

# MOVING PLANT

## ON CONSTRUCTION SITES

CODE OF PRACTICE 2004

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This publication may contain occupational health and safety and workers compensation information. It may include some of your obligations under the various legislations that WorkCover NSW administers. To ensure you comply with your legal obligations you must refer to the appropriate legislation.

Information on the latest laws can be checked by visiting the NSW legislation website ([www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au)) or by contacting the free hotline service on 02 9321 3333.

This publication does not represent a comprehensive statement of the law as it applies to particular problems or to individuals or as a substitute for legal advice. You should seek independent legal advice if you need assistance on the application of the law to your situation.

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## WHAT IS AN INDUSTRY CODE OF PRACTICE?

An approved industry code of practice is a practical guide to achieving the standard of safety required by the *Occupational Health and Safety Act 2000* (the Act) and *Occupational Health and Safety Regulation 2001* (the Regulation) for a particular area of work.

An approved industry code of practice should be followed unless an alternative course of action achieves the same or better standard of health and safety in the workplace.

An industry code of practice is approved by the Minister for Commerce. It comes into effect on the day the notice of this approval is published in the NSW Government Gazette or on the day specified in the Gazette notice.

An approved industry code of practice is designed to be used in conjunction with the Act and Regulation but does not have the same legal force. A person or company cannot be prosecuted for failing to comply with an approved industry code of practice.

However, in proceedings under the Act or Regulation, failure to observe a relevant approved industry code of practice can be used as evidence that a person or company has contravened or failed to comply with the provisions of the Act or Regulation.

A WorkCover NSW inspector can cite an approved industry code of practice in a direction or in an improvement or prohibition notice, indicating the measures that should be taken to remedy an alleged contravention or non-compliance. Failure to comply with a requirement in an improvement or prohibition notice is an offence.

In summary an approved **INDUSTRY CODE OF PRACTICE**:

- ✓ gives practical guidance on how the required standard of health, safety and welfare can be achieved in an area of work
- ✓ should be followed, unless there is an alternative course of action that achieves the same or better standard of health and safety in the workplace
- ✓ can be used in support of the preventive enforcement provisions of the Act
- ✓ can be used to support prosecutions for failing to comply with or contravening the Act or Regulation.

# PREFACE

The aim of this code of practice is to assist employers in deciding appropriate measures to prevent risks to workers and other people on construction sites where moving plant is used. It provides practical advice on implementing the requirements of the *Occupational Health and Safety Act 2000* and the *Occupational Health and Safety Regulation 2001*.

This code of practice is for employers, employees, contractors, subcontractors and other parties involved in construction work with moving plant.

At times construction work may be carried out near moving plant on greenfield construction sites as well as, on or near, public roads and pedestrians. Where construction and maintenance work is carried out on or near public roads, work should be carried out in accordance with the AS 1742 set of Standards – *Manual of uniform traffic control devices*. These Standards are supported by a set of field guides (HB 81) *Field guide for traffic control at works on roads*.

Use this code of practice to assess the effectiveness of your present arrangements for dealing with safety issues associated with moving plant, and to check that all sources of risk have been identified and dealt with. If you are setting up a new business, this code of practice can serve as your step-by-step guide to establishing a program to manage the hazards arising from the use of moving plant.

## WHAT DO THE SYMBOLS IN THE CODE OF PRACTICE MEAN?

To help you work out what you require, a number of symbols are used to highlight things you need to take into account, and tools to help you do the job.



Assess the risks in your workplace



Legal obligations that you must follow



Processes of finding things that cause harm, work out how serious the problems are and then to fix them

# CHAPTER 1 – ESTABLISHMENT

## 1.1 Title

This is the *Code of Practice for Moving Plant on Construction Sites*.

## 1.2 Purpose

This code of practice provides practical guidance to prevent injury to people where moving plant is used at construction sites.

## 1.3 Scope

This code of practice applies to the use of moving plant at all construction site places of work in NSW, except mines.

Moving plant includes plant that:

- (a) moves either under its own power, or is pulled or pushed by other powered moving plant
- (b) moves on or around the construction site, enters or leaves the site, or moves past the site, and
- (c) includes road vehicles (such as tip trucks).

This does not cover the load shifting operation of plant (such as excavators, cranes, hoists, and forklifts) to the extent covered by the following approved industry codes of practice:

- *Code of Practice: Excavation* (March 2000)
- *AS 2359.2-1985 SAA Industrial Truck Code – Part 2: Operation* (October 1985) (this covers forklift use)
- AS 2550 set of Standards covering the safe use of cranes of all types (including hoists, elevating work platforms and building maintenance units, but not forklift trucks).

Note: The above two Australian Standards were gazetted as approved industry codes of practice on 21 September 2001 in the *Code of Practice: Technical Guidance*.

## 1.4 Authority

This is an industry code of practice approved by the Minister for Commerce under section 43 of the *Occupational Health and Safety Act 2000*.

## 1.5 Commencement

This code commences on Friday, 16 January 2004.

## 1.6 Interpretation

### 1.6.1 Recommended practices

Words such as 'should' indicate recommended courses of action. 'Consider' indicates a possible course of action that the code is indicating the duty holder should think about. However, you may choose an alternative method of achieving a safe system of work.

## 1.6.2 Legal Requirements

Words such as 'must', 'requires' or 'mandatory' indicate that legal requirements exist, which must be complied with.

## 1.7 Definitions

**alter** in relation to plant, means to change the design of, add to or take away from the plant if the change may affect health or safety, but does not include routine maintenance, repair or replacement.

**commissioning** of plant means performing the necessary adjustments, tests and inspections to ensure plant is in full working order to specified requirements before the plant is used, and includes recommissioning.

**competent person** for any task means a person who has acquired through training, qualification or experience, or a combination of them, the knowledge and skills to carry out the task.

**construction work** means any of the following:

- excavation, including the excavation or filling of trenches, ditches, shafts, wells, tunnels and pier holes, and the use of caissons and cofferdams
- building, including the construction (including the manufacturing of prefabricated elements of a building at the place of work concerned), alteration, renovation, repair, maintenance and demolition of all types of buildings
- civil engineering, including the construction, structural alteration, repair, maintenance and demolition of, for example, airports, docks, harbours, inland waterways, dams, river and avalanche and sea defence works, roads and highways, railways, bridges and tunnels, viaducts, and works related to the provision of services such as communications, drainage, sewerage, water and energy supplies.

**crane** means an appliance intended for raising or lowering a load and moving it horizontally, and includes the supporting structure of the crane and its foundations, but does not include industrial lift trucks, earth moving machinery, amusement devices, tractors, industrial robots, conveyors, building maintenance equipment, suspended scaffolds or lifts.

**earthmoving machinery** means an operator controlled item of plant used to excavate, load, transport, compact or spread earth, overburden, rubble, spoil, aggregate or similar material, but does not include a tractor or industrial lift truck.

**employee** means an individual who works under a contract of employment or apprenticeship.

**employer** means a person who employs persons under contracts of employment or apprenticeship.

Note: In some chapters of the Regulation, the term 'employer' includes a self-employed person in relation to duties to other persons.

**fault** means a break or defect that may cause plant to present an increased risk to health and safety and, in the case of a fault in the design of plant, means an aspect of the design that may cause the plant to be a risk to health and safety if manufactured in accordance with the design specifications.

**high-risk construction work** means any of the following construction work:

- involving structural alterations that require temporary support
- at a height above 3 metres
- involving excavation to a depth greater than 1.5 metres

- demolition work for which a licence is not required
- in tunnels
- involving the use of explosives
- near traffic or mobile plant
- in or around gas or electrical installations
- over or adjacent to water where there is a risk of drowning.

**mobile crane** means a crane capable of travelling over a supporting surface without the need for fixed runways (including railway tracks) and relying only on gravity for stability, that is, with no vertical restraining connection between itself and the supporting surface and no horizontal restraining connection (other than frictional forces at supporting-surface level) that may act as an aid to stability.

**moving plant** includes plant that:

- (a) moves either under its own power, or is pulled or pushed by other moving plant
- (b) moves on or around the construction site, enters or leaves the site, or moves past the site
- (c) includes road vehicles.

Note: this definition has been adopted for the purposes of this code of practice. This includes items such as earthmoving machinery and trucks.

**plant** includes any machinery, equipment or appliance.

**principal contractor** (sometimes referred to as main or head contractor) means the person with the overall responsibility for the construction work.

Note: Depending on the contractual arrangements that are in place, the principal contractor may also be regarded as an employer, self-employed person or a person in control under the Act. Principal contractors have special duties under the Regulation.

**repair** means to restore plant to an operating condition, but does not include routine maintenance, replacement or alteration.

**safe work method statement (SWMS)** means a statement that:

- describes how work is to be carried out
- identifies the work activities assessed as having safety risks
- identifies the safety risks
- describes the control measures that will be applied to the work activities, and includes a description of the equipment used in the work, the standards or codes to be complied with, the qualifications of the personnel doing the work and the training required to do the work.

**self-employed person** means an individual who works for gain or reward otherwise than under a contract of employment or apprenticeship, whether or not employing others.

Note: In some chapters of the Regulation, the term 'employer' includes a self-employed person.

**sub-contractor** (sometimes referred to as contractor) means the person carrying out the work for the principal contractor.

Note: Depending on the contractual arrangements that are in place, the contractor doing the work may be an employer, self-employed person or a person in control within the terms of the Act.

**use plant** means to work from, operate, maintain, inspect or clean plant.



## CHAPTER 2 – CONSULTATION AND RISK MANAGEMENT



The Act and the Regulation require employers to address workplace health and safety through a process of risk management and consultation.

To effectively implement this Code, employers need to be aware of these requirements and have procedures in place to apply them.

Employers are advised to consult the Act and the Regulation as well as the Code of Practice: Occupational Health and Safety Consultation and the Code of Practice: Risk Assessment for details of these requirements and how they can be met. The following information is designed to provide an overview.

### 2.1 Consultation at the workplace



Employers must consult with employees when taking steps to assess and control workplace risks.

In order to consult with employees, employers are required to set up consultation arrangements and develop consultation procedures.

#### 2.1.1 Consultation arrangements

The Act provides three options for consultation arrangements:

Arrangement	Workplace	Requirement
OHS committee	20 or more employees	requested by a majority of employees or direction by WorkCover
OHS representative	any size	at least one employee requests an election or directed by WorkCover
Other agreed arrangements	Any size	agreed to by both the employer and employees (in a small workplace it may be a regular safety meeting with employees)

Before using this code, an employer should ensure that consultation arrangements are in place. An employer may initiate the establishment of an OHS Committee or the election of an OHS Representative if the employees have not made such a request. When the consultation arrangements have been decided, employers are required to record them and advise all existing and new employees.

#### 2.1.2 Consultation procedures

After setting up the consultation arrangements employers need to consider when and how these consultation arrangements need to be applied.

#### 2.1.3 When should consultation be undertaken?

Under the Act, employers have the general duty to consult employees when decisions are being considered that may affect their employees' health and safety. Therefore, employers are required to consult with their OHS committee, OHS representative or other agreed arrangement when such decisions are being considered. Decisions, which could affect health and safety, include:

- planning for new premises or modifying existing premises
- purchasing new plant, equipment or substances
- planning, designing or changing work tasks or jobs
- using contractors in the workplace

- investigating incidents or accidents
- developing emergency procedures
- determining or reviewing workplace amenities
- determining or reviewing consultation arrangements.

Note: Any procedures that are developed to encompass these activities should incorporate consultation.

It may not be practical or reasonable to involve the OHS committee or the OHS representative in every purchase decision or task change. However, the employers and committee or representative should agree on what process is needed to ensure that affected employees are consulted.

#### 2.1.4 How should consultation be undertaken?

When engaged in consultation, the Act requires employers to:

- Share all relevant information with employees – For example, if an employer is going to change a work task, employees need to be told of any risk to health and safety that may arise and what will be done to eliminate or control these risks.
- Give employees reasonable time to express their views – Employees need adequate time to assess the information given to them, obtain relevant safety information and consult with fellow employees to enable them to form their views.
- Value the views of employees and take them into account when the decision is made to resolve the matter – In many cases, agreement will be reached on how the safety issues are to be addressed. When agreement cannot be reached, the employer should explain how the employees' concerns have been addressed.

## 2.2 Risk management at the workplace



Employers and self-employed persons must identify any foreseeable hazards, assess their risks and take action to eliminate or control them.

When addressing health and safety issues, besides consulting employees, employers must adopt the process of risk management. This process requires employers to:

### 2.2.1 Identify hazards

To ensure a safe and healthy workplace, employers must identify all the foreseeable health and safety hazards, which could harm their employees or other persons in the workplace. Hazards may arise from the work process, the equipment and materials in use, the work environment, or other people involved.

### 2.2.2 Assess risks

Once hazards have been identified the risk they pose to health and safety needs to be assessed. Some hazards pose a greater risk than others do, and the frequency and duration of exposure can also affect the risk. Risk assessment involves considering the likelihood and severity of injury or illness being caused by exposure to the risk. Therefore the factors that need to be considered in a risk assessment should include the:

- harm that can be caused by exposure to the hazard
- number of people and the duration and frequency of exposure to the hazard
- capability, skill and experience of people exposed to the hazard.

The risk assessment process provides information on the factors, which contribute to the risk. This information will assist in determining what needs to be done to eliminate or control the hazard.

### **2.2.3 Eliminate or control the risk**

The first responsibility is to investigate how the risk can be eliminated. Before implementing the control measures described in this Code, an employer should investigate possible strategies for eliminating the hazard from the work system.

If it is not reasonably practicable to do so, the risks associated with the hazard must then be controlled. This Code has been developed to provide advice on the most effective control measures.

### **2.2.4 Review risk assessment and control measures**

Control measures should be reviewed on a regular basis. The frequency of their review should be determined by considering the significance of the risks associated with the hazard. However, a review should be undertaken in the following circumstances:

- new information is made available about the risks associated with the hazard
- an accident or incident occurs
- significant changes are proposed to the workplace or work system.

### **2.2.5 When must employers undertake risk management?**

The Regulation requires employers to incorporate the process of risk management into procedures when:

- planning for new premises or modifying existing premises
- purchasing new plant, equipment or substances
- planning, designing or changing work tasks or jobs
- using contractors in the workplace
- investigating incidents or accidents
- developing emergency procedures
- determining or reviewing workplace amenities
- determining or reviewing consultation arrangements.

These are the same activities for which employers are required to consult with employees.

### **2.2.6 Strategies for developing effective risk management procedures**

When risk management activities are undertaken the following strategies should be considered to inform the process:

- visual checks through workplace inspections
- analysing the types of work being performed and the way work is performed
- inspections of plant and equipment
- analysing workplace records on accidents, incidents or 'near misses'
- risk management information provided by suppliers or manufacturers of equipment or, in the case of hazardous substances, Material Safety Data Sheets (MSDS)
- industry codes of practice for particular hazards or work processes
- Australian Standards, which set safety standards for a range of equipment products and materials
- guidance material from Workcover NSW or industry or professional organisations.

Further advice is provided in the Code of Practice: OHS Consultation.

## CHAPTER 3 – MANAGING RISKS ASSOCIATED WITH MOVING PLANT ON CONSTRUCTION SITES

Working near moving plant can be a high-risk activity. Particular care should be taken to ensure the safety of persons working at or near locations where plant is used. Systems of work must ensure that no persons are at risk when working near or with moving plant. Safe work method statements can assist in ensuring the safety of workers where moving plant is in use.



In developing safe work method statements, work activities that have safety risks must be identified, the risks must be assessed, and means to eliminate or control the risks must be adopted.

A sample safe work method statement is included at Appendix 1 to assist in this.

The following hazards have resulted in fatalities in the past:

- plant operated near persons
- plant operated near underground or above-ground electric cables
- reversing plant
- loading or unloading vehicles
- operator driving too fast for the prevailing conditions
- moving plant onto a public road from site
- the operator or maintenance personnel not fully qualified or conversant with the machine
- unauthorised access
- working too close to a shoulder or embankment
- failing to engage low gear before negotiating a steep gradient
- crossing logs, stumps or drains or pushing trees
- parking plant in a dangerous location
- not using adequate packing
- not applying safety locks or pins when conducting maintenance, servicing or adjustments
- working near rail lines carrying rail traffic.

Where work is carried out on or near public roads, vehicle movement procedures should be developed in accordance with AS 1742.3-2002 *Manual of uniform traffic control devices – Traffic control devices for works on roads*. Guidance and information regarding the selection, design and implementation of public road traffic control plans are contained in the Roads and Traffic Authority publication: *Traffic Control at Worksites Manual* (Version 2, 1998).

### 3.1 Common hazards involving powered mobile plant

Powered mobile plant is extremely hazardous when it is operated in situations where:

- there are people or other vehicles sharing the same site or roadway. Pedestrians and bystanders are particularly vulnerable in zones where mobile plant and machinery is operated as the operator's vision may be restricted and plant, which is apparently idle, may move with little warning
- there is uncontrolled entry to the site during and after work

- the plant is poorly maintained. There have been recorded instances where plant has been operated even when it was known that safety critical components, such as brakes and steering, were defective
- people carrying out maintenance are also at risk from passing traffic, from equipment falling while raised, and from heavy components, such as buckets, not being properly supported
- the plant is operated in the vicinity of overhead or underground electrical equipment (risk of electrocution to the operator and others in the vicinity of the plant)
- the base on which the plant operates is unstable (ie. subject to slippage, subsidence or collapse)
- people use the mobile plant in an application for which the plant has not been designed (such as pushing, pulling or towing)
- the load on the plant is unstable or unknown or exceeds the rated capacity of the plant
- hazardous atmospheres are present, particularly in spaces where a flammable or explosive vapour may be present eg. enclosed spaces, trenches
- any other work is carried out near the work area.

### 3.2 Assessing and controlling common risks



After identifying the hazards involved in carrying out the work, the principal contractor, in consultation with the contractor (subcontractor), must assess the health and safety risks. This will help determine what type of safeguards or systems of work will be implemented to ensure the health and safety of all persons on site. This should include eliminating exposure of persons to moving plant.

Assessing the degree of risk means assessing how likely it is that someone will be hurt (including how often people are exposed to the risk) as well as how severely it could hurt someone. Priority for implementation of measures to eliminate or control risks should ensure that matters of the greatest likelihood and severity are addressed first. The measures chosen will depend on the degree of the risk.

Vehicle movement procedures should be developed based on the risk assessment and should be updated each time the conditions on the site change in a way that may affect the health and safety of persons at the workplace. It should also include an assessment of the visibility of plant and traffic from all areas of the work site.

The use of specific measures to eliminate or control identified risks should be done on the basis of the risk assessment. In particular, consider the following:

- isolating vehicles and plant used in or around the site and work area from persons on the site or work area. For example, vehicles or persons may be guided around or past the work area
- using fencing, barriers, barricades, temporary warning or control signs, or a combination of these to secure the area where moving plant is used
- planning the direction that plant moves, so the visibility of operators is not restricted
- using spotters/safety observers to control traffic movement
- training persons carrying out work on or near public roads in accordance with AS 1742.3-2002 *Manual of uniform traffic control devices – Traffic control devices for works on roads* and the 1998 Roads and Traffic Authority Manual: *Traffic control at worksites* and *Manual of Uniform Traffic Control Devices*
- implementing safe working distances

- using audible reversing alarms and/or other technologies or other safe work practices.

Note: reversing alarms may cause confusion where multiple plant is using the same area; other systems of work may be required. They may also be inappropriate where work is to be carried out at night near residential areas

- minimising the amount of moving plant working at one time. Where multiple plant is operated around the work site a competent person should be used to direct the plant:
  - operating in close proximity to each other
  - when reversing
  - where persons are on the ground
  - in other situations as indicated by the risk assessment
- implementing systems of control and notices at all entrances and exits where construction vehicles or plant enter or leave the work area by public roads, to protect and warn all persons approaching or in the vicinity
- identifying designated delivery and turning areas. The movement of delivery vehicles on construction sites often presents a hazard, particularly when reversing, loading and unloading. Procedures should be implemented to warn all workers of the potential hazard. These procedures should include:
  - the requirement for truck drivers to report to a suitably signposted area on the site and/or
  - the requirement for a designated worker to act as an observer to ensure all persons are clear of the reversing vehicle, and
  - a system of communication and warning to persons near the delivery point.

### **3.3 Controls for the safe operation of plant**

Systems of work must ensure that moving plant is operated safely. At a minimum, consideration should be given to the following:

- competence of persons working with plant – only persons who are competent, and where required hold the appropriate certificate of competency in accordance with the Regulation, must be permitted to operate plant or perform any installation or maintenance work on powered mobile plant. A system should be adopted to verify that personnel, who are required to hold a certificate of competency, hold a valid certificate and are authorised to use the plant
- capability of operators – operators should never be permitted to operate plant while they are under the influence of alcohol or any substance or drug, including prescription and non-prescription drugs, which may adversely affect their ability to operate the plant in a safe manner
- vehicle movement procedures for positioning and re-positioning of plant – these procedures should include specific procedures when plant is operated near persons, near underground or above-ground services, moving plant onto a public road from site or reversing plant
- suitability and condition (state of maintenance and repair) of the plant to perform the intended task – this should also include the size and type of equipment required, ensuring its reach, capacity etc. are properly specified and that log books are available
- instruction and information about hazards – all persons who perform work using (or on) powered mobile plant must be adequately instructed in the hazards associated with the plant and carrying out the work on site and in the control measures for safe work. Safe operating procedures should be available covering the use and maintenance of powered mobile plant

- available information – ensure that all available manufacturer’s information on the safe operation of the plant is provided, and that essential operating information is displayed, eg. rated capacity, radius and basic operating instructions are displayed on cranes
- special requirements – any special requirements should be clearly identified and communicated, eg. as the need for the plant to move when fully laden, the requirement for any accessories such as special slings, spreader beams, load stability plates or matting and counterweights
- site conditions – any limitations posed by the worksite (such as floor loadings or ground load limits) should be checked by an engineer prior to selecting the appropriate plant for the task
- appropriate staffing – the number of personnel required to perform the tasks safely.

### 3.3.1 Moving loads and materials



Where cranes are used, persons responsible for slinging the load and/or directing the crane operator in the movement of the load when it is out of the operator’s view must have a Dogging Certificate in accordance with the Regulation.

Systems of work must ensure the safety of persons who are moving loads and materials, as well as persons in the vicinity of materials or loads being moved. At a minimum, consideration should be given to:

- ensuring that there is sufficient room to move materials or loads, and that the area is clear of persons, especially when moving long materials
- the size/mass of the load
- the stability of the load/centre of gravity
- the lifting capacity of the plant
- providing unrestricted vision of driver/operator or observer/spotter
- ensuring that plant moves in a forward direction where practicable
- safely controlling/securing the load, eg. use tag lines, strapping.

### 3.3.2 Stability of plant

To ensure that plant is stable on slopes or uneven ground surfaces consider the:

- plant is suitable for use on the slope or uneven ground
- tyre condition and pressure
- risk involved in raising the load when the crane or load shifting plant is articulated
- load is properly secured before moving
- loads are loaded in a controlled manner, not dropped
- operators are paying full attention during the load shift or whilst operating moving plant
- carrying or lifting equipment is not overloaded. The rated capacity of the machine must be checked before operation and observed
- no persons are in the vicinity during unloading or tipping.

### 3.3.3 Controls for pedestrians near moving plant

When plant is operated in the vicinity of other plant or people, a competent person should be used as a spotter. The operator should observe the following procedures:

- where practicable plant should always move in a forward direction
- ensure no persons are at risk before reversing

- avoid hazards by facing and maintaining attention in the direction of travel
- spotter should always be in the sight of the plant operator
- clear communication systems should be in place.

#### 3.3.4 Safety controls on plant

Safety controls such as guards, warning devices, auto stops etc., are fitted to the plant for protection and must not be removed or made inoperative unless authorised personnel (competent persons) are carrying out repairs and adjustments. In such circumstances, the guards etc, must be reinstated and be fully operational prior to returning the plant to service.

#### 3.3.5 Controls for site security



The Regulation requires most construction sites to be provided with perimeter fencing for site security.

Many accidents on construction sites have involved people (including young children or unauthorised persons) sustaining serious injuries as a result of the lack of adequate control measures in place to prevent uncontrolled entry to the site. Injuries have resulted from plant not being rendered inoperable, people falling into open excavations and people being struck by falling objects. Construction sites also have many slip, trip and fall hazards.

The risk assessment should determine which control measures need to be implemented to ensure the security of the site. The control measures will further eliminate or control reasonably foreseeable risks during work and when the site or plant is left unattended.

The control measures implemented must be appropriate and effective. When determining which control measures to use, consider factors such as the nature of a particular hazard and ease of access by all persons (including pedestrians, children and unauthorised persons).

The following control measures should be considered:

- isolating the hazardous area by fencing, barricades or barriers, handrails and covers, or a combination of these
- backfilling as work progresses
- hazard warning lights, signs, markers or flags
- observers/spotters (may be necessary to provide protection for the public and employees)
- site security measures, including the use of safety observers or security personnel as well as perimeter fencing
- night lighting.

Control measures should be properly implemented and maintained until the work is completed or until there is no longer any risk to persons.

If leaving an item of mobile plant unattended, the following specific measures should be taken:

- select a safe, secure place to park
- park on a flat surface if possible
- park across a slope, where the degree of the slope allows stability, rather than up or down
- neutralise the transmission where applicable and apply any safety locks
- lower all moveable implements to the ground where this does not create an additional hazard such as tripping



- turn off motor
- remove keys from plant to prevent use by unauthorised persons
- implement plant security measures to prevent unauthorised access.

### 3.4 Controls for overhead power lines



The Regulation requires employers to ensure that persons at work, their plant, tools or other equipment and any materials used or arising from the work do not come into close proximity with overhead electrical power lines.

These controls do not apply to work carried out with a safety plan under the *Electricity Supply (Safety and Network Management) Regulation 2002*.

Advice for cranes and excavators is provided in the relevant codes of practice.

When earthmoving machines or other plant, such as tip trucks, are operated near overhead power lines the following control measures should be considered:

#### i. Eliminate the hazard

- eliminate the risk by using an alternative plant which cannot encroach on these distances
- de-energise and isolate the supply and obtain documentary evidence of the continuing isolation of the power supply before proceeding with the work
- set up the plant in a position that eliminates or minimises the risk
- mechanically limit the hoisting, slewing or other movements of the plant
- provide ground barriers to limit the travel of the plant
- use properly maintained non-conducting taglines to control the load.

#### ii. Safe working distances

- Ensure that a thorough examination of the approaches and surroundings of the site is carried out before taking plant to the site or setting it up. This examination is to determine what precautions need to be taken to prevent any part of the plant, any load carried on it and any person on it coming within the following distances to overhead power lines:

Voltage	Distance
Up to 132 000	3 metres
Above 132 000 and up to 330 000	6 metres
More than 330 000	8 metres

In calculating these distances the following should be considered:

- the sag of the cables
- the swing of the load during handling
- the effect of wind forces.
- if there is a possibility that these distances may not be maintained while carrying out the work, the relevant power supply authority should be contacted and a written risk assessment and a safe system of work developed
- observer – a person other than the driver or operator of the plant should be present to observe the position of the plant and to warn the driver or operator of approaching the proximity of the overhead power lines.

### 3.5 Routine inspection



Employers must identify all foreseeable hazards arising from plant, including the transport, installation, erection, commissioning, use, repair, maintenance, dismantling, storage or disposal of plant.

Employers must also assess the risks arising from the identified hazards and take steps to eliminate or control the risks.

Before operating any plant, identify any hazards that may arise and the control measures to be implemented. Consider the following as a minimum:

- appropriate guards, including roll-over protective structures (ROPS) are fitted
- records of testing, maintenance, servicing and repair are kept
- general mechanical/electrical condition of plant, especially any wear or damage that may affect safe operation is monitored
- relevant legislation and Australian Standards are complied with
- specific controls to prevent workers being entangled or trapped between moving parts are implemented.



All plant designed to lift or move must have a clearly legible notice affixed in a conspicuous place that states the lifting capacity of the plant (rated capacity) in appropriate metric units.

If the operation or condition of plant represents an immediate risk to health or safety, operation must cease and the plant must be withdrawn from use until the risk is eliminated, or if this is not practicable, controlled.

Regular planned inspection and adequate maintenance should be carried out to ensure the safety of all plant, whether leased, hired or owned. Inspections, maintenance and cleaning must be done according to procedures recommended by the designer or manufacturer or both, or by a competent person. Inspections must be carried out by a competent person. See definition of competent person.

The following checks should also be carried out:

- daily checks: general condition of the plant should be checked on a daily basis.
- regular checks: the plant should be inspected and maintained by a competent person on a regular basis.

### 3.6 Repairs, alterations, testing and maintenance



Repair, inspection, and testing must only be carried out by a competent person.

Repairs and testing must be carried out by a competent person. For specific information about electrical testing, refer to the WorkCover NSW *Code of Practice: Electrical Practices for Construction Work*.

Persons carrying out maintenance are also at risk from passing traffic and from the equipment. Control measures must be implemented to ensure their safety.

### 3.7 Reporting defects

Any defects to equipment should be reported immediately to the person responsible for maintaining such plant. Where a defect is likely to pose an immediate risk to health and safety the equipment or plant should be made inoperable and secured to prevent use until the defect is repaired.

Operators are a good source of information about defects in plant because of their day-to-day experience, and work procedures should include a requirement that they report such defects.

### 3.8 Log books and inspection check sheets



Records must be kept for some types of plant that are covered by the scope of this code of practice. Refer to clauses 131 and 143 of the Regulation.

Owners of plant and associated equipment should keep log books and inspection check sheets containing full service and repair history of their equipment. These records should be maintained so as to include any hazards relating to the plant in its normal use, kept current, and retained for the life of the plant. These should be available upon request by employees or health and safety committee representatives. If the plant is sold, the records should form part of the material forwarded upon sale.

### 3.9 Protective structures



The Regulation requires most tractors to be fitted with roll-over protective structures (ROPS) and operator restraining devices or seat belts, and most earth-moving machinery to be fitted with protective structures.

Tractors designed to have a mass of 560 kg or more, but less than 15,000 kg must be fitted with a protective structure conforming to AS 1636-1996 *Tractors-Roll-over protective structures — Criteria and tests*.

Earth moving machinery (designed to have a mass of 700-100,000 kg) must be fitted with a protective structure conforming to AS 2294-1997 *Earth-moving machinery Protective structures*.

Machines fitted with ROPS must have suitable operator restraining devices or seat belts fitted which comply with AS 2664-1983 *Earthmoving machinery – Seat belts and seat belt anchorages*.

#### 3.9.1 Exceptions

There are some exceptions to the rules about ROPS. To apply these exceptions, you need to assess the risks from falling objects or roll-overs and establish alternative control measures.

The following types of earth-moving machinery are excepted:

- road rollers or compactors with a mass less than 2,700 kg
- power shovels
- draglines
- paving machines
- equipment designed to be operated by a person in a standing position
- hydraulic excavators.

However, the following standards may need to be applied:

- AS 4988-2002 *Earth-moving machinery – Hydraulic excavators – Laboratory tests and performance requirements for operator protective guards*.
- AS 4987-2002 *Earth-moving machinery –Tip-over protection structure (TOPS) for compact excavators – Laboratory tests and performance requirements*.

## CHAPTER 4 – ADDITIONAL CONSIDERATIONS FOR ACHIEVING SAFE WORKPLACES

### 4.1 Controls for noise



Employers must ensure that appropriate control measures are taken if a person is exposed to noise levels that exceed an 8-hour noise level equivalent of 85 dB(A), or peak at more than 140 dB(C).

Employers, principal contractors and contractors must ensure compliance with the noise management provisions of the Regulation, so that noise levels from machinery or equipment do not become a risk to hearing or health. The *Code of Practice for Noise Management and Protection of Hearing at Work* provides practical guidance on managing noise levels in the workplace.

The risk of causing permanent hearing damage is related to both loudness of the noise and the length of exposure. For example, two minutes working in noise levels of 114 dB(A) may have the same effect as eight hours working in 85 dB(A).



A noise assessment should be conducted by an appropriately qualified person to determine the noise exposure levels of workers. Where the noise is in excess of the noise exposure limits, engineering controls should be implemented. Where this cannot be achieved or work cannot be organised to minimise exposure, appropriate hearing protection equipment, which complies with AS 1270:2002 – *Acoustics – Hearing protectors*, should be provided to all persons in the vicinity of the noise. The contractor should also ensure compliance with Department of Environment and Conservation (formerly EPA) requirements in relation to noise.

### 4.2 Controls for hazardous substances

Employers and contractors must comply with provisions for hazardous substances in the Regulation. In general, employers must obtain a Material Safety Data Sheet (MSDS) for each hazardous substance supplied to their workplace. They must ensure containers holding hazardous substances are appropriately labelled. Health surveillance may be required for employees who may be put at risk through exposure to certain hazardous substances. Specific requirements are outlined in the Regulation, primarily in Chapters 4, 6, 7 and 8.

A register of all hazardous substances at a place of work must be kept and maintained by all employers including subcontractors. This is to be coordinated by principal contractors where the cost of the construction work is over \$250,000. The register must be readily accessible to all persons working at the place of work, and in particular, to employees who may be exposed to hazardous substances while at work.

### 4.3 Controls for atmospheric contaminants, harmful gases or fumes



Employers must ensure that no person at a place of work is exposed to an airborne concentration of an atmospheric contaminant that exceeds or breeches a standard referred to in, or determined under the Regulation.

Employers must implement a suitable system of work to ensure a safe, breathable atmosphere and effective ventilation, and must protect persons against the effects of insufficient oxygen, toxic fumes or substances and explosive gases. Refer to the Regulation for specific standards for atmospheric contaminants.

#### 4.4 Manual handling



The Regulation requires employers to design all objects, tasks and work environments so that manual handling risks are eliminated as far as reasonably practicable, or controlled.

An employer must assess the risks involved in carrying out manual handling tasks and implement control measures. This must be done in consultation with employees who are required to carry out the work.

This should be included in the safe work method statement that describes the sequence of work tasks and activities and how the work is to be done safely.

Where the nature of the work activities or manual handling tasks are constantly changing, the risk assessment and control process and training should be conducted on an ongoing basis. Guidance on identifying, assessing and controlling manual handling risks can be found in the *National Code of Practice for Manual Handling* [NOHSC: 2005 (1990)].

#### 4.5 Supervision, training and instruction



The Act requires employers to provide such information, instruction, training and supervision as may be necessary to ensure the health, safety and welfare of their employees while at work.

Training is one of the most important ways to ensure workers stay competent, productive and safe.

The Regulation requires employers to ensure that employees receive specific types of training. For example, employers are required to provide OHS induction training for their employees. Principal contractors must not allow anyone to work on a construction site unless the person has completed appropriate training. Employers must also ensure that members of OHS committees and OHS representatives receive OHS consultation training.

#### 4.6 Personal Protective Equipment (PPE)



The Regulation requires that if measures taken by an employer to control a risk include the use of personal protective equipment the employer must provide each person at risk with such equipment.

The use of PPE to control hazards and risks is the least effective measure and is lowest on the hierarchy of control measures listed in Chapter 3 of the Regulation. Control measures should be selected from the highest level possible and be adopted where practicable. The measures at the lower levels are less effective and they require more frequent reviews of the hazards and systems of work. They should only be used when other control measures are impracticable or when, after implementing other controls, a residual risk remains.

## 4.7 Preparing safe work method statements



The Regulation requires Safe Work Method Statements where the cost of the work undertaken exceeds \$250,000 or for high-risk work (see definitions section). Most work with moving plant is defined as high-risk work.

Even when not legally required, safe work method statements (SWMS) are a good way of demonstrating your risk control measures.



In developing safe work method statements, work activities that have safety risks must be identified, the risks must be assessed, and means to eliminate or control the risks must be adopted.

Principal contractors and sub-contractors (contractors) are required to submit SWMS. Many contractors submit 'Technical Procedures' for carrying out construction work processes as SWMS. These documents are often not a SWMS as required for the purpose of assessing risks. A SWMS must be submitted to the main contractor prior to commencing on-site work.



A SWMS requires the work method to be presented in a logical sequence. The hazards associated with each process are to be identified, and the measures for controlling these hazards specified.

Break down each job into a series of basic job steps, to identify the hazards and potential accidents in each part of the job. The description of the process should not be so broad that it leaves out activities with the potential to cause accidents and prevents proper identification of the hazards. It is not necessary to provide fine detail of the tasks.

A 'hazard', may be either intrinsic or inherent, existing or potential, an unsafe condition and/or an unsafe act, eg. a dangerous location, an unsafe (hazardous) work process, or a potentially hazardous task as a stage of the construction work process.

Where risks cannot be eliminated, the 'hierarchy of control measures' must be applied. Personal Protective Equipment is the least preferred approach. In some situations a combination of control measures may need to be used. References to legislation, codes of practice or Australian Standards is not an acceptable alternative for the elimination or control of risks; the actual procedure or control must be documented.

Special Work Processes involving inherent hazards that require special safety equipment must be referred to as the Safe Work Practice to be incorporated in the Standard Work Procedure – eg. *'When grinding or disc cutting, safety spectacles or goggles **and** a full face shield shall be worn'*.

The SWMS should nominate the occupations and number of employees required to safely perform the task(s). Safety and/or skills training provided, or required, prior to commencing work is to be identified, together with any special qualifications, permits, licenses, certificates of competency the employees require under Regulation. Copies of such documents and training records should be provided with the SWMS.

The SWMS must specify the type/capacity and description of the plant that is to be used. Employees of the workforce should be involved/consulted in the development of any SWMS.

The Site Safety Induction should ensure that all persons involved in carrying out the work understand the SWMS.

APPENDIX 1 – EXAMPLE OF A SAFE WORK METHOD STATEMENT

Work Method Statement			Signed off:	
Contractor:			Date:	No.:
Project:			Accepted:	Yes/No
Job:			Area:	
Procedure (in steps):		Possible Hazards:	Safety Risks:	Control Measures:
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				

Work Method Statement			
Personnel Qualifications and Experience:	Personnel Involved in Activity Consulted:	Training Required to Complete Work:	
Description of Equipment to be Used:	Legislation / Codes of Practice / Standards:		



## APPENDIX 2 – WORKERS COMPENSATION INSURANCE



Anyone who employs workers, and in some cases engages contractors, must maintain a workers compensation insurance policy. Penalties apply for failing to have a current policy in place.

All employers have a legal liability to pay workers compensation to workers who are injured in the course of their work, and employers are required by law to hold a workers compensation insurance policy from a licensed WorkCover insurer to cover that liability.

For workers compensation insurance purposes the *Workplace Injury Management and Workers Compensation Act 1998* defines a 'worker' to be:

Any person who works under a contract of service or a training contract with an employer, whether by way of manual labour, clerical work or otherwise, and whether the contract is expressed or implied, or is oral or in writing.

In addition, the *Workplace Injury Management and Workers Compensation Act 1998* deems certain other persons to be workers for workers compensation purposes eg. some types of contractors.

For assistance in clarifying your obligation contact your insurer or the WorkCover Assistance Service on **13 10 50**.

## APPENDIX 3 – USEFUL PUBLICATIONS

### WORKCOVER NSW APPROVED INDUSTRY CODES OF PRACTICE

- *Code of Practice: Amenities for construction work* (Catalogue No. 317)
- *Code of Practice: Electrical practices for construction work* (Catalogue No. 301)
- *Code of Practice: Noise management and protection of hearing at work* (Catalogue No.150)
- *Code of Practice: OHS consultation* (Catalogue No. 311)
- *Code of Practice: OHS induction training for construction work* (Catalogue No. 302)
- *Code of Practice: Overhead protective structures* (Catalogue No. 17)
- *Code of Practice: Tunnels under construction* (Catalogue No. 10)
- *Code of Practice: Work in hot or cold environments* (Catalogue No. 309)
- *Code of Practice: Excavation* (Catalogue No. 312)

Note: Some of the Australian Standards listed below are also approved industry codes of practice.

### GUIDES

- *Guide for front end loader and excavator drivers* (Catalogue No. 3)
- *Use of personal protective equipment at work – a guidance note*
- *Skin cancer and outdoor workers – a guide for workers – the choice is yours* (Catalogue No. 117)
- *Skin cancer and outdoor workers – a guide for employers* (Catalogue No. 116)
- *Dust in the workplace* (Catalogue No. 351)
- *Hazpak! Making your workplace safer* (Catalogue No. 228)
- *Plant Guide 2001* (Catalogue No. 233)
- *High visibility clothing OHS Safety Guide* (Web only)

Standards and codes offer practical guidance on health and safety for construction work. However, these are subject to change from time to time. For further information contact the WorkCover Assistance Service on: **13 10 50**.

For information about the wide range of other codes of practice, certification guides and publications on OHS, rehabilitation and workers compensation contact the Workcover Publications Hotline: 1300 799 003.

Guidance and information regarding the selection, design and implementation of public road traffic control plans are contained in the Roads and Traffic Authority publication: *Traffic control at worksites manual* (Version 2, 1998).

## AUSTRALIAN STANDARDS

Standards may be obtained directly from Standards Australia ([www.standards.com.au](http://www.standards.com.au))

AS/NZS 1576.1:1995	Scaffolding – General requirements
AS 1657:1992	Fixed platforms, walkways, stairways and ladders – Design, construction and installation (an approved industry code of practice)
AS/NZS 1800:1998	Occupational protective helmets – Selection, care and use
AS/NZS 1801:1997	Occupational protective helmets
AS/NZS 1336:1997	Recommended practices for occupational eye protection
AS/NZS 1337:1992	Eye protectors for industrial applications
AS/NZS 1338.2:1992	Filters for eye protectors – Filters for protection against ultraviolet radiation
AS/NZS 1338.3:1992	Filters for eye protectors – Filters for protection against infra-red radiation
AS 1269.3:1998	Occupational noise management – Hearing protector program
AS 1270:2002	Acoustics – Hearing protectors (an approved industry code of practice)
AS/NZS 1715:1994	Selection, use and maintenance of respiratory protective devices
AS/NZS 1716:2003	Respiratory protective devices (an approved industry code of practice)
AS 1891.4:2000	Industrial fall-arrest systems and devices – Selection, use and maintenance (an approved industry code of practice)
AS/NZS 1906.4:1997	Retro reflective materials and devices for road traffic control purposes – High visibility materials for safety garment
AS/NZS 4602:1999	High visibility safety garments
AS/NZS 2161.2:1998	Occupational protective gloves – General requirements
AS/NZS 2161.3:1998	Occupational protective gloves – Protection against mechanical risks
AS/NZS 2161.5:1998	Occupational protective gloves – Protection against cold
AS 2225:1994	Insulating gloves for electrical purposes
AS 229401:1997	Earth-moving Machinery – Protective structures – General
AS 2550.1-2002	Cranes, hoists and winches – Safe use Part 1: General requirements (an approved industry code of practice)
AS 2664-1983	Earthmoving machinery – Seat belts and seat belt anchorages
NZS/AS 2865:2001	Safe working in a confined space
AS 2359.2-1985	Industrial trucks known as the SAA Industrial Truck Code-Operation. (an approved industry code of practice) (this covers forklift use)

## Traffic Control Standards

Australian Standards 1742.3-2002 *Traffic control devices for works on roads* contains specific guidance relating to work near or on public roads and traffic.

The following list is provided for completeness.

AS 1742 (Set)	Manual of uniform traffic control devices
AS 1742.1-2003	Manual of uniform traffic control devices – General introduction and index of signs
AS 1742.2-1994	Manual of uniform traffic control devices – Traffic control devices for general use

AS 1742.3-2002	Manual of uniform traffic control devices – Traffic control devices for works on roads
AS 1742.4-1999	Manual of uniform traffic control devices – Speed controls
AS 1742.5-1997	Manual of uniform traffic control devices – Street name and community facility name signs
AS 1742.6-1990	Manual of uniform traffic control devices – Service and tourist signs for motorists
AS 1742.7-1993	Manual of uniform traffic control devices – Railway crossings
AS 1742.8-1990	Manual of uniform traffic control devices – Freeways
AS 1742.9-2000	Manual of uniform traffic control devices – Bicycle facilities
AS 1742.10-1990	Manual of uniform traffic control devices – Pedestrian control and protection
AS 1742.11-1999	Manual of uniform traffic control devices – Parking controls
AS 1742.12-2000	Manual of uniform traffic control devices – Bus, transit, tram and truck lanes
AS 1742.13-1991	Manual of uniform traffic control devices – Local area traffic management
AS 1742.14-1996	Manual of uniform traffic control devices – Traffic signals

## FIELD GUIDES

SAA HB 81.1-2003	Field guide for traffic control at works on roads – Short-term urban works, daytime only
SAA HB 81.2-2003	Field guide for traffic control at works on roads – Short-term rural works, daytime only
SAA HB 81.3-1997	Field guide for traffic control at works on roads – Mobile works
SAA HB 81.4-1998	Field guide for traffic control at works on roads – Short-term night works
SAA HB 81.5-1998	Field guide for traffic control at works on roads – Works on unsealed roads
SAA HB 81.6-1998	Field guide for traffic control at works on roads – Bituminous surfacing works
SAA HB 81.7-2000	Field guide for traffic control at works on roads – Short-term works on freeways
SAA HB 81.8-2000	Field guide for traffic control at works on roads – Long-term partial closures and detours on urban roads
SAA HB 81.9-2000	Field guide for traffic control at works on roads – Long-term partial closures and detours on rural roads







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