



Controlling exposures to prevent  
occupational lung disease in  
**MANUFACTURING**

Welding Selector Tool  Control Sheet

## Mechanical General Ventilation

General ventilation is used to ventilate the room. Good general ventilation is needed to dilute fume generated from welding activities. Good general ventilation is not usually enough to stop workers breathing in welding fumes and, therefore, should be in place alongside local exhaust ventilation or respiratory protection.

There are 2 types of general ventilation: natural and mechanical. Natural general ventilation occurs when windows and doors are opened to allow a draught into the room. Mechanical ventilation uses fans mounted on the ceiling or at high level to draw in air to the room.



General (room) ventilation is used to ventilate the whole work area to dilute the fume generated from welding and stop it building up over the shift.

To control exposure to welding fume **mechanical** general ventilation will need to be used. This uses extract fans mounted in the ceiling or high up on a wall to remove the general air in the room with supply fans which draw in 'clean' air to the room. A well designed system will dilute airborne contaminants released by the welding process. It is sometimes referred to as 'dilution ventilation'.

There are different types of general ventilation system, so advice needs to be sought from a competent supplier.

Good design of the system is necessary to ensure that it is effective. Particular attention needs to be paid to the positioning of the outlets and inlets and the extract and supply air flows.

As general ventilation does not control the fume at source, it should normally be used as a secondary control in combination with other control solutions.

However, general ventilation on its own may be suitable when there is only a requirement for light welding, e.g. TIG welding for 5 minutes, and the work area is of a substantial size, so that the fume is diluted effectively.

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### Top tips

#### How to use the LEV effectively

All workers in the area should be instructed on the proper use of the general ventilation system, with particular attention given to the need to maintain the free flow of air through the work area. Inlets and extracts should be periodically inspected and cleared of debris if necessary.

### Limitations

General ventilation does not control welding fume at source, but is meant to reduce the average concentration in the room.

In most cases, general ventilation will not provide adequate control of the fume on its own, and should be used in combination with local exhaust ventilation or respiratory protection to protect the health of the welders.

General ventilation on its own is likely to only be suitable when there is a requirement for light welding, e.g. TIG welding for 5 minutes, and the work area is of a substantial size to dilute the fume.

### Other considerations

Consideration must be given to the potential effect on air movement if introducing temporary barriers or changing the area design. It is therefore vital that no barriers are introduced to disrupt the natural movement of the air towards the extract fan or clean air coming into the area.

Consideration must be given to the temperature of the make-up air to ensure the workplace temperature is not too hot or too cold. It may be necessary to heat the air during the winter months and cool it down during hotter summer periods to maintain a comfortable temperature in the working area. All this can increase the running costs, which should be accounted for when procuring a new system.

### Alternative control solutions

Well designed local exhaust ventilation (LEV) will be more effective at controlling exposure to welding fume than general ventilation. Use the welding fume control selector tool to help you decide what type of LEV is most suitable for the task.

