



Australian Government

Assessment Requirements for CPCSF5009 Create detailed designs for fire systems' water supplies

Release: 1

Assessment Requirements for CPCSF5009 Create detailed designs for fire systems' water supplies

Modification History

- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
- Supersedes and is equivalent to CPCSF5009A Create detailed designs for fire systems' water supplies. Updated to meet the Standards for Training Packages 2012.

Performance Evidence

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

- effectively applying principles relating to the design of water supplies for fire systems for four types of buildings including a:
 - commercial building
 - factory
 - residential nursing home
 - high-rise building.

Knowledge Evidence

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

- workplace design tools and processes
- project drawings and documentation:
 - proposed water-based fire system designs
 - mechanical
 - electrical
 - hydraulic
- level of accuracy required in detailed design drawings
- naming conventions for design drawings and drawing register
- computer software functions and operation:
 - word processing
 - spreadsheet
 - email
 - internet
- relevant current legislation, codes and standards:

- building Acts
- building regulations
- infrastructure supply regulations
- the Building Code of Australia (BCA)
- National Construction Code (NCC)
- Australian standards for fire systems
- international standards for fire systems
- jurisdictional authorities in addition to the BCA and NCC
- other fire system standards commonly required by building insurers
- protection requirements for different buildings including:
 - low-rise buildings
 - processing building applications
 - warehouse buildings under 13.7 m high
 - warehouse buildings over 13.7 m high
 - medium-rise buildings
 - high-rise buildings (over 25 metres)
 - buildings over 50 metres in height
- fire systems' technology and components
- fire system water supply technology and components:
 - electric pumps
 - diesel pumps
 - tanks
 - pressure vessels
 - booster configurations
 - components for water recovery systems
- purpose and operation of fire systems:
 - layout:
 - consideration of a range of sustainable options for producing the required water pressure for water-based fire systems
 - selection of cost-effective components and materials
 - consideration of:
 - conflict with other services
 - work health and safety (WHS) risks
 - access constraints
 - installation problems
 - aesthetic requirements
 - efficiencies to facilitate work on site and reduce labour costing
 - performance requirements
 - maintenance standards

- characteristics and limitations of products and materials used in water supplies for fire systems and issues relating to material compatibility
- construction industry terminology
- roles and responsibilities of relevant building project personnel:
 - architect
 - lead contractor
 - structural engineer
 - mechanical engineer
 - hydraulic engineer
 - electrical engineer
 - civil engineer
 - fire engineer
 - building (private) certifier or surveyor
- installation methods:
 - access requirements
 - WHS requirements
- water supplies:
 - common water sources
 - conservation requirements
 - in-ground reticulation
 - booster configurations
- fluid mechanics and hydraulics relating to:
 - water supply
 - pressure
 - tank selection
 - pressure vessels
 - pipe range
- fluid dynamics, hydraulics and the calculations required for the design of water supplies for fire systems
- sustainability requirements and ratings:
 - energy conservation
 - water conservation
- pipe fabrication methods and constraints
- mathematic principles, equations and calculation methods:
 - flow calculations, including:
 - pressure gain and loss
 - K-factors
 - Hazen-Williams equation
 - Darcy-Weisbach equation
 - Colebrook White equations and/or tables

- Manning formula and/or tables
- AS 2200 Design charts for water supply and sewerage
- computational fluid dynamics.

Assessment Conditions

Assessors must meet the requirements for assessors contained 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 volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>