

Unit of Competency CPCPFS3030

Design fire sprinkler systems using pre-calculated charts and tables

Application

This unit of competency specifies the skills and knowledge required to design fire sprinkler systems using pre-calculated tables and charts.

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. Prepare for work.	<ul style="list-style-type: none">1.1 Obtain scope of work requirements from information and quality requirements, including relevant job plans and specifications, codes, Australian Standards, manufacturer's specifications and jurisdictional requirements.1.2 Identify and apply workplace policies and procedures, work health and safety (WHS) and environmental requirements.1.3 Set up work area to enable sprinkler system to be designed efficiently.
2. Identify design requirements.	<ul style="list-style-type: none">2.1 Obtain data from relevant job specifications required to prepare design.2.2 Identify building classification and hazard ratings that apply to the fire sprinkler system being designed.2.3 Identify ceiling type and constructions material.2.4 Identify all features of that building that might obstruct the spray pattern of the sprinkler; i.e. bulkheads, beams, columns, etc.2.5 Identify sprinkler head type from relevant job plans and specifications, codes, Australian Standards, manufacturer's specifications and jurisdictional requirements.2.6 Identify the requirement for concealed space sprinklers.
3. Design sprinkler system.	<ul style="list-style-type: none">3.1 Identify and locate the control valves.3.2 Lay out sprinkler locations according to AS 2118.1 Automatic fire sprinkler systems – General systems and manufacturer data sheets.3.3 Lay out the range and distribution pipework in an economical manner.3.4 Determine the most remote last range type.3.5 Locate the design points.3.6 Size all range pipes in the installation using the pre-calculated tables.3.7 Size the distribution pipework up to the design point using the pre-calculated tables.3.8 Size the distribution pipework from the design point to the control valve using hydraulic calculations.3.9 Prepare fabrication design sheets and material lists.
4. Finalise work.	<ul style="list-style-type: none">4.1 Clear the work area, and dispose of, reuse or recycle materials in accordance with state and territory legislation and workplace policies and procedures.

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 CPCPFS3030A Design pre-calculated fire sprinkler systems.

Links

Companion Volume Implementation Guide:

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

Assessment Requirements for CPCPFS3030 Design fire sprinkler systems using pre-calculated charts and tables

Performance Evidence

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

- designing a fire sprinkler system using plans and specifications provided for an ordinary III hazard classification building, including:
 - o at least 25 sprinkler heads and two branches
 - o spacing and location of sprinkler heads
 - o specifications for the size and layout of all pipework
 - o layout drawings, fabrication sheets and materials lists.

Knowledge Evidence

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

- legal responsibilities of people related to designing fire sprinkler systems
- legislation, regulations, standards and codes relating to designing a fire sprinkler system
- general fire protection systems and design terminology and symbols
- structural systems, building materials and building services of buildings and structures that require fire sprinkler systems.
- characteristics, application and limitations of approved materials and components of fire sprinkler systems
- identifying and explaining the difference between deemed to satisfy installations and performance-based solutions
- functional and operational features of tools and equipment used to design fire sprinkler systems
- processes, procedures and techniques of:
 - o applying pre-calculated charts and tables in the design of fire sprinkler systems
 - o hydraulic calculations associated with pre-calculated design.

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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