



Australian Government

Assessment Requirements for CPCPFS5012 Design fire hydrant and hose reel systems

Release: 2

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Modification History

- Release 2 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.1.
- Changes to Foundation Skills. Typographical errors corrected in Elements and Performance Criteria 2.1, 2.2, and 2.7.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
- Supersedes and is equivalent to CPCPFS5012A Design fire hydrant and hose reel systems. Updated to meet the Standards for Training Packages 2012.

Performance Evidence

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

- establishing and evaluating design parameters for a range of fire hydrant and hose reel systems
- planning system components for a range of fire hydrant and hose reel systems:
 - application of sustainability principles and concepts
 - booster assemblies
 - hose reels
 - hydrants
 - storage tanks
 - thrust blocks
- complying with WHS regulations applicable to workplace operations
- applying organisational quality procedures and processes within context of restoring plastered surfaces to conservation requirements
- designing and sizing a range of fire hydrant and hose reel systems
- developing a checklist with all information and formulas required to carry out flow and pressure tests
- preparing plans for a range of fire hydrant and hose reel systems
- preparing a specification for a fire hydrant and hose reel system
- preparing a testing and commissioning schedule
- producing an operation and maintenance manual
- communicating with others to ensure safe and effective work site operations.

Knowledge Evidence

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

- Australian and New Zealand standards:
 - AS/NZS3500 National plumbing and drainage: Part 1
 - AS2419 Fire hydrant installations system design, installation and commission
 - AS2441 Installation of fire hose reels
 - AS/NZS2118 Automatic fire sprinkler systems general requirements
 - NCC
- fire department, statutory and regulatory requirements and Australian and New Zealand standards for the design of fire hydrants, hose reels and distribution systems
- flow and pressure:
 - results of flow and pressure tests
 - on-site measurement of flow (l/s), velocity (m/s) and pressure (kPa)
- performance requirements:
 - flow, velocity, pressure and discharge requirements, established using Australian and New Zealand standards and local statutory authority's plans
- layout of pipework:
 - dual feed
 - ring main
 - single pipe
- fittings and valves:
 - fittings:
 - mechanical fittings
 - bends
 - elbows
 - tees
 - unions
 - valves:
 - backflow prevention
 - pressure relief
 - isolating
 - pressure limiting
 - pressure reduction
 - materials:
 - copper
 - galvanised steel
 - fittings and fixtures
 - other approved materials
- jointing methods:

- flanged
- mechanical joints
- silver braze
- threaded
- welded
- other approved methods of jointing
- installation requirements:
 - corrosion and elements protection
 - installation details
 - jointing requirements
 - supports
 - workmanship and quality control
- booster and standpipe assemblies:
 - cabinet and block plans
 - non-return and isolating valves
 - fire appliance (hard stand) access
 - pressure gauges
 - suction and delivery outlets
 - testing points
 - signage
- hose reel assemblies:
 - Australian standards' requirements for clearances and requirements
 - non-return and backflow prevention valves
 - pipe sizes
- design elements of thrust blocks:
 - designed and installed to AS/NZS3500
 - design details for tees, elbows and valves
 - keying and anchorage points
 - sizes
 - soil characteristics
 - velocity and flow forces to be resisted
- pipe fixings:
 - bedding and thrust blocks
 - corrosion protection
 - covers
 - masonry fixing
 - material requirements
 - pipe supports spacings and locations
 - vertical support fixing
- pump, pump controls and pump room requirements:

- electrical supply requirements
- heating
- inlet and outlet design requirements
- installation and mounting requirements
- manual and automatic controls
- pump selection
- space requirements
- valve requirements
- ventilation requirements
- water storage systems:
 - inlet valve design and sizing
 - outlet valve design and sizing
 - overflow requirements
 - safe tray requirements
 - tank sizes
 - vortex plates
- delivery systems:
 - gravity feed
 - mains pressure
 - pump supply
- sustainability principles and concepts:
 - cover the current and future social, economic and environmental use of resources:
 - selecting appropriate material to ensure minimal environmental impact
 - efficient use of material
 - efficient energy usage
 - efficient use and recycling of material
 - disposing of waste material to ensure minimal environmental impact
 - efficient water usage, harvesting and/or disposal
 - life cycle cost-benefit analysis
 - consideration of the Green Building Council of Australia rating scheme.

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>