



Assessor Assessment Guide Unit Standard 16943

Identify principles of fire development in structures and compartments and smoke impact on people (Level 3, Credit 5, Version 2)

In order to achieve competency in this unit standard a candidate must display an understanding of the knowledge components by completing an oral or written assessment and practically demonstrate the knowledge of the conditions leading to flashover; demonstrate knowledge of the conditions leading to backdraught; and demonstrate knowledge of the effects of the harmful constituents of smoke on people.

This assessment may take place at a real or at a simulated practical event.

The assessor may elect to question candidates during completion of the practical assessment to ensure theoretical knowledge can be applied during practice. This technique also provides the assessor with reinforcement that knowledge has been retained.

Where a candidate is being assessed on the basis of a RCC process evidence must be produced that indicates a candidate has successfully directed operations at a defensively controlled fire at both structure and vehicle fires in a safe manner without causing avoidable environmental or equipment damage.

Assessors may use this guide to record evidence of a candidates overall performance but should be aware that this may not, on its own be an adequate record for moderation purposes without appropriate notes or appendices. Notes should include a summary of the process used and a statement about the quality of the candidate's performance.

ASSESSORS SHOULD ALWAYS REVIEW THE REQUIREMENTS CONTAINED IN THE UNIT STANDARD DOCUMENT PRIOR TO CONDUCTING ASSESSMENTS

For this unit the following resources are available from FRSITO to assist Learners, Instructors and Assessors:

- Assessor Assessment Guide
- Learner Assessment Guide

Assessors: General Notes:

Prerequisite: Candidate must hold Unit Standard 4647, *Explain principles of fire science*, before this Unit Standard can be registered on their NZQA Record of Learning

Assessors Name	_____	Assessor No.	_____
Candidate Name	_____	NZQA No.	_____
Date of Assessment	_____	Final Result	_____

Level Descriptor

Level	Process	Employing	Responsibility
3	Carrying out processes that: <ul style="list-style-type: none"> Require a range of well developed skills Offer a significant choice of procedures Are employed within a range of familiar contexts 	Employing: <ul style="list-style-type: none"> Some relevant theoretical knowledge Interpretation of available information Discretion and judgement A range of known responses to familiar problems 	Applied: <ul style="list-style-type: none"> In directed activity with some autonomy Under general supervision and quality checking With significant responsibility for the quantity and quality of output With possible responsibility for the output of others

	Information or actions that may provide support for competency	
General	Has the candidate: <ul style="list-style-type: none"> <input type="checkbox"/> Gained Unit Standard 4647? <input type="checkbox"/> Satisfactorily completed a pre course self test? <input type="checkbox"/> Satisfactorily completed an oral or written on course or post knowledge assessment? <input type="checkbox"/> Satisfactorily completed simulation exercises? <input type="checkbox"/> Attend a course covering the Unit Standard subject matter? <input type="checkbox"/> Provided proof of experience through records? <input type="checkbox"/> Practically demonstrated in a practical scenario? <input type="checkbox"/> Other (please list)? <hr/> <hr/>	Assessor Notes:

Element and PC	Evidence Typical answer/product/performance expected from the learner/candidate(s)	Judgement Statement (A statement that defines the standard to be achieved)	Result C/NYC
1	Demonstrate knowledge of the conditions leading to flashover		
1.1	Candidate must identify the phenomenon of flashover in fire-involved compartments as a component of fire development. Did the candidate: <ul style="list-style-type: none"> <input type="checkbox"/> Identify phenomenon of flashover correctly? Assessor notes:	Phenomenon of flashover in fire-involved compartments identified as a component of fire development.	

Element and PC	Evidence Typical answer/product/performance expected from the learner/candidate(s)	Judgement Statement (A statement that defines the standard to be achieved)	Result C/NYC
1.2	<p>Candidate must identify the conditions leading to flashover</p> <p>Range:</p> <ul style="list-style-type: none"> <input type="checkbox"/> room temperature <input type="checkbox"/> ventilation <input type="checkbox"/> fire loading <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify conditions leading to flashover? <p>Assessor notes:</p>	The conditions leading to flashover are identified.	
1.3	<p>Candidate must identify the signs of imminent flashover</p> <p>Range:</p> <ul style="list-style-type: none"> <input type="checkbox"/> radiated heat <input type="checkbox"/> flame conditions <input type="checkbox"/> smoke conditions <input type="checkbox"/> fire intensity <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify signs of imminent flashover? <p>Assessor notes:</p>	The signs of imminent flashover are identified.	

Element and PC	Evidence Typical answer/product/performance expected from the learner/candidate(s)	Judgement Statement (A statement that defines the standard to be achieved)	Result C/NYC
2	Demonstrate knowledge of the conditions leading to backdraught.		
2.1	<p>Candidate must identify the phenomenon of backdraught in fire-involved compartments as a component of fire development.</p> <p>Did the candidate:</p> <p><input type="checkbox"/> Identify backdraught in fire development?</p> <p>Assessor notes:</p>	<p>The phenomenon of backdraught in fire-involved compartments as a component of fire development is identified.</p>	
2.2	<p>Candidate must identify the conditions that could result in backdraught occurring</p> <p>Range:</p> <p><input type="checkbox"/> room temperature <input type="checkbox"/> ventilation <input type="checkbox"/> fire loading <input type="checkbox"/> duration of fire involvement</p> <p>Consider the following:</p> <ul style="list-style-type: none"> • thick black smoke • smoke pulsating around gaps of doors and windows • rattling windows coated with thick oily substance • extremely hot to touch • appearance of blue flame • whistling sound of air around fire compartment <p>Did the candidate:</p> <p><input type="checkbox"/> Identify conditions leading to backdraught?</p> <p>Assessor notes:</p>	<p>The conditions that could result in backdraught occurring are identified.</p>	

Element and PC	Evidence Typical answer/product/performance expected from the learner/candidate(s)	Judgement Statement (A statement that defines the standard to be achieved)	Result C/NYC
2.3	<p>Candidate must identify the imminent signs of backdraught</p> <p>Range: may include but is not limited to -</p> <ul style="list-style-type: none"> <input type="checkbox"/> external compartment cladding temperature <input type="checkbox"/> flame conditions <input type="checkbox"/> smoke conditions <input type="checkbox"/> air flow conditions around the openings to the fire compartment <input type="checkbox"/> fire intensity <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Satisfy the requirements of the range? <p>Assessor notes:</p>	<p>The imminent signs of backdraught are identified.</p>	

Element and PC	Evidence Typical answer/product/performance expected from the learner/candidate(s)	Judgement Statement (A statement that defines the standard to be achieved)	Result C/NYC
3	<p>Demonstrate knowledge of the effects of the harmful constituents of smoke on people.</p> <p>Range:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Particulates <input type="checkbox"/> Narcotics <input type="checkbox"/> Irritants <input type="checkbox"/> Heat 		
3.1	<p>Candidate must demonstrate knowledge on the effects of carbon monoxide on the human body is related to the sustainability of life.</p> <p>Range:</p> <ul style="list-style-type: none"> <input type="checkbox"/> properties of carbon monoxide <input type="checkbox"/> signs and symptoms of people affected by carbon monoxide <p>Consider the following: Properties of carbon monoxide, state –</p> <ul style="list-style-type: none"> • gas • liquid solid • specific gravity relative to air • colour • smell • flammability range • toxicity • speed of absorption into blood stream in comparison to oxygen <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Satisfy the requirements of the range? <p>Assessor notes:</p>	<p>Knowledge on the effects of carbon monoxide on the human body is related to the sustainability of life. Is identified.</p>	
3.2	<p>Candidate must demonstrate knowledge on the effects that irritants in smoke have on the human respiratory system are related to the signs and symptoms of asphyxia, and burns.</p> <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demonstrate effects of irritants in smoke have on body systems? <p>Assessor notes:</p>	<p>Knowledge on the effects that irritants in smoke have on the human respiratory system are related to the signs and symptoms of asphyxia, and burns is demonstrated.</p>	

Element and PC	Evidence Typical answer/product/performance expected from the learner/candidate(s)	Judgement Statement (A statement that defines the standard to be achieved)	Result C/NYC
3.3	<p>Candidate must demonstrate knowledge on 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.</p> <p>Consider the following: Particulate matter causes:</p> <ul style="list-style-type: none"> • respiratory symptoms • changes in lung function • alteration of mucociliary clearance and pulmonary inflammation which can lead to increased permeability of the lungs. This increased permeability might precipitate fluid in the lungs in people with heart disease • mediators released during an inflammatory response could increase the risk of blood clot formation and strokes <p>Did the candidate:</p> <p><input type="checkbox"/> Demonstrate effects of particulates on body systems?</p> <p>Assessor notes:</p>	<p>Knowledge on 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 is demonstrated.</p>	
3.4	<p>Candidate must demonstrate the knowledge on effects of excess heat on the human body is linked to changes in the human body's metabolic function.</p> <p>Consider the following: Individuals vary in their susceptibility to heat stress. Factors that must be considered are</p> <ul style="list-style-type: none"> • Lack of fitness • Age • Dehydration • Obesity • Alcohol and drug use • Infection • Diarrhoea • Chronic disease <p>Reduced work tolerance and increased risk of heat stress is influenced by the amount of PPE worn. When selecting PPE each items benefit should be evaluated in relation to risk of heat stress.</p> <p>Did the candidate:</p> <p><input type="checkbox"/> Demonstrate effects of heat on body systems?</p> <p>Assessor notes:</p>	<p>Knowledge on effects of excess heat on the human body are linked to changes in the human body's metabolic function is demonstrated.</p>	