

Title	Identify principles of fire development in structures and compartments and smoke impact on people		
Level	3	Credits	5

Purpose	People credited with this unit standard are able to demonstrate knowledge of: the conditions leading to flashover; the conditions leading to backdraught; the effects of the harmful constituents of smoke on people.
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Classification	Fire and Rescue Services > Fire and Rescue Services - Structural and Industrial
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Available grade	Achieved
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Prerequisites	Unit 4647, <i>Demonstrate knowledge of the basic principles of fire science</i> , or demonstrate equivalent knowledge and skills.
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Guidance Information

Definition

Fire and rescue service provider's requirements refer to policies and procedures on safety and operation set down by each fire and rescue service employer or host organisation.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of the conditions leading to flashover.

Performance criteria

- 1.1 The phenomenon of flashover in fire-involved compartments is identified as a component of fire development in accordance with the fire and rescue service provider's requirements.
- 1.2 The conditions leading to flashover are identified in accordance with the fire and rescue service provider's requirements.

Range room temperature, ventilation, fire loading.
- 1.3 The signs of imminent flashover are identified in accordance with the fire and rescue service provider's requirements.

Range radiated heat, flame conditions, smoke conditions, fire intensity.

Outcome 2

Demonstrate knowledge of the conditions leading to backdraught.

Performance criteria

- 2.1 The phenomenon of backdraught in fire-involved compartments is identified as a component of fire development in accordance with the fire and rescue service provider's requirements.
- 2.2 The conditions that could result in backdraught occurring are identified in accordance with the fire and rescue service provider's requirements.
- Range room temperature, ventilation, fire loading, duration of fire involvement.
- 2.3 The signs of imminent backdraught are identified in accordance with the fire and rescue service provider's requirements.
- Range may include but is not limited to – external compartment cladding temperature, flame conditions, smoke conditions, air-flow conditions around the openings to the fire compartment, fire intensity.

Outcome 3

Demonstrate knowledge of the effects of the harmful constituents of smoke on people.

Performance criteria

- 3.1 The effects of carbon monoxide on the human body are related to the sustainability of life in accordance with the fire and rescue service provider's requirements.
- Range properties of carbon monoxide, signs and symptoms of people affected by carbon monoxide.
- 3.2 The effects that irritants in smoke have on the human respiratory system are related to the signs and symptoms of asphyxia, and burns in accordance with the fire and rescue service provider's requirements.
- 3.3 The effects that particulates have on a person's vision and movement are related to a person's ability to orientate themselves to the surroundings, and their perception of time, space and distance in accordance with the fire and rescue service provider's requirements.
- 3.4 The effects of excess heat on the human body are linked to changes in the human body's metabolic function in accordance with the fire and rescue service provider's requirements.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	22 December 1999	31 December 2025
Review	2	25 March 2004	31 December 2025
Review	3	20 November 2009	31 December 2025
Review	4	30 September 2021	31 December 2025

Consent and Moderation Requirements (CMR) reference

0039

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

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