

## Welcome to the Manufacturing Module

**Have you read the General Module, completed the test and printed your WorkSafe Smart Move General certificate?**

The Manufacturing Module should be done **AFTER** the General Module or Review Module.

If it is sometime since you have completed the General Module you should read the Review Module. The test for the Manufacturing Module contains some questions based on the Review Module.

**The Manufacturing Module contains information on:**

- Mechanical Equipment;
- Forklifts;
- Hazardous Substances;
- Manual Handling;
- Slips Trips and Falls;
- Electricity; and
- Noise.

There are common hazards that exist in the manufacturing industry. It is important to learn about these hazards and how to work safely.

Within the manufacturing industry you may be involved in a range of work activities such as woodwork and turning, fabric dyeing and cutting, forming acrylic sheeting, resin casting, or working with fibreglass.

Your employer should make sure equipment is well maintained and you are trained and supervised and given instructions for safe work procedures.

**Key Point** It is important that you follow work procedures, not only for your own safety, but also for the safety of others.

## Mechanical Equipment

A wide range of mechanical equipment is used in the manufacturing industry. For example you may use equipment such as guillotines, wood working machines, bench saws, band saws, planers, routers and sanders.

Mechanical equipment can be hazardous. The most common injuries are to hands and fingers, which may be cut, sprained, dislocated, broken, crushed or severed by machinery or tools. These injuries can cause lengthy periods of time off work and sometimes they can cause permanent disability.

Eye injuries caused by mechanical equipment accidents include being hit by an object (e.g. small particles such as metal shavings as well large objects or pieces of equipment), heat, radiation, hitting an object and falls, trips and slips.



When mechanical equipment hazards cannot be eliminated or to improve protection you may need to wear personal protective equipment such as safety glasses or goggles, earplugs or earmuffs, protective gloves, overalls or other close fitting clothing, safety shoes or boots with steel toe-caps to protect your feet if any items are dropped.

## Mechanical Equipment

### Your employer should:

- have a maintenance program to make sure all equipment and machines are in safe working order and guards are fitted;
- have a system in place for locking out and isolating machinery during maintenance, cleaning and repairs;
- train you to operate any item of mechanical equipment before you use it and make sure you are supervised when you use it - if you are still not sure how to use it ask your supervisor; and
- provide any personal protective equipment needed and tell you how to wear and use it correctly.

### What you should do

When you are operating any mechanical equipment you should follow safe work procedures as instructed by your employer or supervisor.

### You should:

- wear clothing that will not catch in moving parts;
- wear any personal protective equipment provided by your employer;
- operate the machinery and equipment correctly and safely;
- keep all guards in place;
- make sure guards removed during cleaning are replaced before you use the machine;
- switch off machinery and equipment when not in use and lock out and isolate machinery before any adjustment, cleaning or maintenance is done;
- concentrate on the job as distractions might cause injuries; and
- keep the area around the equipment or machinery clean.

## Forklifts

Forklifts are often used in the manufacturing industry to load and unload and move materials around workplaces. They can be dangerous if not driven and operated correctly. In Western Australia there is on average one death and around 200 forklift injuries each year.

**Key Point** Under safety laws in Western Australia forklift drivers or operators must be at least 18 years of age.

Employers must make sure employees are properly trained to operate a forklift and to follow safe work procedures.



An example of the dangers of forklifts can be seen in the case study of a fatal accident - *Forklift Driver Dies in Forklift Accident* (Significant Incident Summary 26/2000) on the Internet at [www.docep.wa.gov.au](http://www.docep.wa.gov.au)

## Hazardous Substances

In the manufacturing industry you may work with hazardous substances such as paints, dyes, glues, fibreglass, wood dust, resins, solvents, as well as cleaning liquids and powders.

**Fibreglass** is a form of synthetic or man-made mineral fibre used mainly for insulation and products such as surfboards. Some of the fibres used in insulation are fine enough to be breathed deep into the lungs and they can cause irritation to the eyes, nose, throat and skin.

**Solvents** are often used as cleaners or degreasers and as ingredients in paints, inks, glue and varnishes. Solvents can enter the body by breathing in vapour, through skin contact or through the mouth from contact with food, fingers or other items such as cigarettes. They can affect your memory and cause headaches, dizziness, weakness or tiredness, mood changes or nausea. Exposure to high

levels of some solvents can cause liver damage, unconsciousness and death and cancer.

**Spray paints** and some other paints contain harmful substances. Inhaling paint fumes may cause occupational asthma. Long term exposure can affect the brain, damage the reproductive system and cause kidney or liver damage. Contact with the skin may cause dermatitis.

**Key Point** Your employer should make sure you use hazardous substances according to the manufacturer's written instructions provided on the material safety data sheet (MSDS) and the agreed safe work procedures.

## Hazardous Substances

**Wood dust** is caused by jobs like floor sanding, furniture sanding, wood turning, routing, sawing, sweeping and emptying dust filters. Wood dust in workplaces can cause lung, sinus and throat irritations, asthma, bronchitis, shortness of breath, skin problems and even cancer. Your employer can reduce wood dust by using machines that are enclosed or fitted with local exhaust ventilation.

### You should:

- always follow safety procedures;
- not use solvents to clean your hands;
- not enter confined spaces where fumes have collected;
- not smoke near solvents or paints;
- wear correct personal protective equipment provided, such as a dust mask, protective overalls, suitable gloves and safety glasses.



The dangers of ignoring safety rules and playing dangerous games with hazardous substances in a workplace without considering the consequences are highlighted in the case study *Skylarking Burns down Factory* (Significant Incident Summary 16/99) on the Internet at [www.docep.wa.gov.au](http://www.docep.wa.gov.au)

## Manual Handling

Lifting and moving equipment and materials, painting and operating levers on machinery are some examples of manual handling tasks you may have to do in the manufacturing industry. At times your work tasks may involve bending and stretching as well as twisting sideways or working with materials and equipment above shoulder height. This increases the risk of manual handling injury.

### Key Point

You should follow safe work procedures and speak up if you feel your job is too heavy, too difficult, too tiring or puts you at risk of manual handling injury.

It is your employer's responsibility to provide instruction, training and supervision for manual handling activities and to assess and control manual handling tasks that are hazardous.



### This includes things such as:

- organising the work tasks to reduce the manual handling involved;
- providing mechanical lifting devices such as trolleys and hoists;
- making sure you do not work long shifts; and
- making sure the workplace layout allows you enough space to move and work safely.

## Slips, Trips and Falls

**Key Point** Slippery floors in the workplace are a serious hazard and can result in far more serious accidents than simply slipping and falling over.

A slip or fall can cause injury to the arms, legs, back, neck or head. Neck and head injuries can cause damage to the spinal cord and nervous system. Many employees have suffered permanent disabling injuries or death as a result of a fall.

Your employer can reduce the risk of slips, trips and falls by providing a suitable non slip floor surface and good lighting and safe work procedures. In some workplaces floor surfaces can be chemically treated to increase traction and ramps provided where floor levels change.

You should follow instructions and safe work procedures provided by your employer, which may include:

- sweeping things like wood shavings up regularly;
- cleaning all spills immediately;
- making sure there are no trailing electrical cords on the floor; and
- keeping the floors and walkways free of materials, timber, boxes, equipment and rubbish.

## Electricity

The machinery, equipment and tools you will use in the manufacturing industry are usually operated by electricity.

Your employer must make sure all electrical machinery and equipment is kept in good working order, electrical plugs and switches are not damaged, cords are not split or frayed and are regularly checked for damage.

**Key Point** There should be a system in place for locking out and isolating electrical machinery during maintenance, cleaning and repairs to prevent it being accidentally turned on.



You should follow instructions for using electrical equipment, which may include remembering to:

- switch off appliances at the power point before you pull out the plug;
- disconnect broken appliances and not use frayed cords or broken power points;
- not use too many appliances from the same power point; and
- always keep electrical cords off the floor to reduce the risk of damage from drag or contact with sharp objects.

Generally employees should not work alone with machinery unless it has “deadman” switches. This is a type of switch often used on electrical vehicles or equipment operated by a hand or foot pedal or lever. It is designed so that if the operator releases the pressure on the switch, peddle or lever, owing to sudden illness or other causes, the current is cut off and the machine ceases to operate.

## Noise

In the manufacturing industry you may work with noisy power tools and machinery such as routers and planers and a variety of cutting and sanding tools. You may be exposed to noise levels exceeding 85 decibels or dB(A) that can cause permanent hearing loss.

Your employer can reduce noise levels by isolating noisy machinery from employees not involved in its operation, enclosing it in a sound absorbing box or erecting sound absorbing barriers and by keeping machinery and equipment in good order so it operates efficiently.

If the noise cannot be removed at the source your employer should provide personal hearing protectors ( earmuffs or earplugs) to increase protection or as a last resort, to reduce the risk of hearing loss.

**Key Point** Earpieces for portable radios and music devices do not provide protection from loud noise.

Now try the self-assessment questions on the Internet at [www.docep.wa.gov.au](http://www.docep.wa.gov.au)

BEFORE you start the questions, it is important to type your name on the computer screen exactly as you want it to appear on your certificate.

There are 16 questions and if you get 12 or more correct you can print online a WorkSafe Smart Move Certificate signed by the Minister for Consumer and Employment Protection.