



Australian Government

CPCPMS5011 Design air conditioning and ventilation systems

Release: 1

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Modification History

- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
- Supersedes and is equivalent to CPCPMS5011A Design air conditioning and ventilation systems. Updated to meet the Standards for Training Packages 2012.

Application

This unit applies to individuals responsible for the evaluation and design of air conditioning and ventilation systems.

The unit requires application of technical skills and knowledge to design, size and document details for complex air conditioning and ventilation systems for residential and commercial applications.

The role may involve interaction with architects, builders, suppliers, clients and relevant planning authorities and requires a sound understanding of applicable legislation, standards and codes.

The unit requirements are typically carried out by a consultant or person in a supervisory capacity in relation to plumbing services and hydraulics.

It applies to those who design air conditioning on a new project or an existing structure.

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

Pre-requisite Unit

Nil.

Unit Sector

Plumbing and Fire Services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

- 1 Evaluate design parameters.

- 1.1 Clarify and establish scope of work for the design of air conditioning and ventilation systems.

- 1.2 Determine design requirements using relevant Australian standards, codes, plans, specifications, manufacturer instructions and client briefs, including factors that contribute to quality, safety and time efficiency.
 - 1.3 Apply sustainability principles and concepts throughout the design.
 - 1.4 Evaluate user comfort and specific use conditions to calculate psychrometric evaluation and heat loads.
 - 1.5 Evaluate building heat losses.
 - 1.6 Specify distribution requirements for air conditioning and ventilation system applications.
 - 1.7 Evaluate air conditioning and ventilation systems according to given applications.
 - 1.8 Evaluate and interpret mechanical services drawings.
 - 1.9 Evaluate health risks that may arise due to poor maintenance of air conditioning and ventilation systems.
 - 1.10 Specify minimum performance requirements for several different air conditioning and ventilation systems.
 - 1.11 Evaluate the suitability of manufacturer specifications and technical manuals for a range of design applications.
 - 1.12 Carry out research including a desktop study to outline design parameters.
 - 1.13 Consider the safety of system users or building occupants.
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- 2 Plan system components.
 - 2.1 Plan appropriate zoning of air conditioning and ventilation systems to comply with performance objectives.
 - 2.2 Specify air conditioning units for optimum performance.
 - 2.3 Specify fan types for a range of applications.
 - 2.4 Plan air diversion systems, including registers, to ensure a balanced system.
 - 2.5 Plan ventilation and duct work components and specify

- locations.
- 2.6 Specify approved materials for planned design.
 - 2.7 Complete plans and drawings using relevant Australian standards, codes, manufacturer installation requirements and drawing symbols.
- 3 Design and size systems.
- 3.1 Calculate volume of air changes per hour from given floor plans and details.
 - 3.2 Specify methods for eliminating health risks from existing or proposed systems, with reference to relevant authority.
 - 3.3 Design and size air conditioning and ventilation systems for the required applications.
- 4 Prepare documentation.
- 4.1 Prepare client brief for the selected design.
 - 4.2 Prepare plans and specifications for of air conditioning and ventilation systems.
 - 4.3 Develop an appropriate checklist, including the formulas required to carry out an air balance to a given specification.
 - 4.4 Prepare a testing and commissioning schedule.
- 5 Test systems.
- 5.1 Evaluate test procedures for air conditioning and ventilation.
 - 5.2 Conduct tests using appropriate testing equipment, ensuring tests are conducted for air pressure, air velocity, air volume, humidity, pitot tubes, sound power levels and temperature.
 - 5.3 Record test results and prepare a report.
 - 5.4 Design, plan and specify adjustments as required.
 - 5.5 Produce an operation and maintenance manual.

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 CPCPMS5011A Design air conditioning and ventilation systems.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>