



**Australian Government**

# **CPCPFS3045A Fit off sprinkler heads, controls and ancillary equipment**

**Release 1**

# **CPCPFS3045A Fit off sprinkler heads, controls and ancillary equipment**

## **Modification History**

This version first released with CPC08 Construction, Plumbing and Services Training Package Version 9.

- Outcomes changed to include references to draining down and recharging. References to sustainability and work health and safety strengthened
- Range of other minor editorial changes

Not equivalent to CPCPFS3033A Fit off sprinkler heads, controls and ancillary equipment

## **Unit Descriptor**

This unit of competency specifies the outcomes required to install sprinkler heads, system controls and ancillary equipment for sprinkler fire protection systems. The installation may involve a new system or an alteration (extension or modification) to an existing system.

## **Application of the Unit**

This unit of competency supports the work of fire protection industry personnel responsible for fitting sprinkler heads, controls and ancillary equipment.

Site location for work may be commercial, industrial or residential, and may be a new work site or an existing structure being renovated, extended, restored or maintained.

## **Licensing/Regulatory Information**

Licensing, legislative, regulatory or certification requirements may apply to this unit. Candidates are advised to check for regulatory requirements.

## **Pre-Requisites**

CPCPCM2043A                      Carry out WHS requirements

## **Employability Skills Information**

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

- |   |                                     |  |
|---|-------------------------------------|--|
| 1 | Prepare for work.                   | <p>1.1 Approved plans and specifications are obtained from relevant authority.</p> <p>1.2 <b><i>Work health and safety (WHS) requirements</i></b> associated with fitting off sprinkler heads, <b><i>system controls</i></b> and ancillary equipment, and workplace <b><i>environmental requirements</i></b> are identified and applied to task planning.</p> <p>1.3 <b><i>Quality assurance requirements</i></b> are identified according to workplace requirements.</p> <p>1.4 Tasks are planned and sequenced in conjunction with others involved in or affected by the work.</p> <p>1.5 <b><i>Tools and equipment</i></b> for installing sprinkler heads, system controls and ancillary equipment, including personal protective equipment, are selected and checked for serviceability.</p> <p>1.6 Work area is prepared to support efficient installation of sprinkler heads, system controls and ancillary equipment.</p> |
| 2 | Identify installation requirements. | <p>2.1 Class of <b><i>sprinkler system</i></b> and associated design data are identified from system design specifications.</p> <p>2.2 Components are selected according to job requirements, plans and specifications, and other relevant codes and standards.</p> <p>2.3 <b><i>Materials</i></b> and equipment are identified, ordered and collected according to workplace procedures.</p>  |

- 2.4 Materials and equipment are checked for compliance with standards, docket and order form, and for acceptable condition.
- 3 Install sprinkler heads and ancillary equipment.
- 3.1 WHS requirements, workplace environmental requirements and quality requirements are applied to work tasks.
- 3.2 When altering existing systems, system is **isolated and drained down** to allow connection without causing water damage, and then recharged.
- 3.3 System is set out in compliance with plans, specifications and job instructions.
- 3.4 Fixings and pipe supports are installed to plans, manufacturer specifications, standards and regulations.
- 3.5 Sprinkler system components and ancillary equipment are installed according to plans, specifications and standards.
- 3.6 **Sustainability principles and concepts** are applied to installation process.
- 4 Clean up.
- 4.1 Work area is cleared and waste materials disposed of or recycled according to **statutory and regulatory authority** requirements.
- 4.2 Tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations and workplace procedures.
- 4.3 **Information** is accessed and documentation completed according to regulatory authorities' and workplace requirements.

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

- communication skills to:
  - enable clear and direct communication, using questioning to identify and confirm requirements, and share information
  - follow and give instructions
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication, such as hand signals
- numeracy skills to apply measurements and calculations
- planning and organisational skills to:
  - plan and sequence tasks with others
  - plan and set out work
- problem-solving skills to:
  - determine and use safe draining down methods
  - identify and report faults in tools, equipment or materials to appropriate personnel
- reading skills to interpret drawings and specifications
- teamwork skills to work with others to action tasks
- technical skills to use tools and equipment required to fit off sprinkler heads, controls and ancillary equipment
- technology skills to:
  - access site-specific instructions in a variety of media
  - use mobile communication technology
- writing skills to complete workplace checklists and forms

### Required knowledge

- fire sprinkler systems for commercial, industrial or residential application
- functions and operation of a range of taps and valves
- processes for calculating material requirements
- properties and characteristics of water, including pressure and flow rates
- relevant statutory and authority requirements relating to installing sprinkler heads, system controls and ancillary equipment
- requirements of job safety analyses (JSA) and safe work method statements (SWMS)
- SI system of measurement
- sources of information relating to fitting off sprinkler heads, controls and ancillary equipment

- workplace and equipment safety requirements

## Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

**Overview of assessment** This unit of competency could be assessed in the workplace or a close simulation of the workplace environment providing that simulated or project-based assessment techniques fully replicate plumbing and services workplace conditions, materials, activities, responsibilities and procedures.

**Critical aspects for assessment and evidence required to demonstrate competency in this unit**

A person should demonstrate the ability to:

- locate, interpret and apply relevant information, standards and specifications to install sprinkler heads, system controls and ancillary equipment
- apply safety requirements throughout the work sequence, including the use of personal protective clothing and equipment
- as a minimum the ability to, given the plans and specifications of a simple automated fire sprinkler system, install at least two sprinkler heads, a flow switch and a pressure switch, ensuring:
  - correct identification of location, design and details of proposed installation
  - correct selection and use of appropriate processes, tools and equipment
  - completion of work to specification
  - compliance with regulations, standards and organisational quality procedures and processes
  - effective communication with others
  - safe work practices
  - application of sustainability principles and concepts.

**Context of and specific resources for assessment**

Assessment of this unit:

- must be in the context of the work environment
- may be conducted in an off-site context, provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills
- must meet relevant compliance requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the minimum task requirements

- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- safety data sheets, job safety analyses and safe work method statements
- research resources, including industry-related systems information.

**Method of assessment** Assessment for this unit must verify the practical application of the required skills and knowledge, using one or more of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to identify and interpret the essential underpinning knowledge required for practical application.

**Guidance information for assessment** This unit could be assessed on its own or in combination with other units relevant to the job function.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Assessment processes and techniques should, as far as is practical, take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

## Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Work health and safety requirements*** must comply with commonwealth, state and territory legislation and regulations, and may

- handling of materials
- hazard control
- personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including recognising and preventing hazards associated with:



include:

- electricity
- hazardous materials and substances
- service lines
- surrounding structures and facilities
- trip hazards
- use of tools and equipment
- work site visitors and the public
- working at heights
- working in proximity to others
- use of firefighting equipment
- workplace environmental health and safety.

***System controls*** may include:

- flow switches
- multiple jet controls (MJs)
- pressure switches
- solenoids.

***Environmental requirements:***

- cover water quality management
- may include:
  - clean-up protection
  - stormwater protection
  - waste management.

***Quality assurance requirements*** may include:

- Australian standards
- Environment Protection Authority (EPA) requirements
- internal company quality assurance policy and risk management strategy
- International Standards Organisation (ISO) standards
- site safety plans
- workplace operations and procedures.

***Tools and equipment*** may include:

- chain blocks
- cutting and threading equipment
- elevated work platforms (EWPs)
- forklifts
- hand and power tools
- hand trolleys
- hoists and jacks
- hole saws
- ladders
- lifting and load shifting equipment
- manufacturer sprinkler keys
- scaffolds
- torque wrench
- welding equipment.

- Sprinkler systems*** may include:
- deluge
  - dry pipe
  - pre-action
  - storage sprinklers
  - wall wetting
  - water mist
  - wet pipe.
- Materials*** may include:
- flow switches
  - MJC's
  - pressure switches
  - sprinkler heads
  - solenoids.
- Isolation and draining down*** must include:
- identifying the correct system
  - isolating:
    - alarm initiating devices
    - alarm signalling equipment
    - control and indicating equipment (CIE)
    - emergency warning system
    - water supply
  - operating the main drain valve
  - identifying and operating low drain point valves, if present
  - checking system for residual water pressure
  - applying drain-down water management techniques to prevent water damage.
- Sustainability principles and concepts***
- cover the current and future social, economic and environmental use of resources
  - may include efficient:
    - energy use
    - use and recycling of material
    - water use, harvesting and disposal.
- Statutory and regulatory authorities*** may include:
- state or territory statutory authority
  - statutory plumbing authority.
- Information*** may include:
- charts, drawings and sketches
  - instructions issued by authorised organisational or external personnel
  - memos
  - organisation's work requirements
  - regulatory and legislative requirements, particularly those relating to:
    - building codes
    - WHS and environmental requirements

- plumbing regulations
- relevant Australian standards
- safe work procedures relating to installing sprinkler heads, system controls and ancillary equipment
- safety data sheets (SDS)
- signage
- verbal, written and graphical instructions, including manufacturer specifications and instructions where specified
- work bulletins
- work schedules, plans and specifications.

## **Unit Sector(s)**

Plumbing and services

## **Custom Content Section**

Not applicable.