

Unit of Competency CPCPFS4027

Commission fire sprinkler systems

Application

This unit specifies the skills and knowledge required to commission fire sprinkler systems.

It covers preparing for the work, identifying and confirming system specifications and requirements, physically testing and commissioning systems, and finalising work processes, including completing records and documentation.

The role may involve interaction with architects, builders, suppliers and relevant planning authorities and requires a sound understanding of applicable legislation including work health and safety (WHS).

This unit's requirements may be carried out by experienced tradespeople such as hydraulic design consultants, fire services supervisors, plumbers or plumbing contractors who employ a team of plumbers.

Work may be undertaken on commercial or industrial buildings, which may be new work sites or existing structures.

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. Prepare for work.	<ul style="list-style-type: none">1.1 Consult with approving authority to determine commissioning inspections and tests required to validate fire sprinkler system performance meet design requirements.1.2 Obtain and review documentation required for commissioning.1.3 Consult with all associated persons to plan and sequence tasks.1.4 Select and check the serviceability of appropriate tools, equipment and personal protective equipment (PPE).1.5 Prepare work area to support efficient commissioning process.
2. Confirm that installation of system components correspond to design requirements.	<ul style="list-style-type: none">2.1 Identify fire sprinkler system components and locations on drawings and specifications.2.2 Inspect building to confirm that locations of system components correspond to design requirements and report any variances.2.3 Confirm types of sprinkler heads are compatible and report if determined as incompatible.2.4 Confirm spaces between sprinkler heads are correct and report any variances.2.5 Inspect and confirm that pipework is functional and report any jointing and supporting defects.2.6 Inspect valves for different commissioning tests to confirm correct type, labelling, and position.2.7 Confirm pressure gauge schedule, block plan and interface diagram correspond

	<p>to design requirements.</p> <p>2.8 Check and verify water supply components, including any installed pumpsets against design requirements.</p> <p>2.9 Identify changes to the building or existing conditions that could affect component performance.</p>
3. Conduct pressure tests and restore system to normal pressure.	<p>3.1 Conduct static air-pressure test to confirm integrity of the system, record results according to relevant standards and workplace requirements.</p> <p>3.2 Conduct high pressure hydraulic test to confirm integrity of the system, record results according to relevant standards and workplace requirements.</p> <p>3.3 Identify and report leaks.</p> <p>3.4 Drain system and re-charge at normal pressure according to relevant standards and workplace requirements.</p>
4. Conduct functional tests.	<p>4.1 Conduct water supply functional proving test and record results according to relevant standards.</p> <p>4.2 Conduct functional tests of system components and interfaces, record results according to relevant standards and design requirements.</p> <p>4.3 Conduct tests according to environmental and sustainability requirements.</p>
5. Finalise commissioning process.	<p>5.1 Confirm system functionality and compliance with design specifications.</p> <p>5.2 Confirm componentry is set to operational function and pipework is charged with water according to specifications.</p> <p>5.3 Clean tools and equipment, check for damage and malfunction and store according to manufacturer recommendations and workplace procedures.</p> <p>5.4 Access information to complete documentation according to workplace requirements and submit within specified timeframes.</p>

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 CPCPFS4027A Commission fire sprinkler systems.

Links

Companion Volume Implementation Guide:

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

Assessment Requirements for CPCPFS4027 Commission fire sprinkler systems

Performance Evidence

To determine competency in this unit, a person must demonstrate they can commission one wet system connected to fixed pumpsets, one wet system connected to town main supply and one pre-action fire sprinkler system, and in doing so:

- correctly interpret plans and specifications to complete work to the specified standard within accepted timeframes
- comply with appropriate legislation, organisational processes and regulatory requirements.

In doing this, the person must meet the performance criteria for this unit.

Knowledge Evidence

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

- design and installation performance requirements of relevant installation standards including:
 - National Fire Protection Association (NFPA)
 - Factory Mutual performance-based codes of practice
 - AS 2118.1 Automatic fire sprinkler systems - General systems
- industry and regulatory requirements for commissioning fire sprinkler systems including:
 - codes and standards
 - environmental and sustainability
 - licensing
 - quality assurance
 - work health and safety (WHS)
- job safety analyses (JSA), safety data sheets (SDS) and safe work method statements (SWMS)
- performance measures for fire sprinkler systems as referenced in design drawings and specifications
- properties of water, including pressure, flow rates and atmospheric pressure
- SI system of measurements
- workplace and equipment safety requirements, including personal protective equipment (PPE) requirements relevant to the job
- fire sprinkler systems including:
 - deluge
 - dry pipe
 - pre-action
 - storage sprinklers
 - wall wetting
 - water mist

- o wet pipe
- approving authorities including:
 - o client representative
 - o council representative
 - o fire brigade official
 - o fire protection consultant engineer
 - o insurance company representative
 - o system designer
- documentation including:
 - o as-installed drawings
 - o design calculations
 - o logbooks
 - o operator manuals
- tools and equipment including:
 - o digital tachometers
 - o flow testing equipment
 - o hand tools
 - o laser levels
 - o measuring devices
 - o PPE
 - o pressure gauges
- fire sprinkler system components including:
 - o air compressors
 - o alarm valves
 - o ball valves
 - o brackets
 - o discharge nozzles
 - o flow switches
 - o pipework
 - o pressure gauges
 - o pressure reducing valves
 - o pressure relief valves
 - o pressure switches
 - o pumpsets
 - o solenoids
 - o sprinkler heads
 - o water supply valves
- functional tests to check effective operation of:
 - o brigade booster connections
 - o control and actuator mechanisms including:
 - pressure switches
 - flow switches
 - o control valves, including:

- pressure reducing
- pressure relief
- tank inflow
- o interfaces to other systems, including:
 - booster pumps
 - building services
 - control indicating equipment (CIE)
 - control of booster pumpsets
 - fire detection
 - heating, ventilation and air conditioning (HVAC)
 - occupant warning systems
 - valve monitoring controls
- o remote water proving points
- o water supply components, such as tank infill and suction lines.

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