handling, and disposal of equipment and components.
Pre-commissioning includes those checks and procedures required to ensure proper equipment functionality and integration of components.
Shop drawings – construction drawings developed from the design engineer's drawings and reflects the actual installation.
Specifications include technical standards, documented operating and maintenance procedures or instructions for the system, installation drawings, manufacturers' data, installation instructions, installation programme schedules, material schedules, and site instructions.
- 3 Assessment information
 - a This unit standard is designed for delivery and assessment in a training environment, and should be consistent with the accepted industry practice.

- b All new installations or extension to existing systems and upgrades should meet local Territorial Authority requirements, and seismic performance stipulated by NZS 4219.

Outcomes and performance criteria

Outcome 1

Prepare for pre-commissioning of mechanical building services under supervision.

Performance criteria

- 1.1 Pre-commissioning procedures are planned with reference to shop drawings and specifications and confirmed with supervisor.
- 1.2 Equipment, tools, and other resources required for pre-commissioning are arranged.
- 1.3 A certificate of compliance or a producer statement is obtained to verify the system installation including upgrades and extensions meeting seismic requirements.
- 1.4 Chemicals to be used for cleaning and flushing are identified, and the correct mixing technique and hazard management are documented in the plan.
- 1.5 Quality assurance sheets are completed and verified by an authorised person.

Outcome 2

Pre-commission water side of mechanical building services under supervision.

Range may include but is not limited to – flush and clean pipes, install and clean strainers and filters, check correct rotation of motors, ensure valves are installed and fitted in the correct way, verify operation of valves, check pipe is insulated as required, check condensate drain, check damper movement, check water valve open correctly, check all meters and gauges are installed as required, check and verify all controllers are functional, verify control functions, check interface with other trades are functional.

Performance criteria

- 2.1 Installation of system is checked for compliance with shop drawings and specifications.
- 2.2 Required services are identified and checked in accordance with specifications.
- Range services may include but not limited to electricity, water, gas.
- 2.3 Pre-commissioning procedures are completed in accordance with the plan.
- 2.4 Non-conformance of systems are notified.

- 2.5 Any wall and ceiling penetrations made during the installation of mechanical building services components are checked for compliance against specifications and plans.
- 2.6 Any elements requiring seismic restraint are checked for compliance against specifications and plans.
- 2.7 The systems are verified as being ready for commissioning.
- 2.8 Pre-commissioning report is completed and handed to supervisor.

Outcome 3

Pre-commission air side of mechanical building services under supervision.

Range may include but is not limited to – flush and clean pipes, install and clean filters, check correct rotation of motors, check dampers are installed as required and their operation are correct, check all meters and gauges are installed as required, check controllers are functional, verify control functions, check interface with other trades are functional.

Performance criteria

- 3.1 Installation of system is checked for compliance with shop drawings and specifications.
- 3.2 Required services are identified and checked in accordance with specifications.
- Range services may include but not limited to electricity, water, gas.
- 3.3 Pre-commissioning procedures are completed in accordance with the plan.
- 3.4 Non-conformance of systems are notified.
- 3.5 Any wall and ceiling penetrations made during the installation of mechanical building services components are checked for compliance against specifications and plans.
- 3.6 Any elements requiring seismic restraint are checked for compliance against specifications and plans.
- 3.7 The systems are verified as being ready for commissioning.
- 3.8 Pre-commissioning report is completed and handed to supervisor.

Planned review date	31 December 2023
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	16 July 2010	31 December 2023
Review	2	29 March 2018	N/A

Consent and Moderation Requirements (CMR) reference

0013

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

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.