Unit of Competency CPCPMS5012 Design sound attenuated hydraulic services

Application

This unit specifies the skills and knowledge required to design sound attenuated hydraulic services, determine relevant installation details and prepare specifications for a range of residential, commercial and industrial buildings 29 floors in height or greater.

The unit requires application of technical skills and knowledge to evaluate design requirements, plan and detail system components, design and size systems and prepare operational and compliance documentation.

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 is suitable for experienced tradespeople such as hydraulic design consultants or persons in a supervisory capacity in relation to plumbing services who work on new or existing sites.

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.	1.1 Establish scope of work for sound attenuated hydraulic services for wide span and high-rise building projects. 1.2 Determine design requirements from relevant Australian standards, codes, plans, specifications and the client brief. 1.3 Identify sound transmission categories and levels from relevant acts, codes and standards and evaluate for the relevant premises. 1.4 Evaluate sound transmission values of building and structural elements and materials. 1.5 Analyse and apply the National Construction Code (NCC), statutory and regulatory requirements and Australian standards for the design of sound attenuated hydraulic services. 1.6 Apply sustainability principles and concepts throughout the design process. 1.7 Establish performance requirements considering safety of system users or building occupants. 1.8 Interpret manufacturer requirements and trade and technical manuals to comply with design parameters. 1.9 Conduct research to outline design parameters. 1.10 Determine factors that contribute to quality, safety and time efficiency. 1.11 Conduct cost-benefit analysis comparing a range of pipe materials and system designs.

2. Plan and detail system components.	2.1 Identify and analyse causes of noise generation in hydraulic services. 2.2 Plan layout of sound-attenuated pipework systems. 2.3 Perform system calculations for a range of sound attenuated hydraulic services. 2.4 Attenuate sound for pumped hydraulic systems. 2.5 Plan pipe supports for a range of applications. 2.6 Specify approved materials and installation requirements for sound attenuated hydraulic services.
3. Design and size systems.	3.1 Design and size sound attenuated hydraulic services for a range of applications. 3.2 Identify and document material combinations to achieve sound attenuation requirements. 3.3 Attenuate sound for pump installations. 3.4 Design and evaluate sound attenuated hydraulic services using calculations and computer software packages.
4. Prepare documentation.	4.1 Prepare a client brief for the preferred design. 4.2 Prepare plans and specifications for a range of sound attenuated hydraulic services. 4.3 Prepare reports on sound attenuated hydraulic services for a range of applications. 4.4 Prepare testing and commissioning schedule. 4.5 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 CPCPMS5012A Design sound attenuated hydraulic services.

Links

Companion Volume Implementation Guide:
https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad

Assessment Requirements for CPCPMS5012 Design sound attenuated hydraulic services

Performance Evidence

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

- designing an approved sound attenuated system for an approved sanitary plumbing system and a domestic drinking water system installation incorporating a pumping system to a building 29 floors in height or greater.

  The design must include:

  - clipping details
  - pipe enclosures details
  - insulation of pipework details
  - vibration elimination method details
- documenting a hydraulic works specification for the above design including:
  - clipping procedures and products to be used
  - pipe enclosure and duct work requirements relating to sound attenuation
  - pumping details including sound attenuation methods, vibration methods and products
  - pipe insulation details and products to be used
  - sound attenuated hydraulic services calculations for the design.

Knowledge Evidence

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

- application of relevant Australian standards and codes, the National Construction Code (NCC), manufacturer specifications, and other relevant standard operating procedures (SOPs) relevant to the sector
- industry terminology and definitions used in the design of sound attenuated hydraulic services for all classes of building
- drafting principles
- design principles and concepts
- relevant quality assurance requirements
- relevant Environment Protection Authority (EPA) requirements
- sustainability principles and concepts
- nature of materials used and effects of performance under various conditions
- principles of technology in the design of sound attenuated hydraulic services

- work health and safety (WHS) requirements, including relevant statutory regulations, codes and standards
- cost-benefit analysis considerations
- noise rating of habitable areas, including compliance requirements
- types of noise generation:
- applications of system calculations:
    - sound criteria for habitable rooms
    - noise insulation characteristics of materials
    - sound transmission values of plumbing pipework and building materials
- types of pumped hydraulic systems
- pipe supports cover fixings that do not impinge on sound attenuation of the hydraulic service:
- materials for sound attenuated hydraulic services:
    - commissioning schedule information
    - operation and maintenance manuals

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

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