



Australian Government

Department of Education, Employment and Workplace Relations

CPPFES2027A Inspect, test and maintain non-gaseous pre-engineered fire- suppression systems

Release: 1

CPPFES2027A Inspect, test and maintain non-gaseous pre-engineered fire-suppression systems

Modification History

Revised unit

Element structure and performance criteria changed to incorporate outcomes of deleted units:

- PRMPFES29B Inspect, test and maintain pre-engineered powder fire suppression systems
- PRMPFES30B Inspect, test and maintain pre-engineered wet chemical fire suppression systems
- PRMPFES31B Inspect, test and maintain pre-engineered water mist fire suppression systems

Skills and knowledge requirements and the range statement are more comprehensive

Unit based on PRMPFES27B Inspect, test and maintain pre-engineered aqueous fire suppression systems

Unit Descriptor

This unit of competency specifies the outcomes required to inspect, test and maintain non-gaseous pre-engineered fire-suppression systems.

Application of the Unit

This unit of competency supports fire protection technicians responsible for regularly inspecting, testing and maintaining pre-engineered, foam, wet chemical, powder or water mist fire-suppression systems.

This unit does not apply to any installation, replacement, maintenance and repair functions that are restricted to licensed trades or occupations (subject to relevant state and territory regulations).

Licensing/Regulatory Information

Work in this area must be completed according to relevant legislative, industry, customer and organisational requirements, including occupational health and safety (OHS) policies and procedures.

Different states and territories may have regulatory mechanisms that apply to this unit.

Candidates are advised to check for regulatory limitations.

Pre-Requisites

Not applicable.

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

- | | | | |
|---|--|-----|--|
| 1 | Prepare for inspection, testing and maintenance. | 1.1 | <i>Legislative and industry requirements</i> are interpreted, <i>confirmed</i> and applied to <i>organisational requirements</i> . |
| | | 1.2 | <i>Non-gaseous pre-engineered fire-suppression systems</i> are <i>checked for compliance</i> with legislative and industry requirements, and <i>action</i> is taken according to organisational requirements. |
| | | 1.3 | Preparations for inspection, testing and maintenance work are made according to organisational requirements. |
| | | 1.4 | <i>Safety procedures</i> are followed according to organisational, manufacturer and <i>customer requirements</i> . |
| | | 1.5 | Work permits are obtained prior to entering customer premises. |
| | | 1.6 | <i>Relevant persons</i> are consulted before commencing procedures. |
| 2 | Inspect and survey installed non-gaseous pre-engineered fire-suppression systems. | 2.1 | Type of <i>non-gaseous</i> pre-engineered fire-suppression system and <i>extinguishing agent</i> is identified according to operation and application. |
| | | 2.2 | <i>System components</i> are identified, located and inspected according to function and manufacturers' manuals. |
| | | 2.3 | <i>Auxiliary shutdown devices</i> of fire-suppression system or equipment interfaces and alarm devices forming part of the fire-suppression system are identified and |

- inspected.
- 2.4 Changes to non-gaseous pre-engineered fire-suppression system, the protected space or its use are identified according to relevant state and territory regulations, manufacturers' documentation and Australian standards.
- 3 **Test an installed non-gaseous pre-engineered fire-suppression system.**
- 3.1 **Testing procedures** are completed and recorded according to relevant **maintenance schedule**, Australian standards and manufacturers' documentation.
- 3.2 **Documentation** for recording test and inspection results is completed according to organisational, customer and manufacturers' requirements.
- 4 **Maintain and repair an installed non-gaseous pre-engineered fire-suppression system.**
- 4.1 System is maintained according to requirements of relevant maintenance schedule, customer requirements, Australian standard and manufacturers' documentation.
- 4.2 Faulty equipment or extinguishant is reported, and rectified or replaced according to **work procedures**, customer requirements and manufacturers' technical specifications.
- 4.3 System is reinstated as fully operational as specified in manufacturers' documentation and system design standards.
- 4.4 Documentation for recording maintenance and repairs is completed and distributed according to organisational, customer and manufacturers' requirements.

Required Skills and Knowledge

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

Required skills

- customer service skills
- language, literacy and numeracy skills to:
 - communicate with others clearly and concisely, verbally and in writing
 - read and comply with work instructions and specifications
 - read and record measurements
 - record and report information neatly and legibly
- planning and organising skills to:
 - estimate time to complete activities
 - prioritise tasks
- interpersonal skills to relate to people from a range of social and cultural backgrounds
- skills to work safely when:
 - applying workplace housekeeping procedures
 - handling and transporting containers according to legislation, manufacturers' procedures and work practices
 - using hand and power tools
- technical skills to:
 - operate standard controls on proprietary systems to verify system operation to manufacturers' requirements
 - pressurise containers in situ, using pressure regulators connected to gaseous containers, such as a nitrogen cylinder
 - replace extinguishing agents and components in a manner that conforms to OHS requirements, environmental requirements and manufacturers' specifications
 - test system components according to manufacturers' requirements

Required knowledge

- action to take when a breach of health, safety or other policy occurs
- identification and purpose of the major components in **non-gaseous** pre-engineered fire-suppression systems for different manufacturers' proprietary systems
- key features of legislation and regulations relevant to **non-gaseous** pre-engineered fire-suppression systems, including:
 - implications of:
 - not applying legislative requirements to job functions
 - not following safety procedures
 - incorrect inspection, testing and maintenance functions

- limitations of maintenance and repair functions that may be conducted by the fire protection technician
- manufacturers' requirements and standards applicable to inspecting, testing and maintaining non-gaseous pre-engineered fire-suppression systems
- procedures for inspecting, testing and maintaining system to verify operation in line with manufacturers' requirements
- purpose of fire-suppression system shutdown and isolation during maintenance
- purpose of **non-gaseous** pre-engineered fire-suppression systems
- types of extinguishing agents, their characteristics and use

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 by observation of practical demonstration of inspecting, testing and maintaining non-gaseous pre-engineered fire-suppression systems.
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 the required skills and knowledge specified in this unit for at least one type of non-gaseous pre-engineered fire-suppression system in two different installation locations. In particular the person should demonstrate the ability to: - locate, interpret and apply relevant information, standards and specifications - comply with organisational policies and procedures, including quality requirements - conduct inspection, testing, and preventive maintenance according to the relevant Australian standard and manufacturers' documents on at least two installed systems - replace or repair system components, such as: - detector - fire alarm panel - replace (recharge) extinguishing agent and pressurise or reinstate systems to fully operational condition according to manufacturers' documentation, working on systems with at least two different extinguishing agents - replace or repair system components, such as: - actuator - nozzle - pipe fitting - system container.
Context of and specific resources for assessment	Assessment of essential underpinning knowledge may be conducted in an off-site context. It is to comply with relevant regulatory or Australian standards' requirements. Resource implications for assessment include: - access to customer premises or a simulated workplace environment - assessment documentation - necessary tools, specialist equipment, manuals and relevant documentation - training and assessment record book.

Method of assessment	Assessment methods must: • satisfy the endorsed Assessment Guidelines of the Property 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.
Guidance information for assessment	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. This unit could be assessed on its own or in combination with other units relevant to the job function.

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.

<i>Legislative and industry requirements</i> may include:	• dangerous goods regulations • environmental regulations • fire risk management section of AS 5062 Fire protection for mobile and transportable equipment • licensing arrangements • manufacturers' system manuals • OHS legislation, regulations and codes • relevant commonwealth and state or territory building Acts, regulations and codes, such as Building Code of Australia (BCA) • relevant Australian standards, such as: • AS 5062 Fire protection for mobile and transportable equipment
--	---

	• AS 3772-2008 Pre-engineered fire protection systems for cooking equipment • AS 1851 Maintenance of fire protection systems and equipment • note: Australian standards are frequently revised and users must always check for currency and amendments • other relevant legislation relating to fire protection equipment, including: • international shipping codes • marine codes for different Australian States • system approval listing, such as: • CSIRO ActivFire • Factory Mutual (FM) • Underwriters Laboratories (UL).
--	---

Requirements may be confirmed with:	• colleagues • managers • supervisors • team leaders.
Organisational requirements may include:	• job scheduling systems and communication devices • personnel practices and guidelines outlining work roles, responsibilities and delegations • recording and reporting documentation and systems • relevant OHS policies, procedures and programs • relevant rules and regulations • standard operating procedures, work instructions and manuals.
Non-gaseous pre-engineered fire-suppression systems are:	• fire protection systems consisting of: • pipework with nozzle arrangement installed up to a maximum permitted design according to manufacturers' pre-engineered limitation requirements and applicable Australian standard (note: no hydraulic calculations are required to size pipework or nozzles) • supply of extinguishing agent of predetermined quantity • fitted to: • commercial cooking equipment, including: • exhaust plenums • exhaust systems • associated ducts and filters • fixed plant used in a range of industry sectors, such as mining, marine, and power generation, including: • engine bays • fuel pumping skids • generators • industrial vehicles used in a range of industry sectors, such as mining, forestry and waste management, including: • draglines • earthmovers • graders • trucks • loaders.
Checking system compliance may include:	• applying inspection, test and survey requirements to equipment or systems to determine that they are: • capable of operating as originally installed • still suitable for the fire hazard or risk being protected, as no change in occupancy or use of the area protected has occurred since the system was installed or last modified

	• providing the coverage and protection needed to meet original design or performance requirements.
--	---

Action may include:	• advising customer • documenting non-compliance • making equipment safe • reporting, as required.
Safety procedures may include:	• awareness of electrical hazards • emergency procedures • first aid • following confined spaces procedures • recognising hazards and risks • using personal protective equipment (PPE), including: • safety glasses or goggles • safety boots or shoes • hard hats • ear muffs or plugs • working safely: • around electrical wiring, cables and overhead powerlines • around tools and equipment • on ladders and raised platforms.
Customer requirements may include:	• confirming or varying service instructions • following sign-in and sign-out procedures for entry to or exit from premises • industry requirements • insurance requirements • providing non-routine or urgent services • providing routine services • providing written or verbal confirmation of services provided and/or future maintenance schedule • sighting work permits • system specification.
Relevant persons may include:	• colleagues • managers • supervisors • team leaders.
Extinguishing agents may be:	• foam • powder • water mist • wet chemical • combination of any of the above when compatible.
System components may include:	• actuators: • mechanical • pyrotechnic

	• solenoid • agent discharge nozzles • agent distribution pipework and hose • container valves • control equipment • detection devices • extinguishing agent containers, such as tanks and cylinders • support brackets.
Auxiliary shutdown devices transmit signals and may include:	• air conditioning shutdown signal to an electrical contactor to stop air conditioning • cooking fuel line shutdown signal to a gas solenoid valve on main inlet pipe supply to cooking appliances • cooking power supply shutdown signal to an electrical contactor to isolate main electrical supply to cooking appliances • signal from fire system to shut off valve, relay or solenoid to isolate fuel and oil supplies or release pressure from hydraulic tanks • vehicle or plant engine shutdown signal to engine emergency shutdown circuitry.
Testing procedures may include:	• discharge • leaks • pressure • recharging • visual inspections.
Maintenance schedules may include:	• Australian standards • customer schedules • system manufacturers.
Documentation may include:	• certificates of inspection • corrective action reports • customer recommendation forms • equipment recommendation forms • logbooks • maintenance record system • product documentation • service agreements • service reports • system manufacturer's documentation.
Work procedures may include:	• assignment instructions • equipment manufacturers' requirements • instructions from colleagues, supervisor or manager • PPE requirements • reporting and documentation requirements

	• specific customer requirements.
--	---

Unit Sector(s)

Fire protection equipment

Custom Content Section

Not applicable.