



Australian Government

CPCPPS5033 Design vacuum drainage systems

Release: 3

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Modification History

- Release 2 This version first released with CPC Construction, Plumbing and Services Training Package Release 6.2.
Removed duplicated heading from Performance Evidence.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
Supersedes and is equivalent to CPCPPS5033A Design vacuum sewerage systems. Updated to meet the Standards for Training Packages 2012.

Application

This unit specifies the skills and knowledge required to design vacuum drainage systems, determine installation details, and prepare specifications for 50 residential properties and industrial high-rise mixed development buildings with a minimum of 29 floors using proprietary components.

This unit relates to work in a consultancy or supervisory capacity in relation to plumbing services and hydraulics 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

CPCPDR3025 Plan layout and install vacuum drainage systems

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 vacuum drainage systems designed for vacuum sewer infrastructure systems and high-rise building projects. |
| | 1.2 Determine design requirements from relevant Australian |

- Standards, codes, plans, specifications and client brief.
- 1.3 Evaluate vacuum drainage system attributes and conduct a cost–benefit analysis comparing a range of pipe materials and system designs.
 - 1.4 Interpret, analyse and apply statutory and regulatory requirements, including relevant Australian Standards and codes for the design of vacuum drainage systems.
 - 1.5 Obtain trade and technical manuals and interpret manufacturer requirements for the design of vacuum sewer infrastructure systems.
 - 1.6 Conduct additional research including a desktop study to outline design parameters.
 - 1.7 Determine factors that contribute to quality, safety and time efficiency.
 - 1.8 Establish performance requirements considering safety of system users or building occupants.
- 2 Plan and detail system components.
- 2.1 Plan layout of pipework systems including the type and location of fittings, valves and controls.
 - 2.2 Calculate vacuum loading units (VLU) using equivalent population (EP) density for a residential development in excess of 50 dwellings in accordance with the National Construction Code (NCC) for a high-rise project with a minimum of 29 floors.
 - 2.3 Perform pipe size calculations for applications according to regulations and manufacturer requirements.
 - 2.4 Design pipe supports for applications.
 - 2.5 Size and detail vacuum pumping station and pump control requirements.
 - 2.6 Specify approved materials, jointing methods and installation requirements for vacuum drainage systems.
 - 2.7 Determine approved point of discharge to the authority’s main.
 - 2.8 Identify acoustic performance of the system and document in the plan.

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| 3 Design and size systems. | 3.1 Design vacuum drainage system for residential, commercial and industrial building applications. |
| | 3.2 Design and size vacuum drainage system using EP density calculations and in accordance with NCC. |
| | 3.3 Apply sustainability principles and concepts throughout the design process. |
| 4 Prepare documentation. | 4.1 Prepare and document client brief of the desired design in accordance with workplace procedures. |
| | 4.2 Prepare plans and specifications vacuum drainage systems. |
| | 4.3 Prepare testing and commissioning schedule. |
| | 4.4 Produce operation and maintenance manual including information on how to properly and safely maintain the system. |

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 CPCPPS5033A Design vacuum sewerage 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>