
**FIRE AND RESCUE SERVICES -
STRUCTURAL AND INDUSTRIAL**
**Apply knowledge of advanced fire
development in structures and
compartments**

level:	5
credit:	10
final date for comment:	March 2008
expiry date:	December 2009
sub-field:	Fire and Rescue Services
purpose:	People credited with this unit standard are able to: classify the processes and conditions governing ignition and flame spread; analyse the fundamentals of advanced fire development; and demonstrate knowledge of fire severity in structure fires.
entry information:	Recommended: Unit 4651, <i>Apply knowledge of structural fire behaviour</i> . Prerequisite: Unit 16943, <i>Identify principles of fire development in structures and compartments</i> , or demonstrate equivalent knowledge and skills.
accreditation option:	Evaluation of documentation and visit by NZQA and industry.
moderation option:	A national moderation system of moderation networks has been established by the Fire and Rescue Services Industry Training Organisation.
special notes:	None.

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Elements and Performance Criteria

element 1

Classify the processes and conditions governing ignition and flame spread.

performance criteria

- 1.1 Typical sources of ignition are classified according to interacting factors at the point of fire origin.
- 1.2 Heat transfer processes dominant in different types of fire spread are identified in relation to structural properties of the compartment of origin.

element 2

Analyse the fundamentals of advanced fire development.

performance criteria

- 2.1 Temperature and time curves describing fire development are applied to typical variables in fuel type, fuel load, and construction configuration.
- 2.2 The effects that variables in fuel types, fuel loads, and construction configurations have on fire development are identified.

Range: fuel types may include but not limited to - cellulose, plastic, liquid.
- 2.3 The effects that ventilation characteristics have on developing fires are identified.

Range: may include but is not limited to - fire development, fire control, smoke funnelling, smoke training, heat control.

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element 3

Demonstrate knowledge of fire severity in structure fires.

performance criteria

- 3.1 The differences between fuel controlled and ventilation-controlled fires are identified across various fuel and construction types.
- 3.2 The main heat transfer processes in a fully developed compartment fire are factored into structural decomposition and structural integrity losses.
- 3.3 The principles of smoke flows inside and outside of compartments are applied to fire development rates and fire intensity rates.

Comments on this unit standard

Please contact the Fire and Rescue Services Industry Training Organisation info@frsito.org.nz if you wish to suggest changes to the content of this unit standard.

Please Note

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0039 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.