



Australian Government

CPC50509 Diploma of Fire Systems Design

Release 4

CPC50509 Diploma of Fire Systems Design

Modification History

Version Comment

- 1 Revised qualification deemed equivalent to CPC50509
- 2 A number of elective units updated and deemed not equivalent to previous version
Elective units revised resulting in a number of unit identifier changes
- 3 Update superseded imported units from elective list with equivalent current unit for:
 - BSBAUD504B to BSBAUD504
 - BSBCUS402B to BSBCUS402
 - BSBCUS501C to BSBCUS501
 - BSBOHS504B to BSBWHS503
 - BSBPMG510A to BSBPMG522This version released with CPC08 Version 9.3.
- 4 This version released with CPC08 Construction and Property Services 9.9.
The following unit was deleted as directed by the IRC June 2021.
 - CPCCBC4025A - Manage personal work priorities and professional development.

Description

The Diploma of Fire Systems Design reflects and supports the role of fire systems designers who prepare detailed technical designs and documentation for water-based fire suppression systems and/or fire detection and occupant warning systems. The fire systems designs covered in this Diploma are those that meet the requirements of the Building Code of Australia or detailed designs prepared for alternative solutions designed or specified by a fire safety engineer. The Diploma of Fire Systems Design also includes a stream qualification for the annual certifier of fire systems.

Fire systems designers may enter the industry from a diverse range of occupations and sectors. They may choose to extend their careers by seeking to undertake subsequent higher education qualifications in related disciplines, including mechanical engineering and fire engineering.

The qualification has common core and elective unit of competency requirements that cover common skills for fire systems designers and certifiers, as well as specialist streams for:

- water-based systems
- detection and warning systems

- annual certifiers.
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Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Not Applicable

Employability Skills Summary

Employability skill	Industry/enterprise requirements for this qualification include:
Communication	<ul style="list-style-type: none"> • Listening to, and communicating clearly with, colleagues, installers, maintainers, suppliers and contractors • Participating in meetings, such as negotiations with fire engineering consultant, architect, builder or other service contractors • Explaining the gravity of fire systems inspection findings • Letter writing, especially to formalise recognition of errors and conflicts on other drawings and agreements with other services • Writing reports • Initiating and running meetings with lead contractor and other service contractors • Drafting detailed system specifications, including material, installation requirements; testing and commissioning schedules; project expenditure schedules; operations and maintenance manuals; and various quality control checklists
Teamwork	<ul style="list-style-type: none"> • Developing constructive and cooperative working relationships with project team members, colleagues, suppliers, fitters and clients • Working with others to plan, coordinate and complete tasks
Problem-solving	<ul style="list-style-type: none"> • Negotiating solutions to design conflicts with other services • Conducting cost-benefit analysis of design options • Performing complex calculations, such as electrical and hydraulic calculations • Identifying site health risks and installation constraints and producing design solutions

Employability skill	Industry/enterprise requirements for this qualification include:
Initiative and enterprise	<ul style="list-style-type: none"> • Producing cost-effective and workable detailed designs for fire systems • Proposing creative detailed design solutions to installation issues arising on-site • Proposing creative solutions to aesthetic requirements for fire systems installation • Developing personal methodologies for ensuring project quality and for incorporating process improvements • Managing detailed input to concurrent fire systems design projects at different stages of the process and with diverse sets of regulatory requirements
Planning and organising	<ul style="list-style-type: none"> • Defining the scope and hazard level of fire systems design projects • Planning the layout of fire systems designs • Setting up systems and checklists for ensuring a methodical approach to fire systems design projects • Gathering documentation required for fire systems design projects, including plans, specifications, drawings, legislation, codes and standards • Planning for the inspection of multiple fire systems (with different applicable standards) concurrently
Self-management	<ul style="list-style-type: none"> • Organising own work, including creating personal systems and checklists for planning, managing and checking work • Maintaining a professional detached authority
Learning	<ul style="list-style-type: none"> • Reading manuals and marketing information about new technologies, products and systems • Researching relevant legislation, standards and codes • Updating knowledge of products, software systems and technology • Researching competing technologies in new products and systems
Technology	<ul style="list-style-type: none"> • Reading and interpreting drawings, including architectural, structural, mechanical, hydraulic and electrical drawings • Reading manuals and marketing information about new technologies, products and systems • Using computer software to produce detailed designs for fire systems, manage project participation and conduct general personal business administration • Applying the principles of fire science, organic and inorganic chemistry, thermodynamics, hydraulics, fluid mechanics and electric and electronic theory

Employability skill	Industry/enterprise requirements for this qualification include:
	<ul style="list-style-type: none"> Using relevant tools and equipment, such as measuring tools and calculators

Packaging Rules

To achieve this qualification, the candidate must demonstrate competency in:

- 12 units of competency:
 - 4 core units
 - between 3 and 8 Group A, B or C elective units
 - up to 5 other elective units.

The elective units are chosen as follows:

- all units from one of the following three options:
 - 8 units from Group A Water-based systems elective units
 - 5 units from Group B Detection and warning systems elective units
 - 4 units from Group C Annual certifier elective units
- provided the remaining elective units ensure the integrity of the AQF alignment; and contribute to a valid, industry-supported vocational outcome; they could include:
 - elective units not already chosen from Groups A, B or C
 - Group D general elective units:
 - 1 unit from a Diploma or higher qualification in CPC08 or another current Training Package or state accredited course
 - 1 unit from the Certificate IV in Plumbing and Services, Group A Fire Services units.

Some units in this qualification may have prerequisite requirements, which must be met when packaging the qualification. Users are referred to the list of CPC08 units with prerequisite unit requirements available in this Training Package for this purpose.

Core units

	Apply OHS requirements, policies and procedures in the construction
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CPCCOHS2001A	industry
CPCSFS5001A	Define scope and hazard level of fire systems design projects
CPCSFS5002A	Research and interpret detailed fire systems design project requirements
CPCSFS5005A	Research and evaluate fire system technologies and components

Group A Water-based systems elective units

CPCPCM4013A	Produce 2-D architectural drawings using CAD software
CPCSFS5003A	Develop plans and methodology for fire systems design projects
CPCSFS5006A	Create detailed designs for fire sprinkler systems
CPCSFS5007A	Create detailed designs for hydrant and hose reel systems
CPCSFS5009A	Create detailed designs for fire systems' water supplies
CPCSFS5010A	Provide documentation and support for fabrication of fire sprinkler systems
CPCSFS5011A	Provide design documentation and review and support fire system installation processes
CPCSFS5013A	Support commissioning processes and finalise fire systems design projects

Group B Detection and warning systems elective units

CPCPCM4013A	Produce 2-D architectural drawings using CAD software
CPCSFS5003A	Develop plans and methodology for fire systems design projects
CPCSFS5008A	Create detailed designs for fire detection and warning systems
CPCSFS5011A	Provide design documentation and review and support fire system

	installation processes
CPCSFS5013A	Support commissioning processes and finalise fire systems design projects

Group C Annual certifier elective units

BSBAUD504	Report on a quality audit
CPCCBBC4012B	Read and interpret plans and specifications
CPCSFS5014A	Conduct annual fire systems certification inspections
CPCSFS5015A	Assess documentation for annual fire systems certification inspections

Group D General elective units

BSBCUS402	Address customer needs
BSBCUS501	Manage quality customer service
BSBWHS503	Apply principles of OHS risk management
BSBPMG507A	Manage project communications
BSBPMG522	Undertake project work
CPCCBBC4012B	Read and interpret plans and specifications
CPCCBBC5009A	Identify services layout and connection methods to medium rise construction projects
CPCPCM4013A	Produce 2-D architectural drawings using CAD software
CPCPCM4014A	Prepare simple sketches and drawings
CPCCSV5009A	Assess the impact of fire on building materials
HLTHIR403C	Work effectively with culturally diverse clients and co-workers

