

Unit Standard 24165 <http://www.nzqa.govt.nz/nqfdocs/units/doc/24165.doc>

Title: **Demonstrate knowledge of fire safety requirements in the Building Code.**

Level **5** Credits **5**

Special notes

- 1 Compliance with the following legislation, regulations, and codes is required:
Building Act 2004
The Building Code
Building (Forms) Regulations 2004.
- 2 The scope of buildings assessed within this unit standard fall generally within the coverage of NZS 3604:1999 Timber Framed Buildings, NZS 4229:1999 Concrete masonry buildings not requiring specific engineering design, NZS 3109:1997 Concrete construction <http://www.standards.co.nz/default.htm> . Please note other Standards are referenced in the Building Code Handbook.
- 3 Reference documents:
The Building Code Compliance Documents
<http://www.dbh.govt.nz/building-code-compliance-documents> ;
Building Officials – Building Act 2004 overview
<http://www.dbh.govt.nz/bofficials-buiding-act-2004-overview> .
- 4 All activities must comply with: any policies, procedures, business protocols, and requirements of the organisation/s involved; ethical codes and standards of relevant professional bodies.

Element 1		
Demonstrate knowledge of the objective, functional requirements and performance measures of Clause C1 – outbreak of fire in the Building Code.		
Performance Criteria	Candidate	Assessor
<p>1.1 The objective of Clause C1 – outbreak of fire is described in terms of the Building Code.</p>	<p>Describe in your own words the objectives and functional requirements of Clause C1 – outbreak of fire in the New Zealand Building Code</p>	<p>The description should include reference to safeguarding people from injury or illness caused by fire and the installation of appliances using controlled combustion in a way likely to reduce the likelihood of fire.</p>
<p>1.2 The functional requirements of Clause C1 – outbreak of fire are described in terms of the Building Code.</p> <p>Range solid, liquid, gaseous.</p>		
<p>1.3 The performance measures relating to Clause C1 – outbreak of fire are described in terms of the Building Code and applied to a given scenario.</p> <p>Range services, installation.</p>	<p>Describe the performance standards relating to C1 - outbreak of fire with specific reference to scenario 1 with a solid fuel heater, internal gas cooking and gas water heating</p>	<p>Safeguarding people from injury or illness caused by fire</p> <p>The installation of appliances using the controlled combustion of solid, liquid or gaseous fuel in ways that reduces the likelihood of fire</p> <p>The description should include reference to:</p> <ul style="list-style-type: none"> - the installation of services and appliances using the controlled combustion of solid, liquid or gaseous fuel in ways that reduces the likelihood of fire - avoiding the accumulation of gases where heat or ignition could cause uncontrolled combustion or explosion - the installation of appliances to ensure that the heat transfer or concentration of heat does not adversely affect its physical or mechanical properties

Element 2

Demonstrate knowledge of the objectives, functional requirements and performance measures of Clause C2 – means of escape in the Building Code.

Performance Criteria	Candidate	Assessor
<p>Performance Criteria</p> <p>2.1 The objectives of Clause C2 – means of escape are described in terms of the Building Code.</p> <p>Range safeguarding individuals, facilitating fire rescue.</p>	<p>Assessment against Scenario 3</p> <p>Describe the objectives and functional requirements of Clause C2 – means of escape in the New Zealand Building Regulations 1992</p>	<p>The description should include:</p> <ul style="list-style-type: none"> • Safeguarding people from injury or illness from a fire while escaping to a safe place • Facilitate fire rescue operations • The provision of building escape routes which provide people with adequate time to reach a safe place without being overcome by the effects of fire • Giving fire service personnel adequate time to undertake rescue operations
<p>2.2 The functional requirements of Clause C2 – means of escape are described in terms of the Building Code.</p> <p>Range time, safe places, facilitating fire rescue.</p>		

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Element 2 *Continued from the previous page....*

Demonstrate knowledge of the objectives, functional requirements and performance measures of Clause C2 – means of escape in the Building Code.

Performance Criteria	Candidate	Assessor
<p>2.3 The performance measures relating to Clause C2 – means of escape are described in terms of the Building Code and applied to a given scenario.</p> <p>Range open paths, exit ways, escape routes.</p>	<p>From Scenario 3, list the requirements for consideration under Clause C2 - means of escape. Discuss the requirements under each section of the performance standards that apply to the scenario</p> <p>Why is there a requirement for fire service rescue operations within C2?</p>	<p>Each section of performance standards under C2 applicable to the scenario must be identified</p> <p>Candidate to use Scenario 3 and the answer is to include:</p> <ul style="list-style-type: none"> • Exit ways <ul style="list-style-type: none"> ○ Open path travel distance ○ Building height ○ Number of occupants ○ Fire hazard ○ Fire safety systems installed in building • Escape routes <ul style="list-style-type: none"> ○ Adequate size ○ Free from obstruction in the direction of escape ○ Of appropriate length to the mobility of the people using them ○ Resistant to spread of fire ○ Easy to find ○ Adequate illumination ○ Easy and safe to use • Open path travel distance <ul style="list-style-type: none"> ○ Fire safety systems installed in firecell ○ Number of occupants ○ Travel distance ○ Fire hazard <p>Design must allow for adequate time before untenable conditions or collapse to enable the fire service to attend and carry out rescue operations</p>

Element 3

Demonstrate knowledge of the objectives, functional requirements and performance measures of Clause C3 – spread of fire in the Building Code.

Performance Criteria	Candidate	Assessor
<p>3.1 The objectives of Clause C3 – spread of fire are described in terms of the Building Code.</p> <p>Range firecells, sleeping spaces, household units within the same or adjacent buildings.</p>	<p>Describe the objectives and functional requirements of Clause C3 – spread of fire in the New Zealand Building Regulations 1992.</p>	<p>The description should include:</p> <ul style="list-style-type: none"> • Safeguarding people from injury or illness from a fire while evacuating to a safe place and ensuring they have time to escape. • Provide protection to fire service personnel during fire fighting operations • The protection of adjacent households, other residential units and other property from the effects of fire. • Safeguard the environment from the adverse effects of fire and Ensuring Significant quantities of hazardous substances are not released into the environment during fire.
<p>3.2 The functional requirements of Clause C3 – spread of fire are described in terms of the Building Code.</p> <p>Range adjacent units and property, protection systems, fire service requirements.</p>		
<p>3.3 The performance measures relating to Clause C3 – spread of fire are described in terms of the Building Code and applied to a given scenario.</p> <p>Range fire rating, sleeping spaces, adjacent units, concealed spaces, fire suppression systems, fire separations, external walls and roofs, fire safety systems, fire resistance, firecells, interior surface finishes, travel distances, number of occupants, fire hazard, household units, penetrations, automatic smoke control, air conditioning and mechanical ventilation, environmental.</p>	<p>With reference to Scenario 4, under Clause C3 - spread of fire:</p> <p>What performance standards would you consider for this category of building?</p> <p>What measures should be taken to ensure that people are safe from the effects of fire in an adjacent unit?</p> <p>What measures should be taken when the units are adjacent and built on a suspended floor?</p> <p>What design consideration would you give to protect adjacent household units or other property?</p> <p>What would assist to limit the spread of fire?</p> <p>What performance standards under C3 do <u>not</u> relate to Scenario 4?</p>	<p>Candidate to use Scenario 4. The combined answers should include reference to:</p> <ul style="list-style-type: none"> • fire rating and fire resistance • sleeping spaces and concealed spaces • adjacent units • fire suppression systems • fire separations, • external walls and roofs • fire safety systems • firecells • interior surface finishes • travel distances • number of occupants • fire hazard • household units • penetrations • automatic smoke control • air conditioning and mechanical ventilation • environmental protection systems • fire service requirements

Element 4		
Demonstrate knowledge of the objectives, functional requirements and performance measures of Clause C4 – structural stability during fire in the Building Code		
Unit Standard	Candidate	Assessor
<p>4.1 The objectives of Clause C4 – structural stability during fire are described in terms of the Building Code.</p>	<p>Describe the objective and functional requirement of Clause C4 – structural stability during fire in terms of the New Zealand Building Regulations 1992</p>	<p>The description includes reference to:</p> <ul style="list-style-type: none"> • Safeguard people from injury and Protecting household units and other property from damage due to structural instability caused by fire. • Avoidance of collapse and consequential damage to adjacent household units or property.
<p>4.2 The functional requirements of Clause C4 – structural stability during fire are described in terms of the Building Code.</p> <p>Range safeguard individuals, facilitating fire rescue and fire fighting, avoidance of collapse and consequential damage to adjacent household units or property.</p>		
<p>4.3 The performance measures relating to Clause C4 – structural stability during fire are described in terms of the Building Code and applied to a given scenario.</p> <p>Range fire resistance, fire load, fire intensity, fire hazard, building height, fire controls, fire fighting, household units.</p>	<p>Using Scenario 2, what design considerations would need to be addressed under C4?</p>	<p>The following must be addressed:</p> <ul style="list-style-type: none"> • Structural stability of walls supporting the upper floor to prevent spread of fire and collapse must be addressed. • Construction of the upper floor to allow adequate time to evacuate safely must be addressed. • Protection of other household units must be addressed. <p>In addition, the following items may be addressed:</p> <ul style="list-style-type: none"> • Fire resistance ratings • fire load, • fire hazard, • building height, • fire controls • fire personnel to undertake rescue and fire fighting