

## Incident Information



# Tactical Ventilation

**En Route**:

* Visual observations – whether the fire is ventilated or spreading externally
* Weather conditions.

**On Arrival**

* Question the responsible person, other responders and witnesses to gather information and intelligence
* Consider the occupancy, use, age, design and contents of the property involved
* Identify the extent and severity of the fire and likelihood of fire spread
* Identify number and last known position (LKP) of any occupants in need of rescue or assistance
* Ensure that a scene survey is carried out at the earliest opportunity
* Identify any fire engineered solutions or fixed installations
* Consider building layout – get plans from SSRI or responsible person

## Resource Information



Ensure Appropriate resources are in attendance when considering Tactical Ventilation, and ensure you have:

* PPV
* Sufficient BA
* TIC
* Jets at exhaust vents

## Risk Information



* Increased risk of flashover or backdraught due to introducing air into a fire compartment.
* Using inappropriate tactical ventilation techniques can lead to potential fire spread, increasing the risk of causing additional damage to property and creating worse conditions for both firefighters and casualties in need of rescue.
* Loose debris in the vicinity of the PPV fans can be drawn into the airflow and expelled at force.
* Pilot lights/naked flames in gas appliances extinguished by the airflow could create an explosive atmosphere.
* Prolonged noise exposure from the fan
* If the PPV fan is used inside a building, exhaust gases from the fan may accumulate and create an irrespirable environment.
* Hidden voids – consider the potential for undetected fire spread
* PPV fan causing-
* Asphyxiation
* Trip hazard
* Injury through Manual handling, Noise, Burns, Projectiles been blown.

## Powers, Policies & Procedures



Fire & Rescue Services Act 2004**-** Section 44, which includes:

Enter premises or a place, by force if necessary, without the consent of the owner or occupier of the premises:

* If they reasonably believe an emergency to have occurred
* If they reasonably believe a fire to have broken out or to be about to break out
* For the purpose of extinguishing or preventing the fire or protecting life or property

Does not apply to Crown property (including ministry of defence) and diplomatic or consular premises

## Tactical Priorities



* Carry out any immediate rescues or lifesaving actions
* Consider the need and urgency for entry into the Building
* Develop and communicate a firefighting plan and ventilation strategy
* Secure adequate water supply and equipment

## Operational Tactics



In order to ensure tactical ventilation is carried out as safely as possible, the

following control measures should be implemented:

* Minimum of Stage One BA Entry Control procedures when any tactical ventilation operations are in use
* All BA teams within the building should be equipped with a suitable extinguishing media
* Effective incident ground communications are essential and must be established
* Only trained/competent personnel are to use Phase 2 and Phase 3 PPV techniques.

**Phase 1 PPV**

The Incident Commander must ensure that:

* All fires have been extinguished
* Ventilation is monitored internally in order to prevent re-ignition and fire spread
* The airflow route is managed to ensure unobstructed flow of air
* Unaffected parts of the building are isolated.

**Phase 2 PPV**

* A staffed 'covering jet' is in place at the exhaust vent
* PPV should only be brought into operation after BA wearers within the building have confirmed it is appropriate to do so
* Ventilation is monitored internally and externally.

**Phase 3 PPV**

* The fire should be in a known location and only one seat of fire suspected
* An exhaust vent is identified as close to the fire as possible
* A staffed 'covering jet' is in place at the exhaust vent
* The inlet and entry point for BA wearers is created and the PPV fan(s) are brought into operation.

Once confirmed that fire gases are being vented due to the fans being introduced –

* The BA firefighting team is committed to extinguish the fire
* The airflow route is managed to ensure an unobstructed flow of air from the inlet to the exhaust vent
* Ventilation is monitored internally and externally
* If benefits are not seen immediately (dependent upon size/complexity of building), fans should be turned away and revert to Phase 2

There may be situations when certain tactical ventilation techniques will be inappropriate or counter-productive and the decision may need to be taken to not utilise tactical ventilation techniques.

#### **When PPV must not be used**

PPV must not be used or should cease under the following circumstances

* If signs and symptoms of backdraught/flashover exist or are suspected
* If effective communications cannot be established between initial crews and the Incident Commander
* If the strength and direction of the wind is likely to overcome the effects of the fan
* Phase 3 attack **should not** be brought in operation in basement fires.

**Anti-ventilation**

This may be appropriate when:

* Fire is demonstrating limited ventilation conditions
* Fire is advancing towards flashover and the firefighting jet has insufficient flow to deal with the escalating fire conditions (for example, close fire compartment door to isolate the air flow)
* Firefighting jets are not yet in position to attack the fire
* Location of inlet and/or exhaust vent may spread fire and fire gases into unaffected areas
* Wind is entering the inlet and/or exhaust vet.

**Use in tall buildings**

The Incident Commander must ensure:

* Every effort is made to keep stairwells and unaffected lobbies free from smoke
* The airflow route is managed
* Continual assessment of operations to ensure that the fire is not being adversely affected by the ventilation plan in use and adjust if required
* If the PPV fan is used inside a building, exhaust gases from the fan may accumulate and create an irrespirable environment.

When dealing with tall buildings, consideration must be given to the external conditions, such as high wind pressure, and the subsequent hazards these may create.  These buildings may be fitted with natural and/or mechanical ventilation systems. Crews should familiarise themselves with the system and decide on the impact they will have on any firefighting and evacuation operations.

**Built-in ventilation systems**

* Some systems may activate automatically and have an effect on the fire. For example, air conditioning units could supply fresh air to a fire if they are still in operation.
* Any decision to isolate these systems must be fully considered and, whenever possible, in consultation with an onsite engineer who can provide an overview of the system as the consequences of incorrect isolation could cause a fire to develop and conditions to deteriorate further. The decision to isolate should be recorded in message log.

**Further considerations**

All incidents should be continually monitored for changing conditions, especially when PPV is in use. Factors that should be monitored include:

* Size and rate of fire spread
* Colour and quantity of smoke being produced
* The pressure under which the smoke is exiting the structure.

If the PPV fan is used inside a building, exhaust gases from the fan may accumulate and create an irrespirable environment. An additional fan should be used to ensure exhaust gases are expelled from the building, produced from the fan inside.

* Consider the use of a Smoke curtain to aid with the increase of pressure from the PPV and to aid with PPV positioning in an area of limited space

#### Communication



If the decision to ventilate is made by the Incident Commander then the objective of its use must be identified and communicated:

* Offensive Ventilation close to a fire to have a direct effect on the fire itself, to limit fire spread and/or to improve conditions for BA wearers and casualties.
* Defensive Ventilation away from the fire or after the fire is out to have a direct affect on hot gases and/or smoke located in the structure.

#### Control



Tactical ventilation can be applied at any point during an incident using either forced or natural methods.

Its use must only be authorised by the Incident Commander after an appropriate and sufficient risk assessment has taken place and control measures implemented. Only trained/competent crews should be used to implement tactical ventilation techniques and procedures.

#### Incident Closure and Handover



Use incident command – incident closure and handover



“Working Together”

