

# **COURSE IN OWNER BUILDER COMPLIANCE**

## **MODULE 3**

### **OCCUPATIONAL HEALTH AND SAFETY**

**NTIS 91509NSW**



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# LEGISLATIVE REQUIREMENTS

## OCCUPATIONAL HEALTH & SAFETY

WorkCover has nominated five key areas of risk that have caused major injury or fatalities on a construction site.

1. Falls
2. Moving Plant
3. Electricity
4. Structural Collapse (incorporating Formwork)
5. Asbestos

The key areas are not only restricted to commercial construction by a builder or major building company – **these key areas** are widespread on **Owner-Builder sites**. Statistics are available from WorkCover and some real life case studies relating to accidents and fatalities on Owner-Builder sites will be provided in this section.

**Don't** shrug off these real life statistics and think it will not happen to you.

### IT CAN and DOES!!

The law relates to the **Principal Contractor** – as the Owner-Builder – **That is you!**

- If you enter into any form of contract with a Subcontractor to complete any construction work on your property, you become the **Principal Contractor**
- If you employ a person on wages in any way – you become the **Employer**
- If someone comes and works on your project free of charge and they get hurt – **You are responsible!**

The Owner-Builder **is** required to provide and maintain a safe workplace which includes, a working environment that is safe and without risk to health.

There is a lot of information on the following pages.

**Do not think** just because your job is so small that it will not relate to you.

**Do not think** just because you do not classify yourself as the *Builder* none of this applies to you.

**It does** and you are responsible if *someone* – *anyone* gets hurt while they are on your construction site.

## RELEVANT ACTS ASSOCIATED WITH SAFETY

As an Owner-Builder you have the same roles and responsibilities as the Principal Contractor under the various Acts and Regulations relating to safety:

The following is a list of Acts you should make yourself aware of:

- Work Health and Safety Act 2011
- Workers Compensation Act 1987
- Workplace Injury Management and Workers Compensation Act 1998
- Dangerous Goods Act 1975
- Workers Compensation (Bush Fire, Emergency and Rescue Services) Act 1987
- Workers Compensation (Dust Diseases) Act 1942
- Sporting Injuries Insurance Act 1978
- Rural Workers Accommodation Act 1969
- Regulations and codes of practice under these Acts
- Occupational Health and Safety Amendment (Workplace Deaths) Act 2005.

The objectives of the **Occupational Health and Safety Act 2000** are:

- a. to secure and promote the health, safety and welfare of people at work,
- b. to protect people at a place of work against risks to health or safety arising out of the activities of persons at work,
- c. to promote a safe and healthy work environment for people at work that protects them from injury and illness and that is adapted to their physiological and psychological needs,
- d. to provide for consultation and co-operation between employers and employees in achieving the objects of this Act,
- e. to ensure that risks to health and safety at a place of work are identified, assessed and eliminated or controlled,
- f. to develop and promote community awareness of occupational health and safety issues,
- g. to provide a legislative framework that allows for progressively higher standards of occupational health and safety to take account of changes in technology and work practices,
- h. to deal with the impact of particular classes or types of dangerous goods and plant at, and beyond, places of work.

## PENALTIES

There are heavy penalties if you contravenes (break, breach, disobey) the Act.

A person who contravenes, whether by act or omission, is guilty of an offence and is liable to the following maximum penalty:

- a. in the case of a corporation (being a previous offender) – 7,500 penalty units, or
- b. in the case of a corporation (not being a previous offender) – 5,000 penalty units, or
- c. in the case of an individual (being a previous offender) – 750 penalty units or imprisonment for two years, or both, or
- d. in the case of an individual (not being a previous offender) – 500 penalty units.

**Note:** Section 17 of the Crimes (Sentencing Procedure) Act 1999 provides, at the enactment of this Act, that the value of a **penalty unit is \$110**. Accordingly, the above maximum penalties are as follows:

- a. in the case of a corporation (being a previous offender) – \$825,000, or
- b. in the case of a corporation (not being a previous offender) – \$550,000, or
- c. in the case of an individual (being a previous offender) – \$82,500 or imprisonment for two years, or both, or
- d. in the case of an individual (not being a previous offender) – \$55,000.

## WORKPLACE INJURY MANAGEMENT AND WORKERS COMPENSATION ACT IN SUMMARY

### The aims of the Act are:

- To provide for the effective and proactive management of injuries
- To compensate workers who suffer injuries arising from their employment
- To provide for the necessary medical and vocational rehabilitation of injured workers and promote their return to work as soon as possible.

### Injuries covered by the Act are:

- Injuries arising 'in or out of' the course of employment
- Death, injury, illness sustained at work
- Aggravation, acceleration, exacerbation and deterioration by work, of pre-existing injuries
- Work related journeys, and
- Journeys to and from work.

## How to Claim Workers Compensation

- The worker must report the illness or injury as soon as possible
- See a Doctor
- Obtain and fill out a claim form
- The worker must fill out the worker's part of the WorkCover Medical Certificate (and the doctor fills out theirs)
- Give the form and certificate to the employer.

## Workplace Emergency

An emergency is...

an actual or imminent occurrence (such as an accident, earthquake, explosion, fire, flood, storm) which:

- a. endangers, or threatens to endanger the health or safety of persons,
- or**
- b. destroys or damages, or threatens to destroy or damage property.

## Emergency Response Plan

Preparing for emergencies includes:

- Listing the things that could happen
- Deciding on priority procedures/tasks
- Setting up training and drills
- Providing and pacing emergency equipment
- Contact with emergency services; and
- Reviewing the planning regularly.

## Emergency: Reporting Externally (Example only)

1. Make immediate area safe.
2. Raise the alarm/call for first aid.
3. Remain upwind (if outdoors).
4. Move outside (if inside).
5. Contact emergency services.
6. Give your name, location.
7. Identify type of occurrence.
8. If hazardous substance identify DG code and UN number.



## REGULATIONS RELATING TO SAFETY IN NEW SOUTH WALES

A number of regulations operate under the **Occupational Health and Safety Act** and associated legislation. Regulations give details on how certain sections of the Act are to be implemented.

- *Occupational Health and Safety Regulation 2001*
- *Workers Compensation (Workplace injury management) Regulation 2002*
- *Workers Compensation Regulation 2003*
- *Occupational Health and Safety (Committees in Workplaces) Regulation 1984*
- *Occupational Health and Safety (Asbestos Dust) Regulation 1984*
- *Occupational Health and Safety (Inspectors' Notices) Regulation 1988*
- *Occupational Health and Safety (Asbestos Removal Contractors) Regulation 1988*
- *Occupational Health and Safety (Pest Control) Regulation 1988*
- *Occupational Health and Safety (First Aid) Regulation 1989*
- *Occupational Health and Safety (Confined Spaces) Regulation 1990*
- *Occupational Health and Safety (Notification of Accidents) Regulation 1990*
- *Occupational Health and Safety (Floors, Passageways and Stairs) Regulation 1990*
- *Occupational Health and Safety (Manual Handling) Regulation 1990*
- *Occupational Health and Safety (Administration) Regulation 1992*
- *Occupational Health and Safety (Synthetic Mineral Fibres) Regulation 1993*
- *Occupational Health and Safety (Fumigation's and Pesticides) Regulation*
- *Occupational Health and Safety (Carcinogenic Substances (Transitional) Regulation.*

Some Regulations made under the **Factories, Shops and Industries Act 1962** relate to building work – for example:

- *Abrasive Blasting Regulations*
- *Boiler and Pressure Vessel Regulations*
- *Factories (Health and Safety – Electroplating) Regulations*
- *Factories (Health and safety – Circular Saws) Regulations*
- *Explosive – Powered Tool Regulations*
- *Lead Regulations*
- *Timber Industry (Health and Safety) Regulation*
- *Welding Regulations.*

## WHO IS IN CONTROL?

A person with control of a construction project or control of construction work is responsible for the health and safety of **any** person who may be affected by the construction work – that person is considered to be the *Principal Contractor* – **Remember** as the Owner-Builder you are considered to be the Principal Contractor .

- a. To the extent that the person has control over the construction work; and
- b. To the extent that the health and safety of the affected person is affected by the construction work.

## Are 'owner builders' covered by the Regulation?

As stated above the Regulation requires that controllers of premises must ensure that their premises are safe and without risks to health.

The regulations that apply to a *controller* of premises do not apply to premises only occupied as a private dwelling. **However**, if the 'Owner-Builder' **employs or engages** any persons, they then become an *employer or principal contractor*, and are subject to the provisions of the Act and Regulation.

## An worker is more likely to:

- Be subject to direction from the employer as to the work to be performed and the time and manner in which it is performed
- Be required to actually carry out the work
- Be paid on a time basis and have PAYE deductions
- Have tools and materials supplied by the employer
- Work exclusively for a single employer.

## A contractor is more likely to:

- Be engaged to carry out a particular task, using their own skill and judgement
- Employ others, delegate or sub-let work to another
- Be paid on the basis of a job quotation
- Supply their own tools and materials
- Carry on an independent business in their own name or under a business name.
- Be affected by PAYG tax arrangements.

'Owner-Builders' need to ensure that when **engaging** sub-contractors or persons to work on premises that they:

- Identify any hazards that may be encountered
- Work out ways hazards can be controlled in consultation with Subcontractors
- Develop safe work procedures
- Make sure that operators of equipment are appropriately licensed
- Follow the relevant Codes of Practice.

## Duty of Care

Duty of care requires everything '*reasonably practicable*' to be done to protect the health and safety of others at the workplace. This duty is placed on:

- All Contractors/Principal Contractors/Employers
- Their employees/workers, and
- Any others who have an influence on the hazards in a workplace.

These are representative of the Owner-Builders specific duties in all Australian States and Territories.

Specific rights and duties flow **from** the duty of care. These include:

- Provision and maintenance of safe plant and systems of work
- Safe systems of work in connection with plant and substances
- A safe working environment and adequate welfare facilities
- Information and instruction on workplace hazards and supervision of all workers in safe work
- Monitoring the health of their workers and related record keeping
- Employment/Engagement of qualified persons to provide health and safety advice
- Nomination of a senior representative, and
- Monitoring conditions at any workplace under their control and management.

## Extracts from the National Standard for Construction work (NOHSC:1016 (2005))

### CLAUSE 7.8 RESPONSIBILITIES OF PERSONS WITH CONTROL

A person with control of a construction project or control of construction work is responsible for the health and safety of any person who may be affected by the construction work:

- To the extent that the person has control over the construction work; and
- To the extent that the health and safety of the affected person is affected by the construction work.

**Note:** the '*person with control of a construction project*' is usually a person appointed to manage the project and may be known as the:

- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| • Principal Contractor/Owner-Builder | • Builder                             |
| • Head Contractor                    | • Employer, or                        |
| • Main Contractor                    | • Person with management and control. |

Depending on the terminology used in different areas.

Examples of '*persons with control of construction work*' include:

- |                                       |                          |
|---------------------------------------|--------------------------|
| • Principal Contractors/Owner-Builder | • Employers; and         |
| • Main Contractors                    | • Self Employed persons. |
| • Sub Contractors                     |                          |

### CLAUSE 7.28 JOINT RESPONSIBILITY

If more than one person has responsibility for a matter under clauses 7.1 to 7.42 of the national standard:

- a. Each of these persons retains responsibility of the matter
- b. Each person must fulfil their responsibility to the extent that they control the construction project or the construction work
- c. All of them must discharge their responsibilities in a co-ordinated manner; and
- d. Each person must cooperate with all other parties who have a responsibility concerning occupational health and safety.

## AUSTRALIAN SAFETY AND COMPENSATION COUNCIL (ASCC)

The ASCC lead and coordinate Australia's national effort to:

- Promote best practice in occupational health and safety (OHS)
- Improve workers' compensation arrangements
- Improve rehabilitation and return to work of injured workers.

Their role is to:

- Develop national occupational health and safety (OHS) and workers' compensation policy
- Encourage policy discussion and research.

National Policy:

- OHS strategy
- OHS standards and codes of practice
- Workers' compensation and return to work.

### Who is ASCC?

The ASCC is a partnership of governments, employers and employees.

The ASCC provides policy advice to the Workplace Relations Ministers' Council on national OHS and workers' compensation arrangements in order to achieve national regulatory frameworks.

The ASCC:

Leads and coordinates national efforts to:

- Prevent workplace death, injury and disease
- Improve workers' compensation arrangements, and the rehabilitation and return to work of injured workers
- Provides a national forum by which representatives of Commonwealth, State and Territory governments, employers and employees consult and participate in the development of policies relating to OHS and workers' compensation matters, and
- Promotes national consistency.

National standards and codes of practice declared by the ASCC are advisory only, and require separate legislative action by Commonwealth, State and Territory governments to implement the standards and codes within their jurisdiction.

The work of the ASCC is supported by the Office of the ASCC within the Commonwealth Department of Education, Employment and Workplace Relations.

The ASCC is not a regulatory authority and as such it does not make or enforce laws. This is because OHS laws in Australia operate in each of the state, territory and commonwealth jurisdictions and are administered by jurisdictions' OHS authorities.

The ASCC is a council made up of government, employer and employee representatives.

## THE NEW NATIONAL OHS FRAMEWORK

### Establishing a new body to replace the ASCC

The Australian Government has committed to establishing a new and independent national occupational health and safety (OHS) and workers' compensation body to replace the ASCC. The Government has stated in policy documents that this new independent body would be an inclusive and reform-focused agency.

At the Workplace Relations Ministers' Council (WRMC) meeting on 23 May 2008, Ministers agreed to replace the ASCC with a body that will have tripartite representation and will be jointly funded by the Commonwealth, states and territories. Legislation to establish the body will be introduced into Federal Parliament to enable it to commence operations as soon as possible.

The Council of Australian Governments signed an Intergovernmental Agreement to end the fragmented and inconsistent approach to OHS on 3 July 2008. This will see the implementation of uniform legislation, complemented by consistent compliance and enforcement.

### Workplace Relations Ministers' Council 12 February 2009

The Workplace Relations Ministers' Council (WRMC) met on Thursday 12 February 2009 to consider OHS issues.

The WRMC agreed that **Safe Work Australia** would be established as an Executive Agency prescribed under the Financial Management and Accountability Act 1997. Executive Agencies are created by the Governor-General on advice of the Prime Minister (refer Public Service Act 1999).

### National OHS Review

The first report of the National Review into Model OHS Laws makes recommendations on the priority areas of duties of care and the nature and structure of offences, including defences.

The second and final report covers other matters relevant to a model OHS Act, such as definitions, workplace-based consultation, enforcement and compliance, permits and licensing arrangements, and the role of OHS regulatory agencies.

## National standards codes of practice and related guidance

One of the ASCC's key roles is to help achieve nationally consistent regulation by producing national standards as a model for laws in the states and territories.

The ASCC has the power to declare National OHS Standards and Codes of Practice. These documents are the basis for a nationally consistent OHS regulatory framework. The standards and codes of practice are not legally enforceable unless State and Territory governments adopt them as regulations under their principal OHS Acts.

Guidance notes provide further explanation on how to comply with the National Standard.

# NATIONAL STANDARD FOR CONSTRUCTION WORK (NOHSC: 1016 (2005))

## Preface

Construction is one of Australia's highest risk industries.

In 2002–03, the construction industry employed approximately 5% of the Australian workforce but accounted for 9% of the accepted workers' compensation claims involving one or more weeks off work that were lodged in that year. On average, 49 building and construction workers have been killed at work each year in Australia since 1997–1998. People working in the construction industry are more than twice as likely to be killed at work as the average worker in all Australian industries. In 2002–03, for example, workers compensation records show there were 9.2 fatalities for 100,000 employees in the construction industry, compared with the national average of 3.1 fatalities per 100,000 employees.

This National Standard for Construction Work (HOHSC: 1016 (2005)) aims to protect persons from the hazards associated with construction work. It assigns responsibilities to individuals to identify these hazards and either eliminate them or, where this is not reasonably practicable, minimise the risks they pose.

The genesis for this standard was the NOHSC's recognition in October 2002 that the construction industry warranted a high priority in Australia's efforts to reduce workplace death and injury. This was followed in March 2003 by the Final Report of the Royal Commission into the Building and Construction Industry, which recommended that uniform national occupational health and safety (OHS) construction standards be developed under the National OHS Strategy. In November 2003, the Workplace Relations Ministers' Council agreed that the NOHSC should undertake the recommended work to develop national material for the construction industry.

To assist it in this work, the NOHSC established a Construction Reference Group, with representatives from each state and territory, the Commonwealth, the Housing Industry Association, the Master builders' Association, the Construction, Forestry, Mining and Energy Union and the NOHSC Office conducted focus groups around the country to inform affected parties and elicit comment.

Along with associated national codes of practice, including codes for the prevention of falls in construction work, tilt-up and precast concrete construction work, and occupational health and safety induction training for construction work, the NOHSC National Standard for Construction Work draws together best practice from Australian state and territory OHS authorities into a framework that will promote, for the first time, a nationally uniform approach to the management of OHS in the building and construction industry.

This National Standard for Construction Work was declared by the NOHSC, in accordance with Section 38 of the *National Occupational Health and Safety Commission Act 1985* (Cth), on 27 April 2005.

Compliance with the provisions of this standard will not necessarily mean that a person has fulfilled their obligations under all relevant occupational health and safety acts and regulations. Persons should contact their state, territory or Australian Government health and safety authority for information on those obligations.

## Scope and Application of the Standard

The national standard applies to:

- Clients and designers of construction projects
- Persons with control of a construction project
- Persons with control of construction work
- Persons engaged to undertake construction work, and
- Construction sites.

But does not apply to owners and or occupiers of dwelling personally performing construction work on those dwellings.

**Note:** This national standard sets out requirements for issues that are relevant to construction work.

Hazards that are present in construction work and covered by other NOHSC standards include:

- Manual handling
- Plant
- Occupational noise
- Hazardous substances
- Dangerous goods

This national standard does not set out all the requirements that may need to be satisfied when undertaking construction work. It concentrates instead on the management of those hazards and risks that have a significant construction-specific component.

Check with the OHS authority in the jurisdiction in which you are undertaking construction work for guidance on what is 'reasonably practicable'.

## Objectives and Principles

The objective of this national standard is to protect persons from the hazards associated with construction work by:

- Requiring specified classes of persons to ensure these hazards are identified, the risks they pose assessed, and either the risks eliminated or, where this is not reasonably practicable, the risks are minimised, and
- Requiring the provision of information, consultation, planning, documentation, training and other measures to ensure occupational health and safety.

This national standard does not supersede obligations under relevant legislation of the states and territories and the Australian Government.

## DOCUMENTATION

This is not an exhaustive list by any means. The number and type of documents will vary in accordance with the size and type of project being constructed.

If a building project is \$250,000 or more there **must** be an OH&S Management Plan, Traffic Control Plans etc in place.

It is necessary to document everything relating to maintaining a working environment that is safe and without risk to health.

Some of the documents you will require are:

- Safe Work Method Statements for each trade on site
- Safe Work Method Statements relating to plant and equipment
- First Aid Injury Record
- Safety Checklists relating to:
  - Slips, Trips and Falls
  - Emergency Procedures
  - Electrical
  - Chemicals
  - Machinery and Equipment
  - Manual Handling
- Material Safety Data Sheets (MSDS)
- PPE Register
- Hazardous Substance Register.



## DAILY SITE PROCEDURES RELATING TO SAFETY

The following is a guide only and will vary depending on the size and type of project. Discuss these procedures with a WorkCover representative or OHS Consultant.

| DIRECTION  | ACTION BY |
|--|-----------|
| 1. Conduct Hazard Identification Checklist   |           |
| 2. Check Correct Signage is in place   |           |
| 3. Ensure all PPE is available and worn by personnel                               |           |
| 4. Ensure all Subcontractors have relevant PPE                                     |           |
| 5. Issue cautions when PPE is not provided or worn                                 |           |
| 6. Record the caution in Site Diary  |           |
| 7. Ensure all relevant SWMS are on site  |           |
| 8. Ensure all personnel are aware of the SWMS                                      |           |
| 9. Ensure all relevant MSDS are on site  |           |
| 10. Ensure all personnel are aware of the MSDS                                     |           |
| 11. Ensure all emergency procedures are known                                      |           |
| 12. Ensure emergency telephone numbers are known or visual                         |           |
| 13. Check equipment as needed on each day – check leads are suspended not on floor |           |
| 14. Check First Aid  |           |
| 15. Check amenities are available and housekeeping is maintained                   |           |
| 16. Review Subcontractors roles and responsibilities                               |           |
| 17. Check Hazardous Substances – location, signage, handling                       |           |
| 18. Ensure Traffic Control is in place – where applicable                          |           |
| 19. Carry out site induction of new personnel on site                              |           |
| 20. Ensure all relevant forms are available on site or on vehicles                 |           |
| 21. Tool Box Meetings  |           |
| 22. Review Subcontractor Records – for currency                                    |           |
| 23. Equipment Maintenance  |           |
| 24. Tagging  |           |
| 25. Review First Aid Supplies  |           |
| 26. Review PPE Provisions  |           |

# OWNER-BUILDER OHS RESPONSIBILITIES

LEARNING  
ACTIVITY

18

**As an Owner-Builder what do you consider to be your responsibilities relating to OH&S?**

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**When would you determine yourself to be a Principal Contractor?**

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## SELF TEST QUESTIONNAIRE

SELF  
TEST  
**12**

| QUESTIONS  | REF. PAGE |
|--|-----------|
| <b>1. What are the principle obligations in relation to Occupational Health and Safety?</b>  | <b>5</b>  |
| Answer   |           |
|  |           |
| <b>2. What penalties would you expect to incur if you did not adhere to the OH&amp;S Acts and Regs if you were an individual without a previous offence?</b> | <b>7</b>  |
| Answer   |           |
|  |           |
| <b>3. Name 2 Acts and 2 Regulations associated with safety on site</b>   | <b>6</b>  |
| Act: 1   |           |
| Act: 2   |           |
| Regulations: 1   | <b>9</b>  |
| Regulations: 2   |           |
| <b>4. What are your obligations in respect of being in control of the site?</b>  | <b>10</b> |
| Answer   |           |
|  |           |
| <b>5. What are the principle obligations in relation to Duty of Care?</b>  | <b>11</b> |
| Answer   |           |
|  |           |
|  |           |

| QUESTIONS  | REF. PAGE |
|--|-----------|
| <b>6. What documentation should you have associated with Safety on site (List 5)</b><br><br>i.<br><br>ii.<br><br>iii.<br><br>iv.<br><br>v. | <b>16</b> |



# HAZARD ASSESSMENT

**This section is about how to ASSESS the risks to health and safety on your site.**

## IDENTIFYING HAZARDS

### What is a hazard?

A hazard can be defined as a potential source of harm/injury. Some examples of hazards are:

- Airborne contaminants (fumes, dusts, fibres)
- Noise
- Dangerous chemicals or harmful substances
- Moving vehicles
- Manual handling (lifting, carrying, pushing, pulling, etc)
- Oil spills
- Naked flames, and
- Operating machinery.

Specific regulations set out the legal obligations for managing hazards such as manual handling, noise, confined space and plant (machinery).

### How are hazards identified?

Hazards can be identified in a number of ways. For example:

- Workplace inspections
- Examining records of incidents and dangerous occurrences in the workplace
- Keeping up to date with information released about particular products and processes
- Contact with other workplaces using similar processes, or
- If you have a large site with several contractors and employees – by consulting the Health and Safety Representative and employees from that site.

### What is a risk?

A risk is the likelihood that exposure to a hazard will result in injury or disease.

## What is risk assessment?

Once hazards have been identified, an assessment of the risks associated with each hazard determines the likelihood of injury or illness being caused by that hazard.

When assessing the risk associated with any hazard, it is necessary to ask the following questions;

- Who is exposed to the hazard?
- Has this hazard already caused any problems?
- How easily could someone be hurt?
- How common is it for this hazard to cause problems in other workplaces?
- Which factors relating to that hazard need to be taken into account, according to health and safety law?

It is important to record the identified hazards and classify them according to type of potential injury or illness, for example:

- **(Class 1)** Hazards that could kill or cause serious injury, permanent disability or ill health
- **(Class 2)** Hazards that might cause injury or illness resulting in an employee being off work for several days, or
- **(Class 3)** Hazards that might cause injury or illness resulting in an employee requiring first aid.

Risk assessment also involves deciding whether it is likely that someone could be hurt by being exposed to those hazards, and establishing whether it is...

- Very likely
- Likely
- Unlikely or
- Very unlikely

...that hazards could translate to an adverse event (harm). Once these assessments have been made, plans to control the risks can be developed.

## What is Risk Control?

When hazards have been identified, and the risks to health and safety assessed, the risks need to be controlled. Risk control is a requirement of the various Occupational Health and Safety Acts as part of the principal contractor's/employer's duty "...to provide and maintain so far as is practicable for workers a working environment which is safe and without risks to health."

Risk control means taking actions to eliminate or reduce the likelihood that exposure to a hazard will result in injury or disease.

The term "so far as is practicable" is defined in the legislation as taking into account:

- The severity of the hazard or risk in question
- The state of knowledge about that hazard or risk and any methods of removing or mitigating that hazard or risk
- The availability and suitability of ways to remove or mitigate that hazard or risk, and
- The cost of removing or mitigating that hazard or risk.

An objective of the various Occupational Health and Safety Acts is the *elimination*, at the source, of risks to the health, safety and welfare of persons at work.

Regulations supporting the various Occupational Health and Safety Acts, refer to the **Hierarchy of Control** and require risks to be managed in accordance with the preferred options within the Hierarchy of Control. Those options range from most preferred control measure being **Elimination** to the least preferred being **Personal Protective Equipment**. For example:

**Elimination** – eliminating toxic substances, hazardous plant or processes which are not necessary to a system of work.

If risks cannot be eliminated, occupational health and safety legislation requires that they be reduced *so far as is practicable* by using one or more of the following methods:

**Substitution** – substituting a toxic substance, hazardous plant or process with one known to be less harmful to health. Substitution is not only a preferred control method; it may also be the least expensive. For example, substituting a less hazardous material to control a vapour hazard makes more sense than installing an expensive ventilation system.

**Isolation** – enclosing or isolating a hazard such as a toxic substance, plant or process from workers, to eliminate or reduce the risk of injury or illness. Using a fume cupboard or sound enclosure booths are examples of moving a hazardous process away from the main work area (and other employees) to a site where emissions can be controlled.

**Engineering controls** – changing processes, equipment or tools, for example:

- Machine guards and machine operation controls
- Ventilation to remove chemical fumes and dusts, and using wetting down techniques to minimise dust levels, or
- Changing layout of work levels to minimise bending and twisting during manual handling.

If a risk to workplace health and safety remains after the above methods have been used, **administrative controls** should be applied or if these are still not adequate, **personal protective clothing and equipment** should be worn. These methods of risk control are not preferred because the source of the risk is not eliminated or reduced.

**Administrative controls** – changing work procedures to reduce exposure to existing hazards. For example:

- Reducing exposure to hazards by job rotation
- Limiting the number of workers exposed to the hazard by limiting access to hazardous areas.

**Personal Protective clothing and equipment** – devices and clothing which provide individual workers with some protection from hazards. An effective personal protective clothing and equipment system requires considerable effort by the employer/principal contractor to ensure that:

- Proper protective devices are selected
- Workers are individually fitted
- Proper instruction on the need for; and use of, personal protective clothing and equipment is provided
- Standards are enforced, and
- An effective system of cleaning and maintenance is devised.

*Administrative controls* and *protective clothing* and equipment may provide interim solutions in a planned program to eliminate or reduce a particular risk, or they may be used in addition to other control methods.

# HAZARD AND RISK CONTROL

LEARNING  
ACTIVITY

19

What **hazards** are you expecting to find on your site in relation to the type of project you are about to construct? Determine how you will **control the risk** associated with each hazard.

| HAZARD | HOW WILL YOU CONTROL THE RISK OF THIS HAZARD? |
|--------|---|
| 1      |   |
| 2      |   |
| 3      |   |
| 4      |   |
| 5      |   |
| 6      |   |
| 7      |   |
| 8      |   |
| 9      |   |
| 10     |   |



## DESIGNATED OHS PERSONNEL

Everyone has a role to play in Occupational Health and Safety. The various Safety Acts set out responsibilities for the Principal Contractor as well as workers, and also provides a framework for dealing with Health and Safety issues.

The framework acknowledges that no two workplaces are exactly alike. The framework also reflects the fact that effective consultation on health and safety can make a real difference.

### Designated OH&S Personnel

- Principal Contractor/Owner-Builder
- Designated Work Groups
- Health and Safety Representatives
- Health and Safety Committees.

An *Owner-Builder* may not need to engage all these people – however as the Owner-Builder is considered to be the Principal Contractor, all the obligations regarding consultation in the workplace apply.

### Principals

As mentioned in previous topics the legal obligations under the Occupational Health and Safety Act include providing:

- A working environment that is safe and without risks to health
- Adequate resources, information, training and supervision
- Effective arrangements for consultation, and
- An effective system for identifying hazards, assessing and controlling risks to health and safety.

### What is a Designated Work Group?

A designated work group (DWG) is the group of people, and area, covered by an elected Health and Safety Representative. Employees in a DWG share similar workplace health and safety concerns and face similar workplace health and safety conditions.

### What is a Health and Safety Representative?

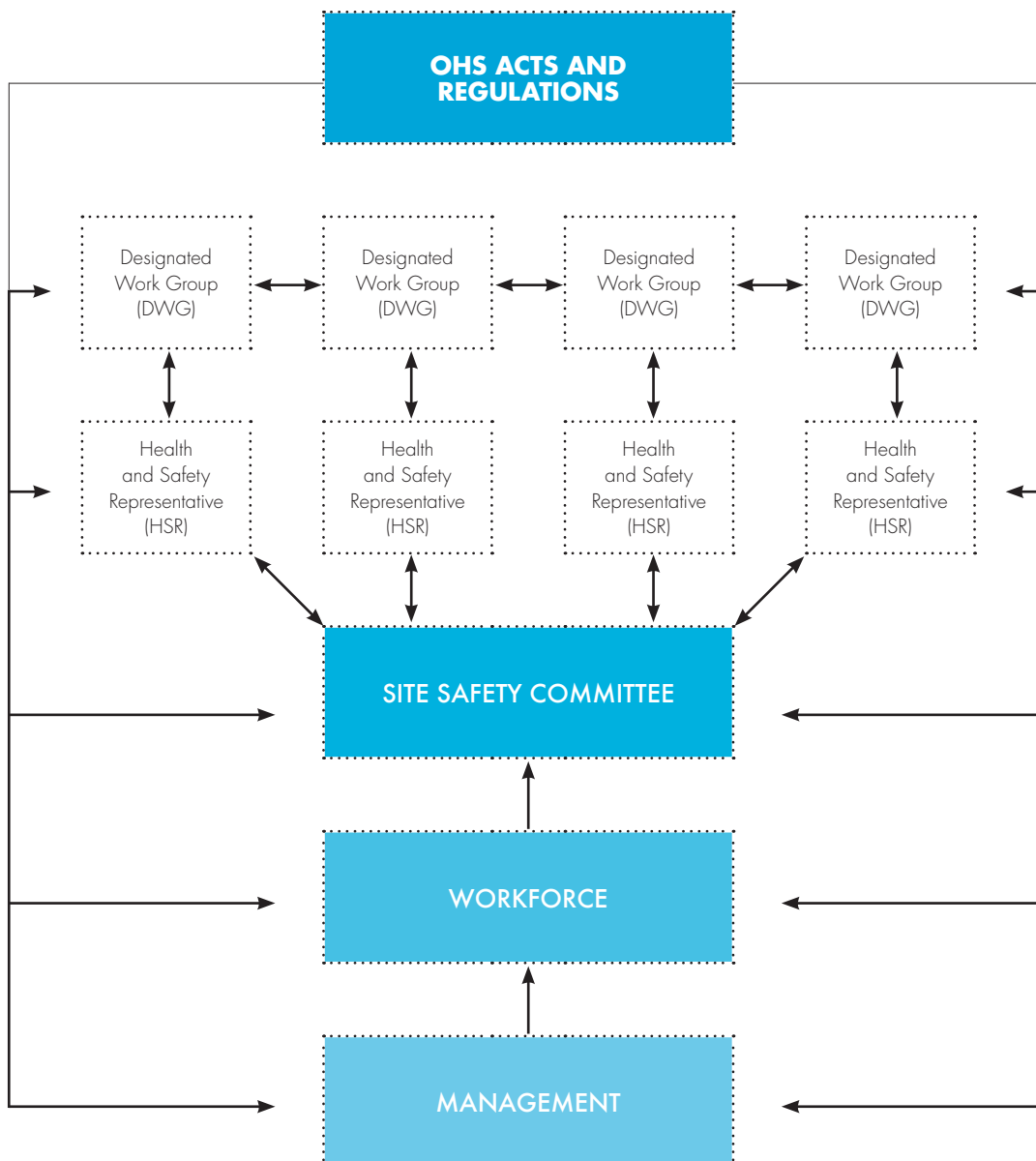
A Health and Safety Representative is elected voice of a DWG. Health and Safety Representatives are encouraged to join with their employer to monitor health and safety issues in the workplace, and to work with their employer to improve health and safety standards.

## What is a Health and Safety Committee?

Health and Safety Committees are the second key structure in the consultative framework set out in the Act. Committees provide a formal structure for discussing and resolving workplace health and safety issues.

A Health and Safety Committee is a group comprising employer or management representatives and other employees. Elected Health and Safety Representatives may also be Committee members. The Act does not require that Health and Safety Representatives are on the Committee, but it does specify half the Committee members must be employees.

## CONSULTATION FLOW CHART



## IN SUMMARY

The various Health and Safety Acts cover all workplaces. The main features of the Act are:

- a *duty of care* principle for all employers/principal contractors to ensure the health, safety and welfare of employees and others in the workplace
- an obligation for employers/principal contractors to establish that all reasonably practicable measures have been taken to control risks against all possible injuries arising from the workplace
- people in control of workplaces used by non-employees must ensure the health and safety of people who use the premises as a place of work
- the employer's/principal contractor's *duty of care* applies to all people in the workplace, including visitors, contractors and others
- a general obligation on manufacturers and suppliers of plant and substances to ensure that their products are not a risk to health and safety when properly used, and to provide information on the correct use and potential hazards associated with the use of the products in the workplace
- a general obligation on workers to take care of others and cooperate with employers/principal contractors in matters of health and safety.

The aim of the Act is to ensure safe workplaces by:

- defining an employers/principal contractors duty of care
- stressing workplace participation and consultation by employers/principal contractors and workers
- setting out details in associated regulations, Codes of Practice and Australian Standards.

## FIRST AID REGULATION

The First-Aid Regulation supplements the *Occupational Health and Safety Act*. It helps to ensure that satisfactory first-aid facilities are available within workplaces in New South Wales.

The Regulation sets minimum standards for providing first aid at work. If you wish to provide more than is required by the Regulation then you may do so.

### The benefits

The Regulation aims to:

- Save lives
- Prevent pain and suffering
- Reduce the severity of injury and illness
- Reduce the critical time between injury and treatment
- Contribute to a safe workplace
- Reduce the amount of work time lost through injury and illness
- Reduce injury and illness costs to the employer

### Definition of a place of work

A place of work is defined as premises where a person works. This includes vehicles which are used during a work period such as vehicles used by sales or service representatives or vehicles used by work groups working away from their main depot or base. Both of these vehicles require a minimum of a C type kit.

Vehicles used within a work premises such as fork lift trucks do not require an individual kit. The operators of these vehicles must have access to the kit provided at the place of work.

### First-aid certificate courses

A number of organisations conduct general first-aid courses and occupational first-aid courses. A list of these organisations is available from WorkCover NSW. For a copy contact the WorkCover Publications order line (02) 9 370 5303

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## FIRST AID KITS

Clause 20 of the OHS Regulation 2001 sets out the minimum first aid requirements for the sites or places listed below.

It is important to note that the list represents minimum requirements only and that additional contents and numbers of kits may be needed depending on your workplace hazards and the type of injuries or illness likely to occur.

Construction sites where 25 or more people work or other places of work where 100 or more people work  
– First Aid Kit A.

Construction sites where less than 25 people work or other places of work where less than 100 and more than 10 people work – First Aid Kit B.

Places of work (other than construction sites) where 10 or less people work – First Aid Kit C.

Places of work where more than 200 people work, or at a construction site where more than 100 people work. (See clause 20(7)) – First Aid Room.

Clause 20(5) contains the details of what is contained in each First Aid Kit.

The employer must ensure the First Aid Kit (if more than 25 persons employed) is under the control of trained first aid personnel. (See clause 20(6)).

**Note:** It is recommended that a record of injuries and treatments provided be kept in a first aid box. This register is separate from the Register of Injuries required under the Workplace Injury Management and Workers Compensation Act 1998.

## Contents

The minimum requirements of each kit is set out in schedule 1 of the Regulation. Additional first-aid items may be included to meet the specific needs of your workplace. Items not for first-aid use must not be put in a kit.

All kits must contain a list of the required contents and a cardio-pulmonary resuscitation flow chart.

Kits complying with the Regulation are sold by first-aid suppliers and a number of other organisations. Check under “First-aid supplies or instruction” in the yellow pages telephone directory.

## Location

The number and locations of kits will depend on the size and layout of the workplace. Use common sense when deciding where to place them.

For workplaces other than construction sites the Regulation states that where reasonably practicable:

- No part of the workplace should be more than 100 metres from a first-aid kit
- No part of the workplace should be more than one floor from a first-aid kit.

First-aid kits on construction sites must have a carrying handle.

## Who is responsible?

A person or person must be appointed to be in charge of the kit or kits. If there are more than 25 persons working at a place of work, anyone appointed must hold a current approved first-aid certificate.

If there are less than 25 persons working in the workplace the person in charge of the kit does not have to be trained in first-aid.

## Information

Notices must be put up near any first-aid kit. The notice must display:

- Names
- Telephone numbers
- Work location, of the person(s) in charge of the first-aid room or kit and any other
- Persons appointed to give first-aid.

---

## REGISTER OF INJURIES AND TREATMENT

### What must be recorded?

A register of injuries and first-aid treatment must be kept at each place of work which records:

- The name, age, address and occupation of the injured person
- The industry in which the person was working
- The operation in which the person was engaged at the time of injury
- The date and time and injury occurred
- A brief description of the type, cause and location of the injury and the treatment given
- The name of the first-aid person in attendance
- Any referral for further treatment if required.

### Other requirements

The person in control of the place of work must ensure that:

- The required information is recorded in the register
- The register is made available for inspection when requested by an inspector
- The records are kept for at least five years.

The register may be combined with any other register which must be kept according to other legislation.

## SUMMARY OF REQUIREMENTS FOR FIRST AID KITS

| TYPE OF KIT                         |                |       |       |       | TYPE OF CERTIFICATE   |                                    |      |
|-------------------------------------|----------------|-------|-------|-------|-----------------------|------------------------------------|------|
| Place of work and number of persons | First-aid room | Kit A | Kit B | Kit C | First-aid Certificate | Occupational First-aid Certificate | None |
| Construction                        |                |       |       |       |                       |                                    |      |
| 100 or more                         | •              |       |       |       |                       | •                                  |      |
| 25 – 99                             |                | •     |       |       | •                     |                                    |      |
| 24 or less                          |                |       | •     |       |                       |                                    | •    |
| Factory                             |                |       |       |       |                       |                                    |      |
| 200 or more                         | •              |       |       |       |                       |                                    |      |
| 25 – 199                            |                | •     |       |       |                       |                                    |      |
| 24 or less                          |                |       | •     |       |                       |                                    |      |
| Other                               |                |       |       |       |                       |                                    |      |
| 200 or more                         | •              |       |       |       |                       | •                                  |      |
| 100 – 199                           |                | •     |       |       | •                     |                                    |      |
| 25 – 99                             |                |       | •     |       | ●                     |                                    |      |
| 11 – 24                             |                |       | •     |       |                       |                                    | •    |
| 10 or less                          |                |       |       | •     |                       |                                    | •    |

## FIRST AID

LEARNING  
ACTIVITY

20

What *first aid* would you need for your building project and what is each items purpose?

| FIRST AID ITEM | ITS PURPOSE |
|----------------|-------------|
| 1              |             |
| 2              |             |
| 3              |             |
| 4              |             |
| 5              |             |
| 6              |             |
| 7              |             |
| 8              |             |
| 9              |             |
| 10             |             |



# EMERGENCY PROCEDURES

**Source: Extracts from CSTC Pty Ltd and Mel Crook and Associates Pty Ltd (licensee) .Reference Manual for WHandS Management Course – Unit 17 Emergency Procedures – Version 3.0**

## Introduction

A major emergency or disaster can be loosely defined as any event which severely disrupts the normal functions of an organisation in such a way as to cause severe damage and/or physical danger or death to employees, visitors and others.

This section will assist with the planning process for emergencies in the workplace and briefly outline the following:

- Identification of the types of potential emergencies
- General procedures to be adopted in an emergency situation
- Description of emergency actions in the case of an accidental or malicious release of hazardous substances both, related or unrelated to fire
- Development of a list of emergency resources and trauma counselling facilities.

*AS 3745-1995 – Emergency control organisation and procedures for buildings*

## Identification of Types of Potential Emergencies

If a discussion of potential emergency situations is initiated, the majority of those involved in the discussion will immediately raise the subject of fire. Others may briefly mention further obvious potential emergencies such as flood, explosion, etc. Few however will give serious consideration to the many other types of emergency situations that must be considered.

Additionally, consideration must also be given to the potential for a single emergency situation to lead directly into a multiplicity of other potential hazards or risk situations.

For Example: a boiler explosion could lead directly to injury and death caused by the explosion itself, coupled with:

- Severe scalding
- Burns
- Fire
- Escape of large quantities of fuel oil
- Damage to high tension electrical cables in the workplace
- Escape of flammable gases.

Therefore, when planning for emergency situations, it is not acceptable to look at one hazard in isolation. The planning must include all of the potential ramifications of that single emergency event.

## General Procedures to be Adopted in an Emergency Situation

There are a number of general procedures which must be adopted in any emergency plan, irrespective of the type of emergency or its origin.

These basic requirements are as follows:

- Accurate identification of the hazard by its location, cause and extent.  
 Eg: (Oil fire in No. 1 storeroom, beyond control of staff)  
 Eg: (structural damage caused to warehouse by impact of a delivery truck. West wall about to collapse)
- The issue of a warning to those persons who may be affected that a potential emergency situation exists and that they should be ready to either evacuate the building/area or assume other emergency duties that they have been instructed and trained to carry out
- Notification of emergency situation to emergency services
  - o Police
  - o Fire Brigade
  - o Ambulance
  - o State Emergency Services.
- Where practical and without risk to any one, attempt to control or contain the emergency until professional assistance arrives.  
 Eg: (**Fire**: Use hand fire extinguishers, hoses etc, to contain or control minor fires or exit routes.)  
 Eg: (**Hazardous substance spillage**: Contain or control the spill using appropriate methods and materials.)  
 Eg: (**Flood**: Isolate electricity supply, sandbag doors etc.)
- Where appropriate, full or partial evacuation of everyone in the workplace to place of safe assembly via previously designated emergency exits and routes.

## Description of Emergency Actions in the Case of an Accidental or Malicious Release of Hazardous Substances Both Related or Unrelated to Fire

The very nature of hazardous substances demands that where they are present in the workplace, special precautions, training and resources are allocated and practised.

### RESOURCES

Dependant on the nature of the hazardous substance, substantial damage could result if standard emergency response techniques are used in a hazardous substance emergency.

Eg: Some substances react violently to water. Therefore if hoses were used in the vicinity of such a substance, the result could be a:

- Violent explosion
- Toxic gas cloud
- Serious environmental damage to waterways.

This example is used to illustrate the absolute necessity for appropriate emergency techniques, equipment and materials to be immediately available at any workplace where hazardous substances are in use.

The following is a brief summary of the type of equipment that may be required in even a minor emergency that involves hazardous substances.

- Containment or clean-up (absorbent) materials
- Suitable pumps for material collection
- Sealable containers for disposal
- Breathing apparatus
- Fully enclosed coveralls
- Brooms and spades or other mechanical means of removal.

### PRECAUTIONS

The use of hazardous substances in the workplace necessitates the introduction of precautionary measures which otherwise may not have been either necessary or so stringent.

A brief summary which must be considered as comprehensive is as follows:

- Where significant quantities of hazardous substances are stored, it is a requirement of the Workplace Health and Safety Regulation that a depot be used.

The interpretation of the term "depot" within the Regulation is a:

- |             |  |
|-------------|--|
| • Building  | • Compartment  |
| • Structure | • Tank   |
| • Room      | • Store or Receptacle where hazardous substances are kept. |

Whichever of these is applicable, it must be able to store the substances in accordance with the storage requirements of the Material Safety Data Sheet (MSDS).

Additionally, it must be secure from unauthorised access or use by persons who may deliberately or inadvertently create a hazardous situation.

In some instances where large quantities of liquid substances are stored, it will be necessary to construct a bund\* around whichever tank, (the one holding the greatest quantity of material) or where storage is otherwise than in a tank.

Eg: (individual drums, etc.), at least 25% of the total quantity of liquid hazardous substances must be capable of being contained within the banded area.

*\*Bunding is the most frequently specified system for containing dangerous goods spillages from storage and handling systems. It has the convenience of being able to be retrofitted to existing buildings and outdoor installations.*

*Bunding is the preferred method for above ground bulk storage installations.*

*Bund walls may be constructed from a variety of materials including:*

- *Concrete kerbing, preferably reinforced and integrally constructed with the flooring. If separate, must be firmly anchored, adhered and sealed to withstand the inevitable traffic damage.*
- *Brick and concrete block walls are only acceptable where they are protected from damage by materials handling operations. and*
- *Steel angles or other sections firmly anchored to the floor and sealed, usually with a silicone based sealant.*

*Temporary bund construction materials include:*

- *Raised earthen walls, preferably with an impervious membrane unless contingency plans are in place for the recovery or disposal of contaminated earth after a spill. and*
- *Bags of sand or other compatible absorbent material.*

*External bunds should be provided with additional capacity to deal with rainwater and run off and with a secure system for the removal of that water. External bunds should therefore be subjected to the full hazard identification, risk assessment and control process.*

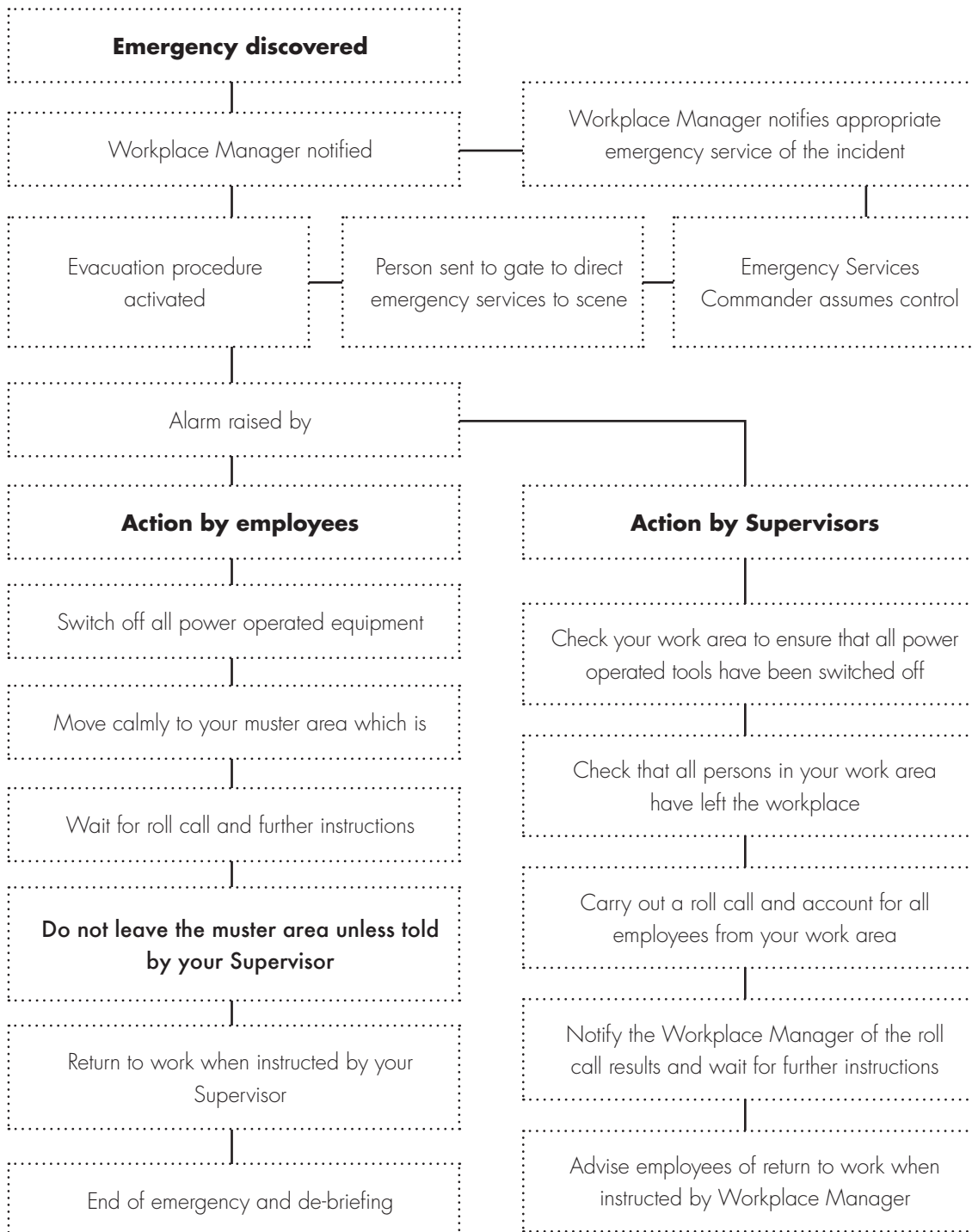
A further strict requirement is to minimise the risk of fire or explosion where hazardous substances are used or stored.

Some basic precautions which must be taken include:

- Banning smoking within three metres of a depot or within three metres of any substance classed as flammable. Similarly, no other source of naked flames is permitted
- To further minimise the risk of fire, a five metre area around storage depots must be maintained free of dry or unmown grass, undergrowth or any other combustible material
- If maintenance or construction work involving welding or other hot work is to be carried out in or near a depot or within five metres of any flammable hazardous substance, then a hot work permit system must be introduced and utilised.

## PROCEDURES FOR EVACUATION

In the event that the workplace has to be evacuated, the following procedures are to be followed:



**EMERGENCY PROCEDURES CHECKLIST**

Name of Program/Course

Trainer/Assessor

Site Details

Site Supervisor

Name of Person Completing Checklist

Duration of Program

Date checklist completed:

**Persons Present at Training/Awareness of Emergency Procedures**

Print Name

Signature

1

2

3

4

5

6

**Tick ☒ what emergencies would require evacuation of the working area.**

Fire

Explosion

Chemical  
Spills

Bomb Threat

Flooding

Who is the nominated person for managing an evacuation?

What is the signal to start evacuation?

Who is responsible for activating the signal?

**If any of the following questions elicit a "No" response, please state the reason in the Comments Section of this form**Have you identified how people will evacuate from the workplace? (e.g. the shortest and most direct route to safety, the routes people should use, how people with disabilities would evacuate) Yes ☐ No ☐

Where is the assembly place after evacuation?

Have you identified the checks that should be followed to ensure everyone is accounted for? Yes ☐ No ☐

What is the signal that gives the all clear to return?

Who is responsible for giving the all clear to return signal?

Who is responsible for establishing the re-entry procedure?

Are the emergency procedures displayed in the workplace? Yes ☐ No ☐Are all the trainees/training personnel aware of the emergency procedures? Yes ☐ No ☐

Comments:

Signature of person completing the checklist:

# FIRE FIGHTING EQUIPMENT

## Fire Extinguishers

### YOUR FIRST LINE OF DEFENCE

Source: Wormald Aust [www.wormald.com.au](http://www.wormald.com.au)

A potential fire can often be controlled before it really takes hold, if the right fire equipment is close at hand.



**Powder Fire Extinguishers (ABE)**, distinguished by a white coloured band around the top of the cylinder, are the most widely used type and are suited for fires in the house, boat, garage, car or caravan.



**Powder Fire Extinguishers (BE)** are also distinguished by a white coloured band around the cylinder and discharge a fine powder that absorbs fuel molecules, depriving the fire of a fuel source. They are best suited to put out fires in the boat, car or caravan.



**Wet Chemical Fire Extinguishers**, red with an oatmeal coloured band, these fire extinguishers use an aqueous solution discharged in a fine spray to the surface of Class F fires such as oils and fats.



**Water Fire Extinguishers** are completely red with no coloured band, while Foam Fire Extinguishers have a blue coloured band. They are effective against Class A B fires involving paper, textiles, wood, plastics, rubber, petrol, oil and paints.



**Foam Fire Extinguishers** are red with a blue band. They are effective against Class A and B fires involving paper, textiles, wood, plastics, rubber, petrol, oil and paints.



**Carbon Dioxide Fire Extinguishers (CO2)** are red with a black coloured band. They are recommended for use in Class (E) fires involving energised electronic equipment.



**SAPPHIRE™ Fire Extinguishers** are polished stainless steel with a yellow coloured band, they are recommended for Class A and E fires. Using a unique environmentally friendly chemical they are ideal for MRI rooms, server rooms or areas with sensitive electronics.

## Fire Blankets

Fire Blankets are ideal for settings where small Class F fires are a risk such as in kitchens or wherever oils or fats are exposed to potential ignition. They can also be used if a person's clothing has caught fire.

A Fire Blanket cuts off a fire's supply of oxygen, smothering it either permanently or until more effective fire-fighting equipment can be employed.

As with any emergency situation, you should alert others to the fire, evacuate the area and have someone contact the fire department in case the fire cannot be extinguished. You should also ensure that you have an escape route – the fire should not be between you and the exit.

Open the fire blanket and hold it in front of you to shield your body, hands and face from the fire. Cover the burning material completely, ensuring there are no gaps for oxygen to reach the fire. Shut off any gas or other fuel supply involved in the fire, and contact the fire department if you have not done so already. Leave the blanket in place for at least 30 minutes to allow the oil or fat to cool.

Always read the instructions for your Fire Blanket before use.

**Note:** Fire Blankets are not designed for re-use! It is essential that you dispose of your Fire Blanket once it has been employed.



## Develop a Resource List of Emergency Help and Trauma Counselling Centres

It is essential you have a full list of the Emergency Services available to assist in the prediction, control and aftermath of an emergency situation.

The following is a list of Emergency Services which are available. However, this list should not be considered as exhaustive and should be extended to include appropriate Emergency Services for particular specialised potential hazards.

- Police, Fire Brigade and Ambulance
- Electricity – loss of supply
- Gas
- Workplace Health and Safety Authority
- Marine Stingers Reporting
- Poisons Information Centre
- State emergency Centre
- Alcohol and Drug Information Service
- AIDS Medical Unit
- Trauma Counselling Centres
- Red Cross
- Salvation Army
- Various Religious Denominations
- Bureau of Meteorology
- Chemical Hazards Emergency Unit
- The Insurance Council of Australia.



# INCIDENT REPORTING

(Also refer to Page 56 for more detail on this subject)

Source: WorkCover

## How and when is an incident notification made?

Occupiers of workplaces notify in the following manner:

- Incidents involving injury or illness to workers.

## Serious incidents involving a fatality or a serious injury or illness

(Refer to clause 344 of the OHS Regulation 2001):

- Phone WorkCover *immediately* on 13 10 50 as an urgent investigation may be needed, *plus*
- Notify your workers compensation insurer within 48 hours.

Other incidents involving an injury or illness to workers, where workers compensation is payable or may be payable, eg. time lost, medical expenses. (Refer to sections 42 and 44 of the *Workplace Injury Management and Workers Compensation Act 1998* and clause 32 of *Workers Compensation Regulation 2003*):

- Notify your workers compensation insurer within 48 hours. There is no need to notify WorkCover as the insurer advises WorkCover of these incidents.

**Incidents involving injury or illness to non-workers at your workplace** (ie. those not covered by your workers compensation eg. a visitor, customer, volunteer, student, contractor).

Serious incidents involving a fatality or serious injury or illness. (Refer to clause 344 of the OHS Regulation 2001):

- Phone WorkCover *immediately* on 13 10 50 as an urgent investigation may be needed, *plus*
- Notify WorkCover within 7 days with full notification details using the online form or phone 13 10 50.

Other incidents involving a non-worker where the injury or illness results in the person being unable to perform their normal activities for seven or more days. (Refer to clause 341 of the OHS Regulation 2001):

- Notify WorkCover within 7 days using the online form or phone 13 10 50.

**Incidents that present a risk to health and safety at your workplace** (ie. incidents where there is no injury or illness to workers or non-workers).

**Serious incidents that are immediately life threatening but result in no injury or illness, eg. the collapse of an excavation with no injury.** (Refer to clause 344 of the OHS Regulation 2001):

- Phone WorkCover IMMEDIATELY on 13 10 50 as an urgent investigation may be needed, PLUS
- Notify WorkCover within 7 days with full notification details using the online form or phone 13 10 50.

Other incidents are certain incidents that are not immediately life threatening but result in no injury or illness, eg. exposure to specific substances. (Refer to clause 341 of the OHS Regulation 2001):

- Notify WorkCover within 7 days using the online form or phone 13 10 50.

## EMERGENCY PROCEDURES

LEARNING  
ACTIVITY

21

What *emergency procedures* would you need to put in place for your building project? Use the following chart as a guide.

| ROLES AND RESPONSIBILITIES                |   |
|---|---|
| Task                                      | Person Responsible  |
|   |   |
| Task                                      | Person Responsible  |
|   |   |
| Task                                      | Person Responsible  |
|   |   |
| Task                                      | Person Responsible  |
|   |   |
| OUTLINE THE EMERGENCY PROCEDURE           |   |
|   |   |
|   |   |
| OUTLINE THE EVACUATION PROCEDURE          |   |
|   |   |
|   |   |
| NAME OF PLANT                             | REQUIREMENT   |
|   |   |
|   |   |
|   |   |
| NAME AUTHORITY NOTIFIED                   | REASON FOR NOTIFICATION   |
|   |   |
|   |   |
|   |   |
| INJURIES REPORT                           |   |
|   |   |
|   |   |
| DOCUMENTS REQUIRED TO RECORD THE INCIDENT | ACTIONED BY: (EG: SITE SUPERVISOR, PROJECT MANAGER, CONSTRUCTION MAN ETC) |
|   |   |
|   |   |

## SELF TEST QUESTIONNAIRE

SELF  
TEST  
**13**

| QUESTIONS  | REF. PAGE    |
|--|--------------|
| <b>7. List the hazards you would expect to encounter on a building site</b><br>i.<br>ii.<br>iii.<br>iv.<br>v.<br>vi.     | <b>21</b>    |
| <b>8. What is a risk control?</b><br>Answer  | <b>22</b>    |
| <b>9. Identify the difference between Class 1, 2 and 3 Hazards</b><br>Class 1<br>Class 2<br>Class 3                      | <b>22</b>    |
| <b>10. Name the people or groups who would be involved in the OHS consultation process on a building site</b><br>Answers | <b>25-26</b> |

| QUESTIONS  | REF. PAGE    |
|--|--------------|
| <b>11. What are your obligations relating to providing first aid?</b><br><i>Answers</i>  | <b>28</b>    |
|  |              |
| <b>12. Apart from the workers name – what should be recorded on the Register of Injuries and Treatment?</b><br>i.<br>ii.<br>iii.<br>iv.<br>v.<br>vi. | <b>30</b>    |
|  |              |
| <b>13. What are the basic requirements to be adopted in an emergency situation?</b><br>i.<br>ii.<br>iii.<br>iv.<br>v.<br>vi.                         | <b>34</b>    |
|  |              |
| <b>14. What fire fighting equipment would you consider to be suitable for your building site?</b><br>i.<br>ii.<br>iii.<br>iv.                        | <b>34-40</b> |
|  |              |

| QUESTIONS   | REF. PAGE |
|---|-----------|
| <p><b>15. What are your obligations in reporting an incident involving an injury or illness to workers, where workers compensation is payable or may be payable, eg. time lost, medical expenses.</b></p> | 41        |
|   |           |
|   |           |
|   |           |
| <p><b>16. What are your obligations in reporting an incident involving a Serious incident that was immediately life threatening but resulted in no injury or illness?</b></p>                             | 41        |
|   |           |
|   |           |
|   |           |
|   |           |

# ENSURE SAFETY ON SITE

## INTRODUCTION

Historically, a building site is one of the most dangerous.

The NSW Occupational Health and Safety Act aims to protect the health, safety and welfare of people at work. It lays down general requirements, which must be met at every place of work in NSW. **The Act does cover Owner-Builders**, Self-Employed people as well as Employers and employees/workers.

Contractors/Principal Contractors and Workers can be fined for failing to maintain safe working condition. By law, you have a *duty of care* to provide information, training and supervision and to ensure the health, safety and welfare of employees/workers and visitors. If there are 20 or more employees/workers on a site, then there may be a workplace health and safety committee.

Workers have a legal obligation to observe the safe work practices.

Any construction site *must* be rendered secure especially after working hours, by hoardings or fences so that unauthorised people cannot enter them. Precautions to prevent children entering and playing on construction sites *must* be especially stringent.

Injury to people can occur in many ways on building sites. The following sections outline recommended ways of preventing work related injuries and diseases.

## TRENCHES AND EXCAVATIONS

No soil or rock can be relied on to support its own weight, therefore the sides of any excavation is likely to collapse at any time. A cubic metre of soil (about 80 shovels full) weights at least 1.4 tonnes.

When working with trenches and excavations the following precautions should be taken:

1. Check with the appropriate authority for the location of underground services (ie., gas, water, communications, electricity) before you dig.
2. Provide and secure a suitable barrier or guardrails around any excavation.
3. If workers are required to be in a trench 1.5 metres or more deep, the sides of the trench must be battered at an angle of 45 degrees or shored up with a trench support system. In some cases trenches shallower than 1.5 metres in unstable ground should be battered. If you need advice, call your nearest WorkCover Construction Safety Inspector.
4. Provide suitable ladders for entry and exit from trenches. Trenches can be open graves. If the right precautions are not taken, the sides of the trench can collapse and anyone working in it can be buried alive. Don't let this happen on your site.

## Checklist:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| Do all trenches on site have:  |                          |                          |
| (i) A handrail or suitable barrier around the edge?                  | <input type="checkbox"/> | <input type="checkbox"/> |
| (ii) 45 sloping sides or stepped sides – if not, are they shored up? | <input type="checkbox"/> | <input type="checkbox"/> |
| (iii) Access ladders?  | <input type="checkbox"/> | <input type="checkbox"/> |

## DUSTS

In dusty conditions, wear an approved dust mask. Some dusts, especially dust from sandstone, can damage your lungs and make breathing difficult. In some working conditions a respirator instead of a simple dust mask may be needed. Manufacturers, suppliers or WorkCover Construction Safety Inspectors can advise on what protection from dust is required in different work situations.

## Checklist:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| When working in dusty conditions, do people on site wear the appropriate dust masks? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is dust being suppressed?  | <input type="checkbox"/> | <input type="checkbox"/> |

## ELECTRICITY

**(Also refer to Page 80 for more detail on this subject)**

Electric shocks cause many fatal accidents at work. The section on the following pages sets out some details about electrical safety on building sites. Some of the main rules are as follows:

1. Always make sure your worksite is protected by an Earth Leakage Device.
2. If someone receives an electric shock, do not touch them with your hands. Turn off the power. If the power cannot be turned off immediately, pull or push the person away from contact with the current with a piece of **dry** wood, **dry** rope or a **dry** coat held by the sleeves. Apply artificial respiration if you know how to. Send for help immediately.
3. Treat all wires as 'live'. Never tamper with wires or do your own repairs. Use a qualified electrician.
4. Keep electrical wires away from water and out of reach. Disconnect exposed leads. Do not use piggy back connections or double adaptors.

## HEAD INJURIES

Tools, materials and equipment can fall from ladders, scaffolding, cranes and work platforms. Every one on a construction site should wear a hard hat.

Barricades and kickboards should be erected on scaffolding to prevent tools from falling on people below.

When working at a height, workers should secure tools with lanyards to prevent them falling on to people below.

### Checklist:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| Do all workers on site wear hard hats?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Are barricades and kickboards erected so that tools won't fall on people below | <input type="checkbox"/> | <input type="checkbox"/> |
| Do people working at heights secure their tools with lanyards?                 | <input type="checkbox"/> | <input type="checkbox"/> |

## FALLS

**(Also refer to Page 61 for more detail on this subject)**

Falls make up 22% of general workplace accidents and the percentage is even higher on building sites. People can fall off platforms, ladders, rigging, scaffolding, roofs and through penetrations (holes in floors).

Guardrails should be solid, securely fixed and one metre high. They must be put up wherever a person may be liable to fall a distance of 1.8 metres or more (other than excavations).

Where guardrails are not practicable, and people are working at heights of more than 1.8 metres, workers should use a safety harness, safety net or other system to prevent falls.

Floor penetrations (holes in floors) must be securely covered – and workers should never walk backwards.

Safety footwear with good tread prevents dangerous slips and slides.

People affected by drugs or alcohol should not come to work – they endanger themselves and others.

### Checklist:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| Do workers on the site wear safety footwear with a good tread so they don't slip or slide? | <input type="checkbox"/> | <input type="checkbox"/> |
| Do people working at heights wear a safety harness?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Are floor penetrations securely covered?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Are there one metre high handrails wherever there is a drop of more than 1.8m?             | <input type="checkbox"/> | <input type="checkbox"/> |



# LADDERS

**(Also refer to Page 67 for more detail on this subject)**

Ladders must be in good condition, free from splits, or broken or loose rungs.

Follow the 1:4 base: height ratio rule with ladders. For example, the foot of a four metre ladder should be at least one metre away from the wall against which the ladder is leaning. Make sure the top of the ladder extends at least one metre above the lading. It should be securely fixed at top and bottom and footed securely on a firm and level foundation.

Never put ladders in front of doorways, or closer than 4.6 metres to bare electrical conductors (sometimes it is safe to put them closer than this – it depends on what material the ladder is made of and how likely the ladder is to conduct electricity).

Electrical current can jump from a conductor to an aluminium ladder without any contact).

When working with or on electrical equipment, use only wooden ladders. Do not use metal or wire-reinforced ladders when working near exposed power lines.

Only one person should be on a ladder at a time, and tools should be pulled up with a rope. Workers on ladders should never over-reach. Workers ascending or descending should face the ladder.

Two ladders must never be joined together to form a longer ladder.

Ladder should not be placed against a window.

## Checklist:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| Are ladders stable and securely fixed at the top and bottom?     | <input type="checkbox"/> | <input type="checkbox"/> |
| Are all the rungs intact and in good condition?                  | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the slope of the ladder at least one in four?                 | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the ladders standing away from doorways?                     | <input type="checkbox"/> | <input type="checkbox"/> |
| Do the ladders extend at least one metre above the top platform? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are ladders at least 4.6 metres from live conductors?            | <input type="checkbox"/> | <input type="checkbox"/> |
| Are only all-wood ladders used near electrical equipment?        | <input type="checkbox"/> | <input type="checkbox"/> |

## SCAFFOLDING

**(Also refer to Page 65 for more detail on this subject)**

Shonky scaffolding is an accident waiting to happen. There are many more complexities than can be covered here. The following points outline only the essential safe practices:

1. Ensure foundations are adequate to take the load.
2. Standards should be complete with base plates and sole plates. (There are some exceptions to this – for advice contact a Construction Safety Inspector through one of the WorkCover offices).
3. Scaffolding must be tied to the building every 3.6 metres (maximum) of height and length and adequately braced in all directions.
4. Make sure handrails and kickboards are provided on all working platforms, which must be fully decked out.
5. Provide safe access to all working platforms more than two metres high.
6. Never climb up or down scaffolding – use the proper access provided.
7. Mobile scaffolds should have lockable castor wheels, which must be locked when the scaffold is in use.
8. Move mobile scaffolds from ground level only (on one is to be on the scaffolds when they're moved).
9. Ensure metal scaffolding is at least 4.6 metres from bare electrical conductors.

### Checklist:

|   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| Are there solid foundations under the scaffolding?                                      | <input type="checkbox"/> | <input type="checkbox"/> |
| Are there base plates and sole plates for the standards?                                | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there adequate bracing in all directions?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Are there handrails and kickboards for all working platforms more than two metres high? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are all working platforms fully decked (planked)?                                       | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there safe access?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Is scaffolding tied to the building at least every 3.6 metres in height and length?     | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Mobile Scaffolding</b>   | <input type="checkbox"/> | <input type="checkbox"/> |
| Do your mobile scaffolds have lockable castor wheels?                                   | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the wheels locked when mobile scaffolding is in use?                                | <input type="checkbox"/> | <input type="checkbox"/> |
| Is safe internal ladder access available?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the height greater than three times the least width of the base?                     | <input type="checkbox"/> | <input type="checkbox"/> |
| Do outriggers need to be used?  | <input type="checkbox"/> | <input type="checkbox"/> |

## EXPLOSIVE POWERED TOOLS

Explosive powered tools (EPTs) can be dangerous. Anyone using them should make sure they are familiar with the contents of the WorkCover booklet, *A guide for explosive powered tool operators* (available from WorkCover Authority Offices). This Guide outlines what knowledge is needed to pass an examination for an Explosive Powered Tool Operator's Certificate. The guide, however, is not a substitute for learning under the supervision of an experienced operator or instructor holding an Explosive Powered Tool Certificate.

Some key points:

1. Secure the work area with barricades and signs to eliminate the possibility of injuring someone else in the vicinity.
2. Check the other side of the firing area before beginning work.
3. The tools should be cleaned daily and thoroughly inspected once a week. It should be overhauled once a year by the manufacturer or an authorised representative of the manufacturer to ensure that it is safe for use.
4. Eye and ear protection should be worn by people using EPTs.
5. Only certificated operators should use EPTs.
6. The EPT toolbox must be kept locked when the tool is not in use.
7. Explosive charges of different strengths must be separated.
8. A log book should be kept for each EPT and all inspections, maintenance services, repairs and incidents involving the tool recorded.

### Checklist:

|   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| Is the operator certificated?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Are ear and eye protection worn when the tool is in use?                                | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the work area secure?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the tool cleaned each day after use?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the tool inspected each week after use?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a logbook for each tool in which to record cleaning, inspection and servicing? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the tool serviced once a year by the manufacturer or supplier?                       | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the toolbox kept locked when the tool is not in use?                                 | <input type="checkbox"/> | <input type="checkbox"/> |
| Are explosive charges of different strengths separated?                                 | <input type="checkbox"/> | <input type="checkbox"/> |

## BAD BACKS

Back strains and other injuries from moving or lifting things ('manual handling injuries') are all too common. Encourage workers to **get help** when something they are trying to lift or move is too heavy, too large or too long.

As far as possible, organise work so that people don't have to work in awkward, strained postures. In particular, try to avoid repeated bending and twisting.

When possible, make available mechanical aids such as trolleys, hoists and ramps.

See also the WorkCover publication *Three steps to preventing manual handling injuries at work* and WorkCover *manual handling information kit*.

### Checklist:

|   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| Are tasks organised so that people don't have to work in awkward, strained postures?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Are mechanical aids such as trolleys, hoists and ramps available to cut down the risk of bad backs and other strain injuries? | <input type="checkbox"/> | <input type="checkbox"/> |

## NOISE

**(Also refer to Page 140 for more detail on this subject)**

Exposure to too much noise for too long can make people deaf. However, the onset of deafness can be slow. Often workers don't realise that their hearing is being destroyed. They may think they have got used to the noise on the worksite. They have not. It is just that their ears have already been so damaged that the surrounding noise does not seem as loud as before. Sometimes people will deny that they are having trouble hearing.

Try to move noisy machinery away from workers. If they cannot be done, people in the noisy zone should wear WorkCover approved ear muffs or plugs. They'll cut down the noise by 20 to 30 per cent. Ear muffs or plugs must be worn all the time the worker is in the noisy zone – wearing them for only part of a noisy shift drastically reduces the protection.

See also the WorkCover publication *Quiet, please: how employers can prevent noise induced hearing loss*.

### Checklist:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| If noisy machinery is used on site, do people using the noisy machinery, or others working near it, wear earmuffs or earplugs? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is noisy machinery moved as far as possible from the workers?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Is noisy machinery which cannot be moved isolated behind sound absorbent walls or curtains?                                    | <input type="checkbox"/> | <input type="checkbox"/> |

## EYE INJURIES

Eye injuries account for one in 10 industrial injuries. Approved and appropriate safety glasses provide protection from chemical and corrosive splashes, dust, flying objects, glare and welding flash. For example, if work involves the use of metal cutting discs or grinders, eye protection complying with AS 1337 (*Eye Protectors for Industrial Applications*) must be used.

Sunglasses complying with AS 1067 (*Sunglasses and Spectacles – Non prescription types*) should be worn to provide protection against eye damage from bright sunlight.

Manufacturers, suppliers, and WorkCover Construction Safety Inspectors can advise on the best type of eye protection for particular tasks.

### Checklist:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| Are safety glasses or face shields worn when there is a danger of splashes from chemicals or corrosives, or grit in the eye from dust or flying objects? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are sun glasses worn?  | <input type="checkbox"/> | <input type="checkbox"/> |

## SKIN CANCER

Skin cancers are very common in Australia among people exposed to the sun. One type of skin cancer that can be caused by exposure to the sun is melanoma. It is a particularly aggressive cancer, and causes many deaths. People working in the sun should wear wide brimmed hats – or neck covers under hard hats – and suitable sun screen (SPF 15+). If practicable, long sleeved shirts should be worn. Workers should take advantage of any available shade.

### Checklist:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| Is sunscreen (SPF 15+) available for people on site who are working in the sun?      | <input type="checkbox"/> | <input type="checkbox"/> |
| Are broad brimmed hats (or neck protective attachments to hard hats) worn in summer? | <input type="checkbox"/> | <input type="checkbox"/> |

## CHEMICALS

When using poisons or corrosives, or any substance you are not sure about, read the label before you start. Don't have unlabelled chemicals on site and don't accept delivery of unlabelled chemicals. Don't smoke while using them. Work in a well-ventilated area. If that's not possible, wear a WorkCover approved respirator. You may also need to wear goggles or a face shield and gloves as well. Use whatever personal safety protection the manufacturers recommend.

Any chemical delivered to a construction site should be accompanied by a Material Safety Data Sheet (MSDS). Insist upon receiving an MSDS when you take delivery of chemicals or when sub-contractors bring them on to the site.

In New South Wales, manufacturers and suppliers are required by law to provide information about any conditions necessary to ensure that the substances will be safe and without risks to health when properly used'. Business Owners/Contractors/Principal Contractors are in turn required by law to 'provide such information, instruction, training and supervision as may be necessary to ensure the health and safety of employees/workers'.

An MSDS will help you:

- Check that the chemical is being used in the right way for the right job.
- Decide whether any improvements should be made to machinery or work practices.
- Decide whether any environmental monitoring should be done.
- Check that the site emergency equipment and procedures are adequate.
- Be aware of any health hazards.
- Store the chemical properly.

Dispose of chemicals safely and as prescribed on the MSDS and then wash carefully. If you spill any chemical on your clothing, remove the clothing and wash the body part affected. If you experience skin problems or difficulty breathing, seek medical advice.

See also the WorkCover publication *Using material safety data sheets*.

## Checklist:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| Are all chemicals, corrosives or poisons on site clearly labelled?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Can these labels be read and understood by you and the people using the chemicals?   | <input type="checkbox"/> | <input type="checkbox"/> |
| When chemicals, corrosives, poisons or any other potentially hazardous substances are being used does someone on site always read the label and take note of any safety precautions? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are you and all workers on site fully aware of any health hazards of any chemicals used on site?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Have you got Material Safety Data Sheets (MSDS) for all chemicals on site so you can check on possible health hazards and know what action to take in the event of an accident?      | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the area where chemicals are used well-ventilated?  | <input type="checkbox"/> | <input type="checkbox"/> |

# FIRST AID

(Also refer to Page 28 for more detail on this subject)

## First Aid Kits

By law, first aid kits must be readily available on all building sites. A type 'A' kit is required if there are 25 or more workers on the site; A type 'B' is required when there are fewer than 25 workers. Kits are available from pharmacies. Or check under 'First Aid Supplies and Instruction' in the Yellow Pages telephone directory.

The minimum contents of 'A' and 'B' type first aid kits conform to the specifications of the *First Aid Regulation* of the *Work Health and Safety Act 2011*.

## What to do in the event of serious injury

1. Don't panic. Stop what you are doing; think; and act.
2. Ensure the victim is in no immediate danger and make him comfortable.
3. Stop excessive bleeding.
4. If you think an ambulance is needed, phone for one immediately, stating clearly:
  - The location of the emergency
  - What has happened
  - What is being done
  - Who is calling
  - Ask what should you do before the ambulance arrives.

## Checklist:

|   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| Is there a type 'A' or 'B' first aid kit on site?*  | <input type="checkbox"/> | <input type="checkbox"/> |
| Do all workers on site know the procedures to be followed in the event of serious injury or accident? | <input type="checkbox"/> | <input type="checkbox"/> |

\* 'A' is for a site of 25 workers or more, 'B' is for fewer than 25 workers.

# REPORT ACCIDENTS AND DANGEROUS OCCURRENCES

(Also refer to Page 41 for more detail on this subject)

Always report health or safety problems to the appropriate person. In the case of an Owner-Builder project the appropriate person is you the Owner-Builder. Some serious accidents have to be reported, by law, to the WorkCover Authority.

## Notifying Accidents

By law, you must send the WorkCover Authority an Accident Report Form for serious work-related injuries, illnesses or dangerous occurrences. You may be prosecuted and fined up to \$10,000 if you do not.

A serious injury is one which causes the death of a worker; or renders him or her unable to carry out their usual duties for at least seven days after the accident. You must submit an Accident Report Form even if the person killed or injured is not an employee – for example, a Subcontractor or a visitor to the site.

The number of occurrences which are deemed dangerous is too extensive to list here. Some examples:

- Damage to or failure of equipment which endangers or is likely to endanger the health or safety of anyone in a workplace
- Damage to or failure of loadbearing members or control devices of cranes, hoist, conveyors or scaffolding
- An uncontrolled explosion, fire, or escape of gas, steam or dangerous chemicals
- Damage to or failure of compressed air equipment, boilers or pressure vessels.

Accident Report Forms are available from the nearest WorkCover office. Completed forms should be returned to the WorkCover office from which they were obtained by the person in charge of the work site.

More details about what injuries, illnesses and dangerous occurrences should be reported, and the time limit for reporting, are on the back of the Accident Report Form itself.

## Checklist:

|   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| Do <b>you</b> notify serious accidents by submitting a WorkCover Accident Report Form to your local WorkCover office? | <input type="checkbox"/> | <input type="checkbox"/> |
| Do <b>you</b> notify WorkCover of the commencement of construction work as required by the Construction Safety Act.   | <input type="checkbox"/> | <input type="checkbox"/> |



## OTHER CONSIDERATIONS

|   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| <b>Alcohol and Drugs</b>  |                          |                          |
| Are you sure that people are not working while affected by drugs or alcohol?  | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Machinery operators</b>  |                          |                          |
| Do all plant operators on your site hold appropriate certificates of competency?  | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Amenities</b>  |                          |                          |
| Is there at least one toilet per 20 workers?  | <input type="checkbox"/> | <input type="checkbox"/> |
| If the toilet is not connected to the sewerage system, does it have a close fitting lid and regular clearance?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Are there washing facilities?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there adequate clean, fresh drinking water?  | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Workers Compensation</b>   |                          |                          |
| If you employ people (as workers or 'deemed' workers), do you have a current workers compensation insurance policy which covers all your employees/workers? | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the trade and occupation of each worker on site and their salaries recorded?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Is a summary of the Workers Compensation Act 1987 displayed in a prominent place?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Is a record kept of all injuries?   | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Rehabilitation</b>   |                          |                          |
| If you employ more than 20 people, has your company nominated an employee as a rehabilitation co-ordinator?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Does your company have a general rehabilitation program?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Have the workers been told of the rehabilitation program and do they know where to see a copy of it?  | <input type="checkbox"/> | <input type="checkbox"/> |

## IN SUMMARY

Electricity, falls, collapsing trenches and melanoma kill frequently. Chemicals, corrosives, noise and dust inhalation can result in blindness, deafness, burns and injuries to your lungs. Bad backs or other serious strains can slow you down, or even put you out of action for weeks.

If everyone follows the commonsense safety rules set out on these pages, both Business Owners/Contractors/Principal Contractors and employees/workers will benefit.

Now is the time to make the building industry safer for everyone. Use the checklist that follows, to see if you need to make any changes to the way you operate.

If you need any more information or assistance with safety, rehabilitation or compensation matters, just call the WorkCover Authority office nearest you and ask for the Construction Safety Inspector.

## SAFETY CONTROLS

LEARNING  
ACTIVITY

22

Consider the conditions of **your** project, use the Safety Checklist on the previous pages as a guide – depending on the type of construction you are about to launch into, are you able to adhere to the safety provisions that relate to your size project? *If not* list below what needs to be implemented to ensure your site is safe for all concerned.

| WHAT NEEDS TO BE DONE? | HOW WILL YOU PROVIDE THE SAFETY PROVISIONS? |
|------------------------|---|
| 1                      |   |
| 2                      |   |
| 3                      |   |
| 4                      |   |
| 5                      |   |
| 6                      |   |
| 7                      |   |
| 8                      |   |
| 9                      |   |
| 10                     |   |

# EXPLOSIVE POWER TOOLS HAZARD ASSESSMENT

LEARNING  
ACTIVITY  
**23**

Consider the explosive power tools that would be used on *your* project, use the Safety Checklist on the previous pages and Page 52 as a guide. Depending on the type of construction you are about the launch into, are you able to adhere to the safety provisions that are required for the explosive power tools on your site?

| WHAT NEEDS TO BE DONE? | HOW WILL YOU PROVIDE THE SAFETY PROVISIONS? |
|------------------------|---|
| 1                      |   |
| 2                      |   |
| 3                      |   |
| 4                      |   |
| 5                      |   |
| 6                      |   |
| 7                      |   |
| 8                      |   |
| 9                      |   |
| 10                     |   |

## SELF TEST QUESTIONNAIRE

SELF  
TEST

14

| QUESTIONS  | REF. PAGE |
|--|-----------|
| <b>17. What safety checks should be considered in the following areas?</b> |           |
| <i>Trenches and Excavations</i>  |           |
| i.   | <b>46</b> |
| ii.  |           |
| iii.   |           |
| <i>Electricity</i>   |           |
| i.   | <b>47</b> |
| ii.  |           |
| iii.   |           |
| <i>Ladders</i>   |           |
| i.   | <b>49</b> |
| ii.  |           |
| iii.   |           |
| <i>Scaffolding</i>   |           |
| i.   | <b>50</b> |
| ii.  |           |
| iii.   |           |
| <i>Explosive Power Tools</i>   |           |
| i.   | <b>51</b> |
| ii.  |           |
| iii.   |           |
| <i>Chemicals</i>   |           |
| i.   | <b>54</b> |
| ii.  |           |
| iii.   |           |
| <i>First Aid</i>   |           |
| i.   | <b>55</b> |
| ii.  |           |
| iii.   |           |

# FALLS

(Also refer to Page 48 for more detail on this subject)

## PREVENTION OF FALLS IN GENERAL CONSTRUCTION

### NO. 1 IN THE TOP 5 INJURY AND FATALITY RISK STATISTICS

**Why?** Falls from height are the most common cause of fatalities on building and construction sites.

### Checklist for Owner-Builders

These are some of the issues **you must** consider when selecting and coordinating contractors and work schedules:

- Has the contract been prepared to take into account the access and fall protection needs of all parties?
- Apart from plans and specifications, can **you** provide the Subcontractor with any other information that will assist them to perform the work safely?
- Have **you** made sure the Subcontractor understand the correct sequence of critical operations to be carried out on site?
- Is the Subcontractor competent to perform the work safely? (Competence may have been developed through training and/or experience.)
- Have **you** or the Subcontractor identified fall hazards and assessed the risk of falling, for example, through a documented risk assessment, such as a Job Safety Analysis (JSA)?
- Have **you** or the Subcontractor implemented effective fall protection measures?
- Have **you** set in place sufficient supervision to monitor the Subcontractors' safety performance?

### What must a Subcontractor do to prevent falls

If the Subcontractor has direct employees, the Act imposes duties as an employer to protect their workers from risks to their health and safety. This duty extends to any other Subcontractors, and their employees, who the Subcontractor may have engaged, to undertake work on the site.

At the same time, the Act and the Regulations consider the Subcontractor and their employees to be employees of the Contractor/Principal Contractor – which may well be you – who has duties in respect of the Subcontractors health and safety, as discussed above.

*Employer obligations therefore apply to the Contractor/Principal Contractor/Owner-Builder and the Subcontractor. Generally, the more control Owner-Builders have over the work environment and the task to be performed, the greater their responsibilities towards Subcontractors and their workers. On the other hand, the more autonomy Subcontractors have in carrying out the job, the greater their responsibility towards their own workers. The key is to determine which things are within the control of each duty-holder\*. Where feasible, this should be determined before the job starts and be set down in the contract.*

*\*Note that occupational health and safety obligations in relation to these things cannot be contracted out to other duty-holders.*

Under the Act, the Subcontractor has a duty to ensure that their activities do not expose anybody (including other workers, site visitors and members of the public) to health and safety risks. However, the Subcontractor's duty does not extend to the activities of other Subcontractors (other than their own). For example, a roofing contractor is not required to check that another Subcontractor, such as a painting contractor, has provided the necessary fall protection for the painters. This responsibility rests with the Owner-Builder and the painting contractor.

## Checklist for Subcontractors

Before allowing a Subcontractor to commence work on a job, ensure that:

- The contract clearly establishes the responsibilities of the Owner-Builder and the Subcontractor regarding the provision and maintenance of fall protection
- The Subcontractor has all the information needed to do the job safely
- The Subcontractor, or the Owner-Builder, have identified fall hazards and prepared a documented risk assessment, such as a Job Safety Analysis (JSA)
- Agreed risk controls are in place and safe work procedures have been established
- The Subcontractor's workers (if any) have received adequate training and instruction in the use of the agreed risk controls and safe work procedures.

The Subcontractor should notify the Owner-Builder if any unexpected fall hazards are identified before or during the job.

## FALLS FROM MORE THAN TWO METRES

### DUTIES OF PERSONS IN CONTROL

An Owner-Builder has duties under the Regulations to protect all their workers from falls from heights of more than two metres. These duties extend to all Subcontractors and their employees that the Owner-Builder may engage.

### Identify fall hazards

- Before work starts, identify all physical locations and tasks that might cause a worker or Subcontractor to fall more than two metres. This includes travelling to and from the task
- Look at the task to determine whether there is a risk of falling. In particular, look at tasks carried out
- On any structure or plant being constructed or installed, demolished or dismantled, inspected, tested, maintained, repaired or cleaned
- On a fragile surface (for example, cement sheeting roofs, rusty metal roofs, fibreglass sheeting roofs and skylights)
- On a potentially unstable surface (for example, areas where there is potential for ground collapse including poorly backfilled or compacted ground, or unstable areas such as on top of stacks of building materials, timber pallets or bricks)

- Using equipment to work at the elevated level (for example, when using scaffolds, elevating work platforms or portable ladders)
- On a sloping or slippery surface where it is difficult for people to maintain their balance (for example, on glazed tiles)
- Near an unprotected open edge (for example, near perimeters without guardrails, or incomplete stairwells)
- Near a hole, shaft or pit into which a worker could fall (for example, trenches, pile holes or service pits).

## Assess the risk of a fall

### RISKS OF THE TASK

The following factors present a risk:

- Workers are handling unstable or cumbersome objects (such as sheets of plaster, or roofing sheets, which can be caught by the wind)
- The task is lengthy and exposes workers to the risk for long periods of time, creating the affects of fatigue, e.g. lack of concentration
- Workers use chemicals such as solvents or paints that may cause dizziness or loss of coordination
- New or inexperienced workers are involved in the task
- Workers are welding galvanised, chemical coated or similar materials.

### RISKS WITHIN THE WORKING ENVIRONMENT

The following factors present a risk:

- The slope of the raised work surface makes it difficult for workers to maintain their balance
- The work surface is slippery (wet, oily, dusty or glazed)
- The work surface is uneven (for example broken ground).
- The work surface is too cramped, preventing workers from moving freely
- Tools, work materials and debris clutter the work surface
- Workers carry out the task in adverse weather conditions (for example, in rain, strong or gusty winds, extreme heat or high humidity)
- There are unprotected edges or penetrations that are difficult to see because of obstructions, glare or deep shadows
- Building materials, large tools, or equipment need to be manually carried up to the job
- Several different contractors are in the same work area at the same time
- Pedestrians or road traffic interfere with workers doing the task.

## Control the Risk

If there is a risk that a fall may occur, the Owner-Builder needs to put in place measures to control the risk. The primary duty is to eliminate the risk. If this is not practicable, the risk must be reduced so far as is practicable. The Regulations set out a hierarchy (or ranking) of risk controls that the Owner-Builder must apply.

Eliminating the risk of a fall is the most effective way of protecting the workers and Subcontractors. The Owner-Builder must apply the controls in the order listed below (Hierarchy of Control). Only where it is not practicable to use a higher order control can the use of a control at the next lower level can be applied.

### HIERARCHY OF CONTROL

**Level 1:** Undertake the work on the ground or on a solid construction

**Level 2:** Undertake the work using a passive fall prevention device

**Level 3:** Undertake the work using a work positioning system

**Level 4:** Undertake the work using a fall injury prevention system

If, after considering all of the control measures listed above, a risk remains, you must control the risk using the following forms of control.

**Level 5:** Undertake the work from ladders, or implement administrative controls.

## HEIGHT SAFETY IN SUMMARY

Where adequate safety measures have not been provided, the following situations are particularly hazardous:

- Perimeter edges of buildings and structures
- Penetrations and voids
- Lift wells
- Stair wells
- Roofs
- Formwork deck
- Incomplete scaffolding
- Unsecured ladders
- Trenches excavations
- Drilled or bored piling holes.

Fall protection should be provided for all persons exposed to a fall of two metres or greater.

However, risk assessments may suggest that fall protection is needed at a lower height.

Remember that at any height, a fall onto concrete can cause serious injury or death. Therefore you must remain vigilant even when working off stepladders. The hard hat can protect you in the event of a low height fall onto concrete.



Never work at heights next to an exposed edge without some form of fall protection.

As the Owner-Builder, and for the safety of everyone at the workplace, remember the following points:

- The Owner-Builder does not expect the worker to work in any situation where there is a risk of falling
- The worker has the right to remove themselves from any hazardous work station
- The taking of risk will not be rewarded
- The immediate supervisor and health and safety representative should be made aware of any dangerous situations to which the worker may be exposed
- If required to use fall arrest equipment, make sure the worker has been properly trained in its use
- Encourage the worker to offer solutions to fall hazard problems – their opinions are important and valuable
- Report other fall hazards seen on site
- Do not allow the worker to work off a ladder within three metres of a perimeter edge which is protected only by a guardrail.

## ELIMINATE THE RISK OF FALLING

There are solutions to every fall hazard problem:

- Properly erected scaffolding
- Catch platforms
- Meshed in guardrails
- Access towers
- Mobile scaffolding
- Elevating work platforms
- Nets
- Penetration covers
- Fall arrest equipment – full body harness, lanyards, shock absorbers, inertial reels, static lines.

## SCAFFOLDING

**(Also refer to Page 50 for more detail on this subject)**

All scaffolds shall be constructed in accordance with the 'Guidelines for Scaffolding' Australian Standard AS 4576.

Ensure the workers only work off scaffolding if:

- It is tied into the structure
- It has proper base plates and a stable foundation for the standards
- Guardrails including mid-rails are in place
- There are kickboards on the working deck
- It is fully planked out
- It is adequately braced.

Any scaffolding which is defective or incomplete must not be used. It should be signposted:

***"Scaffold Incomplete/Do No Use"***

*Do not use scaffolding or other equipment which is tagged 'out of service'. Where defective equipment is identified always tag it 'Scaffold Incomplete' – 'Do not use'*

## Mobile Scaffolding

- Only trained persons should erect mobile scaffolding
- Follow the manufacturers/suppliers written instructions for erection, use and dismantling
- All mobiles over two metres in height should have an internal access ladder, a top-rail and mid-rail and a kickboard
- Mobiles should be used only on a level and solid surface
- The castor wheels on a mobile scaffold should be locked before using the scaffold
- No person should be on a mobile when it is being moved
- When moving a mobile scaffold, check to ensure that there are no power lines in the way.

## Fall Arrest Systems

Fall arrest equipment should only be used where:

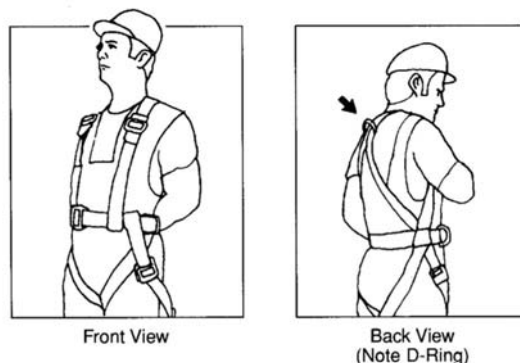
- It is not practicable to work from a work platform
- Fall protection cannot be provided by perimeter guardrails, catch decks, scaffolding etc
- The relevant Health and Safety (Plant) Regulations require a risk assessment for all fall arrest systems
- Before using an individual fall arrest system, ensure the user trained in its use
- Full body safety harness should be worn, not waist belts
- Lanyard and inertia reels should be attached to the rear as should be the attachment point of the harness
- Energy or shock absorbers should be used with all lanyard and harness systems
- Do not directly attach a lanyard snap hook to an anchorage point, i.e. a ring, use a Carabineer passed through the eye of the lanyard's thimble to make the connection
- In order to avoid roll-out make sure you use the same fall arrest manufacturer's hardware such as energy absorbers, Carabineers etc.

Seek advice when setting up an inertia reel. Avoid the pendulum effect.

Only a qualified rigger should install a static line system.

Maintenance records on inertial reels should be available on request.

Inspection of fall arrest systems should be undertaken by suitably competent persons.



## Ladders

- Ladders primarily are a means of access. They are not, however, a safe work platform and should be used in a safe manner only when the erection of a safe platform is impracticable
- Ladders should be placed at a slope of 4 (vertical) to 1 (horizontal) and be footed or secured top and bottom
- Ladders should be placed clear of walkways and traffic ways.
- Metal or metal reinforced ladders should not be used in the vicinity of live electrical equipment.

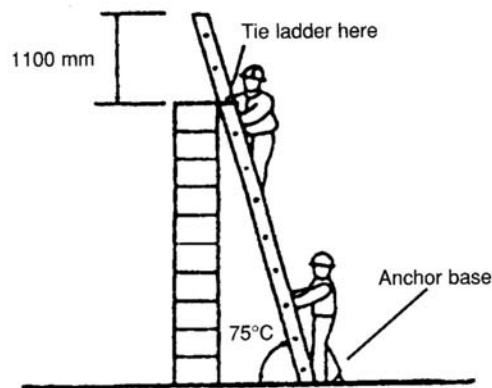
Persons working off a ladder should:

- Always have two hands free to ascent and descend
- Be able to brace themselves at all times
- Perform all work while facing the ladder
- Not perform a task that requires overreaching.

Where an anchorage point is available, persons working off ladders should secure their position with a lanyard attached to their safety harness where practicable.

Step ladders (and other ladders) should not be used within three metres of an exposed edge where, if the ladder toppled, a person could fall over that edge.

A person's feet should be no higher than the third tread from the top rung.



*Avoid using extension ladders when other work platforms are available.*

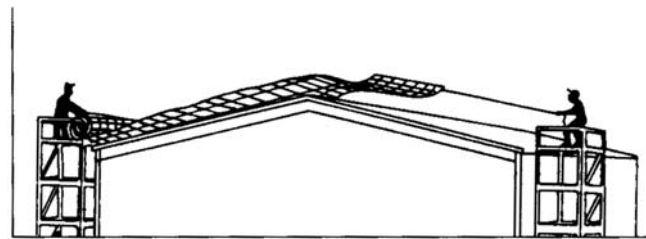
## Roofing

The *Code of Practice for Safe Work on Roofs* provides advice on controlling the fall hazards in roofing work.

However, for each specific roofing contract, a safe work procedure should be developed. The SWP should address fall protection needs for all roofing tasks such as the installation of box gutters.

With new roofing work, the following fall protection measures should be used:

- 2mm wire mesh (safely installed from work platforms) to protect the leading edge of the roof
- A perimeter guardrail system
- Scaffold access tower.



Mesh can be installed safely from scaffolding positioned at each end of the roof.

In the renewal or placement of existing roofs, the following safety measures to control fall hazards at the leading edge (before the wire mesh is installed) should be considered.

Catch platforms and/or individual fall arrest systems (subject to risk assessment).

Where other trades, in addition to roofing workers, need to enter a roofing area under construction, perimeter protection in the form of guardrails or a warning line system should be provided.

Special care should be taken in relation to fragile roofs. Refer to the above Code of Practice for the appropriate safety control measures.

## 24

[illegible]

# MOVING PLANT

## NO. 2 IN THE TOP 5 INJURY AND FATALITY RISK STATISTICS

**Why?** There have been a number of recent incidents where workers have suffered serious injuries from being hit by moving plant on construction sites. Some of these incidents have been fatal.

**Extract – Safety Alert WorkCover NSW – Moving Plant on Construction Sites**

### Occupational Health and Safety Requirements

Occupational health and safety legislation requires that you ensure that controls are implemented to eliminate or minimise the risk of moving plant colliding with pedestrians or other moving plant. You must also ensure that moving plant is fitted with appropriate safety features and warning devices that are maintained and tested, to alert people who are at risk from the movement of the plant.

Working near moving plant is a high risk activity. Particular care should be taken to ensure the safety of workers and members of the public when moving plant is in operation.

### Controls for the Safe Operation of Plant

The use of specific measures to eliminate or minimise identified risks should involve the selection of the most effective control measures based on a risk assessment.

The controls identified in the Safety Alert are not exhaustive and it is expected that a number of measures would need to be selected and integrated into the system of work to ensure the highest possible level of safety.

The following are some of the control measures that should be considered:

- Isolating vehicles and plant from persons on the site
- Using fencing, barriers, barricades, temporary warning or control signs
- Planning the direction that plant moves, so visibility is not restricted
- Implementing safe working distances
- Using clear communication systems
- Minimising amount of plant working at one time
- Using demarcation lines or zones
- Using audible reversing alarms
- Using reversing sensors
- Using reversing cameras
- Using flashing lights
- Using high visibility garments
- Using spotters or observers.

The use of technology such as sensors or reversing cameras is a useful aid to the plant operator but has limitations (eg blind spots) and must always be used with an effective warning system for persons at risk from the movement of the plant.

Safe Work Method Statements (SWMS) and vehicle movement procedures are required under occupational health and safety legislation and will assist in ensuring the safety of workers and the public around moving plant.

Workers must be consulted during the development of the SWMS and the vehicle movement procedures, and receive instruction on the procedures. These 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, or if they are found to be insufficient to effectively control the subject risks. Vehicle movement procedures and traffic control plans are particularly important where work is being undertaken on or near public roads.

Vehicle movement procedures should consider:

- Positioning and repositioning of plant
- Isolating workers/pedestrians from the moving plant
- Plant being operated near underground or aboveground services
- Plant operating in noisy environments
- Moving plant onto a public road from site
- Maintenance and servicing of plant
- Planning the work so that plant moves in a forward direction as often as practicable
- Reversing plant.

The plant operator should observe the following procedures:

- Follow all the directions in the SWMS
- 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.

### **Extracts from Code of Practice – Moving Plant on Construction Sites 2004**

The following hazards have resulted in fatalities in the past:

- |  |   |
|--|---|
| • Plant operated near persons  | • Working too close to a shoulder or embankment   |
| • Plant operated near underground or above-ground electric cables                          | • Failing to engage low gear before negotiating a steep gradient                          |
| • Reversing plant  | • Crossing logs, stumps or drains or pushing trees  |
| • Loading or unloading vehicles  | • Parking plant in a dangerous location   |
| • Operator driving too fast for the prevailing conditions                                  | • Not using adequate packing  |
| • Moving plant onto a public road from site  | • Not applying safety locks or pins when conducting maintenance, servicing or adjustments |
| • The operator or maintenance personnel not fully qualified or conversant with the machine | • Working near rail lines carrying rail traffic.  |
| • Unauthorised access  |   |

## 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. Consideration should be given to ensuring that there is sufficient room to move the materials or loads, and that the area is clear of persons, especially when moving long materials.

At a minimum, considerations should be given to:

- 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.

## 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.



## LEARNING ACTIVITY 25

[illegible]

# ELECTRICAL SAFETY

## NO. 3 IN THE TOP 5 INJURY AND FATALITY RISK STATISTICS

**Why?** Many serious accidents and fatalities have occurred on Owner-Builder Sites and commercial building sites in relation to Electrical Safety.

All electrical plant and gear must comply with the following requirements to be deemed safe on construction sites. See the WorkCover *Code of Practice: Electrical Practices for Construction Work*.

### Wiring rules

All electrical installation, materials, fittings, etc., must conform to the provisions of the WorkCover *Code of Practice: Electrical Practices for Construction Work*, available from WorkCover offices.

### Earth leakage devices

On all construction sites current-operated core balance earth leakage devices shall be fitted at the switchboard at which the final sub-circuit originates and protect individual circuits or groups of circuits.

Where construction work supply is obtained from a permanent wiring outlet, then an earth leakage device must be fitted at the power outlet.

Portable generators must be fitted with an earth leakage device.

Every core balance earth leakage device on the worksite must be trip-tested monthly from the time of installation by a licensed electrician or other competent person authorised by the constructor; and subjected to a calibration test conducted by a licensed electrician every three months from the time of installation.

### Switchboard

- a. To be of good construction and waterproof.
- b. Must have an acceptable locking device.
- c. Must have doors designed so as not to damage flexible cords.
- d. Must be located within the construction site.
- e. Shall be securely fixed to a wall or structure.
- f. An isolating switch shall be provided to control all outgoing circuits.
- g. The switchboard is to be locked after work each day, but must not be locked during working hours.

## Power outlets

Every 240V three-pin general outlet to be:

- a. Rated at 10 amperes minimum.
- b. Controlled by a double pole switch which operates in both the active and neutral conductors.
- c. Power outlets in site sheds are only to be used to supply power to the rest of the construction site.
- d. Double adaptors and 'piggy back' connections shall not be used.
- e. Portable outlet devices connected to permanent wiring must incorporate
  - a flexible cord rated at 10 amperes minimum
  - overload protection
  - earth leakage protection
  - be of robust design and construction.

## Extension cords and fittings

- a. All fittings to extension cords to be either non re-wireable (moulded) or transparent.
- b. Shall not be located in damp places.
- c. Must be supported above any work area and passageway to provide clear access for personnel and vehicles and to prevent damage to them.
- d. All fittings for conductors and flexible extension cords shall be wired identically so that the identical phases will be selected by the pin.
- e. Every extension cord to be heavy duty as defined in AS 3199.

## Electrical powered machines and portable tools

Before operating always ensure:

1. Appliance is in a stable position.
2. Provide ample clear space around appliance.
3. The immediate surrounding floor is sound, level and even.
4. Appliance is in good working order, complete with all guards with blades or teeth in a sharp and complete condition.
5. Ensure an efficient stopping and starting switch is provided.
6. Do not allow appliance to run idly between jobs.
7. Adjust or service appliance only when the machine is switched off.
8. Regularly clean sawdust or shavings from vicinity of appliance.
9. Provide eye and hearing protection to employees using appliance.
10. Ensure outer casing of appliance is not broken or cracked.
11. Ensure flexible cords to appliances are not damaged.
12. Ensure that all flexible extension cords, portable tools and electrical plan supplied at a voltage above 32 volts (extra low voltage) are inspected and tested and tagged by a licensed electrician at regular monthly intervals or at regular three-monthly intervals on single unit dwelling house sites. Details of the inspections and tests should be recorded in a book kept on the site or at the owner's premises.

Ensure that all electrical appliances in amenities sheds and site offices are inspected and tagged upon arrival or relocation and then at least three-monthly intervals thereafter by a licensed electrician. At the date of the inspection use a current colour-coded tag as specified below. That tag will be valid for at least three months. Record details of inspection and test in a book kept on the site or at the owners premises.

**Electrical Safety Checklist – on following pages.**

All tags must show the date of the inspection; the plant number or inspection number of the item inspected; and the name of the testing company.

The record book must show the date of the inspection; the plant number or inspection number of the item inspected; the results of the tests and inspections; and the licence number and signature of the electrician.

|                           |
|---------------------------|
| <b>ITEM NUMBER</b>        |
| <input type="text"/>      |
| <b>EQUIPMENT TYPE</b>     |
| <input type="text"/>      |
| <b>OWNER</b>              |
| <input type="text"/>      |
| <b>LICENCE NO. TESTER</b> |
| <input type="text"/>      |
| <b>NAME TESTER</b>        |
| <input type="text"/>      |
| <b>DATE TESTED</b>        |
| <input type="text"/>      |

All tags must be durable; non-metallic; self adhesive or positively secured; incapable of being reused; and must have a bright, distinctive surface

For more details about testing and tagging, see the WorkCover *Code of Practice: Electrical Practices for Construction Work*.

## Electrical Safety Checklist

The answer to all questions should be **yes**. If you answer **no** to any question ring your nearest WorkCover Authority Construction Safety Inspector for clarification or more information.

|   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| Do all electrical fittings comply with AS3000 wiring rules?                                   | <input type="checkbox"/> | <input type="checkbox"/> |
| Are all electrical fittings fitted with an earth leakage device or a residual current device? | <input type="checkbox"/> | <input type="checkbox"/> |
| Does the portable generator comply with AS2790?   | <input type="checkbox"/> | <input type="checkbox"/> |
| If the supply is from a permanent outlet, is an earth leakage device fitted?                  | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Switchboard (if applicable)</b>  |                          |                          |
| Is the switchboard:   |                          |                          |
| Waterproof?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Lockable?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Located on site?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Securely fixed to a structure?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Does it have an isolating switch?   | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Power outlets</b>  |                          |                          |
| Are the power outlets controlled by a double pole switch?                                     | <input type="checkbox"/> | <input type="checkbox"/> |
| Do the portable outlets:  |                          |                          |
| Have a flexible cord rated at 10 amperes minimum?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Have overload and earth leakage (ELCB) protection?  | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Extension cords and fittings</b>   |                          |                          |
| Are all fittings wired identically so that identical phases will be selected by the pin?      | <input type="checkbox"/> | <input type="checkbox"/> |
| Are all cords:  |                          |                          |
| Supported above work areas, wet areas and passages?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Protected from mechanical damage and moisture?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Heavy duty, conforming to AS 3199?  | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Powered machines and portable tools</b>  |                          |                          |
| Are the following in good condition and good working order:                                   |                          |                          |
| Guards?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Blades?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Outer casings?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Power cords?  | <input type="checkbox"/> | <input type="checkbox"/> |
| On/off switch?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Does all electrical equipment carry up-to-date inspection tags?                               | <input type="checkbox"/> | <input type="checkbox"/> |

## 26

[illegible]

# SAFETY SIGNS

Safety signs are displayed in the workplace to:

- Prevent accidents
- Warn of health and safety hazards
- Point out where emergency equipment is kept
- Tell workers when and where special safety equipment must be worn.

The best safety signs have pictures on them so you can understand them even if you are from a non-English speaking background. Examples of the signs are shown on the following page.

However, it is important to read the WorkCover booklet *Picture Safety Signs for the Workplace* which lists all the important safety signs so you will recognise them without hesitation.

## DANGER SIGNS



## PROHIBITION SIGNS



## MANDATORY SIGNS



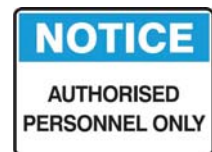
## EMERGENCY SIGNS



## HAZARD WARNING SIGNS



## NOTICE AND INFORMATION SIGNS





## SAFETY SIGNS

LEARNING  
ACTIVITY

27

What **Safety Signs** would you need for **your** project? Using the previous examples list the signs you will need for your project and why?

| WHAT SIGN? | WHY WILL YOU NEED THIS SIGN? |
|------------|------------------------------|
| 1          |                              |
| 2          |                              |
| 3          |                              |
| 4          |                              |
| 5          |                              |
| 6          |                              |
| 7          |                              |
| 8          |                              |
| 9          |                              |
| 10         |                              |

# FORMWORK & FALSEWORK

## NO. 4 IN THE TOP 5 INJURY AND FATALITY RISK STATISTICS

**Why?** Injuries and fatalities are mainly due

to the structural collapse of unsafe formwork.

You may hear two different terms – Formwork or Falsework – the difference between the two is as follows:

- **Formwork** is the term given to either temporary or permanent moulds into which concrete or similar materials are poured. In the context of concrete construction, the *falsework* supports the shuttering moulds.
- **Falsework** refers to temporary structures used in construction to support spanning or arched structures in order to hold the component in place until its construction is sufficiently advanced to support itself. Falsework also includes temporary support structures for *formwork*—panels and accessories used to mould concrete to form a desired shape, and scaffolding to give workers access to the structure being constructed.

There are 3 basic requirements of good formwork.

1. Quality
2. Safety
3. Economy

In this section we will be concentrating on the **Safety** issue.

Safety in formwork requires that the forms be:

- **Strong** – to ensure the safety of the structure and the protection of workers. It is essential that formwork be designed to carry the full load and side pressures from freshly placed concrete, together with construction traffic and any builder's equipment. On large jobs the design of formwork is the responsibility of an engineer, but on routine jobs it may be your the responsibility.
- **Sound** – the materials used to construct the forms must be not only the correct size and quantity, but they must be of good quality and be sufficiently durable for the job. Formwork for concrete must support all vertical and lateral loads that may be applied, until such time as these loads can be carried by the concrete structure itself.

## MINIMUM REQUIREMENTS

**Source: Extracts from: RTA Tip Sheet – T013 Formwork and Falsework August 2007**

Contractors and Site Supervisors (as the Owner-Builder you are classified as the Site Supervisor) must identify, register, risk assess and then eliminate or minimise all risks associated with formwork to as low as reasonably practicable prior to work being commenced.

Formwork is the surface, supports and framing used to define the shape of concrete until it becomes self-supporting and includes the forms on which the concrete is poured, the supports which withstand the loads imposed by the forms and concrete, the bracing which may be added to ensure stability and the footings. The supports, bracing and footings utilised can also be known as *falsework*.

Contractors and Site Supervisors shall ensure that all formwork and falsework:

- Complies with AS 3610 Formwork for Concrete, and
- Is designed, constructed and maintained so as to support safely all loads that are to be placed on it.

Contractors and Site Supervisors shall ensure that formwork that has a deck greater than 3 metres above the lowest surrounding ground level, or has a deck that is greater than 16 square metres and is designed to hold more than 2.5 cubic metres or 6 tonnes of concrete:

- Is inspected and certified by a qualified engineer as safe for its intended purpose and the loads that will be placed on it prior to the concrete pour
- Is undertaken by workers who hold a formwork Certificate of Competency issued by WorkCover.

Some of the hazards associated with formwork include:

- Fall hazards due to working at heights ladders and platforms
- Slip and trip hazards due to poor housekeeping, unstable and uneven ground, poor lighting etc
- Falling objects and ejected material such as dropped/dislodged tools and materials, collapsing formwork etc
- Mobile plant strike
- Exposure to the sun/heat/cold
- Manual handling hazards due to handling material and equipment
- Electrical shock and noise from plant and equipment used in the project.

## Risk Assessment

Risk assessments shall be undertaken for all formwork activities that are to be undertaken at the work site and shall consider the following factors:

- The size and weight of the structure to be constructed and the type of formwork/falsework required
- The plant and equipment required for the construction and dismantling
- The environment in which the structure is to be constructed eg: slopes, wind and rain
- The level of experience of the personnel involved in constructing and dismantling the formwork
- The height of the work
- Any other identified hazards associated with the work.

## Risk Control

All risks identified and assessed through the risk assessment process are required to be eliminated or minimised to as low as reasonably practical through the introduction of risk control measures.

Risk control measures shall be implemented in accordance with the hierarchy of control set out within the OHS Regulation 2001.

The following risk control measures shall be undertaken where practicable:

- Edge protection and netting to protect from falling objects where necessary
- Fit for purpose work platforms, scaffolding and ladders where utilised
- Traffic management control for mobile plant and vehicles
- Mechanical lifting equipment to reduce manual handling
- Adequate lighting of work area and surrounding
- Administrative controls – safe work procedures and SWMS
- Workers with appropriate training and certificate of competency
- Appropriate PPE and housekeeping.

## Planning

All documentation concerning the construction and dismantling of formwork shall be available to all personnel involved in the project and shall include:

- Design drawings for the structure
- Site and environmental surveys
- Risk assessments associated with the work, and
- All other applicable documentation required by AS 3610
- Construction, adjustment of formwork, placement of concrete and dismantling of formwork shall be planned in accordance with the formwork documentation
- An onsite traffic assessment shall be undertaken to prevent mobile plant and vehicles from coming in contact with the proposed formwork
- The project should be planned so as to avoid the necessity of excavating service trenches under, through or adjacent to any formwork
- All loose material that can be dislodged by wind, storms etc. should be made secure before leaving the work area.

## Constructing Formwork

The formwork shall be assembled in accordance with AS 3610 including:

- The construction of the formwork should not be altered from the formwork planning documentation unless the formwork designer has approved the changes
- If a crane or hoist is required to lift formwork materials, operators of this plant must be certified
- Any defects to formwork components and materials such as joists, bearers, plywood, support frames, and jacks should be reported immediately to the appropriate Manager
- Precautions shall be taken to prevent the dislodgement or undermining of any part of the formwork foundations by water run off, etc.
- The area where formwork is to be erected should be free of any obstructions.

## Placement of concrete

An inspection shall be carried out prior to the placement of concrete to ensure the formwork assembly complies with the formwork documentation.

An observer shall continuously supervise the placement of concrete into the formwork assembly.

A system of communication (radio or visual signals) should be put in place between the formwork supervising personnel and the concrete placing crews in case an emergency should arise.

The placement of concrete should be less than the maximum calculated pour rate on the inboard part of any formwork before proceeding to a cantilever section to maintain stability of the forms.

Hoisting, pumping and other equipment should not be attached to the formwork assembly unless specifically designed for the purpose.

## Dismantling of formwork

**(also refer next topic)**

Dismantling of formwork shall only be undertaken by trained and competent persons after a risk assessment has been conducted and then only in compliance with the SWMS work method that ensures the gradual transfer of the load from the formwork to the supports of the permanent structure

## Emergency preparedness

Emergency provisions shall be determined to minimise the effect of incidents such as collapsing formwork, falls from height, electric shock and fire, etc. Emergency procedures shall be developed to include:

The need and placement of the fire fighting and emergency equipment.

- Contact details for external emergency services and the relevant on site personnel
- The recovery of personnel suspended from a fall arrest device or underneath a collapsed structure
- The provision of first aid facilities and first aid officers.

Personal protective equipment'

Fit for purpose PPE as prescribed in the Risk Assessment and SWMS shall be available and shall:

- Meet the appropriate Australian Standard where applicable
- Be appropriate for the person and task
- Be used as per original equipment manufacturer (OEM) directions, and
- Be inspected regularly and before each use for damage and use by dates.

## FORMWORK CHECKLIST

### Planning

- ☐ Is the formwork documentation provided in an easily understood format?
- ☐ Has the formwork designer approved any changes and has the formwork documentation been amended?
- ☐ Have workers received proper instruction and competency based training?
- ☐ Are plant operators certified to operate equipment?
- ☐ Are workers correctly attired/possess appropriate PPE?
- ☐ Is lighting of the work area adequate?
- ☐ Has external protection been considered (i.e. screens/scaffolding/barricading/warning signs)?
- ☐ Have measures been taken to prevent mobile plant from striking formwork (i.e exclusion zone – refer to page in this section)?

### Construction of Formwork

- ☐ Is the formwork assembly free from defects?
- ☐ Have any defects in the formwork assembly been reported to the formwork contractor?
- ☐ Is the area free of obstructions?
- ☐ Have ground conditions and foundations been checked as adequate?
- ☐ Are formwork components consistent with specifications?
- ☐ Have frames been assembled correctly?
- ☐ Have diagonal braces been assembled on frames?
- ☐ Are frames greater than two metres in heights tied in position?
- ☐ Do base plates have full bearing on sole plates?
- ☐ Are inclined props securely tied?
- ☐ Are all bearers positioned over the centre of 'U' heads?
- ☐ Are correct pins used in props and frames?
- ☐ Is formwork deck level and within tolerances?
- ☐ Have precautions been taken against water erosion?
- ☐ Has the formwork been inspected prior to the placement of concrete?

- ☐ Are all fittings tied and unlikely to become loose when concrete is vibrated?
- ☐ Have observer(s) been positioned?
- ☐ Is there a system of communication in place with all workers?
- ☐ Are workers trained in the placement of concrete?
- ☐ Are all workers aware of the maximum concrete pour rates?

### Dismantling of Formwork

- ☐ Have workers been trained in formwork dismantling?
- ☐ Are barricades/warning signs in place to create an exclusion zone?
- ☐ Have minimum dismantling times been established and communicated?
- ☐ Is the dismantling to be carried out in a sequential manner?
- ☐ Has housekeeping been maintained?
- ☐ Is re-shoring/back-propping installed as per formwork documentation?
- ☐ Has back-propping been checked after post-tensioning?

Source: Extracts from: RTA Tip Sheet – T013 Formwork and Falsework August 2007 – Continued

## FORMWORK FAILURES

Some of the deficiencies which can lead to form failures are:

- Premature removal of forms or props.
- Inadequate bracing.
- Failure to regulate properly the placing of concrete on horizontal forms to prevent unbalanced loadings.
- Failure to check adequacy of footings for falsework to prevent settlement in unstable ground.
- Failure to inspect formwork during concreting to detect any abnormal deflections or signs of imminent failure.
- Props not plumb.
- Inadequate provision against uplift.
- Damaged threads on ties or props.
- Failure to check that the drawings are being interpreted correctly.
- Under-design.





[illegible]

# EXCLUSION ZONES: NO GO ZONES

**Adaption – WorkSafe Victoria – Extracts – Framework for Undertaking Work near Overhead and Underground Assets.**

## INTRODUCTION

The term “NO Go Zone” is utilised in order to provide a definition for safety clearances surrounding both overhead and underground services.

The following information is a guide for those individuals undertaking work near overhead or underground assets. Refer to the NO Go Zone framework in your State or Territories Regulations for specific information.

## What does working near an overhead/underground service mean?

There are current legislative technical obligations, including special safety considerations, procedures and processes required of those undertaking work near overhead or underground services. The term ‘near’ is utilised as a reference point for those undertaking this work and is applied when the worksite is:

- A distance of 6400 mm from overhead cables at voltages equal to or less than 66kV and 10000 mm in the case of voltages greater than 66kV, or
- A distance 0 mm from an underground service or 3000 mm from an asset registered under the pipelines act or and underground electrical cable with a voltage greater than 66kV.

**Note:** A spotter must be used for working inside these clearances for overhead electricity services unless specified industry guidance does not call this requirement up. Clearances from services must be safely determined by a competent person when completing a JSA.

## OVERHEAD SERVICES

If you are working with plant 'near' an overhead service and following the NO Go Zone guidance material, you may work up to:

- 3000 mm from an overhead electrical cable on a pole, and
- 8000 mm if the electricity cable is on a tower line.

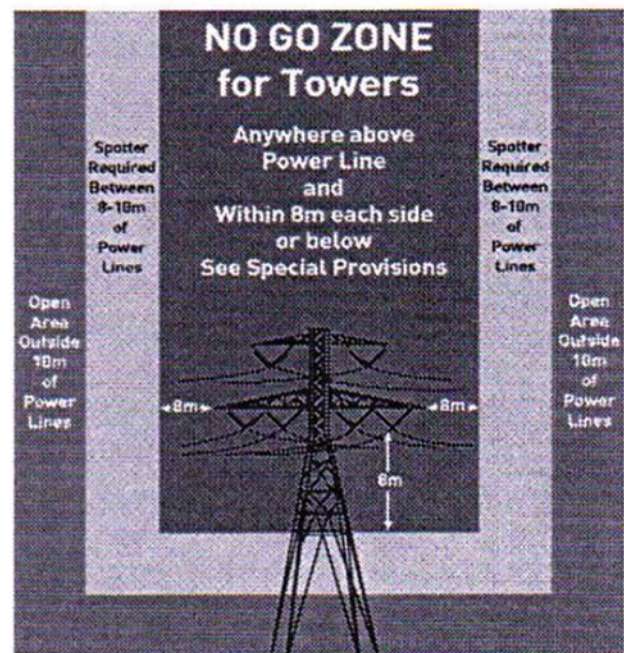
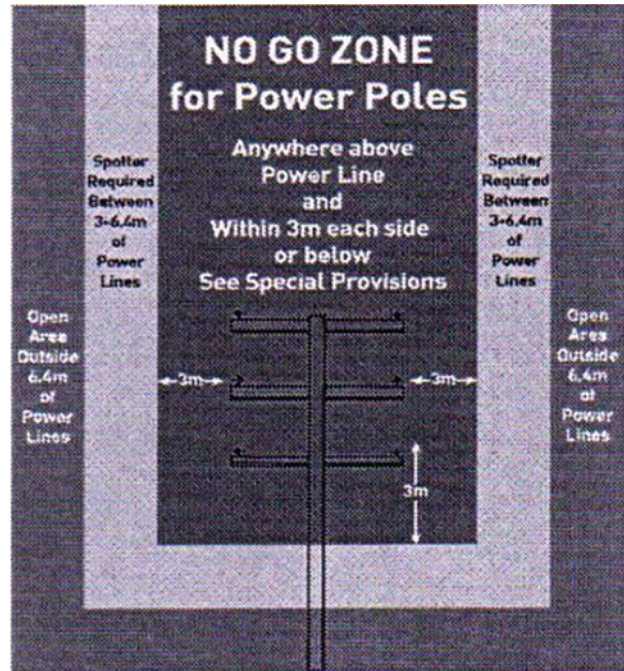
If the design envelope of the plant is able to encroach on this clearance in its working position:

- Then employers/contractors must obtain permission from the electricity company, or
- Alternatively, employers/contractors will be deemed to have gained permission if they have developed safe systems of work and are working in accordance with these guidelines.

If you cannot comply with these NO Go Zones safety procedures, then NO work should be undertaken without specific permission from the electricity company.

NO Go Zone safety procedures are also being developed for specific industries such as the waste industry. These will be available from the Office of the Chief Electrical Inspector, WorkCover Officers of the Office of Gas Safety. (See Diagram 1 for a representation of the NO Go Zone clearances around an overhead electrical cable.)

**DIAGRAM 1: CLEARANCES FROM OVERHEAD ELECTRICAL CABLES**



## UNDERGROUND SERVICES

You may carefully prove the location of underground asset by hand or other suitable non-destructive method. This should only be undertaken after obtaining information on the location of any underground services, except where the asset owner prohibits any excavation without a location of the assets on site. If you are working with plant 'near' an underground service, and following the NO Go Zone guidance material, you may work no closer to the asset than (see Diagram 2):

- 300 mm for individuals; and 500 mm for plant or equipment, or 3000 mm in the case of any underground assets registered under the Pipelines Act or an electricity cable with an in-service voltage greater than 66kV.

For principal assets requiring significant integrity of the material surrounding the asset, greater clearances may be required. Information regarding these clearances can be obtained with the initial asset location enquiry.

**DIAGRAM 2**



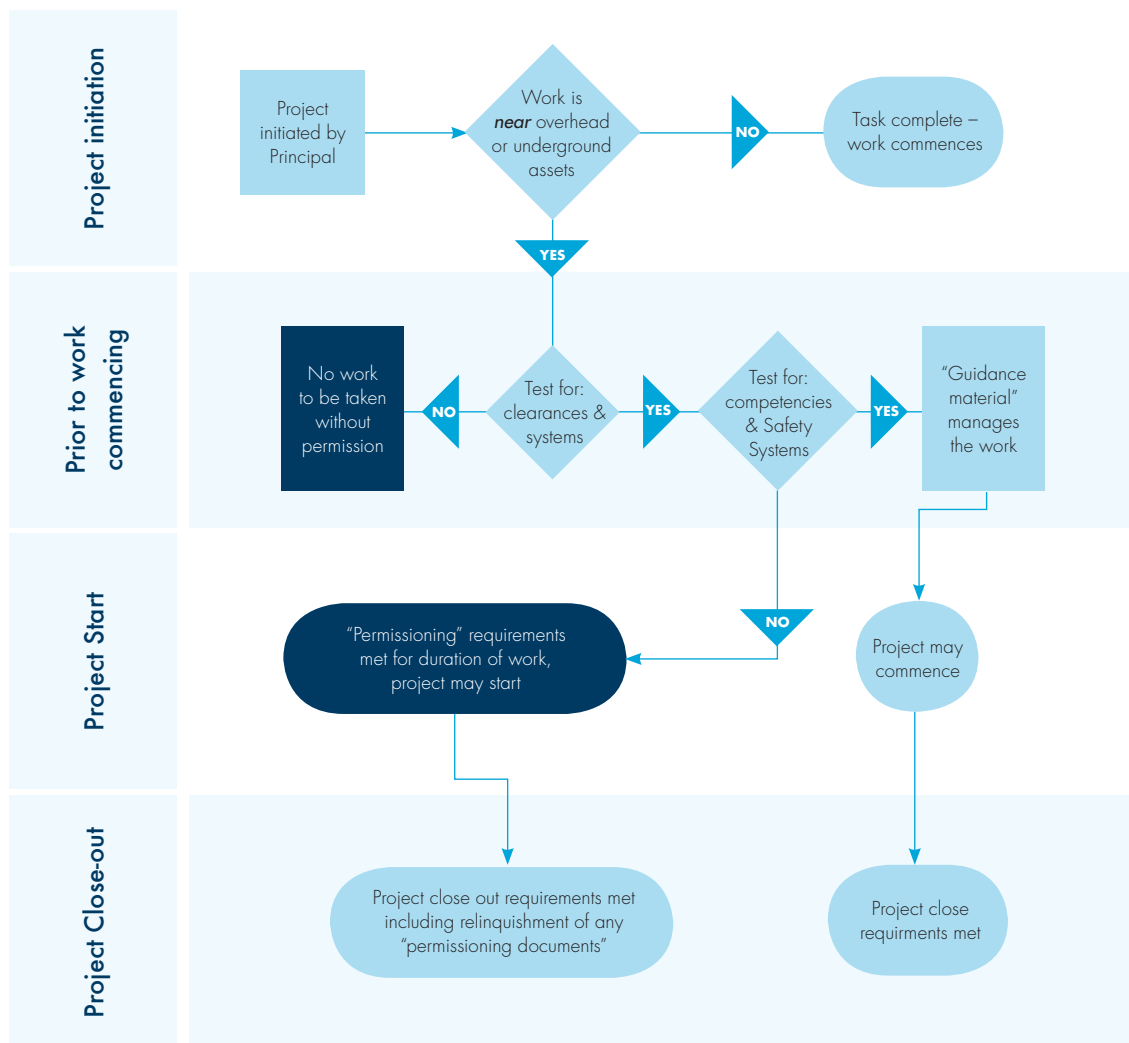
## WHAT IS NEEDED TO KNOW BEFORE STARTING WORK?

Before starting work, determine that:

- The scope of the work.
- If there will be work near overhead or underground services.
- If in undertaking this work, it will encroach into the NO Go Zone clearances surrounding these services.

(This means it must be considered what work is going to be done and how it will be done at the planning stage of a project. See Diagram 3)

**DIAGRAM 3: FLOW CHART: WORK NEAR OVERHEAD OR UNDERGROUND ASSETS**





## WHAT IS NEEDED BEFORE STARTING WORK?

If you determine your work near utility services will encroach on the NO Go Zone clearances, then you must seek 'permission' from the Asset Owner or comply at all times with the NO Go Zone clearance and guidance framework contained in Tables A and B. This may also include any specific guidance processes and procedures required for the scope of the works. (See diagram 4 for an example.)

For instance, when undertaking excavation works, you need to seek information on any underground services which may be located at your worksite. This can be done by requesting information from the asset owners. Most utility companies are members of the 'Dial Before You Dig' service and provide this service at no cost. For the asset owners not registered with this service, you will need to contact them directly or through their service provider. Most asset owners will provide the utility plans without cost, unless the scope of work is reasonably complex. For a listing of these asset owners or service providers, go to the WorkCover websites in your State and access their NO Go Zone compliances.

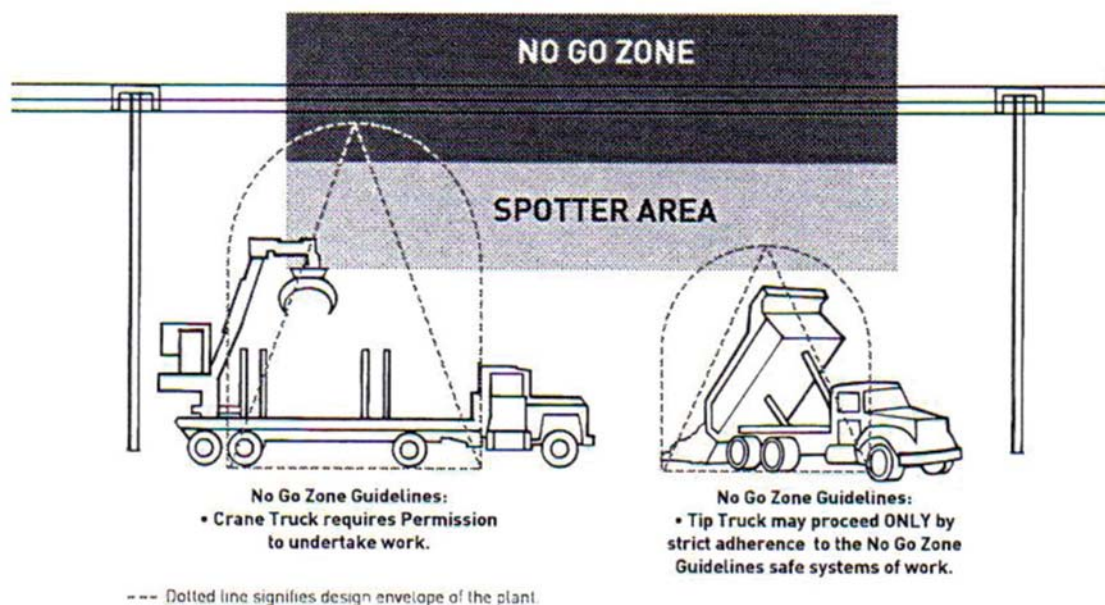
Providing you adhere to any additional requirements in the utility company response to this request for information on underground services locations, including the requirements of this guidance framework, you will be deemed to have been granted permission to undertake work.

With overhead services, you need to safely determine the height of any services at a worksite. You must also determine the design envelope of any plant or equipment and any loads being slung during the works (Diagram 5). If you are operating under specific guidance material and the working location is near the overhead service, you must subtract the design envelope from the height of the electrical cable and check this figure against the clearances listed in Table A. Then, to see if any permission is required before you commence work, you must check the compliance requirements in Table B.

If you are encroaching on the NO Go Zone clearances or are unable to comply with these guidelines, you must seek permission from the asset owner.

Where no safe systems of work and or training regimes are in place, then no work near overhead or underground assets should be undertaken, unless the asset owner has granted permission.

**DIAGRAM 4**



## CHECKLISTS, FLOWCHARTS AND PROCEDURES

Sample checklists and flowcharts for undertaking work near overhead or underground assets are available as a download through the 'NO Go Zone' link at the WorkCover or service providers websites. Other checklists for various work stages, including technical guidelines and instructions, are also available from these websites.

Applicable limits of approach are detailed in Table A. The design envelope and working position of plant must be known for the scope of work, together with the height of overhead assets and the buried depth and position of underground assets. You must also consider how the work or task will be undertaken at the particular worksite. Once this is known, refer to Table B to determine what process must be followed for the work to comply with these guidelines.

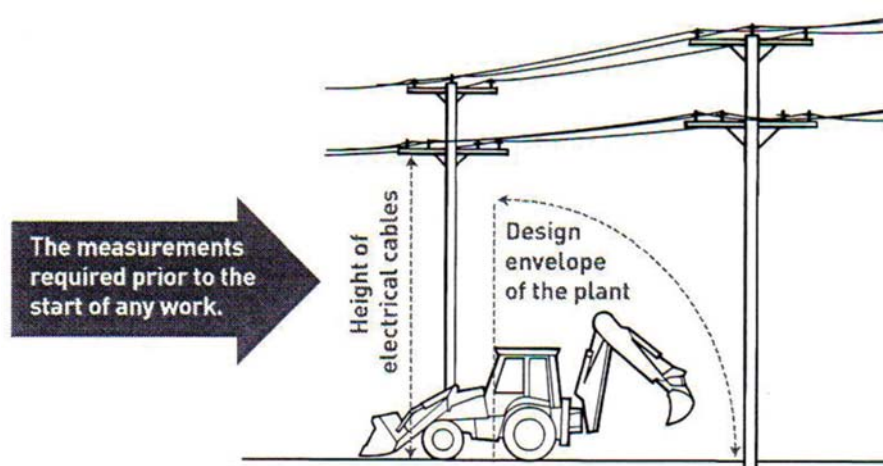
Once the process has been established, consideration should also be given to:

- The operation of any plant or equipment near the overhead or underground assets and what mechanism/s will ensure clearances to these assets are maintained throughout the entire job
- Any hazards specific to that worksite
- Ensuring individuals are appropriately trained for the particular asset and the work scope.

## COMPETENCY

Only a person competent in identifying and preparing a Job Safety Analysis (JSA) for overhead and underground services shall assess compliance with the NO Go Zone framework. Where the NO Go Zone framework provides for work near overhead and underground assets, only a competent individual or an individual under the supervision of a competent person shall undertake the work.

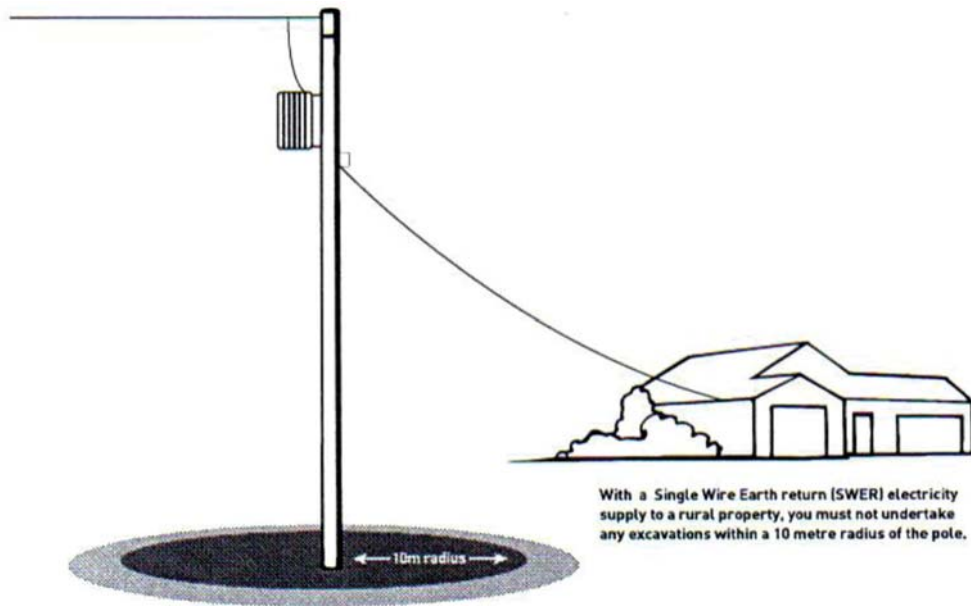
### DIAGRAM 5 : MEASUREMENT REQUIRED FOR EACH WORKSITE



## SINGLE WIRE EARTH RETURN (SWER) OR SWER ELECTRICITY SYSTEMS

No excavation work shall be undertaken within a 10 metre radius of a pole with a SWER transformer mounted on it (see Diagram 6). For further information regarding work near SWER systems, contact your local electricity company. Contact telephone numbers are at the back of this document.

**DIAGRAM 6**





**TABLE A: TYPES OF ASSETS AND LIMITS OF APPROCH**

| Types of overhead electrical & communications assets. Nominal voltage{'U'} both alternating current and direct current. | Minimum clearances for the design envelope of plant and equipment under these guidelines before permission is required. Permission will also be required where the conditions in Table B cannot be met. | Safety Controls required for the Deemed to Comply guideline provisions to take effect. |
|---|---|--|
| 1. Insulated low voltage electricity conductors   | 500 mm  | Training and safety systems  |
| 2. Uninsulated low voltage electricity conductors   | 1000 mm   | Training and safety systems  |
| 3. High voltage electricity conductors up to and including 66kv   | 2000 mm   | Training and safety systems  |
| 4. High voltage electricity conductors above 66kv   | 6400 mm   | Training and safety systems  |
| 5. Communications cabling - Broadband and telephony   | 300 mm  | Training and safety systems  |

| <b>TYPES OF UNDERGROUND ASSETS</b><br>[Note: The owners of assets registered with the Dial Before You Dig service and covered by this guide require an enquiry through this free service and the compliance with any directive issued with information regarding the asset] | Minimum clearances for individuals {A}, and the operating envelope of plant and equipment {B} under the guidelines. [Refer to Table B] | Safety controls required for the Deemed to Comply guideline provisions to take effect where specific permission has been granted. |
|---|--|---|
| 6. Assets listed under the Pipelines Act  | 3000 mm  | Must contact the Asset Owner for specific conditions  |
| 7. All electricity conductors greater than 66kv   | 3000 mm  | Must contact the Asset Owner for specific conditions  |
| 8. All electricity conductors up to and including 66kv  | 300 mm [A]. 500 mm [B]   | See specific requirements in the underground guidelines   |
| 9. Telecommunications Cables  | 300 mm [A]. 500 mm [B]   | Must contact the Asset Owner for specific conditions  |
| 10. All gas pipelines other than 6 above  | 300 mm [A]. 500 mm [B]   | See specific requirements in the underground guidelines   |
| 11. Water, Drainage and Sewerage pipelines.   | 300 mm [A]. 500 mm [B]   | Must contact the Asset Owner for specific conditions  |

**TABLE B: GUIDELINE FRAMEWORK FOR WORKING NEAR OVERHEAD AND UNDERGROUND ASSETS – EXCLUDING ELECTRICITY ASSETS ON TOWERLINES.**

| OVERHEAD ELECTRICAL ASSETS   |                           |                      |                                  |   |
|------------------------------|---------------------------|----------------------|----------------------------------|---|
| OPERATING ENVELOPE           | DESIGN ENVELOPE           |                      |                                  |   |
|                              | OUTSIDE NEAR              | SPOTTER ZONE         | NO GO ZONE                       |   |
|                              |                           |                      | OUTSIDE TABLE A CLEARANCES       | INSIDE TABLE A CLEARANCES                                 |
| OUTSIDE NEAR                 | NO GUIDELINE REQUIREMENTS | SAFE SYSTEMS OF WORK | SAFE SYSTEMS OF WORK             | SAFE SYSTEMS OF WORK                                      |
| INSIDE SPOTTER OR NO GO ZONE | N/A                       | SAFE SYSTEMS OF WORK | SPOTTER AND SAFE SYSTEMS OF WORK | PERMISSION SPOTTER AND SAFE SYSTEMS OF WORK<br>* See note |

| UNDERGROUND ELECTRICAL ASSETS  |   |
|--------------------------------|---|
| OPERATING ENVELOPE             |   |
| OUTSIDE NEAR                   | NO GUIDELINE REQUIREMENTS                                 |
| INSIDE 'NEAR', OUTSIDE TABLE A | SAFE SYSTEMS OF WORK                                      |
| AT OR INSIDE TABLE A           | PERMISSION SPOTTER AND SAFE SYSTEMS OF WORK<br>* See note |

**\*Note: Separate Industry Sector guidelines may have been developed for work in this area.**

For information regarding access to Tower Line easements, you must contact the Asset Owner. No work may be undertaken near a Tower Line without Permission from the Asset Owner.

- The Utility safety Committee (USC) is responsible for endorsement of any guidelines and no work shall be undertaken without Industry sector development and endorsement from the USC;
- Consideration must be given to any load being slung by the plant or equipment.

## CONDITIONS APPLICABLE TO WORKING NEAR OVERHEAD AND UNDERGROUND ASSETS

No work is to commence until:

- The presence, location, type and operating voltage/pressure of the asset has been positively determined by a competent person and all required safety systems are in place
- A Job Safety Analysis (JSA) is developed for the scope of work and all persons performing the work are inducted into the JSA
- All the conditions of these guidelines and/or Permission to Undertake Work, including any special conditions, has been granted and complied with
- Persons have been instructed to avoid, wherever practicable, simultaneous contact between ground and any item of plant and its load whilst the plant is being operated or is in transit near electrical assets
- The safety procedures contained in these guidelines can be adhered to when an item of plant may encroach on the NO Go Zone.

An item of plant may operate to the distance specified in Table A, under the following conditions:

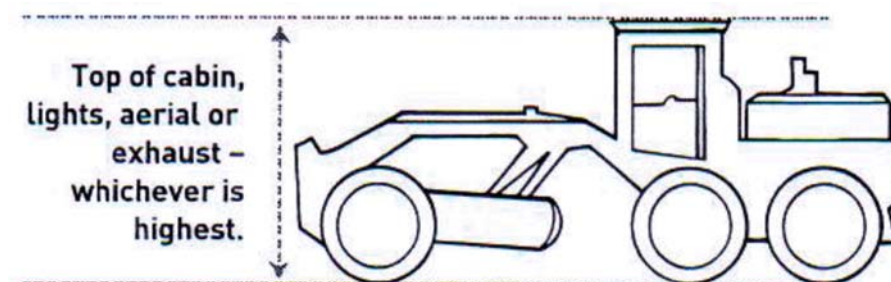
- Where the Asset Owner has granted Permission for this to occur, or
- Under Industry Sector Specific guidelines, or
- Under the processes and procedures contained in these guidelines, and
- Where the appropriate training and control systems, including the use of engineering solutions, have been implemented to ensure no part of the plant or equipment or load may come closer to the overhead asset than the distance specified in Table A.

In the specific case of plant which only operates where the height of its working envelope is the same as the height of its transit envelope, approach to within 300 mm of a covered Aerial service Line is permitted (see Diagram 7). Typical examples of this plant are mechanical street sweepers, high-pressure drain cleaners, graders and side loading refuse trucks.

In the case of plant whose design envelope may breach the NO Go Zone for electrical assets:

- Control measures may include controlling any load with non-conductive tag lines
- A spotter shall be utilized together with a minimum length of 1 metre of earthing chain or other approved earthing mechanism. Where it is not practicable to utilize a trailing earth chain, other suitable risk control measures must be used
- For voltages up to and including 66kV, the chain should have a minimum link diameter of 10 mm. For voltages above this figure, the earth chain must be 16 mm
- In both instances, the earth chain must be attached to the vehicle's chassis using bolts suitable for the task
- Where the operator position is ground-based with the controls attached to the vehicle or tray i.e. vehicle mounted cranes
- An 'Equipotential Mat' or other equivalent device, or a 900mm x 900mm x 6mm thick clean and dry rubber insulating mat is to be placed under the plant operator's position.

## DIAGRAM 7: TRANSIT ENVELOPE – MAXIMUM OVERALL HEIGHT



**Note:** The use of an insulating rubber mat only provides limited protection for voltages less than 22kV.

- The use of a mat does not allow any closer approach of the plant and the mat must be routinely tested for its insulation properties.
- Consideration should also be given to providing an operator station on the vehicle, eliminating the 'step' potential risk for the operator.

Where practicable, erect the following signage or symbolic signs that convey the same message at regular intervals along the worksite;



Signage must be placed in the cabin and near the controls of the plant to remind the operator to beware of overhead power lines.

## Programmed Works

During the job-planning phase, the proximity to overhead and underground assets and the equipment at a worksite shall be considered. Programmed work must be undertaken in accordance with processes and procedures detailed in this guide and/or endorsed by the USC process.

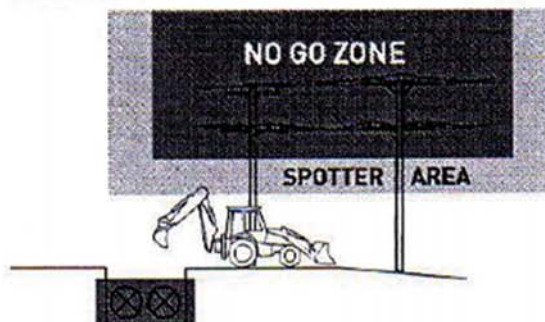
## Emergency Works

Unless permitted under a site specific Permit to Work, the following activities are not to be undertaken during emergency works near overhead electrical or communications assets within the distances defined in Table A:

- Use of large plant, including cranes and excavators (preference should be given to using small vehicle mounted hoists, backhoes, bobcats, hydraulic suction excavators and mini excavators), and
- Handling of large loads, such as tilt panels, roof trusses or trench shields, etc.

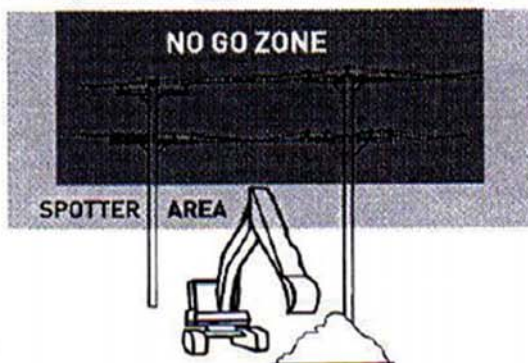
## WORKING NEAR ASSETS

### Example 1:



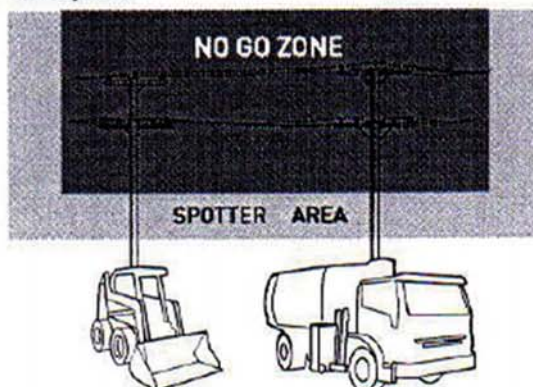
Plant whose design envelope (in the case of Overhead Electrical Cables) or their operating envelope (in the case of underground Services) is outside of table A must be controlled by Safe Systems of Work including the use of a spotter, but does not require "permission" from the Asset owner.

### Example 2:



Plant including Excavators, Cranes (including vehicle mounted cranes), EWPs and Concrete Placing Booms whose design envelope is inside the NGZ and may contact overhead assets must be controlled by safe systems of work and permit to work.

### Example 3:



Plant operating in the spotter area where the design envelope of the plant cannot encroach on the clearances in Table A. The plant must be controlled by safe systems of work but does not require "permission".

## SAFE SYSTEMS OF WORK

A competent person should undertake the development of a safe system of work near overhead or underground assets. Development of this system should take into consideration:

- The type and location of infrastructure, plant and equipment to be utilised
- Timing and duration of the scope of work
- Designated loading and or unloading areas
- The permanent or temporary relocation of any infrastructure or assets on or near the worksite
- How the principal wishes to construct any building, temporary hording, erection of scaffolding or bracing
- The relationship to any affected utility services
- What permission is required
- What authorities should be involved.

A detailed plan for the safe system of work should contain:

- Any additional information attached or added as appendices
- A record of services supplying the construction or building site with details of the assets in the vicinity of the worksite
- Who is to undertake the work and the type of plant and equipment used
- Communication processes and methods.

**Note:** Awareness training must not be the only control mechanism. Other methods of risk and hazard control must be utilised to maintain the safety of the individual, community and the assets themselves.

## First Aid

The Code of Practice for First Aid should be used to determine the requirements at a worksite.

A First Aid Kit must be available for a worksite. It should contain materials appropriate to the worksite and be regularly inspected and maintained.

## Signage and Marking

In terms of hierarchy for the control of OH&S hazards in relation to plant, signage and marking is considered the least effective. These must not be relied on as the only control mechanism to reduce the risk of injury in relation to plant.

However, signage and marking do provide useful warning of hazards and reminders of safety requirements. Appropriate training and supervision must support any message conveyed by signs. Signs should be displayed at all hazardous locations warning workers of the nature of any risk and/or how to avoid it. The use of pictograms is preferred but these may be combined with words.

## Technical Guidance for Plant and Equipment

Operation and maintenance manuals for plant and equipment must be supplied and conform to the current version of the Health and Safety Plant Regulations.

In addition, technical material should be provided with:

- Clear, unambiguous and adequate information and instruction for the safe operation of plant and equipment
- A specific section within the technical material referencing safety measures and highlighting the risk and avoidance measures for working near overhead and underground assets including:
  - The design envelope of the plant
  - The travelling height of the plant
- Clear guidance on the environmental conditions required for safe working of machinery:
  - Avoidance of low overhead electrical lines
  - Unstable surfaces
  - Excavations near underground cables and pipes, etc
- Readily understandable pictograms to supplement the text, as required
- A laminated quick reference guide for each piece of plant with clearly and permanently marked control panels.

## COMMUNICATIONS SYSTEMS

Communications systems must be appropriate for the worksite and the type of work being undertaken.

- The system/s must provide for emergency response. This may be from the site to the necessary response organisations and/or to a manual control point who shall undertake the appropriate notification
- Where the scope of work and the worksite require communication between spotter or safety observer and the operator, a voice communication system is preferable or alternatively, a visual, audible, radio or buzzer system could be used
- Where an operator platform is fitted, suitable communication devices are to be installed.

## Conditions Applicable to the Use of Spotters

Spotters for overhead electrical cables shall have completed an endorsed Spotter training program. Persons undertaking spotter duties for underground assets must also be competent to undertake the work.

Where this guidance material requires the use of a spotter to undertake the work near overhead or underground assets, the specific work practices shall include the following:

- The spotter must be dedicated to this task at ALL times when an operator is at the controls of the plant item or where the engine/power source is operating
- The spotter is to be positioned to monitor the distance between the operating plant and any asset and to provide immediate and direct notice/warning to an operator (i.e. hand signals, whistle, hand held two-way communications, etc.) should the plant or its load start to breach the prescribed clearance to the asset.



## Safety Information

In addition to complying with these guidelines regarding work near overhead and underground services, you must also consider the risks from other hazards in developing safe systems at work.

Some of the dangers which may arise when working near overhead and underground assets are:

### **GAS SERVICES:**

Damage to services can cause gas escapes which may lead to fires or explosions if an ignition source is present. There are two types of leaks following damage to the service:

- Damage which causes an immediate escape. In this case, there is a risk to those working at the site.
- Damage which causes an escape some time after the incident. This may be through damage which weakens the service casing or the result of poor reinstatement practice. In this instance, the public is mainly at risk.

### **ELECTRICITY SERVICES:**

An injury resulting from damage to live electricity cables is usually caused by the explosive effects of arcing current and by the fire or flames which may follow when the sheath of a cable is penetrated by an object. Damage and injury may also occur if the cable is crushed or contact is made between the individual phases of a cable.

### **PETROLEUM OR OIL PIPELINES:**

The result of damaging these services is similar to that of gas services. However, there is the additional risk of significant environmental issues, particularly when the liquid gains access to waterways.

### **WATER AND WASTE SERVICES:**

Damage to water and waste services is less likely to cause injury, but a high pressure jet of water from a main can injure or cause death, undermine roadways or damage adjacent services. Low-lying areas may also run the risk of flooding from both water and waste effluent, with the main danger from sewerage being contamination and the resultant risk to health.

## Contact or Arcing with Overhead or Underground Assets

Should contact be made with an overhead or underground asset or arcing occurs between a cable and an item of plant and/or employee, the following actions shall be taken:

- All work should cease immediately
- Operator (or Driver) should remain inside cabin. If it is essential to leave the cab or operator's station due to fire or other life threatening reasons, jump clear of the equipment. Do not touch the equipment and ground at the same time. When moving away from the equipment, the operator should hop slowly, shuffle or jump away from the plant (with feet together) until at least 10m from the nearest part of the plant item



- Warn all other personnel/public to keep 10m from the equipment. Do not touch any part of the equipment or load and do not attempt to approach or re-enter the vehicle until the relevant authorities have determined the site is safe
- Facilitate First Aid treatment and seek medical aid as required
- Advise your organisations emergency contact and request they immediately notify the relevant authorities, including the appropriate Utility Company
- Initiate the emergency management plan.

## Contact or Damage to Gas Assets

Should an incident occur that involves Gas assets, the following actions should be taken:

- All work should cease immediately
- Operator is to shut down the plant or equipment UNLESS this process may provide an ignition source for any escaping gas
- Do not attempt to use any instrument which may provide an ignition source near the gas escape. This may include mobile phones, two way radios, etc
- Do not attempt to approach or re-enter the vehicle until the relevant authorities have determined the site is safe
- It is essential to leave the cab or operator station, trench or enclosure and maintain an exclusion perimeter due to the risk of explosion or fire
- Warn all other personnel/public to keep clear from the worksite and equipment

Facilitate First Aid treatment and seek medical aid as required.

- Advise your organisations emergency contact and request they immediately notify the relevant authorities, including the relevant Gas Distribution Company
- Initiate the emergency management plan.

## AUSTRALIAN STANDARDS

AS 2550 – Cranes and the various sub codes

AS 2648.1 1995 Underground service identification tape colours

AS/NZS 2978-1995 Insulating Mats for Electrical Purposes

AS 1319-1994 Safety signs for occupational environment

AS1742.3 Traffic control devices for works on roads

Copies of these standards can be purchased from Standard Australia's Customer Service Centre on 1300 654 646.

## LEARNING ACTIVITY 29

[illegible]

## SELF TEST QUESTIONNAIRE

SELF  
TEST  
**15**

| QUESTIONS  | REF. PAGE    |
|--|--------------|
| <b>18. What should be considered in relation to preventing falls on a building site</b><br><div> <div>i.</div> <div>iv.</div> <div>ii.</div> <div>v.</div> <div>iii.</div> <div>vi.</div> </div> | <b>61</b>    |
| <b>19. How would you eliminate the risk of falling?</b><br>Answer<br><br><br><br>  | <b>65</b>    |
| <b>20. What areas of Electrical Safety should you consider?</b><br>Answer<br><br><br><br>  | <b>74-75</b> |
| <b>21. What is the purpose of displaying safety signs in the workplace?</b><br>Answer<br><br><br><br>  | <b>79</b>    |

| QUESTIONS  |        | REF. PAGE |
|--|--------|-----------|
| 22. What are the 3 basic requirements for good formwork?                               | Answer | 82        |
|  |        |           |
|  |        |           |
|  |        |           |
| 23. What is the purpose of formwork?   | Answer | 83        |
|  |        |           |
|  |        |           |
|  |        |           |
| 24. What are the risk control measures you could put in place in relation to formwork? | Answer | 84        |
|  |        |           |
|  |        |           |
|  |        |           |

| QUESTIONS  | REF. PAGE        |
|--|------------------|
| <p><b>25. What are the key deficiencies which could lead to form failure?</b></p> <p><i>Answer</i></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p></p> | <p><b>88</b></p> |
| <p><b>26. What is the purpose of a NO GO or Exclusion Zone?</b></p> <p><i>Answer</i></p> <p></p> <p></p> <p></p> <p></p> <p></p>                               | <p><b>90</b></p> |

# DEMOLITION SAFETY

## THE PRELIMINARY SURVEY

If a project involves demolition, it is a sensible move to arrange for your demolition contractor to attend the site so they can get a good look at what is to be demolished – and probably more importantly – what is around the building to be demolished that is supposed to stay where it is!

Where any demolition is proposed, the local government authority will require a site plan. The plan is required to show:

- The extent of the demolition
- Other buildings on the site
- Any other relevant information
- A description of the building; and if only part of the building is to be demolished
- Any necessary drawings and calculations to show that the remaining building will comply with the building regulations.

As the Site Supervisor, it is your responsibility to consider the following major areas of concern:

- Who has control of site during demolition process?
- Use of original construction drawings to determine features
- Age and condition of the structure
- Age and condition of surrounding structures
- Presence of asbestos – legislation on removal
- Surrounding trees
- Boundary fences
- Location of public services
- Rights of way through the subject property
- Type of ground on which the structure is erected
- Salvage items
- Presence of any basements or underground storage tanks etc
- Presence of any volatile liquids or chemicals – including check on previous use of building
- Presence of any radio active materials
- Street closures or diversions
- Need for hoarding and scaffolding
- Dust control/noise control
- Disposal/waste management requirements
- Sediment/erosion control measures.

## Responsibility of the Owner-Builder or their representative

A large percentage of these procedures may be the responsibility of the Site Supervisor. Ensure that evidence/documentation has been provided that the following has been implemented:

- An established plan for demolition work and selection of the relevant method or methods of demolition
- Informed all relevant parties of the method or methods of demolition selected and equipment to be used
- That all necessary work permits and forward notices to, and receiving notices from, the relevant authorities have been taken out
- That a person has been nominated, who is experienced in demolition, to control the work at all times during which the demolition is taking place
- That an inspection of adjacent properties has been carried out and a dilapidation report has been completed where necessary
- That a report to all relevant parties of any change in the condition of adjacent properties during the demolition
- Erection of all appropriate hoardings, gantries and overhead protection barriers for the protection of the public and for the protection of the personnel on the site
- The security of the site has been maintained
- Disposal of all material as required, and ensure that the demolition site is left in a clean and tidy condition
- Provided appropriate change rooms, dining facilities and sanitary accommodation for workers
- Complied with the appropriate codes of practice and regulations
- Considered all the environmental issues associated with the demolition project.  
Eg: Airborne Dust, Noise, Temporary Storage of Waste, Access and Egress.

## DEMOLITION CHECKLIST

The following investigations are the prime responsibility of the Demolition Contractor and/or the Principal Contractor. However, as the Supervisor it is your role to ensure the following investigations have been carried out and that the associated documentation is provided and signed off by the relevant authority, body or party.

## Preliminary investigations

### LEGAL

- Are there any statutory, regulatory, or other legal impediments to the demolition of the building?
- Is the owner/principal legally empowered to have the building demolished?
- Are the tender/contract documents sufficient and complete?

## STRUCTURAL

- Identify principal structural materials (timber, masonry, steel and concrete) in roof, floor, columns and walls (external and internal)
- Identify secondary materials in ceilings, wall-panelling, partitions, floor finishes
- Identify and locate any hazardous, or potentially hazardous, materials or conditions
- Identify the structural system and check its elements for deterioration, viz:
  - Elements resisting vertical loads (floors, beams, columns, walls), and
  - Elements resisting horizontal loads (service cores, shear walls, braced frames, rigid frames).

**Note:** if no structural plans or specifications are available, the assistance of a structural engineer may be necessary for the last item.

## SERVICES

- Identify and locate service supply mains (water, electricity, gas) and extent of reticulations
- Identify and locate emergency services (fire-detection and fire-fighting)
- Establish nature, location and extent of other services (sewerage, drainage, airconditioning, lifts)

## SITE

- Identify and locate underground services and their points of entry to and exit from the site.
- Determine levels of basements, cellars and other underground areas relative to:
  - Adjacent ground levels: and
  - Adjoining basement or footing levels.
- Identify retaining structures providing support properties.
- Determine the location, nature and condition of any underground storage tanks and the like.
- Determine most suitable points of ingress to and egress from the site for:
  - Site personnel; and
  - Demolition equipment; and routes for removal of demolished materials.
- Examine and record the condition of buildings on the adjoining sites, particularly where these abut a common boundary.
- Determine the need for, and the extent of, any required security fencing, hoardings, or overhead protection for footpaths.

## PERSONNEL

Ensure site personnel have received the following:

- Site Induction
- Work Activity Induction
- Issue of PPE



## WORK PLAN

- Develop overall procedure based on investigations
- Develop a level-by-level procedure for stripping, breaking up and removal of stripped and demolished materials
- From the level-by-level procedure, determine nature, number and sizes of mechanical equipment, and number and skills of personnel to be deployed on the working level
- Obtain advice from structural engineer whether structure of working level can safely sustain proposed loads and if not, modify proposed procedures accordingly
- Ascertain from regulatory authorities what restrictions they impose on working hours, use of public thoroughfares, noise levels, and the like
- Prepare detailed work plan, including a time chart
- Obtain a written statement
- Obtain approval of work plan from Regulatory Authority.

## EXECUTION

### PRELIMINARIES

- Obtain all necessary permits and approvals and give all required notices
- Secure site boundaries with fences or hoardings as appropriate
- Establish permanent and emergency entrances and exits
- Establish amenities
- Fully inform all site personnel of work plan, and safety procedures, and establish procedures for dealing with emergencies (accidents, fires)
- Ensure that all necessary plant, equipment and tools are available and in good working order.

### DAILY CHECKS

#### *Before commencing:*

- All opening and elevated free edges are properly guarded
- Any temporary bracing, shoring or propping is tight, stable and secure
- All fire and safety services are operational and all other services to the working level have been properly disconnected
- All hazardous materials have been removed from the working level
- Lines of communication to the supervisor are clear and operational.

#### *Before leaving:*

- All partly disconnected elements are stabilised
- All demolished materials have been removed or secured against inclement weather
- All fires or embers have been properly extinguished
- All emergency access routes are clear of debris and clearly marked
- All boundaries have been secured against unlawful entry
- All public thoroughfares are clear of demolished materials and any hazard properly lit, guarded and clearly marked.

[illegible]

# ASBESTOS

## NO. 5 IN THE TOP 5 INJURY AND FATALITY RISK STATISTICS

**Why?** Asbestos is a hazardous material that poses a risk to health by inhalation if the asbestos fibres become airborne and people are exposed to these airborne fibres. Exposure to asbestos fibres is known to cause mesothelioma, asbestosis and lung cancer.

**Source:** NOHSC – Code of Practice for the Management and Control of Asbestos in Workplaces (NOHSC: 2018 (2005)).

Asbestos-containing materials were used extensively in Australian buildings and structures, plant and equipment and in ships, trains and motor vehicles during the 1950s, 1960s and 1970s, and some uses, including some friction materials and gaskets, were only discontinued on 31 December 2003.

## INTRODUCTION

### National ban on the use of asbestos

On 17 October 2001, the National Health and Safety Commission (NOHSC) declared a prohibition on all uses of chrysotile (white) asbestos from 31 December 2003, subject to a very limited range of exemptions.

The prohibition, originally set out in the *Amendments to Schedule 2 of the National Model Regulations for the Control of Workplace Hazardous Substances (Prohibition of Asbestos) 2001* and subsequently reflected in Australian Government, State and Territory occupational health and safety and hazardous substances legislation, also confirmed earlier prohibitions of the use of amosite (brown) and crocidolite (blue) asbestos.

(There are no known current uses in Australia of the other three forms of asbestos: actinolite, anthophyllite and tremolite.)

Under the *National Model Regulations for the Control of Workplace Hazardous Substances*, the chrysotile asbestos ban prohibits the use (i.e. manufacture, supply, storage, sale, use, reuse, installation and replacement) of chrysotile asbestos except for:

- Bona fide research or analysis
- Removal, handling and storage for disposal
- Chrysotile asbestos encountered during non-asbestos mining, and
- A small number of time-limited exemptions for particular, specified uses for which substitution by an alternative to chrysotile asbestos is technically impossible or would create significantly greater health, safety and environmental risks.

Similarly, the use of brown and blue asbestos is prohibited except for:

- Removal and disposal purposes, and
- Situations where brown or blue asbestos occurs naturally and is not used for any new application.

The prohibition also includes a small number of time-limited exemptions which are restricted to specific products and uses where currently it is not:

- Technically possible to substitute an alternative to chrysotile, or
- Possible to substitute an alternative to chrysotile without creating a safety problem that has significantly greater health, safety and environmental risks than those presented by the use of chrysotile.

The prohibition does not extend to the removal of asbestos products *in situ* at the time prohibition took effect. These *in situ* asbestos containing materials (ACM) must be appropriately managed to ensure that the risk of exposure to airborne asbestos fibres are minimised.

The ultimate goal is for all workplaces to be free of ACM. Where practicable, consideration should be given to the removal of ACM during renovation, refurbishment, and maintenance, rather than other control measures such as enclosure, encapsulation or sealing.

Asbestos products which are *in situ* on 31 December 2003 may only be replaced by products which do not contain asbestos.

Even when the use of asbestos is still permitted, in the very narrow circumstances listed above, it is subject to hazardous substances legislation, under which manufacturers, importers, other suppliers and you must ensure that specified measures are properly managed.

## Preventing health risks from *in situ* asbestos-containing materials

Strong management and control of all *in situ* asbestos-containing materials (ACM) is essential.

The well-known adverse health consequences of exposure to airborne asbestos fibres can be prevented if precautions are taken and appropriate procedures are followed.

The risks posed by ACM depend on the nature and condition of the materials and the potential for exposure.

The main elements of managing the risk of ACM in workplaces are to:

- Identify all ACM in the workplace, as far as practicable
- Assess the risk associated with all ACM; and
- Introduce control measures to prevent, as far as practicable, the generation of airborne asbestos fibres and any exposure to airborne asbestos fibres.

A number of approaches for the control of ACM are outlined in the *National Code of Practice for the Management and Control of Asbestos in Workplaces*, but there may be specific applications where special approaches are required.

## The removal and disposal of asbestos-containing materials

The removal of ACM poses significant additional hazards.

Accordingly, a separate *National Code of Practice for the Safe Removal of Asbestos (HOHSC: 2002 (2005))* has been developed by NOHSC to supplement and support the *Code of Practice for the Management and Control of Asbestos in Workplaces*.

The transport and disposal of removed ACM are controlled by Australian Government, State and Territory legislation and a range of authorities, including but not limited to environmental, waste disposal and occupational health and safety authorities. All relevant authorities should be consulted before transporting and disposing of ACM wastes.

## RESPONSIBILITIES

Persons with control of the premises; this may include the Site Supervisor, Foreman, Leading Hand; have a duty of care to:

- Develop and maintain an asbestos management plan
- Investigate the premises for the presence or possible presence of ACM
- Develop and maintain a register of the identified or presumed ACM including details of their locations, accessibility, condition, risk assessments and control measures
- Assess the condition of any ACM that are found and the associated asbestos risks
- Develop measures to remove the ACM or otherwise to minimise the risks and prevent exposure to asbestos, and
- Ensure that control measures are implemented as soon as possible and are maintained as long as the ACM remain in the workplace
- State and Territory legislation sets out specific requirements concerning ACM. Before commencing any work that may disturb ACM in the workplace, the relevant legislation should be checked to ensure that there will be full compliance with these legal obligations.

## Consultation

Australian Government, State, and Territory Occupational Health and Safety Legislation require that persons with **control of premises** to consult with Health and Safety Representatives and other workers at the workplace on occupational health and safety issues. This legislation sets out requirements for establishing these consultative processes.

As with all occupational, health and safety issues, if ACM are present or thought to be present in a workplace, there must be full consultation, information-sharing and involvement by everyone in the workplace, including you, workers, contractors and others, throughout the processes of identifying ACM developing an asbestos management plan, assessing the risks and developing and implementing control measures.

Persons with control of premises must also consult with any other person who may be affected by the presence of ACM. For example, building owners must consult with their building's occupants and all relevant contractors.

## Awareness training for workers, contractors and others

Information and training must be provided to workers, contractors and others who may come into contact with ACM in a workplace, either directly or indirectly.

Depending on the circumstances, this asbestos awareness training may include:

- The purpose of training
- The health risks of asbestos
- The types, uses and likely occurrence of ACM in buildings, plant and/or equipment in the workplace
- The trainees' roles and responsibilities under the workplace's asbestos management plan
- Where the workplace's register of ACM is located and how it can be accessed
- The timetable for removal of ACM from the workplace

- The processes and procedures to be followed to prevent exposure, including exposure from any accidental release of asbestos dust into the workplace
- Where applicable, the correct use of maintenance and control measures, protective equipment and work methods to minimise the risk from asbestos, limit the exposure of workers and limit the spread of asbestos fibres outside any asbestos work area
- The NES and control levels for asbestos, and
- The purpose of any air monitoring or health surveillance that may occur.

## ASBESTOS MANAGEMENT PLAN

The purpose of an asbestos management plan is to help persons with control of premises to comply with the asbestos prohibition and prevent exposure to airborne asbestos fibres while ACM remain in the workplace.

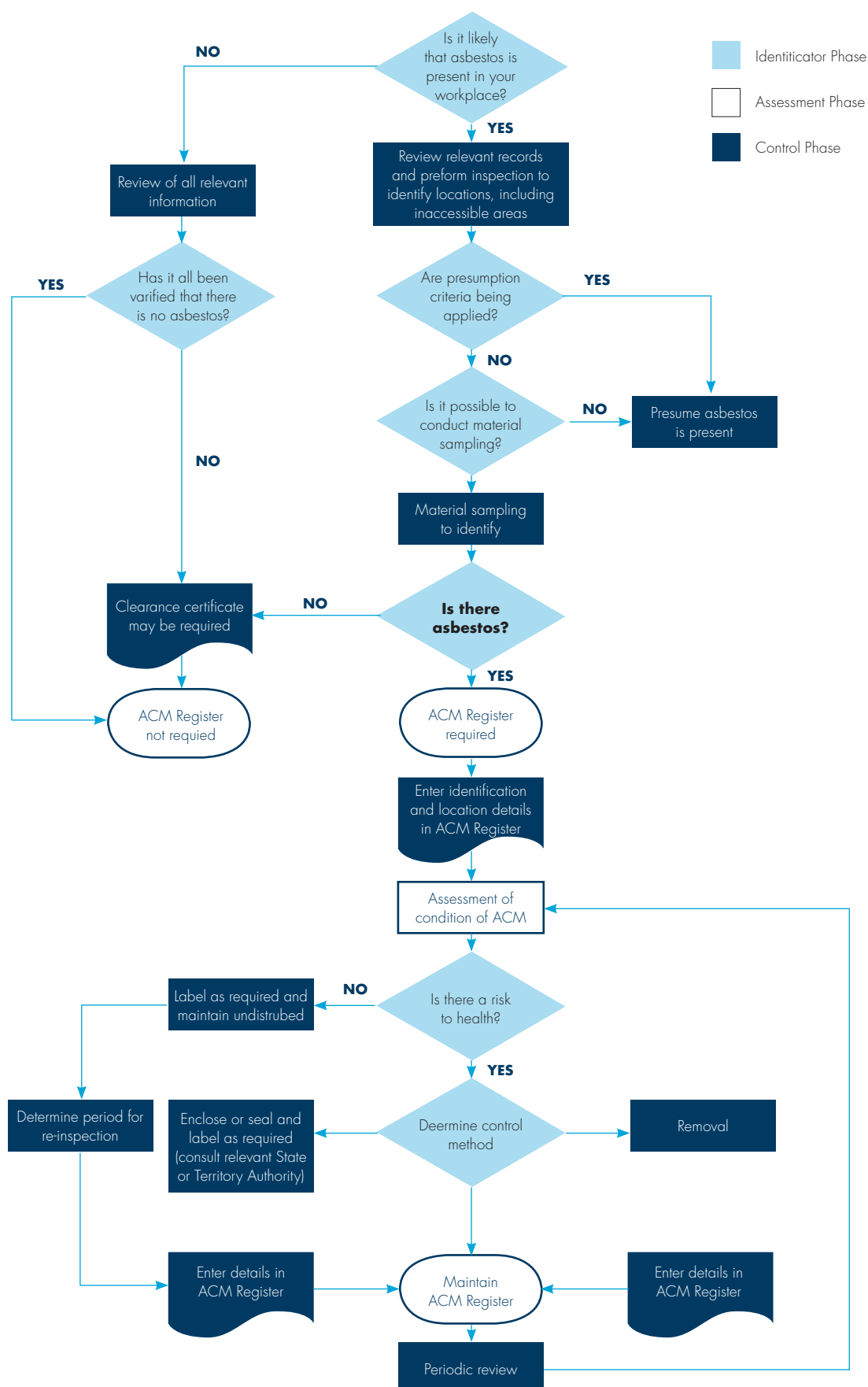
### General Principles

The following general principles must be applied in developing an asbestos management plan:

- The ultimate goal is for all workplaces to be free of ACM. Accordingly, consideration should be given to the removal of ACM during renovation, refurbishment and/or maintenance, where practicable, in preference to other control measures such as enclosure, encapsulation or sealing
- Reasonable steps must be taken to label all identified ACM. Where ACM are identified or presumed, the locations must be recorded in a register of ACM
- A risk assessment must be conducted for all identified or presumed ACM
- Control measures must be established to prevent exposure to airborne asbestos fibres and should take into account the results of risk assessments conducted for the identified or presumed ACM
- If ACM are identified or presumed, there must be full consultation, involvement and information sharing during each step of the development of the asbestos management plan – i.e. during the identification, risk assessment and establish of control measures
- The identification of ACM and associated risk assessment should only be undertaken by competent persons
- All workers and contractors on premises where ACM are present or presumed to be present, and all other persons who may be exposed to ACM as a result of being on the premises, must be provided with full information on the occupational health and safety consequences of exposure to asbestos and appropriate control measures. The provision of this information should be recorded.

The chart on the following page summarises how these general principles should be applied in the workplace.

## GENERAL PRINCIPLES OF AN ASBESTOS MANAGEMENT PLAN



## Contents

The asbestos management plan should be broad-ranging, and should include the following information components:

The Supervisor may be responsible for maintaining the workplace's Register of ACM which would include documenting the:

- Details of any maintenance or service work on the ACM, including:
  - o the company who is performing, or performed, the work
  - o the date/s the maintenance or service work was undertaken
  - o the scope of work undertaken, and
  - o any clearance certificates.
- Mechanisms for providing all relevant people with information about the location, type and condition of the ACM, the risks they pose and the control measures adopted to eliminate or minimise these risks
- Decisions about management options (i.e. to maintain the ACM or replace them with non-asbestos alternatives), including the reasons for these decisions
- A timetable for action, including priorities and date(s) for reviewing the risk assessment(s) and specific circumstances and activities that may impact timings (i.e. plant shut-down periods)
- Monitoring arrangements
- The responsibilities of all persons involved and the sections of the plan they are responsible for
- Training arrangements for workers and contractors
- A procedure for reviewing and updating the management plan and the register of ACM, including a timetable, and
- Safe work methods.

The asbestos management plan should be clear and unambiguous.

It should set out the aims of the plan, what is going to be done, when it's going to be done and how it is going to be done.

There should be clear lines of responsibility, with each person involved understanding their roles and responsibilities.

Relevant Australian Government, State or Territory OH&S legislation should be checked for further information on individual obligations relevant to the management plan.

## Review of the asbestos management plan

The asbestos management plan should be reviewed whenever the Register or ACM is reviewed.

These reviews should critically reassess all asbestos management processes and their effectiveness in:

- Preventing exposure to airborne asbestos fibres
- Controlling maintenance workers and contractors
- Highlighting the need for action to maintain or remove ACM
- Raising awareness among all workers, and
- Maintaining the accuracy of the register of ACM.



## Register of ACM

Persons with **control of premises** must keep an accurate Register of ACM on the premises.

The register should contain the following information:

- **Identification:**
  - the date(s) on which the inspection/identification was made and details on the competent person(s) who carried out the inspection/identification
  - details on the locations, types (i.e. friable or non-friable) and condition (i.e. damaged or intact) of any ACM identified on the premises, including ACM in items of plant and equipment, and the type of asbestos involved (i.e. blue, brown or white)
  - details on any material presumed to contain asbestos
  - any inaccessible areas that are likely to contain ACM, and
  - the result of any analysis that has confirmed a material in the workplace is or is not an ACM.
- **Risk assessment**
  - the date when the risk assessment was made, and details on the competent person(s) who carried out the assessment
  - the findings and conclusions of the risk assessment, including any reviews or revision of the risk assessment, and
  - the results of any air monitoring for airborne asbestos fibres and an assessment of these results.
- **Control measures**
  - the control measures recommended and decided upon as a result of the risk assessment
  - any maintenance or service work on an ACM, including the company or persons involved, the date and scope of the work undertaken and details on clearance certificates.

The **person with control** should ensure workers at the workplace are informed about the register of ACM. Before any work that may expose persons to airborne asbestos fibres is performed, the register should be made readily accessible to:

- Workers and their representatives
- Any other employers within the premises
- Any person removing ACM
- Any person engaged to perform work that may disturb ACM, including presumed ACM, and
- Any other person who might be exposed.

## Reviewing the Register of ACM

The Register of ACM, including any risk assessments, should be reviewed every 12 months or earlier where:

- A risk assessment indicates the need for reassessment, or
- Any ACM has been disturbed or removed.

A visual inspection of identified ACM should be undertaken as part of any review.

## Identifying ACM at domestic premises

All contracting businesses that perform work which may involve exposure to asbestos, including work at domestic premises, should establish an asbestos management plan for the work they are contracted to carry out.

Although many domestic premises contain ACM, they are unlikely to have a register or ACM for reference.

Accordingly, before commencing any work in domestic premises, precautions should be taken to identify the likelihood that ACM are present. Although particular caution needs to be taken when working on buildings built prior to 1990, recycled materials in later buildings may also contain asbestos.

Work at domestic premises that may involve exposure to ACM includes:

- Demolition and renovation
- Electrical maintenance or installation, including work on electrical meter boards
- The maintenance or installation of walls, roofing, ceilings or flooring, and
- Plumbing maintenance or installation.

If there are any known or suspected ACM on premises the owner, occupier and/or resident should be informed. Before work continues, the presence of asbestos should either be confirmed or ruled out through sampling and analysis or presumed ACM.

For confirmed or presumed ACM, the work should then proceed only in accordance with the risk assessment and control measures outlined on the following pages. The NOHSC Code of Practice for the Safe Removal of Asbestos (NOHSC: 2002 (2005)) should also be referred to if removal is identified as the best control measure.

The owner, occupier and/or residents of the premises should be informed of the nature of any work to be undertaken and the reasons for the precautions.

If ACM is to remain in situ, the owner of the premises should be provided with a report outlining the location of the ACM and any work carried out on the ACM.

## Warning signs and labels

All warning signs and labels should comply with Australian Standard 1319 Safety Signs for the Occupational Environment.

Examples of warning signs and labels are shown below.

**Note:** the examples of warning signs and labels below provide only an indication of the words that may be used to alert persons to the presence of ACM and asbestos hazards. The wording is not mandatory. Other warning signs and labels may be used, provided they meet the requirements of AS 1319.



## RISK ASSESSMENT

If ACM are identified in a workplace, the **person with control** must ensure the associated risks are assessed, in consultation with workers and/or their representatives.

Where the risk assessment relates to repetitive work practices in the one, location, such as the inspection and removal of friction products in vehicles, the risk assessment should relate to the overall work practice, taking account of the repetitive nature of the task.

The purpose of this risk assessment is to allow informed decisions to be made about control measures, induction and training, air monitoring and health surveillance requirements.

Only competent persons should perform risk assessments or any subsequent reviews or revisions of risk assessments.

Decisions about control measures to protect workers will depend on the assessed risks to health.

The risk assessment should take account of the identification information in the register of ACM, including:

- The condition of the ACM (e.g. whether they are friable or bonded and stable, and whether they are liable to damage or deterioration)
- The likelihood of exposure, and
- Whether the nature of location of any work to be carried out is likely to disturb the ACM.

The results from air monitoring by a competent person may assist in assessing the risks. The need for air monitoring will depend on the particular circumstances. For further information on air monitoring procedures, refer to the NOHSC Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres (NOHSC: 3003 (2005)).

## CONTROL MEASURES

Implementing the asbestos management plan.

Notwithstanding the ultimate goal of a workplace free of ACM, priorities should be set for effective control of the risks in the short term.

Control measures should be implemented in accordance with the hierarchy of controls, with elimination of the ACM being the first choice and PPE the least preferred approach.

The NOHSC *Code of Practice for the Safe Removal of Asbestos* (NOHSC: 2002 (2005)) should be referred to whenever removal is identified as the best control measure.

The control measures required for identified and presumed ACM should be determined from the risk assessment and should follow the following principles:

- If the ACM are friable and not in a stable condition, and there is a risk to health from exposure, they should be removed by an asbestos removalist as soon as practicable
- If the ACM are friable but are in a stable condition and are accessible, serious consideration should be given to their removal. If removal is not immediately practicable, short-term control measures, such as sealing and enclosure, may be able to be used until removal is possible, although some State and Territory OH&S authorities do not permit the sealing or encapsulation of ACM

- If the ACM are not friable and are in a good, stable condition, minimising disturbance and encapsulation may be appropriate controls. Again, however, some State and Territory authorities do not permit sealing or encapsulation, so the relevant authority should be consulted before these measures are considered
- Any remaining ACM should be clearly labelled, where possible, and regularly inspected to ensure they are not deteriorating or otherwise contributing to an unacceptable health risk, and
- ACM need to be removed before demolition, partial demolition, renovation or refurbishment if they are likely to be disturbed by those works, in accordance with the NOHSC Code of Practice for the Safe Removal of Asbestos (NOHSC:2002 (2005)).

If a material is proven or presumed to contain asbestos, it is essential to determine whether maintenance or service work can be done without disturbing the ACM.

For example, rather than drilling a hole through an ACM sheeting wall to install electrical wiring, the wiring might be able to be routed over the wall. Similarly, if a ventilation flue or pipe has to be installed in an ACM ceiling or roof, an alternative might be to run the flue or pipe through a non-asbestos wall.

Some States and Territories do not allow certain maintenance and service tasks to be carried out if identified or presumed ACM are present. The relevant State or Territory legislation should be checked to ensure that any proposed tasks are not prohibited.

## Establishing barriers

The asbestos work areas should be clearly defined to ensure that non-essential people do not enter and warn persons that asbestos work is being carried out (eg through the placement of barriers and signs or other warning devices).

All barriers and warning signs should remain in place until a clearance to re-occupy has been granted.

Potential entry points to the asbestos work should be sign posted or labelled in accordance with AS 1319-1994 *Safety Signs for the Occupational Environment*.

These signs should be weatherproof, constructed of light-weight material and adequately secured.

Tape can be used as a barrier to define an asbestos work area for some types of asbestos work of short duration. If a sign is not feasible, tape with the words 'asbestos hazard' along its length can be used instead to communicate the hazard.

If determining the distance between barriers and the asbestos work area, the risk assessment should take account of:

- Whether the ACM are friable or non-friable
- Activity around the asbestos work (other workers, visitors, the public, etc)
- The work methods used
- Any existing barriers (walls, doors etc)
- The amount of work to be done, and
- The type of barrier used (eg boarding or tape).

### DETERMINATION OF APPROPRIATE CONTROL METHOD FOR ASBESTOS

| METHOD OF CONTROL          | APPROPRIATE WHEN  | NOT APPROPRIATE WHEN   | ADVANTAGES   | DISADVANTAGES   |
|----------------------------|---|--|--|---|
| <b>DEFER</b>               | <ul style="list-style-type: none"> <li>Negligible risk of exposure</li> <li>Asbestos inaccessible and fully contained</li> <li>Asbestos stable and not liable to damage.</li> </ul>   | <ul style="list-style-type: none"> <li>Possibility of deterioration or damage</li> <li>Airborne asbestos dust exceeds recommend exposure standards.</li> </ul>   | <ul style="list-style-type: none"> <li>No initial cost</li> <li>Cost of removal deferred.</li> </ul>   | <ul style="list-style-type: none"> <li>Hazard remains</li> <li>Need for continuing assessment</li> <li>Asbestos management program required.</li> </ul>   |
| <b>ENCAPSULATE OR SEAL</b> | <ul style="list-style-type: none"> <li>Removal difficult or not feasible.</li> <li>Firm bond to substrata</li> <li>Damage unlikely</li> <li>Short life structure</li> <li>Readily visible for regular assessment</li> </ul>   | <ul style="list-style-type: none"> <li>Asbestos deteriorating</li> <li>Application of sealant may cause damage to material</li> <li>Water damage likely</li> <li>Large areas of damaged asbestos.</li> </ul> | <ul style="list-style-type: none"> <li>Quick and economical for repairs to damaged areas.</li> <li>May be adequate technique to control release of asbestos dust.</li> </ul> | <ul style="list-style-type: none"> <li>Hazard remains</li> <li>Cost for large areas may be near removal cost</li> <li>Asbestos management system</li> <li>Eventual removal may be more difficult and costly.</li> </ul>   |
| <b>REMOVAL</b>             | <ul style="list-style-type: none"> <li>Surface friable or asbestos poorly bonded to substrata</li> <li>Asbestos is severely water damaged or liable to further damage or deterioration</li> <li>Location in A/C duct</li> <li>Airborne asbestos exceeds recommended exposure standard</li> <li>Other control techniques inappropriate.</li> </ul> | <ul style="list-style-type: none"> <li>Located on complex and inaccessible surfaces.</li> <li>Removal extremely difficult and other techniques offer satisfactory alternative.</li> </ul>                    | <ul style="list-style-type: none"> <li>Hazard removed.</li> <li>No further action required</li> </ul>  | <ul style="list-style-type: none"> <li>Increases immediate risk of exposure especially to removal workers.</li> <li>Creates major disturbance in building</li> <li>Often highest cost, most complex and time consuming method</li> <li>Removal may increase fire risk within building; substitute required</li> <li>Possible contamination of whole building if removal done poorly.</li> </ul> |
| <b>ENCLOSURE</b>           | <ul style="list-style-type: none"> <li>Removal extremely difficult</li> <li>Fibres can be completely contained with enclosure.</li> <li>Most of surface already inaccessible</li> <li>Disturbance to or entry into enclosure area not likely.</li> </ul>  | <ul style="list-style-type: none"> <li>Enclosure itself liable to damage</li> <li>Water damage likely</li> <li>Asbestos material cannot be fully enclosed.</li> </ul>  | <ul style="list-style-type: none"> <li>May minimise disturbance to occupants.</li> <li>Provides an adequate method of control for some situations.</li> </ul>                | <ul style="list-style-type: none"> <li>Hazard remains</li> <li>Continuing maintenance of enclosure</li> <li>Asbestos management program required</li> <li>Need to remove enclosure before eventual removal of asbestos</li> <li>Precautions necessary for entry into enclosure.</li> </ul>  |

## Personal Protective Equipment (PPE)

The risk assessment should determine the need for, and appropriate types and levels of PPE for the tasks to be undertaken, including respiratory protection equipment. It is important that personal clothing does not become contaminated with asbestos fibres.

All respiratory protection equipment should meet the requirements of AS/NZS 1716-2003 *Respiratory Protective Devices*.

In general, the selection of suitable respiratory protective equipment depends on the nature of the asbestos work, the probable maximum concentrations of asbestos fibres that would be encountered in this work and any personal characteristics of the wearer that may affect the facial fit of the respirator (e.g. facial hair and glasses). All respirators should be worn in accordance with the manufacturer's instructions.

Refer to the *Code of Practice for the Management and Control of Asbestos in Workplace* [NOHSC: 2018 (2005)] and *Code of Practice for the Safe Removal of Asbestos* [NOHSC: 2002 (2005)] for more information regarding Asbestos.

Also refer to your State or Territory's Legislation and Regulations regarding Asbestos.



## 31

[illegible]



# OHS CONSTRUCTION INDUCTION

The following regulations apply to all construction sites.

Remember – You as the Owner-Builder is considered to be the principal contractor which makes you the person responsible to ensure all workers entering your site must have the OHS Construction Induction Card – commonly known as the White Card.

The Regulation requires that any person coming onto a construction project to carry out construction work must have completed a General OHS Induction course.

They must also attend a site specific induction session before being allowed to carry out work on a particular site.

These requirements apply to all workers, self-employed Subcontractors, and Subcontractor's employees. They also apply to such people as delivery drivers and consultants provided that they are actually going to perform some function on site (eg a driver who loads or unloads his vehicle).

"Construction work" is defined very broadly under the Act.

---

## RECORD KEEPING REQUIREMENTS

**For each site** you must keep the following records in respect of each person who comes on site to do construction work until 3 years after project completion:

**General induction training** – a copy of statement of training (eg green card or certificate issued by trainer).

**Site Induction:** A brief statement of the site specific induction training provided by you to each person (an outline of the session provided attached to the register would suffice).

### Filing

We suggest you keep a register in the attached form for each site, and file the copies referred to above behind the register in the same order that the names appear in the register.

This allows quick checking.

## OHS GENERAL INDUCTION REGISTER

.....

(Complete register and attached certified copies of induction cards/statements. Keep this register in the job file ) Page ..... of .....

[illegible]

## OHS CONSTRUCTION INDUCTION

LEARNING  
ACTIVITY

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The register on the previous page could be set up at the planning stage of your project. Consider which trades will be on your site – make a list of who you should be approaching to inspect their OHS Construction Induction Cards – Check that you have to sight the Induction Card, that you will need to have a copy of the card in the Job File. You may also need to carry out a Site Specific Induction on your site. Determine how you would run a Tool Box Meeting to outline the safety provisions on your site.

| NAME OF<br>SUBCONTRACTOR | WHAT WORKERS WOULD<br>BE INVOLVED? | HOW WILL YOU INDUCT<br>WORKERS ONTO YOUR<br>SITE? |
|--------------------------|------------------------------------|---|
| 1                        |                                    |   |
| 2                        |                                    |   |
| 3                        |                                    |   |
| 4                        |                                    |   |
| 5                        |                                    |   |
| 6                        |                                    |   |
| 7                        |                                    |   |
| 8                        |                                    |   |

## SELF TEST QUESTIONNAIRE

SELF  
TEST  
**16**

| QUESTIONS  | REF. PAGE  |
|--|------------|
| <b>27. What should you consider prior to commencing a demolition?</b><br><i>i.</i><br><i>ii.</i><br><i>iii.</i><br><i>iv.</i><br><i>v.</i><br><i>vi.</i><br><i>vii.</i><br><i>viii.</i><br><i>ix.</i><br><i>x.</i> | <b>110</b> |
| <b>28. What are your responsibilities or duty of care in relation to Asbestos Contained Materials (ACM)?</b><br><i>Answer</i>  | <b>117</b> |
| <b>29. What is the purpose of the OHS Construction Induction (White Card) process?</b><br><i>Answer</i>  | <b>129</b> |

# MANUAL HANDLING

## INTRODUCTION

### What is manual handling?

Manual handling means any activity requiring the use of force exerted by a person to lift, lower, push, pull, carry or otherwise move, hold or restrain a person, animal or thing.

Manual handling also includes any activity involving repetitive and/or forceful movements (eg. keying data into a computer; using a screwdriver) and any activity where the person must maintain constrained or awkward postures (eg. driving a truck; leaning over to make beds).

### What is the current legislation on manual handling?

The *Work Health and Safety Act 2011* contains general duties and responsibilities placed upon the principal contractor and the workers to ensure their own safety at work, and that of others who might be injured by the work. These duties extend to the prevention of manual handling injuries.

The Act also requires business owners/contractors/principal contractors to investigate matters reported to them, determine the action to be taken (if any), and notify the worker who made the report of the action to be taken. So again this means the Owner-Builder also has obligations regarding Manual Handling.

The *Occupational Health and Safety Regulations* require you to identify each hazard that is likely to arise from manual handling at the workplace and to assess the risk of injury or harm.

The *Code of Practice for Manual Handling* provides further information.

Many workplace hazards are environmental, for example slippery floors, unguarded machines, poor lighting and solvent vapours. However a manual handling hazard is an actual activity requiring the use of force. Such as when lifting a heavy box.

Anything that increases the likelihood of a hazard causing injury or harm to health is known as a risk factor'. Using the example of the heavy box, the activity of carrying the box would be the actual hazard, while the weight of the box would be a risk factor. The heavier the box, the greater the likelihood that carrying the box could cause an injury.

- **"activity"** refers to the movements by or postures of an employee at any given time in order to perform a task
- **"task"** refers to any sequence of activities performed by an employee as part of their job.

## What kinds of injuries can result from unsafe manual handling?

Unsafe manual handling may cause a variety of injuries and conditions including:

- Muscle sprains and strains
- Injuries to muscles, ligaments, intervertebral discs and other structures in the back
- Injuries to soft tissues such as nerves, ligaments and tendons in the wrists, arms, shoulders, neck or legs
- Abdominal hernias
- Chronic pain.

Some of these conditions are known as repetitive strain injury (RSI), occupational overuse syndrome (OOS), cumulative trauma disorder (CTD) and work-related musculoskeletal disorder (WRMSD).

In the Manual Handling Regulations, all of these conditions are referred to as musculoskeletal disorders (MSD). The Regulations define MSD as an injury, illness or disease that arises in whole or in part from manual handling in the workplace, whether occurring suddenly or over a prolonged period of time.

Manual handling injuries may result from:

- Gradual wear and tear caused by frequent or prolonged periods of manual handling activity (eg. a storeperson continually handling stock between deliveries)
- Sudden damage caused by intense or strenuous manual handling or awkward lifts (eg. a labourer lifting a compactor or a glazier lifting a pane of large glass from the ground on to a truck), or
- Direct trauma caused by unexpected events (eg. a storeperson walking on uneven ground carrying a large heavy carton, trips and falls).

Experience has shown most manual handling injuries are associated with day to day tasks. Very often there is no 'accident' (sudden or unexpected event) associated with the injury. The person may not feel pain until several hours after the injury occurs. This means an investigation into a manual handling injury must look at all relevant tasks the injured person usually performs.

## Symptoms of injury from Manual Handling

Don't ignore any of the following symptoms:

- Back or neck pain
- Pain in wrists, shoulder or arms
- Stabbing pains in arms or legs
- Painful joints
- Pain, tingling or numbness in hands or feet
- Weakness or clumsiness
- Heaviness
- Burning sensations
- Stiffness
- Swelling.

## Three steps to reducing manual handling injuries

1. Identify manual handling hazards.
2. Assessing the risk of causing injury by those manual handling hazards identified.
3. Eliminating the risk, if not practicable reduce the risk to the lowest practicable level.

## Hazard Identification

Identify all the plant, materials, equipment, premises, and systems of work, the work environment and individual tasks which have the potential to contribute to a musculoskeletal disorder.

Manual handling hazards can be identified in different ways:

- Walk through the workplace and look for potential hazards.
- Talk over risk factors with co-workers.
- Review previous accidents and near misses.

## Assessing the risks factors in manual handling

The weight of an object is not the only risk factor. A box lifted from the floor, for example, is more likely to cause injury than a box of the same weight lifted from waist height where no bending is required.

A number of factors can increase the risk of injury, including:

- Size, shape and weight of objects (if carried or held) and forces required (if pushed, pulled or restrained)
- Sudden unexpected or jarring movements
- Awkward movements, such as twisting, bending, over-reaching, especially if combined with load handling
- Static postures, like holding the body or part of the body in a fixed position for a long time, and
- Personal factors, such as age, physical dimensions and any disabilities the person may have.

These risk factors are influenced by:

- How long and how often the tasks are performed (eg. repetitive movement)
- The way work is organised, such as one employee performing all manual handling tasks instead of tasks being shared by several employees
- Design and layout of work environment, and
- The degree of familiarity with the task and associated training.

## Common Risk Control Measures

- *Change the task* – does this task need to be carried out? If so, does it have to be done this way
- *Change the object* – for example, repack a heavy load into smaller, more manageable parcels
- *Use mechanical aids* – like wheelbarrows, trolleys, conveyor belts, cranes or forklifts
- *Change the workspace* – for example, use ergonomic furniture and make sure work benches are at optimum heights to limit bending or stretching
- *Change the nature of the work* – offer frequent breaks or multi-task
- *Seek proper training* – inexperienced workers are more likely to be injured.

## Protecting your back

Your back is particularly vulnerable to manual handling injuries.

Suggestions to protect the back include:

- Warm up cold muscles thoroughly before engaging in any manual work
- Lift and carry heavy loads correctly, by keeping the load close to the body and lifting with the thigh muscles
- Never attempt to carry or lift loads in excess of the recommended maximum limit for one person
- Maintain correct posture and the natural curves of the spine
- Organise the work area to reduce the amount of bending, twisting and stretching required
- Get help to lift or carry a heavy load whenever possible, using another worker or appropriate mechanical aids
- Cool down after heavy work with gentle, sustained stretches
- Exercise regularly to strengthen muscles and ligaments
- Lose any excess body fat
- Take frequent breaks.



# MANUAL HANDLING CHECKLIST

Source: The University of Southern Queensland USQSafe

|                         |                              |
|-------------------------|------------------------------|
| Date of                 | Due Date of                  |
| Assessment: .....       | Reassessment: .....          |
| Assessors Names: .....  | Contact Person's Name: ..... |
| Task Description: ..... |                              |
| .....                   |                              |
| .....                   |                              |
| .....                   |                              |
| .....                   |                              |
| .....                   |                              |
| Department: .....       | Room No/Location: .....      |

## 1. MOVEMENTS, POSTURE AND LAYOUT DURING MANUAL HANDLING:

|   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| Is there frequent or prolonged bending down where the hands pass below mid-thigh height?                                      | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there frequent or prolonged reaching above the shoulder?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there frequent or prolonged bending due to extended reaching forward?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there frequent or prolonged twisting of the back?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Are awkward postures assumed frequently or over prolonged periods, that is, postures that are not forward facing and upright? | <input type="checkbox"/> | <input type="checkbox"/> |

## 2. TASK AND OBJECT:

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| Is manual handling performed frequently or for long time periods by the employee(s)?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Are loads moved or carried over long distances?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the weight of the object:   |                          |                          |
| • more than 4.5 kg and handled from a seated position?   | <input type="checkbox"/> | <input type="checkbox"/> |
| • more than 16kg and handled in a working posture other than seated?   | <input type="checkbox"/> | <input type="checkbox"/> |
| • more than 55kg?  | <input type="checkbox"/> | <input type="checkbox"/> |
| For pushing, pulling or other application of forces: are large push/pulling forces involved?                                   | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the load difficult or awkward to handle, for example, due to its size, shape, temperature, instability or unpredictability? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is it difficult or unsafe to get adequate grip of the load?  | <input type="checkbox"/> | <input type="checkbox"/> |

**3. WORK ENVIRONMENT:**

|   | <b>Yes</b>               | <b>No</b>                |
|---|--------------------------|--------------------------|
| Is the task performed in a confined space?                                      | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the lighting inadequate for safe manual handling?                            | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the climate particularly cold or hot?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the floor working surfaces cluttered, uneven, slippery or otherwise unsafe? | <input type="checkbox"/> | <input type="checkbox"/> |

**4. INDIVIDUAL FACTORS:**

|   | <b>Yes</b>               | <b>No</b>                |
|---|--------------------------|--------------------------|
| Is the employee new to the work or returning from an extended period away from work?                      | <input type="checkbox"/> | <input type="checkbox"/> |
| Are there age-related factors, disabilities or other special factors that may affect task performance?    | <input type="checkbox"/> | <input type="checkbox"/> |
| Does the employee's clothing or personal protective equipment interfere with manual handling performance? | <input type="checkbox"/> | <input type="checkbox"/> |

**Source: The University of Southern Queensland USQSafe**



## MANUAL HANDLING ASSESSMENT

LEARNING  
ACTIVITY

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Consider when manual handling would be carried out on **your** site, use the Manual Handling Checklist on the previous pages as a guide – depending on the type of construction you are about to launch into, are you able to adhere to the **safety provisions that are required for manual handling** on your site? If not list below what needs to be implemented to ensure you are able to ensure manual handling is carried out safely on your site.

| WHAT NEEDS TO BE DONE? | HOW WILL YOU PROVIDE THE SAFETY PROVISIONS? |
|------------------------|---|
| 1                      |   |
| 2                      |   |
| 3                      |   |
| 4                      |   |
| 5                      |   |
| 6                      |   |
| 7                      |   |
| 8                      |   |

# NOISE

**(Also refer to Page 52 for more detail on this subject)**

**Source: WorkSafe – WorkCover**

Noise exposure remains one of the most widespread hazards in the workplace. It is a major health concern and noise induced hearing loss is still one of the most prevalent industrial diseases around. In the 15 years from 1985 to 2000, in excess of 48,000 compensation claims (5.8% of all claims) were made for work related deafness in Victoria alone.

Exposure to excessive noise and occupational hearing loss remain significant problems in the workplace.

For these reasons, the prevention of noise induced hearing loss has been given high priority by authorities engaged in the prevention of workplace injury and disease.

## How should noise identification be conducted?

A noise assessment may be simple or complex, depending on what's causing the noise and how the job is done.

The noise assessment should be done during a typical workday and must determine:

- The level of noise, and
- How long employees are exposed.

An assessment must take into account:

- Plant and other sources of noise in operation
- How the job is done (i.e. the systems of work), and
- Any other relevant factors.

## What measures have to be considered and applied when fixing a noise problem?

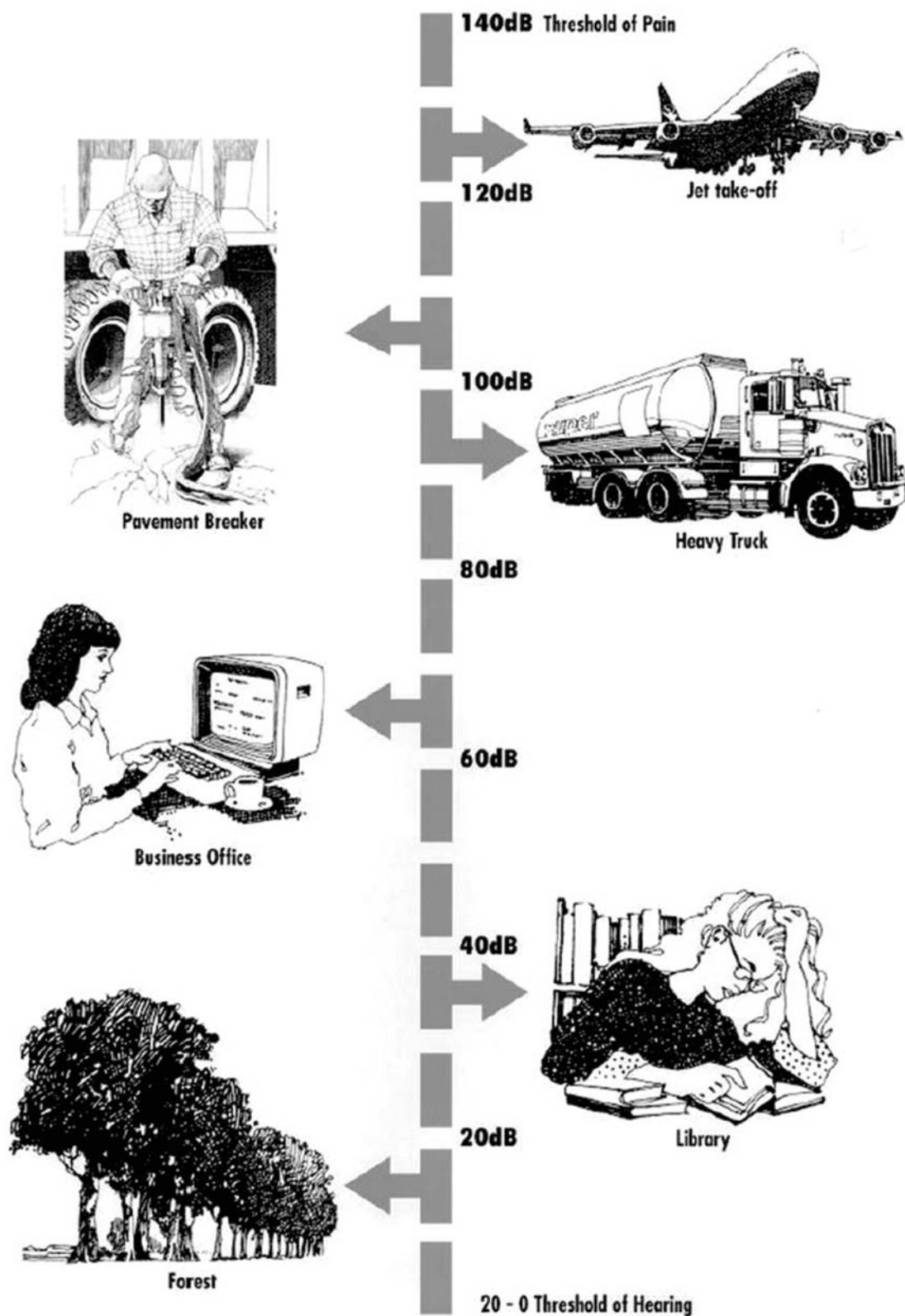
The Noise Regulations set out a hierarchy or order of controls that must be applied when fixing noise problems. These are:

1. Elimination of noise sources.
2. Substitution of quieter plant or processes or use of engineering measures.
3. Administrative measures.
4. Hearing protectors.

## Further information:

View the Acts and Regulations online at [www.ohsc.gov.au](http://www.ohsc.gov.au)

## DECIBEL LEVELS OF COMMON SOUNDS



| CHECKLIST ON WHAT SHOULD BE INCLUDED IN A NOISE ASSESSMENT REPORT   |  | ☑ if present |
|---|--|--------------|
| <b>WHEN?</b>  |  |              |
| Date of Assessment  |  |              |
| <b>WHO?</b>   |  |              |
| Name of Assessor  |  |              |
| Information (background/qualifications) of assessor   |  |              |
| <b>EQUIPMENT USED</b>   |  |              |
| Type of equipment used to take measurements   |  |              |
| Calibration details (if, when and how) for equipment used   |  |              |
| <b>HOW THE NOISE MEASUREMENTS WERE TAKEN?</b>   |  |              |
| Where measurements were taken (general area or operator ear position).  |  |              |
| Period of time over which the measurements were taken   |  |              |
| <b>WHAT WAS ASSESSED?</b>   |  |              |
| The area, plant, process, activity and employees that were assessed   |  |              |
| <b>SOURCES OF NOISE</b>   |  |              |
| The sources (plant/processes/jobs) of the noise.  |  |              |
| Whether all the noise sources that may be operating at the same time were taken into account.                           |  |              |
| Whether there were any significant noise sources that were not operating during the assessment.                         |  |              |
| <b>SYSTEMS OF WORK</b>  |  |              |
| Brief description of the job (how it's done; plant/process/activity/operating conditions/duration of process etc)       |  |              |
| Hours of work (eg 8 hour or 12 hour shift?)   |  |              |
| Whether assessment is for a normal/typical day or for a worse case scenario   |  |              |
| <b>RESULTS</b>  |  |              |
| The results of the measurements in terms of the levels and duration   |  |              |
| Interpretation of the results, (i.e. compared to exposure standard; what do the results mean etc; any action required?) |  |              |
| <b>ANY OTHER RELEVANT FACTORS</b>   |  |              |
| Information on any specific safety measures in place during the assessment (eg hearing protectors used)                 |  |              |
| Where relevant, information about the environment (type of walls, surfaces, buildings etc)                              |  |              |

## NOISE CONTROL

LEARNING  
ACTIVITY

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Consider what noise controls would need to be implemented on your site. Use the Noise Assessment Report on the previous pages as a guide – depending on the type of construction you are about the launch into, are you able to assess how noise would be controlled on your site? List below what needs to be implemented to **control the noise issues on your site**.

| WHAT NEEDS TO BE DONE? | HOW WILL YOU PROVIDE THE SAFETY PROVISIONS? |
|------------------------|---|
| 1                      |   |
| 2                      |   |
| 3                      |   |
| 4                      |   |
| 5                      |   |
| 6                      |   |
| 7                      |   |
| 8                      |   |

# PERSONAL PROTECTIVE EQUIPMENT

## OCCUPATIONAL HEALTH AND SAFETY REGULATION 2001 (NSW) REG 15

**Note** – the Regulation uses the term employer – as you are the person in charge of the site these regulations will apply to you.

1. If measures taken by an employer under clause 11 (2) to control a risk include the use of personal protective equipment, the employer must provide each person at risk with personal protective equipment and ensure that:
  - a. The equipment provided is appropriate for the person and controls the risk for that person
  - b. The person is informed of any limitations of the equipment
  - c. The person is provided with the instruction and training necessary to ensure that the equipment controls the risk for the person
  - d. The equipment is properly maintained and is repaired or replaced as frequently as is necessary to control the risk for the person
  - e. The equipment is provided in a clean and hygienic condition to the person
  - f. The equipment is stored in a place provided by the employer for the purpose
  - g. Areas in places of work where personal protective equipment must be used are clearly identified.
2. In this clause, “personal protective equipment” includes any substance used to protect health (such as a sun protection cream).

**Note:** Reference should also be made to any relevant Australian Standards relating to the provision and use of personal protective equipment.



## What is Personal Protective Equipment?

Personal Protective Equipment is defined as “any clothing, equipment and substance designed to:

- Be worn by a person, and
- Protect the person from risks of injury or illness.

Examples of personal protective equipment include:

- Hearing protective devices, such as ear muffs and ear plugs
- Respirators, face masks, cartridge filters
- Protective eyewear, such as goggles, glasses
- Foot protection (safety boots)
- Safety helmets and wide brim sun hats
- Body protection (aprons, safety harnesses).

## Where does the use of personal protective equipment fit in the risk management process?

The use of personal protective equipment (and administrative controls) is lowest on the list of control priorities. These controls should NOT be relied on as the primary means of risk control until the options higher in the list of control priorities have been exhausted.

## Duty to provide personal protective equipment

If personal protective equipment has been identified as one of the control measures to minimise exposure to a risk, the employer must make sure such equipment is provided. The actual arrangements made for the provision is a matter of negotiation by the workplace parties. Some of the factors which may be considered in deciding upon the most appropriate arrangements for a particular workplace include:

- The availability of the equipment
- Whether the item can generally be used outside work, such as sunglasses or boots
- The need for personal fit
- Provisions in the relevant industrial award regarding provision

You may need to provide training and instruction in the use of personal protective equipment to ensure that workers receive the desired level of protection from the equipment.

## Selection of Personal Protective Equipment – General Principles

When selecting personal protective equipment for a particular work process or series of tasks, consider the following general principles:

- Be familiar with the risks of the work process. This will involve evaluating the nature of the risk, and the circumstances and restrictions of the tasks to be performed
- Be aware of the acceptable level of risk to which the worker may be exposed and hence the performance requirement of the chosen equipment. Compare performance requirements with the capability of different types of personal protective equipment
- Make sure that the item chosen is appropriate to the risk. That is, make sure that the item selected will provide an adequate level of protection against the risks present and will not create additional health or safety concerns
- Where several types of personal protective equipment are required to control multiple risks presented by the one work process, make sure that the items are compatible, for example, ear muffs with a hard hat
- Make sure that the item will fit properly, as 'inadequate fit' can limit an item's protective capability. Respiratory protective equipment, for example, requires a good facial seal. (In some instances, facial hair can interfere with the fit of an item.) Your selection decision can be influenced by whether the item needs to be individually fitted by a professional
- Consider workers' medical conditions, which can influence whether they can use certain items or equipment
- Consider the comfort of the item when choosing equipment. Comfort is an important factor in ensuring its use
- Make sure that the item is worn correctly. Equipment is more likely to be worn correctly if it is easy to use and/or wear
- Consult with those workers and others who must wear the equipment when choosing the item(s). Where practical, consider workers individual characteristics and preferences for styles of equipment. (This should not, of course, result in the level of protection being reduced.) Involving the users of the equipment in the selection process should enhance user acceptance
- Give preference to items of personal protective equipment, which comply with the relevant Australian Standard (or overseas specification).

## PERSONAL PROTECTIVE EQUIPMENT IDENTIFICATION CHECKLIST

|   |
|---|
| Name of Program/Course  |
| Site Details  |
| Site Supervisor Name  |
| <b>Special Comments: Ensure all Personal Protective Equipment conforms to Australian Standards and WorkCover NSW requirements</b> |

[illegible]

## 35

## SELF TEST QUESTIONNAIRE

SELF  
TEST  
**17**

| QUESTIONS   | REF. PAGE |
|---|-----------|
| <b>30. What kind of injuries would result from unsafe manual handling techniques?</b><br>Answer       | 134       |
| <b>31. What are the 3 steps to reduce manual handling injuries?</b><br>Answer                         | 135       |
| <b>32. What are the common risk control measures to eliminate manual handling injuries?</b><br>Answer | 136       |
| <b>33. What are the 4 measures that can be applied to fix a noise problem?</b><br>Answer              | 140       |
| <b>34. What measures should be considered in relation to PPE?</b><br>Answer                           | 146       |

# CODES OF PRACTICE

## What is a Code of Practice?

An approved Code of Practice gives practical guidance in how to comply with a general duty under the Act or a specific duty under the Regulations. Compliance with the provisions of an approved Code of Practice, where relevant, may constitute compliance with the provisions of the Act or Regulations on which the Code is giving practical guidance.

Generally, an approved Code of Practice contains various courses of action which are designed to achieve health and safety standards required by the Act or Regulations. Codes usually contain a number of options for meeting standards.

## Who do they apply to?

Codes of Practice may be written to provide practical guidance for any person placed under obligation by the Act or its Regulations.

Each approved Code of Practice will state the persons to whom the guidance is intended.

## What is their legal status?

The provisions in a Code are not mandatory. That is, a person may choose to comply with the relevant provision of the Act or Regulations in some other way, provided that the method used also fulfils the requirements of the Act or Regulations. A person or company cannot be prosecuted simply for failing to comply with an approved Code of Practice.

However, in legal proceedings, failure to observe a relevant approved 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 Regulations. If a person has not adopted the method described in the Code, it is up to that person to show that the legal requirement has been met by an alternative method. Therefore, an approved Code of Practice should be followed, unless there is an alternative course of action that would also fulfil the requirements of the Act or Regulations.

A safety inspector may cite an approved Code of Practice as a means of remedying alleged non-compliance when issuing an improvement notice or a prohibition notice. Similarly, a health and safety representative may cite an approved Code of Practice in a provisional improvement notice when providing directions as to how to remedy an alleged noncompliance.

## The Supervisors Role

The relevant Supervisor should:

- Access, interpret, review and implement the compliances associated with each Code relevant to the project
- Ask questions to satisfy themselves that all the specifications meet the conditions set out in the relevant Codes. Eg: Building Code of Australia
- Ensure that copies of the relevant Codes of Practice, Building Codes, etc. are accessible at the workplace
- Nominate and provide an accessible list of those who should have authorised access to the relevant Codes.

Occupational health and safety codes of practice relevant to construction:

- |   |  |
|---|--|
| • Abrasive Blasting                         | • Steel Construction                                     |
| • Asbestos                                  | • The Prevention of Falls at Workplaces                  |
| • Cash in Transit                           | • Tilt-Up and Pre-cast Construction Industry             |
| • Concrete and Masonry Cutting and Drilling | • Workplace Amenities and Personal Protective Equipment  |
| • Concrete Pumping                          | • Workplace Violence                                     |
| • Confined Spaces                           | • NOHSC – Safe Removal of Asbestos                       |
| • Demolition                                | • NOHSC – Safe Use of Vinyl Chloride                     |
| • Electrical Installation                   | • NOHSC – Safe Use of Synthetic Mineral Fibres           |
| • Excavation                                | • NOHSC – Prevention of Occupational Overuse Syndrome    |
| • First Aid;                                | • NOHSC – Control and Safe Use of Inorganic Lead at Work |
| • Formwork                                  | • NOHSC – Control of Scheduled Carcinogenic Substances   |
| • Glasswool and Rockwool                    | • NOHSC – Workplace Hazardous Substances                 |
| • Hazardous Substances                      | • NOHSC – Preparation of Material Safety Data Sheets     |
| • Manual Handling                           | • NOHSC – Labelling of Workplace Substances.             |
| • Noise                                     |  |
| • Plant                                     |  |
| • Prevention of Workplace Harassment        |  |
| • Risk Management                           |  |
| • Safe Work on Roofs                        |  |
| • Scaffolding                               |  |

# CODES OF PRACTICE

LEARNING  
ACTIVITY  
**36**

Determine what *Codes of Practice* would be associated with *your* project and why.

| CODE OF PRACTICE | WHY WOULD YOU NEED TO CONSIDER IT? |
|------------------|------------------------------------|
| 1                |                                    |
| 2                |                                    |
| 3                |                                    |
| 4                |                                    |
| 5                |                                    |
| 6                |                                    |
| 7                |                                    |
| 8                |                                    |
| 9                |                                    |
| 10               |                                    |



# SAFE WORK METHOD STATEMENTS (SWMS)

## INTRODUCTION

The purpose of a SWMS is:

- To outline a safe method of work for a specific job
- To provide an induction document that workers can read and understand before commencing a job
- To meet legal requirements regarding the identification and control of hazards that can be anticipated and/or that may arise in the carrying out of work
- To enable proper planning to ensure that adequate resources are allocated, possible problems are identified and that work is carried out in a safe manner
- To provide an opportunity for consultation, with those carrying out the work on the subject of the SWMS.

In terms of hierarchy of safety documentation, a SWMS generally sits within a site safety plan. The site safety plan would most typically identify OH&S controls for all issues relating to works on site including the requirement for a SWMS to be provided prior to any work activity taking place.

There are various SWMS formats for capturing the information required to establish that work is to be carried out safely, including the example provided. However regardless of the format used/provided the SWMS should identify as a minimum the work to be performed, the sequence of the work, hazards, and risks arising from the hazards and control measures to be used to remove/minimise the risk/s.

Additional information, such as the qualifications of those performing the work, the level of supervision to be provided, the use of any hazardous substances, the type of plant/equipment to be used, must also be provided. This information may be captured in the SWMS or alternatively may be referenced in the SWMS.

## JOB SAFETY ANALYSIS

*Safe Work Method statements/Job Safety Analyses must be prepared, and provided to each worker.*

*They must include:*

- A description of the work being undertaken
- The step by step sequence involved in doing work
- The potential hazards associated with the work and with each step of the work
- The safety controls that will be in place to minimise these hazards
- All precautions to be taken to protect your health and safety
- All health and safety instructions to be given to persons involved with the work
- Identification of health and safety legislation, codes or standards applicable to the work, and where these are kept
- The names and qualifications of those who will:
  - Supervise the work
  - Inspect and approve work areas, work methods, protective measures, plant, equipment and power tools.
- A description of what training is given to people involved with the work
- The names of those who will be or have been trained in the work activities described in the Safe Work Method Statements, and the names and qualifications of those responsible for training them
- Identification of the plant and equipment that will most likely be used on site e.g. ladders, scaffolds, grinders, electrical leads, welding machines, fire extinguishers
- Detail of the inspection and maintenance checks that will be or have been carried out on the equipment listed.

## WORKCOVER EXAMPLE

|  |   |  |
|--|---|--|
| <b>WORK METHOD STATEMENT</b><br>Contractor: Put your name or the name of the Sub Contractor here<br>Project: Put the name of the building you are working on here<br>Job: Write in the task or job that you are doing  |   | Signed off:<br>Date: No.<br>Accepted: Yes/No<br>Area:  |
| <b>Procedure (in steps):</b><br>1. Write out the job step by step<br>2. Start each step with an action word: for example<br>3. Fix hand rail to stair well walls<br>4.<br>5.<br>6.<br>7.<br>8.<br>9.   | <b>Possible Hazards:</b><br>Include all possible hazards such as<br>Hazardous substances, explosives, dust etc<br>Manual handling, lifting heavy weights (15kg?)<br>Twisting, pushing and pulling, lifting and carrying<br>Hazards to others in area<br>Rubbish, electrical, falls<br>Housekeeping  | <b>Safety Controls:</b><br>List all safety controls such as<br>MSDS<br>Warning Signs<br>Personal protective equipment<br>Fellow workers/public safety provisions<br>Storage of materials and equipment                     |
| <b>Personal Qualifications and Experience:</b><br>You will need to list all the details of qualifications and experience you and your workers will need for the job. Include: trade certificates, WorkCover tickets, demolition licences for contractor. Experience may cover previous work done in the area that may not require certificates or licences.    | <b>Personnel, Duties and Responsibilities:</b><br>Give details of the duties and specific responsibilities of supervisors and other personnel. For example, describe such things as daily safety check of the work area by leading hand. You might like to include on a separate sheet, a flow chart showing the structure of your organisation and include the responsibilities of each person in that structure | <b>Training Required to Complete Work:</b><br>Make sure that all workers and their supervisors are trained in the procedures needed to complete the job safely, especially where you are using new or changed work methods |
| <b>Engineering Details/Certificates/WorkCover Approvals:</b><br>Give details that might be required for demolition, precast panel erection, Structural steel erection. Certificates may be needed for formwork<br>- Falsework, machinery on suspended slabs, point loading on suspended<br>Slabs and WorkCover approval of machine-felling for demolition work | <b>Codes of Practice, Legislation:</b><br>Are relevant codes of practice available on site? Is the work method equal to or better than any applicable codes of practice for the job to be done?<br>Do procedures agree with relevant legislation?   |  |
| <b>Plant/Equipment:</b><br>List plant and equipment that you use on the job, e.g. ladders, scaffold ladders, grinders, electrical leads and equipment, formwork materials shoring materials, oxy set, welding machines, fire extinguishers, etc  | <b>Maintenance Checks:</b><br>include: maintenance on cranes, forklift, monthly check on all electrical equipment and necessary tags, etc   |  |
| <b>Read and Signed by All Employees on Site:</b>   |   |  |

Source: WorkCover

## SAFE WORK METHOD STATEMENTS

## LEARNING ACTIVITY

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**Determine what SWMS would be needed for your project.** Consider the ones you need to provide and what the Subcontractor needs to provide. Also consider when they should be provided and why.

[illegible]

# SITE SECURITY

The security of a building site is of great importance and is not only to protect the materials from theft but also to reduce risk of liability of damage or injury to the public.

The risk of injury to the public is great due to their need to satisfy their curiosity, all be it that they may be trespassing.

As each site varies in type and size along with the activity on the site, so does the level of security required.

## Minimum Requirements

### COTTAGES AND RENOVATIONS

- Adequate Fencing
- Lockable Storage
- Minimum Surveillance (Neighbourhood Watch).

### MEDIUM DENSITY

- Adequate Fencing
- Lockable Storage
- Quality Surveillance
  - Neighbours
  - Security Firm
  - Guard Patrol
- Night Lighting.

Some consideration will need to be made to allow the required level of security for each site to be achieved and maintained. These are:

- Material Storage on Site
- Reasonable Access – maintained about the workplace
- Limited Access to Keys

It is your responsibility as the Owner-Builder to ensure the site is secured each day.

Gates locked, equipment stored and locked in a compound or storage shed.

Depending on the size and type of project a Security Patrol Service may be engaged.

## Simple measures to secure a site are:

- Locks
- Lockable Storage Containers
- Lockable Fenced Compounds (depending on the size of the site)
- Fencing/Hoarding
- Guard Dogs
- Alarm System.

The following check list is a guide to the action required.

- a. Access be limited to one or two gates.
- b. Frequent checks must be seen to be made on materials, windows and doors as the potential thief will be deterred if he knows a theft will be quickly discovered and investigated.
- c. The internal layout of enclosed stores should be arranged to provide an issue counter segregated from the main storage areas.
- d. Responsibility for the custody of keys should be clearly defined. There should be a minimum number of duplicate keys and if one is lost the lock should be changed.
- e. Security patrols should be employed in particularly difficult areas where there is a high probability of loss.
- f. Materials or equipment which are attractive for domestic use and easily transportable should be marked, if possible with the company name or colours.
- g. In some areas, stealing from open building sites is regarded by the local residents as normal practice rather than a crime. Some new tenants on partially completed housing estates will remove paving slabs, bricks, cement, timber, rainwater goods etc., during their 'do-it-yourself' weekend activities to complete gardens, sheds and extensions. One or two tours by a security guard should have some effect and a single prosecution in the courts, well publicised, is an excellent deterrent to other potential pilferers who live on the estate.

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[illegible]

# HAZARDOUS SUBSTANCES

## INTRODUCTION

### What are hazardous substances?

Hazardous substances' are substances that have the potential to harm human health. They may be solids, liquids or gases; they may be pure substances or mixtures. When used in the workplace, these substances often generate vapours, fumes, dusts and mists. A wide range of industrial, laboratory and agricultural chemicals are classified as hazardous.

### What is the difference between hazardous substances and dangerous goods?

Do not confuse hazardous substances with dangerous goods – they are classified according to different criteria. Hazardous substances are classified only on the basis of health effects (whether they be immediate or long term), while dangerous goods are classified on the basis of immediate physical and chemical effects, such as fire, explosion, corrosion and poisoning, affecting property, the environment or people.

Hazardous substances and dangerous goods are covered by separate legislation, each focusing on controlling the different risks described above. Since many hazardous substances are also classified as dangerous goods, the requirements of both pieces of legislation will apply in these cases. While there may be overlaps in the classification of many substances, each piece of legislation complements the other, effectively ensuring the comprehensive control of all risks.

### 'Use'

Under the Regulations, the 'use' of substances includes their production, handling, storage or disposal. This meaning should be kept in mind when reading the Regulations and the guidance in the relevant Codes.



## COMPETENCY OF PERSONS CARRYING OUT DUTIES

You have a responsibility to ensure that people carrying out duties under the Regulations on your behalf have the appropriate competency to enable them to perform tasks correctly.

If you are the person in control of the site, you have duties to assess and control risks arising from the use of hazardous substances in your workplace.

You only have to carry out these duties for substances used in the workplace that have been classified as hazardous by the manufacturer or importer. It is the responsibility of the manufacturer or importer to ensure that substances are classified and adequate information is provided to purchasers. You can tell if a substance has been classified as hazardous from the label on its container, and from the material safety data sheets (MSDS). Both the label and the MSDS for a hazardous substance must indicate that the substance is hazardous.

When reading the following notes, keep in mind that a 'risk' associated with the use of a hazardous substance also includes any risk arising from consequential wastes, intermediates or products that may be generated through the use of hazardous substances'.

### Register of hazardous substances

As the Supervisor of your site, it is your role to make certain that all hazardous substances used in the workplace are identified and listed in a register. The register is simply a list of the product names of all hazardous substances used in the workplace accompanied by the current MSDS for each of these substances.

It is your role as the Supervisor to ensure the register is regularly maintained. Update the register when:

- New hazardous substances are introduced to the workplace
- The use of existing hazardous substances is discontinued. and
- Revised MSDS are provided by the manufacturer, importer or supplier.

Since manufacturers or importers are required to review, where necessary, revise MSDS at least every five years, all MSDS in the register or otherwise accessible in the workplace should have issue dates within the last five years.

If the use of a substance is to be permanently discontinued, you should remove it from the register. Hazardous substances used periodically or seasonally do not need to be removed from the register.

The register must be readily accessible to any worker who may be exposed to hazardous substances in your workplace. Make sure the workers know where to find it. You may wish to keep it in a central location, or provide a copy of it to each work area.

Do not confuse a register with a manifest. A register is required for hazardous substances, while a manifest must be kept for certain quantities of dangerous goods under the Dangerous Goods (Storage and Handling) Regulations. You should keep a register and a manifest. This may appear to duplicate information unnecessarily, but in fact, these documents are required for different purposes.

The primary purpose of a manifest is to provide information (such as site maps and the types and quantities of dangerous goods stored) to the Fire Brigade in the event of an emergency. A register, on the other hand, provides you (and the workers) with a source of information to assist in the management of hazardous substances in the workplace.

## HAZARDOUS SUBSTANCE/DANGEROUS GOODS/ MSDS REGISTER

[illegible]

# HAZARDOUS SUBSTANCES SAFETY CHECKLIST

| HAZARDOUS SUBSTANCES SAFETY CHECKLIST  |    |                                      |                     |  |                           |   |                          |  |  |    |
|--|----|--------------------------------------|---------------------|--|---------------------------|---|--------------------------|--|--|----|
| (Note: do not use this checklist for more than 5 Hazardous Substances use separate forms)  |    |                                      |                     |  |                           |   |                          |  |  |    |
| Name of Project  |    |                                      |                     |  |                           |   |                          |  |  |    |
| Site Details   |    |                                      |                     |  |                           |   |                          |  |  |    |
| Site Supervisor  |    |                                      |                     |  |                           |   |                          |  |  |    |
| Name of Person Completing Checklist  |    |                                      |                     |  |                           |   |                          |  |  |    |
| Duration of Program:   |    |                                      |                     |  | Date checklist completed: |   |                          |  |  |    |
| PERSONS PRESENT AT AWARENESS OF HAZARDOUS SUBSTANCES   |    |                                      |                     |  |                           |   |                          |  |  |    |
| Print Name   |    |                                      |                     |  | Signature                 |   |                          |  |  |    |
|  |    |                                      |                     |  |                           |   |                          |  |  |    |
|  |    |                                      |                     |  |                           |   |                          |  |  |    |
|  |    |                                      |                     |  |                           |   |                          |  |  |    |
| List the Hazardous Substances that are being used in this work activity  |    |                                      |                     |  |                           |   |                          |  |  |    |
| Product Name   |    |                                      | What is it used for |  |                           | Who uses it                                       |                          |  |  |    |
| 1  |    |                                      |                     |  |                           |   |                          |  |  |    |
| 2  |    |                                      |                     |  |                           |   |                          |  |  |    |
| 3  |    |                                      |                     |  |                           |   |                          |  |  |    |
| 4  |    |                                      |                     |  |                           |   |                          |  |  |    |
| 5  |    |                                      |                     |  |                           |   |                          |  |  |    |
| (✓) Tick the appropriate response (Yes or No)  |    |                                      |                     |  |                           |   |                          |  |  |    |
| Is the substance clearly labelled on these products?   |    | Is a MSDS needed for these products? |                     | Is a MSDS available for this product?                        |                           | Is the MSDS recorded on the Haz. Sub Register?    |                          | Do you know how to access the MSDS for these products?                         |  |    |
| Yes  | No | Yes                                  | No                  | Yes  | No                        | NA  | Yes                      | No   | Yes  | No |
| If No state reason   |    | If NO apply NA to next question      |                     | Only apply NA if previous question indicated NO.             |                           |   | If No state reason       |  | If no discuss location with Site Supervisor. |    |
| Have you been:   |    | Consulted about using the product?   |                     | Aware of any harmful effects associated with these products? |                           | Provided with the correct PPE for these products? |                          | Trained in storage, use, disposal and emergency procedures for these products? |  |    |
| Yes  | No | Yes                                  | No                  | Yes  | No                        |   | Yes                      | No   | Yes  | No |
|  |    | If No state reason below             |                     | If No state reason below                                     |                           |   | If No state reason below |  | If No state reason below                     |    |
| Does the workplace have appropriate first aid to deal with splashes or other incidents? Yes <input type="checkbox"/> No <input type="checkbox"/> |    |                                      |                     |  |                           |   |                          |  |  |    |
| Comments:  |    |                                      |                     |  |                           |   |                          |  |  |    |
|  |    |                                      |                     |  |                           |   |                          |  |  |    |
|  |    |                                      |                     |  |                           |   |                          |  |  |    |
| Signature of person completing the checklist:  |    |                                      |                     |  |                           |   |                          |  |  |    |

## LABELS

Labelling allows containers of hazardous substances to be readily identified and provides some basic information on the hazards of the substance and precautions for use (including risk and safety phrases).

### Ensuring that containers are labelled.

As the person in control of the site, you must make sure that all containers of hazardous substances for use at the workplace are labelled with the manufacturer's or importer's label. The label supplied must be written in English and contain:

- The product name of the hazardous substance
- Name, address and telephone number of the Australian manufacturer or importer of the substance
- Information relating to its ingredients
- Relevant health and safety information about the substance (including risk and safety phrases), except where the container is so small it is not practical to provide such information.
- The word '**hazardous**' (or signal words such as 'dangerous poison', 'warning' or 'caution' that indicate the severity of the hazard).

Containers must remain labelled until the contents have been removed and the container has been completely cleaned (free of the substance) or the contents have been neutralised, cured or chemically deactivated.

Labels for hazardous substances must not be removed from the container, defaced or altered. If a label on a container is illegible, incorrect or otherwise not in keeping with the Regulations, you should remove the container from use until it is appropriately labelled.

### Labelling of decanted substances

Labelling requirements for hazardous substances decanted for use in the workplace depend primarily on whether or not the substance is to be consumed (used up) immediately.

A container into which a hazardous substance has been decanted does not need to be labelled if:

- The decanted substance is consumed immediately, and
- The container is cleaned, or the contents have been neutralised, cured or chemically deactivated immediately after use.

'Immediately' means as soon as possible to do so'. This means that labelling is not needed provided the container remains in the control of, or within sight of, the person using the decanted substance. That is, the container must not be left unattended.

However, a container into which a hazardous substance has been decanted must be labelled with the product name if:

- The decanted substance is not consumed, or
- The container is not cleaned or its contents neutralised, cured or chemically deactivated immediately after use.

## RISK ASSESSMENT

Risk assessment determines whether there is a risk to employees' health from using a hazardous substance in the workplace and any substances that may be generated by its use. Note that a risk assessment may be carried out for a work process and may cover more than one hazardous substance.

When carrying out a risk assessment, the Regulations require you to consider:

- Each hazardous substance used
- The information on the MSDS for each hazardous substance
- The information on the manufacturer's or importer's label
- The nature of the work involving the use of each hazardous substance
- Any information regarding incidents, illnesses or diseases associated with the use of the hazardous substance at the workplace.

From this information, you can determine the risk – the likelihood of workers suffering adverse health effects as a result of use of the substance in the workplace. Only by first assessing the risk to workers' health, can you then make decisions about appropriate risk controls.

It is important to remember that risk may extend to workers who have no direct involvement in the work activity.

---

## MANAGING RISK – A 10 STEP PLAN

As the Supervisor you should follow the 10 Step Plan to:

- Identify hazardous substances used in the workplace;
- Assess the risk from their use
- Determine and implement appropriate control measures so that they can be handled and used safely;
- Review and monitor the effectiveness of control measures used.

Management of risks from hazardous substances should be applied wherever the work is being carried out, for example the different locations where cleaners are carrying out cleaning work while using hazardous substances.

### Assessing Risk

An assessment is the examination of ways in which a hazardous substance is used at work and the health risks involved. The purpose of the assessment is to enable decisions to be made about appropriate control measures, training, monitoring and health surveillance.

These decisions will depend on the risk that arises from the use of a hazardous substance under particular working conditions.

## Types of Assessment

The way in which an assessment is conducted depends on the circumstances of the workplace.

Two possible methods are:

### WORKPLACE SPECIFIC ASSESSMENT

An example could be a walk-through survey of the workplace using a checklist. The checklist should be based on information on labels and MSDS's, for example, risk phrases on labels could be used to get an idea of how a person using a substance may be exposed.

In some cases, considerably more detail will be required, particularly where:

- A significant risk to health is suspected; or there is uncertainty about the degree of risk, or
- There are complex chemical processes and/or exposures involved.

In these cases, additional detail on all facets of the assessment may be required. This could include the use of outside professional assistance.

### GENERIC ASSESSMENTS

An example of a generic assessment may be in the use of hazardous substances at service stations. In this case, the nature of the hazard and the degree of risk at one service station may be comparable to the degree of risk at others. Therefore, a single assessment of the activity can be applied to other workplaces where the use for the hazardous substance is the same. When a generic assessment is undertaken it should be checked for validity at each individual workplace.

The purpose of a risk assessment is to allow appropriate control measures to be developed. Once hazards have been identified, they should be assessed in terms of their potential to do harm.

All the factors in risk assessment are interconnected. For the purposes of performing an assessment, you should consider the factors in isolation and then consider their combined effect. The factors are:

- The risk associated with the hazard (for example, substances are inhaled, get on skin or in eyes)
- The probability that an event or an exposure will occur
- The length of time of exposure a person has to the hazard (ranging from occasional to continuous contact with the hazard), and
- The possible consequences that may result, for example, causes liver disease, cancer, burn.

## The 10 Step Plan

1. Decide who will do the Risk Assessment.
2. Divide the work into units for assessment.
3. Identify substance used in work.
4. Determine if the substances are hazardous substances.
5. Obtain the information about hazardous substances.
6. Inspect workplace and evaluate exposure.
7. Evaluate the risk and determine conclusions about the risk
8. Implement control measures to address actions required from the Risk Assessment.
9. Record the assessment.
10. Review of control measures.

### STEP 1: DECIDE WHO WILL DO THE RISK ASSESSMENT

In a small business, assessments are usually undertaken by an employer or manager, in cooperation with the workers. The tasks needed to carry out an assessment may be delegated by the employer to other persons at the workplace. However, the overriding responsibility for the accuracy and appropriateness of the assessment is held by the employer.

In the situation where the workplace is an Owner-Builder Project you are the person who has the overriding responsibility.

Professional persons from outside the workplace may provide assistance from elements of the assessment which require special expertise.

The person who conducts the assessment (the assessor) should have sufficient knowledge and skills to evaluate the health risks to workers arising from the use of a hazardous substance. They should understand the requirements of the Health and Safety Acts, relevant regulatory provisions and advisory standards and have a sound knowledge of the work activity.

Where an outside consultant is engaged to assist with the assessment, workers who have a thorough knowledge of the work should always be involved. The assessor should have the authority to do the work necessary for the assessment, and enough resources to gather information, consult the appropriate workers, review existing records and examine the workplace.

The assessor should also be able to:

- Interpret the information on an MSDS and labels
- Observe the conditions of work and foresee potential problems
- Communicate effectively with everyone at the workplace
- Draw all the information together in a systematic way to form valid conclusions about exposures and risks, and
- Report the findings accurately to all parties concerned.

You should be aware of any limitations in the experience and knowledge of the personnel doing a risk assessment. In such instances it may be necessary to supplement this knowledge by arranging appropriate training in risk assessment or engaging specialist assistance.

## **STEP 2: DIVIDE THE WORK INTO UNITS FOR ASSESSMENT**

To make the risk assessment easier, the work that utilises a hazardous substance should be divided into jobs, tasks or processes. Visiting the workplace and looking at floor plans or a process plan should help with this. Dividing a small workplace in this way may not be necessary when only a few substances and persons are involved.

## **STEP 3: IDENTIFY SUBSTANCE USED IN WORK**

The next step is to identify whether or not there are hazardous substances used in the workplace.

When identifying a hazardous substance used or intended to be used in the workplace, it is important to recognise that it could exist in various states or forms – solid, liquid, gas, vapour, dust, mist or fume, substances used in the workplace should be identified by:

- Referring to stock lists, inventories and registers
- Checking all locations where substance are used or stored, and
- Considering all substances that are in use, or that arise from ancillary work such as maintenance and repair, cleaning, research or testing.

## **STEP 4: DETERMINE IF THE SUBSTANCES ARE HAZARDOUS SUBSTANCES**

From the information collected in Step 3, refer to the MSDS and labels for information on whether the substance is hazardous.

*Note: if you are unsure if the substance is a hazardous substance contact the supplier.*

## **STEP 5: OBTAIN INFORMATION ABOUT HAZARDOUS SUBSTANCES**

Information should be obtained about the hazardous substances in the workplace, route of exposure, recommended control measures and other action to prevent or minimise risks. For most risk assessments, container labels and MSDS's will provide this information. Where the nature of the hazard is very serious, or chemical processes are complex, it may be necessary to obtain more detailed information from other sources. For example, the manufacturer or supplier of the substance, the designated doctor or an occupational hygiene consultant.



## STEP 6: INSPECT WORKPLACE AND EVALUATE EXPOSURE.

A 'walk-through' inspection should provide information about hazardous substances used in each work area.

In assessing existing processes, it is important to talk to workers in each area regarding practical information about work practices and procedures. For example, workers could describe what happens during a breakdown, maintenance, changes in personnel or volume of production, weather conditions or other changes that can affect the ways hazardous substances are handled and used.

The following questions should be answered when inspecting and evaluating exposure:

### Q. Is the hazardous substance released or emitted into the work area?

In determining whether a hazardous substance is released or emitted into a work area, the following should be considered:

- Evidence of contamination, that is dust or fumes visible in the air or on surfaces, substance visible on a person's skin or clothing, odour of substance, visible leaks, spills or residues
- **Note:** the use of odour should be used with caution as the odour threshold of some hazardous substances may be above or below that acceptable safe level
- Handling substances, for example, powders not in containers
- Chemical splashes
- Workers' experience or symptoms of exposure.

If the hazardous substance is not released or emitted into the work area, go on to Step 7.

### Q. Are workers exposed to the hazardous substance through absorption by inhalation, ingestion, skin or eye contact, or is there a possibility of accidental injection into the body?

It is important to identify the types of exposure which might affect workers. Workers involved in production, repairs, maintenance, cleaning or office work may all face different types of exposure. Also consider contractors on site and people who might be exposed in an emergency such as a chemical spill, leak or fire.

People may be exposed by:

- Working directly with the hazardous substance
- Working near or passing through areas in which the hazardous substance is stored, transported, disposed of, or produced by discharge of emissions, eg exhaust;
- Entering a confined space in which the hazardous substance might be present, or
- Cleaning, performing maintenance or other work in areas where the hazardous substance might be present.

### Q. How much are workers and other persons exposed to hazardous substances and for how long?

It is important to identify the amount of hazardous substances to which workers are exposed and the length of time over which exposure occurs. In particular, remember that exposure standards for hazardous substances are calculated on a daily 8 hour exposure.

Where workers have been exposed in excess of 8 hours during their working day specialist help may be needed to apply the exposure standard.

In identifying how much and for how long ask:

- What degree of exposure is expected?
- Does exposure occur intermittently or continuously?
- Does exposure occur frequently?
- What are the different routes of exposure?
- How many workers are exposed?

If monitoring is required it should be carried out by a person who has sufficient knowledge, skills and experience in the techniques and procedures listed below:

- When and how the monitoring is to be done
- The sampling procedures and analytical methods to be used
- The sites and frequency of sampling; and how the results are to be interpreted.

Monitoring records should contain the following information:

- The hazardous substance concerned, the results of monitoring and when it was done
- What monitoring procedures were adopted, including the duration of sampling
- The locations where samples were taken, the operations in progress at the time
- and, in the case of personal samples, the names of those individuals concerned
- Whether the results reflected normal operating conditions
- Who undertook the analysis of the results; how the results were interpreted, and
- The effectiveness of control measures.

### **Q. What control measures are used or proposed? Are the existing control measures effective, properly used and maintained?**

During a walk-through inspection, the following points should be considered:

- Are any engineering controls in place, such as isolation or enclosure of processes?
- Are general ventilation and local exhaust ventilation systems in place effective and adequately maintained?
- Are workers trained in the proper use and maintenance of control measures?
- Do work practices ensure safe handling?
- Are appropriate personal protective clothing and equipment used and maintained in a clean and effective condition?
- Are facilities for changing, washing and eating meals maintained in good condition? Good personal hygiene practices can help reduce worker exposure to a hazardous substance.
- Are good housekeeping practices in place?
- Are all hazardous substances stored correctly?
- Is disposal of waste appropriate?
- Are appropriate emergency procedures and equipment in place (for example, eye wash, safety shower, etc)

## Q. Are there any risks associated with the storage and transport of the hazardous substance?

The risk associated with the storage and transport of a hazardous substance in the workplace often relates to spillage and fire. Under these circumstances, workers might be exposed briefly but at high concentrations, i.e. the exposure is acute. These risks are different from those associated with day-to-day exposure, and should be considered separate.

*Note the Australian Dangerous Goods Code sets out the requirements for the storage of dangerous goods, workplace arrangements should be assessed to ensure that these requirements are being met.*

## STEP 7: EVALUATE THE RISK AND DETERMINE CONCLUSIONS ABOUT THE RISK

The conclusions at Step 6 will provide the necessary information to establish:

- The nature and severity of the hazard for each hazardous substance
- The degree of exposure of persons in the workplace, and
- Whether existing control measures adequately control exposure.

## CONCLUSIONS FROM THE RISK ASSESSMENT

It should now be possible to establish which of the following conclusions apply to the assessment and what action is required.

**Conclusion 1:** Risks *not significant* now and not likely to increase in the future. This conclusion applies where it is unlikely that the use of the hazardous substance will adversely affect the health of persons to the workplace and the risk is not likely to increase in the future. For example

- The amounts or rate of use of a hazardous substance are too small to constitute a risk, even if controls fail;
- The operation obviously and strictly conforms to the information contained in the MSDS and label;
- Similar assessments in the past have confirmed the risks were not significant, and work conditions now are the same.

### Action required:

- End current assessment and go to Step 9

**“Significant risk”** – means that the work with a hazardous substance is likely to adversely affect the health of workers and other persons at the workplace. For example, there would be a ‘significant risk’ if:

- The severity of the acute or chronic health effects from exposure to the hazardous substance are substantial; or
- There are no control measures in place at the workplace or the controls that are in place are not adequate to protect workers from exposure to a hazardous substance; or
- The level of exposure is high. Consultation should take place to decide if the risk is significant. If the concentration level in a person’s breathing zone is above ½ the national exposure standard, a plan should be developed to review the levels before the next assessment. Further action in reviewing the levels will assist in ensuring that concentration levels do not reach a level which poses a significant risk to health and safety.

**Conclusion 2:** Risks are *significant* but effectively controlled, and could increase in the future.

This conclusion usually applies to conditions where serious health effects could result if the control measures fail or deteriorate. This usually results from the use of a highly toxic hazardous substance or where the potential exposure is high.

Risks, while presently adequately controlled, could increase in the future, owing to, for example:

- Undetected deterioration in the efficiency of control measures
- Plant including PPE or system failure
- Control measures not used properly
- Human error, from lack of awareness
- Monitoring failure or training
- Changes in methods or rate of work
- A significant increase in the quantity of hazardous substances used.

**Action required:**

- Determine precautions to maintain controls and minimise chances of higher exposure occurring
- Determine additional measures for regaining control if a high risk event occurs, despite precautions (see Step 8)
- Determine if monitoring or health surveillance is required to check on effectiveness of controls (See Step 8).

**Conclusion 3:** Risks are Significant NOW and not effectively controlled The following are examples of work conditions where the use of a hazardous substance is likely to constitute a risk, and further investigation for example, monitoring might be necessary:

- Where dusts, mists or fumes are visible in the air, for example in light beams, and there are persistent or widespread complaints of illness, discomfort, irritation or excessive odour;
- Hazardous substances are splashed;
- Control measures are broken, defective or badly maintained, for example a poorly maintained extraction fan motor which no longer draws a hazardous substance away from the work area; recognised safe work practice is not being observed;
- Airborne concentrations approach or exceed exposure standards;
- Ill-health associated with exposure has been detected by health surveillance;
- Frequency of biological monitoring indicates workers are at risk.

**Action required:**

Identify and implement immediate measures for preventing or controlling exposure (See Step 8).

- Work out if there is a need to stop the process
- Begin review of longer term control requirements
- Re-evaluate exposures when the upgraded control measures are in place
- Determine if monitoring or health surveillance is required (See Step 8).

**Conclusion 4** – Uncertain about risk; not enough information, or uncertain about degree and extent of exposure.

If the level of exposure cannot be estimated with confidence, further investigation is necessary. Atmospheric monitoring might be required to estimate the level of exposure. For a hazardous substance absorbed through the skin, ingested or inhaled, biological monitoring might be required. A detailed evaluation might be needed if there is potential for a major hazard such as a large leak or spill. In these cases, relevant specialist advice would probably be required.

If there is not enough information to estimate the risks, additional information should be obtained from other sources, such as supplier's occupational health and safety consultants and industry or trade associations.

#### **Action required:**

- Obtain additional information or conduct a more detailed assessment. You should obtain specialist advice if necessary and continue until he/she is able to arrive at Conclusion 1, 2, or 3 and then take the appropriate actions;
- Meanwhile, implement good work practices to minimise exposure.

### **STEP 8: IMPLEMENT CONTROL MEASURES TO ADDRESS ACTIONS REQUIRED FROM RISK ASSESSMENT**

Control or prevention of exposure is undertaken by implementing appropriate control measures.

When considering methods to control exposure, all the possible routes of entry to the body should be taken into account.

Control measures are not mutually exclusive and in some circumstances, two or more control measures may be required to reduce exposure to as low a level as is practicable.

Control measures for a hazardous substance should be considered in the planning of any new workplace or modifications to an existing workplace. The costs of the control should be considered in the same way and at the same time as all other plant and process costs.

#### **Hierarchy of Control Measures**

The hierarchy of control measures is a list of control measures, in priority order, that can be used to eliminate or minimise exposure to a hazardous substance. The order in which control measures should be implemented is:

- Elimination
- Substitution
- Isolation
- Engineering Controls
- Administrative controls
- Personal Protective Equipment (PPE)

Application of the hierarchy of control measures involves firstly assessing whether a hazardous substance can be eliminated. Where this is not practicable, substitution should be considered. If this is not practicable, consideration should be given to each of the other control measures (isolation, engineering controls, safe work practices and use of personal protection equipment) in turn, with the objective of identifying a control measure or combination of control measures that will eliminate or minimise exposure.

## Control Measures

**Elimination** – where a work activity involves the use of a hazardous substance that is not essential to the work activity the hazardous substance should be eliminated, wherever practicable. Examples of elimination include:

- Using a physical process rather than a chemical process to clean an object, for example, use of ultra-sound
- Using clips, clamps or bolts instead of adhesive, and
- Purchasing supplies of a material in a ready-cut and sized form rather than carrying out dust producing cutting process on site.

**Substitution** – includes substituting a less hazardous substance, the same substance in a less hazardous form or the same substance in a less hazardous process. Examples of substitution include:

- Replacing a chlorinated degreasing solvent with a detergent;
- Using a water-based paint in place of an organic solvent – based paint;
- Using a hazardous substance in paste or pellet form rather than a dusty powder; and
- Brush application of paint rather than aerosol application.

**Isolation** – involves separation of the process from people by distance or the use of barriers to prevent exposure. For example, a booth in an underground carpark is supplied with fresh air to minimise carbon monoxide exposure for a parking attendant.

**Engineering Controls** – by the use of plant or processes which minimise the generation of a hazardous substance, suppress or contain a hazardous substance or which limited the area of contamination in the event of spills or leaks.

Types of engineering controls include enclosure or partial enclosure, local exhaust ventilation and automation of processes. Some examples of engineering controls are:

- Ventilated booths for spraying paint or fibre glassing
- Robot welding
- Local extraction systems attached to grinding machines
- Automation of the removal of objects from degreasing baths, and
- Closed reaction vessels.

**Administrative Controls** – are work practices which require people to work in safer ways and are intended to limit the extent of exposure to a hazardous substance.

Examples of safe work practices include:

- Excluding non essential persons from a work area
- Shift or work rotation to reduce the period of exposure for workers; regular cleaning of contamination from walls and surfaces
- Providing means for safe storage and disposal of a hazardous substance
- Prohibiting eating, drinking and smoking in contaminated areas
- Prohibiting the use of compressed air for personal cleaning purposes
- Vacuuming dust from areas where cutting processes take place
- Keeping lids on containers when not in use
- Providing and using facilities for effective decontamination, and
- Provision of first aid, safety showers, eye wash facilities, evacuation procedures and emergency procedures.

**Personal Protective Equipment (PPE)** – the basic personal protective equipment available to guard against risks from hazardous substances includes respirators, goggles, face shields, gloves, footwear, and aprons. Self contained breathing apparatus or hazardous chemical suits may be required if the risk of exposure is significant because a hazardous substance is present in an uncontrolled environment.

Situations where the use of suitable personal protective equipment may be necessary include:

- Where it is not technically feasible to achieve adequate control by other means. In these cases, exposure should be reduced as far as practicable by other measures and in addition, suitable personal protective equipment should be used to secure adequate control
- Where personal protective equipment is necessary to safeguard health until such time as adequate control is achieved by other means, for example, where urgent action is required because of plant failure
- During routine maintenance operations where the infrequency and small number of people involved may make other control measures not practicable, or
- Where MSDS and labels indicate.

The ongoing costs of training and maintenance and/or replacement and operator considerations regarding correct fit and medical factors associated with PPE should be given significant consideration before determining it as the preferred control option.

To ensure PPE is effective as a control it should be:

- Selected for the contaminant, task and the operator in accordance with appropriate standards
- Readily available
- Clean and functional; checked for use
- Correctly used when required; and appropriately maintained.

Following the selection of appropriate PPE as a control measure, training should be provided to ensure it is properly used in accordance with the appropriate standards for the equipment.

### STEP 9: RECORD THE ASSESSMENT

Assessment reports should reflect the detail of the assessment, and provide sufficient information to show how the decisions about risk and controls were made.

The risk assessment record should include:

- The name of the assessor or assessment team
- Personnel involved
- Description of the hazard and routes of entry to the body
- Description of normal operations in the work area
- Procedures used to assess exposure
- Procedures used to assess the degree of exposure
- Procedures used to assess existing control measures
- Conclusion from the assessment whether the risk was not significant or significant
- Action to be taken
- Induction, training emergency procedures and health surveillance action to be taken
- The circumstances when reassessment will be required
- Signature, date and position of the assessor/assessment team, and
- Signature, date and position of the person accepting the assessment.

A standard format might be considered.

### STEP 10: REVIEW OF CONTROL MEASURES

All measures for the control of exposure should be thoroughly examined and tested at regular intervals to ensure effective performance. Controls should be reviewed if workrelated ill health is reported.

Routine maintenance including preventive service procedures should be established specifying:

- Which control measures require servicing
- The servicing needed
- The frequency of serving
- Who is responsible for servicing
- How any defects will be corrected
- Performance testing and evaluation
- Standards record for servicing.



## SELECTION OF PERSONAL PROTECTIVE EQUIPMENT

When choosing the most appropriate PPE, keep in mind:

### The contaminant

Consider the form of the substance (solid, liquid or gas), the physical and chemical properties of the substance and the possible routes of exposure.

When selecting respiratory protection, compare the highest likely airborne concentration (if known) with the occupational exposure standard to determine the level of protection required. This selection should also be based on whether there may be a lack of oxygen. A higher level of protection will be required when the exposure concentration is unknown or is extremely variable, such as in emergency situations. In these cases, the toxicity of the substance and its warning properties should also be considered. If a lack of oxygen may be encountered, only supplied air-type respiratory equipment is appropriate.

Protective gloves are made in a range of materials such as PVC, natural rubber, nitrile rubber and neoprene. There is no one type of glove that provides protection offered by the various types of gloves (that is, their susceptibility to permeation and degradation by a substance) is largely dependent on the physical and chemical properties of the substance and duration of exposure.

### The task

When selecting PPE, think about:

- The length of time that the operator will be exposed to the hazardous substance (that is, the wear time)
- The work rate required of the wearer
- The required level of mobility or dexterity, and
- The need for clear vision and communication.

### The operator

Important factors include the operator's size and build, the extra load the PPE will impose, the operator's medical condition and their level of training in the proper fitting and use of the equipment.

Proper consideration of all of the factors above should ensure that the equipment is properly used, performs to specifications and is reasonably comfortable for the wearer.

# HAZARDOUS SUBSTANCES CHECKLIST

LEARNING  
ACTIVITY

39

Prepare a *Hazardous Substances Checklist* for your building site.

| HAZARDOUS SUBSTANCES SAFETY CHECKLIST  |    |                                      |                     |  |                           |   |     |  |     |    |
|--|----|--------------------------------------|---------------------|--|---------------------------|---|-----|--|-----|----|
| (Note: do not use this checklist for more than 5 Hazardous Substances use separate forms)  |    |                                      |                     |  |                           |   |     |  |     |    |
| Name of Project  |    |                                      |                     |  |                           |   |     |  |     |    |
| Site Details   |    |                                      |                     |  |                           |   |     |  |     |    |
| Site Supervisor  |    |                                      |                     |  |                           |   |     |  |     |    |
| Name of Person Completing Checklist  |    |                                      |                     |  |                           |   |     |  |     |    |
| Duration of Program:   |    |                                      |                     |  | Date checklist completed: |   |     |  |     |    |
| PERSONS PRESENT AT AWARENESS OF HAZARDOUS SUBSTANCES   |    |                                      |                     |  |                           |   |     |  |     |    |
| Print Name   |    |                                      |                     |  | Signature                 |   |     |  |     |    |
|  |    |                                      |                     |  |                           |   |     |  |     |    |
|  |    |                                      |                     |  |                           |   |     |  |     |    |
|  |    |                                      |                     |  |                           |   |     |  |     |    |
| List the Hazardous Substances that are being used in this work activity  |    |                                      |                     |  |                           |   |     |  |     |    |
| Product Name   |    |                                      | What is it used for |  |                           | Who uses it                                       |     |  |     |    |
| 1  |    |                                      |                     |  |                           |   |     |  |     |    |
| 2  |    |                                      |                     |  |                           |   |     |  |     |    |
| 3  |    |                                      |                     |  |                           |   |     |  |     |    |
| 4  |    |                                      |                     |  |                           |   |     |  |     |    |
| 5  |    |                                      |                     |  |                           |   |     |  |     |    |
| (✓) Tick the appropriate response (Yes or No)  |    |                                      |                     |  |                           |   |     |  |     |    |
| Is the substance clearly labelled on these products?   |    | Is a MSDS needed for these products? |                     | Is a MSDS available for this product?                        |                           | Is the MSDS recorded on the Haz. Sub Register?    |     | Do you know how to access the MSDS for these products?                         |     |    |
| Yes  | No | Yes                                  | No                  | Yes  | No                        | NA  | Yes | No   | Yes | No |
| If No state reason   |    | If NO apply NA to next question      |                     | Only apply NA if previous question indicated NO.             |                           | If No state reason                                |     | If no discuss location with Site Supervisor.                                   |     |    |
| Have you been:   |    | Consulted about using the product?   |                     | Aware of any harmful effects associated with these products? |                           | Provided with the correct PPE for these products? |     | Trained in storage, use, disposal and emergency procedures for these products? |     |    |
| Yes  | No | Yes                                  | No                  | Yes  | No                        |   | Yes | No   | Yes | No |
|  |    | If No state reason below             |                     | If No state reason below                                     |                           | If No state reason below                          |     | If No state reason below   |     |    |
| Does the workplace have appropriate first aid to deal with splashes or other incidents? Yes <input type="checkbox"/> No <input type="checkbox"/> |    |                                      |                     |  |                           |   |     |  |     |    |
| Comments:  |    |                                      |                     |  |                           |   |     |  |     |    |
|  |    |                                      |                     |  |                           |   |     |  |     |    |
|  |    |                                      |                     |  |                           |   |     |  |     |    |
| Signature of person completing the checklist:  |    |                                      |                     |  |                           |   |     |  |     |    |

# MATERIAL SAFETY DATA SHEETS (MSDS)

## INTRODUCTION

### What is an MSDS?

Under the Regulations, manufacturers and importers are responsible for determining whether a substance they supply for use in a workplace is hazardous. If the substance is classified as hazardous, a material safety data sheets (MSDS) must be prepared and made available to purchasers of the substance. An MSDS is not to be confused with a production specification sheet, which provides information on the performance characteristics of the substance and directions for application.

The MSDS provides the information about the hazards (health effects of the substance and how to use it safely.) It also helps you to identify, assess and control risks associated with the use of the substance in your workplace.

An MSDS must be written in English and contain the following information:

- Date and preparation or review
- Manufacturer or importer details, including Australian address and contact numbers
- Product name
- Chemical and physical properties of the substance
- Identity of the ingredients
- Proportion (or proportion ranges) of the ingredients in the substance
- Health hazard information
- First aid information
- Precautions for safe use
- Exposure standard(s).

You have a right to expect that the information contained in an MSDS is current, accurate and easily understood by a lay person. It should take into account all the normal uses of the substance. If you are not happy with the MSDS provided, raise your concerns with the manufacturer or importer. The same or similar substance may also be available from a manufacturer or importer who does provide a good MSDS.

The Regulations do not prescribe the format (style or presentation) required for an MSDS. The example of an MSDS on the following page details the specific information you can expect to find on an MSDS.

## Obtaining an MSDS

The Regulations require manufacturers, importers and suppliers of hazardous substances (subject to a certain provision applying to retailers and retail warehouse operators) to provide you with a copy of the current MSDS. The Regulations also require you to obtain the most recent version of the MSDS on or before the first time the hazardous substance is supplied for use in your workplace. Only the MSDS prepared by the manufacturer or importer of the substance are acceptable. Generic or third party MSDS are not acceptable.

It is good practice to ask for a current copy of the MSDS before the hazardous substance is first supplied, as this will enable you to begin planning for its safe use. Manufacturers, importers and suppliers have an obligation to provide you with a copy on request.

If an MSDS is not made available on the first supply of a substance, you should ask the manufacturer, importer or supplier whether the substance is classified as hazardous according to the Regulations. If the supplier informs you that a substance is not hazardous, it is advisable to obtain written confirmation.

Suppliers who are retail warehouse operators are not required to provide an MSDS for hazardous substances that are supplied in consumer packages. Therefore, if you purchase hazardous substances from a retailer, you need to obtain an MSDS from an upstream supplier such as the manufacturer or importer of the substance (Note their contact details should be on the label).

## Providing workers with access to MSDS

The role of the Supervisor is to have the MSDS readily accessible to any employee who could be exposed to a hazardous substance.

Copies of MSDS should be kept in a location convenient to the work area in which the substance is used. Make sure that all workers likely to be exposed to a hazardous substance know where to find the MSDS. You should also provide your employees with information or training, so that they understand the purpose of MSDS and can use them effectively.

Access to MSDS may be provided in a number of ways including:

- Paper copy collections of MSDS
- Microfiche copy collections of MSDS with microfiche readers open to use by workers, and
- Computerised MSDS databases.

## SAMPLE MATERIAL SAFETY DATA SHEET

|  |   |
|--|---|
| <b>Page x of total y</b> (shows the page number and total number of pages in the MSDS).  |   |
| <b>Date of Issue</b> (Indicates the date of issue or review of the MSDS; An MSDS must be reviewed at least every five years – so it should not be more than five years old)  |   |
| <b>Statement of Hazardous Nature</b> (It must contain a statement that the substance is hazardous).  |   |
| <b>Company Details</b>   |   |
| Company:<br>Address:<br>Telephone Number:<br>Emergency Phone Number:   | Details, name and contact number of the manufacturer or importer. Important for seeking further information about the substance or its use.   |
| <b>Identification</b>  |   |
| Product name:<br>Poisons schedule number Use:<br>Physical description/properties:<br>Appearance:<br>Boiling point/melting point:<br>Vapour pressure:<br>Specific gravity:<br>Flammability Limits:<br>Solubility in water:<br>Other properties: | Identifies the substance by product name<br>Describes its use, appearance and form (i.e. Whether the substance is a solid, liquid or gas).<br>Indicates the properties of the substance, or its ingredients. The properties that are commonly described include: volatility (boiling point, vapour pressure and if known, evaporation rate), solubility (in water and/or other substances or solvents) and odour (level at which substance is detectable by smell). This information is useful in assessing the potential for exposure to the substance.  |
| Ingredients –<br>Chemical name:<br>Proportion  | Identifies the ingredients contained in the substance and their proportions.  |
| <b>Health Hazard Information</b>   |   |
| <b>Health effects</b><br><b>Acute:</b><br>Swallowed:<br>Eye:<br>Skin:<br>Inhaled:<br><b>Chronic:</b>   | Describes the immediate and long-term health hazards of the substance for the different ways it can enter the human body (routes of exposure). If known, the level of exposure that may give rise to a particular health effect should be indicated. You need to be aware of the health and effects and be able to recognise the symptoms of exposure.  |
| <b>First Aid</b><br>Swallowed:<br>Eye:<br>Skin:<br>Inhaled:<br>First aid facilities:<br>Advice to doctor:  | Provides first-aid information for employers and medical practitioners. Be familiar with these procedures so that prompt action can be taken if an incident occurs.   |
| <b>Precautions for use</b>   |   |
| Exposure standards:<br>Engineering controls:<br>Personal protection:   | States NOHSC exposure standard(s), if any, for the substance or its ingredients. You need to know this and ensure that employees' exposure does not exceed the standard<br>Provides information about appropriate risk controls for the substance. Advice on controls should relate to the range of tasks that are normally performed using the substance (eg. Decanting or spraying the substance). This information should not be limited to controls which rely on safe worker behaviour or the use of personal protective equipment; guidance on engineering controls such as ventilation should also be given. Where PPE is recommended it should specify the exact type. For example, if gloves are recommended, the type of gloves that are suitable (Viton, Nitrile, Rubber or PVC) should be specified, instead of just 'impervious gloves'. |
| <b>Safe Handling Information</b>   |   |
| Storage and transport:<br>Spills and Disposal  | Provides information on storage, dealing with spills, and methods of disposal.  |

You may wish to discuss these options with your supplier. In each case, you should ensure that:

- Any storage or retrieval equipment is kept in good working order
- Employees know how to access the information, and
- There are means of obtaining a paper copy of information contained in a computerised database.

Commercial available computerised MSDS databases made available by another party are acceptance provided they contain the manufacturer's or importer's current MSDS. You need to ensure that the MSDS obtained from such a database is the authorised version prepared by the manufacturer or importer.

## Ensuring that the information in the MSDS is not altered

You must not alter information in an MSDS prepared by the manufacturer or importer. Additional information may be appended to the MSDS, but it must be marked clearly to indicate that it is not part of the original. Adding specific workplace information in this way does not constitute an alteration to the MSDS. Similarly, you may reformat or summarise the information contained in the MSDS, as long as it is appended to the original and clearly marked as a reformatted version.



## SELF TEST QUESTIONNAIRE

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**18**

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| <b>35. What is the purpose of a Code of Practice?</b><br><i>Answer</i>   | <b>150</b> |
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| <b>36. Name 5-8 Codes of Practice that would be relevant to a residential construction</b><br><i>Answer</i>  | <b>151</b> |
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| <b>37. What is the purpose of a Safe Work Method Statement? (SWMS)</b><br><i>Answers</i>   | <b>153</b> |
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| <b>38. What are the simple measures to secure a building site?</b><br><i>Answer</i>  | <b>158</b> |
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| <b>39. What is the purpose of following the 10 step plan to manage the risks of hazardous substances in the workplace?</b><br>i.<br>ii.<br>iii.<br>iv. | <b>160</b> |
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| <b>40. List the 6 steps in the Hierarchy of Control Measures?</b>                         | <b>173</b> |
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| <b>41. What is the purpose of a Material Safety Data Sheet (MSDS)?</b>                    | <b>179</b> |
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| <b>42. What information should be included in a MSDS?</b>                                 | <b>179</b> |
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| <b>43. What are your responsibilities regarding plant and equipment in the workplace?</b> | <b>179</b> |
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# PLANT AND EQUIPMENT

## HAZARD IDENTIFICATION

### Hazard Identification Duty

The Regulations provide:

- Subject to sub-regulation (2), you must ensure that all hazards associated with the installation, commissioning, erection and use of plant and the systems of work associated with that plant are identified having regard to the state of knowledge of hazards
- Before plant is used for the first time in a workplace
- Before any alteration to the plant or any change in the way the plant is used or a system of work associated with the plant, including a change in the location of the plant
- Before the plant is used for any other purpose than for which it was designed
- If new or additional information about hazards relating to the plant or its associated systems of work becomes available to the employer
- For all plant in the workplace at the date of commencement of these Regulations, as soon as practicable after that date.

Your responsibilities under sub regulation (1) only relate to the hazards associated with plant specifically applicable to the workplace where the plant is used or located.

Hazard means the potential to cause injury or illness. Examples of the potential harm that plant or associated system of work may cause to people at workplaces include:

- Injury due to hair, loose clothing, gloves, neckties, jewellery, cleaning brushes or rags or materials tangling with moving parts of plant or materials in motion
- Crushing by falling or moving objects or plant tipping or rolling over
- Crushing due to people being thrown off and under plant
- Crushing due to parts of a person's body being trapped between plant and any material or structure
- Injury (cutting or piercing) due to a person striking a sharp object or being struck by sharp or flying objects
- Friction burns due to a person coming in contact with high speed rotating parts of plant or object, or rough surfaces of the plant or object
- Injury due to a person coming in contact with high pressure fluid
- Injury due to electricity shock or burn
- Injury due to explosion
- Injury due to slips, trips or falls
- Injury due to insufficient consideration of ergonomic requirements
- Burns due to a person coming into contact with high temperature objects or fire
- Ill-health due to exposure to extreme temperature conditions
- Injury or ill-health due to exposure to dust, vibration, noise or radiation.

Amongst other things, the regulations require you to ensure that all hazards associated with the use of plant are identified. 'Use' has a specific meaning in the Regulations:

'Use' when used in relation to plant, includes operate, maintain, service, repair, inspect and clean".

Thus under the Regulations you are required to ensure that hazards associated with maintenance, service, repair, inspection and cleaning, as well as operation of the plant, are identified. (**Note:** hazards associated with the installation, commissioning and erection of plant are also required to be identified).

## PLANT AND EQUIPMENT HAZARDS

### What's the problem?

Tools, machinery and equipment used in the workplace (often called 'plant') can cause injury through accidents. They can also cause health problems if the fumes or dusts they give off are dangerous and not controlled.

The following table provides examples of hazards that may arise in a range of job where different equipment is used.

| Work               | Examples of tools, equipment, machinery ('plant')   | Types of health or safety problems   |
|--------------------|---|--|
| Office             | Computer Equipment, Lifts, Boilers, Desks and Chairs, Trolleys  | Overuse Problems, Strains, Burns, Falls  |
| Restaurant         | Stoves, Electric Knives, Meat Slicers, Vegetable Cutters, Blenders, Boilers                                   | Burns, Cuts, Electric Shocks, Skin Grazes, Loss Of Fingers   |
| Plumbing           | Welding Equipment, Pneumatic Drills, Electric Eels, Powered Hand Tools  | Eye Burns, Sprains, Hearing Damage, Vibration, Injuries From Drills Or Flying Parts  |
| Building           | Ladder, Concrete Mixers, Power Tools, Scaffolding, Cranes, Hoists, Wheelbarrows                               | Falls, Machinery Breakdown Or Flying Parts, Entrapment In Moving Parts, Falling Objects  |
| Printing           | Presses, Binders, Guillotine, Forklifts, Scissor Lifts  | Entrapment Of Clothing Or Body Parts, Amputations, Driving Accidents   |
| Hospital           | Lifts, Boilers, Sterilisation Equipment, Trolleys, Syringes   | Burns, Dangerous Chemical, Back and Arm Sprains  |
| School             | Heaters, Guillotines, Desks and Chairs, Computers, Workshop Equipment, Tractors, Lawn Mowers                  | Burns, Falls, Entrapment In Moving Parts   |
| Factory            | Lathes, Presses, Grinders, Milling Machines, Conveyors  | Flying Particles and Dusts, Chemicals, Entrapment In Moving Parts  |
| Warehouse          | Conveyors, Forklifts, Scissor Lifts, Stacker Cranes, Overhead Gantry  | Falls, Entrapment In Moving Parts, Falling Or Objects, Or Collapsing Stacks, Dislodgement Of Machine Parts                       |
| Fish and Chip Shop | Deep Fryers, Grills, Exhaust Fans, Potato Peelers, Chipmakers   | Burns, Cuts  |
| Commercial Fishing | Engines, Winches, Nets, Slipways, Freezers  | Entrapment In Moving Parts, Sprains and Strains, Slips and Falls, Cold   |
| Farms              | Tractors, Post Hole Borers, Harvesters, Forklifts, Bulldozers, Explosive Powered Tools, Seeders, Backhoes Etc | Roll Over Accidents, Driving Accidents, Electrocution By Hitting Overhead Powerlines, Entrapment In Moving Parts, Electrocution. |

Adapted from the ACTU publication „Controlling Risks From Plant (Machinery and Equipment).

## PRACTICAL SOLUTIONS

Incorporate the following strategies into the JSA/SWMS to reduce the risk of injuries caused by equipment and machinery:

- Check whether the 'plant' could cause an accident or affect people's health in some way – this is called 'identifying the hazard'. For example, check what fumes are given off and whether hair, fingers or arms can be caught in moving parts
- Work out how a dangerous situation could possibly occur – this is called 'assessing the risk'. For example: Can the machine be turned off for repair or maintenance work? Could the machine roll over? Is it safe for the operator to use this piece of equipment alone?
- Make changes to prevent any accident or health affect – this is called 'controlling the risk'. For example; can you put a guard on moving parts; or put a dust extractor on a hand tool; or can a noisy machine be enclosed?
- Check regularly that the methods used to protect people from accidents or health problems are effective. For example: Is the extractor catching all the dust? Does the machine guard really prevent people getting caught up? Are people using the turn off and lock out mechanism during maintenance?
- Make sure everyone has proper training and instruction in the use of the 'plant', and are adequately supervised when using or working around tools, equipment or machinery
- Find out what the rules or procedures are in your workplace for reporting faulty equipment, tools or machines
- Ensure work cannot commence with a tool or a piece of equipment or machinery before you know what to do if something goes wrong or what to do in an emergency
- Ensure if there are any concerns about any tools, equipment or machinery the employees report it to their immediate supervisor first. You can also tell your health and safety representative about it
- If problems continue and you think there is a danger that's not being controlled, talk to your health and safety representative, or contact your union or your government health and safety authority.

Plant requiring special precautions:

- Registered plant
- Some pieces of equipment or machinery that could cause serious injury if not designed or used correctly are required by the law to be registered with the government health and safety authority.

Examples of equipment and designs that need to be registered with the health and safety authority in your State or Territory:

- Gas cylinders
- Hoists e.g. scaffolding hoist
- Pressure equipment e.g. boiler, piping
- Building maintenance units e.g. suspended platforms used for painting
- Amusement structures e.g. amusement park rides.

## PLANT REQUIRING A CERTIFIED OPERATOR

- Under the law you need special training and a certificate to use some types of equipment or machinery – that is the operator needs to be a 'certified' operator
- Jobs which need a 'Certified' Operator
- Scaffolding and rigging
- Crane and hoist operation
- Pressure equipment operation
- Forklift driving (ask your employer about the law in your State).

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## MACHINE GUARDING

The Occupational Health and Safety (Plant) Regulations stipulates that if guarding is to be used to control health and safety risks associated with machines, the guarding must meet the following requirements:

- Guarding must so far as is practicable, prevent access to the danger point or area of the machine
- Guarding is a permanently fixed physical barrier-if access to the area of the machine requiring guarding is not necessary during operation, maintenance or cleaning of the machine
- Guarding is an interlocked physical barrier which allows access to the area being guarded at times when that area does not present a risk and prevents access to that area at any other time, if access to the area of the machine requiring guarding is necessary during operation, maintenance or cleaning of the machine
- Guarding is a physical barrier which can only be altered or removed by the use of tools, if using either permanently fixed physical barrier or an interlocked physical barrier is not practicable
- Guarding is a presence-sensing system that eliminates the risk arising from the area of the machine requiring guarding while a person or any part of a person is in the area being guarded, if none of the above types of guarding is practicable
- Any guarding needs to be as difficult as is reasonably possible to by-pass or disable, whether deliberately or by accident
- Any guarding must not cause a health and safety risk in itself
- If the machine to be guarded contains moving parts and those parts may break or cause work pieces to be ejected from the machine, the guarding to be used must control any health and safety risk from those ejected parts and work pieces.

## WorkCover Guidance Notes relevant to Machine Guarding

- Hazard identification, risk assessment and risk control in the workplace
- Consulting with employees on health and safety
- Employee health and safety training
- Safeguarding of machines
- Guarding of food preparation mixers
- Hot pressing and forging machines – minimising the risk of injury
- Hazards of machinery containing high-speed rollers
- Interlocking guards using cam actuated electrical switches
- Lock out and tagging of plant
- Requirements for maintaining plant in safe working order.

## Australian Standards relevant to Machine Guarding

- AS 4024 – Safeguarding of machinery
- AS 1219 – Power presses – safety requirements
- AS 2939 – Industrial robot systems – safe design and usage.

## SAFE USE OF EXPLOSIVE POWERED TOOLS

No person shall use an explosive powered tool on any work unless they are the holder of a Certificate of Competency, issued by the relevant authority, as an explosive powered tool operator.

The following rules shall, at all times, be observed:

1. **Do not use** an explosive powered tool UNLESS it is an “approved” type.
2. **Do not use** an explosive powered tool unless it is fitted with an effective muzzle guard, shield or fixture according to the maker’s recommendations for any type of material being fixed.
3. **Do not load the tool** until ready for immediate use.
4. **Do not leave a loaded tool** unattended or put away, or carry to another place or transport any tool which is charged. Remove the charge and projectile. Check to make sure the tool is unloaded before altering, adjusting, removing or changing muzzle, safety guards or barrel extensions. Do not allow any uncertified assistants to make any adjustment to tools or guards. If sending an assistant to bring the tool, warn him not to touch the tool but to bring it in the tool box.
5. **Do not point the tool**, loaded or unloaded, towards yourself or towards other persons, no matter how far away they are.
6. **Do not use the tool** in a congested area. Remove casual onlookers or bystanders from the immediate vicinity.
7. **Do not use the tool** unless warning signs are displayed near the place where the tool is being used.

8. **Do not at any time** use a tool without the operator and any assistant wearing "approved safety goggles complying with AS- 1337 – "Industrial Eye Protectors". If there are insufficient pairs of safety goggles, ask for them and do not use the tool or work near the tool assisting until they are provided. Loss of sight is a tragic injury to anyone. In some instances, because of the noise levels, it may be necessary to wear approved type hearing protectors complying with AS-1270 – "Hearing Protection Devices".
9. **Do not load the tool** before checking that the barrel is free from obstructions.
10. **Do not fire the tool at an angle** – make sure the tool is perpendicular to the work surface.
11. **Do not use the tool** in any places where flammable gas or dust or vapour is, or may be present, or in compressed air, or in any place where the explosive charge might be exploded or rendered dangerous by heat.
12. **Do not attempt to use the tool** to drive a projectile through pre-located or pre-drilled holes unless an approved fixture is fitted according to the maker's recommendations. Never attempt to position tool "by eye" over or in line with such holes as ricochets may result.
13. **Do not attempt to drive a projectile** into concrete and mild structural steel unless a check has been made to ensure it is of sufficient thickness to prevent the projectile passing completely through. Check the maker's fastening tables, use the correct pin type and size for steel or concrete.
14. **Do not use the tool** to drive a projectile into high tensile steel, cast iron or other unusually hard material, or on hard readily shattered substances, hard tiles, hard terra cotta, glazed brick, glass, marble, granite, thin slate, etc. If, by trial, a projectile is used by hand as a centre punch on hard metal and the point is blunted, do not fire into such material.
15. **Do not fire projectiles** any closer than 75mm from the edges of concrete, precast slabs or panels or other processed building materials, nor within 13mm from a hole or edge of steel.
16. **Do Not Fire Projectiles** into mortar joints or brickwork, whether walls are thick or thin. Single brick walls are especially dangerous, the projectile may completely penetrate the mortar joint and strike persons on the other side. When fixing timber battens or metal strips, lay the batten or strip along the wall and mark the positions for fixing, making sure that all vertical or horizontal mortar joints are avoided and that projectiles will be placed 75mm from the end of a brick.  
  
Where partition walls of terra cotta, breeze, hollow or single brick on flat or edge are cement rendered, bagged or plastered, mortar joints cannot be located. It is essential therefore to prevent injury to persons by having, in addition to the placing of warning notices on both sides of the wall in the room or passageway, an assistant posted at a safe spot on the other side to keep away (without prejudice to any person) all persons who may enter the line of fire while fixing is in progress. The operator should call "firing" and should not do so until the assistant calls "all clear". This should be repeated for each shot, until fixing is completed.
17. **Do not fire projectiles** into concrete or timber floors, timber walls, partitions, plasterboard, fibreboard, etc., where the projectile may completely penetrate and fly through. Make sure that the wall covering or sheeting is backed by steel, concrete or brick. If single brick, measure the opposite side for mortar joints and transfer safe fixing positions onto firing side.
18. **Do not use tool on surfaces** unless cleared of all particles of spall that may fly off when fastening. On galvanized ties or strip, ensure box guard or shield has a groove of sufficient width and depth to prevent particles flying.

19. **Do not attempt to use the tool** on a projectile already in material to push the projectile in deeper.
20. **Do not use explosive powered tool charges** in other firearms; this is very dangerous. Keep "Explosive" container locked at all times except when cartridges are being placed therein or removed there from. Prevent theft or unauthorized use by ensuring that only the certificated operator opens the "Explosive" container. Keep only cartridges in "Explosive" container – do not mix with projectiles or other materials.
21. **Do not use heavy charges** or cartridges without first testing. Always use the weakest charge for the first or test setting. Too heavy a charge may result in over-penetration and the projectile may fly free on the other side, or the projectile may partly rebound and cause a loose or imperfect fixing.
22. **Do not in the case of misfire** or jamming, remove the tool from contact with the surface but continue to hold it perpendicular to and in contact for at least ten seconds. If the tool has not then fired, it shall be carefully unloaded or placed in such a position that it will do no harm if it fires. The maker's representative should be called to release the tool into a safety position.
23. **Do not leave live charges** lying around at any time – keep them in the "Explosive" box.
24. **Do not attempt to use a tool** unless it is carefully inspected for defects by a certificated operator each day on which the gun is to be used, and the owner has ensured that after each seven days of use, it has been dismantled and thoroughly examined for defects. No person shall, knowing that a tool has any defect, use such a tool in any work.
25. **Do not attempt to repair** any tool which has been found to be defective. Only "Authorized persons", i.e., the makers, a gunsmith or competent authorized persons in their employ shall repair any defective tool. No person shall employ, instruct or allow any person other than an "Authorised person" to repair such tool. Knowing that a tool has been repaired by a person other than an "Authorised person" no person shall use such a tool or employ, instruct or allow any person to use such a tool in any work unless it has since been overhauled by an "Authorised person".
26. **Do not fire into any surface** unless it is clear there are no Essential Services beneath the surface within the fixing zone. Eg: Electricity, Water, Gas, Telephone etc.

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## SAFE USE OF HAND TOOLS

Of all the equipment placed at our disposal, the common hand tools, which we take for granted, are the most useful and the most often abused.

A recent review of construction injuries reveals quite a number of minor accidents involving the use of hand tools. To counteract this trend, it would be wise to review the basic rules governing the use of hand tools.

1. Choose the right tool for the job. Never use a makeshift.
2. Use only tools in good condition – no tools with cracked or broken handles, none without handles, and none with mushroomed or broken heads.
3. Keep keen-edged blades sharp; store them safely when not in use.
4. Do not use a hammer with a hardened face on a highly tempered tool such as a drill, file, or die or jig. Chips may fly.

5. Use wrenches of the right size for the job. Face the jaws on an adjustable wrench in the direction of the pull.
6. Never apply a wrench to moving machinery; stop the machine, then remove all tools before starting it again.
7. See that pipe wrench jaws are sharp and chains in good condition so they will not slip.
8. Never use any tool in such a way that you will be injured by it if it slips. Pre analyse your movements and position your body accordingly.
9. The construction industry calls for the use of many types of hand tools. Handle them with care; treat them carefully and use them exactly for the purpose for which they were made.

## Screwdrivers

A screwdriver is the most commonly used and abused tool. The practice of using screwdrivers as punches, wedges, pinch bars, or pry bars shall be discouraged as this practice dulls blades and causes employee injury.

Screwdriver tips shall be selected to fit the screw. Sharp- edged bits will not slip as easily as ones that are dull. Redress tips to original shape and keep them clean. Always hold work in a vice or lay it on a flat surface to lessen the chance of injury if the screwdriver should slip.

When working near electrical equipment, screwdrivers shall be equipped with insulated handles (some also come with insulated blades).

## Hammers

Wooden handles shall be straight grained and free of splinters or splinters. Once split, handles shall be replaced. Make sure handles are tightly wedged.

Never strike a hammer with another hammer.

Discard any hammer that shows chips, dents, etc. Redressing is not recommended.

Safety glasses shall be worn while using a hammer or any other striking tool.

Never use a common nail hammer to strike other metal objects such as cold chisels.

## Punches

Never use a punch with a mushroomed struck face or with a dull, chipped, or deformed point. Punches that are bent, cracked, or chipped shall be discarded. Safety glasses shall be worn while using a punch.

## Chisels

Choose a chisel only large enough for the job so the blade is used, rather than only the point or corner. Never use chisels with dull blades—the sharper the tool, the better the performance. Chisels that are bent, cracked, or chipped shall be discarded. Re-dress cutting edge or struck end to original contour as needed. When chipping or shearing with a cold chisel, the tool shall be held at an angle that permits one level of the cutting edge to be flat against the shearing plane.



## Hacksaws

Hacksaws shall be adjusted and tightened in the frame to prevent buckling and breaking, but shall not be tight enough to break off the pins that support the blade. Install blade with teeth pointing forward.

Pressure shall be applied on the forward stroke only. Lift the saw slightly, pulling back lightly in the cut to protect the teeth. Do not bend and twist the blade. Never continue an old cut with a new blade.

## Files

Select the right file for the job, making sure that it has a secure handle.

Files shall be cleaned only with file-cleaning cards; never by striking. Never use a file as a pry or hammer, as chipping and breaking could result in user injury.

Grasp the file firmly in one hand and use the thumb and forefinger of the other to guide the point.

## Axes and Hatchets

The cutting edges are designed for cutting wood and equally soft metal. Never strike against metal, stone, or concrete.

Never use an axe or hatchet as a wedge or maul, never strike with the sides, and never use them with loose or damaged handles.

Proper axe grip for a right-handed person is to have the left hand about 3" from the end of the handle and the right hand about  $\frac{3}{4}$  of the way up. Reverse hands if left handed.

Sharp, well-honed axes and hatchets are much safer to use because "glancing" is minimised.

Safety glasses and safety shoes shall be worn and clear swinging checked before using axes and hatchets. Axes and hatchets shall be carried with the covers on.

## Knives

Knives cause more disabling injuries than any other hand tool. The hazards are that the hands may slip from the handle onto the blade or that the knife may strike the body or the free hand. Use knives with handle guards if possible. Knives shall be kept sharp and in their holders, cabinets, or sheaths when not in use; the cutting stroke shall be away from the body.

Do not wipe dirty or oily knives on clothing. To clean, the blade shall be wiped with a towel or cloth with the sharp edge turned away from the wiping hand. Horseplay of any kind (throwing, "fencing," etc.) shall be prohibited.

## Crowbars

Use the proper kind and size for the job. Never use makeshifts such as pieces of pipe, as they may slip and cause injury. Crowbars shall have a point or toe of such shape that it will grip the object to be moved and a heel to act as a pivot or fulcrum. A block of wood under the heel may prevent slippage and help reduce injuries.

## Shovels

Shovel edges shall be kept trimmed and handles checked for splinters and cracks. Workers shall wear safety shoes with sturdy soles. They shall have feet well separated to get good balance and spring in the knees. The leg muscle will take much of the load. To reduce the chance of injury, the ball of the foot (not the arch) shall be used to press the shovel into the ground or other material.

Dipping the shovel in water or greasing or waxing the shovel will prevent some materials from sticking.

Gloves shall be worn while using shovels.

When not in use, hang up shovels, stand them against the wall, or keep them in racks or boxes.

## Box and Socket Wrenches

The use of box and socket wrenches is indicated where a heavy pull is necessary and safety is a consideration. Box and socket wrenches completely encircle the nut, bolt or fitting and grip it at all corners as opposed to two corners gripped by an open end wrench. They will not slip off laterally, and they eliminate the dangers of sprung jaws.

Avoid overloading the capacity of a wrench by using a pipe extension on the handle or strike the handle of a wrench with a hammer. Hammer abuse weakens the metal of a wrench and causes the tool to break. Special heavy duty wrenches are available with handles as long as 3'. Where possible, special penetrating oil shall be used to first loosen tight nuts.

## Electric Saws

Electric saws shall be equipped with guards above and below the face plate. The lower guard shall be checked frequently to be sure it operates freely and encloses the teeth completely when not cutting. Circular saws shall not be crowded into the work. The motor shall be started and stopped outside the work. At the beginning and end of the stroke or when the teeth are exposed, the operator shall use extra care to keep the body out of the line-of-cut. Saws shall be equipped with "dead man" controls or a trigger switch that shuts off the power when pressure is released.

## Portable Grinder

Grinding wheels shall be guarded as completely as possible. They shall never be used at greater than their rated speed. To do so may result in the wheel breaking apart due to excessive centrifugal force. Guards shall be adjustable so the operator will be inclined to make the adjustments rather than remove the guard. However, the guard shall be easily removable to facilitate replacement of the wheel. In addition to mechanical guarding, the operator shall wear safety glasses at all times.

Care shall be exercised to protect the grinder from damage.

Since part of the wheel is exposed, it is important the employee hold the wheel so it does not touch his clothes or body.

## Air Hoses

Workers shall be warned against disconnecting the air hose from the tool and using it to clean machines or remove dust from clothing. Air used for cleaning shall not exceed 30 psi and workers shall wear safety glasses at all times when using air hoses. Brushing or vacuuming equipment is recommended for removing dust from clothing.

Air shall be shut off before attempting to disconnect the air hose from the air line. Any air pressure inside the line shall be released before disconnecting

## AVOIDING INJURY WHILST USING HAND TOOLS

Using hand tools can injure the wrist, elbow and shoulder.

Tools that cause health problems are not necessarily of non ergonomic design – they may be well designed but used excessively.

Using tools may require awkward or static postures and forceful exertions. For example, working in cold conditions leads to a loss of sensitivity in the fingers and may lead result in a more forceful grip. Alternatively, you may have to bend your wrist to use a tool, or use a very firm grip to hold it steady. Some tools are heavy, or have a wide grip span. Some send shocks to the wrist and hand, while others press into the hand to cause contact stress.

While gloves protect hands and fingers, they increase the muscular effort in using a hand tool by about 20% (or more if the gloves do not fit correctly).

## Ways to control hazards

- Assess the risks of using certain hand tools. Consider size, weight, type of handle and the grip needed
- Buy the right tool for the job. Purpose-made tools should be light and comfortable to use, and should not require excessive force
- Buy tools that can be used in either hand (this provides for left-handed people)
- When buying heavy tools, choose tools where the heaviest part is not in front of the wrist, and where the weight supported by the worker is as low as possible for the type of tool
- Alter the use of heavy hand tools. For example, suspend heavy tools that are used repeatedly for the same task in the same place; or use counterbalancing equipment for repetitive work where tools have to be held away from the body
- Use power tools where possible to reduce the muscular effort needed
- Choose trigger tools where the trigger is:
  - easy to activate in either hand
  - at least 5cm long (so it can be activated by several fingers)
  - supported by a trigger lock if you need to sustain the trigger grip for more than 30 seconds at a time.

- Choose tools with handles that:
  - are cylindrical (about 4cm in diameter)
  - are well designed and fit the hand
  - have a span between 6-9cm
  - allow the wrist to be held straight (in the 'shake hands' position)
  - have a comfortable gripping surface (dimpled)
  - do not have sharp edges or areas that dig into the fingers or palm of the hand
  - are fitted with a guard or stopper (in the case of knives or soldering irons).
- Choose tools with these handle dimensions:
  - The grip length should be about 10cm for precision tools and 12cm for power tools.
  - Cut-out handles should be about 12cm long by 6cm wide.
- Choose tools with internal damping, or that limit torque reaction
- Use clutch-type tools, shutoff tools, hydraulic pulse tools, and external devices such as torque bars or articulating bars
- Use the smallest tool as possible (such as a 10cm angle grinder, not a 20cm grinder)
- Consult with workers about the problems they encounter
- Review past incident records for tool-related injuries. Try to identify the action or part of the tool responsible for injuries
- Regularly maintain hand tools
- Use a vice, clamp or other aids where appropriate. Keep as close as possible to the work
- Rotate workers to minimise the repetitive use of hand tools for long periods. Train workers in hand tool safety and the importance of minimising hand grip force.

## Inspection

- Are tools in safe condition?
- Are instruction manuals available?
- Are power tools properly grounded?
- Are guards and shields in place?
- Is PPE available?
- Are tools put away and properly stored

## SELF TEST QUESTIONNAIRE

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| <b>44. What potential injuries could be incurred while using plant and equipment? List 5</b>   | <b>185</b>     |
| i.   |                |
| ii.  |                |
| iii.   |                |
| iv.  |                |
| v.   |                |
| <b>45. What strategies could you incorporate to reduce the risk of injuries using equipment and machinery in the workplace? List 5</b> | <b>187</b>     |
| i.   |                |
| ii.  |                |
| iii.   |                |
| iv.  |                |
| v.   |                |
| <b>46. What plant would require a Certified Operator?</b>  | <b>188</b>     |
| i.   |                |
| ii.  |                |
| iii.   |                |
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| vi.  |                |
| <b>47. What are your obligations regarding guards on machines in the workplace? List 5</b>   | <b>188-189</b> |
| i.   |                |
| ii.  |                |
| iii.   |                |
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| <b>48. List 10 Rules regarding the use of explosive power tools</b><br>i.<br>ii.<br>iii.<br>iv.<br>v.<br>vi.<br>vii.<br>viii.<br>ix.<br>x. | 189–191   |
| <b>50. What are the basic rules governing the use of hand tools? List 5</b><br>i.<br>ii.<br>iii.<br>iv.<br>v.                              | 191–192   |
| <b>51. List the ways to control the hazards when using hand tools? List 5</b><br>i.<br>ii.<br>iii.<br>iv.<br>v.                            | 195–196   |

# FURTHER REFERENCE

## Websites

|  |  |
|--|--|
| <a href="http://www.fairtrading.nsw.gov.au">www.fairtrading.nsw.gov.au</a> | Office Fair Trading  |
| <a href="http://www.lawfoundation.net.au">www.lawfoundation.net.au</a>     | Law Foundation (Access to legislation and regulations)   |
| <a href="http://www.ohsc.gov.au">www.ohsc.gov.au</a>                       | National Occupational Health and Safety Commission   |
| <a href="http://www.workcover.nsw.gov.au">www.workcover.nsw.gov.au</a>     | WorkCover NSW  |
| Sections of the WorkCover site to view                                     | <ul style="list-style-type: none"> <li>• Alerts, Guides and Hazards</li> <li>• Asbestos and Fibro</li> <li>• Dangerous Goods</li> <li>• OHS Responsibilities</li> <li>• Risk Management</li> </ul> |
| <a href="http://www.health.nsw.gov.au">www.health.nsw.gov.au</a>           | Health NSW   |
| <a href="http://www.sydneywater.com.au">www.sydneywater.com.au</a>         | Sydney Water   |
| <a href="http://www.csu.edu.au">www.csu.edu.au</a>                         | Charles Sturt University   |

## Legislation and Regulations

- Work Health and Safety Act 2011
- Occupational Health and Safety Regulations 2001
- Workers Compensation Act 1987
- Workplace Injury Management and Workers Compensation Act 1998
- National Occupational Health Safety Commission Act 1985 (Commonwealth)
- Construction Safety Amendment (Amenities and Training) Regulation 1998.

## Other

- Yellow Pages.

## Recommended Reading

- OFT Fact Sheets
- 93 Electrical Safety for Plumbers
- 98 Swimming Pool Safety
- 204 Electrical Compliance and Safety
- WorkCover Publications – Refer to Page 60 off Module 1 Prepare to be an Owner-Builder.

## Dangerous Goods and Explosives

*Construction:*

- Bricklaying
- Concrete
- Demolition
- Falls Prevention in Construction
- Formwork
- Metal Roofing
- Noise Management
- Safe Working at Heights
- Safe Erection of Timber Roof Trusses.



