

Title	Service mechanical building services		
Level	5	Credits	20

Purpose	<p>This unit standard is intended primarily for use in the training of personnel in the mechanical building services industry and covers servicing of mechanical building services.</p> <p>People credited with this unit standard are able to: prepare for servicing of mechanical building services; check and adjust mechanical building services operation; diagnose and rectify faults in mechanical building services; retrofit existing mechanical building services with alternative components; recondition components for mechanical building services; and complete servicing records.</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.
- 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.

Service refers to the activities of diagnosing and rectifying mechanical building services faults. This does not include routine maintenance.

System documents include all documents and drawings required to maintain the system. This may include maintenance contract documentation, system drawings and specifications, operating procedures, maintenance procedures, and manufacturers' specifications.

Workplace procedures refer to procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.
- 3 Range
Air conditioning and ventilation systems include – large central air conditioning systems, ducted constant-flow rate and variable-flow rate air conditioning systems,

packaged and split air conditioning, heat pumps, supply and extract ventilation systems, fume ventilation, industrial ventilation systems.

Chilled water systems include – plain water, brine, glycol systems.

Gas systems include – medical gases, LPG, CNG, oxygen, acetylene, compressed air, natural gas.

Hot water heating systems include – low, medium, and high temperature systems.

Industrial liquids systems include – dry goods systems such as grains, industrial fluids systems such as inks, systems for slurries such as whey milk products, pelletized bed systems.

Industrial liquids include – acids, alkalis, detergents, printing inks, food products.

Steam and condensate systems include – systems that use gas, coal, oil, or electricity as fuel sources for the heating system components.

Evidence is required of servicing of: an air conditioning and ventilation system, a chilled water system, and a hot water heating system, and one from – an industrial liquid system, a steam and condensate system, a gas system.

4 Assessment information

- a Evidence may be gathered by the candidate over several work sites and may need to be spread between several time periods. There will typically be jobs where part of the job is completed in conjunction with other mechanical building services personnel. The evidence relates to the candidates own specific work, not work jointly performed with other team members, except where the other team member is checking or assessing the candidate.
- b All activities must comply with applicable workplace procedures and must be consistent with accepted industry practice.

Outcomes and performance criteria

Outcome 1

Prepare for servicing of mechanical building services.

Performance criteria

- 1.1 Componentry is identified and layout of systems is established from system documents.
- 1.2 Correct sequence of system operation is determined from system documents.
- 1.3 Procedures are implemented to protect personnel, equipment, and property.
Range examples – warning notices, identifications, equipment isolation.

Outcome 2

Check and adjust mechanical building services operation.

Performance criteria

- 2.1 The operation of the system is checked against system documents.

2.2 Adjustments are made to achieve performance specified in system documents.

Outcome 3

Diagnose and rectify faults in mechanical building services.

Performance criteria

3.1 Faults are identified and diagnosed through information provided by users and/or operators and the senses of sight, hearing, smell, and/or touch.

3.2 Faults are identified and diagnosed through engineering data.

Range engineering data may include but not limited to – pressure variances, temperature variances, superheats, sub-cooling, humidity levels, air flows, fluid flows, carbon dioxide levels.

3.3 Faults are rectified in accordance with system documents.

Range may include but not limited to – pump-down; recovery; evacuation; replacement of failed components; removal of non system contaminants such as air, debris, oil, and purging chemicals; re-commissioning.

Outcome 4

Retrofit existing mechanical building services with alternative components.

Performance criteria

4.1 Suitability of equipment for retrofit is investigated and justified in terms of life-cycle cost.

4.2 Alternative components are selected and inserted into existing systems.

Outcome 5

Recondition components for mechanical building services.

Performance criteria

5.1 Mechanical building services components are reconditioned in accordance with system documents.

Outcome 6

Complete servicing records.

Performance criteria

6.1 Documentation detailing servicing activities completed is recorded.

Range documentation may include but not limited to – logbooks, service sheets, building management system (BMS) logs, purchase orders, re-commissioning verification, warranty; details may include but are not limited to – labour inputs, materials, operating conditions, adjustments made.

6.2 System documents are updated as necessary to reflect service activities.

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