

Title	Design fire detection and alarm systems		
Level	5	Credits	20

Purpose	<p>This unit standard is for the training of fire alarm technicians, and covers the design of fire detection and alarm systems, using both conventional and addressable devices.</p> <p>People credited with this unit standard are able to, for fire detection and alarm systems: prepare to design, design, and prepare project design for the installation of systems.</p>
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Classification	Mechanical Engineering > Fire Detection and Alarm Systems
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Available grade	Achieved
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Entry information	
Recommended skills and knowledge	Unit 23266, <i>Demonstrate knowledge of fire detection and alarm system design</i> , or demonstrate equivalent knowledge and skills.

Explanatory notes

- References

Building Act 2004

Ministry of Business, Innovation and Employment (MBIE) *Acceptable Solutions (AS) and Verification Methods (VM)*. Available at <http://www.dbh.govt.nz/AS/VM-documents>

New Zealand Building Code

AS/NZS 3000:2007, *Electrical Installations* (known as the Australian/New Zealand Wiring Rules)

NZS 4512:2010, *Fire Detection and Alarm Systems in Buildings*.
- Definitions

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

Enterprise 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.

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

Environment may include but is not limited to weather, temperature, manufacturing processes, toxic/flammable atmosphere, and places of restraint, hospitals, and rest homes.

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.

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

3 Assessment

- a For assessment purposes, competence must be demonstrated on at least three systems of which at least one uses addressable devices and one each of type 2, 3, and 4 systems as specified in NZS 4512:2010.
- b Evidence of compliance certification for the designed installations in accordance with NZS 4512:2010, section 107.1(e) is an acceptable method of assessment against this unit standard.

Outcomes and evidence requirements

Outcome 1

Prepare to design fire detection and alarm systems.

Evidence requirements

- 1.1 Design project scopes are established from project documentation.
- 1.2 Applicable standards and codes are identified from project documentation.
- 1.3 Environment for fire detection and alarm systems is established from project documentation.

Outcome 2

Design fire detection and alarm systems.

Range design is to be in accordance with NZS 4512:2010, AS/NZS 3000:2007, the AS/VM documents, the project documentation.

Evidence requirements

- 2.1 Zones and sectors are determined.
- 2.2 Types, locations, positions, spacing, coverage, and quantity of call points and detectors are determined.

- 2.3 Types, locations, positions, and quantity of indicators, alerting devices, and remote signalling equipment are determined.
- 2.4 Ancillary services interface requirements are determined.
- 2.5 Types and locations of control and display equipment are determined.
- 2.6 Ratings for batteries and chargers are calculated and suitable equipment selected.
- 2.7 Cabling systems are designed and cables selected.
- 2.8 Zone indexes are designed using standard symbols.

Outcome 3

Prepare drawings and project design for the installation of systems.

Evidence requirements

- 3.1 Drawings and project design for the installation of systems are prepared in accordance with standards and project documentation.
- 3.2 Assumptions and decisions are recorded in accordance with enterprise procedures.

Replacement information	This unit standard and unit standard 23266 replaced unit standard 9398, unit standard 10924, and unit standard 17724.
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Planned review date	31 December 2020
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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	N/A

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

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMRs). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact Competenz at qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.