



Australian Government

CPCPPS5030 Design pump 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 CPCPPS5030A Design pump systems.
Updated to meet the Standards for Training Packages 2012.

Application

This unit specifies the skills and knowledge required to undertake the specification, selection and sizing of pumps and the design of associated piping and components for inclusion in hydraulic systems in high-rise mixed development building to a minimum of 29 floors and wide span projects, such as schools.

The role involves 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 experienced people such as hydraulic design consultants, plumber 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.

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| 1 Evaluate design | 1.1 Establish scope of work for pump system requirements |
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- parameters.
- for wide span and high-rise building projects.
- 1.2 Determine design requirements from plans, specifications, system demands and client brief.
 - 1.3 Identify statutory and regulatory requirements and Australian Standards and codes for the design of pump systems.
 - 1.4 Apply sustainability principles and concepts as part of the design process.
 - 1.5 Conduct flow and pressure tests of hydraulic system.
 - 1.6 Establish pump duties for the design application.
 - 1.7 Establish performance requirements considering safety of system users or building occupants.
 - 1.8 Interpret manufacturer requirements, trade, sizing and technical manuals.
 - 1.9 Conduct research to outline design parameters.
 - 1.10 Conduct cost-benefit and life cycle analysis to compare a range of pump alternatives, materials and system designs.
- 2 Plan and detail system components.
- 2.1 Size and detail pump, controls and pump room requirements.
 - 2.2 Plan layout of pipework systems including type and location of fittings, valves and controls.
 - 2.3 Calculate pipe sizes, velocities, flows and pressures for applications.
 - 2.4 Specify energy sources for hydraulic pumping applications.
 - 2.5 Plan pump plinths and pump mountings for applications.
 - 2.6 Size and select pump impellers.
 - 2.7 Specify approved materials, jointing methods and installation requirements.
 - 2.8 Provide allowance for vibration.

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| 3 Design and size systems. | 3.1 Design pump systems for wide span and high-rise building applications. |
| | 3.2 Evaluate pump acoustic performance. |
| | 3.3 Perform wastewater pump dynamic suction head and flow rate calculations. |
| | 3.4 Apply design principles for optimal performance of pump systems. |
| | 3.5 Design delivery systems for the design application. |
| | 3.6 Design and size pump systems using calculations and computer software packages. |
| | 3.7 Perform domestic water pump flow rate and pressure head calculations. |
| | 3.8 Perform stormwater pump dynamic suction head and flow rate calculations. |
| 4 Prepare documentation. | 4.1 Prepare a return client brief of the preferred design. |
| | 4.2 Prepare plans and specification details for a range of pump 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 CPCPPS5030A Design pump 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>