



Australian Government

CPCPPS5023 Design solar water heating systems

Release: 2

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Modification History

- Release 2 This version first released with CPC Construction, Plumbing and Services Training Package Release 6.5.
Change to Performance Criteria 4.1.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
Supersedes and is equivalent to CPCPPS5023A Design solar water heating systems. Updated to meet the Standards for Training Packages 2012.

Application

This unit specifies the skills and knowledge required to design efficient cost-effective solar water heating systems for residential, commercial and industrial applications for buildings with a minimum of 29 floors and a wide span, multi-building project, using proprietary components and manufacturer design information.

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 applies to people such as hydraulic design consultants, plumbers or persons in a supervisory capacity in plumbing services working on new or existing sites.

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.

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| 1 Evaluate design | 1.1 Establish scope of work for solar water heating system design using codes, plans, specifications manufacturer |
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parameters.	requirements and client brief.
	1.2 Assess locations of solar collectors and evaluate effect of each location on efficiency.
	1.3 Analyse and identify statutory and regulatory requirements and relevant Australian Standards and codes for the design of solar water heating systems.
	1.4 Establish performance requirements considering safety of system users or building occupants.
	1.5 Evaluate environmental and community benefits of solar water heating systems.
	1.6 Apply sustainability principles and concepts as part of the design process.
	1.7 Conduct research including a desktop study to outline design parameters.
	1.8 Determine factors that contribute to quality, safety and time efficiency.
	1.9 Conduct 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 including type and location of fittings and valves.
	2.2 Select and evaluate the configuration and application of a range of proprietary solar heated water systems, materials and valves.
	2.3 Perform calculations for solar water heating systems.
	2.4 Plan and detail typical configuration of a hydraulic circuit (flow and return) and its components for a pumped-storage solar water heating system.
	2.5 Specify water quality and water pre-treatment methods.
	2.6 Specify suitable types and levels of insulation for system components and detail a range of methods to protect from freezing and over performance.
	2.7 Calculate pipe size, velocity, flow and pressure for a range of applications.

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| | 2.8 | Plan pipe supports for a range of applications. |
| | 2.9 | Specify approved materials, jointing methods and installation requirements. |
| | 2.10 | Provide allowance for expansion and contraction. |
| 3 | Design and size systems. | |
| | 3.1 | Select solar collectors to meet identified installation requirements. |
| | 3.2 | Design and size solar water heating, solar pre-heat and solar pool and spa heating systems to meet requirements. |
| | 3.3 | Consider legionella bacteria mitigation design principles in the design of solar water heating systems. |
| 4 | Prepare documentation. | |
| | 4.1 | Prepare a return client brief for the preferred design. |
| | 4.2 | Prepare plans and specifications for solar water heating systems. |
| | 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 CPCPPS5023A Design solar water heating 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>