National Occupational Health and Safety Commission

PLANT DESIGN

MAKING IT SAFE

**A guide to risk management
for designers, manufacturers, importers,
suppliers and installers of plant**

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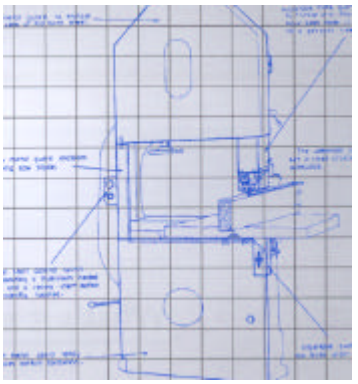
WHAT'S IT ALL ABOUT?



'Plant' means more than you might think

Plant is a general name for machinery, tools, appliances and equipment. It can include things as diverse as presses in a foundry and computers in an office. It can range from scaffolding to lifts and escalators; from tractors to hand trolleys; cranes to commercial fishing nets; arc welding gear to electric drills. In some States and Territories it also includes manual tools like hammers and knives.

Plant can be hazardous

Each year, there are over 200 deaths and around 70,000 workers' compensation claims involving plant. It's a major cause of workplace accidents in Australia.

Providing safe plant to the workplace

Thoughtful design of plant can eliminate many of its risks to health and safety from the beginning. Careful manufacture can ensure it's as safe as the designer intended it to be, and suppliers can then carry through to deliver safe plant to the workplace — significantly reducing the chances that people using it will be harmed.

Providing enough safety information along with the plant is vital too. This can make users aware of any risks the designer hasn't been able to eliminate, and ensure they don't create any new risks by not using the plant properly.

Introducing a new standard

A national standard has been developed for plant, in accordance with *performance-based* principles. The objective is to create a safe workplace, free from risks associated with plant, and the standard describes the kind of process that must be used to meet that objective — a process of systematically identifying hazards, and assessing and controlling risks. It also specifies minimum outcomes which must be met for all types of plant.

For designers, manufacturers and suppliers, the new approach means ensuring that plant intended for the workplace is safe to manufacture, test, install, use, maintain and decommission.

Helping you meet the requirements of the standard

This guide aims to help those involved in the design, manufacture or supply of plant to:

- understand the performance-based approach, and their roles in implementing it;
- develop and use a systematic process to control the risks associated with plant intended for the workplace.

Note that the guide is based on the national standard, which is the framework used by Commonwealth, State and Territory governments to develop their own laws. Since each government's legislation may differ slightly from the standard, you should check with your local occupational health and safety agency about particular requirements in your area.

Occupational health and safety contacts are provided on page 22.

What are your legal obligations?

The national standard sets out particular 'duties' for designers, manufacturers, importers, suppliers and installers of plant.

Familiarising yourself with the material in this guide is a good place to start in understanding these duties but you should also find out about what's required of you by the occupational health and safety legislation in your own State or Territory, or by Commonwealth legislation if it applies to you.

Remember, too, that you may have additional responsibilities as an employer. A companion guide, Plant in the workplace — making it safe, is available to help you implement a risk management system for plant in your own workplace.

Note that these guides are not intended as statements of law; they do not waive or modify any legal obligations.

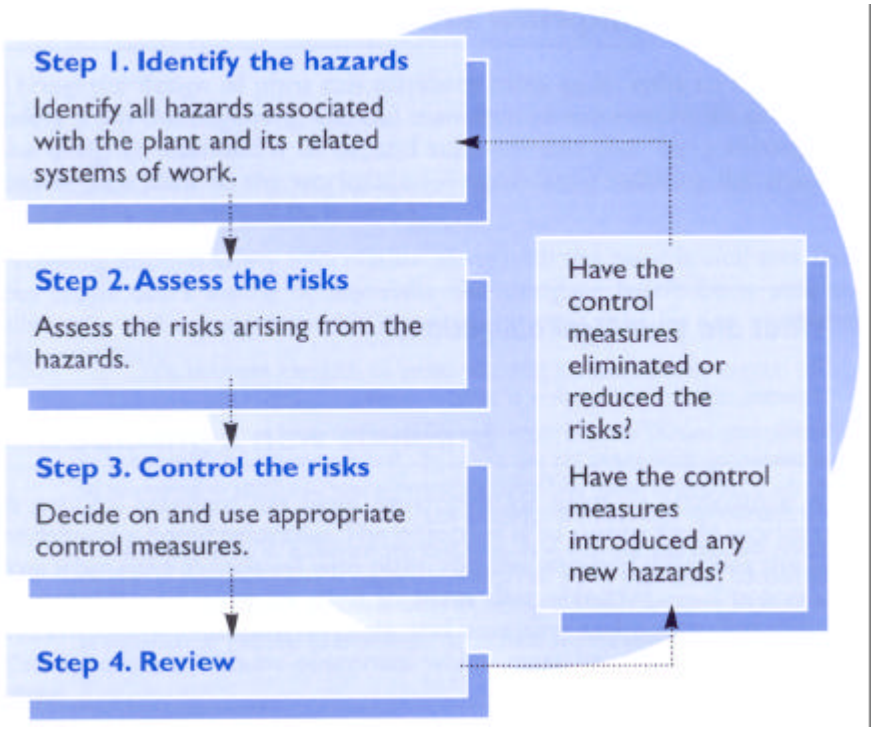
OVERVIEW OF THE RISK MANAGEMENT PROCESS

A risk management process is a systematic way of making plant as safe as possible.

Various methodologies have been developed — formalised analysis techniques which may be useful, depending on the type and complexity of the plant, and the kind of information available.

The process may also be implemented differently according to who's doing it. A designer, for example, may continuously modify a design as hazards are identified, until arriving at a final product with all risks minimised. If, on the other hand, an importer intending to bring in an existing piece of plant identifies a risk which can only be addressed by modifying the design, the 'control measure' may simply be not to import the plant at all.

But whatever the plant, whoever is responsible for it, and whatever particular risk management system used, the basic steps in the process remain the same.



What is a hazard?

A ‘hazard’ is any situation that may cause injury or illness. There are three broad sources of hazards relevant to plant design:

Hazards relating to the plant itself: An item of plant is likely to have a range of hazards that need to be identified. For example, a forklift will involve hazards relating to its mobility; its electrical, hydraulic and mechanical power sources; its moving parts; and its load-carrying capacity.

Hazards relating to the way the plant is used: The forklift, for example, may have hazards stemming from the kind of loads it is used to lift, and the slope or evenness of the ground it operates on.

You might think work practices like these would be beyond the scope of a designer or supplier. But if the plant has been designed to be used safely in a particular way, this needs to be communicated to potential users. In the case of the forklift, a ‘tilt alarm’ might be provided to warn the driver when the slope is too great.

Hazards relating to the environment where the plant will be used: Elements in the environment — whether indoors or outdoors — can affect plant and may increase the risk of an employee being harmed when using it. For example, a photocopier may present a greater hazard in a poorly ventilated room. And again, this kind of constraint must be made clear to users.

Tools for carrying out the process effectively

Consultation: For people involved in the design, manufacture and supply of plant, consultation with users — employers, employees, their health and safety representatives, and owners — can be a great help in identifying hazards and effectively controlling risks. The standard requires certain kinds of information to be exchanged, but this should be supported by direct discussion.

Designers and manufacturers can consult with potential users of their proposed new product — as well as with suppliers, importers, installers and users of similar plant — while doing their technical and market research.

And suppliers should encourage employers and owners to use the regular contact they have with them to discuss relevant health and safety issues associated with the plant. The supplier can then pass on information to designers and manufacturers.

Research: All sorts of information can help identify the hazards and assess and control the risks associated with a piece of plant or a plant design — from injury and incident data kept by manufacturers and users of similar plant to records of research and testing done for previous designs. Resource 1 on page 18 lists possible sources of this kind of information.

A note on standards

Legislation in your area may require certain items of plant to be designed, manufactured, inspected or tested according to particular standards (eg from Standards Australia).

Other product standards and guidelines, although not prescribed, may also be useful starting points. You could find out about these from your local occupational health and safety agency.

But don't assume a design that meets a standard or guideline is without risk. The objective is safe plant as well as plant that conforms.

Testing: Testing plant is essential to identify hazards as well as assess the risks associated with those hazards. Among other things, test results may provide data on the operating limits of the plant, the probability of failure and its likely consequences — material may be ejected, for example, if the failure causes the plant to break up.

Certain testing procedures may also be specified as part of quality control during manufacture.

Keeping records: Systematic records of each stage of the process will help you — and others — keep track of what's been done and what needs to be done. For some kinds of plant this may also be required by law.

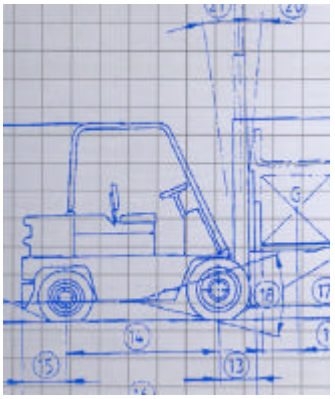
You might like to develop a kind of master document to list the hazards you've identified along with your assessments of the risks they present and whether or not you've worked out ways to control them. Other records you might keep could be: research and test results, details of the method used to assess risks, details of control measures and reviews of their effectiveness, and feedback from users or potential users.

What next?

As mentioned, there are various risk management methodologies available which may be appropriate to your particular situation. Covering them all is beyond the scope of this guide, but the next section describes one simple way of moving through the process.

We then take a look at the responsibilities of each group involved in providing plant to the workplace — designers, manufacturers, importers, suppliers and installers.

STEP BY STEP



1. Identifying hazards

An item of plant may have the potential to cause harm in a number of ways — there may be hazards arising from the plant itself, its associated work practices and the environment in which it will be used.

When you're trying to identify hazards it's important not to limit yourself to situations you've experienced yourself. The idea is to try and anticipate how human behaviour, plant and 'system' failures could combine to create a harmful situation.

Be systematic:

- Use the tools described on pages 5 and 6 — consultation, research and testing.
- Use checklists — Resource 2 on page 19 is a checklist of the kinds of things to consider when looking for hazards.
- Keep records of the hazards you identify.

2. Assessing risks

What you're trying to do here is assess the risk each hazard presents so it can be controlled — eliminated or minimised.

One way of assessing risk is to consider the chance of the hazardous situation occurring (the **likelihood**) and the extent of the harm that would result (the **consequence**). You then combine these to arrive at an assessment of how serious the risk is.

You could rate the likelihood as:

- Very likely — could happen frequently
- Likely — could happen occasionally
- Unlikely — could happen but only rarely
- Highly unlikely — could happen, but probably never will (be very careful about judging anything as 'highly unlikely' — this should be reserved for very rare situations).

And you could rate the consequence as:

- Fatality
- Major injuries (normally irreversible injury or damage to health)
- Minor injuries (normally reversible injury or damage to health needing several days off work)
- Negligible injuries (first aid)

You could then combine them using a table like this:

	Likelihood			
Consequence	Very likely	Likely	Unlikely	Highly unlikely
Fatality	HIGH	HIGH	HIGH	MEDIUM
Major injuries	HIGH	HIGH	MEDIUM	MEDIUM
Minor injuries	HIGH	MEDIUM	MEDIUM	LOW
Negligible injuries	MEDIUM	MEDIUM	LOW	LOW

Situations assessed as *very likely with fatal consequences* are the most serious (HIGH risk); those assessed as *highly unlikely with negligible injuries* are the least serious (LOW risk).

Be systematic:

Judging how likely it is that something will happen or its potential consequences is like predicting the future. You can't really be sure; you can only make a 'best estimate' on the basis of the information available. You can, however, be systematic about the way you arrive at your 'estimate'.

- Use the tools described on page 5 and 6 — consultation, research and testing.
- Consider work practices which might be associated with the plant, taking particular note of:

  · how often and for how long people would be exposed to each of the potentially hazardous situations you've identified (this affects **likelihood** as the longer and the more frequent the exposure to a potential hazard, the more likely it is to cause harm);

  · how many people would be exposed to the potential hazard at the same time (this affects the **consequence**).
- Keep records of your assessments.

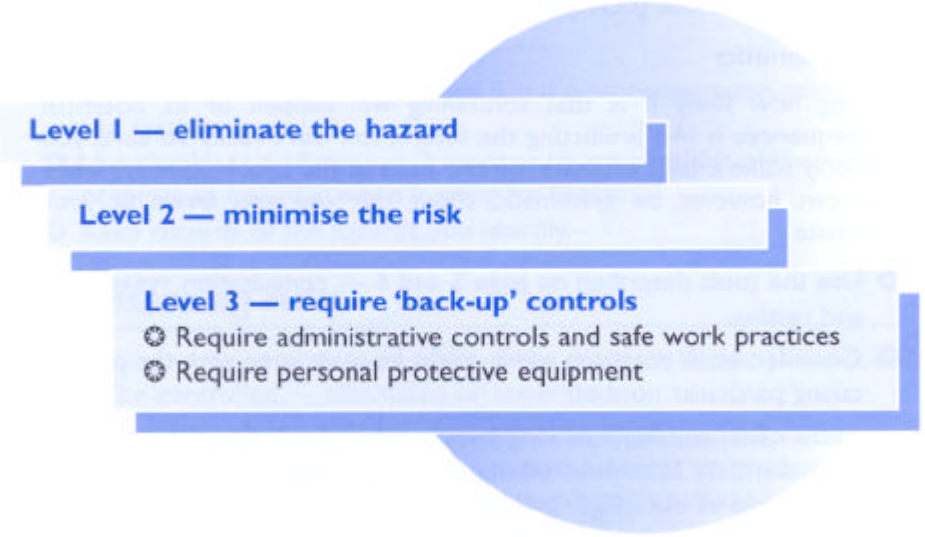
3. Controlling the risks

Where a risk to health and safety has been identified, controls must be introduced to eliminate or minimise it.

There are a number of ways of doing this and the following 'hierarchy' can be used as a guide. In many cases a combination of controls will be necessary to reduce a risk to the required level.

A hierarchy of controls

The idea is to select controls from the highest level possible. The way you do this may depend on the role you're playing — a designer, for example, may be able to minimise the risk by modifying the design of the plant; a manufacturer may have to go back to the designer for 'higher order' controls; an importer may not have the option of modifying the plant and, if the risk is serious, may decide that the only way to control it adequately is not to import the plant at all.



Level 1. Eliminate the hazard

The best way to eliminate the risk is to completely remove the hazard from the plant design — for example, an electrocution hazard could be eliminated by using a hydraulic process instead of an electrical one.

Level 2. Minimise the risk of the hazard

If a hazard cannot be eliminated, the plant should be designed to minimise the risk of the hazard. Options include everything from controlling the risk to maintenance workers by cutting down on the need for maintenance, to incorporating such things as cut-out switches, screens and guards, or designing the plant so it can be operated remotely from a control booth.

The designer's role in eliminating and minimising risks is covered in the next section — *Designing safe plant*.

If a risk cannot be eliminated or minimised at the design stage, perhaps because the original designer is overseas, there are a number of control options that can be used alone, or in combination, to minimise the risk of existing plant or plant designs. These include:

Substitution: A manufacturer may be able to replace the hazardous aspects of the plant with a safer option — for example, use a component with higher heat tolerance.

Modification: An importer could have a frame retrofitted to a tractor, for example, for rollover protection.

Engineering controls: Such things as cut-out switches, screens and guards could be retrofitted.

Isolation: The plant could be specified for use in an isolated or controlled environment — an air conditioning plant placed on the roof, for example, or a photocopier located in a room with its own ventilation system.

Level 3. Require administrative controls and personal protection

Level 3 options should be seen as 'back-up' controls. No matter what other control measures are implemented, safe work practices are essential, and personal protective equipment may be advisable, depending on the hazard. Neither option should be relied on as a primary risk control measure until the options in levels 1 and 2 have been exhausted.

4. Review

Deciding on and implementing a control measure is not the end of the risk management process.

Control measures have to be assessed in order to determine:

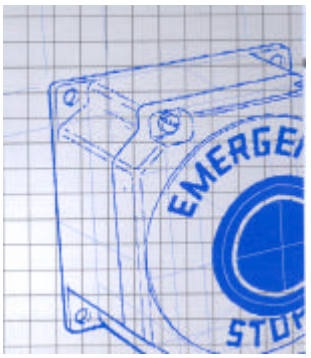
- whether the risks have been adequately controlled; and
- that no hazards have been created by the control measure.

This process should continue until the risk is reduced to the lowest practicable level.

The process must be repeated whenever circumstances change. Hazard identification, risk assessment and control is not a 'one-off' task. For designers, manufacturers and suppliers, risk assessments should be reviewed particularly when:

- information is obtained about a previously unknown design or manufacturing fault; or about a previously unidentified hazard;
- the design is revised;
- there is a change to a risk control measure after a review of its effectiveness.

DESIGNING SAFE PLANT



Designers have a responsibility to assess and control the risks associated with the plant they design, and to provide particular kinds of safety information about it to manufacturers (and thus, eventually, to users).

Note that even though you may not be a professional designer, if you take on that role, you take on the designer's duties.

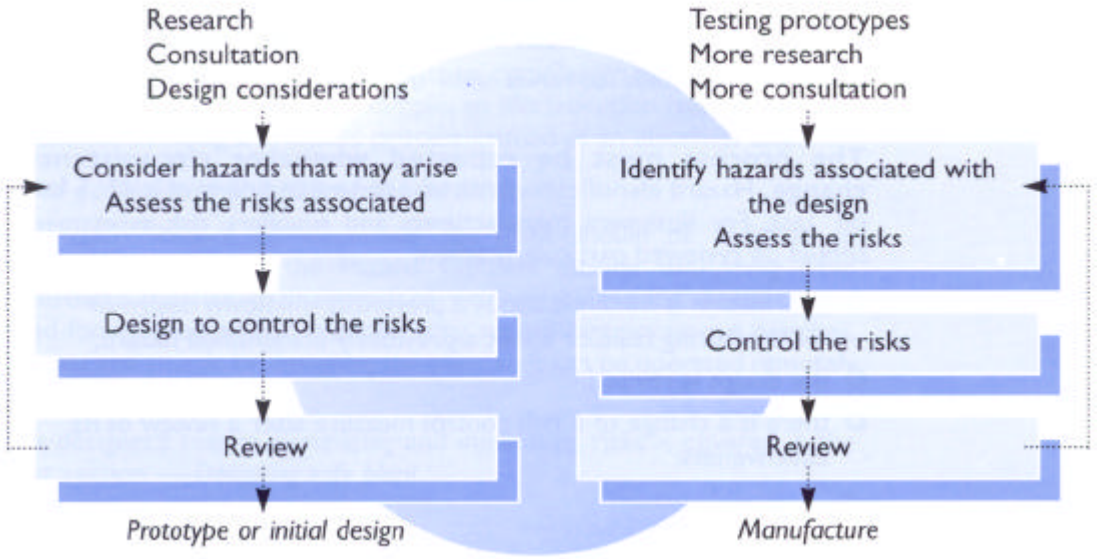
Risk management for designers

The design stage of a piece of plant is critically important because it's here that the plant can most easily be altered to eliminate or reduce the risk of a hazard, rather than having to rely on 'lower order' controls that must be implemented in the workplace.

In practice, a professional designer may constantly — and perhaps unconsciously — be moving through the process of recognising hazards, assessing how important they are and introducing control measures.

However, it's necessary to formalise the risk management process at particular stages in the development of the design. A designer needs to be able to demonstrate that all the risks of a plant design have been assessed and controlled before the plant is manufactured and supplied to the workplace.

The risk management process could be used in the development of an initial design or prototype, and then in the production of the finished design.



Design considerations

This guide is not intended to teach people how to design, but some key safety-related design considerations are described in Resource 3 on page 20.

Remember: Standards and guidelines are a good starting point for designing safe plant, but don't assume that designing to a standard, by itself, eliminates risk.

Information about the manufacturing process

You should provide the manufacturer with information about the manufacturing method to be used. If you nominate a specific method or material, you should consider whether there would be any hazards associated with that specification.

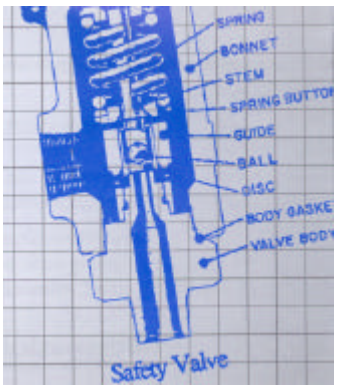
Information for operating manuals

To ensure people understand how to use the plant safely, you should provide the following information for inclusion in the operating manual:

- the uses for which the plant has been designed, manufactured and tested;
- any specific conditions applying to the use of the plant; ways in which experience and testing has shown that the plant should *not* be used; any specific prohibitions on the use of the plant;
- the results or documentation of tests and examinations carried out on the plant or the design;
- any known residual risks ie, risks that have not been eliminated or sufficiently minimised by design and against which safeguarding is not totally effective;
- control measures, eg personal protective equipment, that should be used, if any;
- the correct operating procedures for the plant, including systems of work necessary to ensure safe operation;
- the correct way to transport, assemble, erect or install, commission, inspect, test, maintain, repair, dismantle and dispose of the plant;
- the components of the plant which require inspection and testing, as well as the frequency and acceptance criteria for this, and the knowledge, training or skills necessary for people inspecting or testing the plant;
- requirements for any special tools needed to use or maintain the plant;
- instructions about what to do where hot or cold parts or material may create a hazard;
- information for emergency situations eg, the type of fire-fighting equipment that should be used.

See also *A note on operating manuals* on page 15.

MANUFACTURING SAFE PLANT



A manufacturer has a responsibility to follow the designer's specifications precisely in order to ensure the plant is as free from risk as the designer intended.

Under some conditions — for example, if the designer is outside Australia — the manufacturer takes on the designer's responsibility to make sure the risks associated with the design are assessed and controlled.

The manufacturer also has a responsibility to provide particular kinds of safety information to the users of the plant.

Risk management for manufacturers

According to the national standard, **if you are manufacturing plant designed in Australia**, you only need to go through the risk assessment and control process if you discover a hazardous fault during manufacture. You should not incorporate the fault into the plant. In practice, you should notify the designer of the problem immediately so that it can be corrected.

If you are manufacturing plant designed outside Australia, the safety of the plant is your responsibility. In this case you must ensure the full risk management process outlined on pages 4 to 11 is carried out — the process of systematically identifying hazards associated with the proposed plant design, assessing risks, controlling them and reviewing the effectiveness of those controls.

Controlling the risks may involve going back to the designer. Remember that if the design is modified — either by you or by the designer — the whole process should be run through again to ensure the modification has been effective and no new hazards have been introduced.

Note that the Commonwealth and some State and Territory legislation requires manufacturers to take responsibility for the safety of plant designed outside their jurisdiction — not just outside Australia. Check with your local occupational health and safety agency.

Providing information to users

You are obliged to provide safety information about the plant to end users — either directly (if supply is direct) or through the supplier.

This will generally be in the form of an operating or instruction manual, either provided by the designer or compiled by you based on information from the designer.

You should review and reissue safety documentation whenever you become aware of new information about the use of the plant or any associated system of work likely to affect health or safety.

A note on operating manuals

Manuals should:

- *be written in clear, concise English,*
- *be presented in a logical sequence, and*
- *where appropriate include good illustrations.*

Don't use vague and misleading expressions — such as 'may be dangerous' or 'safe under most conditions of use'

Safety information included in an operating or instruction manual should be integrated with general operating procedures but should be highlighted to clearly identify it.

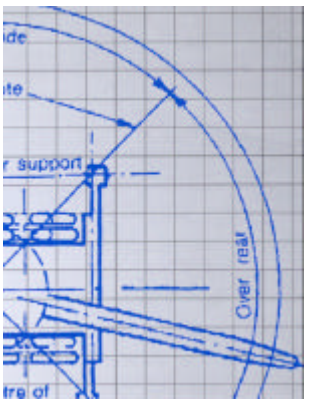
Notifying owners and users of faults

Design or manufacturing faults that create a risk to health and safety may become apparent after the plant has been supplied to owners and users. When this happens you would need to establish:

- the exact nature of the fault;
- the risk posed by the fault;
- the action necessary to remove the risk.

You should then pass this information on to other owners and users. Where the fault is impossible for users or owners to rectify themselves, all the affected plant should be recalled.

IMPORTING AND/OR SUPPLYING SAFE PLANT



According to the national standard, an **importer** of plant takes on the responsibility of designer and manufacturer to ensure the risks associated with the plant are assessed and controlled, and to provide the required safety information to users.

(Note that Commonwealth and some State and Territory legislation regards plant as imported if it is from outside the jurisdiction — not just from outside Australia. Check with your local occupational health and safety agency.)

Suppliers are responsible for making sure the risks to health and safety from the plant they supply are eliminated or minimised. Suppliers of imported plant take on the importer's responsibility and thus must make sure the whole risk management process is carried out.

Providing information to users

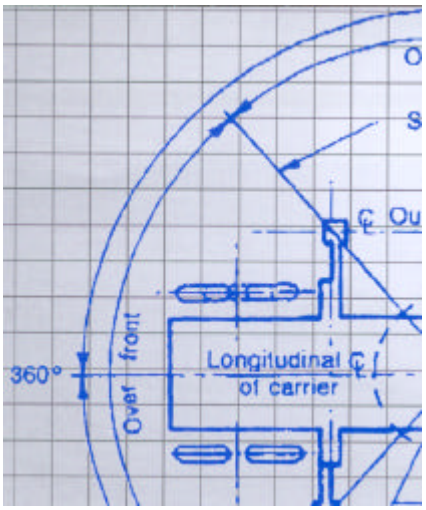
For new plant the supplier must provide the purchaser with the health and safety information provided by the designer and manufacturer.

For used plant the supplier should provide the purchaser with any available health and safety information originally provided by the designer and manufacturer, as well as any available records kept by the previous owner.

Some instruction documents accompanying imported plant may need reformatting and revision to ensure they are clear and effective.

Plant supplied or imported for scrap or spare parts

If an item of plant is supplied or imported as scrap or for spare parts, the supplier must advise the purchaser that the plant in its current condition must not be placed in service. This can be done either in writing or by marking the plant.



INSTALLING PLANT SAFELY

Anyone erecting or installing plant has a responsibility to ensure this is done as safely as possible. This involves going through the risk management process to identify any hazards associated with the installation procedures, and assessing and controlling the risks.

If you will be installing several of the same item of plant, you could carry out the process using a representative sample. If, however, the risk is going to vary from operator to operator, you'll need to assess and control the risk separately for each.

You should pay particular attention to the instructions of the designer and/or manufacturer, and to any relevant standards (eg Australian standards for electrical installations; particular requirements which apply to erecting scaffolding etc).

RESOURCE 1

Sources of information about hazards from plant

All sorts of information can help you identify hazards, and assess and control risks.

WRITTEN MATERIAL

- Standards covering design, manufacturer, testing and use of plant, eg from Standards Australia.
- Injury, faults, incident and accident reports, and plant failure data kept by manufacturers and users of the same or similar types of plant.
- Statistics, hazard alerts or other reports from relevant statutory authorities, unions and employer associations, specialists, professional bodies representing designers, manufacturers, or engineers.
- Occupational health and safety journals and databases, both Australian and from overseas.
- Research and testing done on previous designs.
- Information and documentation supplied by designers or manufacturers on health and safety issues, such as test reports on previous designs or similar plant.
- Operating and maintenance logs of similar plant that is hired or leased.
- For importers and/or suppliers, safety information provided with the plant— eg, instruction manuals and/or labels and manufacturer's plates attached to the plant.

INSPECTIONS

- Inspect plant that has failed and been returned by users.
- Develop prototypes, and inspect and test their design and manufacture.
- Conduct 'walk-through' surveys of the workplace where the plant will be used — before beginning the design process and while the plant is being installed or erected (the latter to look for hazards which may be introduced during installation).
- Identify and evaluate the tasks which will be associated with the plant that may give rise to hazards.

CONSULTATION

Talk to other designers, specialist practitioners, industry, union or government bodies, owners and users. People actually working with the same or similar plant are often well aware of what can go wrong and why, and how the work environment can change.

RESOURCE 2

Things to consider when looking for hazards

POSSIBLE KINDS OF HAZARD

- Could the plant cause injury due to things like entanglement, crushing, trapping, cutting, stabbing, puncturing, shearing, abrasion, tearing or stretching?
- Could the plant create hazardous conditions due to things like pressurised content, electricity, noise, radiation, friction, vibration, fire, explosion, temperature, moisture, vapour, gases, dust, ice, hot or cold parts?
- Could the plant cause injury or ill health due to poor ergonomic design?

POSSIBLE SOURCES OF HAZARD

Suitability

- How suitable would the plant be for its intended purpose? What could happen if it was used for a purpose other than the intended purpose?
- How suitable are the materials used to make the plant?
- How suitable are any accessories to the plant? In what condition are they?
- How stable is the plant? Might it roll over?
- If the plant is intended to lift and move people, equipment or materials, how capable is it of doing this? Will there be an effective back-up system to support the load?

Location

- How would the plant affect the safety of the area where it will be located? (Consider its impact on design and layout of the workplace.)
- How would the location affect the safety of the plant? (Consider things like environmental conditions, terrain.)
- Are there likely to be other people or other plant in the vicinity? What effect would this have?

Abnormal situations

- What abnormal situations, misuse or fluctuation in operating conditions can you foresee?
- Would there be potential for falling objects?
- What effects would failure of the plant have? Would it result in loss of contents, loss of load, unintended ejection of workpieces, explosion, fragmentation, collapse of parts?
- Would it be possible for the plant to move or be operated inadvertently?

Systems of work

- What systems of work would be associated with the plant? Could they create any hazards?
- What arrangements are there for access to and egress from the plant — eg during operation, for maintenance, in an emergency?
- Would the plant's safety depend on the competency of its operators?

RESOURCE 3

Design considerations

This guide is not intended to teach people how to design, but the following are some key safety-related design considerations:

Consider the plant's life cycle: You should consider all the phases of an item of plant's life, from manufacture through use to demolition and disposal. For example, if your design allows easy access to working parts requiring regular maintenance the risk of injury to the maintenance worker may be reduced. However, the design would also have to prevent contact with moving parts while the plant was operating.

Design for safe erection and installation: Ways to control risks related to installing or erecting the plant might be:

- design the plant so it is stable when left freestanding prior to installation;
- make it structurally stable even without 'adjustment' ie, before all the nuts have been tightened; or
- provide special supports that can be used to give stability prior to installation.

Design to facilitate safe use: Consider the following:

- the physical characteristics of users (see also below);
- the maximum number of tasks an operator can be expected to perform at any one time; the complexity of those tasks; and the pace at which they can be performed;
- the need to minimise long periods of physical or repetitive activity;
- the layout of the workstation or environment in which the plant may be used;
- instrumentation and its layout (instrumentation should provide clear, accurate information on how the plant is performing but not cause 'information overload' — which can cause operator error);
- consistency and 'naturalness' of controls, eg 'up' is always 'off';
- designing controls and operating procedures to make correct actions easier for operators to perform than incorrect actions.

Physical characteristics of users: The plant should accommodate the range of physical characteristics in the user population. You should take into account the range of human dimensions and capabilities — height, reach and weight — to provide an optimum match between plant and user.

The principles of ergonomics should be applied to minimise the operator's discomfort, fatigue and psychological stress under the intended conditions of use.

Information on the range of body sizes and weights of the population can be obtained through the ergonomics unit of Worksafe Australia (see page 22). If designing plant for a specific employer, the employer may be able to provide you with the information you need.

RESOURCE 3 continued

Consider intended use and reasonably foreseeable misuse: Misuse is the intentional use of plant for a task for which it was not designed and originally intended. For example, it would be reasonably foreseeable that a forklift intended to operate on a slope no greater than 1:5 might sometimes be used on a steeper grade. The designer might incorporate a tilt alarm or rollover protection to control this risk.

Design for safe maintenance: Consider the difficulties workers may face when maintaining or repairing the plant. For example, you could:

- reduce the need for maintenance — the less frequently maintenance is required the less the worker is exposed to the risks; or
- locate adjustment, lubrication, and other maintenance points outside danger zones eg, by extending lubrication points away from moving parts.

Design so the plant 'fails to safety': If plant fails, it should be in a safe condition and not create health and safety risks. For example, if moving parts of the plant break up, fragments should not be ejected.

Other considerations: Specific advice about such things as access and egress, operating controls, emergency stop devices and guards can be obtained from the *National Standard for Plant* as well as from relevant Australian standards.

RESOURCE 4

Occupational health and safety contacts around Australia

GOVERNMENT ORGANISATIONS

The following organisations can provide advice on your legal obligations and general information about plant and plant safety.

New South Wales

Occupational Health and Safety Hotline
WorkCover Authority
Phone (02) 370 5301
Phone 1800 451 462 toll free

Victoria

Occupational Health and Safety
Information and Advisory Network
Health and Safety Organisation
Phone (03) 9628 8188

Queensland

Division of Workplace Health and Safety
Department of Employment, Vocational Education, Training and Industrial Relations
Phone (07) 247 4111; or 1800 177 717

South Australia

Occupational Health and Safety Division
WorkCover Corporation
Phone (08) 233 2222
Phone 008 18 8000 toll free

Western Australia

Department of Occupational
Health, Safety and Welfare
Phone (09) 327 8777

Tasmania

Industry Safety and Mines
Tasmania Development and Resources
Phone (002) 33 8333

Northern Territory

Work Health Authority
Phone (089) 995 010

Australian Capital Territory

Private sector:

ACT WorkCover
Phone (06) 205 0200

ACT government:

Occupational Health and Safety Unit
Australian Capital Territory Government Service
Phone (06) 205 0338

Commonwealth

Comcare Australia
Phone (06) 275 0000

General

Worksafe Australia
Phone (02) 565 9555
Phone 1800 25 2226 toll free

EMPLOYER AND UNION ORGANISATIONS

Employer and union organisations can also provide advice to members on health and safety issues. Both of the following organisations, and many of their affiliates, have branch offices in each State and Territory.

Australian Chamber of Commerce and Industry
Phone (03) 9289 5289

National OHS Unit
Australian Council of Trade Unions
Phone (03) 9663 5655

The National Standard for Plant [NOHSC:1010(1994)] is available from the Australian Government Publishing Service, Canberra. Phone 1800 02 0049 toll free.