Australian Government

CPCPMS5013 Design hydronic heating and cooling systems

Release: 2

CPCPMS5013 Design hydronic heating and cooling systems

Modification History

Release 2 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.1.

Performance Evidence formatted for clarity.

Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.

Supersedes and is equivalent to CPCPMS5013A Design hydronic heating and cooling systems. Updated to meet the Standards for Training Packages 2012.

Application

This unit specifies the skills and knowledge required to design hydronic heating and cooling systems, determine relevant installation details and prepare system specifications for residential and commercial buildings with at least three split levels and incorporating a roof top plant room and under croft level.

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

This unit is suitable for experienced tradespeople such as hydraulic design consultants or persons in a supervisory capacity in relation to plumbing services on a new or existing site.

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, 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	1.1 Establish scope of work for hydronic heating and cooling systems using codes, plans, specifications manufacturer

parameters.		requirements and client brief.
	1.2	Determine design requirements from relevant Australian standards, codes, plans and specifications.
	1.3	Analyse and apply statutory and regulatory requirements and relevant Australian standards and codes for the design of hydronic heating and cooling systems.
	1.4	Apply sustainability principles and concepts throughout the design process.
	1.5	Establish performance requirements considering safety of system users or building occupants.
	1.6	Conduct research to outline design parameters.
	1.7	Determine factors that contribute to quality, safety and time efficiency.
	1.8	Conduct cost-benefit analysis to compare a range of pipe materials and system designs.
2 Plan and detail system components.	2.1	Plan layout of pipework systems including type and location of fittings and valves.
	2.2	Perform pipe size requirement calculations for a range of applications according to regulations and manufacturer requirements.
	2.3	Specify system components and circuits.
	2.4	Detail pump and compressor systems.
	2.5	Specify distribution flows, velocities and pressures for a range of applications.
	2.6	Specify insulation for the application.
	2.7	Plan pipe supports for a range of applications.
	2.8	Specify approved materials, jointing methods and installation requirements for hydronic heating and cooling systems.
	2.9	Provide allowance for expansion and contraction.

3 Design and size systems.	3.1	Design hydronic systems and circuits for a range of applications.
	3.2	Design and size hydronic systems using calculations and computer software packages.
	3.3	Design and size manifold distribution systems for hydronic systems.
	3.4	Design and size pumps associated with hydronic systems.
4 Prepare documentation.	4.1	Prepare a client brief for the preferred design.
	4.2	Prepare plans and specifications for a range of hydronic heating and cooling systems.
	4.3	Prepare testing and commissioning schedule.
	4.4	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 CPCPMS5013A Design hydronic heating and cooling 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