



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **CPCPFS3012A Install distribution and range pipes**

**Release: 1**

## **CPCPFS3012A Install distribution and range pipes**

### **Modification History**

Not Applicable

### **Unit Descriptor**

**Unit descriptor** This unit of competency specifies the outcomes required to install distribution and range pipes to carry all commonly used fire extinguishing agents, above and below ground.

### **Application of the Unit**

**Application of the unit** Site location for work application may be either domestic or commercial, and may be a new work site or an existing structure being renovated, extended, restored or maintained.

### **Licensing/Regulatory Information**

Not Applicable

### **Pre-Requisites**

#### **Prerequisite units**

|             |                            |
|-------------|----------------------------|
| CPCPCM2023A | Carry out OHS requirements |
|-------------|----------------------------|

## Employability Skills Information

**Employability skills**      This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

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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

| ELEMENT                                | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Prepare for work.                   | <p>1.1. Approved plans and specifications are obtained from relevant authority.</p> <p>1.2. <b>Safety (OHS)</b> requirements associated with installing <b>distribution and range pipes</b>, and workplace <b>environmental requirements</b>, are adhered to throughout the work.</p> <p>1.3. <b>Quality assurance</b> requirements are identified and adhered to in accordance with 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>Tools and equipment</b> for installing distribution and range pipes, including personal protective equipment, are selected and checked for serviceability.</p> <p>1.6. Work area is prepared to support efficient installation of distribution and range pipes.</p> |
| 2. Identify installation requirements. | <p>2.1. System requirements are identified from job design criteria, specifications and standards.</p> <p>2.2. Quantities of materials required are calculated from plans and specifications.</p> <p>2.3. Allowances for fabrication and assembly are correctly determined and transferred.</p> <p>2.4. <b>Materials</b> and equipment are identified, ordered and collected in accordance with workplace procedures.</p> <p>2.5. Materials and equipment are checked for compliance with standards, docket and order form, and for acceptable condition.</p>                                                                                                                                                                                                                                               |
| 3. Install and test piping system.     | <p>3.1. Pipework is set out in accordance with drawings, specifications and job instructions.</p> <p>3.2. Pipe supports and fixings are installed to plans, manufacturer specifications and <b>extinguishing materials</b>.</p> <p>3.3. Piping and materials are installed in accordance with the design drawings, job specifications and standards.</p> <p>3.4. Mechanical jointing systems are compliant with standards.</p> <p>3.5. Pipes are subjected to pressure testing in accordance with standards or job specification.</p> <p>3.6. Test data is recorded in format required by the job</p>                                                                                                                                                                                                       |

| ELEMENT      | PERFORMANCE CRITERIA                                                                                                                                           |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | specifications and quality assurance procedures.                                                                                                               |
|              | 3.7. Installation is backfilled in accordance with specifications.                                                                                             |
| 4. Clean up. | 4.1. Work area is cleared, with materials disposed of or recycled in accordance with state or territory <b>statutory and regulatory authority</b> legislation. |
|              | 4.2. Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and workplace procedures.                 |
|              | 4.3. <b>Information</b> is accessed and documentation completed in accordance with regulatory authorities and workplace requirements.                          |

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

Required skills for this unit are:

- communication skills to:
  - access information
  - complete workplace documentation
  - determine requirements
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - follow and give instructions
  - plan and sequence tasks with others
  - read and interpret:
    - documentation from a variety of sources
    - drawings and specifications
  - record test results in writing
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication, such as hand signals
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials

## REQUIRED SKILLS AND KNOWLEDGE

- installing and testing above ground distribution and range pipe system, fitted with branches, to supply water to a sprinkler system
- numeracy skills to apply measurements and calculations
- organisational skills, including the ability to 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
- technological skills to:
  - access and understand site-specific instructions in a variety of media
  - use mobile communication technology.

## Required knowledge

Required knowledge for this unit is:

- accessing information and the processes for calculating material requirements
- characteristics and application of different pipe fittings and fixture supports, including fixing and joining techniques
- excavation processes and procedures
- job safety analysis (JSA) and safe work method statements (SWMS)
- levelling and alignment processes
- materials relevant to installation of distribution and range pipes
- pressure test systems and procedures
- process of installing and testing distribution and range pipes
- relevant statutory and authority requirements related to installation of distribution and range pipes
- SI system of measurement
- structural systems, building materials and building services
- workplace and equipment safety requirements.

# Evidence Guide

## EVIDENCE GUIDE

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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 install and test distribution and range pipes
- applying 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 an automated fire sprinkler system, install and test distribution and range pipes to provide a free-flowing and leak-free water supply to at least three branches to design criteria and standards, ensuring:
  - correct identification of location, design and details of proposed installation
  - correct selection and use of appropriate processes, tools and equipment
  - completing 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

## EVIDENCE GUIDE

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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 working 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

## EVIDENCE GUIDE

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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

### RANGE STATEMENT

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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.

***Safety (OHS)*** is to be in accordance with 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

## RANGE STATEMENT

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with:

- 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
- use of first aid equipment
- workplace environment and safety.
- above and below ground.

***Distribution and range pipes*** may be installed:

***Environmental requirements*** cover water quality management and may include:

- clean-up protection
- 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:

- angle grinders
- bending equipment
- chain blocks
- cutting and threading equipment
- elevated work platforms
- forklifts
- hand and power tools
- hand excavation tools
- hand trolleys
- hoists and jacks
- ladders
- lifting and load shifting equipment
- measuring equipment
- mechanical excavation equipment
- rollers

## RANGE STATEMENT

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|                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      | <ul style="list-style-type: none"> <li>• scaffolds</li> <li>• testing equipment</li> <li>• welding equipment.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Materials</b> include:                            | <ul style="list-style-type: none"> <li>• any approved materials.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Extinguishing materials</b> include:              | <ul style="list-style-type: none"> <li>• foam</li> <li>• gases</li> <li>• powder</li> <li>• water.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Statutory and regulatory authorities</b> include: | <ul style="list-style-type: none"> <li>• state or territory statutory authority</li> <li>• statutory gasfitting authority</li> <li>• statutory plumbing authority.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Information</b> may include:                      | <ul style="list-style-type: none"> <li>• charts and hand drawings</li> <li>• diagrams or sketches</li> <li>• instructions issued by authorised organisational or external personnel</li> <li>• manufacturer specifications and instructions</li> <li>• material safety data sheets (MSDS)</li> <li>• memos</li> <li>• organisation work specifications and requirements</li> <li>• regulatory and legislative requirements, particularly those pertaining to:             <ul style="list-style-type: none"> <li>• building codes</li> <li>• OHS and environmental requirements</li> <li>• plumbing regulations</li> </ul> </li> <li>• relevant Australian standards</li> <li>• safe work procedures relating to installing distribution and range pipes</li> <li>• signage</li> <li>• verbal, written and graphical instructions</li> <li>• work bulletins</li> <li>• work schedules, plans and specifications.</li> </ul> |

## Unit Sector(s)

**Unit sector** Plumbing and services

## **Co-requisite units**

**Co-requisite units** Nil

## **Functional area**

**Functional area**