

Unit of Competency CPCSFS5002

Research and interpret detailed fire systems design project requirements

Application

This unit of competency specifies the outcomes required to obtain and process design drawings and documentation required for the preparation of detailed fire systems designs and to make an initial assessment of how the fire systems are affected by other aspects of the project. The unit also covers researching detailed fire systems compliance requirements and regulatory processes and negotiating solutions to conflicts arising between the design brief and compliance or installation requirements.

This unit of competency supports the role of fire systems designers who need to gather and process fire systems design project drawings and documentation and establish the detailed design and compliance requirements for fire systems. The role also involves assessing the impact of building construction and services installation on the detailed fire systems design and negotiating solutions to any conflicts arising.

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

Prerequisite Unit

Nil.

Elements and Performance Criteria

1. Gather and interpret project initiation documentation.	1.1	Gather and check fire systems design briefs, plans and specifications for currency and completeness.
	1.2	Interpret the specific requirements of engineered or innovative solutions, designed and specified by fire engineers.
	1.3	Request, obtain and file relevant drawings, plans and schedules for the building project according to workplace and project procedures.
	1.4	Assess impacts of building construction and the installation of other services on fire systems design to pre-empt possible issues.
2. Research the detailed requirements of relevant legislation and regulatory processes.	2.1	Investigate legislation impacting on design compliance in different project locations and interpret and note variations in requirements.
	2.2	Interpret regulatory requirements impacting on fire systems designs and project processes and specific requirements in different states, territories and jurisdictional locations.
	2.3	Identify different climatic or locational conditions and their impact on the operational performance of the designed fire systems.
3. Research the detailed	3.1	Gather and check applicable codes and standards for currency.
	3.2	Research and interpret requirements relating to specific fire systems in

requirements of applicable codes and standards.	3.3	different types of buildings and situations. Determine and apply the appropriate code requirements for the building and situation.
4. Consult and negotiate to clarify and finalise project details.	4.1 4.2 4.3	Confirm the interpretation of the required fire systems design and intended layout and interconnection with relevant personnel. Undertake consultation and negotiations with relevant personnel to resolve conflicts between the design brief, regulatory or insurance requirements, the requirements of building construction, and the installation of the fire systems and other services. Clarify aesthetic requirements relating to the location of fire system components and installation methods and negotiate solutions.

Foundation skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPCSF55002A Research and interpret detailed fire systems design project requirements.

Links

Companion Volume Implementation Guide:

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCSFS5002

Research and interpret detailed fire systems design project requirements

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by:

- establishing the detailed design requirements of fire systems design projects, including discretionary client requirements for four different types of buildings, including:
 - o commercial building
 - o factory
 - o residential nursing home
 - o high-rise building.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- workplace design tools and processes
- drawings, plans and schedules for the building project:
 - architectural
 - structural
 - mechanical
 - hydraulic
 - electrical
 - layout
 - section
 - detail
 - o project schedule or construction program
 - o design brief
 - o design specifications
- level of accuracy required in detailed design drawings
- compliance requirements for fire systems design projects in different locations
- aesthetic requirements relating to the location of fire system components
- relevant current legislation, codes and standards:
 - o building Acts
 - o building regulations
 - o infrastructure supply regulations
 - o the Building Code of Australia (BCA)
 - o the Plumbing Code of Australia

- o Australian standards for fire systems
 - o National Construction Code (NCC)
 - o jurisdictional authorities in addition to the BCA and NCC
 - o international standards for fire systems
- regulatory requirements, systems and processes:
 - o mandatory requirements
 - o design approval
 - o fire brigade requirements
 - o certification of installation
 - o infrastructure supply regulations
- protection requirements for different buildings
- fire systems' technology and components:
 - o water-based systems:
 - wet pipe sprinkler systems
 - deluge and drencher systems
 - dry pipe sprinkler systems
 - pre-action sprinkler systems
 - early suppression fast response (ESFR)
 - hydrants, hose reels and monitors
 - water supply tanks
 - fire pump sets
 - high pressure water mist systems
 - gas suppression systems
 - o detection and warning systems:
 - occupant warning systems
 - emergency warning and intercommunications systems (EWIS)
 - fire detection and alarm systems
 - smoke control systems
- purpose and operation of fire systems:
 - o layout
 - o system operation
 - o performance requirements
 - o maintenance standards
 - o system activation and operation
- passive fire safety elements:
 - o identification of passive elements
 - o impact of fire systems design on passive elements
 - o specifications required to safeguard integrity of passive fire element performance where penetrations are necessitated by the fire systems design
- characteristics and limitations of products and materials used in fire systems and issues relating to material compatibility
- interconnection of fire systems:
 - o cause and effect matrix
 - o interface with other services
- construction industry terminology
- roles and responsibilities of relevant building project personnel:
 - o builders

- o consultants
 - o trades
 - o commissioning personnel
- on-site issues that can arise during the construction phase and impose changes to the designs of fire systems and other services
- installation methods:
 - o access requirements
 - o work health and safety (WHS) requirements
- fluid mechanics and hydraulics relating to
 - o water supply
 - o pressure
 - o pump selection
 - o tank selection
 - o pressure vessels
 - o pipe range
- sustainability requirements and ratings:
 - o energy conservation
 - o water conservation
- types of fire systems for projects and classifications, including:
 - o low-rise buildings
 - o processing building applications
 - o warehouse buildings under 13.7 m high
 - o warehouse buildings over 13.7 m high
 - o medium-rise buildings
 - o high-rise buildings (over 25 metres)
 - o buildings over 50 metres in height
- types of buildings and situations:
 - o different types of buildings:
 - residential
 - commercial
 - industrial
 - warehouse
 - mixed classification
 - o buildings in different locations:
 - local
 - involving more than one state or territory
 - o classifications of buildings in the BCA:
 - occupancy classes
 - multiple classifications
 - parts with more than one classification
 - fire hazard properties of materials and smoke growth rate
 - o classifications of buildings specified in relevant Australian or international standards
 - o classifications of buildings relating to standards or codes applied by building insurers.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

This unit must be assessed in the workplace or a close simulation using realistic workplace conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Links

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