

Safety Handbook



ACT Building and
Construction Industry

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Emergency and other contacts

Police, Fire, Ambulance	000
Police attendance	131 444
Gas Leaks	131 909
Dangerous Goods (ACT WorkCover)	6205 0200
ActewAGL (power lines)	6248 3555
Poisons Information Centre	13 11 26
Sharps Hotline	13 22 81
ACT Building & Construction Industry Training Fund Board	6262 5630
ACIRT Redundancy	6267 1599
ACT Long Service Leave Board	6247 3900
ACT WorkCover (24 Hr Contact)	6205 0200
AMWU Australian Manufacturing Workers Union	6273 2412
Building Trades Group (BTG)	
DIAL BEFORE YOU DIG	1300 652 077 Or 1100
Drug & Alcohol Co-ordinator	6267 1599
Building Electrical and Plumbing Control (BEPCON)	6207 6262
C+BUS Superannuation	6217 7300
CEPU Plumbing Division	6251 6909
CEPU Electrical Division	6251 6955
CFMEU Construction Forestry	
CITEA Training	6257 8344
Construction Industry Skills Centre	6257 7775
Housing Industry Association	6249 6366
Legal Advice	6257 1922
Master Builders Association & Master Builders Association Group Training	6247 2099
Mining & Energy Union	6267 1599
Ozhelph	6239 5443

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INTRODUCTION

The 2nd edition of the 'Safety Handbook' was compiled by the ACT Building and Construction Industry Task Force. The Task Force consists of stakeholders in the building industry striving to achieve improvements in Occupational Health and Safety.

The purpose of this Safety Handbook is to provide members of the building and construction industry with a common set of basic safety requirements applicable to sites, regardless of size.

The information in this handbook deals with a variety of hazards that have the potential to produce the highest level of risk. Appropriate safety measures are suggested to control the hazards and minimise the risk.

The Handbook can be used together with general industry and site specific inductions. It is also a useful reference for supervisors, health and safety representatives and employees in determining appropriate Occupational Health and Safety standards required in the building industry.

The Construction Industry Task Force acknowledges and thanks INCOLINK Victoria for their generosity in allowing the use of their handbook to create a publication that reflects the ACT Building and Construction Industry.

This Handbook has been endorsed by ACT WorkCover as a guide and educational tool for managing safety.

PART 1

GENERAL ROLES AND RESPONSIBILITIES



WHAT AN EMPLOYER MUST PROVIDE FOR EMPLOYEES

Under the *Occupational Health and Safety Act 1989* (the OHS Act) employers must provide and maintain a working environment that is safe and without risks to health.

This includes requirements to:

- Provide and maintain plant that is safe to use
- Provide safe systems of work for using plant and substances
- Provide adequate information on hazards, as well as instruction, training and supervision to help you do your work safely
- Provide personal protective equipment appropriate for the job
- Provide adequate welfare facilities such as amenities and first aid

Your employer must make sure these are available for you, regardless of which site you are working on, or who has control of the site.

WHAT IS EXPECTED OF EMPLOYEES

Under the Occupational Health and Safety Act 1989

You must:

- Take all reasonably practicable steps to care for your own health and safety and avoid affecting the health and safety of your co-workers and the general public, and
- Co-operate with your employer – follow all safety instructions and use equipment properly

You must not:

- Wilfully or recklessly interfere with or misuse anything provided in the interests of health and safety, or
- Wilfully place at risk the health or safety of any person at the workplace

It is in your best interests to work safely as this will protect you and your workmates from injuries and help to:

- Create a sense of security in doing your work
- Keep the job running smoothly without accident, trauma and disruption
- Comply with the law
- Raise safety standards in the industry
- Keep a good safety record, which will help your employer to win more work and to retain your job

Above all, remember:

At the end of the day you and your workmates should go home safely to family and friends



SITE RULES AND BEHAVIOUR

You are expected to maintain an acceptable standard of behaviour while at work and to treat your co-workers with respect. In particular, unacceptable behaviour that will not be tolerated includes:

- Taking or being under the influence of drugs or alcohol
- Engaging in violence of any kind
- Bullying, pranks or horseplay
- Sexual harassment, or
- Racial vilification

You can be prosecuted and fined for breaching these rules.

If you are subjected to any of the above, report it immediately to your supervisor or to your health and safety representative.

RESPONSIBILITIES OF SITE MANAGER OR PRINCIPAL CONTRACTOR

Principal Contractor

A principal contractor is an appointed person responsible for the construction work at all times until the work is completed.

The principal contractor is responsible for identifying all site safety issues and providing and maintaining the proper systems to ensure the safety of workers, visitors and the public. This includes establishing, prior to commencing work on a site, systems and processes for:

- Access and Egress
- Site safety needs and amenities
- Site conditions and security
- Site safety inductions
- Safety signs and notices
- Records, registers and forms
- Health and safety consultative arrangements
- Lists of contacts on site e.g. Foreman, first aid etc.
- Emergency procedures

The site manager is responsible for making sure that these measures are applied correctly to safeguard all site operations.



SITE SPECIFIC INDUCTION

What is a site-specific induction?

It is an introduction to the site to inform workers about site rules and safety procedures, making sure they understand them before commencing work, rather than relying on them to "pick it up" as they go along. The initial site-specific induction should be followed by on-going safety and training to help employees work safely and efficiently.

Having mechanisms in place at the workplace to ensure people are aware of the specific procedures and rules for the site will help minimize the risk of death, injury or illness.

What should the site-specific induction cover?

It should explain to all employees and subcontractors:

- Site safety rules and policies (e.g. drugs and alcohol, smoking, horseplay etc)
- Site amenities and welfare facilities
- Emergency procedures
- Site specific hazards and control measures
- How safety issues and disputes are resolved
- How to report hazards or unsafe work practices
- How to report accidents, incidents and dangerous occurrence
- What to do if you are injured

- First aid provisions
- Workers' compensation
- Details of consultative processes on site

Who should conduct the site specific Induction?

The site-specific induction should be conducted by the site management in conjunction with employee representatives (if applicable).

Who should attend?

All employees and site visitors should attend before starting on a new site.

The Principal Contractor must keep a record of the people inducted and the date that it was undertaken. This record must be kept for the duration of the project.



SAFETY CONSULTATION

Safety consultation may be an informal or formal process of seeking the views of others before making decisions. Consultation with employees encourages a sense of involvement and participation. People who are consulted about possible changes to work methods, materials and processes are more likely to accept the changes and implement them more effectively.

The OHS Act sets out the following mechanisms through which consultation can be achieved:

Designated Work Groups (DWGs)

A designated work group is a group of employees of a single employer, who have common work interests, for example, the nature of the work area is similar. Arrangements for the formation of DWG's under the *Occupational Health and Safety Act 1989* apply to employers with more than 10 employees. Employees include casual and part time employees. The arrangements apply even when an employer does not employ more than 10 employees in any single workplace but has more than 10 employees overall.

Employees may ask their employer to establish designated work groups in their workplace.

Health and Safety Representatives are responsible for their DWG and they assist management by ensuring that the workplace is safe and without risk to the health and safety of employees.

The employer cannot vary a DWG without consulting with the union involved, or where there is no such involved union, the employees of the DWG.

A written list of DWG's must be displayed prominently at the workplace and must be kept up to date.

Health and Safety Representatives

The health and safety representative is the elected voice of the workers to represent their safety interests.

The health and safety representatives can:

- Attend to safety issues raised by workers
- Inspect the workplace
- Request a WorkCover inspection
- Accompany a WorkCover Inspector
- Be present at interview and meetings concerning health and safety matters
- Report to managers and supervisors
- Issue Provisional Improvement Notices

Employers should consult with health and safety representatives at all stages of the job and encourage open and honest two-way communication and cooperation.



Employers are required to provide health and safety representatives with time off work to undertake an ACT Occupational Health and Safety Council approved Health and Safety Representative (HSR) training course.

Health and Safety Committee

The health and safety committee provides a formal means of discussing and resolving health and safety issues.

The health and safety committee can:

- Assist the employer to develop and implement measures designed to protect the health and safety of employees and to keep the adequacy of those measures under review
- Facilitate cooperation between the employer and the employees in relation to Occupational Health and Safety matters
- Help to improve health and safety standards

OHS Dispute Resolution

The agreed safety dispute resolution procedure in your Enterprise Agreement should be followed to resolve issues and disputes on sites covered by that agreement.

For sites which do not yet have an agreed OHS dispute resolution procedure the ACT Building and Construction Industry, or the Federated Engine Drivers and Fireman's ACT Award's safety dispute resolution procedure should be followed.

BENEFITS OF CONSULTATION

Consultation can be beneficial for everyone in the workplace and can result in:

- Better informed management decisions
- Improved commitment to OHS
- A better working relationship between management and employees
- Increased employee morale and job satisfaction
- Increased productivity
- Reduced workplace injury and disease

Consultation should involve all persons on the site who may be affected by decisions, including contractors and subcontractors.



INJURIES AND FIRST AID

All employees must have access to a First Aid kit. The requirements for basic First Aid kits are listed in part 3 of this document.

For those persons working on residential sites, due to the nature of the industry and the isolation factor, it is essential that you or the principal contractor provide a First Aid kit.

In the interests of your own health and safety you should inform colleagues of your whereabouts so that help would be available to you in the case of an emergency.

On commercial construction sites the names of first aid officers, first aid procedures and emergency contact phone numbers should be part of the induction process and displayed in prominent locations visible to all workers. Make sure you always know where first aid facilities are located.

What to do if someone is injured

- Remain calm
- Assess the incident
- Contact the designated first-aider for your area (or get someone else to do it)
- If anyone needs immediate first aid and the first-aider cannot be located, contact the site office to call an ambulance.

If the office is unattended call "000" to ask for an ambulance and provide the following information:

- Name and address of site/building
- Specific location of injured person
- A contact telephone number

When calling 000, you will have called a National Call Centre and you should tell them the area or state that you are calling from.

Send someone to the main site entry point to direct the ambulance.

Ensure the area is safe and poses no further risk.

Whilst waiting for the ambulance, DO NOT move the injured party or parties, unless there is an increased risk of danger.

Assess the injuries and provide First Aid treatment whilst waiting for the ambulance. Provide any assistance you can to safeguard the injured person and to keep them comfortable.

Details of first aid treatment given by first-aiders should be recorded in the first aid treatment book.



Reporting and Recording Injuries

If you have suffered a work related injury or illness you must report the incident/issue immediately to your supervisor. If you don't, you may not be entitled to make a compensation claim.

You should:

- See your doctor for treatment (document your injury/illness)
- Fill out the relevant forms for your work place and if applicable include Workers' Compensation forms.

The employer must maintain a record of work-related injuries or illnesses involving absences of one day or more.

EMERGENCIES

An emergency is an actual or imminent occurrence (such as an accident, fire, bomb threat, gas and chemical explosion, flood or storm, collapse of a building or structure) which:

- Endangers, or threatens to endanger the health or safety of persons, or
- Destroys or damages, or threatens to destroy or damage property

Make sure you always know what to do in an emergency.

Your site should have an emergency plan displayed prominently to instruct all workers and visitors of the following:

- The alarm signal for evacuation
- The correct way to exit the building
- What you **should** do and what you **should not** do in an emergency
- The safe assembly point
- The site personnel in charge of emergencies
- Contact for emergency and rescue services

A register of who is on site should be kept so that in the case of an emergency everyone can be accounted for.

Undertake a head count to determine if all workers have been evacuated.

Re-entry to the site should only be done when an authorised person gives the 'all clear'. e.g. Fire brigade.



NOTIFICATION OF INCIDENTS AND DANGEROUS OCCURRENCES

Under the *Occupational Health and Safety Act 1989* certain incidents must be reported to ACT WorkCover.

ACT WorkCover should be notified immediately of a death, serious injury, or dangerous occurrence (near miss) by phoning 6205 0200.

What injuries must you report?

You must send ACT WorkCover an Injury and Dangerous Occurrence Report if, as a result of an accident at your workplace, a person:

- dies, or
- is injured so that he or she cannot carry out their usual duties for at least 7 days after the accident

You must send ACT WorkCover a report even if the person injured or killed is not an employee (e.g. a subcontractor, sales representative or visitor).

What work-related illnesses must you report?

You must notify ACT WorkCover if an employee at the worksite:

- Gives you a medical certificate stating that he or she is suffering from a work-related illness, and

- Is unable to carry out his or her usual duties for a continuous period of at least 7 days as a result of the illness

What Dangerous Occurrences must you report?

You must send ACT WorkCover an Injury and Dangerous Occurrence Report if there is a dangerous occurrence at your workplace, even if no one is injured.

A dangerous occurrence is:

- Damage to any boiler, pressure vessel, plant, equipment or other thing which endangers or is likely to endanger the health or safety of anyone at a workplace
- Damage to, or failure of, any load bearing member or control device of a crane, hoist, conveyor, lift, escalator, moving walk, plant scaffolding, gear, amusement device or public stand
- An uncontrolled fire, explosion or escape of gas, dangerous substances or steam
- An occurrence involving imminent risk of death or serious personal injury to any person (e.g. an electric shock or the collapse of a wall or trench)
- Any other occurrence involving substantial damage to property



If you become aware of an incident, dangerous occurrence or a 'near miss' at your workplace, report it to your immediate supervisor, even if it does not result in immediate injury or damage. This way it can be investigated to establish the cause and to prevent it happening again.

The Police, Fire Brigade and WorkCover must also be notified of certain incidents involving Dangerous Substances.

Preserving the Site of a Fatal Incident

WorkCover, the police and the Coroner's Office attend the scene of a workplace death and require the site of a fatality to be left untouched. It is against the law to tamper with or disturb the scene of a fatality unless otherwise directed by a WorkCover inspector. The scene of a fatality must not be disturbed unless this is necessary to:

- Help someone who is injured
- Protect someone else's health and safety
- Take essential action to make the site safe to prevent a further accident

Dealing with Trauma and Counselling

It is important to remember that anyone witnessing a workplace fatality may be in shock and may need counselling to deal with this traumatic event.

If counselling is required contact your employer, industry association or union.

WORKERS COMPENSATION

The *Workers Compensation Act 1951* (the Act) aims to provide timely, safe and durable return to work through effective injury management and income support to injured workers. It works in conjunction with occupational health and safety legislation that seeks to reduce the human and economic cost of work-related injury through improvements in the management of occupational health and safety in the workplace.

ACT WorkCover is the government agency responsible for the administration of the Act.

Inspectors are appointed under the *Workers Compensation Act 1951* to ensure compliance with the legislation. They also investigate complaints, undertake investigations in relation to prosecutions and provide information on a range of workers compensation matters to the general public.

When is a Worker covered for Workers Compensation?

In the ACT private sector a worker is entitled to compensation for any personal injury, disease or aggravation that occurs:

- during the course of employment; or
- by any incident arising out of employment; or
- on a journey to or from work.

When is Workers Compensation Insurance Required?

An employer is liable for any compensation payable to a worker suffering work-related injury or disease. Where an employer has a current workers compensation policy, the insurer indemnifies the employer for costs of the claim.

It is **compulsory** for all employers to have a current ACT workers compensation policy in place with an Approved Insurer (see Information Bulletin 11.04 *Workers Compensation - Approved Insurers*).

Who is an employer?

Under the *Act*, an employer is someone who employs workers under a '*contract of service*', or in certain circumstances a '*contract for service*'. A contract can be made either orally or in writing and applies to full time, part time and casual workers.

A '*Contract of service*' exists where there is an employer/worker relationship. In a contract of service, the employer directly engages a worker in employment. Most employment contracts are made under a '*contract of service*'.

A '*Contract for service*' includes circumstances where an individual performs work for the principal, personally does part or all of the work, and works on a regular and systematic basis.

If you engage contractors/sub-contractors on a regular and systematic basis, you should contact ACT WorkCover or an approved insurer to discuss your particular arrangement, as these people may also be deemed 'workers' under the workers compensation legislation.

Early Intervention and Reporting

The ACT *Workers Compensation Act 1951* places emphasis upon 'early intervention' to facilitate early and safe return to work for workers who have sustained a workplace injury. The process involves early notification of workplace injuries, by an employer to their insurer.

As an employer, you must:

- Keep a **Register of Injuries** that is readily accessible to the workers, and which records every injury regardless of whether or not a claim is made.
- Notify your insurer within 48 hours after becoming aware that a worker has received a workplace injury. The notice may be given verbally, but must be confirmed in writing or electronically within 3 days. The insurer must take action within 3 business days after receiving the Injury Notice by contacting you, the injured worker and (if appropriate and practicable) the nominated treating doctor.
- Provide '**workers compensation claim forms**' on request from the injured worker. Lodge the completed claim form with your insurer within 7 days of receiving the form from the worker. The insurer has 28 days to either accept or reject the claim.
- Continue weekly payments to the injured worker from the date of the injury. The insurer will reimburse payments made if the employer has met their 48-hour notification obligation.

Rehabilitation and Return to Work

Workplace rehabilitation for injured workers is a requirement under the *Workers Compensation Act 1951*. Workplace rehabilitation helps injured workers achieve an early and safe return to the workplace.

Develop a **Return to Work Program** in consultation with your workers, an approved rehabilitation provider, and any industrial union representing the workers (refer to *Information Bulletin 11.05* for more detail).

Display the Program and a copy of the Information Summary to the workers (refer to *Information Bulletin 11.10* for more detail). Take all reasonable steps to provide suitable duties to a worker returning from a work related injury.

WORKCOVER INSPECTORS

ACT WorkCover Inspectors provide advice and information to help employers and employees understand their obligations under the *ACT Occupational Health and Safety Act 1989*.

They also have the powers to enforce compliance with the legislation.

WorkCover Inspectors visit workplaces to:

- Investigate an accident and/or breach of legislation
- Respond to complaints from workers and the public
- Conduct random workplace inspections
- Target specific hazards or industries as part of a compliance campaign

WorkCover Inspectors have the power to:

- Enter any premises they believe to be a place of work, with or without notice, at any hour when work is conducted
- Make searches, inspections, examinations and tests or take photographs or samples
- Dismantle or take any plant or thing believed to be used in the commission of an offense
- Obtain necessary assistance and facilities from the person or company under inspection or investigation
- Inspect and take copies of extracts of any records
- Issue Improvement Notices, requiring employers to correct unsafe working conditions or hazards

- Issue Prohibition Notices, which prohibit work until a hazard is eliminated or reduced
- Collect other information and evidence and recommend prosecution
- Request Police assistance if required

IMPROVEMENT NOTICES

Improvement Notices are issued for any hazardous situation where there is no immediate risk.

An Improvement Notice provides a specific time period in which the employer must take corrective action to fix the hazardous situation.

Improvement Notices can be issued in many circumstances.

Some examples include:

- Working in an unsafe trench or excavation
- Electric power tools not tagged and tested
- Inadequate safety signs (e.g. Hearing protection Area, Emergency Exit)
- Failing to provide amenities or first aid facilities

PROHIBITION NOTICES

Prohibition Notices are issued when an Inspector determines that there is an immediate or imminent risk to the health and safety of any person.

The hazardous activity must be stopped immediately and not recommenced until the risk is eliminated.

A Prohibition Notice remains in effect until the hazardous situation or matter has been corrected.

Prohibition Notices can be issued in many circumstances.

Some examples include:

- use of unguarded machinery
- not disconnecting electricity (e.g. risk of electrocution through contact with live wires)
- not providing respiratory protection, where there are hazardous substances or inadequate oxygen
- Lack of fall protection at heights

A failure to comply with an Improvement Notice or Prohibition Notice is an offence under the *Occupational Health and Safety Act 1989*.

DIRECTIONS NOT TO DISTURB

A 'direction not to disturb' is a notice issued to a person in charge of a workplace that requires a work area and/or plant or equipment to remain undisturbed for a specified period of time.



A direction not to disturb may be issued to allow inspection of a workplace, or any plant, substance or thing at a workplace. It may also be issued where there is an immediate threat to the health or safety of any person.

INFRINGEMENT NOTICE

An Infringement Notice is issued to a person where there are reasonable grounds to believe that person has committed an "infringement notice offense" under the Act.

PROSECUTION ACTION

When there is a failure to comply with an Improvement or Prohibition Notice or where there is a flagrant or deliberate breach of the OHS responsibilities, ACT WorkCover can recommend to the Director Of Prosecutions (DPP) that prosecution action be taken under the OHS Act, against any person or organisation, where there are reasonable grounds to believe that an offense has been committed.

Obstructing Inspectors and False Information.

It is an offense to obstruct, impede , hinder, threaten or assault an inspector.

A person must not knowingly give an Inspector information that is false or misleading or give the Inspector any documents containing false or misleading information.

Always co-operate with and provide assistance if requested by a WorkCover Inspector

Can an Inspectors' decision be appealed?

Yes, a request to review the issuing of a Notice must be submitted in writing to the Occupational Health and Safety Commissioner.

Anyone not satisfied with the result of the review of a Notice may elect to have the matter heard before the Industrial Relations Commission.



PART 2

SPECIFIC HAZARDS

IDENTIFYING HAZARDS, ASSESSING AND CONTROLLING RISKS

Hazards on Construction Sites

The majority of injuries, which occur on construction sites, are back injuries, sprains and strains due to manual handling tasks such as lifting, pushing, pulling and stretching.

Statistics show that the most frequent ways construction workers are killed are through:

- Falling from heights
- Electrocution
- Being hit or crushed by powered mobile plant

Other hazards common in the construction industry are:

- Falling objects
- Structural collapse
- Collapse of trenches
- Compressed air
- Hazardous substances (paints, solvents, chemicals etc.)
- Hazardous dusts, e.g. silica, asbestos, medium density fibreboard (MDF), synthetic mineral fibres (SMF)
- Explosive powered tools
- Lasers
- Noise
- Welding fumes, gases and arcs
- Confined spaces



Risk Management

Before commencing tasks, all foreseeable hazards (for example, falling off a roof) and actual risks (e.g. death, serious injury) should be identified and appropriate safety measures put in place (e.g. installing guard railing).

This risk management process is made up of the following steps:

1. Identify the hazards
2. Assess the risks arising from the hazard
3. Implement appropriate control measures to eliminate or reduce the risks
4. Monitor and review the control measures to ensure continual safety

A hazard identification, risk assessment and control process should be carried out by the contractor in consultation with the principal contractor and should be documented.

Control measures are selected by working through steps 1 to 6 of the risk control hierarchy below, starting at elimination as the most desirable option and personal protective equipment as the last resort.

Risk Control Hierarchy

1. **Elimination** of risks by eliminating the hazard, plant, tool or substance, if practicable. If this is not practicable, risk should be reduced by one or a combination of:
2. **Substitution** by a less hazardous activity, plant, tool or substance
3. **Isolation** of the hazard to prevent or reduce exposure to it

4. **Engineering controls** – for example, exhaust ventilation for dusts, fumes or vapours
5. **Administrative controls** – providing training, adopting safe work procedures or instructions to minimise exposure to the hazard
6. **Personal protective equipment** to be used as a last resort and only when risk has been reduced as far as practicable by one or a combination of the above

Example: Fall hazard from removal of an old roof on a building under demolition.

Step One: **Try to eliminate the hazard** – demolish roof with equipment on the ground.

Step Two: **Substitute the hazard** – building scaffolding platform underneath roof.

Step Three: **Isolate the hazard** – perimeter fence to keep unauthorised persons from site.

Step Four: **Engineering control** – work off scissor lifts and and/or Elevating Work Platforms.

Step Five: **Administrative control** – procedure that prohibits work near open edges.

Step Six: **Personal protective equipment** – use personal safety harness.

Safe Work Method Statements

Contractors are often required to submit Safe Work Method Statements (SWMS) before carrying out their activities on construction sites.



A Safe Work Method Statement sets out the work method in a logical sequence. The hazards associated with each process are identified, and the measures for controlling these hazards specified.

Any job or task, no matter how simple or complex, can be broken down into a series of basic steps that will permit a systematic analysis of each part of the job for hazards and potential accidents. The description of the process should not be so broad that it leaves out activities with the potential to cause accidents and prevents proper identification of the hazards; nor is it necessary to provide too fine a detail of the tasks.

The aims of a Safe Work Method Statement are to:

- describe the job or task to be undertaken
- identify the resources, manpower and skills associated with the task
- assess and select hazard controls as appropriate
- systematically plan the job so it can be completed efficiently and effectively.

When developing Safe Work Method Statements the following should be considered:

- its development and documentation prior to the commencement of the job
- incorporation of information obtained from employees
- risk assessment results should be incorporated
- job procedure should be explained step-by-step in a logical sequence

- it should be read and understood by the employees, before commencement of work
- it should be signed by the employees, once it has been read and understood
- included as part of an employees induction training
- become part of the overall site safety plan
- written in plain English with minimal jargon and presented in a suitable format (e.g. pre-developed charts and/or forms)



HEIGHT SAFETY

Falls of people or objects from a height represents a serious health and safety risk in the Construction Industry. More than half of the falls that occur in the Construction Industry are from heights. Falls can occur from ladders, roofs, scaffold or mobile platforms, when climbing stairs, or from incorrectly erected equipment. A variety of injuries can occur as a result of a fall from height. The injuries range from short-term minor injuries to more permanent, severe disabilities or even death.

The following situations are particularly hazardous:

- Work near unprotected open edges of floors or roofs
- Work near unguarded holes, penetrations and voids
- Work near unguarded excavations, trenches, shafts, lift wells
- Work from unstable structures (for example, incomplete scaffolding)
- Work on, or near fragile, brittle surfaces (for example, cement sheet roofs, fibreglass roofs, skylight)
- Work from unprotected formwork decks
- Work from unsecured ladders

Generally, fall protection must be provided for anyone who could fall 1.8 metres or more. However, if the type of work makes it difficult for a worker to be fully aware of the location of the platform edge (for example, welding, Oxy acetylene cutting and other work involving restricted vision) fall protection should be provided regardless of height.

Remember that a fall from any height can cause serious injury or death. Stay alert, even when working off stepladders.

For your own safety remember the following points:

- Your employer does not expect you to work in any situation where there is a risk of falling
- You have the right to remove yourself from any hazardous work station or situation
- Taking risks **will not** be rewarded
- Report any fall hazards you see on site. Your immediate supervisor and health and safety representative should be made aware of any dangerous situations.
- If required to use fall arrest equipment make sure you have been properly trained in its use
- Don't be afraid to offer solutions to fall hazard problems – your opinions are important and valuable

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

Preferred Methods of Preventing Falls

If the risk can't be eliminated, it should be reduced by:

- Arranging for the work to be done on ground or on a safe, solid surface (i.e. Solid construction, has a surface which is capable of supporting people, materials and any other loads applied to it)
- Properly erected scaffolds or perimeter guardrailling



- Other temporary work platforms, such as elevated work platforms (EWP)
- Other means, such as industrial rope access systems, safety harness etc.

Scaffolding

Scaffolding is a temporary structure for supporting access platforms or working platforms.

Scaffolding of more than 4 metres in height **must** only be erected and dismantled by a certified scaffolder, or a trainee under the direct supervision of a person with a Certificate of Competency of the right class.

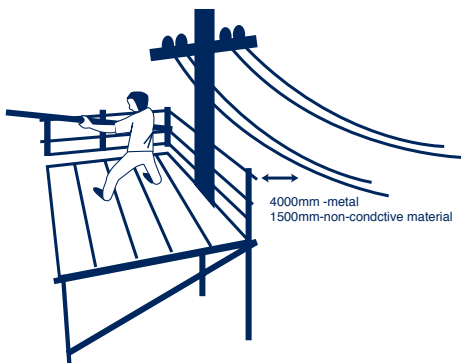
Trainee scaffolders must have a logbook that is signed off by the certified scaffolder who supervises the trainee.

Scaffolds less than 4 metres do not have to be erected by certified scaffolders, but must be erected according to the relevant Australian Standard (AS.4576) and Scaffolding regulations. The employer must ensure that all persons erecting scaffolds are properly trained for the job.

You should only work off scaffolding if it is:

- On a stable, level foundation with proper base plates
- Complete, properly braced and tied to the supporting structure
- Not overloaded (225 kg max. per platform, per bay for light duty scaffold)
(450 kg max. per platform, per bay for medium duty)
(675kg max per platform, per bay for heavy duty)

- Fully planked and fitted with guardrails, mid-rails and toeboards on the working deck wherever a person or material could fall more than 1.8 metres
- Fitted with a safe, secure temporary stairway or ladder to access the working deck
- Scaffolding components must not be located within 4.0 metres of any conductors of an overhead electrical power line without written permission from the owner of the line – (ActewAGL)



Defective or incomplete scaffolding must not be used and should be sign posted

"Scaffold Incomplete/Do Not Use"



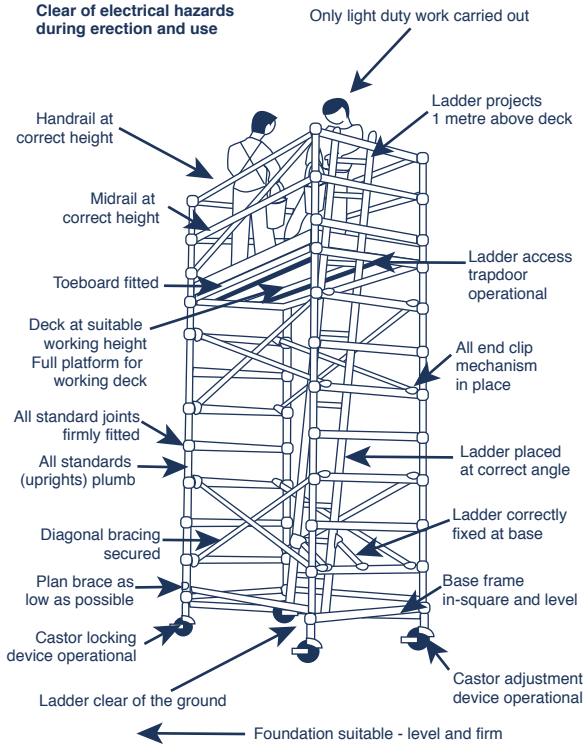
Additional Requirements for Mobile Scaffolds

- Follow the manufacturers/suppliers written instructions for correct erection, use and dismantling
- Mobile scaffolds should be used only on a hard, level surface
- The wheels of a mobile scaffold should be locked against any possible movement before using the scaffold, and should remain locked when not in use
- Do not relocate a mobile scaffold unless all items have been secured against falling
- No person should be on a mobile scaffold when it is being moved
- All mobile scaffolds should have a safe, secure means of access to the working platform
- Do not locate a mobile scaffold closer than 1 metre to any slab edge, penetration or other step down, unless a positive means to prevent it crossing that point, such as a fixed fence, rail or raised edge, is in place

When moving a mobile scaffold, stay well clear of power lines (the highest part of the scaffold should come no closer than 4m).

Never use scaffold guardrails to gain extra height or to support equipment or loads.

Check-list for Lightweight Aluminium Mobile Scaffolds



At all times refer to manufacturers recommendations

Source: Adapted from diagram by Instant Access



Suspended Scaffolds (Swing Stages)

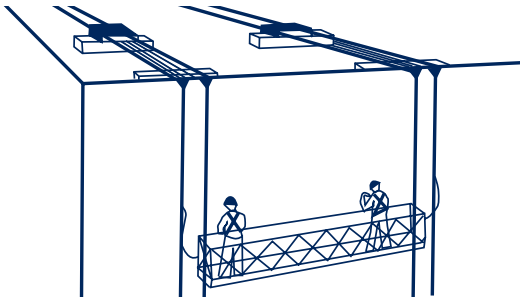
Either a rigger holding an Advanced Rigging Certificate (RA) or a scaffolder holding an Advanced Scaffolding Certificate (SA) may *install* and *dismantle* suspended scaffolds.

Before using a Suspended Scaffold make sure that:

- A written hand-over certificate, has been provided by the installer
- Operators have written authorisation from their employer and are suitably trained
- It has had its daily pre-operational check as set out in the operator's manual
- The cradle is not overloaded above its rated safe working load
- The cradle has meshed guardrails and solid flooring to ensure that materials cannot fall through
- The area below the cradle is protected by a catch platform or is isolated so no-one can be injured from falling material or debris
- There are suitable lateral restraints to stabilise the cradle during use
- Where access to and from the cradle cannot be gained from the ground or a protected platform, the cradle must be securely tied to the building and properly anchored safety harness and lanyards must be worn and used when climbing in and out of the cradle

Suspended scaffolds should be subject to weekly inspections by a competent person, in addition to daily operator's checks.

Make sure cradles are properly secured when unattended and cannot be accessed by unauthorised people. For overnight and longer periods the cradle should be tied securely to the building at least 3 metres above the ground.



*Two Independent Means of Support –
Two Complete Suspension Systems*

Perimeter Guardrailing

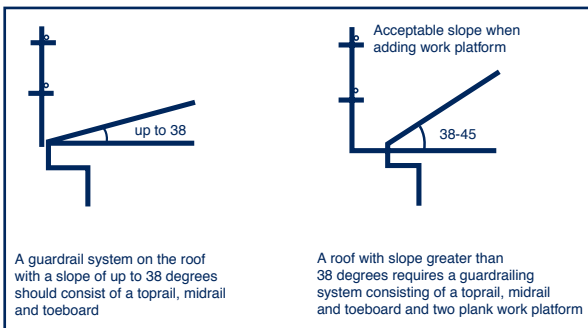
Guardrails may be used to provide effective fall protection at:

- The perimeters of building or other structures
- The perimeters of skylights or other fragile roof materials
- Opening in floor or roof structures
- Edges of pits, shafts or other excavations

The guardrail system should:

- Be 900-1100 mm above the working surface
- Incorporate a mid-rail or mesh panels
- Incorporate a toe board
- Be designed to resist the live loads, which may be put on it

Where the slope of the roof exceeds 40 degrees, guard railing should not be used as the sole means of fall protection. In this situation, guard railing should be used in conjunction with individual fall arrest systems, or roof ladders.



Fall Arrest Systems and Travel Restraint Systems

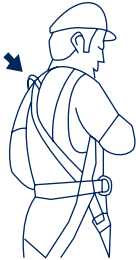
These are personal protective equipment (PPE), which should only be used when other means of providing fall protection, such as scaffolds, guardrails and elevating work platforms have been considered and are not practicable.

Before using an individual fall arrest system or travel restraint system you should be trained in its use.

- Fall arrest and travel restraint systems require a risk assessment prior to use
- Prior to use, a fall rescue plan should be developed. Workers using fall arrest systems should not work alone
- Full body safety harness should be worn, **not waist belts**
- Lanyard and inertia reels should be attached to the rear shoulder attachment point of the harness
- Lanyard systems should be installed so that the maximum distance a person equipped with a harness would free fall before the fall arrest system takes effect is 2 metres
- Energy or shock absorbers should be used with all lanyard, harness and inertia reel systems
- Do not directly attach a lanyard snaphook to an anchorage point, i.e. a ring. Use a karabiner passed through the eye of the lanyard thimble to make the connection
- Avoid using inertia reels in a horizontal configuration where, in the event of a fall, the line can be snagged on sharp edges
- Beware of using an inertia reel when working on a steep pitched roof. In a fall down the inclined surface of a steep pitched roof the inertia reel line may not lock up

- An arrest line may fail if it contacts an edge in a fall. Ensure that verification has been obtained from the manufacturer or supplier that it is safe to use with the specific type of edges involved in the work process
- Inertia reels should not be used as working supports by locking the system and allowing it to support the user during normal work
- In order to avoid rollout, make sure you use the fall-arrest manufacturer's recommended hardware such as energy absorbers, karabiners etc
- Seek advice when you set up an inertia reel – avoid the pendulum effect
- Only a qualified rigger or scaffolder or other suitably trained person should install a static line system
- Maintenance records on inertia reels should be available on request
- Suitably competent persons should undertake inspection of fall arrest systems

Elevating Work Platforms (EWP)



- Do not operate an EWP unless you have received training in its use and safety rules. The hirer or the supplier of the EWP can provide this training
- Never use an EWP on soft, uneven surfaces. Always check the intended operating area for obstacles such as pits, trenches or ramps etc
- Always wear an anchored safety harness while in a boom type EWP
- When travelling on an EWP with the boom elevated – do so as slowly as possible. Always check for clearance before you move the EWP to a new position
- Always check that the safe working load written on the EWP is not exceeded
- Guardrails of EWP's should not be used to raise pipes or other equipment. Special lifting attachments should be installed if equipment is to be lifted
- Lifting loads via cables and ropes from the EWP is not permitted
- The EWP should not be raised in high wind conditions
- Make sure that you know how to lower the platform in an emergency or if power is lost keep everyone clear of the EWP. If used in a thoroughfare, use a warning barrier of Para-webbing or safety tape positioned to prevent persons from passing under the EWP

- Never enter or exit an elevated EWP unless a documented risk assessment has been done
- Never operate the EWP anywhere above overhead power lines or within the following clearance distances unless permission has been obtained from *ActewAGL* and a risk assessment has been completed

Power lines on poles – within 3 metres each side (spotter required when operating between 3 and 6.4 metres)

Power lines on towers – within 8 metres each side (spotter required when operating between 8 and 10 metres)

The spotter is a safety observer and should be a competent person.

A certificate of competency is required for operating a Boom-type EWP with a boom of 11 metres or more.

Mast Climbing Work Platforms

Erection and dismantling of mast climbing work platforms must be carried out, or directly supervised, by a person holding at least the Intermediate Scaffolding (SI) or Basic Rigging (RB) certificate of competency.

Planning for the set up of a mast climbing platform should be by a qualified engineer who takes into account the requirements for mast climbers of a tied or free standing type.

Mast climbing platforms should be subject to a risk assessment prior to erection.

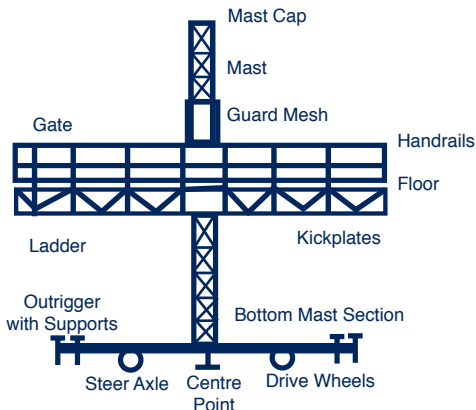
The following should be taken into account:

- Barricading where vehicular and pedestrian traffic is encountered
- Fencing around the mast climber to prevent unauthorised access
- The ground conditions/stability and outrigger positioning
- The proximity of power lines and electrical equipment
- The development of an operator's checklist

Safe operation of mast climbers

- Make sure daily operational checks have been done, including operation of audible and visible warning systems
- Make sure safe working loads are not exceeded
- Always check that all persons keep both feet on the platform deck while elevating
- Always check the vertical path of travel
- Never move the mast climber horizontally while personnel are on the platform





Do not operate a mast climber unless you are trained in its use.

Ladders

Ladders are primarily a means of access, not a work platform, and should only be used for light work where hand hold and stability can be maintained and only if it is not practicable to use other temporary work platforms such as trestles, scaffolds and EWP's.

When working on a ladder make sure that:

- It is an industrial grade ladder with a minimum load rating of 120kg. Do not use domestic grade ladders
- It is placed at a slope of 4 (vertical) to 1 (horizontal)
- It is on a stable, firm footing and secured top and bottom against movement

- Both hands are always used to ascend and descend
- All work is done facing the ladder
- Only tools that are easily operated with one hand are used
- both feet rest on the ladder and are no higher than the third tread from the top plate of a step ladder or 900 mm from the top of a single or extension ladder
- three limbs are on the ladder where practicable and use tool belts to keep hands free
- overreaching is avoided (the belt buckle should always be within the stiles of the ladder)
- work is not conducted above another person
- Not more than one person is on the ladder at any time

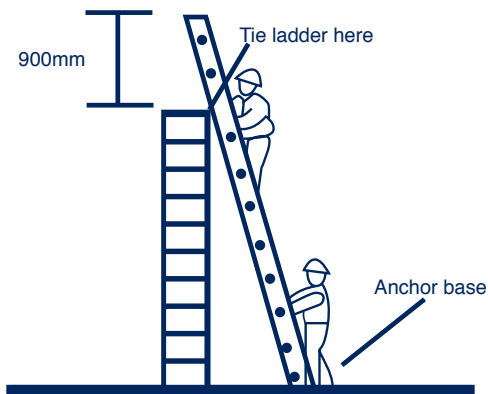
Ladders should not be used:

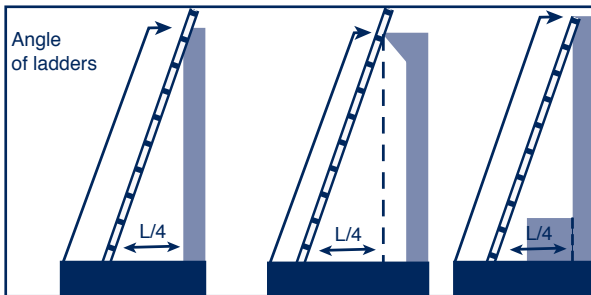
- in access areas, walkways, traffic ways or within the arc of swinging doors
- where the work involves restricted vision or hot work (e.g. welding)
- on scaffolds or elevating work platforms to gain extra height
- in very windy or wet conditions
- near an exposed edge or a guardrail where, if the ladder toppled, a person could fall over that edge



- where it is possible for the ladder or user to come into contact with electrical power lines; in particular, metal or metal reinforced ladders should not be used in the vicinity of live electrical equipment; such ladders should be permanently marked with **"do not use where electrical hazards exist"**

Always take care when using ladders. Avoid using ladders when other work platforms are available.





An employer must not cause, permit or instruct an employee to do any of the following;

- face away from the ladder while climbing the ladder unless equipment (such as a pole strap) designed to support the employee's body, is used in an appropriate manner,
- stand on a rung closer than 900mm from the top of a single or extension ladder.



FALL HAZARDS

Stilts

The use of stilts for plastering or any other construction work almost always involves unacceptable risks to the safety of workers.

There are a number of dangers associated with using stilts:

- risk of falling when walking backwards or changing direction
- tripping hazards from normal objects such as steps, railings and benches
- foot constraints reduce capacity to recover from a potential fall
- risk of pushing against or falling through windows
- overloading of spring mounts can cause stilt failure and increased risk of injury

Manual handling issues arise when stilts are used for construction work such as:

- bending to pick up materials or objects such as buckets from low surfaces applies undue force on the back and legs
- repeated bending when stopping corners leads to awkward posture and repetitive movement
- centre of gravity changes when using stilts

The usual working environment is designed for the normal size of the population with objects such as doorways, benches and guard-railing around balconies set at standard heights to comply with relevant building codes. Raising a person on stilts, changes the way these things are used and removes the normal protection offered by standard designs.

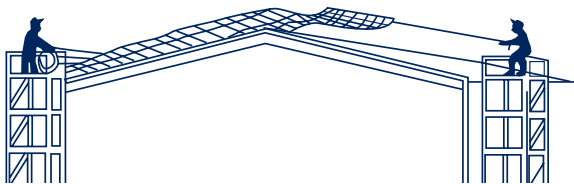
The design of stilts does not provide the same range of movement that the ankle and foot are capable of when standing directly on the floor. The normal ankle movement during walking is restricted, creating the potential for abnormal loads on the knee. Solid stilt footplates prevent normal bending and twisting of the foot when walking, creating a shuffling flat-footed gait.

Recommended alternatives

A risk assesment should be undertaken prior to using stilts and alternative work methods should be considered involving one or a combination of:

- Mobile scaffolds
- Trestle scaffolds
- Elevated Work Platforms
- Step platforms





Erecting Structural Steel

Prior to erecting structural steel all workers should be inducted into a task specific Safe Work Method Statement (SWMS) which takes into account the following:

- structural steel should only be erected by experienced and competent riggers
- all connections – rafters, purlins, braces etc. and column sling releases – should be performed out of protected work platforms (scissor lifts, boom lifts, crane boxes, mobile scaffolding, fixed platforms)
- whilst working out of a boom lift all employees should wear a safety harness/lanyard/shock absorber attached to a fixed anchorage point in the basket

Where it is necessary to position bundles of roofing sheets on the skeletal frame and to disconnect crane slings, this work should be performed out of a boom lift, or similar.

A certificate of competency (WP) is required for operating a Boom-type EWP with a boom of 11 metres or more.

Do not work off structural steel without fall protection.

Roofing

A documented risk assessment should be developed for each specific roofing contract. The risk assessment should address fall protection needs for all roofing tasks such as the installation of purlins, steel mesh and box gutters.

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

- 2mm, 45mpa wire mesh installed from a safe work platform
- box gutters installed from a safe work platform
- a perimeter guardrail system
- scaffold tower for access

In the renewal or replacement 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)
- Special safety control measures for work on fragile roofs

Where trades other than 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.

If an old roof is to be replaced, make sure that it does not contain asbestos. Note that some metal roof and cladding materials are coated with a thick coating of asbestos paint.



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

Floor Penetrations

Floor openings, penetrations, pipe risers, void and similar openings must be protected against persons falling and falling objects at all times.

Mesh cast in at the concrete pour can provide protection for small penetrations. Otherwise a timber cover properly secured and splayed should be installed over the penetration.

Large penetrations and voids must have adequate protection to make sure plant, equipment or personnel cannot fall through.

Where guardrails and penetration covers are removed temporarily for work purposes, adequate barricading and warning signs must be placed at a safe distance from openings.

Shafts

A full-length screen should protect all shafts.

Lift shafts must be fitted with a steel mesh or solid timber cage, which has a lockable gate.

Where there is a danger of falling during the fitting of screens and cages, workers must be protected by an IFAS (individual fall arrest system).

For all work in shafts a risk assessment should be developed which includes fall protection, emergency lighting and emergency evacuation.

Entry into the shafts should be subject to a tag or permit system signed by the responsible company representative.

Fall protection while working in shafts should consist of a safe working platform complete with guardrails (if the platform does not fully span the shaft).

Where total fall protection cannot be provided by a work platform, an IFAS should be used.

The shaft must remain guarded to protect other employees whilst work is being performed in the shaft.



FALLING OBJECTS

Falling objects can injure or kill and are a hazard when overhead work is carried out.

In developing a risk assessment for particular tasks, supervisors and their employees should consider falling object hazards.

Where protective platforms and screens cannot guarantee that falling objects will not present a threat, the following safety measures should apply:

- A NO ACCESS area should be established below overhead work
- The NO ACCESS area should have secure barriers in place and adequate signage to prevent access into the area
- All employees should be made aware of the NO ACCESS area
- In certain circumstances a spotter may be necessary

Remember that there may be a danger to you from other trades working overhead and that your work may be a danger to those working below.

Avoid being injured or injuring others by making sure that you:

1. Always wear your hard hat in work areas
2. Stay away from 'No Access' areas
3. Keep away from loads being lifted and slung loads

4. Secure loose material you use such as ply wood, iron-sheets and off-cuts against the wind
5. Do not stack materials close to un-meshed guardrails and perimeter edges
6. Alert your supervisor and/or Health and Safety Representative of any falling object problem areas around the site



DEMOLITION

Prior to demolition, a competent person should investigate the structure and the site and a Safe Work Method Statement (SWMS) should be developed in consultation with health and safety representatives.

The SWMS should identify and provide a means to control hazards associated with the demolition work, including:

- Hazardous materials present such as asbestos, SMF, PCBs, lead
- Existing services (e.g. electricity, gas) and their disconnection
- Location of all underground tanks, vaults, wells, voids and structures and certify that all chemicals, volatile fuels and gases have been deactivated
- Floor loadings and potential for structural collapse
- Fire protection
- Where work cannot be done safely from the ground or from solid construction, safe work platforms such as scaffolding, EWP's, boom lifts etc, should be used
- If plant is to be used, a qualified engineer must verify the adequacy of floors and supporting structures to bear loads imposed by the plant. This includes the tying of scaffolding and mast climbing platforms to the structure

- If individual fall arrest systems (IFAS) are used, the specific application of such equipment should be subject to a documented risk assessment as per the requirements of the "Safe Work on Roofs" code of practice Parts 1 and 2
- Open sides of floors, roofs, stairwells, and lift shafts should be securely covered with rigid material or provided with guardrails and toe boards. In the installation of these guardrails and coverings, workers must be protected from falling by IFAS
- Cranes should not be used to pull upon fixed structural members or to lift unknown loads
- All rigging work involved in demolition must be controlled by a Certificated Rigger Class RI (intermediate) or RA (advanced)
- When undertaking jobs within ceilings make sure that a solid and secure work platform has been provided

When undertaking the demolition of roofs adequate fall protection must be provided (catch platforms, IFAS, guardrails, purpose built roofing ladders). Always make sure that you cannot fall:

- a) Through brittle roofing materials
- b) Through holes
- c) Over perimeter edges and leading edges

Do not work above other employees where there is a danger of materials, tools or equipment falling.



TRENCHING AND EXCAVATION

All trenches and excavations should be made safe and provided with a ground support system, a steel shield or all walls to be benched or battered back at a safe angle.

Prior to excavating, a site investigation should be carried out to determine:

- Nature of the ground (soil type, rock, water table)
- Possibility of flooding from any water source
- The existence of underground services (gas, electricity, pipelines, sewer)
- Proximity of other excavations and other point sources of instability
- The possibility of natural or artificial hazards (e.g. ground contamination)
- Static/dynamic loads (e.g. buildings/traffic) and ground vibration

A risk assessment for all trenching/excavation tasks should be completed based on the results of the site investigation. The risk assessment should include control measures for the safe use of excavation plant.

Employees should be made aware of the risk assessment relevant to their trenching or excavation work.

All trenching and excavation operations should undergo a daily checklist system to ensure that the following safety requirements are observed:

- No person enters an unsupported section
- Trenching supports are appropriate to the conditions (i.e. The need or otherwise for trench shields, close sheeting, benching or battering)
- Spoil heaps are properly positioned at least 0.9 metres from the edges of the trench
- Safe ladder access is provided into the trench
- All workers wear safety helmets
- No person is working alone in an excavation
- Persons do not remain in close proximity to where an excavator is operating
- Persons to wear high visibility vests when working on or near machinery
- The excavation is protected by parawebbing barricades
- Workers in excavations are not exposed to an accumulation of hazardous fumes including fumes from petrol or diesel vehicles
- Never enter a trench that is not shored or battered



Drilling and Piling

All bored pile excavations must be protected from the risk of falling in.

- Only personnel directly involved in the work to be in the vicinity of the excavated holes
- Holes should be securely covered while unattended

The following additional measures should be considered:

- Installation of temporary frames around the excavation as drilling proceeds
- Provision of a temporary top liner projecting above the top of the hole at sufficient distance to allow the drill to enter
- Excess water should be prevented from filling up the hole
- Spoil should be neatly positioned as far away from the edge of the pile excavation as practicable, subject to site constraints

FORMWORK

The main hazards when working with formwork are falling from unprotected edges, bearers, holes and being injured by collapse or during removal of the formwork.

When preparing for the commencement of work the principal contractor doing the work should ensure that the workplace is safe, based on the health and safety management plan.

Preparation should include at least the following:

- An assessment of climatic/environmental conditions including lighting levels
- Access to and from the workplace
- Personal protective equipment on site (e.g. safety harnesses, lanyards, safety helmets, eye protection etc)
- Specific instructions for employees
- Formwork drawings are certified by the formwork engineer
- Plant and tackle required for lifting materials is available and suitable
- Residual current devices (RCD)-(safety switches) protecting the user of portable electric power tools
- Emergency and rescue procedures in the event of an accident, injury or other emergency (including the means of rescuing persons from safety harnesses following arrested falls)



A SWMS should be developed before any formwork installation.

The SWMS should include:

- The proper design and approval of the formwork by an engineer
- Base, supports and ground conditions adequate for the load
- Props that are plumb, level, securely tied and fitted with the correct pins
- Safe platform access for installing bearers on H frame U jacks from underneath
- Safe work platforms with guard rails on edges and similar protection of all openings
- A formwork deck laying method that does not permit walking on bearers
- Secured ladder access to the formwork deck
- Scaffold access for forming columns and walls
- The use of individual fall arrest systems where other forms of fall protection are not practicable
- Inspection by a competent person before allowing concrete pours

Do not work with formwork unless it has a SWMS and engineers' approval.

ELECTRICAL SAFETY

Temporary electrical installations for construction sites must comply with the Standard AS/NZS 3012: 2003, *Electrical installations-Construction and demolition sites*

Shock protection from contact with earth leakage current

All final sub-circuits that supply power to equipment, hand held power tools and lighting used in the construction industry must be protected by a safety switch or residual current device (RCD). The RCD must be installed at the switchboard where the circuits originate. To reduce the risk of injury if lighting or power is interrupted in artificially lit areas it is recommended that a separate RCD be provided for each final sub-circuit.

Portable generators that supply more than one lighting point, appliance or socket outlet must have its supply protected with an RCD. All RCDs installed to protect workers from shock current should have a sensitivity of 30 milliamps or 0.03 of an amp and be marked accordingly.

Flexible cords, hand-held power tools or electrical plant and equipment must be protected through a portable RCD where their supply source is from a permanently wired socket outlet (power point) and are required for construction or demolition purposes.



Temporary switchboards

Temporary switchboards for construction and demolition electrical installations.

Temporary switchboards with RCD protected final sub-circuits must be used to supply all lighting and socket outlet power. Temporary switchboards in general require:

- a latching door or a non-removable lid;
- rounded and smooth-edged access holes or a recess under the door for connection of extension cords to switchboard mounted socket outlets;
- at least one 15 amp socket outlet;
- a weatherproof construction;
- protection against mechanical damage;
- a stable stand or be fixed to a wall and post mounted switchboards must be coach screwed or bolted; and
- reasonable frontal access to be maintained.
A clearance of 1.2 metres is recommended.

Never use any power or lighting circuit that is not protected by an RCD.

Never reset an RCD which has tripped until the reasons for its disconnection of the circuit is established by an electrician.

Flexible Cord Extension Sets

All extension cord sets shall be of heavy-duty type.

Leads must not exceed the lengths specified in Table 1 of AS/NZS 3012:2003. For example a 10 amp 1.5 mm² flexible cord cannot exceed 32 metres and a 15 amp 2.5-mm² cord cannot exceed 40 metres. An electrician can give advice on cord conductor sizes.

No extension cord should run from one floor to another on multi-level sites.

Cords used around structural steel and sheet metal must be protected from possible mechanical damage.

Cords should be raised on insulated stands or hooks to protect them from damage and to provide clear access for personnel and vehicles.

Cords should never run through water or be on the ground where mobile plant and machinery is used.

All three pin cord extension sockets and plugs should be of the transparent and moulded type. A competent person or an electrician should undertake the fitting of plugs and cord extension sockets to cords.

Double adaptors and piggyback plugs are not permitted on construction and demolition sites.

Inspection and tagging

All 240 and 415 volt hand-held power tools, larger portable equipment and flexible cords must be inspected and tagged prior to first use and then at the prescribed



inspection intervals by a competent person or a licensed electrician set out in AS/NZS 3760: 2003, *In-service safety inspection and testing of electrical equipment*.

All items tested should carry a test tag that is colour coded to indicate whether it is 'current' as follows:

January:	Red
February:	Blue
March:	Orange
April:	Green
May:	White
June:	Yellow
July:	Blue
August:	Green
September:	Red
October:	Yellow
November:	Orange
December:	White

Tags should have a valid test date that is within the nominated prescribed period of Table 4 in AS/NZS 3760:2003 or indicate a re-test date, and include either the tester's (competent person's) name, the tester's company/business name or electrical license number.

It is recommended that tagging and testing for construction work be undertaken at 3 monthly intervals. Companies and/or contractors should implement suitable

maintenance schedules based on the level of use and the environment. This may show that the frequency of testing needs to be increased. (e.g. monthly)

For the testing of electrical equipment at 3 monthly intervals the colours are as follows:

RED- January - March

GREEN- April - June

BLUE- July - September

YELLOW- October - December

Demolition and major refurbishment work

For all demolition and major refurbishment work the management of electrical safety should be the subject of a preliminary on-site meeting to identify potential electrical safety risks to personnel engaged in the demolition or refurbishment process. The preliminary meeting should address the following issues:

- isolation of the pre-existing electrical installation from the area under constructional change;
- an inspection of the work zone for the existence of unsafe electrical cables and energised wiring prior to the commencement of each stage of work; and
- the establishment of a temporary supply installation that complies with AS/NZS 3012:2003.

Any electrical wiring such as large distribution sub mains and associated switchboards, which cannot be isolated, should be 'Danger Tagged' by a licensed electrician and marked using appropriate warning tape and/or signage.

Overhead Power lines

When operating plant near power lines ensure you do not breach designated NO ACCESS Zone Rules.

All types of overhead power lines are dangerous because of the ability of the line to move in the wind and the difficulties operators' sometimes experience seeing the line in fading or difficult light.

Never operate plant within the NO ACCESS Zone distances, unless special written permission is obtained from the local power authority.

Always make sure that you keep well clear of overhead power lines when working with long materials and equipment, for example:

- Tipping trucks and trailers
- Erecting exterior display signs or similar advertising structures
- Handling long materials near power lines (for example, ladders, metal purlins, roof sheets, painters extension poles)
- Moving vehicles with high loads or long aerials
- Erecting TV/radio antennae, flagpoles and the like

NO ACCESS ZONES - SCAFFOLDS

	Horizontal	Vertical
<i>Power lines on poles</i>	4.6m either side	5m below 5m below

ELEVATING WORK PLATFORMS

	NO GO ZONE	Spotter Zone
<i>Power lines on poles</i>	3m either side 5m below Nowhere above	3m – 6.4m either side below and anywhere above
<i>Power lines on towers</i>	8m either side 10m below Nowhere above	8m – 10m either side below and anywhere above.

CRANES, CONCRETE PLACING BOOMS & EXCAVATING EQUIPMENT			
NO ACCESS ZONE		Spotter Zone	
	Horizontal	Vertical	
<i>Power lines on poles</i>	3m either side	3m below Nowhere above	3m – 6.4m either side below and anywhere above.
<i>Power lines on towers</i>	8m either side	8m below Nowhere above	8m – 10m either side below and anywhere above.

Always remember that overhead power lines are often nearby structures and if you contact bare conductors you will be at risk from falling due to shock, electrical burns or electrocution.

Make sure that the power tools and electrical leads you use have been inspected, tested and tagged by a qualified electrician or a competent person in accordance with AS/NZS 3760:2003 and/or AS 3012:2003.

Make sure that all electrical leads are raised on insulated lead stands or hooks and are not lying in water or slung over sharp steel edges.



CRANES, HOISTS AND LOAD SHIFTING EQUIPMENT

Safety is critical in the operation of plant and equipment such as cranes, forklifts, elevating equipment such as cranes, forklifts, elevating work platforms, excavators, backhoes, etc.

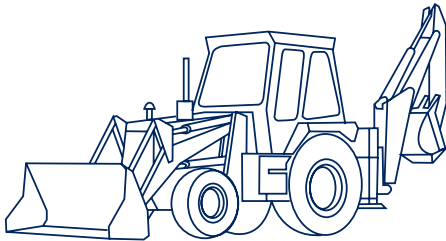
When a piece of plant is to be used on site, an employer must ensure that the risks to health and safety arising from plant in use and systems of work associated with the plant are minimised.

A documented risk assessment should be developed for all tasks involving plant and taking into consideration:

- The systems of work associated with the use of the plant
- The layout and conditions in the workplace where the plant is used
- The capability, skill and experience of the operator
- Any reasonable foreseeable abnormal operating conditions
- Safety of the plant when out of service or when not in use

You should never operate any piece of mobile plant and equipment unless it is part of your job and you have been fully trained and assessed as competent in its use.

You may be confident that you can do it and have nothing but good intentions, but there is a danger that you may injure yourself or others, or even kill someone.



Industrial backhoe loader with rollover/falling object protection

Certificates of Competency for Operating Plant

Certificates of competency are required if you wish to operate the equipment listed below. (This list is not exhaustive, for a more comprehensive list refer to Certificate Classes in Part 3).

- Tower Cranes - CT
- Slewing Mobile Cranes - C2, C6, C1, C0
- Vehicle loading cranes (over 10 tonnes) - CV
- Non slewing cranes with WLL over 3 tonne - CN
- Material Hoists (cantilever platform) - HM
- Boom type elevating work platforms (over 11m boom) - WP
- Work boxes suspended from cranes (Dogging Certificate) - DG
- Concrete placing booms - PB
- Forklift trucks - LF

- Draglines (LD)
- Excavators (LE)
- Front End Loaders (LL)
- Front End Loaders/Backhoes (LB)
- Skid Steer Loaders (LS)

A Certificate of Competency is also required for:

- Scaffolding work (over 4 metres) – SB, SI, SA
- Rigging work (including erection of steel and precast concrete panels) – RB, RI, RA
- Dogging work – DG

If you are in training for a certificate, you must be under the direct supervision of a certificate holder nominated by your employer and use the log book system.

An up to date register of certificate holders should be maintained and kept on site.

Mobile Plant Safety

Mobile Plant must meet the same criteria for all other plant, including:

- Making sure that it is serviced and maintained in accordance with the manual and that current records are kept
- The system for the daily inspection of the plant
- Risk assessment for the use of the plant at your site

- The provision of the relevant safety equipment for use, i.e. Harness, flashing lights, beepers, reversing alarms etc.
- Visual inspection prior to first use

Forklifts and earthmoving equipment should be fitted with overhead protective devices to stop objects falling on the operator and roll over protection (ROPS).

Always obey the rules for operating mobile plant near overhead power lines (see Electrical Safety – Overhead Power lines).

Crane Safety

- Only persons with a relevant Certificate of Competency can operate cranes
- Only persons with a Certificate of Competency in dogging or rigging can sling and direct loads
- All cranes should be subject to a daily checklist/logbook completed by the operator
- Make sure that the set up area has been inspected for potential hazards and that inspection is documented
- Make sure that the counterweight slewing area is clear of obstacles and is barricaded
- Make sure that loads do not pass overhead workers



Lifting Gear

- All lifting gear (shackles, slings, wire rope) should be inspected regularly by a qualified and competent person. The inspection details should be recorded and the item tagged
- Load hooks should be fitted with a safety catch, particularly where there is a chance of the slings being displaced

Safe Operation of Earthmoving Equipment

- Operators must be suitably qualified
- Never carry passengers unless there is a passenger seat fitted
- Always wear the seatbelt (where fitted)
- Always take care to know your operating area – never back up until you are certain it is safe
- Always shut down the plant and remove the ignition key when you leave the machine unattended
- Ground your attachments and booms before vacating the machine
- Know the machine's roll-over limits and stay well within them
- Stay a safe distance away from the edge of embankments. Be sure that the boundaries of your operating area are clearly marked
- When descending a grade, use the same gear you would use to climb it

- Always obey speed limit restrictions
- Always give way to loaded machines, when in doubt, yield
- Always make sure spotters and others working nearby wear a helmet and a high visibility vest
- Operators to wear high visibility vests at all times

Safe Operation of Forklifts

- Operators must hold a Fork-lift Certificate of Competency (LF)
- Passengers must never be carried on forklift trucks
- Always wear the seatbelt (where fitted)
- Never elevate or lift people unless an approved lifting box is used
- Lower the load before travelling and/or turning
- When travelling, lower the forks as close to the ground as is practicable
- Forklifts should never be used over terrain for which they have not been designed
- When leaving the forklift unattended, lower the tines, turn the gas bottles off and remove the ignition key



TRAFFIC MANAGEMENT

What is a temporary traffic management?

Temporary traffic management (TTM) is a system of controlling traffic movement through or past a worksite to achieve a maximum of safety and a minimum of inconvenience for both the road worker and the road user. A TTM system is required when working on public roads, road verges, road medians, footpaths, bicycle paths, construction sites and where any other work related activities require temporary controlling of traffic.

Why is a temporary traffic management system required?

The *Occupational Health and Safety Act 1989* places obligations upon employers and persons in control of a workplace to take all reasonable practical steps to ensure that the workplace is safe. This means preventing injury to workers due to hazards within the worksite, protection of workers from oncoming or passing traffic and the protection of road users from hazard within the worksite. Implementing a temporary traffic management system, which is designed to protect workers and road users, is a method of meeting your duty of care under occupational health and safety laws.

When must a temporary traffic management /traffic control (TC) plan be approved?

A temporary traffic management/traffic control plan is a diagram, which shows how the TTM control devices are to be installed. *The Road Transport (Safety and Transport Management) Act 1999* requires approval from

an appropriate authority to install prescribed traffic control devices. A temporary traffic management/traffic control plan must be approved by Roads ACT in the Department of Urban Services (the appropriate authority) when activities are being conducted on or within a certain distance of a public roadway, footpath or bicycle path. For further information on the requirements to obtain an approved temporary traffic management/traffic control plan, contact Roads ACT on 6207 6588.

WorkCover does not approve temporary traffic management/traffic control plans.

What are WorkCover's requirements for temporary traffic management?

A risk management process should be undertaken for all roadwork, whether or not an approved TTM plan is required. Risk management involves identifying and assessing all safety risks likely to arise during roadwork including setting up, operating, changing and dismantling traffic control devices. Appropriate control measures must be determined and implemented to eliminate or reduce those risks.

The risk management process should be undertaken prior to starting the work and should be documented. The control measures should be incorporated into the design of any TTM plan.



What does a risk assessment involve?

A risk assessment estimates the level of risk and involves analysing the likelihood and consequence of damage and injury due to impact with moving vehicles. The following factors should be considered in a risk assessment:

- Scope and duration of the project
- Site layout
- Traffic density
- Traffic flow and speed
- Time required to perform activities
- Time of day when tasks are to be performed
- Specific hazards within the work site, such as excavations
- Pedestrian movement
- Environmental factors such as wet conditions or poor visibility
- Risks associated with plant and equipment
- Experience and training of workers
- Alternate routes available for road users and pedestrians, should a road or footpath be partially or fully closed

What does risk control involve?

Control measures are set out in order of the *hierarchy of controls* described below. Wherever it is practicable to do so, controls at the top of the hierarchy must be implemented before consideration is given to using lower order controls.

1. **Elimination:** Road closure.
2. **Substitution:** Program the work to be conducted when there is no risk or significantly less risk present.
3. **Isolation:** Use approved temporary safety barriers to isolate workers and work activities from road users.
4. **Administrative controls:** The use of directional signage such as workmen ahead, speed reduction, lane status signs, as well as cones, bollards, delineators, barrier boards etc.
5. **Personal protective equipment:** High visibility garments should be worn when working in the vicinity of moving traffic (up to 5 m) or plant. When selecting high visibility garments consideration needs to be given to the time of day, colour of plant on site and the surrounding environment. High visibility vests should be fastened across the front to display a continuous reflective material around the torso. The garment should meet the requirements of *AS/NZS 4602-High visibility safety garments*.

Due to the nature of civil works and changing risks, the temporary traffic management system should be regularly reviewed and changes made to ensure that the risks to health and safety of workers and third parties are controlled. Roads ACT must be notified of any amendments to the original approved TTM/TC plan.

What control devices are available for TTM systems?

Australian Standard AS 1742.3: Manual of uniform traffic control devices - Part 3: Traffic control devices for works on roads provides information and practical guidance on types of traffic control devices available and how they are to be installed.

Examples of temporary traffic control devices

1. Safety Barriers

Safety barriers are designed to provide a physical barrier between the travelled path and the work area, which will inhibit penetration by an out of control vehicle and will preferably have some redirecting properties. Protection using safety barriers is the preferred option for long-term jobs when the separation between the work area and traffic is less than 3m. They can also be used to separate opposing traffic.

Safety barriers should comply with *AS/NZS 3845: Road Safety Barrier Systems*. When installing a safety barrier there should be a 0.3m clearance between the edge of the traffic lane and the safety barrier. A containment fence should be placed behind the safety barrier to restrict the work areas beyond the likely deflection limits of the safety barrier if struck by a vehicle. When determining the likely deflection limits consideration needs to be given to the road cross slope, angle of impact and speed of impact. The manufacture/supplier should provide information to assist you in determining the likely deflection limits.

Note: Lightweight plastic water filled barriers that do not meet the requirements of *AS/NZS 3845: Road Safety Barrier Systems* must not be used as a safety barrier in any situation where traffic speeds exceed 20km/h.

2. Containment Fences

Containment fences may be used to provide visible separation between the travelled path of vehicles, pedestrians and the work area in situations where physical protection by use of a safety barrier is not reasonably practical.

Where work is being conducted within 1.2- 3 metres of the adjacent traffic lane, the clearance between the containment fence and the adjacent traffic lane edge should be a minimum of 1200 mm in a speed zone of 60km/h or less. Where work is being conducted within 1.2 metres of the adjacent traffic lane, speed should be reduced to 40km/h or less. Use of containment fences to protect the safety of workers and road users in locations where traffic speeds exceed 60km/h is not recommended.

Containment fences can also be used to protect the worker from entering "no go" zones.

3. Reduced Speed Zones

Where a reduced speed zone is used as a control measure, but is ineffective due to vehicles not slowing down to the reduced speed, additional control measures should be implemented such as speed monitoring boards, temporary traffic lights or traffic controllers. The Police may also provide assistance in enforcing speed reductions.



4. Signs

There are varying signs for different conditions. For guidance on types of signs, size of signs and mounting requirements refer to *AS 1742.3 Manual of uniform traffic control devices: Part 3-Traffic control devices for works on roads*.

Temporary traffic management signs need to be displayed at different heights for different situations. It is important that anyone travelling along the road or footpath is fully aware that there is work on the road ahead and knows exactly what path to follow and how fast he or she is supposed to travel through the worksite. Signs placed on the ground should be clear of obstructions. Signs should not be placed in the shade as this may affect their visibility to road users. Generally, signs should be placed one metre clear of the travelled path, where they will not be a hazard to workers, pedestrians and road users.

Signage that is not approved for displaying outside of the hours that work activities are being performed must be removed or covered.

Environmental conditions such as wind and rain must be taken into account when installing TTM signage or other prescribed traffic control devices.

Keeping Records

A logbook should be kept on site for recording any activities and amendments involving the TTM system, including accidents/incidents within the TTM system, when TTM signs are displayed/covered or removed from the work site. The record should also state the time, date and location where these activities occurred.

General requirements for construction sites

- Where possible site traffic should be one way only
- Speed restrictions on site may need to be implemented to reduce risk to workers safety. Workers on site must adhere to speed restrictions
- Appoint flagmen/spotters for specific work tasks or locations
- Use hazard lights and reversing beepers on all mobile plant and vehicles
- Delivery vehicles not fitted with reversing alarms should be escorted whilst moving around the site
- Skid steer loaders should be fitted with isolation switches when unattended or made inoperable.
- Maintain clear access routes to allow orderly movement of vehicles
- Provide crane loading bays, dedicated delivery areas and material storage areas
- Minimise vehicles needing to access the site
- Separate pedestrian access around the site

- High visibility vests should be worn by those required to work on or near mobile plant
- Audible flashing beacon should be installed on the rear of all earthmoving and excavating machines to provide a warning when the machine or counterweight moves

Excavations

Where an excavation is 500mm or more in depth and within 9 metres of the traffic lane edge, the excavation should be isolated from vehicular traffic by the use of safety barriers. Where this is not practical and the excavation is within 3 metres of the traffic lane edge, close delineation with bollards may be acceptable. Bollards should be fitted with safety tape in between bollards to highlight the risk area. These control measures are subject to a risk assessment based on risks to workers and road users, length of excavation, duration of exposure, traffic volume and speed, depth of excavation and road alignment. For distances greater than 3m where the use of a safety barrier is not reasonably practical refer to ACT WorkCover's fencing bulletin or contact ACT WorkCover.

EXPLOSIVE-POWERED TOOLS

Explosive-powered tools (EPT's) can be as dangerous as a loaded gun and should be treated with the same care. Operators must be specially trained in the correct use of the EPT, its adjustment, dismantling, dangers and safety procedures.

EPT's should only be loaded immediately before use and all explosive charges should be kept in a locked box when not in use.

All persons involved in EPT's tasks, including persons assisting should wear eye and hearing protection (PPE).

EPT's should not be used:

- On hard surfaces such as high tensile steel and cast iron
- In the presence of an explosive or flammable gas, dust, vapour or in compressed air or in any place where the explosive charge may explode unintentionally
- Close to an edge or hole where there is a risk that the substance might crack or break
 - For steel – within 15mm of the edge
 - For brick or concrete – within 75mm of the edge
- On a roof unless the area below the operators kept clear of all persons for a distance of at least 6 metres in every direction from the point of operation
- Where persons, other than the operator and assistant, are in the immediate vicinity of the firing charge



- Without a sign posted in the operational area:
WARNING EXPLOSIVE POWERED TOOL IN USE

For safe use of an EPT contact the manufacturer.

All un-used or misfired charges should be collected and securely stored. They should not be left lying around, particularly in any area where children might find them.

COMPRESSED AIR

Compressed air used irresponsibly can cause severe injury or death.

Only trained, competent persons should operate compressed air tools making sure that the following safety rules are always observed:

- All valves, hoses and the tools are in good condition
- Hose couplings have safety clips
- The end of the hose is secured to prevent it from 'whipping'
- Before replacing tools, switch the tool and the main valve off
- When turning air on, introduce it slowly into the system, making sure that all controls are in the off position
- Always wear goggles or a face shield when working with compressed air
- When using a nail gun, keep all parts of the body clear of the firing line. The trigger should not be squeezed until the nail gun is in position on the timber

- When the job is done, turn off the main isolator and bleed the air from the system

NEVER

- Use compressed air to cool off or to blow dust off clothes, skin or hair
- Direct compressed air at yourself or at another person
- Use compressed air for practical jokes
- Use an air tool that has a faulty operating valve or governor
- Kink the hose to cut off the air supply



WELDING AND HOT WORK

Welding, soldering, cutting, grinding and similar hot work should only be performed by competent, qualified operators.

Fire extinguishers should always be available next to welding or cutting kits. These should preferably be attached to each welding and oxyacetylene kit.

The appropriate personal protective equipment should be supplied and worn at all times.

A risk assessment should be developed for all welding and hot work tasks.

The risk assessment should include provisions for:

- The work to be done under a hot work permit system
- Controls of risks from fire and explosions
- Electrical precautions when using arc welders
- Adequate ventilation of the work area

Special precautions for working in confined spaces (permits are needed for work in confined spaces) must also be considered:

A confined space is place with a restricted means for entry or exit, where harmful substances, lack of oxygen and other hazards may increase the risk of injury to those entering the space.

- Gas cylinders should not be taken into a confined space
- Gas equipment – hoses, nozzles, etc. should be removed

immediately or gases shut off at the cylinder when work has finished or when work has ceased for more than a few minutes

- All purging of fuel gas or oxygen hoses should be done in a well-ventilated area remote from the confined space
- Adequate ventilation, safe oxygen levels, and appropriate respiratory protection are provided*

Always apply a 15-metre buffer zone for any combustible materials, in any direction.

**Note: Too much oxygen is also dangerous. Do not store cylinders in lunchrooms. Use designated storage areas.*

Oxyacetylene or LP Gas Brazing and Cutting

Cutting and brazing work should not be performed from a ladder. Only gas equipment from a reputable supplier should be used. The supplier should be able to provide details of servicing and maintenance requirements of all equipment.

Flash back arresters should be fitted to outlet side of both fuel gas and oxygen regulators. The crimping of "O" rings should only be done with the correct crimping tool.

Before use all equipment should be visually checked daily. Any equipment found to be damaged or suspected to be leaking should be immediately removed from the work area to a well-ventilated space and an "Unsafe – Do Not Operate" tag should be attached to the equipment, until it is repaired or removed from the site.



Cylinders should always be kept vertical (or near vertical) and secured by chains, even when transported around work sites in a trolley or lifting frame.

Cylinder storage areas should be well ventilated with 'No Smoking' or 'No Naked Flame' signs displayed.

Arc Welding

Only qualified persons should perform arc-welding work.

All welders must wear the appropriate protective clothing – eye protection, welding jackets, gloves apron, overalls and clothing protecting exposed skin. Respiratory protection may also be needed.

Screens must be used to protect the eyes of other persons from flash burns.

Welding must not be carried out in an environment where flammable materials or potentially explosive gases are present.

Fume extracting systems should be used in poorly ventilated areas.

Where sparks or slag may affect persons working at a lower level, either fire blankets or a suitable barricade with signs restricting access should be used.

Suitable fire fighting equipment should be kept as close as possible to the work area.

'Danger: Welding in Progress' signs should be displayed in the area where welding is being carried out.

Welding should not be performed from ladders.

CONFINED SPACES

A confined space is a place with a restricted means for entry or exit, where harmful substances, lack of oxygen and other hazards may increase the risk of injury to those entering the space. Refer to AS 2865: *Safe Working in a Confined Space*.

In the construction industry confined spaces may be air conditioning ducts, crawl spaces, pits, trenches, pipes, sewers or box beams.

All employees who are required to work in a confined space should receive full information, instruction and training in relation to hazards and risks and be made aware of the relevant risk assessment for the confined space work.

The risk assessment should include the following control measures.

An entry permit signed on and off by the immediate supervisor describing:

- The confined space that the permit applies to
- The measures for control of risks
- The names of the employees approved to enter the space
- The name of the stand-by person assigned to the confined space
- The period of time for which the permit is valid

Stand-by arrangements for:

- Continuous communication between the persons in the confined space and a responsible person on the outside
- Emergency procedures that can be initiated from outside the space
- The procedure to know when employees have entered or exited the confined space
- Emergency procedures for rescue and first aid

Always use an Air Quality Monitor before entering a confined space.

Never enter a confined space unless you have been fully trained and a documented risk assessment has been completed.

HAZARDOUS SUBSTANCES

Hazardous substances are chemicals and other substances that can include:

- paints, solvents, glues, sealants
- particle fibreboard, MDF, insulation material
- concrete, cements, cement finishes
- grease, oils, fuels
- asbestos
- wood dust

The employer must find out if a substance is classed as hazardous by getting a Material Safety Data Sheet (MSDS) for the substance from the manufacturer or supplier.

The MSDS must not be altered in any way and must:

- be current, accurate and in English
- be readily accessible to employees
- have information about health hazards, first aid requirements and precautions for use
- be reviewed and assessed prior to use

Risks posed by the use of the substances must be assessed before use and a documented risk assessment should be developed in consultation with employee health and safety representatives. Atmospheric monitoring may be needed to assess risks.



Where there is any doubt as to the safety of a substance, expert advice should be sought.

A hazardous substances register must be kept at the workplace.

Containers of hazardous substances must be adequately labelled.

Employees should receive full information, instruction and training about hazards and risks and be made aware of the relevant risk assessment.

- Some substances are prohibited and cannot be used (e.g. benzene, asbestos)
- There are also requirements for some scheduled and/or carcinogenic substances (e.g. health surveillance, license to use)
- You should contact your supervisor or health and safety representative if your MSDS shows any one of these classifications
- Before you use any substance or chemicals you have the right to ask your employer for all relevant information

SILICA DUST

Silica dust is created when concrete is cut, sawn or scabbled. Respirable dusts containing crystalline silica can cause irreparable damage to your lungs. Such dusts may be generated from bricks, mortar, aggregate sandstone and concrete, particularly when dry cutting, chasing, sawing, grinding or scabbling.

Alternatives to avoid creating silica dust should always be considered and applied as far as is practicable.

A risk assessment should be developed for all tasks where silica dust may be created.

The risk assessment should include at least the following:

- Use of wet working methods as far as is practicable
- Isolation and restriction of entry to affected areas
- Use of tools with dust extraction methods fitted
- Use of protective cartridge respirator masks
- Use eye, hearing protection and protective clothing
- Removal of dry dust using a vacuum cleaner fitted with a HEPA (high efficiency particulate arrester) filter
- Removal of wet slurry using a wet vacuum or squeegee
- Decontamination of work clothing and personal hygiene
- Control measures if necessary

ALWAYS OBTAIN AND READ THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE PRODUCT

ASBESTOS

Before any refurbishment or demolition of an existing building or plant, the project should be inspected for asbestos and if present, an assessment of risks arising from the work must be carried out.



A licensed asbestos removalist must undertake removal of asbestos and it should be removed in accordance with the *National Code of Practice for the Safe Removal of Asbestos*.

If you find asbestos in your workplace:

- Do not disturb it in any way
- Report the matter to your supervisor and health and safety representative
- Do not work in the affected area unless clearance has been obtained from a competent person and it is safe to do so

Synthetic mineral fibres (SMF)

SMF are fibres made from glass, rock or other materials. Common SMF products are Rockwool, glasswool, Fibreglass, Ceramic Fibre.

SMF are used for insulation, usually as batts, ceiling tiles, blankets, and loose wool.

SMF can cause dermatitis and irritation of the nose, eye and throat. They may also cause respiratory illness and are possibly carcinogenic.

When using SMF products the following health and safety requirements should be observed:

- A documented risk assessment should be developed for removal and/or installation tasks

- All those required to work with SMF should receive full information, instruction and training in relation to hazards and risks and be made aware of the relevant risk assessment for the work

The risk assessment should aim to identify the possibility of generating fibres and dust in the first place. However, where this is not practicable the risk assessment should include the following controls:

- measures to minimise creation and spread of dust and fibres
- isolation and restriction of entry to affected areas
- use of hand tools in preference to power tools or tools fitted with dust extraction
- use of full or half face protective cartridge respirator masks
- use eye protection, gloves and protective coveralls
- removal of contamination using an appropriate vacuum cleaner
- decontamination of work clothing and personal hygiene
- bagging and disposal of SMF waste

Where practicable, all products should be delivered on site in a form that minimises the release of fibres and/or dust (encapsulated, wrapped or painted with PVA sealant). The requirements of the *National Code of Practice for Synthetic Mineral Fibres* should be followed when cutting or handling SMF products.



Prior to work with SMF make sure that you obtain and read the Material Safety Data Sheet (MSDS) for the product.

Medium Density Fibreboard (MDF) and Wood Products

MDF (medium density fibreboard), particle boards and some timbers such as western red cedar, birch, oak, walnut, and others release wood dust when cut which may cause cancer and/or respiratory illness, MDF and other particle boards may also release toxic chemicals.

These toxic chemicals include Formaldehyde, which is the bonding agent for MDF. When MDF is cut, the cut edges release the gas into the environment.

Health Effects

EYES: The dust, gas and vapour may be irritating to the eyes causing discomfort and redness.

SKIN: The dust, gas and vapour may irritate the skin, resulting in itching and a red rash.

INHALED: The dust, gas and vapour may irritate the nose, throat and lungs, especially in people with upper respiratory tract or chest complaints such as asthma.

CHRONIC: Repeated exposure over many years to uncontrolled wood dusts increases the risk of nasal cancer. Inhalation of wood dusts may also increase the risk of lung fibrosis (scarring).

There are also increased risks of respiratory and skin sensitisation from wood dust and formaldehyde resulting in asthma and dermatitis respectively.

All those required to work with these products should receive full information, instruction and training in relation to hazards and risks and be made aware of the relevant risk assessment for the work.

The risk assessment should include the following controls:

- measures to minimise creation and spread of dust
- provision of a fully enclosed area where necessary
- isolation and restriction of entry to affected areas
- use of hand tools in preference to power tools or tools fitted with dust extraction
- use of half face protective cartridge respirator masks
- removal of dust using an appropriate vacuum cleaner
- decontamination of work clothing and personal hygiene

Prior to work with any of these products, make sure that you obtain and read the MSDS for the product.

Always store MDF and other particle boards in a well-ventilated area.



NOISE

High noise levels are almost always present on construction sites but hearing damage may not be felt immediately. Loss of hearing ability is irreversible and may take years to develop. Employers must identify if there are risks to employees, visitors and the public and must address whether the exposure standard for noise is likely to be exceeded.

If employees are likely to be exposed, a written plan of control measures must be developed. Signs must identify noise areas, machinery and tasks where hearing protection must be worn.

Those required to wear hearing protection should have:

- hearing tests (Audiometric testing) (within 3 months of start and every two years)
- training about the effects of exposure to noise, control measures and selection, fit and maintenance of hearing protectors

The table below shows how quickly you can be exposed to the maximum allowable daily noise dose (85dBa) if not wearing hearing protection.

Activity	Decibel Level	Time to reach allowed daily dose	Noise reduction needed (dBA)
Drilling wood	80	8hr	0
Angle grinder on metal	90	2hr	5
Circular saw	105	3.5min	20
Chainsaw	115	22sec	30
Pneumatic rock breaker	120	9sec	35
Pile hammer	125	3sec	40

Note: levels are indicative only

If excessive noise remains after all other practicable noise control measures have been implemented, the appropriate hearing protection should be provided and worn.

Personal Protective Equipment should only be relied upon where all other measures fail to eliminate the risk.

To prevent hearing loss always use noise control measures in accordance with the training and instruction provided by your employer.



MANUAL HANDLING

Manual handling means using your own strength to lift, move or support objects rather than using machinery or equipment to bear the load.

Some of the injuries that can result from poor manual handling include back injury, muscle sprains and strains, abdominal hernias and chronic pain. Many of these injuries are not felt straight away but develop over some time into more or less continuous pain.

Not all manual handling tasks are hazardous. The ones that can lead to problems include those in the following table.

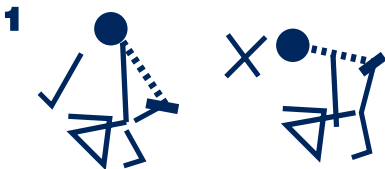
Task	Examples
Handling unstable, unbalanced or difficult to grasp loads	Handling reo sheets Handling long lengths of timber
Difficult repetitive or sustained use of force	Using a nail gun
Repetitive or sustained awkward posture (even if no load is being handled)	Working on plaster board ceiling
Repetitive or sustained movement	Bricklaying
Application of high force	Lifting heavy loads
Exposure to sustained vibration	Using jackhammer, pneumatic drill

All tasks must be assessed for risk of injury.

Control Measure	Examples
Eliminate the task if possible	Do not manually lift or carry awkward dead weights such as cement blocks and cement bags
Change the workplace layout or environmental conditions	Place materials at waist level rather than at floor level so they are easier to pick up
	Eliminate the need to push or pull objects up steep ramps Provide good lighting and work areas free of obstacles with plenty of room to move with
Change systems	Timing and placement of deliveries to reduce the frequency of handling and to avoid double handling Team handling to reduce forces, postures on one person
Change the object	Change the load so it is easier to handle (e.g. 20kg cement bags) Use tools that are light and have good grips and supports
Use mechanical aids	Use cranes, forklifts, trolleys, chain blocks, pipe-horses, hoists and similar aids to move loads
Information training and instruction	Workers understand risks and know how to use proper manual handling techniques and equipment

A few simple rules for manual handling:

- Never bend down to lift - squat down to the object
- Always keep your back upright and straight - use your leg muscles to lift
- Do not lift objects that are out of comfortable reach
- Avoid reaching out to objects that cannot be handled close to your body
- Avoid twisting – turn your feet not your hips or shoulders
- Make sure carry paths are clear of all obstacles



Bend your knees
to the load not
your back.
Do not reach out
or stoop to it



Get a firm grip on
the load, keep your
back straight



Lift by pushing up
with your legs
keeping the load and
your arms as close
as possible to your body.
Avoid twisting



PERSONAL PROTECTIVE EQUIPMENT

When risks to health or safety cannot be controlled by other means your employer must provide appropriate personal protective equipment (PPE) to all employees exposed to risk.

PPE includes the following:



Hard Hats

Must be worn at all times unless it can be clearly established through a documented risk assessment, that there are no risks of head injuries from either falling objects or collision with fixed objects, tools or plant.



Hearing Protection

Ear-plugs/ear-muffs must be worn in designated areas and wherever high noise levels are present e.g. Jackhammers, grinders, explosive-powered tools, pile driving.



Eye Protection

Safety glasses or goggles are compulsory in designated eye protection areas and when using power or machine tools and pressure equipment. Face shields should be worn when handling acids and chemicals.

Suitable welding goggles must be worn for gas welding and cutting. Welding helmets to be worn for electric

arc welding. Use welding screens to protect the eyes of other persons from welding flashes.



Respiratory Protection

Approved facemasks or respirators fitted with the appropriate filter should be worn when exposed to hazardous chemical vapours, fumes, dust or fibres. Check with your supervisor for the correct type, use, fitting and maintenance and read the Material Safety Data Sheet for the substance(s) to obtain more specific information.

Safety Shoes

All personnel on site must wear safety footwear conforming to the relevant standard.

Individual Fall Protection Equipment

Includes safety harnesses, lanyards, shock absorbers and inertia reels. Correctly connected harnesses must be used in boom-type Elevating Work Platform (EWP) and crane-lifted workboxes. In all other cases, they should only be used when safe/protected work platforms are not practicable. Do not use this equipment unless you have been fully trained in its application and use.

Skin Protection

Appropriate gloves, coveralls, boots and face shields should be worn to prevent skin absorption when handling hazardous liquids such as chemicals, epoxies, solvents, acids and wet concrete. Gloves should be worn when handling objects such as sheet metal, wire cables etc.

Sun (UV) Protection

Appropriate apparel (long sleeves and trousers, hat/helmet, sunglasses) to protect against UV should be worn when working outdoors. A SPF15+ protection sunscreen should be applied on all exposed skin.

PART 3

FURTHER INFORMATION



FIRST AID KIT CONTENTS

Description of contents	First Aid Kit		
	A	B	C
Adhesive plastic dressing strips, sterile, packets of 50	2	1	1
Adhesive dressing tape, 2.5cm x 5cm	1	1	-
Bags, plastic, for amputated parts:			
small	2	1	1
medium	2	1	1
large	2	1	-
Dressing, non-adherent, sterile, 7.5cm x 7.5cm	5	2	-
Eye pads, sterile	5	2	-
Gauze bandages			
5cm	3	1	1
10cm	3	1	-
Gloves, disposable, single	10	4	2
Rescue blanket, silver space	1	1	-
Safety pins, packets	1	1	1
Scissors, blunt/short-nosed, minimum length 12.5cm	1	1	-
Splinter forceps	1	1	-
Swabs, pre-packed, antiseptic, packs of 10	1	1	-
Triangular bandages, minimum 90cm	8	4	1
Wound dressings, sterile, non-medicated, large	10	3	1
First aid pamphlet	1	1	1

First Aid Kit A - For construction sites at which 25 or more persons work and for other places of work at which 100 or more persons work.

First aid Kit B - For construction sites at which less than 25 persons work and for other places of work at which less than 100 and more than 10 persons work.

First Aid Kit C - For any place of work, other than a construction site, at which 10 or less persons work.



SAFE WORK METHOD STATEMENT

PROJECT:		CONTRACTOR:	
Job/Task or Process:			
PERSONNEL DETAILS		EQUIPMENT DETAILS	
Occupations (Trades/Skills/Work Teams)		Mobile Plant and Equipment	
No. of Employees (Req'd to do the work safely)		Safety/Emergency Equipment	
Qualifications (Licenses/Qualifications/Permits)		Personal Protective Equipment (PPE)	
Training (Completed and/or required)		Static Plant and Equipment	

WORK SEQUENCE (Basic Steps in logical sequence -what is to be done, not how)	HAZARDS (Unsafe conditions and unsafe acts)	CONTROL MEASURES (Safety measures/Safe Work Practices/PPE)



CERTIFICATE CLASSES

The following classes of work require certification in the ACT.

Crane and Hoist Operation

Code Class

CT	Tower Crane
CD	Derrick Crane
CP	Portal Boom Crane
CB	Bridge and Gantry Crane
CV	Vehicle Loading Crane (greater than 10 metre tonnes)
CN	Non-slewing Crane (greater than 3 tonnes)
C2	Slewing Mobile Crane (up to 20 tonnes)
C6	Slewing Mobile Crane (up to 60 tonnes)
C1	Slewing Mobile Crane (up to 100 tonnes)
C0	Slewing Mobile Crane (open/over 100 tonnes)
WP	Boom-Type Elevating Work Platform (boom length 11 metres or more)
HM	Materials Hoist (Cantilever Platform)
HP	Hoists (Personnel and Material)
PB	Concrete Placing Boom*

**Operators of boom type elevating work platforms and concrete placing booms, which have previously not required certification, had until 30 November 2001 to obtain a Certificate of Competency*

Scaffolding, Dogging and Rigging

Code Class

SB	Basic Scaffolding
SI	Intermediate Scaffolding
SA	Advanced Scaffolding
DG	Dogging
RB	Basic Rigging
RI	Intermediate Rigging
RA	Advanced Rigging

Pressure Equipment Operation

Code Class

BB	Basic Boiler Operation
BI	Intermediate Boiler Operation
BA	Advanced Boiler Operation
TO	Turbine Operation
ES	Reciprocating Steam Engine Operation

Load shifting Equipment Operation

Code Class

LF	Fork-lift Truck
LO	Order-Picking Fork-lift Truck
LL	Front End Loader
LB	Front End Loader/Backhoe
LS	Front End Loader (Skid Steer Type)
LE	Excavator
LD	Dragline

CODES OF PRACTICE, GUIDES AND STANDARDS RELEVANT TO BUILDING AND CONSTRUCTION

AS 2225: Insulating gloves for electrical purposes

AS/NZS 3100: Approval and test specification - General requirements for electrical equipment

AS 1735.2:1997 Lifts, escalators and moving walks - Passenger and goods lifts - Electric

AS 1939:1990 Degrees of protection provided by enclosures for electrical equipment

AS 1979:1993 Electric cables - Lifts - Flexible travelling

AS 3010.1:1987 Electrical installations - Supply by generating set - Internal combustion engine driven sets

AS/NZS 1680.0:1998 Interior lighting - Safe movement

AS/NZS 2293.1:1998 Emergency evacuation lighting for buildings - System design, installation and operation

AS/NZS 3000:2000 Standards Association of Australia Wiring Rules

AS/NZS 3012:1995 Electrical Installations - Construction and Demolition Sites

AS/NZS 3017:2001 Electrical installations - Testing and inspection guidelines

AS/NZS 3105:1998 Approval and test specification - Electrical portable outlet devices

AS/NZS 3191:1996 Approval and test specification -
Electric flexible cords

AS/NZS 3199:2000 Approval and test specification for
cord extension sets - Cord extension sets

AS/NZS 3760:2000 In-Service Safety Inspection and
Testing of Electrical Equipment

Cranes, Hoists and Earth Moving Plant

National Standard for Plant

AS 1418 Parts 1 to 17 Cranes (including hoists and winches)

Cranes (including hoists and winches)

AS 1418.1—1994 *Cranes (including hoists and winches)*
Part 1-General requirements

AS 1418.2—1997 *Cranes (including hoists and winches)*
Part 2-Serial hoists and winches

AS 1418.3—1997 *Cranes (including hoists and winches)*
*Part 3: Bridge, gantry and portal cranes (including
container cranes)*

AS 1418.4—2001 *Cranes (including hoists and winches)*
Part 4: Tower cranes

AS 1418.5—1995 *Cranes (including hoists and winches)*
Part 5: Mobile and vehicle-loading cranes

AS 1418.6—1988 *SAA Crane Code Part 6-Guided storing
and retrieving appliances*

AS 1418.7—1999 *Cranes (including hoists and winches)*
Part 7: Builders' hoists and associated equipment



AS 1418.8–1989 *SAA Crane Code Part 8—
Special purpose appliances*

AS/NZS 1418.9:1996 *Cranes (including hoists and
winches) Part 9: Vehicle hoists*

AS 1418.10–1996 *Cranes (including hoists and winches)
Part 10: Elevating work platforms*

AS 1418.12–1991 *Cranes (including hoists and winches)
Part 12: Crane collector systems*

AS 1418.13–1996 *Cranes (including hoists and winches)
Part 13: Building maintenance units*

AS 1418.14–1996 *Cranes (including hoists and winches)
Part 14: Requirements for cranes subject to arduous
working conditions*

AS 1418.15–1994 *Cranes (including hoists and winches)
Part 15: Concrete placing equipment*

AS 1418.16–1997 *Cranes (including hoists and winches)
Part 16: Mast climbing work platforms*

AS 1418.17–1996 *Cranes (including hoists and winches)
Part 17: Design and construction of workboxes*

AS 1418.18–2001 *Cranes (including hoists and winches)
Part 18: Crane runways and monorails*

AS 2294 *Protective structures for operators of
earthmoving machines*

AS 2550 *Parts 1 to 16 - Cranes - Safe use*

Demolition

Code of Practice for Safe Demolition Work

AS 2601: The demolition of structures

Confined spaces

Code of Practice for Confined Spaces

AS 2865: Safe Working in a Confined Space

Trenches and Excavations

NSW WorkCover Code of Practice - Excavation work

Temporary Traffic Management

AS 3845 – Road Safety Barrier Systems

AS 1742 – Manual of uniform traffic control devices

SAA HB81—Field guide for traffic control at works on roads

Explosive Power Tools

AS 1873 Explosive-powered hand-held fastening tools, fasteners and explosive charges

Chemicals/Hazardous Substances

National Code of Practice for the Control of Workplace

Hazardous Substances/Asbestos

National Asbestos Code of Practice and Guidance Notes
NOHSC: 2002, 3002 and 3003



Synthetic Mineral Fibres

National Code of Practice for Synthetic Mineral Fibres
NOHSC: 2006

Noise

National Standard and National Code of Practice for Noise

AS 2436 Guide to noise control on construction, maintenance and demolition sites

AS/NZS 1269 Occupational noise management

AS/NZS 1270 Acoustics - Hearing protectors

Manual Handling

ACT Code of Practice for Manual Handling

First Aid and Emergencies

ACT Code of Practice for First Aid in the Workplace

AS 3745 Emergency control organisation and procedures for buildings

Amenities

ACT Code of Practice for Building and Construction

Precast Concrete Panels

AS 3850: Tilt-Up Concrete Construction

Personal Protective Equipment

AS 1067 Sunglasses and fashion spectacles

AS 1319 Safety signs for the occupational environment

AS/NZS 1336 Recommended practices for occupational eye protection

AS/NZS 1337 Eye protectors for industrial applications

AS/NZS 1338 Filters for eye protectors

AS/NZS 1715 Selection, use and maintenance of respiratory protective devices

AS/NZS 1716 Respiratory protective devices

AS/NZS 1800 Occupational protective helmets - Selection, care and use

AS/NZS 1801 Occupational protective helmets

AS/NZS 1891 Industrial fall arrest systems and devices

AS/NZS 2161 Occupational protective gloves

AS/NZS 2210 Occupational protective footwear

AS 2225 Insulating gloves for electrical purposes

AS/NZS 2604 Sunscreen products - Evaluation and classification

AS 1270 Acoustics - Hearing protectors

AS 1558 Protective clothing for welders

AS/NZS 4602 Safe Use of Garments

Scaffolding

AS/NZS 4576 - Guidelines for Scaffolding

Scaffolding and Lifts Act 1912



AS/NZS 1576.1:1995 Scaffolding Part 1: General requirements

AS 1576.2–1991 Scaffolding Part 2: Couplers and accessories

AS/NZS 1576.3:1995 Scaffolding Part 3: Prefabricated and tube-and-coupler scaffolding

AS 1576.4–1991 Scaffolding Part 4: Suspended scaffolding

AS/NZS 1576.5:1995 Scaffolding Part 5: Prefabricated splitheads and trestles

AS/NZS 1576.6:2000 Scaffolding Part 6: Metal tube-and-coupler scaffolding—Deemed to comply with AS/NZS 1576.3

Certification

WorkCover—"Industrial Equipment Requiring Certificates of Competency to Use or Operate"

Formwork

AS 3610- Formwork for Concrete

NSW Code of Practice: Formwork

Rigging

WorkCover NSW "A Guide to Rigging"

Welding

AS 1674 Parts 1 and 2 Safety in Welding and Allied Processes

STANDARDS COVERING DESIGN AND MANUFACTURE OF PLANT

Boilers and pressure vessels

AS 1210–1997 *Pressure vessels*

AS 1210 Supp 1–1990 *Unfired pressure vessels—
Advanced design and construction*

AS 1210 Supp 2–1999 *Pressure vessels—Cold-stretched
austenitic stainless steel*

AS 1228–1997 *Pressure equipment—Boilers*

AS 2971–1987 *Serially produced pressure vessels*

AS/NZS 3509:1996 *LP gas fuel vessels for automotive use*

AS 3892–2001 *Pressure equipment—Installation*

AS 4343–1999 *Pressure equipment—Hazard levels*

AS 4458–1997 *Pressure equipment—Manufacture*

Australian Miniature Boiler Safety Committee Code—
Part 1: Copper Boilers

Australian Miniature Boiler Safety Committee Code—
Part 2: Steel Boilers

Cranes (including hoists and winches)

AS 1418.1–1994 *Cranes (including hoists and winches)
Part 1—General requirements*

AS 1418.2–1997 *Cranes (including hoists and winches)
Part 2—Serial hoists and winches*

- AS 1418.3—1997 *Cranes (including hoists and winches)*
Part 3: Bridge, gantry and portal cranes (including container cranes)
- AS 1418.4—2001 *Cranes (including hoists and winches)*
Part 4: Tower cranes
- AS 1418.5—1995 *Cranes (including hoists and winches)*
Part 5: Mobile and vehicle—loading cranes
- AS 1418.6—1988 SAA Crane Code *Part 6—Guided storing and retrieving appliances*
- AS 1418.7—1999 *Cranes (including hoists and winches)*
Part 7: Builders' hoists and associated equipment
- AS 1418.8—1989 SAA Crane Code *Part 8—Special purpose appliances*
- AS/NZS 1418.9:1996 *Cranes (including hoists and winches)* *Part 9: Vehicle hoists*
- AS 1418.10—1996 *Cranes (including hoists and winches)*
Part 10: Elevating work platforms
- AS 1418.12—1991 *Cranes (including hoists and winches)*
Part 12: Crane collector systems
- AS 1418.13—1996 *Cranes (including hoists and winches)*
Part 13: Building maintenance units
- AS 1418.14—1996 *Cranes (including hoists and winches)*
Part 14: Requirements for cranes subject to arduous working conditions
- AS 1418.15—1994 *Cranes (including hoists and winches)*
Part 15: Concrete placing equipment

AS 1418.16—1997 *Cranes (including hoists and winches)*
Part 16: Mast climbing work platforms

AS 1418.17—1996 *Cranes (including hoists and winches)*
Part 17: Design and construction of workboxes

AS 1418.18—2001 *Cranes (including hoists and winches)*
Part 18: Crane runways and monorails

Lifts, escalators and moving walks

AS 1735.1—1999 *Lifts, escalators and moving walks*
Part 1: General requirements

AS 1735.2—1997 *Lifts, escalators and moving walks*
Part 2: Passenger and goods lifts—Electric

AS 1735.3—2001 *Lifts, escalators and moving walks*
Part 3: Passenger and goods lifts—Electrohydraulic

AS 1735.4—1986 SAA *Lift Code Part 4: Service lifts—*
Power operated

AS 1735.5—2001 *Lifts, escalators and moving walks*
Part 5: Escalators and moving walks

AS 1735.6 (Int)—1996 *Lifts, escalators and moving walks*
Part 6: Moving walks

AS 1735.7—1998 *Lifts, escalators and moving walks*
Part 7: Stairway lifts

AS 1735.8—1986 SAA *Lift Code Part 8: Inclined lifts*

AS 1735.9—1994 *Lifts, escalators and moving walks*
Part 9: Special purpose industrial lifts

AS 1735.10 (Int)—1998 *Lifts, escalators and moving walks Part 10: Tests*

AS 1735.11—1986 *SAA Lift Code Part 11: Fire-rated landing doors*

AS 1735.12—1999 *Lifts, escalators and moving walks Part 12: Facilities for persons with disabilities*

AS 1735.13—1986 *SAA Lift Code Part 13: Lifts for persons with limited mobility—Manually powered*

AS 1735.14—1998 *Lifts, escalators and moving walks Part 14: Low rise platforms for passengers*

AS 1735.15—1990 *Lifts, escalators and moving walks Part 15: Lifts for people with limited mobility—Restricted use—Non—automatically controlled*

AS 1735.16—1993 *Lifts, escalators and moving walks Part 16: Lifts for people with limited mobility—Restricted use—Automatically controlled*

AS 1735.17—1995 *Lifts, escalators and moving walks Part 17: Lifts for people with limited mobility—Restricted use—Water drive*

Gas cylinders

AS 2030.1—1999 *The verification, filling, inspection, testing and maintenance of cylinders for storage and transport of compressed gases—Part 1: Cylinders for compressed gases other than acetylene*

AS 2030.2—1996 *The verification, filling, inspection, testing and maintenance of cylinders for storage and transport of compressed gases—Part 2: Cylinders for dissolved acetylene*

AS 2030.4—1985 *The verification, filling, inspection, testing and maintenance of cylinders for storage and transport of compressed gases—Part 4 : Welded cylinders—insulated*

Amusement devices

AS 3533.1—1997 *Amusement rides and devices
Part 1: Design and construction*



GLOSSARY OF TERMS COMMONLY USED IN THE CONSTRUCTION INDUSTRY

Access Platform

A platform that is only used or intended to be used to provide access for persons and materials to or from places of work.

Amusement structure

Powered equipment operated for hire or reward which provides entertainment or amusement through movement of the equipment, or part of the equipment, or when passengers travel on, around or along the equipment. (Examples include Ferris wheels, merry-go-rounds, coin in the slot amusement rides.)

Backfill

Material used for refilling trenches and excavation.

Baseplate

Plate that is able to distribute the load from a load-bearing member to a supporting structure.

Batter

Stable, formed slope of an excavation or earth bank, cut to an angle usually less than the natural angle of repose to prevent earth slippage.

Bearer

Structural hardwood timber member, supported on foundation walls, piers or piles.

Boiler

A boiler as defined in AS/NZS 1200 Boilers and Pressure Vessels with a hazard level A, B, C or D as determined by AS 3920 Part 1, Pressure Equipment Manufacture - Assurance of Product Quality.

Boom type elevating work platform

A telescoping device, hinged device, or articulated device or combination of those devices used to support, elevate and position personnel, equipment or materials by means of a platform, but does not include an industrial lift truck.

Bridge crane

A crane comprising a bridge beam or beams mounted at each end, to end carriages, capable of travelling along elevated runways and having one or more hoisting mechanisms.

Building maintenance equipment

A suspended platform, including a building maintenance unit or a swing stage, which incorporates permanently installed overhead supports to provide access to the faces of a building for maintenance, but does not include a suspended scaffold.

Building maintenance unit

A power operated appliance with a suspended platform, permanently installed or intended to be permanently installed on a building and specifically designed to provide access to the facade of the building, for persons working from the platform.



Butt

A tube fixed to a scaffold and butting to an adjacent structure, to prevent horizontal movement of the scaffold in the direction of the structure.

Buttress

A support to the side of a scaffold, which provides for an effective increase in the on-ground base width, allowing a greater freestanding height.

Castor

A swiveling wheel attached to the lower end of a standard, for the purpose of supporting and moving a scaffold.

Catch Platform

A platform attached to a scaffold, to contain falling debris.

Civil Construction Work means work to:

- (a) construct a road or highway or erect associated works; or
- (b) construct a railway or erect associated works; or
- (c) construct or erect a harbour or associated works; or
- (d) construct or erect a water storage or supply system or associated works; or
- (e) construct a sewerage or drainage system or associated works; or
- (f) construct or erect an electricity or gas generation, transmission or distribution structure or associated works; or

- (g) construct a park or recreation ground, including, for example, a golf course, playing field, racecourse or swimming pool or associated works; or
- (h) erect a telecommunications structure or associated works; or
- (i) construct production, storage and distribution facilities for heavy industry, refineries, pumping stations, or mines or associated works; or
- (j) construct or structurally alter a bridge or associated works; if the estimated final price of the work at practical completion is more than \$40000 or another amount prescribed by regulation.

Competent Person

A person who has acquired through training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to perform a specified task.

Confined Space

Confined spaces are such spaces as those in a vat, tank, pit, pipe, duct, flue, oven, chimney, silo, container, reaction vessel, receptacle, underground sewer, shaft, well, trench, tunnel or other similar enclosed or partially enclosed structure. A confined space is determined by the hazards associated with a set of defined circumstances (restricted entry or exit, hazardous atmospheres or risk of engulfment) and not just work performed in a physically restrictive location. The presence of physical or chemical agents acting alone or in combination may be exacerbated in a confined space.



Construction Site

Is a workplace where building work, civil construction work or demolition work is done.

Concrete placing unit (truck-mounted with boom)

Plant used to place concrete by way of pumping concrete through a pipeline attached to or forming part of a boom and capable of travelling over a supporting surface without the need for fixed runways.

Conveyor

Equipment, by which loads are raised, lowered or transported or capable of being raised, lowered, transported, or continuously driven by-

- (a) an endless belt, rope or chain or other similar means; or
- (b) buckets, trays or other containers or fittings moved by an endless belt, rope, chain or similar means; or
- (c) a rotating screw; or
- (d) a vibration or walking beam; or
- (e) a powered roller conveyor where the rolls are driven by an endless belt, rope, or chain or other similar means.

Counterweight

A weight or series of weights that counterbalance a scaffold from overturning.

Cradle

The portion of a suspended scaffold that incorporates a suspended platform.

Crane

An appliance intended for raising or lowering a load and moving it horizontally, but does not include - an industrial lift truck, earthmoving machinery, an amusement structure, a tractor, an industrial robot, a conveyor, building maintenance equipment, a suspended scaffold or a lift.

Demolition

Work to completely or partially dismantle a building or other structure, or part of a building or other structure.

Earthmoving machinery

Plant used to excavate, load, transport, compact or spread earth, overburden, rubble, spoil, aggregate or similar material, but does not include a tractor or industrial lift truck or a vehicle designed to be used primarily as a means of transport on public roads. (Examples include bulldozers, excavators, front-end loaders, backhoes, scrapers, dredgers, draglines and face shovels.)

Employer

A person who, in the course of the person's business or undertaking, engages someone else to do work, other than under a contract for service, for or at the direction of the person. For an apprentice or trainee who is employed by a group training scheme, the employer is:

- (a) when the apprentice or trainee is engaged to do work for a host employer, the host employer; or
- (b) otherwise, the group training scheme.

Explosive powered tool (EPT)

An implement used to drive fasteners including nails, bolts and screws against, into or through material by means of explosive charges, and includes every attachment to and accessory of such an implement.

Fill

Any ground made from excavated material. (Usually compacted)

First aid

The provision of first aid facilities, services and personnel required for the initial treatment of persons suffering injury or illness at a workplace.

Frame scaffold

A scaffold assembled from prefabricated frames, braces and accessories.

Gantry

A structure, constructed from structural steel, scaffolding or structural timber, that is primarily intended to support a protection deck or portable buildings such as amenity sheds.

Gantry crane means a crane which-

- (a) consists of a bridge beam or beams, which are supported at one or both ends by legs mounted to end carriages; and
- (b) is capable of travelling along runways; and
- (c) has one or more hoisting mechanisms.

Gas cylinder

A rigid vessel not exceeding 3000 litres water capacity and without openings or integral attachments on the shell other than at the ends, designed for the storage and transport of gas under pressure and to which, AS 2030 - Gas Cylinders applies.

Guardrail

A structural member to prevent persons from falling off any platform, walkway, stairway or landing.

Guy

A rope or appliance used to secure scaffolding in its position.

Hazard

A source, or potential source, of injury or illness.

Hoist

An appliance intended for raising or lowering a load or people, and includes a mast climbing work platform, personnel and materials hoist, scaffolding hoist and serial hoist but does not include a lift or building maintenance equipment.

Individual fall arrest system

Equipment incorporating a harness which is used or intended to be used to arrest the fall of a person wearing the harness.

Industrial lift truck

A powered appliance comprising a mast with an elevating carriage to which a pair of fork arms or other load holding attachment is attached and includes-



- (a) a truck on which the operator is raised with the attachment for order-picking; and
- (b) a truck where the frame and lift unit straddle, raise, lower, move or stack the load - but does not include a crane or earthmoving machinery.

Industrial robot

A mechanical manipulator, capable of handling materials, tools or devices through programmed motions, which are usually intended to be carried out repetitively.

Laser

Plant that produces a beam of electromagnetic radiation in the wavelength range from 100 nanometres to 1 millimetre and used for cutting, alignment, scanning or measurement, but does not include plant, which produces light beams at these wavelengths for the primary purpose of illumination.

Ledger

A horizontal structural member that longitudinally spans a scaffold.

Lift (scaffold)

The vertical distance from the supporting surface to the lowest ledger of a scaffold or level at which a platform can be constructed. Also, the vertical distance between adjacent ledgers or levels of a scaffold at which a platform can be constructed.

Lift

Permanent plant or plant intended to be permanently installed in or attached to a building or structure in which people, goods or materials may be raised or lowered within a car or cage, or on a platform and the movement of which is restricted by a guide or guides and includes an escalator, moving walk and stairway lift.

Mast climbing work platform

Plant with a working platform used to support and elevate personnel, equipment and materials by means of a drive system which moves along an extendable mast but does not include a lift or building maintenance equipment.

Member

Anything that forms part of the scaffold assembly.

Mobile crane

A crane capable of travelling over a supporting surface without the need for fixed runways.

Modular Scaffolding

A scaffold assembled from prefabricated individual components, braces and accessories.

Needle

A cantilevered structural member that supports a scaffold.



Operator protective devices

Include roll-over protective structures (ROPS), falling object protective structures, operator restraining devices and seat belts.

Outrigger

A framed component that increases the effectiveness base dimensions of a tower and is attached to the vertical load-bearing members.

Occupational Noise Induced Hearing Loss (ONIHL)

Hearing impairment arising from exposure to excessive noise at work. Occupational Noise Induced Hearing Loss is also commonly known as Industrial Deafness.

Parapets

An upstand usually located at the edge of a balcony, roof, bridge and the like.

Personal Protective Equipment (PPE)

Includes clothing, equipment and substances designed:

- (a) to be worn by a person; and
- (b) to protect the person from risks of injury or illness.

Plant includes:

- (a) machinery, equipment, appliance, pressure vessel, implement and tool; and
- (b) personal protective equipment; and
- (c) a component of plant and a fitting, connection, accessory or adjunct to plant.

Platform

An elevated surface.

Powered mobile plant

Plant which is provided with some form of self propulsion which is ordinarily under the direct control of an operator.

Prefabricated scaffolding

An integrated system of prefabricated components manufactured in such a way that the possible geometry of assembled scaffolds is pre-determined by the designer.

Pressure equipment

Boilers, pressure vessels and pressure piping.

Pressure vessel

A pressure vessel as defined in AS/NZS 1200 Boilers and Pressure Vessels and AS 2030 Gas Cylinders with a hazard level A, B, C or D as determined by AS 3920 Part 1, Pressure Equipment Manufacture - Assurance of Product Quality and includes a fired heater and a gas cylinder, but does not include a boiler or pressure piping.

Principal Contractor for a construction workplace (other than a construction workplace for domestic premises) means:

- (a) the person appointed as principal contractor by the owner of the workplace; or
- (b) if no principal contractor is appointed-the owner of the workplace.



Puncheon

A vertical supporting member from another structural member of a scaffold.

Putlog

A horizontal structural member, spanning between ledgers or between a ledger and an adjacent wall, that is intended to support a platform.

Reverberation

The persistence, by echo or reflection, of sound in an enclosure after the emission by the source has stopped.

Risk

Likelihood of injury or disease happening to a person.

Risk Assessment

A process that determines how dangerous a hazard is by assessing the likelihood and consequence of an incident occurring.

Scaffold

A temporary structure specifically erected to support access or working platforms. (Examples include prefabricated scaffolds, swing stages, tube and coupler scaffolds, trestle scaffolds, bracket scaffolds and ladder bracket scaffolds).

Self-employed person means a person who:

- (a) performs work for gain or reward; and
- (b) is not an employer or worker.

Shaft

An excavation made below the surface of the ground, its longer axis being vertical or less than 45 degrees from vertical.

Shore

A substantial prop of hardwood or other material used in the direct compression to give temporary support between two walls.

Shoring

Providing support by means of a shore or a system of shores.

Soil

All materials encountered from the ground surface down to bedrock.

Soldier

Vertical upright hardwood timber used for supporting a trench wall, taking the thrust from horizontal walings and supported by struts.

Soleplate

A member used to distribute a load through a baseplate to the ground or other supporting structure.

Spoil

Excavated material.

Spur

An inclined load-bearing member that transmits a load to a supporting structure.



Standard

A vertical structural member that transmits a load to a supporting structure.

Strut

A member that supports a comprehensive force.

Suspended Scaffold

A scaffold incorporating a suspended platform which is capable of being raised or lowered when in use.

Suspension Rig

A portion of the structure (including the trolley track) mounted at a level higher than the cradle to support and position the cradle.

Suspension Rope

A rope carrying the weight of a cradle and supporting an imposed load.

Temporary access equipment

Abseiling equipment, a work box, an industrial safety net, or an individual fall arrest system.

Tie

A member or assembly of members used to tie a scaffold to a supporting structure.

Tinnitus

The ringing or other noises in the head or ears, which can be caused by exposure to excessive noise. Tinnitus can become permanent and when severe may disrupt sleep, reduce concentration and lead to irritability and depression.

Toms

A vertical support used to distribute the load placed on a scaffold.

Tower crane

A boom or jib crane mounted on a tower structure.

Tractor

A powered vehicle, primarily designed to haul and provide power for agricultural or horticultural machinery or implements, by way of a power take-off rotating shaft or other mechanical means, but does not include earthmoving machinery or a passenger vehicle.

Transom

A horizontal structural member transversely spanning an independent scaffold between standards.

Trench

A long, narrow, open excavation made below the surface of the ground and in which the horizontal width across the top is less than twice the vertical depth of the deeper side.

Turbine

A rotary motor or engine driven by a flow of water, steam or gas primarily intended for the production of electricity. (Examples include hydroelectric, steam and gas turbines.)

Vehicle hoist

A hoist which is permanently installed or intended to be permanently installed in a workplace to elevate a vehicle to allow work to be carried out on the vehicle.



Virgin Ground

Ground that is undisturbed and in situ, as distinct from transported, made-up or backfill material.

Work box

A personnel-carrying device, designed to be suspended from a crane, to provide a working area for persons elevated by and working from the box.

Working Load Limit

The maximum working load that may be applied to any component or system.

Working Platform

A platform that is intended to support persons, materials and equipment.

Workpiece

Material, off-cut or scrap (in any form) on which an item of plant is doing work, or material, off-cut or scrap (in any form) produced by an item of plant but does not include a load being lifted or moved by the plant.

Workplace

Any place where work is, is to be, or is likely to be, performed by a worker, self-employed person or employer.