

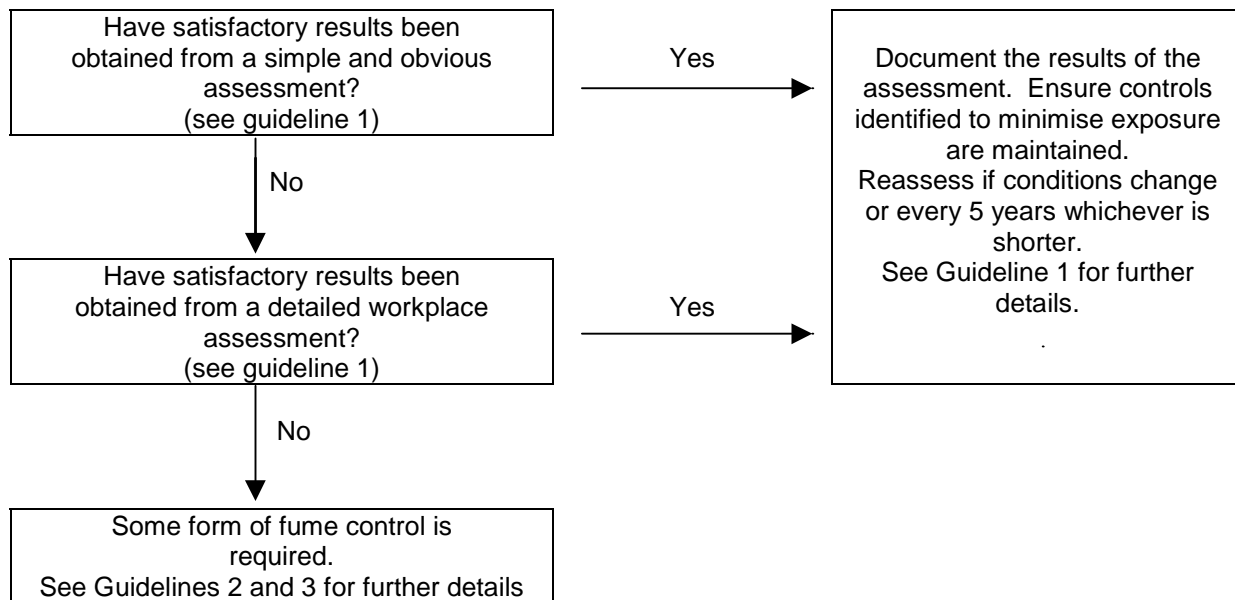
FUME MINIMISATION GUIDELINES

GUIDELINE 7:

FLUX CORED ARC WELDING (FCAW)

An employer has a duty to ensure that a suitable and sufficient assessment is made where there is potential for exposure to hazardous substances.

It should be noted that in tests conducted under still air conditions, breathing zone fume from FCAW usually exceeds the recommended levels (see Figure 1). No special measures may be necessary to protect the operator provided clean air movement is greater than 0.5 m/s across the welders breathing zone (see Figure 2). Due to the high levels of fume generated, there is a greater likelihood of co-workers exposure exceeding the relevant exposure standards unless good general ventilation is implemented. Particular care should be taken with self shielded hardfacing wires which are normally expected to be used outdoors.



Steps To Reduce The Effect Of Fumes And Gases

• **Process Alternatives**

- 1) Consider using SAW or GMAW for flat position seams in heavier material and for hardfacing. Higher capital costs are often offset by higher productivity.

• **Process Modifications**

- 1) Arrange welding to reduce welders exposure as shown in Figure 3. This also reduces fatigue and back problems.
- 2) Consider using alternative shielding gases (Argon/Helium mixtures reduce ozone and Argon/CO₂ may reduce particulate fume).
- 3) Mechanize the process using simple tractors, turntables or robots.

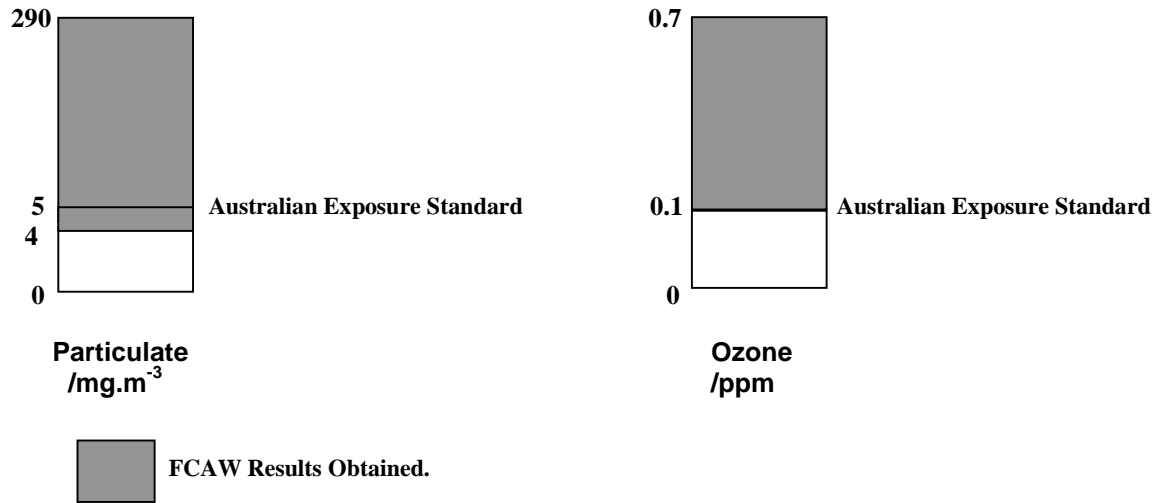


Figure 1. FCAW fume production at the breathing zone under still air conditions compared to the regulations (not to scale).

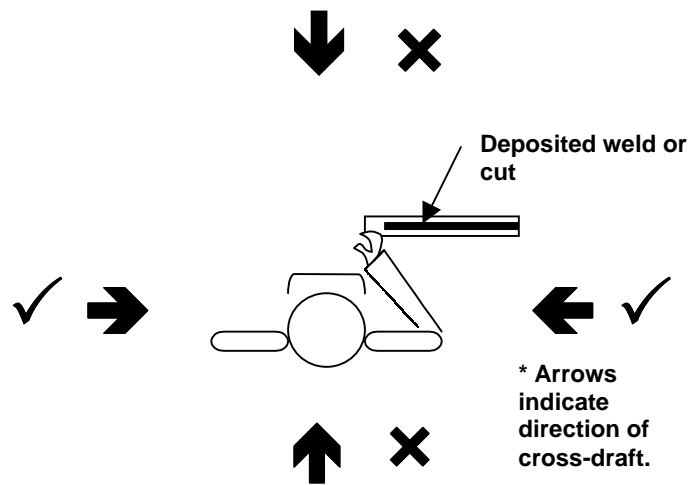


Figure 2. Preferred and non – preferred direction of cross draft for breathing zone ventilation.

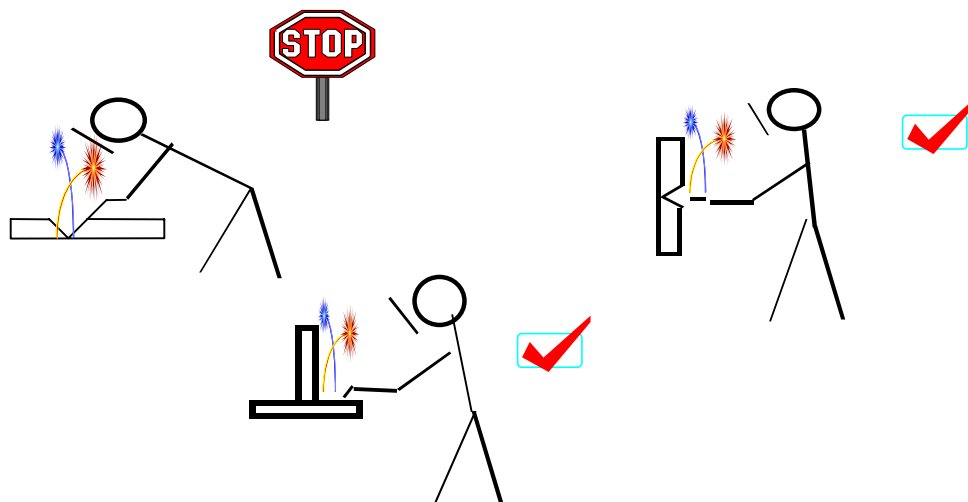


Figure 3. The welder's head should not enter the visible fume plume.