

<b>Title</b>	<b>Demonstrate knowledge of fire detection and alarm system design</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	<p>This unit standard is for the training of fire alarm technicians and covers knowledge of the principles of design of fire detection and alarm systems, using both conventional and addressable devices.</p> <p>People credited with this unit standard are able to: demonstrate knowledge of legislation, standards, codes of practice, and job specific documentation relating to fire detection and alarm systems; and design fire detection and alarm systems for given simulated situations.</p>
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<b>Classification</b>	Mechanical Engineering > Fire Detection and Alarm Systems
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<b>Available grade</b>	Achieved
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### Guidance Information

- Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the:

Building Act 2004,  
 Ministry of Business, Innovation and Employment (MBIE) *Acceptable Solutions (AS) and Verification Methods (VM)*,  
 New Zealand Building Code,  
 AS/NZS 3000:2018, *Electrical Installations* (known as the Australian/New Zealand Wiring Rules),  
 NZS 4512:2021, *Fire Detection and Alarm Systems in Buildings*.  
 Available at <https://www.standards.govt.nz/>  
 Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.
- Definitions**

*Ancillary services* refer to ventilating systems, emergency lighting, lift control, or other building services.

*Design brief* refers to notes and/or sketches that record the requirements of the system including the owner's functional requirements.

*Equipment specifications* refer to manufacturer's specifications for installation, operation, and performance of their equipment.

*Fire detection and alarm system* refers to an installation of apparatus, which performs specified fire related functions in response to the operation of a detector, manual call point, or other input. It includes – manual call points, detectors, control and indication equipment, alerting devices, interconnections, fittings, labels, energy sources, and remote signalling devices and may include emergency warning and intercommunication systems (EWIS) where applicable.

*Job specific documentation* includes fire reports and system specification.

*Project documentation* refers to all documentation required for designing and may include design brief, building plans, building drawings and specifications, and equipment specifications.

*Workplace procedures* refer to the documented procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, site safety procedures, equipment operating procedures, codes of practice, quality assurance procedures, housekeeping standards, charging of time and materials, management of drawings, and documentation, procedures to comply with legislative and local body requirements.

### 3 Assessment information

- a. All activities must comply with relevant legislative and/or regulatory requirements and recognised codes of practice.
- b. All activities must demonstrate safe working practices.
- c. All activities must be completed and reported within agreed timeframes.
- d. All activities must be done in accordance with applicable standards, AS and VM documents, project documentation, systems documentation, and workplace procedures.
- e. Use of legislation, standards, and codes of practice listed in the references by candidates during assessment is encouraged.
- f. Answers must include references to relevant clauses presented in response to questions regarding the provisions of the legislation, standards, and code of practice.

### 4 Recommended skills and knowledge

Unit 23258, *Demonstrate knowledge of fire detection and alarm systems and installation practices*, and Unit 28813, *Demonstrate knowledge of fire detection and alarm system components and installation practices*; or demonstrate equivalent knowledge and skills.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of legislation, standards, codes of practice and job specific documentation relating to fire detection and alarm systems.

#### Performance criteria

- 1.1 The legislation, standards, and codes of practice are applied to given situations.
- 1.2 Documentation required for an installation is explained.

## Outcome 2

Design fire detection and alarm systems for given simulated situations.

Range evidence of two designs using conventional devices and two designs using addressable devices is required, and must include one type 4 system and one type 5 system.

### Performance criteria

2.1 Requirements for fire detection and alarm systems are identified and explained.

2.2 System layouts are established and components are selected and defined.

Range zones, sectors, detectors, manual call points, indicators, alerting devices (audible and visual), remote signalling equipment, ancillary services requirements, control and indicating equipment, power supplies, battery and battery charging system, seismic restraints, cabling systems and cables, zone index.

2.3 Drawings and project design for the installation of systems are prepared.

2.4 Assumptions and decisions are recorded.

<b>Replacement information</b>	This unit standard and unit standard 23267 replaced unit standard 9398, unit standard 10924, and unit standard 17724.
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<b>Planned review date</b>	31 December 2029
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### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 October 2006	31 December 2017
Review	2	15 October 2015	31 December 2026
Review	3	27 June 2024	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0013
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

### Comments on this unit standard

Please contact the Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council [qualifications@hangaarorau.nz](mailto:qualifications@hangaarorau.nz) if you wish to suggest changes to the content of this unit standard.