



Australian Government

Assessment Requirements for CPCSF5006 Create detailed designs for fire sprinkler systems

Release: 1

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Modification History

- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
- Supersedes and is equivalent to CPCSF5006A Create detailed designs for fire sprinkler systems. 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:

- designing fire sprinkler systems for four different types of buildings, including:
 - 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:
 - effective and workable layout and location:
 - selection of cost-effective components and materials
 - consideration of:
 - penetrations
 - 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
- negotiations regarding amendments:
 - non-compliance with applicable legislation, codes and standards
 - impact on installation risks and constraints
 - impact on cost-effectiveness

- level of accuracy required in detailed design drawings
- storage and sharing design drawings
- naming conventions for design drawings and drawing register
- computer software functions and operation:
 - word processing
 - spreadsheet
 - email
 - internet
 - proprietary hydraulic calculation software
- 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
- fire systems technology and components for water-based systems:
 - wet pipe sprinkler systems
 - deluge and drencher systems
 - dry pipe sprinkler systems
 - pre-action sprinkler systems
 - early suppression fast response (ESFR)
 - discharge nozzles
 - pipework
 - pipework supports
 - system valves
 - zone valves
 - sprinkler heads
 - Pipework fittings
 - control valves
- purpose and operation of fire systems:
 - layout
 - system operation
 - performance requirements
 - maintenance standards
 - system activation and operation

- characteristics and limitations of products and materials used in fire systems and issues relating to material compatibility
- regulatory approval and fire systems design certification processes
- compliant designs for fire sprinkler systems for a range of types of sites, including:
 - low-rise buildings
 - medium-rise buildings
 - high-rise buildings (over 25 metres)
 - buildings over 50 metres in height
- construction industry terminology
- roles and responsibilities of relevant building project personnel:
 - architect
 - lead contractor
 - mechanical engineer
 - hydraulic engineer
 - electrical engineer
- installation methods:
 - access requirements
 - WHS requirements
- sustainability requirements and ratings:
 - energy conservation
 - water conservation
- pipe fabrication methods and constraints
- mathematic principles, equations and calculation methods:
 - flow calculations:
 - area of operations
 - discharge rates and quantities
 - discharge times
 - pressure gain and loss
 - K-factors
 - pressure, temperature and volume relationship
 - Hazen-Williams equation
 - Darcy-Weisbach equation
 - computational fluid dynamics
- project drawings and documentation:
 - architectural
 - structural
 - mechanical
 - electrical
 - hydraulic
 - fire engineer's or estimator's specifications.

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>