



Fire & Rescue Services ITO

Assessor Assessment Guide Unit Standard 20394

Apply basic ventilation techniques to assist fire and rescue operations (Level 3, Credit 4, Version 1)

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 knowledge of hazards and principles of ventilation and equipment, carry out ventilation operations, and recommission ventilation equipment after use.

This assessment may take place at a real fire where ventilation is employed 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 demonstrated understanding of ventilation principles and the hazards that ventilation is intended to reduce, carried out ventilation operations, and recommissioned equipment after use.

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:

The primary references for this unit standard are the *Fire fighter training notes* and the *Positive pressure ventilation station guide* published by the New Zealand Fire Service, and available from NZFS, PO Box 2133, Wellington.

Ventilation equipment refers to all equipment used by the fire service provider to specifically remove contaminants and products of combustion from a structure to atmosphere.

Fire and rescue service provider's requirements or *Standard Operating Procedures (SOPs)* refer to policies and procedures on safety and operation set down by each fire and rescue service employer or host organisation.

Assessors: General Notes:

Check practice notes to ensure any additional criteria are considered.

www.fristo.org.nz/assessment/practice_notes.html

Assessor 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"/> 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 hazards and principles of ventilation and equipment used at emergency incidents.		
1.1	Candidate must identify products found in the atmosphere of confined spaces that present hazards to fire fighters at fire and non-fire incidents. Range: <ul style="list-style-type: none"> <input type="checkbox"/> fire - three products; <input type="checkbox"/> non-fire - two products. Consider the following: May include: smoke, fumes, heat, dust, flammable vapours, CO, CO2. Did the candidate: <ul style="list-style-type: none"> <input type="checkbox"/> Identify at least 3 fire products? <input type="checkbox"/> Identify at least 2 non-fire products? Assessor notes:	Three products of fire identified. Two products of non-fire incident 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
1.2	<p>Candidate must describe the benefits of tactical ventilation in assisting fire and rescue operations in confined spaces.</p> <p>Range: Four of the following must be described:</p> <ul style="list-style-type: none"> <input type="checkbox"/> access, <input type="checkbox"/> rescue, <input type="checkbox"/> safety, <input type="checkbox"/> internal conditions, <input type="checkbox"/> fire attack, <input type="checkbox"/> property preservation. <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe benefits of ventilation? <p>Assessor notes:</p>	Four benefits described.	
1.3	<p>Candidate must identify and describe two risks associated with ventilation from the primary reference.</p> <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe risks associated with using ventilation? <p>Assessor notes:</p>	Two risks described.	
1.4	<p>Candidate must describe methods of ventilation in accordance with the primary references.</p> <p>Range:</p> <ul style="list-style-type: none"> <input type="checkbox"/> natural <input type="checkbox"/> automatic <input type="checkbox"/> tactical <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe the three methods of ventilation? <p>Assessor notes:</p>	Natural, automatic, and tactical ventilation methods described.	

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
1.5	<p>Candidate must describe safety considerations prior to implementing ventilation.</p> <p>Consider the following:</p> <ul style="list-style-type: none">• increased fire intensity• fire spread• communication with crews• exhaust gases from petrol driven fans <p>Did the candidate:</p> <ul style="list-style-type: none"><input type="checkbox"/> Identify safety considerations?<input type="checkbox"/> Identify operational considerations? <p>Assessor notes:</p>	Safety and operational factors described.	

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
1.6	<p>Candidate must explain the technique and position of the outlet vent for each of the following:</p> <p>Range:</p> <ul style="list-style-type: none"> <input type="checkbox"/> vertical ventilation (or top ventilation): involves making an opening at high level (usually through the roof). This uses the buoyancy of the hot gases and smoke to enable their escape vertically. <input type="checkbox"/> horizontal ventilation: involves making openings high in the external walls on the downwind side (e.g. using windows or doors) so that the fumes and fire products can flow across a compartment to vent using negative or positive pressurisation. <input type="checkbox"/> positive pressure ventilation: typically where fans are placed on the outside of the compartment to be ventilated. These fans force air into the compartment. This creates a slight increase in the atmospheric pressure inside the compartment that is equal throughout and forces air inside to move exiting through the established exhaust vent, usually at high level. <input type="checkbox"/> negative pressure ventilation: achieved using air moves or water assist using deliveries. Fans are positioned high and externally next to an exhaust vent decreasing the internal pressure. This causes an influx of air through the inlet vent and draws air from within the structure to the exhaust. Deliveries are set internally at exhaust vents to achieve the same purpose. <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Describe each technique? (4) <input type="checkbox"/> Describe position of outlet vent for each? <p>Assessor notes:</p>	<p>Techniques described.</p> <p>Outlet vent position identified.</p>	
1.7	<p>Candidate must explain the relevance of the difference in size between outlet vents and inlet vents and the effect this has on pressure for forced ventilation.</p> <p>Did the candidate:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Explain the size differences? <p>Assessor notes:</p>	<p>Size difference between outlet and inlet fans described.</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
1.8	Candidate must list or show equipment needed to apply natural and forced ventilation as used by own organisation. Did the candidate: <input type="checkbox"/> List or show equipment needed? Assessor notes:	Equipment listed or produced.	
1.9	Candidate must describe the techniques for siting single fan(s) and fans in parallel to achieve positive pressure ventilation. Range: <input type="checkbox"/> single fans <input type="checkbox"/> fans in parallel Did the candidate: <input type="checkbox"/> Describe or demonstrate both techniques? Assessor notes:	Use of single fans and fans in parallel demonstrated or described.	

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	Carry out ventilation operations to assist fire and rescue operations Range: horizontal, vertical, natural and forced (negative and positive pressure)		
2.1	Wear PPE and select correct equipment to carry out any one of the following methods of ventilation: Consider the following: <ul style="list-style-type: none"> • horizontal • vertical • forced Did the candidate: <input type="checkbox"/> Select the correct ventilation equipment for the technique demonstrated? <input type="checkbox"/> Wear the correct level of personal protective equipment for the technique demonstrated? Assessor notes:	Correct level of PPE worn. Equipment suitable for technique to be demonstrated.	

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
2.2	<p>Candidate, in conjunction with crew must set up equipment ready for use.</p> <p>Did the candidate:</p> <p><input type="checkbox"/> Set equipment up correctly?</p> <p>Assessor notes:</p>	<p>Equipment set up correctly.</p>	
2.3	<p>Candidate in conjunction with crew must prepare the building or space for ventilation.</p> <p>Range:</p> <p><input type="checkbox"/> inlet <input type="checkbox"/> outlets <input type="checkbox"/> internal openings to manage airflow <input type="checkbox"/> must tell crew about pending actions</p> <p>Did the candidate:</p> <p><input type="checkbox"/> Set up building /space ready for ventilation? <input type="checkbox"/> Warn crews?</p> <p>Assessor notes:</p>	<p>Building/space set up for ventilation.</p> <p>Crew advised of pending ventilation action.</p>	
2.4	<p>Candidate in conjunction with crew must operate the ventilation equipment correctly.</p> <p>Did the candidate:</p> <p><input type="checkbox"/> Operate equipment as required by SOPs and manufacturers instructions?</p> <p>Assessor notes:</p>	<p>Ventilation equipment operated as per SOPs and manufacturers instructions.</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
2.5	<p>Candidate ensures conditions within the structure are re-evaluated and then monitored and reported in accordance with SOPs.</p> <p>Did the candidate:</p> <p><input type="checkbox"/> Check the effectiveness of the ventilation actions in a practical scenario?</p> <p>Assessor notes:</p>	Effectiveness of ventilation is monitored and adjustments made when improvements required.	

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	Re-commission ventilation equipment after fire and rescue operations use		
3.1	<p>Candidate must work as part of a crew to recover and remove ventilation equipment when operations are completed.</p> <p>Did the candidate:</p> <p><input type="checkbox"/> Help recover and remove equipment after use?</p> <p>Assessor notes:</p>	Equipment recovered and removed.	
3.2	<p>Ventilation equipment is restored to operational readiness in accordance with SOPs.</p> <p>Range:</p> <p><input type="checkbox"/> drained <input type="checkbox"/> cleaned <input type="checkbox"/> refuelled</p> <p>Did the candidate:</p> <p><input type="checkbox"/> Restore equipment to operational readiness?</p> <p>Assessor notes:</p>	Equipment drained, cleaned and recommissioned.	