

Title	Demonstrate knowledge and use of hand operated fire fighting equipment		
Level	3	Credits	5

Purpose	<p>This unit standard is for the training of personnel employed in the fire protection industry, and covers the knowledge and use of hand operated fire fighting equipment.</p> <p>People credited with this unit standard are able to demonstrate: knowledge of fire and extinguishing methods; knowledge of the construction of hand operated fire fighting equipment; knowledge of the operation of hand operated fire fighting equipment; knowledge of applications of hand operated fire fighting equipment; and the use of hand operated fire fighting equipment.</p>
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Classification	Mechanical Engineering > Hand Operated Fire Fighting Equipment
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Available grade	Achieved
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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>
 - Hazardous Substances and New Organisms Act 1996
 - Ozone Layer Protection Act 1996
 - Fire Extinguishers Regulations 1958
 - New Zealand Building Code
 - AS/NZS 1841.1:2007, *Portable fire extinguishers – General requirements*
 - AS/NZS 1841.2:2007, *Portable fire extinguishers – Specific requirements for water type extinguishers*
 - AS/NZS 1841.3:2007, *Portable fire extinguishers – Specific requirements for wet chemical type extinguishers*
 - AS/NZS 1841.4:2007, *Portable fire extinguishers – Specific requirements for foam type extinguishers*
 - AS/NZS 1841.5:2007, *Portable fire extinguishers – Specific requirements for powder type extinguishers*
 - AS/NZS 1841.6:2007, *Portable fire extinguishers – Specific requirements for carbon dioxide type extinguishers*
 - AS/NZS 1841.7:2007, *Portable fire extinguishers – Specific requirements for vaporizing-liquid type extinguishers*

AS/NZS 1841.8:2007, *Portable fire extinguishers – Specific requirements for non-rechargeable type extinguishers*

AS/NZS 1850:2009, *Portable fire extinguishers – Classification, rating and performance testing*

AS/NZS 1221:1997, *Fire hose reels*

AS/NZS 3504:2006, *Fire blankets*

AS 2337.1:2004, *Gas cylinder test stations. – General requirements, inspection and tests – Gas cylinders*

NZS 4503:2005, *Hand operated fire-fighting equipment.*

2 Definitions

Hand operated fire fighting equipment in this unit standard is as defined by NZS 4503:2005 and includes fire hose reels, fire extinguishers (both gas container and stored pressure), and/or fire blankets.

Industry practice refers to the safe and sound practices generally accepted by competent trade persons within the fire protection industry as examples of best practice and may include documented codes of practice and standardised procedures.

Systems documentation refers to the documentation required to be maintained by NZS 4503:2005, including log book, test reports, equipment details and drawings, specifications, contract agreement, additions and alterations, fire reports, survey reports, building consents, standards, codes of practice, installation instructions, test and commissioning procedures, test and maintenance records.

3 Range

- 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.

4 Assessment

- a Fire situations are to be produced using fuels of the actual class of fire wherever possible (i.e. A – paper, wood, and many plastic materials; B – flammable and combustible liquids; F – cooking oil and fat).
- b Demonstration of the use of hand operated fire fighting equipment includes the use of: foam, dry powder and carbon dioxide fire extinguishers, a fire hose reel, and two of the following: wet chemical fire extinguisher, bucket pump, wheeled fire extinguisher, knapsack type fire extinguisher, fire blanket, sand bucket.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of fire and extinguishing methods.

Evidence requirements

- 1.1 Components required to sustain combustion are identified and related to fires.

Range fire tetrahedron – fuel, oxygen, heat, chemical reaction.

1.2 Methods used in controlling combustion are identified and related to extinguishing fires.

Range remove fuel (starvation), remove oxygen (smother), remove heat (cooling), break the chemical reaction.

1.3 Extinguishing agents are identified and related to the types of fires that they are suitable and not suitable for, and their relative advantages and disadvantages are explained.

Range extinguishants – water, foams, wet chemicals, dry powders, vaporizing liquids, carbon dioxide;
fire types – fire classes A, B, C, D, E, and F.

1.4 Extinguishing agents which are subject to legislative controls and the obligations under relevant legislative and/or regulatory requirements for owners of these types of fire extinguishers are identified.

1.5 Personal safety requirements are identified and related to fires and extinguishing methods.

Outcome 2

Demonstrate knowledge of the construction of hand operated fire fighting equipment.

Evidence requirements

2.1 Fire extinguisher components, materials, cylinder and valve construction methods, and their suitability for use are identified in accordance with industry practice and NZS 4503:2005.

2.2 Fire hose reel components, materials and construction types, and their suitability for use are identified in accordance with systems documentation, NZS 4503:2005, and the compliance documents.

Range types – swing arm, cabinet, standard wall mount;
materials – drums (steel, stainless steel, fibre glass), glands (plastic, brass with rubber or synthetic seals), hoses (rubber, extruded or re-enforced plastic), nozzles (brass alloy, moulded plastic).

2.3 Construction methods and materials of fire blankets and their suitability for use are identified.

Range glass fibre, water gel.

2.4 Tests that fire equipment is subjected to are identified and explained.

Range hose reels – pressure, strength, unwind, discharge, operation, coverage and flow tests;
extinguishers – ratings, pressure, clear passage, component material, gas leakage, external corrosion, support fitting, siphon tube, intermittent, effective discharge;

fire blankets – fire, electrical, hand holding devices, size, removal and unpacking, fraying, flexibility.

Outcome 3

Demonstrate knowledge of the operation of hand operated fire fighting equipment.

Evidence requirements

3.1 Operation methods of hand operated fire fighting equipment are identified and explained.

Range stored pressure, cartridge operated, fire blankets, hose reels.

3.2 Hazards and safety requirements when using hand operated fire fighting equipment are identified and related to each item of equipment.

Outcome 4

Demonstrate knowledge of applications of hand operated fire fighting equipment.

Evidence requirements

4.1 Risks and applications of fire fighting equipment are identified and related to their use in the control of different types of fire in accordance with systems documentation, NZS 4503:2005, and the AS/VM documents.

Range fire extinguishers, fire blankets, bucket pumps, wheeled mobile units, hose reels.

4.2 Factors affecting the selection of fire fighting equipment are identified in accordance with NZS 4503:2005.

Outcome 5

Demonstrate the use of hand operated fire fighting equipment.

Evidence requirements

5.1 Hand operated fire fighting equipment is selected relevant to the type of fire and in accordance with NZS 4503:2005.

Range fire size, location, fuel type, fire class.

5.2 Fire fighting equipment is operated in accordance with manufacturer's instructions.

5.3 Safety requirements relating to the equipment being used are complied with.

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	18 December 1996	31 December 2017
Revision	2	5 January 1999	31 December 2017
Revision	3	20 December 2000	31 December 2017
Review	4	26 March 2007	31 December 2017
Review	5	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.