

# Why is there a fear of PPV?



**A frustrated Gary West of Lancashire Fire and Rescue Service (UK) analyses why there continues to be a lack of belief in and understanding of the benefits of using PPV to deal effectively with fires.**

*West is certain that additional hidden costs are one of the reasons why many fire departments are still dealing with fires in the conventional manner.*

**D**espite the ongoing education and expertise throughout the world, instances of the practical application of PPV are still relatively few. Most users are operating PPV in Phase 1 mode (post fire), less are using PPV in Phase 2 mode (defensive), and a few are tactically applying PPV in Phase 3 mode (offensive).

In fact, many fire departments are either still trialling PPV units, or not even considering introducing them.

The question to ask is why not, considering that PPV units will reduce civilian and firefighter injury and death, reduce damage to property, and as fires will be dealt with quicker and more efficiently, the effect on the environment will also significantly improve.

Perhaps much of the reluctance in implementation of PPV is because the belief that the use of it is still in its infancy. This is not the case and PPV has been actively used within the UK in certain brigades since the late 1980s, and was in fact introduced in the US as early as 1970!

There are of course various alternative more traditional means in which fires are dealt with, and on most occasions with a successful conclusion. However, PPV is a tool that is available with a low initial outlay, and it reduces the risk to firefighting teams drastically.

Clearly the case for implementing the selected solution to the problem has been justified.

I am certain however that additional hidden costs are one of the reasons why many fire departments are still dealing with fires in the conventional manner.

Based on training 1,000 staff, and the costs being approximate, the outlay for refresher training alone is a considerable financial commitment for any fire department to budget for. An approximate breakdown is identified below.

- Operational staff – 1,000
- Training provider – local
- Facility provision – \$1,500/£1,000 per day
- Trainer provision - \$600/£400 per day per trainer (minimum of 4 trainers)
- Operational cover for attending crews - \$2,250/£1,500 per day
- Fuel costs - \$225/£150 per appliance per day
- Maintenance allowance for appliances and equipment - \$675/£450 per attendance
- Meals and refreshments - \$150/£100 per crew per day
- Administrative costs - \$150/£100 per day
- Overtime costs – averaging \$450/£300 per day

- Audio visual materials - \$150/£100 per day
- Printing/stationery - \$150/£100 per day
- Total cost - \$6,300/£4,200 per day for 20 fire-fighters a day, and 50 training days forecast, plus two additional catch up days. In this case, the overall cost for this refreshment training will be: \$327,600/£218,400

Justification by many departments for not introducing this life and property saving tool can be understood in the short term, however, in the long term, the benefits clearly outweigh the risk of such an investment.

Add on to this, for non PPV users, the cost of the equipment (\$1,200/£800 per unit), the cost of the initial training of the trainer (@ \$3,750/£2,500 per student), the cost of training the firefighters (\$6,300/£4,200 per day for a maximum of 10 students), the cost of adapting the appliances in order that stowage of the fans can be accommodated (\$1,500/£1,000 per appliance), the administration costs (\$150/£100 per day), insurance costs (undetermined at the time of writing) and so on, it becomes understandable why many fire departments are not even considering the implementation of PPV. If stakeholders all understood exactly how effective the tool was, the cost could be justified and may even be approved.

In order to identify and calculate the costs of the project, the following must be considered by brigades refreshing and improving procedures, and potential new users:

- What is the cost of the equipment including delivery charges?
- Is this a capital cost or a revenue cost?
- Was the cost included in the capital budget?
- Is the equipment to be purchased or leased?
- Which departmental budgets will costs be originally allocated to?
- What will be the ongoing maintenance and service costs?
- What will be the relevant training costs?
- Are there training costs for maintenance/servicing?
- Will adjustments need to be made to appliances to fit the new equipment?
- What is the expected life of the equipment?
- Cost of spares/replacement parts?
- Breakdown of the project into initial and long term costs.
- Will there be any associated health and safety/quality assurance costs?
- Who will have the authority for incurring costs on the project?

In order to encourage implementation, there are various essential elements that ought to be considered in order to ensure that a successful outcome is achieved. These may include:

- The preparation of a statement and what exactly the need for change and the benefits will be.
- Deciding what is going to be done about the problem.
- The selection of a team of appropriate personnel to take the project forward.
- An ongoing review of the progress of that group.
- Formulation and testing of the theories of the proposed improvement.
- Identification of the root cause of the problem (lack of training, money, and confidence in the use of PPV).
- How to improve the project in the absence of any viable alternative option.
- The design of the improvement.
- The effectiveness, implementation and control of the

## The five minute interview

**Roger Weinmeister is the MD of Super Vacuum Manufacturing Company (Supervac) in Loveland, Colorado. He's absolutely crazy for fans – the bigger the better!**

### Is PPV widely used in the US?

Everyone will tell you that they use it but the real answer is that only 20-30% are using it to its full potential. Many brigades are not using it during any type of attack, or only using it for overhaul, which does not fully maximise what PPV can do on the ground. Everyone knows they should be using it but there are still some captains who did not use it when they went through fire academy so they are reluctant to try it and prefer to cut holes in the roof, or use PPV later.

### What are the main benefits of PPV?

It remains a technology that makes firefighters safer and more effective – and faster. You go in a burning building and without the cool air flowing you have poor visibility. And if someone has succumbed to smoke, they could be getting oxygenated air before the firefighter arrives.

### Are any fire departments leading the PPV way?

Yes, some guys in Salt Lake City, and in Forth Worth (Dallas) are really pushing the attack aspect, as well as in Houston. In general terms there is a divide in the USA, with the south and west embracing PPV more than the traditional north and east.

### Has the technology changed much?

The fans we are selling now are a lot more sophisticated, and they all have handles



and wheels fitted as standard. In the 90s they were mainly petrol driven but now people are going back to the electric fans. They don't quite have the power or air movement of a gasoline fan but they are very reliable and produce less noise. Also, if grandma burns the soup on the stove, using gasoline fans replaces the smell of burned soup with carbon fumes. Electric fans are a clean air source. The variety of fans has also exploded – we used to offer 20-30 types, now we offer close to 200, ranging from eight to 80 inches in diameter.

### What's the strangest fan you've had to make?

The BFF (it doesn't stand for "big friendly fan" – editor) has a 500 horsepower Chevy engine with an 80 inch diameter blade. I don't think there's been anything close to it for a fire service anywhere, in terms of air movement. That was five years ago, and it ended up in the fire department of South Adams County.

improvement.

- How to overcome the resistance to change.

Many brigades actively using PPV to deal with fires often revisit the training and use of PPV at incidents. Possibly, one reason for this is that incidents where PPV will work at its optimum such as building fires, are perhaps less common than they used to be. This is due to many reasons such as the ongoing home fire safety education initiatives. It also may be due to the restrictions in being able to practice with the tool in real fire situations, and as such, a lack of confidence is generated in certain quarters.

Similarly it may be that writers such as myself, continually emphasise that if used incorrectly, PPV will compromise both firefighter safety, and additionally, an effective conclusion to an incident may not be achieved. This of course may put off some incident commanders in using tactical ventilation in some cases.

Working groups within certain brigades are actively looking at the ways in which PPV can be taken forward in the UK. Generally, Phase 1 PPV should not – and historically does not – create any undue problems. The uncertainty arises when phase 2 and phase 3 modes are in operation.

The writer has recently returned from the IFE Safety Conference held in Australia. A highly respected speaker from the USA, Salt Lake City specifically, explained the PPV techniques used there. Although there were many elements of the procedures being used that I still have concerns with, and remain to reserve judgement, phase 2 PPV is not used. In fact phase 1 PPV is referred to as PPV, whereas phase 3 PPV is referred to as "positive pressure attack". With brigades constantly working alongside each other on an international basis, perhaps an international standard of PPV ought to be considered, as in the training of compartment firefighting.

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**Russwurm Ventilatoren GmbH**  
 Ortsstrasse 25  
 D-86405 Meitingen-Ostendorf  
 Phone: +49-(0) 82 71 / 81 75 - 15  
 Fax: +49-(0) 82 71 / 81 75 - 41  
 E-Mail: sales@ruwu.de  
 http://www.ruwu.de