



Australian Government

CPCPFS4022A Commission and maintain special hazard fire suppression systems

Release 1

CPCPFS4022A Commission and maintain special hazard fire suppression systems

Modification History

Changes to performance criteria, required skills and knowledge, range statement and critical aspects

Not equivalent to CPCPFS4012A

Unit Descriptor

This unit of competency specifies the outcomes required to test, commission and maintain special hazard fire suppression systems.

It covers preparation for the work, identification and confirmation of system specifications and requirements, physical testing and commissioning of the systems, and conduct of systems maintenance and work finalisation processes, including records and documentation.

Application of the Unit

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

Licensing/Regulatory Information

All technicians performing work described in this unit that involves the handling of prescribed ozone depleting substances (ODS) and synthetic greenhouse gases (SGG) extinguishing agents must hold an appropriate extinguishing agent handling licence (EAHL).

Pre-Requisites

Nil

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

Elements and Performance Criteria

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| 1 | Prepare for work. | 1.1 | Plans and specifications are obtained. |
| | | 1.2 | <i>Work health and safety</i> (WHS) and <i>environmental requirements</i> associated with commissioning special hazard fire suppression systems are adhered to throughout the work. |
| | | 1.3 | <i>Quality assurance requirements</i> are identified and adhered to according to workplace requirements. |
| | | 1.4 | Apply knowledge and understanding of ODS and SGG legislative and industry requirements to commission, inspect, test and maintain activities for special hazard fire suppression systems. |
| | | 1.5 | Tasks are planned and sequenced in conjunction with others involved in or affected by the work. |
| | | 1.6 | <i>Tools, equipment</i> and <i>materials</i> for commissioning and maintaining <i>special hazard fire suppression systems</i> , including personal protective equipment, are selected and checked for serviceability. |
| | | 1.7 | Work area is prepared to support efficient commissioning process. |

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| 2 | Identify system requirements. | 2.1 | Service design requirements are identified and confirmed from job specifications and are according to standards. |
| | | 2.2 | Testing and commissioning requirements of special hazard fire suppression systems are identified according to standards, authorities' requirements and job specifications. |
| 3 | Test and commission system. | 3.1 | Special hazard fire suppression systems are checked to ensure type and installation conform to standards, job specifications, manufacturer recommendations and authorities' requirements. |
| | | 3.2 | Operation of system is tested according to job specifications, manufacturer recommendations and authorities' requirements, including ODS and SGG legislative requirements, and is adjusted as required. |
| | | 3.3 | System is commissioned to ensure correct operation according to standards, and manufacturer and job specifications. |
| 4 | Maintain system. | 4.1 | Service and maintenance requirements are identified from manufacturer specifications or authorities' requirements. |
| | | 4.2 | Replacement components are checked and fitted periodically and as required according to specifications. |
| | | 4.3 | Maintenance and repair of system are conducted observing maintenance schedule described in current Australian standard, and manufacturer and/or authorities' requirements, including ODS and SGG legislative requirements. |
| | | 4.4 | <i>Sustainability principles and concepts</i> are observed when preparing for and undertaking work process. |

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| 5 | Clean up work area. | 5.1 | Work area is cleared and materials disposed of, reused or recycled according to legislation, regulations, codes of practice and job specification. |
| | | 5.2 | Tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations and workplace procedures. |
| | | 5.3 | Information is accessed and documentation completed according to workplace requirements. |

Required Skills and Knowledge

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

Required skills

- communication skills to:
 - access information
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow and give instructions
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- initiative and enterprise skills to identify and report to appropriate personnel any faults in tools, equipment or materials
- literacy skills to:
 - complete workplace documentation
 - read and interpret:
 - documentation from a variety of sources
 - plans and specifications
- numeracy skills to apply measurements and calculations
- planning and organising skills to:
 - plan and sequence tasks with others
 - plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technical skills to test, commission and maintain a special hazard protection system consisting of an extinguishing agent, piping, actuating devices and sprinkler delivery
- technology skills to:
 - access and understand site-specific instructions in a variety of media
 - use mobile communication technology

Required knowledge

- Environment Protection Authority (EPA) requirements, particularly in relation to ODS
- function and operation of components and qualities of materials of special hazards systems
- hazard categories, classes of fire hazard, extinguishing agents and application methods
- job safety analysis (JSA) and safe work method statements (SWMS)

- National Fire Protection Association (NFPA) and Factory Mutual performance-based codes of practice
- pressure test systems and procedures
- procedures for cylinder anchorage and handling
- processes for accessing information and for calculating material requirements
- actuator handling process of installing, testing and commissioning special hazard systems
- relevant statutory requirements related to commissioning domestic and residential fire suppression sprinkler systems
- requirements for room ventilation and integrity
- SI system of measurements
- standards applicable to the service
- 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 who demonstrates competency in this unit must be able to provide evidence of:

- locating, interpreting and applying relevant information, standards and specifications to testing and commissioning special hazard fire suppression systems
- applying safety requirements throughout the work sequence, including electrical safety requirements and the use of personal protective clothing and equipment
- testing and commissioning one special hazard fire suppression system (not prescribed ODS or SGG extinguishing agent), being a gaseous, chemical or fluid-based system; and inspect, test and maintain one prescribed ODS or SGG system, ensuring:
 - application of sustainability principles and concepts
 - correct identification of location, design specification and details of proposed service
 - correct selection and use of appropriate processes, tools and equipment
 - completion of all work to specification
 - compliance with regulations, standards and organisational quality procedures and processes
 - communicating and working effectively and safely with others.

Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or

Australian standards' 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
- material safety data sheets
- research resources, including industry-related systems information.

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.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete

confidence in the person's demonstrated ability and applied knowledge

- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

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.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

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 is to be according to commonwealth, state and territory legislation and regulations and may include:

- 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:
 - electricity
 - hazardous materials and substances
 - other machines
 - surrounding structures and facilities
 - trip hazards
 - underground services
 - use of tools and equipment
 - work site visitors and the public
 - working at heights
 - working in confined spaces
 - working in proximity to others
- use of firefighting equipment

- use of first aid equipment
- workplace environment and safety.

Environmental requirements cover water quality management and may include:

- clean-up protection
- complying with ODS and SGG legislation, codes and regulations, e.g. Ozone Protection and Synthetic Greenhouse Gas Management Act 1989
- preventing emissions of prescribed ODS and SGG extinguishing agents
- stormwater protection
- waste management.

Quality assurance requirements may include:

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

Tools and equipment may include:

- hand and power tools
- test equipment.

Materials may include:

- actuating devices
- alarms
- control valve assemblies
- unplasticised polyvinyl chloride (PVC-U), steel or copper pipes or other approved materials
- special hazard fire suppression agents, including prescribed ODS and SGG materials
- sprinkler heads.

Special hazard fire suppression systems may include:

- carbon dioxide and other gases (such as inergen and argonite)
- chemical reaction and explosion suppression systems
- dry chemical
- foam
- prescribed ODS and SGG extinguishing agents (such as halon and NAF S-III)

- water
- water mist.

Sustainability principles and concepts:

- cover the current and future social, economic and environmental use of resources
- may include:
 - efficient energy use
 - disposing of waste material to ensure minimal environmental impact
 - selecting appropriate components to ensure minimal environmental impact.

Information may include:

- charts and hand drawings
- instructions issued by authorised organisational or external personnel
- job drawings
- manufacturer specifications and instructions
- material safety data sheets (MSDS)
- memos
- organisation work specifications and requirements
- plans and sketches
- regulatory and legislative requirements, particularly those pertaining to:
 - building codes
 - WHS and environmental requirements, including ODS and SGG legislation, codes and regulations
 - plumbing regulations
- relevant Australian standards, including AS2118 Automatic fire sprinkler systems and AS1851 Maintenance of fire protection systems and equipment
- safe work procedures relating to testing and commissioning special hazard fire suppression systems
- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

Unit Sector(s)

Functional area

Unit sector Plumbing and services

Custom Content Section

Not applicable.