



Australian Government

CPCSFS8001 Define scope of and initiate special hazard fire systems design projects

Release: 1

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Modification History

Release 1.

This version first released with CPC Construction, Plumbing and Services Training Package Version 1.

Replaces superseded equivalent CPCSFS7001A Define scope of and initiate special hazard fire systems design projects.

Application

This unit of competency specifies the outcomes required to define the scope of a project that designs a complex special hazard fire system, and put in place mechanisms to support the design work.

The unit addresses the careful clarification of the scope of a special hazard fire system project, including assessing the level of risk attached to the equipment or facility for which the fire system is being designed, and developing fire risk solutions. The unit covers the conduct of a thorough analysis of any relevant standards as well as of the project brief itself.

Processes to guide and manage the special hazard fire systems design (SHFSD) project are also covered in this unit.

Special hazard fire systems are not referenced in the National Construction Code (NCC). They include gaseous, foam, and water spray solutions that offer protection for life safety and to facilities and equipment vital to business operation and success.

This unit of competency supports the attainment of skills and knowledge necessary for the effective and efficient scoping of special hazard fire detection and suppression systems in preparation for the technical development of the design.

No licensing, legislative, accreditation, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-requisite Unit

Nil

Competency Field

Fire system design

Unit Sector

Plumbing and services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

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| <p>1. Establish relevant project management details and protocols.</p> | <p>1.1. Nature and purpose of the <i>special hazard fire systems design project</i> are determined.</p> <p>1.2. Project management roles, responsibilities and lines of communication are established.</p> <p>1.3. Required project outcomes are consulted, clarified and finalised with the client.</p> <p>1.4. Relevant project scheduling and sequencing information is established.</p> <p>1.5. Tasks in the design process are assigned to relevant personnel, and mechanisms to coordinate their input are established and communicated.</p> <p>1.6. Project <i>file storage</i>, sharing and communication systems and tools are determined.</p> <p>1.7. Workplace quality assurance checks are determined and procedures to ensure that they are conducted are established.</p> <p>1.8. Stages where regulatory or other approval is required for the design are determined and procedures to ensure that approvals are obtained are established.</p> |
| <p>2. Interpret fire systems design concepts, briefs and specifications.</p> | <p>2.1. <i>Project documentation</i> is gathered, analysed, assessed for completeness, and stored and shared for use in the design of effective special hazard fire systems.</p> <p>2.2. <i>Structural characteristics</i> of <i>special hazard site</i> are identified and analysed.</p> <p>2.3. Functions and occupancies of building or facility are determined from initial project documentation.</p> <p>2.4. Clarification of specific building details is sought from client or relevant contractors and consultants.</p> <p>2.5. Appropriate hazard classification for building or facility</p> |

is researched and confirmed.

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| 3. Complete risk assessment of the project. | 3.1. <i>Regulatory requirements and applicable standards</i> for the special hazard fire system are determined.

3.2. Insurance requirements impacting on applicable codes and standards for the special hazard fire system project are determined.

3.3. Prior to commencing design work, risk assessment report is <i>documented</i> that identifies or confirms the type or types of special hazard detection and suppression system that will be used. |
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Foundation Skills

This section describes core skills that are essential to performance and not explicit in the performance criteria. Employment skills essential to performance are explicit in the performance criteria of this unit of competency.

Skill	Performance feature
Learning skills to:	- attempt complex tasks requiring sophisticated conceptualisation and analysis over an extended period and employ lateral thinking and problem solving strategies - manage detailed input into concurrent fire systems design projects at different stages of the process and with diverse sets of regulatory requirements - select and use a range of ICT tools for file and project management and research.
Numeracy skills to:	- interpret and apply complex mathematical principles, equations and calculation methods to the design of special hazard fire systems - read, measure and interpret dimensions, ratios and scales on drawings.
Oral communication skills to:	- lead and participate in project meetings and consultations with a range of service contractors - listen to and communicate clearly with clients, colleagues and contractors using specialised vocabulary specific to fire systems.

This section describes core skills that are essential to performance and not explicit in the performance criteria. Employment skills essential to performance are explicit in the performance criteria of this unit of competency.

- Reading skills to:
- recognise distinguishing structures, layout, features and conventions of a range of complex texts and use them to locate information
 - use a range of reading strategies to maintain comprehension and integrate concepts relating to SHFSD projects.

- Writing skills to:
- prepare risk assessment reports with content organised in a clear and logical structure, using technical vocabulary and explanations where required
 - write to construction and fire safety specialists about such things as notifications of incompleteness, and conflicts and errors in drawings supplied by other service contractors.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

- Special hazard fire systems design projects*** must include:
- at least one of the following systems:
 - foam systems
 - gaseous agent systems
 - water spray systems
 - projects developed as a fire risk solution preventing business interruption by providing fire protection to specific equipment or a special facility, where the performance-based principles are not covered by the NCC
 - compliance with the requirements specified by the client or the client's insuring body, including the application of Australian and international standards for fire systems.
- File storage*** must include:
- accurate naming and filing of drawings
 - formal document control and amendments, including:
 - history

- transmittal notices.

Project documentation must include:

- construction drawings and plans detailing the specific equipment or special facility requiring the special hazard fire system
- fire engineer's design concepts and recommendations
- specific layout plans for other services, including plumbing, electrical and air conditioning.

Structural characteristics of building or facility must include:

- fabrication materials and methods used
- size and layout of building or facility.

Special hazard site must include at least two different sites from the following list:

- aeroplane hangars
- computer rooms
- chemical factories
- data centres
- documents and other collections in buildings, including libraries, archives storage, art galleries and museums
- electrical substations
- fuel and gas storage and refineries
- warehouses containing highly volatile materials
- any other storage facility for very high value individual items that would be destroyed by water-based fire suppression systems.

Regulatory requirements and applicable standards must include at least one standard from the following list:

- Australian standards:
 - AS ISO 14520.1 Gaseous fire-extinguishing systems - Physical properties and system design - General requirements
 - AS1670 Fire detection, warning control and intercom systems - System design, installation and commissioning
 - AS1940 The storage and handling of flammable and combustible liquids
 - AS2118 Automatic fire sprinkler systems Parts 1 to 6
 - AS2941 Fixed fire protection installations - Pumpset systems
 - AS4360 Risk management
 - AS4487 Condensed aerosol fire extinguishing systems -

Requirements for system design, installation and commissioning and test methods for components

- AS4587 Water mist fire protection systems
- United States National Fire Protection Association (NFPA) standards:
 - NFPA 2001 Clean Agent Fire Extinguishing Systems
 - NFPA 11 Low, Medium and High Expansion Foam Systems
 - NFPA 13 The Installation of Sprinkler Systems
 - NFPA 15 Water Spray Fixed Systems for Fire Protection
 - NFPA 16 Deluge Foam-Water Sprinkler and Foam-Water Spray Systems
 - NFPA 750 Water Mist Fire Protection Systems.

Documentation for risk assessment must include drawings that detail:

- layout
- section
- detail
- external references
- freezing layers.

Unit Mapping Information

CPCSFS7001A Define scope of and initiate special hazard fire systems design projects

Links

Companion Volume implementation guides are found in VETNet -

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