

Unit of Competency CPCPMS4022

Commission air and water systems

Application

This unit specifies the skills and knowledge required to test and commission air and water heating and cooling systems.

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

Prerequisite Unit

CPCPCM2043 Carry out WHS requirements

Elements and Performance Criteria

1. Prepare for work.	<ul style="list-style-type: none">1.1 Obtain current authorised information, plans and specifications.1.2 Identify and apply workplace policies and procedures, work health and safety (WHS) and environmental requirements and sustainability principles.1.3 Select and check the serviceability of appropriate tools, equipment and personal protective equipment (PPE).1.4 Prepare work area to support an efficient testing and commissioning process.
2. Determine testing requirements.	<ul style="list-style-type: none">2.1 Check equipment performance data against plans, specification requirements and other relevant information.2.2 Select suitable instruments and associated equipment to measure quantities.
3. Prepare system for balancing.	<ul style="list-style-type: none">3.1 Set dampers in the open or specified position and conduct an operational check of system-related fans and ducting according to workplace procedures.3.2 Energise automatic control devices to provide maximum demand for airflow.3.3 Check piping system for flow direction and leaks and conduct an operational check of system and related pumps.3.4 Set all manual and automatic valves in the specified position.
4. Balance, test and commission system.	<ul style="list-style-type: none">4.1 Adjust valves or throttling devices to achieve specified water flow ratings.4.2 Measure air volumes moved by system fans.4.3 Adjust dampers and terminal devices to achieve specified airflow ratings.4.4 Set automatic controls and devices to specified settings.4.5 Test and balance system according to job specification, manufacturer recommendations and sustainability principles and concepts.4.6 Test and monitor results and document in the format required by job or manufacturer's specification.4.7 Complete documentation according to workplace requirements and submit within specified timeframes.
5. Restore work area.	<ul style="list-style-type: none">5.1 Clear the work area, and dispose of, reuse or recycle materials in accordance with state and territory legislation and workplace policies and procedures.5.2 Clean tools and equipment, check for serviceability and report any damage, and store and secure.

Foundation skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPCPMS4022A Commission air and water systems.

Links

Companion Volume Implementation Guide:

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCPMS4022 Commission air and water systems

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria for this unit by balancing and commissioning:

- o an air conditioning system (up to 150 megajoules) for a domestic installation
- o a commercial air conditioning system for a structure of at least four floors
- o a hydronic water heating system for a structure of at least four floors.

The performance applies to:

- o ducting systems for air conditioning, heating or ventilation purposes in buildings Class 1 or 2 with a maximum static pressure of 0.75 kPa and a maximum velocity of 12.5 metres per second
- o piping systems conveying heating and chilled water operating at a maximum pressure of 700 kPa or a maximum temperature of 100°C
- o systems having a maximum output of 50 kW and total air quantities not exceeding 950 litres per second.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- application of mechanical, hydraulic, electric and electronic principles and safety requirements
- design concepts, tests and performance standards for measuring various water and air systems
- SI system of measurements
- effect of bacteria in water and potential impact on health
- waste management
- operating principles and characteristics of system components used in water and air systems
- performance standards for balancing systems
- processes of commissioning air and water systems
- relevant statutory authorities:
 - o Commonwealth government
 - o state and territory governments
 - o local authorities
- how to access relevant information, including codes and standards
- tools, materials and equipment used to commission air and water heating and cooling systems

- work health and safety (WHS) requirements for commissioning air and water heating and cooling.

Assessment Conditions

Assessors must satisfy the requirements for assessors listed in the Standards for Registered Training Organisations.

This unit must be assessed in the workplace or a close simulation using realistic workplace conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Links

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<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>