



Australian Government

CPCPCM5013 Design complex (non-solar) heated water systems

Release: 2

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Modification History

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

Changes to Elements and Performance Criteria 1.8.

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

Supersedes and is equivalent to CPCPCM5013A Design complex (non-solar) heated water systems. Updated to meet the Standards for Training Packages 2012.

Application

This unit specifies the skills and knowledge required to design complex (non-solar) heated water supply and distribution systems for buildings with 29 floors, inclusive of basement and fixtures on each level for residential, commercial and industrial applications. The unit includes circulating systems, fuel and energy loads and system selection.

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

This unit's requirements are typically carried out by experienced tradespeople such as hydraulic design consultants or persons in a supervisory capacity in relation to plumbing services.

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

Elements and Performance Criteria

Elements describe the essential outcomes.

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

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| 1 Evaluate design parameters. | 1.1 Establish scope of work for heated water supply and distribution systems from relevant Australian Standards, codes, plans, specifications and client brief. |
| | 1.2 Analyse and apply statutory and regulatory requirements for the design of complex (non-solar) heated water supply and distribution systems. |
| | 1.3 Apply sustainability principles and concepts as part of the design process. |
| | 1.4 Establish performance requirements considering the safety of system users and building occupants, including the control of Legionella bacteria. |
| | 1.5 Conduct research, including a desktop study to outline design parameters. |
| | 1.6 Interpret manufacturer requirements and trade and technical manuals for the design of heated water systems. |
| | 1.7 Conduct a cost-benefit analysis to compare a range of materials and system designs. |
| 2 Plan and detail system components. | 2.1 Plan layout of pipework systems and type and location of fittings and valves. |
| | 2.2 Detail thermostatic mixing, tempering and control valves for a range of applications using appropriate symbols. |
| | 2.3 Plan and detail circulating heated water supply systems. |
| | 2.4 Plan and detail warm water systems, including disinfection and biocontrol measures. |
| | 2.5 Conduct calculations to determine water heating sizing and detail methods for the control of expansion. |
| | 2.6 Calculate pipe sizes and design pipe supports for a range of applications. |
| | 2.7 Detail manifolded heated water units for a range of water heaters and specify safe trays and overflows. |
| | 2.8 Specify approved materials and jointing methods and insulation materials and installation requirements for a range of water heaters and heated water systems. |

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| | 2.9 | Provide allowance for expansion and contraction. |
| | 2.10 | Include acoustic performance of the system in plans. |
| 3 Design and size systems. | 3.1 | Design complex (non-solar) heated water supply and distribution systems using plans and details of system components and established design parameters. |
| | 3.2 | Design suitable system approaches. |
| | 3.3 | Design and size system using manufacturer's design information and calculations. |
| | 3.4 | Calculate pipe sizes, velocities and pressures according to manufacturer's piping design requirements. |
| 4 Prepare documentation | 4.1 | Prepare client brief of the preferred design. |
| | 4.2 | Prepare plans and specifications. |
| | 4.3 | Prepare testing and commissioning schedule. |
| | 4.4 | Produce 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 CPCPCM5013A Design complex (non-solar) heated water 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>