



LEV: Dust capture at sawing machines

Woodworking Sheet No 24

Introduction

This information sheet is one of a series produced by HSE's Woodworking National Interest Group. General information on the hazards and precautions for wood dust can be found in *Wood dust: Hazards and precautions*.¹ For general guidance on the principles of design of local exhaust ventilation systems see *LEV: General principles of system design*.² This information sheet contains specific guidance for the design of local exhaust ventilation (LEV) systems fitted to sawing machines and is relevant to machine designers and users and the designers, installers and users of LEV systems.

Circular bench saw

Circular bench saws should be fitted with extraction both above and below the table.

It is essential that the under-bench hood is well maintained and air tight, and that both above and below table extraction is designed to take advantage of the air movement caused by the rotating blade. Internal guide vanes may be used to optimise air flow rates and to reduce noise caused by air turbulence where the direction of air flow caused by the tool is different from that caused by the extraction system (see Figure 1).

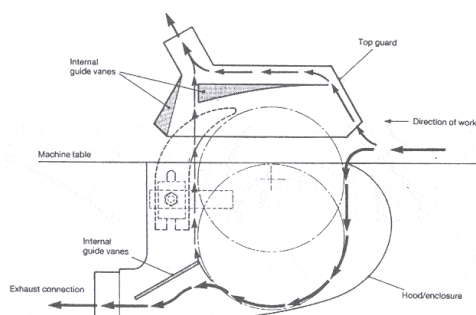


Figure 1 Extraction arrangements for circular bench saw

Travelling cross-cut saw

Dust created by the travelling cross-cut saw is projected towards the back of the machine. Figure 2 shows an arrangement which has proved effective when cutting workpieces at right angles to the fence.

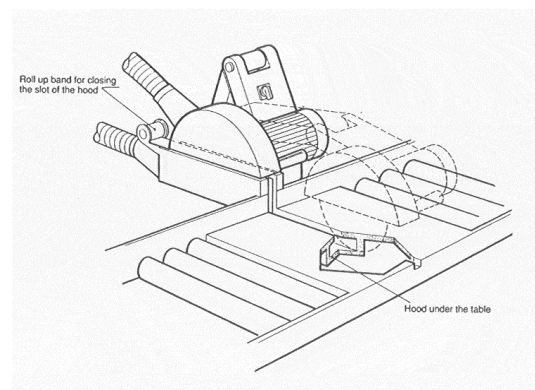


Figure 2 Extraction arrangement for travelling cross-cut saw

Where the saw is used for ripping or cutting at an angle, a large captor hood, situated behind the saw, may be used. Such a hood should be positioned to intercept the dust cloud and the addition of hinged side screens may be necessary to facilitate this. A relatively high face velocity at the exhaust inlet will be required to maintain the necessary capture velocity of 5 m/s at the dust source.

Band sawing machines

On band sawing machines, the pulley wheels can act as giant fans and cause pressurisation of the pulley wheel casings which leads to the escape of dust through holes in the casing or through the saw return opening. If dust is to be controlled effectively, it should be removed where the saw blade enters the casing, and by means of a low-level exhaust connection to the rear of the casing (see Figures 3(a) and (b)).

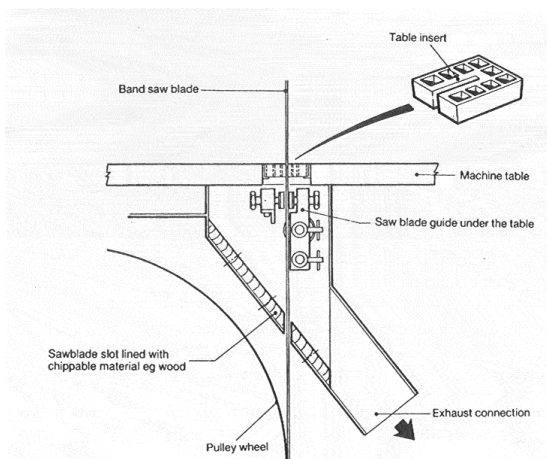


Figure 3(a) Extraction arrangement for band saw below the table

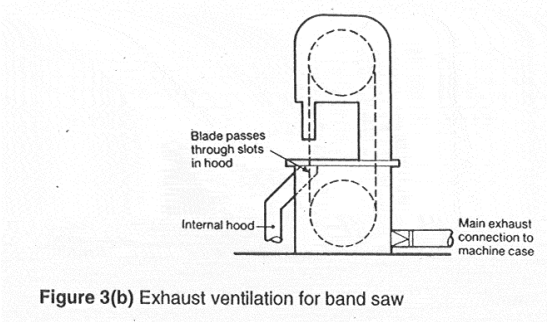


Figure 3(b) Exhaust ventilation for band saw

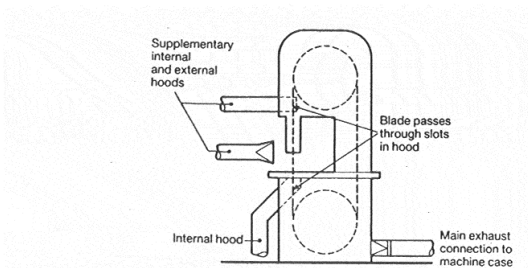


Figure 4 Suggested arrangement for additional exhaust units to further reduce dust levels

Where severe problems are encountered, additional exhaust units may be fitted at the return opening in the top casing and at the point of contact between the workpiece and the saw blade (see Figure 4).

References and further reading

- 1 *Wood dust: Hazards and precautions*
Woodworking Information Sheet WIS1(rev1)
HSE Books 1997
- 2 *LEV: General principles of system design*
Woodworking Information Sheet WIS23
HSE Books 1992
- 3 *An introduction to local exhaust ventilation HSG37*
(Second edition) HSE Books 1993 ISBN 0 7176 1001 2
- 4 *Control of substances hazardous to health. The Control of Substances Hazardous to Health Regulations 2002. Approved Code of Practice and guidance L5*
(Fourth edition) HSE Books 2002 ISBN 0 7176 2534 6
- 5 *Assessment and control of wood dust: Use of the dust lamp* Woodworking Information Sheet WIS12
HSE Books 1991

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This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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