Australian Government

Department of Education, Employment and Workplace Relations

# CPCCSV6010A Apply fire technology to buildings up to three storeys

**Release: 1**

# CPCCSV6010A Apply fire technology to buildings up to three storeys

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit of competency specifies the outcomes required to evaluate smoke detection and fire prevention, protection and control systems for buildings up to three storeys and not exceeding a maximum floor area of 2000 square metres.

It includes evaluation of firefighting equipment in buildings, integration of active and passive fire protection systems, and the determination of sprinkler and drencher requirements according to the Building Code of Australia (BCA), relevant legislation and Australian standards.

## Application of the Unit

**Application of the unit**

This unit of competency supports the attainment of the understanding and skills to apply fire technology to buildings up to three storeys within the context of relevant legislation, the BCA and Australian standards.

## Licensing/Regulatory Information

Not Applicable

## Pre-Requisites

**Prerequisite units**

Nil

# 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. Evaluate smoke control in buildings. | 1.1. Psychological effects of smoke on people exposed to building fires are researched.<br>1.2. Mechanisms of smoke movement in building are identified and recorded.<br>1.3. Smoke control systems identified to meet the requirements for buildings are documented in accordance with legislative requirements.<br>1.4. Application of computer-packaged smoke control systems is analysed and reported. |
| 2. Analyse passive five protection systems for buildings. | 2.1. Compartmentation purposes are reported.<br>2.2. Separation requirements for buildings from other buildings and structures are identified and recorded.<br>2.3. Requirements for escape from buildings are documented according to BCA requirements. |
| 3. Determine suitability of fire detection systems for buildings. | 3.1. Range of devices for active fire protection, such as alarms and detectors, is identified and selected for purpose use.<br>3.2. Acts and building regulations that govern the installation of active fire protection systems are identified and recorded for building projects requiring assessment of fire technology systems.<br>3.3. Requirements for fire detection systems in ***buildings*** are identified and selected.<br>3.4. Requirements for fire detection systems for buildings that present unusual fire hazards are identified and documented.<br>3.5. Agencies responsible for maintenance of ***fire safety systems*** in buildings are identified and listed according to state or territory legislation. |
| 4. Determine the requirements for a range of firefighting equipment in buildings. | 4.1. Legislation that governs the installation of firefighting equipment is identified and documented.<br>4.2. Extinguishing mediums used by firefighting agencies and their applications are identified and recorded.<br>4.3. Properties of extinguishment for the various mediums are identified and documented. |
| 5. Check and identify fire alarms. | 5.1. Various alarm systems and their operating conditions are identified and documented.<br>5.2. Various forms of detection and suppression systems are identified in accordance with BCA and relevant |

| ELEMENT | PERFORMANCE CRITERIA |
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| | Australian standards and are assessed for compliance.<br>5.3. Components and their function in the operation of a sprinkler system are checked for pertinence in accordance with BCA and relevant Australian standards. |
| 6. Determine the requirements for sprinklers and drenchers in buildings. | 6.1. Functions of sprinkler and drencher systems are recorded.<br>6.2. Sources of water supply to a sprinkler system are identified and documented in accordance with BCA.<br>6.3. Components and their function in the operation of a sprinkler system are interpreted. |
| 7. Integrated active fire protection systems and passive fire protection are evaluated to ensure a safe and economical building. | 7.1. Active and passive fire protection systems are identified and selected.<br>7.2. Building examination is carried out to determine the effectiveness of the active and passive fire protection systems according to BCA. |

# 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:

- ability to respond to change and contribute to workplace responsibilities, such as current work site environmental and sustainability frameworks or management systems
- communication skills to:
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - read and interpret:
    - BCA
    - legislation
    - other relevant documentation
  - use language and concepts appropriate to cultural differences

## REQUIRED SKILLS AND KNOWLEDGE

- use and interpret non-verbal communication
- written skills to:
  - provide an evaluation
  - report data, findings, recommendations and strategies
- innovation skills to develop creative and responsive approaches
- numeracy skills to calculate workplace requirements
- planning and organisational skills to research, collect, organise and understand information relating to the design of fire-compliant hydraulic systems and to take initiative and make decisions
- problem solving skills to analyse requirements, carry out tests, consider options and design an appropriate system.

### Required knowledge

Required knowledge for this unit is:

- authorities and powers of a building surveyor
- Factory Mutual (FM) approved material specifications
- fire safety engineering guidelines
- fire technology principles in buildings
- National Fire Protection Association (NFPA) specifications
- processes for the administration and preparation of documentation
- processes for the interpretation of reports, working drawings and specifications
- relevant federal, state or territory legislation and local government policy and procedures
- research methods.

# Evidence Guide

## 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.

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| **Overview of assessment** | This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction 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 the ability to:<br>• comply with OHS regulations applicable to workplace operations<br>• apply organisational management policies and procedures, including quality assurance requirements where appropriate<br>• evaluate and report data, findings and recommendations for the implementation of fire technology strategies for at least one building development project up to three storeys, including smoke detection systems, fire prevention systems, protection and control systems, firefighting equipment, active and passive fire protection systems, sprinkler systems and drencher systems, with respect to compliance with the applicable local government authority, relevant legislation and the BCA<br>• provide reports to appropriate body/individual as determined by the project brief. |
| **Context of and specific resources for assessment** | This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.<br><br>Assessment of essential underpinning knowledge will usually be conducted in an off-site context.<br><br>Assessment is to comply with relevant regulatory or Australian standards' requirements. |

## EVIDENCE GUIDE

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| | Resource implications for assessment include:<br>• an induction procedure and requirement<br>• realistic tasks or simulated tasks covering the mandatory task requirements<br>• relevant specifications and work instructions<br>• tools and equipment appropriate to applying safe work practices<br>• support materials appropriate to activity<br>• workplace instructions relating to safe work practices and addressing hazards and emergencies<br>• material safety data sheets<br>• research resources, including industry related systems information.<br><br>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:<br>• satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package<br>• 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<br>• reinforce the integration of employability skills with workplace tasks and job roles<br>• confirm that competency is verified and able to be transferred to other circumstances and environments.<br><br>Validity and sufficiency of evidence requires that:<br>• competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace<br>• where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances |

**EVIDENCE GUIDE**

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| | 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<br>• all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.<br><br>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.<br><br>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**

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.

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| ***Installation of active fire protection systems*** includes: | • new and proposed buildings, for the purposes of highlighting fire technology requirements and solutions in compliance with the BCA. |
| ***Building projects requiring assessment of fire technology systems*** include: | • calculation and processing of application or inspection fees<br>• project milestones<br>• provision of site access/facilities<br>• work schedules. |
| ***Buildings*** are limited to: | • three storeys and a maximum floor area not exceeding 2000 square metres, complying with |

**RANGE STATEMENT**

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| | the BCA Class 2 to 9 buildings. |
| ***Fire safety systems*** include: | • active and passive fire protection systems<br>• drencher systems<br>• firefighting equipment<br>• fire prevention systems<br>• protection and control systems<br>• smoke detection systems<br>• sprinkler systems. |

# Unit Sector(s)

**Unit sector** Construction

# Co-requisite units

**Co-requisite units** Nil

# Functional area

**Functional area**