Fixed extraction: Welding booth or downdraught bench

Control approach 2  Engineering control

Access and premises
✓ Only allow access to authorised staff.
✓ Locate the work away from doors, windows and walkways. Stop draughts interfering with the extraction.

Equipment
✓ Provide a good standard of general ventilation; 5-10 air changes per hour, with a through draught.
✓ Provide an extracted booth or welding bench. See illustrations.
✓ You need an inward air speed between 1 and 1.5 metres per second into a booth.
✓ You need an air speed of at least 2 metres per second into an extracted welding bench.
✓ Fit a manometer, pressure gauge or tell-tale to show that the extraction is working.
✓ Discharge cleaned, extracted air to a safe place outside the building, away from doors and windows.
✓ Have a supply of clean air coming into the workroom to replace extracted air.
✓ Keep fume emissions as close as possible to the extraction point. Can you provide a turntable to help this?

Extracted booth with turntable
Procedures

✓ Remove grease and all surface coatings first, unless they are meant to be welded or cut through.
✓ Arrange work so that the worker’s head is out of the fume.
✓ Confirm that extraction is turned on and working.
✓ Workers should stand to the side of a booth, not in the air flow.
✓ Check for gas leaks.

Maintenance, examination and testing

✓ Follow the instructions in the manual - keep equipment in effective and efficient working order.
✓ If any equipment is faulty, repair it straight away.
✓ Daily, look for signs of damage to ducting, fans and air filters. Noisy or vibrating fans can indicate a problem.
✓ At least once a week, check that the extraction system and gauges work properly.
✓ You need to know the manufacturer’s specifications to check the extraction’s performance.
✓ If this information isn’t available, hire a competent ventilation engineer to determine the performance needed for effective control.
✓ The engineer’s report must show the target extraction rates.
✓ Keep this information in your testing log-book.
✓ Get a competent ventilation engineer to examine the extraction thoroughly and test its performance at least once every 14 months, or six months for non-ferrous metals. See the HSE publication HSG54 - see ‘Further information’.
✓ Keep records of all examinations and tests for at least five years.
✓ Review records - failure patterns show where preventive maintenance is needed.
✓ If hot work involves cadmium, seek advice on biological monitoring - see ‘Useful links’.

Personal protective equipment (PPE)

✓ Provide storage for clean and contaminated PPE.

Respiratory protective equipment (RPE)

✓ RPE should not be needed.

Other protective equipment

✓ Provide and ensure that workers use a welding helmet, flame-resistant overalls and protective gloves.
✓ Use a properly equipped contract laundry or a suitable equivalent to wash work clothing.
✓ Skin creams help in washing contamination from the skin. After-work creams help to replace skin oils.
  Caution: Never allow use of compressed air for removing dust from clothing.

Health monitoring

✓ You should consider health monitoring. See sheet G401.
✓ Consult an occupational health professional - see ‘Useful links’.
Cleaning and housekeeping

- Keep the work area clean and free of combustible materials.
- Clean the general workroom once a week.
- Dispose of hazardous wastes safely.

Training and supervision

- Tell workers that fume from welding and cutting can cause serious lung diseases.
- Working in the right way and using the controls correctly is important for exposure control. Train and supervise workers. See sheet WL0.

Further information

- Maintenance, examination and testing of local exhaust ventilation
- The safe use of compressed gases in welding, flame cutting and allied processes
  HSG139 HSE Books 1997 ISBN 0 7176 0680 5
- Health and safety in arc welding
  HSG204 HSE Books 2000 ISBN 0 7176 1813 7
- Cadmium in silver soldering or brazing
  Engineering Information Sheet EIS31 HSE 1999 Web only version available at
- Thoriated tungsten electrodes
  Information document
  OC 564/6(rev) HSE 1995 Web only version available at
  www.hse.gov.uk/foi/internalops/foi/oc/500-599/564_6r.pdf
- For environmental guidelines see sheet WL0

Useful links

- Your trade association may advise on health and safety consultants and training providers.
- For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.
- Contact the British Occupational Hygiene Society (BOHS) on 01332 298101 or at www.bohs.org for lists of qualified hygienists who can help you.
- Look in the Yellow Pages under ‘Health and safety consultants’ and ‘Health authorities and services’ for ‘occupational health’.
- Also see www.nhsplus.nhs.uk.
- Biological monitoring - contact the Health and Safety Laboratory (HSL) e-mail hslinfo@hsl.gov.uk, or other service laboratories.

Employee checklist

- Do you know how to use the controls properly?
- Is the extraction working?
- Use, maintain and store your protective equipment in accordance with instructions.
- Look for signs of leaks, wear and damage.
- If you find any problems, tell your supervisor. Don’t just carry on working.
- Co-operate with health monitoring.
- Wash your hands before eating, drinking, or using the lavatory.
- Never clean your hands with solvents or concentrated cleaning products.
- Use skin creams provided as instructed.

This document is available at: www.hse.gov.uk/pubns/guidance/ and www.hse.gov.uk/coshh/essentials/