

Unit of Competency CPCPMS5010

Design steam generation and distribution systems

Application

This unit specifies the skills and knowledge required to design steam generation and distribution systems, including pipe and valve sizing, material selection, and the preparation and specification of documentation for steam distribution systems for a multi-level building with a minimum of 100 beds, such as a hospital, that incorporates a commercial steam-fed laundry.

The role involves interaction with architects, builders, suppliers, clients and relevant planning authorities and requires 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.

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

Prerequisite Unit

Nil.

Elements and Performance Criteria

1. Evaluate design parameters.	<ul style="list-style-type: none">1.1 Establish scope of work for steam generation and distribution systems.1.2 Determine design requirements from relevant Australian Standards, codes, plans, specifications, manufacturer requirements and client brief.1.3 Analyse and apply statutory and regulatory requirements and relevant Australian Standards and codes required for the design.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 a cost-benefit analysis comparing a range of pipe materials and system designs.
2. Plan, size and detail system components.	<ul style="list-style-type: none">2.1 Plan layout of pipework systems and type and location of fittings and valves.2.2 Perform pipe size calculations.2.3 Design and size steam distribution system using calculations and computer software packages.2.4 Specify steam appliances, calculate steam consumption and size and specify boilers required.2.5 Detail steam circuits and specify distribution pressures.2.6 Specify and detail steam trap types and their operation.2.7 Specify steam injection systems.2.8 Specify insulation requirements.2.9 Plan pipe supports and expansion systems.

	2.10 Specify approved materials, jointing methods and installation requirements for steam generation and distribution systems.
3. Prepare documentation.	3.1 Prepare plans for steam generation and distribution system. 3.2 Prepare specification for steam generation and distribution system. 3.3 Prepare testing and commissioning schedule. 3.4 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 CPCPMS5010A Design steam generation and distribution systems.

Links

Companion Volume Implementation Guide:

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCPMS5010 Design steam generation and distribution systems

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria for this unit by:

- designing, sizing and documenting an approved layout for a multi-level building with a minimum of 100 beds, such as a hospital, that incorporates a commercial steam-fed laundry.

The design must:

- meet all regulatory, manufacturer and Australian and New Zealand Standard requirements for steam generation and distribution systems
- incorporate a specification covering all works
- incorporate sustainability principles and concepts.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- common terminology and definitions used in design of steam generation and distribution systems for all classes of building
- manufacturer specifications, including hazards identified in relation to devices and systems used
- work health and safety (WHS) requirements, including relevant statutory regulations, codes and standards
- principles of technology in the design of steam generation and distribution systems
- terms, including relevant Australian Standard and code definitions, manufacturer terms and naming conventions
- statutory and regulatory requirements and relevant Australian Standards and codes
- plans and specifications, and sizing and documenting layout of steam generation and distribution systems for residential, commercial and industrial applications
- principles and properties of steam systems
- types of steam and steam quality
- sustainability principles and concepts
- cost-benefit analysis of steam designs
- performance requirements, including steam generation and consumption and steam and pressure quality established using relevant Australian Standards, codes and manufacturer information.
- use of steam appliances
- types of steam circuits
- steam trap types and their operation

- types of insulation protection and applications.

Assessment Conditions

Assessors must satisfy the requirements for assessors listed in the Standards for Registered Training Organisations.

This unit must be assessed in the workplace or a close simulation using realistic workplace conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Links

Companion Volume Implementation Guide:

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