Unit of Competency CPCSFS5013 Support commissioning processes and finalise fire systems design projects

Application

This unit of competency specifies the outcomes required to confirm the post-installation details of fire systems and produce amended drawings and documentation, and to prepare detailed commissioning procedures and specifications. The unit also covers reviewing issues and solutions arising during fire systems design projects and making subsequent improvements to fire systems design project processes.

This unit of competency supports the role of fire systems designers with responsibility for producing 'as built' drawings, block plans, tactical fire plans, and operations and maintenance manuals for fire systems.

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. Produce accurate final drawings for fire systems.	1.1	Document progressive changes to fire systems design drawings resulting from construction phase issues according to workplace and project procedures.
	1.2	Confirm and record final component sizes, locations and building dimensions.
	1.3	Prepare, name, notate, file and submit accurate 'as built' drawings according to workplace procedures and project requirements.
	1.4	Produce appropriate block plans and tactical fire plans as required.
2. Prepare commissioning details, and operation and maintenance manuals for fire systems.	2.1	Prepare system performance requirements and commissioning procedures and specifications according to relevant codes and standards and component manufacturer's recommendations and workplace and project requirements.
	2.2	Prepare standard operating procedures (SOPs) for the fire system based on relevant codes and standards and component manufacturer's recommendations.
	2.3	Produce regular maintenance procedures for the fire system based on codes and standards component manufacturer's recommendations and relevant regulatory requirements.
	2.4	Install operation and maintenance signage as required, according to relevant workplace, project and regulatory requirements codes and standards.
3. Review and evaluate the fire	3.1	Review and process project documentation including issues and their solutions.

systems design process.	3.2	Discuss project issues and solutions with relevant workplace personnel and explore process improvement strategies.
	3.3	Amend project planning, methodologies and quality assurance systems to incorporate agreed process improvement strategies.

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 CPCSFS5013A Support commissioning processes and finalise fire systems design projects.

Links

Companion Volume Implementation Guide:
https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad

Assessment Requirements for CPCSFS5013 Support commissioning processes and finalise fire systems design projects

Performance Evidence

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

- preparing four final fire systems design project documentation, including drawings, specifications and commissioning support documentation, including for a:
    - commercial building
    - factory
    - residential nursing home
    - high-rise building.

Knowledge Evidence

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

- workplace design tools and processes
- drawings, plans, reports and specifications
- level of accuracy required in detailed design drawings
- naming conventions for design drawings and drawing register
- relevant regulatory approval and fire systems design certification processes
- relevant current legislation, codes and standards:
    - building Acts
    - building regulations
    - infrastructure supply regulations
    - the Building Code of Australia (BCA)
    - National Construction Code (NCC)
    - Australian standards for fire systems
    - international standards for fire systems
    - jurisdictional authorities in addition to the BCA and NCC
    - other fire system standards commonly required by building insurers
- protection requirements for different buildings including low-rise, medium-rise, high-rise (over 25 metres) and buildings over 45 metres in height
- fire systems' technology and components:
    - water-based systems:
        - wet pipe sprinkler systems
        - deluge and drencher systems
        - dry pipe sprinkler systems
        - pre-action sprinkler systems

        - early suppression fast response (ESFR)
        - water spray systems
        - water mist systems
    - gaseous suppression systems
    - wet chemical suppression systems
    - foam suppression systems
    - hydrants, hose reels and monitors
    - water supply tanks
    - fire pump sets
    - detection and warning systems:
        - occupant warning systems
        - emergency warning and intercommunications systems (EWIS)
        - fire detection and alarm systems
        - smoke control systems
        - emergency lighting systems
- purpose and operation of fire systems:
    - layout
    - special products and hazards
    - system operation
    - performance requirements:
        - for water-based systems:
            - speed of response
            - time taken to reach full-flow conditions
            - area of coverage
            - nozzle locations
            - droplet profile and characteristics
            - duration of response
        - for detection and warning systems:
            - correct sensors
            - sensitivity to fire size
            - speed of detection and response
            - fire location coverage
    - maintenance standards
    - system activation and operation
- passive fire safety elements:
    - identification of passive elements
    - impact of fire systems design on passive elements
    - 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
- maintenance procedures:
    - site-specific maintenance instructions
    - manufacturer's specific maintenance instructions
    - local government regulations
    - Australian standards, such as:
        - AS 1851 Routine service of fire protection systems and equipment

    - safety data sheets (SDS).
- interconnection of fire systems:
    - cause and effect matrix
    - interface with other services
- instruments used in commissioning and measuring fire system performance:
    - commissioning procedures and specifications:
        - procedures listed in Australian standards, such as:
            - AS 2118.1 Automatic fire sprinkler systems - General Systems
            - AS 2118.4 Automatic fire sprinkler systems - Sprinkler protection for accommodation buildings not exceeding for storeys in height
            - AS 2118.6 Automatic fire sprinkler systems - Combined sprinkler and hydrant systems in multi-storey buildings
            - AS 1670.1 Fire, detection, warning, control and intercom systems - System design, installation and commissioning - Fire
            - AS 1670.4 Fire, detection, warning, control and intercom systems - System design, installation and commissioning - Emergency warning and intercom systems
            - AS 2419.1 Fire hydrant installations - System design, installation and commissioning
            - AS 2441 Installation of fire hose reels
            - AS 2941 Fixed fire protection installations - Pumpset Systems
            - AS ISO 14520.1 Gaseous fire extinguishing system - Physical properties and system design - General requirements
        - U.S. National Fire Protection Association (NFPA) codes
        - factory mutual data sheets
        - manufacturer recommendations
- construction industry terminology
- roles and responsibilities of relevant building project personnel:
    - architect
    - lead contractor
    - structural engineer
    - mechanical engineer
    - hydraulic engineer
    - electrical engineer
    - civil engineers
    - fire engineers
    - building(private) certifier or surveyor
- contractual processes
- signage:
    - technical design data, including systems performance and layout on a block plan
    - pressure switch setting plaque
    - interface cause and effect drawing
    - operating instructions
    - manufacturer's technical plates or labels
    - signs in the pump room for water-based system:
        - system pressure
        - town mains pressure

        - pump cut-in pressure
        - pressure gauge schedule
        - block plans
    - visual and audible alarms for gaseous suppression systems, including:
        - strobes lights
        - speakers and horns
        - system interface matrix
        - block plans
    - signage for detection and warning systems:
        - system interface matrix
        - block plans
        - device lists.

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

Companion Volume Implementation Guide: https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad