

Safety in the woodworking industry

The following information explains some of the hazards and risks that are typical of most woodworking premises. It is not a complete description and the hazards and risks will vary depending on your own particular business.

Woodworking machines

There are more accidents at woodworking machines than at any other type of machine. Woodworking machines often have high-speed cutters which cannot be totally enclosed. Most accidents happen at circular saws, planing machines, vertical spindle-moulding machines and band saws. The simple steps below will help you to prevent accidents at woodworking machines.

- Make sure that employees are fully trained before they are allowed to work unsupervised at any woodworking machine
- Check that guards and other safety devices are provided and used
- Use a power-feed tool to feed wood into the machine whenever possible. If feeding the wood into the machine by hand, use well-designed push-sticks or jigs
- Make sure that machine controls are labelled, conveniently positioned and well maintained
- Switch off machines when they are not being used
- Isolate machines from the electrical supply before changing cutters or carrying out maintenance work
- To prevent slips and trips, keep the working area around machines clear of obstructions and floors free from loose materials such as chippings or waste wood. Keeping the workshop clean will also reduce the risk of fire or explosion
- Make sure there is good lighting and heating
- Provide and maintain a suitable system for collecting wood dust
- Encourage employees to report any faults with machines or processes to their supervisor

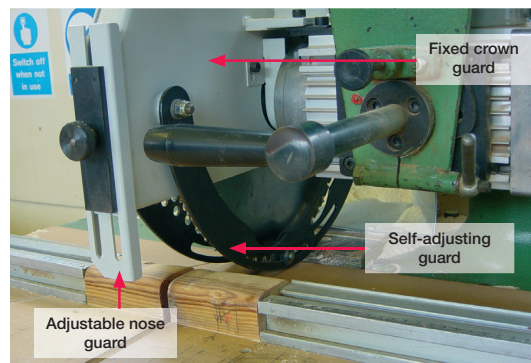
Guarding

If it is not possible to prevent access to dangerous parts of machinery using fixed guards alone, you should use a combination of fixed guards, adjustable guards, interlocked guards or automatic guards and, if necessary, protection devices such as two-handed controls, pressure mats and light guards and protection appliances such as jigs, holders and push-sticks.

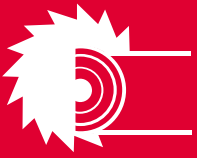
Any hinged, sliding or moveable guards which form part of a perimeter fence or enclosure (for example, doors) should be fitted with an interlocking mechanism that prevents the machine from working unless they are closed properly.



Photograph 1 CNC routing machine with interlocked doors



Photograph 2 Cross-cut saw with appropriate guarding



Any adjustable guards should be kept as close to the workpiece as possible while the machine is running. Do not adjust the guards when the machine cutter is running. It is important that you can adjust the guards to cover the full range of tools and the workpiece.

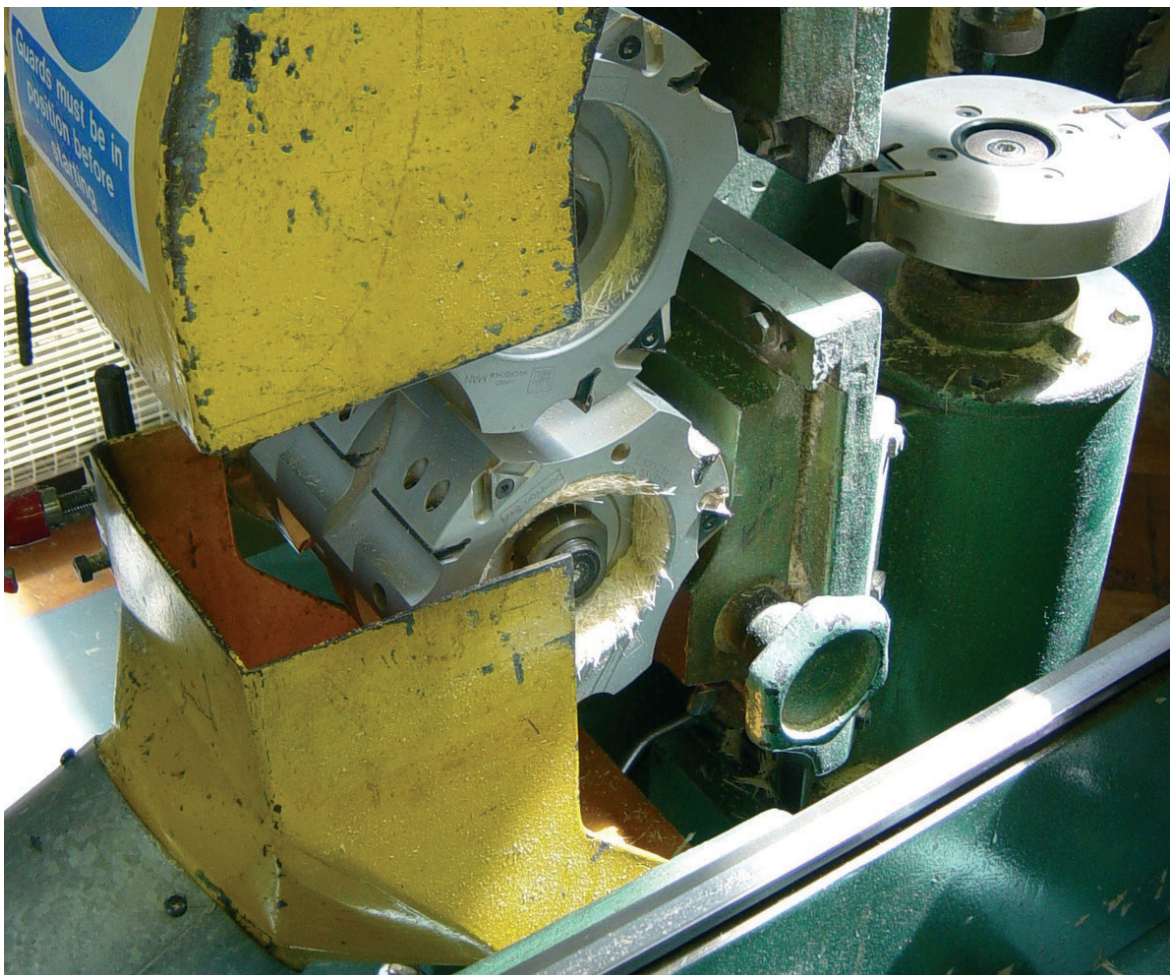
You should regularly check all guards to make sure they are in good working condition. Jigs should be made from wood so that they do not damage the blade if they come in contact with it. Consider making push-sticks from brightly coloured plastic so that they are not accidentally thrown out with waste wood.

Limited cutter projection tooling (LCPT)

Limited cutter projection tooling (also known as 'chip thickness limitation tooling') helps to limit the injury to your fingers if they touch a moving blade. LCPT also lowers the risk of the workpiece being thrown back out of the machine (this is called 'kickback'). You should use LCPT on hand-fed machines, including those with detachable power-feed units and hand-operated carriages that you can put or clamp the workpiece to. Where possible you should use LCPT on:

- vertical spindle-moulding machines
- single-end tenoning machines
- rotary knife and copying lathes (if the tool is not guarded by a fixed, interlocked, self-closing or adjustable guard)
- machines that you can fit a moulding tool to

Photograph 3 Limited cutter projection tooling in use (guards temporarily removed to allow the LCPT to be photographed)

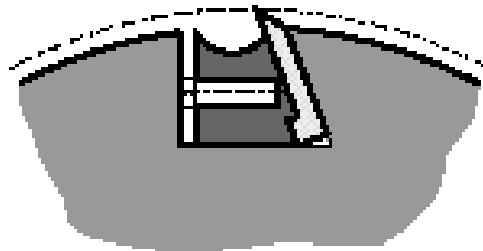




Removable cutters and limiters should be the correct thickness for the tool body that they are being used in. You should fit cutters and limiters so that they cannot be thrown out of the machine. You can do this by using:

- locking pins
- serrated-backed cutters
- 'key-' or wedge-shaped cutters that slot into a hole that is similar in shape in the tool body. (These work because the slot narrows towards the outer edge of the tool body - see photograph 4)

Photograph 4 Key or wedge-shaped cutter



For more information read 'Tooling for use with hand-fed woodworking machines' woodworking information sheet (WIS) 37. You can get a copy from the Health and Safety Executive's (HSE) website at: www.hse.gov.uk/pubns/wis37.pdf

Fitting brakes to woodworking machines

When a woodworking machine is switched off it can take up to two minutes for the blade or cutting tool to stop moving. If your risk assessment shows that it takes a long time for a blade to stop and during that time someone may touch the moving blade, you should fit braking devices to your woodworking machinery. You will have to fit brakes on the following machines:

- Circular saw benches
- Dimension (panel) saws
- Powered and hand-fed cross-cut saws (unless there is no risk of contact with the blade while the blade is slowing down to a stop)
- Single-end and double-end tenoning machines
- Combined machines that include a circular saw, a tenoning attachment or both
- Narrow band and band re-saws
- Vertical spindle-moulding machines (unless fitted with a manual or foot-operated brake)
- Hand-fed routing machines
- Thicknessing machines
- Combined planing and thicknessing machines
- Surface planing machines

If you have other woodworking machines that are not listed above, you must fit braking devices on them by **5 December 2008**.

The machines listed above do not need braking devices if:

1. the machines slow down and stop in 10 seconds or less when they are switched off;
2. the effect of braking would damage the machine and increase the risk of injury to the person using the machine; or
3. there is no added safety benefit, for example:



- cutters are enclosed by guards which cannot be opened until the cutters have stopped (these are known as interlocked guards), or the whole machine is enclosed (for example, by a noise hood) and has interlocked guards which cannot be opened until the cutters have stopped; or
- the blade, tool or cutter returns automatically to a safe position to prevent contact with the blade during run down, for example a cross-cut saw fitted with a spring return which pulls the blade into a protective housing at the end of the cut

The main ways to fit braking on a machine are to:

- replace the existing unbraked motor with a braked motor
- fit a direct current (DC) injection braking device to the existing unbraked motor
- fit a power-operated mechanical brake
- fit a manual brake or foot-operated brake

You can fit one or more braking devices (as described above). If a braking device is fitted it should bring a machine to rest within 10 seconds unless to do so would damage the machine or increase the risk of injury to the person using the machine because:

- the moving blade of the machine needs to release a large amount of energy during braking; or
- there is an increased risk of the blade breaking

The overriding aim should be to bring the machine to a safe stop. It should take less time to stop the machine than to start it running. The maximum stopping time for any machine should be 30 seconds (35 seconds for bandsaws).

For more information read 'Retrofitting woodworking machine brakes' woodworking information sheet (WIS) 38. You can get this information sheet from HSE's website at:

www.hse.gov.uk/pubns/wis38.pdf

Noise

Some of the noisiest working environments are found in the woodworking industry. Over time, very loud noise from machinery in a workshop can seriously damage your hearing. Very loud noise can also make talking to other people difficult and you may not hear warning noises (for example, fire alarms and reversing vehicles).

As a simple guide, you will probably need to do something about noise levels in the workplace if your employees have to raise their voices to carry out a normal conversation when they are about two metres apart.

For more information, read 'Reducing noise at woodworking machines' woodworking information sheet (WIS) number 13. You can get this from HSE's website at:

www.hse.gov.uk/pubns/wis13.pdf



Control of substances that are hazardous to your health (COSHH) regulations

Wood dust, resins used in some particle boards, adhesives, paint strippers, two-pack polyurethane paints and varnishes, stains and wood preservatives are examples of substances used in the woodworking industry which may be hazardous to people's health. Employees can breathe in or swallow these hazardous substances for example if they get onto food or they can be absorbed through the skin through contact with the substance. The main health risks are occupational asthma and dermatitis.

As an employer you should identify all the substances in your workplace, such as dust, liquids or fumes and assess them to see if they could make your employees ill. Hazardous substances are normally labelled, for example, 'toxic', 'very toxic', 'corrosive', 'irritant' or 'harmful'. You may find information that can help you on the product safety data sheet. You can get product safety data sheets from your supplier and you will need to keep on file a data sheet for every hazardous substance that you use. Then look at the work your employees may do where they may be exposed to the hazardous substances. You should consider the following safety measures (they are listed below in order of priority).

1. Get rid of the hazardous substance

You should:

- consider whether you can stop using the hazardous substance; or
- consider changing the process or activity so that you do not need to use the hazardous substance or it is not produced

2. Replace the hazardous substance

You should:

- replace it with a safer alternative; or
- if you must still use the hazardous substance, see if you can use it in a safer form, for example as a pellet instead of powder

3. Control the hazardous substance

You must keep the risk as low as possible of employees being exposed to the hazardous substance. You can control the risk of exposure to the hazardous substance by doing the following, in order of priority.

Engineering controls

- **Changing the manufacturing process.** For example, use processes which reduce, as far as possible, the amount of hazardous substance that you use or produce
- **Put equipment in a room by itself**
- Enclose the hazardous substance. Use equipment that totally encloses the way hazardous substances are used or produced, for example, use spray booths when spraying varnishes
- **Use ventilation and extraction.** Use equipment, such as local exhaust ventilation (LEV), to remove wood dust or fumes at the point where they are first produced. Local exhaust ventilation systems must be thoroughly examined and tested at least once every 14 months by a qualified and experienced person, such as an engineer. They must record the results of the examination and you must correct any faults as soon as possible



Working practices

- Keep the number of employees who come into contact with the hazardous substances as low as possible and keep the length of time they have to work with the hazardous substances as short as possible. You may need to monitor employees' health

Information and training

- Give your employees enough information, instructions and training on working with the hazardous substance and the systems of work they should use to stay safe

Personal protective equipment, (PPE)

- If there is still some risk of exposure after you have introduced all other control measures, then make sure that you provide your employees with personal protective equipment (PPE) such as face masks, respirators such as air-fed masks and protective clothing and shoes. You should only use PPE as a last resort and never in place of other control measures. Show your employees how to use, store and care for their PPE

Painting and spraying

Many paints, varnishes, stains and thinners used in the woodworking industry give off vapours which are easily ignited and are also hazardous to health.

- Store highly flammable liquids in a fire-resistant store. The store should be well-ventilated, secure, leak-proof and outside if possible. Small quantities of flammable liquids may be stored inside a leak-proof, secure and well-ventilated fire-resistant cabinet
- Spray only in mechanically-ventilated booths (see photograph 5)
- Make sure that all potential ignition sources (for example, naked flames, unprotected light fittings and powered hand tools) are not used in the spray area
- Make sure you provide suitable fire-fighting equipment
- Do not smoke near flammable liquids
- To contain liquids and prevent spills when pouring small quantities, put a tray underneath the container or use workbenches with a raised edge
- Soak up any spills with absorbent material and get rid of it safely
- Make sure that employees wear appropriate personal protective equipment, such as breathing masks, gloves, eye protection and overalls

Photograph 5 Spray booth enclosure



Wood dust

Wood dust is made up of tiny particles of wood produced when wood, chipboard, hardboard and other forms of boards are processed or handled. Wood dust will burn easily if it is set on fire. It can destroy or seriously damage buildings and machinery if it causes a fire or an explosion. Fires can be started by badly maintained heating units, overheated electric motors and sparks from cigarettes or open wood burning stoves. Concentrations of small particles of wood dust in the air can form a mixture that will explode if set on fire. Such mixtures are usually found in dust-extraction equipment. This equipment can be destroyed unless you take special measures to prevent an explosion. Wood dust on the floor of a workshop can also cause a serious risk of slipping. Regular contact with wood dust can cause skin problems such as dermatitis. Breathing in wood dust can block your nose and can cause rhinitis, asthma and a form of nasal cancer.

Follow the simple steps below to prevent your employees' health or your building from being damaged by wood dust:

- Where possible, use processes or methods of work that produce as little dust as possible
- Provide equipment for processes which produce dust to stop the dust entering the workroom, for example, local exhaust ventilation (LEV) systems at woodworking machines (see photograph 6)
- Make sure that machinery and equipment, including local exhaust ventilation systems, are properly maintained
- Check that equipment for controlling dust includes explosion precautions
- Clean around machines, walls, ceilings, ledges and other surfaces in workrooms to prevent dust building up. Use suitable vacuum-cleaning equipment fitted with a HEPA (high efficiency particle attenuation) filter. Do not use compressed airlines or dry brushing as this creates dust clouds and spreads the dust around
- Where measures taken to control airborne dust are not effective, employees should wear suitable protective breathing equipment to at least FFP2 standard
- Provide employees with other protective equipment, such as eye protection, overalls and gloves, where necessary
- Provide good washing facilities and encourage a high level of personal hygiene

Photograph 6 Dust extraction system fitted to a cross-cut saw





Stacking and handling timber and board

Many fatal accidents in the woodworking industry involve moving vehicles knocking people down, falls from timber stacks or the collapse of stacks of timber or boards. These accidents have highlighted the need to follow strict guidelines when building stacks and to develop and follow safe methods of working when unstacking or removing selected pieces of timber or board.

- Make sure that the ground on which the timber is stacked is steady and level
- Timber should be stacked in a stable way and stacks should be regularly inspected, with particular attention paid to any spacers or supports being used
- If employees need to get to the top of the stack, they should use properly secured ladders
- Arrange the yard layout so pedestrians and drivers have good visibility. Consider using one-way traffic routes reducing the need for vehicles to reverse, and providing pedestrian walkways and mirrors at corners
- Make sure that forklift trucks are only used by properly trained and authorised people who follow safe handling techniques, for example, forks should be spread to suit the width of the load and the drivers should be careful when turning corners or going down slopes

For more information, read 'Stacking round timber, sawn timber and board materials' woodworking information sheet (WIS) number 2. You can get this from HSE's website at:

www.hse.gov.uk/pubns/wis2.pdf

Welfare facilities for your employees

You should provide the following facilities for your employees:

- You should provide toilet facilities for all your employees, including toilets for disabled people. You should keep them well ventilated, lit, clean and in working order. You must provide a basin close to every toilet. The basin must have hot and cold (or warm) running water, and you must provide soap and a way for employees to dry their hands (such as paper towels)
- Provide clean drinking water, whether tap or bottled (and cups if necessary)
- Provide a seating area for your employees to use during breaks. You must keep this area clean, warm and free from wood dust and solvent fumes. There should be washing facilities nearby and a way of heating food or water for hot drinks (for example, provide a kettle)
- Provide changing areas with lockers or hanging space for work or casual clothing
- Consider a smoking policy for your site. If you create smoking areas outside, they must be away from high-risk areas such as the solvent store, wood-dust stores or LPG tanks. You should provide fire-resistant waste bins or sand buckets and fire-fighting equipment

For more information, read 'Welfare at work - Guidance for employers on welfare provisions' INDG 293. You can get this from HSE's website at:

www.hse.gov.uk/pubns/indg293.pdf