Incolink
Redundancy Insurance Wellbeing

Safety Handbook for the Building and Construction Industry 2020

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WorkSafe Victoria 24 hr Emergency Response Advisory Service Line	**132 360** **1800 136 089**
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Energy Safe Victoria City Southbank Office Glen Waverley Office	 **9203 9700** **1800 800 158**
Victorian State Emergency Service (Flood and storm Emergencies) Information on emergencies Administration ses.vic.gov.au Victorian Bushfire Information Line Traffic Hazards and Freeway Conditions	**132 500** **1800 226 226** **9256 9000** **1800 226 2260** **13 11 70**
Fire Brigade **Severe Flooding** e.g. water main ruptures	 **000**
Dangerous Goods	**9420 3866**
Poisons Information Centre	**13 11 26**
Gas Emergencies AusNet Australian Gas Networks Multinet Gas	**1800 427 532** **136 707** **1800 427 532** **132 691**
Electrical emergencies CitiPower Powercor AusNet Services Jemena United Energy	**1800 000 922** **131 280** **132 412** **131 799** **131 626** **132 099**

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VICTORIA

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24/7 Counselling: **1300 000 129**

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Ph: **03 5223 8982**
24/7 Counselling: **1300 000 129**

Tasmania
Ph: **0419 864 135**
24/7 Counselling: **1300 000 129**

Critical Incident Counselling
Freecall: **1800 337 789**

WorkSafe Victoria
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info@worksafe.vic.gov.au
worksafe.vic.gov.au

Energy Safe Victoria
City Southbank Office
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info@energysafe.vic.gov.au

Glen Waverley Office
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EPA
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Master Builders Association of Victoria
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AMCA
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CEPU Plumbing Division
Ph: **(03) 9662 3388**
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ETU
Ph: **(03) 8329 0000**
Freecall: **1800 134 835**
etu.members@etuvic.com.au

AMWU
Ph: **(03) 8327 0888**
Ph: **1300 372 842**

NEW SOUTH WALES
SafeWork NSW Ph: **13 10 50** contact@safework.nsw.gov.au
Master Builders Association of NSW Ph: **(02) 8586 3555** **1800 622 679** enquiries@mbansw.com.au
AMCA Ph: **(02) 8458 3330**
NECA Ph: **1300 361 099** member.services@neca.asn.au
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NECA Ph: **(08) 8272 2966** neca@necasa.asn.au
CFMEU South Australia Ph: **(08) 8231 5532** saqueries@cfmeu.org
CEPU Ph: **(08) 8234 2130**

Introduction

This 2020 revised edition of the Incolink Safety Handbook is a cooperative project between the building and civil construction industry employers and the trade unions, designed to achieve continual 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 Handbook lays down the basic principles for working safely on building and construction sites.

The objective of this Handbook is to assist employers and employees to work together in establishing and maintaining safe construction sites free from injuries and disease.

The information in this Handbook deals with the hazards in situations, which potentially produce the highest level of risk, and offers the appropriate safety measures to control the hazards and minimise the risk.

The control measures identified in the Handbook should be incorporated in "Safe Work Method Statements" (SWMS) developed for particular High Risk work tasks.

The Handbook can be used as an adjunct to general industry and site specific inductions. It is also a useful reference for supervisors, Health and Safety Representatives and employees in determining appropriate standards of safety.

Parties should consider referencing the Safety Handbook in Certified Agreements as an appropriate guide for safety management and control of risks.

Adequate and appropriate consultation during the production of the Safety Handbook has ensured that the content and substance of the document will remain valid and relevant despite any regulatory legislative changes which may come into effect.

Addendum And Special Note

In January 2012 the Model Work Health and Safety Act (WHS) and Regulations were introduced under the auspices of Safe Work Australia as a national OHS Harmonisation initiative. A number of Australian States have adopted this new legislative /regulatory package – which includes national model codes of practice.

However, at the time this 2020 edition of the Handbook went to print, the State of Victoria has continued to retain its existing OHS legislative and regulatory framework – the OHS Act 2004, OHS Regulations 2017 and associated compliance codes.

Link to Safe Work Australia model laws and codes of practice: safeworkaustralia.gov.au/sites/swa/legislation/pages/modelwhslegislation.aspx

Part 1:
Safety Responsibilities and Organisation on Site

What an Employer Must Provide for Employees

The Victorian Occupational Health and Safety Act 2004 requires employers to provide and maintain so far as is reasonably practicable 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 and maintain safe systems of work
- Provide safe arrangements for the use, storage and transport of plant and (hazardous) substances
- Maintain the workplace in a condition that is safe and without risks to health
- Provide adequate information on hazards, as well as instruction, training and supervision to enable employees to work safely
- Provide adequate amenities/facilities (to the standard described in WorkSafe's Code of Practice for Building and Construction Workplaces)
- Monitor the health of employees
- Monitor conditions at the workplace
- Provide information in languages other than English where appropriate
- Keep information and records on the health and safety of employees
- Obtain OHS advice from people who are qualified in OHS

Under Part 4 of the Act, employers must also consult with employees regarding health and safety, involving Health and Safety Representatives (HSRs) where they exist.

Employers must make sure these health and safety requirements are available for their employees, regardless of which site they are working on, or who has control of the site.

What is Expected of Employees

Under Victorian OHS Legislation:

Employees must:

- Take reasonable care for their own health and safety
- Ensure that their actions don't endanger other persons
- Cooperate with their employers with any action they take to comply with the OHS Act or Regulations

Above all, at the end of the day workers should be able to go home safely to family and friends.

What is Expected of All Site Personnel

Site Rules and Behaviour

All site personnel are expected to maintain an acceptable civilised standard of behaviour while at work and to treat all other personnel with dignity and respect. In particular, unacceptable behaviour that will not be tolerated includes:

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

Breaching these rules can result in disciplinary proceedings, prosecution and fines.

If site personnel are subjected to any of the above, it should be reported straight away to site management and to the Health and Safety Representative.

Responsibilities of Site Manager or Principal Contractor

The principal contractor (with the active cooperation of all parties on site) is responsible for providing and maintaining proper systems to ensure the safety of workers, visitors and the public. This includes establishing, prior to starting work on a site, systems and processes for:

- Site amenities
- Site security
- Safe condition of site
- Coordination of subcontractors and trade activities
- Ensure Safe Work Method Statements are developed by the contractors responsible for High Risk Construction Work
- Safe operation of plant
- Safety supervision
- Site safety inductions
- Safety signs and notices
- Records, registers and forms
- Health and safety consultative arrangements

The Site Manager will typically be assigned responsibility for making sure that these measures are applied correctly to safeguard all site operations. The Principal Contractor may delegate these responsibilities to other members of the site team.

Construction Industry Basic Induction Training Course

Construction industry basic induction training (White CIT Card) is compulsory under the Occupational Health and Safety Regulations 2017 (Vic) for anyone who is employed or engaged to preform construction work. Workers who have previously undertaken red card induction will be recognised as having met the requirements of the regulations. However, any worker who has been out of the industry for 2 years or more will have to undertake induction training again.

All workers will be required to carry a specified card as evidence that they have completed the construction industry basic induction training.

This basic induction training does not replace an employer's duty to provide site specific and task specific instruction, supervision and ongoing training.

Note: Victorian White CIT cards are recognised in all Australian states.
Victoria recognises the authorised induction cards of all other states.

Site Specific Induction

What is a site-specific induction?

It is an introduction to the site to inform workers about site rules, safety procedures, and Safe Work Method Statements. The site-specific induction makes sure the workers understand the site specific safety measures before starting work, rather than relying on them to "pick it up" as they go along. The initial site-specific induction should be followed by either task specific safety re-freshers or tool-box meetings to help employees work safely and efficiently.

What should the site-specific induction cover?

It should explain to all employees and subcontractors:

1) Site safety rules and policies (e.g. drugs and alcohol, smoking,bullying, horseplay etc.)
2) Site amenities and welfare facilities
3) Emergency evacuation
4) Site specific hazards and control measures
5) The requirements for Safe Work Method Statements (SWMS)
6) How safety issues and disputes are sorted out
7) How to report safety hazards or unsafe work practices
8) How to report, accidents, incidents, dangerous occurrences and notifiable incidents
9) What employees should do if they are injured
10) First aid provisions and WorkCover claims
11) Details of employee representation on site (as per the OHS Act or a certified agreement)

Who should conduct the site-specific Induction?

The site-specific induction should be conducted by the site management and/or an authorised representative.

Safety Consultation and Compliance

A healthier work environment and improved productivity can be achieved more easily when employers and employees work together, consult on hazards, discuss and find solutions to problems cooperatively.

Workplace safety consultation is achieved through involvement of employer and employee representatives in accordance with the Victorian OHS Act 2004 Part 4 Section 35.

Duty to Consult

The OHS Act states that "there is a duty for employers to consult with employees and Health and Safety Representatives on health and safety matters". Note: please refer to Section 35 of the OHS Act for the full text of this duty - which includes reasonable practicability.

Employers with HSRs

An employer needs to consult with the HSR:

- to identify and assess hazards or risks to health and safety in the workplace
- before making decisions to control risks to health and safety in the workplace
- before changes are implemented that may affect the health and safety of employees
- before policies and procedures are introduced
- before making decisions about facilities for the welfare of employees

An employer telling the HSRs what will happen is not consultation.

Therefore, in consulting with HSRs an employer must:

1. Share information with the HSR
This information should be provided in a timely way so that the HSR has adequate time to consider the matter.

2. Give the HSR a reasonable opportunity to express their views about the matter.
HSRs should be encouraged to ask questions, raise concerns, propose options, make recommendations and be part of the problem-solving process.

3. Take the HSR's views into account
The views, suggestions, and concerns of the HSR must be taken into account by the employer before a final decision is made.

Employers with Employees

Employers must consult with employees (including contractors and their employees) on the following matters which are likely to affect their employees' welfare, health or safety.

- Identifying or assessing risks and hazards at the workplace
- Making decisions about the measures to control those risks
- Making decisions about resolving health and safety issues
- Results of any monitoring of a hazardous substance
- Monitoring the health of employees
- Providing information and training to employees
- Determining membership of safety committee
- Proposing changes to the workplace that may impact on health and safety

Consultation must follow the process of:

a) Sharing information

b) Giving employees an opportunity to express their views and

c) Taking those views into account.

If workers are represented by a Health and Safety Representative, consultation must involve that HSR. The OHS Regulations specify how the HSR is to be involved. Where there are HSRs, the employer must:

- Share information with the HSRs before other employees
- Invite and meet with the HSRs
- Give an opportunity for HSRs to express their views, and
- Take their views into account

worksafe.vic.gov.au/safety-and-prevention/elected-health-and-safety-representatives/employer-consultation-with-hsrs

Employer's Representative

The principal contractor may nominate a member of its staff to act as the employer's representative who may also be the safety officer. This person will be responsible for managing safety on site and consulting with employees and their Health and Safety Representatives on all the above matters.

Designated Work Groups

Employees may ask their employer to establish Designated Work Groups (DWGs) in their workplace. Employees in a DWG share similar workplace health and safety concerns and conditions. They elect one or more HSRs and/or Deputy HSRs to represent them on health and safety.

An employer must ensure that a written list of each Health and Safety Representative and Deputy Health and Safety Representative for each Designated Work Group (if any) is prepared and kept up-to-date; and a copy of the list is displayed at each workplace under the management and control of the employer, or otherwise readily accessible to all employees of the employer.

Employee Health and Safety Representatives

The OHS Act 2004 recognises the important role of Health and Safety Representatives (HSRs) play in representing the health and safety interests of employees.

Health and Safety Representatives can:

- Be assisted by elected deputies and whenever necessary, seek the assistance of any person
- Attend to safety issues raised by workers
- Inspect the workplace
- Accompany a WorkSafe Inspector
- Be present at interviews and meetings concerning health and safety matters

Health and Safety Representatives also have the power to:

a) issue Provisional Improvement Notices (PIN) to ensure outstanding health and safety issues are rectified; and

b) direct that work which involves an immediate threat to the health and safety of workers ceases. Under the OHS Act these powers can only be exercised by the HSR after proper consultation with the employer.

During any period for which work has ceased in accordance with such a direction, the employer may assign any employees whose work is affected, to suitable alternative work.

Employers should consult fully with Health and Safety Representatives at all stages of the job planning and encourage open and frank two-way communication and cooperation.

Where members of a DWG elect one of their own as their Health and Safety Representative, the employer must, if requested by an HSR, allow that HSR time off work with pay, to attend a WorkSafe approved training course. (This includes an initial OHS training course or a yearly refresher). This is provided that the request is made no less than 14 days before the course date.

All time spent attending a course by an HSR is treated as time at work and paid as if the HSR was at work.

It should be noted that the HSR or Deputy has the right to choose the course they want to attend, in consultation with the employer (section 67 of the Act), subject to the course being approved by WorkSafe.

Health and Safety Committee

The Health and Safety Committee provides a formal means of discussing and resolving health and safety issues. Where a Health and Safety Representative requests it, the employer is required to establish a Health and Safety Committee within three months. At least half the members of the Committee must be employees. Where there are HSRs or deputy HSRs, they will normally be the employee representatives.

The Health and Safety Committee can:

- Participate in regular formal site safety inspections
- Review safe work method statements for scheduled high risk construction work (e.g. structural trades - where there is a risk of a person falling more than 2 metres)
- Assist the employer to monitor overall health and safety conditions on site
- Develop safety policies and standards as issues arise on site
- Ensure the Alcohol and Drug Policy is implemented

Safety Issue and Disputes Resolution

For OHS issues which may arise on sites, the procedure set out in the Issue Resolution Procedures (Part 2.2 of the Occupational Health and Safety Regulations 2017) - or any specific safety dispute resolution contained in certified agreements with equivalent fairness and employee involvement - must be followed.

WorkSafe Inspectors

WorkSafe inspectors are appointed under the Occupational Health and Safety Act 2004 to deal with health and safety issues.

WorkSafe inspectors are authorised to enter workplaces at any time and to issue whatever directions are necessary for them to carry out their functions. In this capacity they must take reasonable steps to make themselves known to the occupier & HSR.

WorkSafe inspectors can issue a direction to stop a person or persons working in a way that could endanger his or her life or the lives of other workers).

They are also authorised to:

- Issue Non-disturbance Notices – to ensure that particular parts of the site being investigated by inspectors (including plant equipment and substances) are not interfered with or subject to disturbance.
- Issue Improvement Notices – directing employers to fix safety problems within a specified time.
- Issue Prohibition Notices – directing employers to cease unsafe activities that have immediate risks to the health and safety of workers
- Conduct interviews and make enquiries
- Take photographs, samples, recordings and measurements
- Examine and copy documents
- Adjudicate in health and safety disputes between employers and employees - including those between ARREOs (authorised union officials) and employers)

If requested by a WorkSafe Inspector, construction personnel must cooperate and provide assistance. It is an offence- for which a person could be fined and/or jailed - to obstruct, impede or hinder, threaten or assault an inspector.

Drug and Alcohol Policy

The policy below reflects common standards for the Victorian building and construction industry and may be referenced in certain enterprise bargaining agreements.

1) Safety is paramount on building sites
2) This policy applies to everyone on site without distinction
3) A person who presents a non-negative test result for drugs or alcohol or who is otherwise affected, will not be allowed to work until that person can work in a safe manner
4) The decision on a person's ability to work in a safe manner will be determined in accordance with the Company Policy in consultation by the employer and / or their representatives
5) A person affected by drugs or alcohol may be subject to disciplinary action in accordance with company policy
6) The Health and Safety Committee may provide information to persons seeking help for their drug or alcohol problem
7) Leave may be negotiated to enable rehabilitation and counselling

Where there is no Health and Safety Committee, site safety supervisors/safety officers in consultation with worker Health and Safety Representatives will implement the policy

Injuries and First Aid

First aid facilities must be provided in accordance with WorkSafe Victoria Compliance Code First Aid in the Workplace. All site personnel should know where first aid facilities are located.

All sites should have first aid kits and First Aiders sufficient for site requirements. The names of First Aiders, first aid procedures and emergency contact phone numbers should be displayed in prominent locations visible to all workers. All site personnel should know where first aid facilities are located.

What to do if someone needs first aid treatment:

- Don't panic
- The designated First Aider should be contacted.
- If anyone needs immediate first aid and the First Aider cannot be located, the site office should be contacted to arrange for an ambulance. If the office is unattended "000" (or "112" from a mobile phone) should be called to ask for an ambulance and provide:
  - name and address of site/building
  - specific location of person injured
  - a contact telephone number
- A person should be sent to the main site entry point to direct the ambulance
- Whilst waiting for the emergency services, ensure any injured parties are not moved unless there is a higher risk of being injured. All necessary assistance should be provided to safeguard injured persons and to keep them comfortable pending arrival of the emergency services

Details of first aid treatment given by First Aiders should be recorded in the First Aid Treatment Book.

Safe Disposal of Used Syringes

Site procedure:

1) The First Aider is the appropriate person to remove discarded syringes from site
2) Suitable warning signage should be displayed to prevent people from entering the area where syringe had been found
3) Gloves should be worn
4) Before removing the syringe, a suitable container with a lid should be available to put the syringe into.
5) The container should be placed in readiness on a flat, stable surface
6) Pick up the syringe either by using tongs or an 'ezy hold'

mechanical hand (if you must pick it up by hand, make sure you are wearing gloves and hold it by the plastic barrel, with the needle end pointing away from you).

7) Gently place the syringe, needle end first, into the container.
8) Never put the cap back on a needle used by someone else. Also never try to blunt the needle or break it off
9) To arrange for collection of needles, or if your disposal is full and needs replacing, contact your Local Council's Health Department (A spare empty disposal bin should be kept on site at all times).
10) Where there is a continuing problem with syringes being discovered on site, the Victorian Building Industry Alcohol and Drug Worker can arrange for your site to be supplied with approved syringe disposal bins or packs.

In Case of Needlestick Injury:

Don't panic!

1) Allow the wound to bleed a little
2) As soon as possible wash the wound with soap and cold running water
3) Attend the First Aid Shed
4) The wound should be covered with a band-aid
5) Notify the Site Management, the Health and Safety Representative and Health and Safety Committee if available
6) Consult a doctor

Construction Facilities and Amenities

The Worksafe Victoria Compliance Code - Facilities in construction, was introduced in March 2018. It outlines the standard of amenities which are allocated to both women and men - depending on the ratio of gender representation on building and construction sites.

This section will therefore primarily focus on information relating to the respective allocation of amenities to male and female workers on construction sites.

Male and female toilets

Separate male and female toilet facilities need to be provided where there are both males and females onsite.

Although unisex toilets are permissible for ten employees or less, it should be noted that the employer has a duty to consult 'before making decisions about facilities for the welfare of employees. Women on site may prefer to have their own separate toilet amenities.

For males the number of closets and urinals need to be provided in accordance with the following scale:

Male employees/ Contractors	Number of closets	Number of urinals
1-5	1	Nil
6-10	1	1
11-20	2	2
21-35	3	4
36-50	4	6
51-75	5	7
76-100	6	8

For each additional 20 males, one additional closet and one additional urinal.
Where more than 200 males, for each additional 35 males, one additional closet and urinal.

For females the number of closets need to be provided in accordance with the following scale.

Female employees/ Contractors	Number of closets
1-5	1
6-10	2
11-20	4
21-35	7
36-50	10
51-75	12
76-100	14

For each additional 20 females, two additional closets

Where more than 200 females, for each additional 35 females, two additional closets.

A sanitary disposal unit needs to be provided in at least one in every three closets.

Where a separate female toilet needs to be provided due to the number of females, separate female hand washing facilities also need to be established.

Showers

- Shower facilities need to be provided where dirty or dusty work is involved
- Shower facilities need to include access to hot and cold water
- Where showers are required, at least one shower cubicle needs to be provided for every 10 employees
- Separate shower facilities need to be provided for male and females. However, in small or temporary workplaces where privacy can be assured, one unisex shower can be provided if:
  - the shower and adjacent change room walls are full height
  - shower and adjacent change room doors can be locked from the inside

Change rooms

- Change rooms should be provided with enclosures that can be reasonably used by persons of either gender with privacy maintained
- Change rooms should have enough space to hang and dry clothing
- A bench should also be provided to allow a person to sit when dressing or undressing
- The temperature in the change rooms needs to be at a comfortable level

Providing access to facilities

Employees should be able to readily access any facilities provided:

- On multi -storey sites, toilet facilities should be located at least on each fifth floor
- Drinking water should be provided on every fifth floor (at least), and on the top floor ofconstruction
- Additional drinking water should be located close to areas where hot or strenuous work is being undertaken (e.g. work on exposed formwork decks)

Drinking water

- Clean drinking water needs to be provided for employees at all times
- The water needs to be needs to be hygienically provided (for example, disposable cups)
- Drinking water taken from mains water supply needs to be from separate taps to those supplying water for washing, general site water and not be located inside toilet areas
- Drinking water taps need to be labelled to avoid confusion
- Where a connection to mains water supply is not practicable, drinking water needs to be provided by another means, bulk water dispenser or individual disposable bottles

Meal facilities

A meals area should:

- Be separate from any work processes
- Be maintained with a comfortable temperature range (this can be achieved through artificial heating and cooling)
- Have lined ceilings and walls
- Have washable surfaces

Personal storage

Employees need to be provided with accessible, secure storage at the workplace for personal property (such as bags, jewellery, keys, mobile phones or personal medications).

Recording and Reporting Injuries

Work related injuries or illness must be reported to the employer within 30 days of becoming aware of it. Failure to do so may jeopardise workers' compensation claims being made.

The "if you are injured" poster must be displayed at the workplace. Details of all injury/illness (s) should be recorded in the Register of Injury kept at the workplace.

Emergencies

All sites should have an emergency plan that explains what to do in case of:

- Fire
- Bomb threats
- Gas and chemical leaks
- Collapse of the building or structure
- Other emergencies

The emergency plan should cover the following:

- The alarm signal for evacuation
- The correct way to exit the building
- What a person should do and what a person should not do in an emergency situation

- The safe assembly point(s)
- The site personnel in charge of emergencies
- Contacts for emergency and rescue services

Where appropriate, an emergency evacuation drill should be conducted.

The principal contractor must ensure that evacuation routes are planned, monitored and revised as necessary.

As part of the site's emergency response plan, the principal contractor should designate the evacuation routes for the site work areas. The suitability of routes should be regularly reviewed over the life of the project to ensure they remain effective as the site layout changes.

In multi-storey buildings each active stairway should be treated as an evacuation route.

Evacuation Lighting on Constructions Sites

Principal contractors have an obligation to ensure lighting is sufficient for: a) workers to safely evacuate in emergencies; and b) permit emergency or repair personnel to access the site.

On sites where natural lighting is insufficient, evacuation lighting is normally provided by installing battery powered emergency lighting and exit signs. A minimum light level of 20 lx should be provided for a minimum of one hour following the loss of normal lighting.

Principal contractors should ensure evacuation lighting is installed on designated evacuation routes to enable safe exit from the work areas and to provide lighting for access by emergency or repair personnel. Emergency lighting should also be installed at switchboards that control site lighting to allow normal lighting to be restored after a fault.

As evacuation routes on construction sites often contain construction materials, electrical switchboards, portable equipment and other obstructions, the routes should be regularly reviewed to determine whether higher emergency lighting levels are required to enable workers to safely evacuate.

Exit signs locations and types

Exits signs must not be positioned more than one metre above, or two metres in front of, the exit.

Where the evacuation route does not lead directly to an emergency exit, then exit direction arrow signs that point in the direction of the emergency exit must be installed at the change of direction.

Exit signs, including exit directional arrow signs should be the self-illuminating type to be visible through smoke.

Evacuation light fittings should be manufactured from impact resistant material (e.g. polycarbonate) or be fitted with mechanical protection (e.g. wire cages).

Reusing evacuation light fittings

Evacuation light fittings reused from previous sites or other temporary installations must be assessed and evaluated to ensure minimum evacuation lighting levels are maintained.

Periodic testing of evacuation lighting

Evacuation lighting must be inspected and electrically re-tested every 6 months, including a discharge test to ensure evacuation lighting maintains the 20 lx lighting level for at least one hour after the loss of normal lighting. Records of testing should be kept on site or made available for auditing.

Measuring the light level

Determination of the light level cannot be based on a single measurement, but should be taken as an average over the whole route or portion of the route being measured (e.g. a passage way or stairwell). For consistency the following method should be used to determine if the designated evacuation route achieves the 20 lx lighting level. **Readings should be taken:**

- With a calibrated light meter held horizontally
- At a height of one metre above the floor
- One metre from the start of the route and at one metre intervals along the route, and
- Where shadows are not cast onto the meter (see suggested process right)

Add all the readings together and divide by the number of readings taken to calculate the average light level. This should not be less than 20 lx. Records of lighting levels should be kept onsite for reference.

Examples

A: (25 + 18 + 15 + 12 + 16+ 22) divide by 6 readings = average of 18.0 lx (Fail)

B: (30 + 22 + 18 + 5 +19 + 30) divide by 6 readings = average of 20.7 lx (Pass)

Link to WorkSafe Victoria Evacuation lighting on constructionsites: worksafe.vic.gov.au/forms-and-publications/forms-and-publications/evacuation-lighting-on-construction-sites

Notification of Incidents and Dangerous Occurrences

Certain incidents, dangerous occurrences and near misses must be reported to WorkSafe.

If workers become aware of an incident, dangerous occurrence or a 'near miss' at their workplace, they should report it to their immediate supervisor, even if it does not result in immediate injury or damage. Site management can then determine if the incident requires notification to WorkSafe and conduct an investigation to establish the cause of the incident and to prevent it happening again.

Under Section 37 of the OHS Act 2004 the employer with management or control of the workplace is responsible for reporting by telephone (132 360) certain incidents and dangerous occurrences to WorkSafe immediately upon becoming aware of it. Written details of the incident must be sent to WorkSafe on the prescribed form within 48 hours.

Except for essential action to protect persons' health and safety, to aid injured persons or to prevent further occurrence, the scene of any notifiable incident MUST NOT be disturbed until an inspector directs that it may be disturbed.

The relevant contact numbers for emergencies involving gas or electricity appear on the inside front cover of this Handbook.

The Police or Fire Brigade must also be notified of certain incidents involving Dangerous Goods.

Preserving the Site of a Fatal Incident

WorkSafe, 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 WorkSafe inspector.

The scene of a fatality must not be disturbed unless this is necessary to:

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

Dealing with Trauma and Counselling

It is important to remember that anyone on a site where a workplace accident occurs may be emotionally distressed and/or in shock and need counselling to deal with the trauma.

For trauma counselling assistance call Incolink Counselling on **1300 000 129** - to discuss and arrange support processes.

Part 2:
Hazard Identification and Control Of Risks

Hazards on construction sites

Most injuries on construction sites - for which there are WorkCover claims - are back injuries, sprains and strains due to manual handling tasks such as lifting, pushing, pulling and stretching.

Statistics show that construction workers are most likely to be killed through:

- Falling from heights, particularly off roofs
- Electrocution
- Being hit or crushed by powered mobile plant

Other hazards common in the construction industry are:

- Falling objects
- Cuts from sharp materials, objects and tools
- Structural collapse
- Collapse of trenches
- Compressed air
- Hazardous substances (paints, solvents, glues, chemicals etc.)
- Hazardous dusts and fibres (silica, asbestos, wood dust, Medium Density Fibreboard (MDF) Synthetic Mineral Fibres (SMF))
- Explosive powered tools
- Noise
- Welding fumes, gases and arcs
- Confined spaces
- Lasers
- Sun exposure leading to skin cancer

Before commencing tasks, all foreseeable hazards (e.g. falling off a roof, falling objects) and actual risks (e.g. death, serious injury) should be identified and appropriate safety measures put in place (e.g. install guard railing, prevent access under a roof being constructed).

Hierarchy of Control

This is a methodology designed to ensure that the control measure which provides the greatest level of safety is selected.

To be applied where reasonably practicable in the order shown:

1. Elimination – remove the specific risk entirely by adopting another way of doing the job
2. Substitution – reduce the risk significantly by using another method or process
3. Isolation – ensure that the level of exposure of people to the hazard is kept to a minimum
4. Engineering controls – using machinery or equipment to perform a task which protects persons from the risk
5. Administrative controls – implementing safety instructions to minimise exposure to the risk
6. Personal protective equipment (PPE) - may be used when it is simply not possible to use other methods - or as an adjunct to the other controls. It should always be seen as the last resort

The following examples demonstrate how the Hierarchy of Control should be applied creatively and intelligently to provide the best safety outcome:

To *eliminate* the fall hazard involved in the removal of an old roof from a building under demolition, the roof can be demolished from equipment on the ground.

By *substituting* a much safer product the exposure of workers to highly toxic termite control chemicals can be reduced.

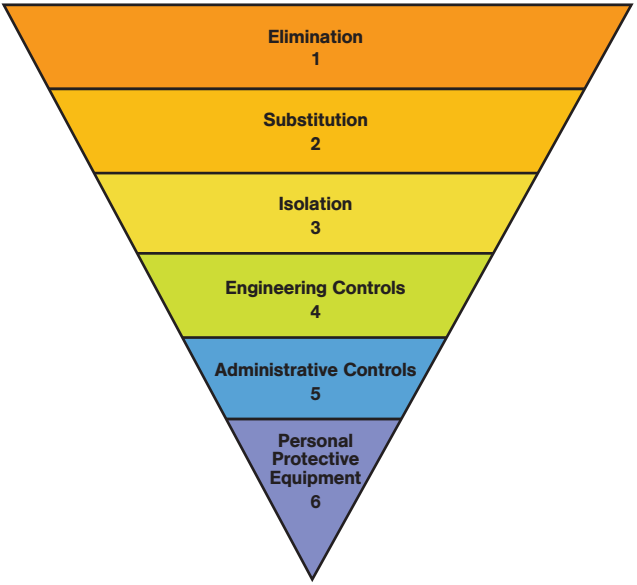
By *isolating* a section of a roof as a No Go Zone - by introducing a warning line system - the fall hazard at the perimeter edge can be controlled. A roof permit system as an administrative control should also be used.

An *engineering* control in the erection of structural steel is the use of scissor lifts and booms to prevent falls from height. PPE in the form of a safety harness, energy absorber/lanyard is required for work out of booms.

An *administrative* control may consist in a work instruction/Safe Work Method Statement which permits the use of A frame step ladders in certain situations where a restricted space prevents a safer form of work platform.

PPE in the form of dust masks may be necessary for workers involved in the internal strip-out of a building under refurbishment.

Risk Control Hierarchy



Safe Work Method Statements

The 2017 Victorian OHS Regulations Part 5.1 - Construction requires Safe Work Method Statement, for all High Risk Construction Work involving the following work activities:

(a) Where there is a risk of a person falling more than 2 metres

(b) On telecommunications towers

(c) Involving demolition

(d) Involving the removal or likely disturbance of asbestos

(e) Involving structural alterations that require temporary support to prevent collapse

(f) Involving a confined space

(g) Involving a trench or shaft if the excavated depth is more than 1·5 metres

(h) Involving a tunnel

(i) Involving the use of explosives

(j) On or near pressurised gas distribution mains or piping

(k) On or near chemical, fuel or refrigerant lines

(l) On or near energised electrical installations or services

(m) In an area that may have a contaminated or flammable atmosphere

(n) Involving tilt-up or precast concrete

(o) On or adjacent to roadways or railways used by road or rail traffic

(p) At workplaces where there is any movement of powered mobile plant

(q) In an area where there are artificial extremes of temperature

(r) In, over or adjacent to water or other liquids where there is a risk of drowning

(s) Involving diving.

Under the regulations a Safe Work Method Statement (SWMS) means a document that:

- Lists the high risk construction work being done
- States the health and safety hazards and risks arising from that work
- Describes how the risks will be controlled
- Describes how the risk control measures will be put in place

The 2018 WorkSafe document - How to prepare and use a Safe Work Method Statement (SWMS) for high risk construction work (HRCW) and who needs to prepare one – contains the following advice:

- A generic SWMS is not acceptable unless further work is done to make it 'site-specific'
- Whilst contractors can address non-HRC hazards within a SWMS, this must not weaken the focus on HRCW activities
- Risks should be managed in accordance with the Hierarchy of Controls.
- The employees performing the work should be consulted when developing a SWMS and should be inducted into their SWMS before starting work.
- The effectiveness of the control measures should be reviewed following implementation of the SWMS.

* High risk construction work should never be undertaken without an appropriate *SWMS*.

Health and Safety Coordination Plan (HSCP)

The OHS Regulations 2017 state that for projects of a value of $350,000 or more, the principal contractor must make sure that a health and safety co-ordination plan is prepared for any construction work before the work starts.

A HSCP is document which describes how safety will be managed on site.

Where reasonably practicable, the principal contractor must consult with site personnel (including an HSR where applicable) when developing the plan. This may mean consulting with the main subcontractor trades involved in the most hazardous work.

During the project, the principal contractor must review the HSCP to make sure that it remains accurate and deals with all the construction work actually being done.

The principal contractor must make sure that the HSCP is kept until the construction project is finished and is readily available to site personnel

The principal contractor must make sure that new starters are aware of, and are given access to, the HSCP before they start construction work at the workplace.

What Must a Health and Safety Co-ordination Plan Contain?

1) The names, positions and responsibilities of all people who look after health and safety
2) The way health and safety will be coordinated on site
3) Arrangement for managing incidents

Part 3:
Height Safety and Work Platforms

Falls from height are the most common cause of fatalities on building and construction sites. 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, skylights)
- Work from unprotected formwork decks
- Work from unsecured ladders

It is a legal requirement under Prevention of Falls Part of the Occupational Health and Safety Regulations 2017 to provide fall protection for anyone who could fall more than 2 metres. However, employers under the Victorian OHS Act 2004 also have a duty to ensure that the risk of serious injurious falls at heights of 2 metres or lower are also controlled.

Remember that at any height a fall onto concrete can cause serious injury or death.

For workers' safety remember the following points:

- Employers must not expect employees to work in any situation where there is a risk of falling
- Workers have the right to remove themselves from any work location where there is an imminent risk to their health and /or safety
- Fall hazards must be reported. The Site Supervisor and Health and Safety Representative must be made aware of any dangerous situations
- If required to use fall arrest equipment, ensure workers have been properly trained in its use

- Solutions to fall hazard problems should be raised with the supervisor and Health and Safety Representative. The opinions of workers are important and valuable

Work at heights next to an exposed edge should never be performed without some form of fall protection.

Preferred Methods of Preventing Falls

Reference: WorkSafe Victoria Compliance Code Prevention of Falls in General Construction

The Prevention of Falls Part of the OHS Regulations 2017 requires that fall protection for persons working at height more than 2 metres be based on selecting control measures in the following order of priority 1- 5.

The risk is controlled by:

1) Arranging for the task to be undertaken on the ground or on a solid construction
2) Ensuring that a passive fall prevention device such as properly erected scaffolds, perimeter guard railing, or elevating work platforms (EWP) is used
3) Using a work positioning system: –

a) An industrial rope access system; or

b) A travel restraint system; or

c) Any other equipment, other than a temporary work platform (e.g. EWP) that enables a person to be positioned and safely supported at a work location for the duration of the task being undertaken at height.

4) Putting in place a fall arrest system
5) By ensuring that a fixed or portable ladder is used, or an administrative control documented in a SWMS is used

Controls 4 & 5 clearly offer the lowest level of protection and should only be adopted if it can be demonstrated that controls 1-3 are not reasonably practicable.

Scaffolding

Reference: WorkSafe Victoria Compliance Code Prevention of Falls in General Construction

Scaffolds from which a person or object could fall more than 4 metres, must be erected, altered and dismantled by, or under, the direct supervision of a person with a certificate of competency or High Risk Work Licence of the right class. All scaffolds should only be erected by competent persons with an appropriate level of training, whether a certificate of competency or High Risk Work Licence is required or not.

In order to provide fall protection for scaffolding, full decks should be left in where reasonably practicable. These decks are to be signed **NOT FOR USE**.

However, as dead load weights may be a factor with scaffolds that have any more than 4 lifts fully decked, the scaffold design must be checked to ensure that the placement of full decks at each lift will not adversely affect the working capacity of the scaffold's standards and/or supporting structure.

Fall prevention, sequential erection and the provision of progressive safe access should all be part of the SWMS for scaffolders erecting, altering and dismantling scaffolds.

Scaffolding should only be worked off if it is:

- On a stable foundation with proper base plates and level
- 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; 675 kg max per platform, per bay for heavy duty)
- Fully planked and fitted with guardrails, mid-rails and toe boards on the working deck wherever a person or material could fall more than 2 metres
- Fitted with a safe, secure temporary stairway or ladder to access the working deck
- No closer than 5 vertical metres and 4.6 horizontal metres from powerlines (see Electrical Safety - Powerlines NO GO Zones), unless permission has been obtained from the power authority and a SWMS has been developed.

Scaffolding must also comply with the following:

- It has been erected by persons with the appropriate High Risk Work Licence for the type of scaffolding. High risk work licence requirements apply to the erection, alteration and dismantling of any scaffold from which a person or object could fall more than four metres from the scaffold. It is the fall distance, not the height of the scaffold that determines the High Risk Work Licence requirement.
- All long-term scaffolds, regardless of height, need to be checked regularly for structural integrity by a competent person (such as an engineer experienced in the design of temporary structures or a licensed scaffolder).
- Scaffolds exceeding four metres in height need to be inspected and tagged by a competent person (such as a licensed scaffolder) before use, after any alteration or at intervals of not more than 30 days. (Scaftag or similar system applies).

A scaffold that is incomplete and left unattended scaffolding needs to have danger tags and warning signs attached at particular locations to prevent use and have access points to the incomplete scaffold blocked off.

Defective or incomplete scaffolding must not be used and should be sign posted "Scaffold Incomplete/ Do Not Use"

Mobile Scaffolds

Who can erect a mobile scaffold?

If the fall-height from the mobile scaffold's top working platform is more than 4 metres, anyone erecting, altering or dismantling the scaffold at a workplace must hold an High Risk Work Licence for scaffolding (Basic as minimum) or be a trainee under the direct supervision of a Licence holder. The fall-height is taken to be the vertical distance from the top working platform to the lowest point to which an object could fall. A low-height scaffold located adjacent to the edge of an elevated floor can have a potential fall-height exceeding 4 metres, and would require a Certificate/Licence to erect.

Safety standards for mobile scaffold erection:

- Follow the manufacturers'/suppliers' written instructions for correct erection, use and dismantling
- The height of any light-duty tower-frame scaffold should not exceed 9 m (unless otherwise specifically stated in the supplier's documented information)
- The duty rating (load rating for a particular scaffold should be established from the supplier's information
- A working platform should be the full width of the scaffold frames
- Generally, a ladder access to a platform supported by a tower-frame scaffold should be constructed within the framework with a hinged trapdoor in the working platform
- The ladders should be single, industrial-grade ladders pitched at a slope of not less than 1:4 and not more than 1:6 and secured against displacement
- Wherever a person or object could fall a distance of 2m or more from a platform, edge protection in the form of guardrails, midrails and toe boards is required to be fitted to all open sides and ends of the platform
- For mobile scaffolds erected at heights of 2 metres or less it is permissible to climb the scaffold's end frames but not the diagonal braces. Care should be taken when climbing the mobile scaffold if it is used near an edge (with guardrail protection at a standard height)

Basic rules for using mobile scaffolds (mounted on castors) safely

- Only use the scaffold on a hard, flat surface. (On soil, use steel channels or similar to provide a hard, flat surface)
- For castors with no height-adjustment, the surface must also be level
- For castors with adjustable legs, scaffold must not be used on surface gradients greater than 5 degrees, unless provision is made to take the load off the castors during the use of the scaffold

- The scaffold must be kept well clear of live electrical powerlines. The minimum safe clearance distances are 4.6 m horizontally and 5.0 m vertically. The 5.0 m clearance is from the top of the guardrail on the scaffold. Only if written permission is obtained from the power supply company and a SWMS is developed, is encroachment on these No Go Zones allowed
- The scaffold must not be positioned closer than 1 m to any slab edge, penetration or step-down unless a positive means to prevent it crossing the edge is in place, such as a fixed fence, rail or suitably high upturn
- The scaffold must not be accessed until all its castors are locked to prevent movement
- The scaffold must not be moved or relocated while anyone is on it
- The scaffold must not be covered with containment sheeting such as shade cloth, unless, it has been specifically designed for that purpose and it is only used in an enclosed, wind-protected environment

Scaffold guardrails should never be used to gain extra height or to support equipment or loads.

Suspended Scaffolds (Swing Stages)

Common types of suspended scaffolds in the construction industry include:

- Swing stages
- Double-rope scaffolds
- Work cages
- Boatswain's chairs
- False cars used in the construction of lifts

Erection of the Suspended Scaffolding

- The person carrying out or directly supervising erection or modification work on any suspended scaffold must an Advanced Scaffolding Licence

- The person supervising the work must have a copy of the design plan prior to the erection/ modification of the suspended scaffold
- Fall protection, which may include safety harnesses/lanyards with adequate anchorage points, should be in place for the scaffolders at the building edge
- To prevent injury to persons from dropped cables, rigging components or tools, a sufficiently large area below the scaffold should be barricaded off to prevent access. A spotter may need to be positioned
- A secondary protective device must be provided for each scaffolding hoist, to operate on the suspension wire rope above the hoist or on a secondary wire rope. This device provides an emergency brake to hold the cradle if the hoist or wire rope within the hoist fails
- If used, the secondary wire rope for any scaffolding hoist should be attached to the suspension rigging, at a point that is independent of the main suspension rope attachment
- A sign, clearly displaying the safe working load limit, in kilograms, should be fixed to the inside of each cradle
- The cradle should have guardrails, midrails and toe boards fitted. The working deck needs to be fixed, of a non-slip type and with adequate drainage holes
- A competent person or the certificate or the Advanced Scaffold Licence holder responsible for erecting or altering the scaffold should supply a written statement that the scaffold is complete and safe for use

Suspended Scaffold Operation

- The employer of persons working in the suspended scaffold should have procedures and safe systems of work in place
- The employer must provide operator(s) with information, training and instruction
- The supplier of the suspended scaffold must provide written operating and safe use instructions and daily safety checklists
- Procedures must be in place for the rapid retrieval of the suspended people in the event of an emergency

- Effective communications must be in place between the cradle or chair and other workers to alert others on site in case of an emergency
- Measures must be in place to protect debris from higher work, falling onto workers in the cradle
- Where access and egress is not from the ground or a protected landing, safety harnesses and lanyards must be provided and used when entering or leaving the cradle
- If the scaffold is subjected to movement due to wind or the work procedures being undertaken, lateral restraints are required
- The cradle platform should be in a tidy condition with unobstructed access along the entire length
- During meal breaks etc, the platform should be secured to the structure and the power disconnected from the scaffold hoists or supply point
- For overnight or longer periods the platform must be parked in its storage position and secured to the structure
- A competent person should inspect the cradle and suspension system at not greater than monthly intervals
- All portable electrical equipment including scaffolding hoists and cabling must be inspected and tested every 3 months. The RCD protection devices are to be time and current tested monthly

Electrical Installation for Swing-Stages

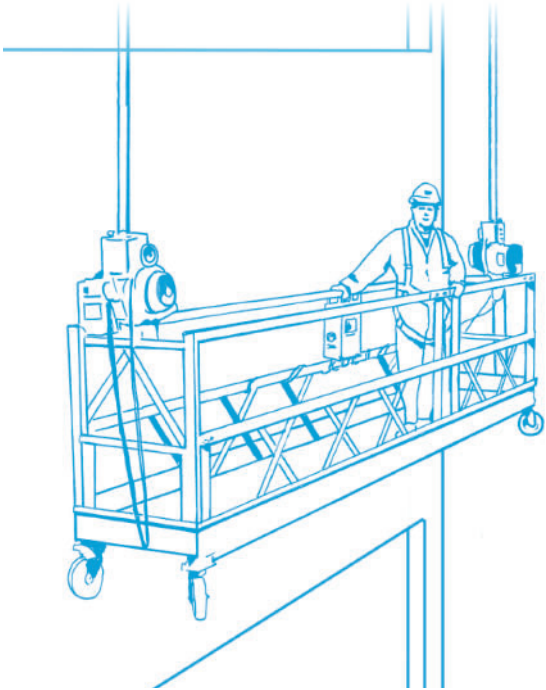
Switchboards supplying power to swing-stages should be designed so that electrical power cannot be inadvertently disconnected. They should also be designed so that a person must complete a deliberate action before disconnection can occur.

The principal, scaffold and electrical contractors must ensure switchboards are suitable for swing-stages in the following way:

- Positioning switchboard close to the swing-stage
- Ensuring wiring is designed to limit voltage drop to a maximum of 5 per cent, based on:

- 2 per cent to the switchboard
- 3 per cent for the flexible supply cord for the swing-stage

- Having a dedicated circuit for each swing-stage protected by separate Residual Current Devices (RCDs).
- Hard wiring the supply cord into the switchboard
- Securing plug-tops to socket-outlets with purpose-designed locking rings
- Using a dedicated switchboard, so the switchboard can be locked to prevent access.
- Label supply cords with, 'Do not remove' or similar



Scaffolding Inspection Checklist

Question	Answer	Comments
1. Signage		
1.1 Is there a current scaffold tag displayed in a conspicuous location (e.g. scaffold access points)?		
1.2 Does the scaffold tag indicate the duty rating per bay?		
1.3 Is there any signage indicating “No Entry. Scaffold Incomplete” or “Men Working Overhead” where required?		
1.4 Are incomplete scaffolding platforms blocked with a physical barrier as well as signage?		
2. Foundations. Soleplates/base plates		
2.1 Are soleplates (where required on soft ground) in good condition and are they secured or positioned in a way that will prevent them being dislodged?		
2.2 Is trenching or other excavation works isolated from the vicinity of soleplates?*		
2.3 Are base plates positioned centrally on the soleplates?		

2.4 Are base plates straight (not bowed or bent)?		
2.5 Are the standards sitting plumb and firm on the base plates?		
3. Isolation from mobile plant & other vehicles		
3.1 Is there a system in place (e.g. blocks, parawebbing, hoarding, traffic management) to prevent the scaffold being struck by vehicles or plant moving in close proximity to the scaffold?		
4. Scaffold structure		
4.1 Are the standards plumb through the full height?		
4.2 Are the joints staggered appropriately?*		
4.3 Are ledgers and transoms level?		
4.4 Is bracing in place at the traverse ends of the scaffold?		
4.5 Is bracing fitted to each end face and then every 3rd bay along the face?		
4.6 Does bracing extend to the full height?		
4.7 Are platforms limited to no more than 2 full working decks?*		

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4.8 Have unauthorised additions, attachments or improvisations to the scaffold been eliminated?		
5. Access and egress		
5.1 Is there access and egress to all working platforms from the ground?		
5.2 If there is access from the structure, has adequate fall protection been installed between structure and scaffold?		
5.3 Where access ladders are used: • are they adequately secured at the top and bottom? • are they pitched 1:4? • do they extend 900mm above the landing? • are they in good condition and free of defects?		
6. Electrical		
6.1 Is scaffolding erected beyond the No Go Zone of overhead power lines? (4.6m horizontally either side and 5m vertically above or below power lines)*		

6.2 If it is within the No Go Zone, is there written permission available from the power supply company?		
6.3 Have the lines been de energized?		
6.4 Are electrical leads being restricted to the level they originate rather than being run from one scaffold level to another?		
6.5 Are insulated hooks available so that leads are elevated rather than being in contact with any scaffold components such as handrails and ledgers, or wound around ties or couplers?		
7 Containment sheeting		
7.2 Has sufficient sheeting or brick guards been provided to protect workers or members of the public that might be exposed to a risk of falling materials from the scaffold?		
7.3 Are the fixing ties secure?		
7.4 Are there any gaps, rips or tears?		

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7.5 Are the overlap joints satisfactory (~50mm overlap being maintained)?		
8. Perimeter edge protection		
8.1 Are handrails, midrails and kick plates installed on all working decks and access platforms from which a person or object could fall 2m or more?		
8.2 Where the gap between the structure and the scaffold is more than 225mm, has edge protection been provided?		
8.3 Where any changes to the structure have occurred (e.g. removal of formwork), is the gap between the structure and the scaffold still less than 225mm? If not, edge protection or hop-up brackets must be provided.		
8.4 Are all handrails level?		
8.5 Are all handrails secured?		
9. Platforms / decks		
9.1 Are working platforms fully decked? (no gaps or missing boards / planks)		
9.2 Are boards / planks secured against wind?		

9.3 Are planks uniform and in good condition? (no splits, cracks, knots or bends)		
9.4 Are platforms free of obstructions? (electrical leads, building rubble and debris causing tripping hazards)		
9.5 Where materials are stacked on platforms, is there sufficient access provided? (min. 450mm for persons and tools [2 planks], min 675mm wide for persons and materials [3 planks])*		
9.6 Where brick guards are used, are bricks or other material stacked below the height of the guardrail?		
9.7 Are the loads on working platforms within their design load?*		
9.8 Where lap boards are used to close gaps, have they been secured?		
10. Ties and connections		
10.1 Is the scaffold secured to the structure with ties?		
10.2 Are ties being maintained at roughly every 2nd lift vertically and every 3rd standard horizontally?*		

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10.3 Is the scaffold stable when standing on the top deck? If it shakes or doesn't feel stable, chances are it isn't.		
10.4 Is there a system to ensure that if ties need to be removed or relocated, they are replaced in positions which maintain structural stability?		
10.5 Where Wedgelok fixings are used, are wedges securely inserted into the connection? (handrail, midrail, transom & ledger connections)		
11. Hop-up brackets		
11.1 Where hop-up brackets are used are they on the inside face only?		
11.3 Are they being maintained at no more than one V-pressing above or below the working platform?		
12. Mobile scaffolds		
12.1 Is the supporting surface hard and flat?		
12.2 If the ground surface is unstable (on dirt, uneven ground, muddy or sloping surface) are boards or steel channels used?		

12.3 Is the area of operation free of floor penetrations, power lines and other hazards?		
12.4 Are the castor wheel locks in working order and are they locked when workers are on the scaffold?		
12.5 Where the working platform is over 2m in height, are handrails, midrails and kick plates being maintained and is there internal ladder access?		
12.6 Is the working deck complete? (no split decks)		

The scaffold has been inspected and is safe / unsafe to use.

Signed:.....

Date:.....

Perimeter Guard Railing

Reference: WorkSafe Victoria Compliance Code Prevention of Falls in General Construction

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
- Openings 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

Guardrail systems intended to be used in conjunction with steel structures or tilt-up construction, should have guardrails and fixings attached to the panels prior to the structures being raised from the ground.

Where the slope of a 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 and roof ladders. A scaffold deck at the perimeter edge would be an effective means of overcoming the fall hazard caused by the extreme slope of the roof.

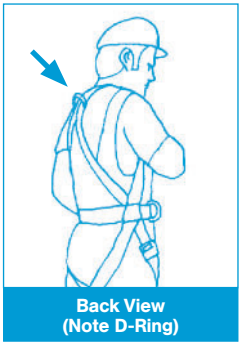
Fall Arrest Systems and Travel Restraint Systems

Reference: WorkSafe Victoria Compliance Code Prevention of Falls in General Construction

This is Personal Protective Equipment (PPE), which should not be used unless other means of providing fall protection, such as scaffolds, guardrails and elevating work platforms have been considered and are not practicable.

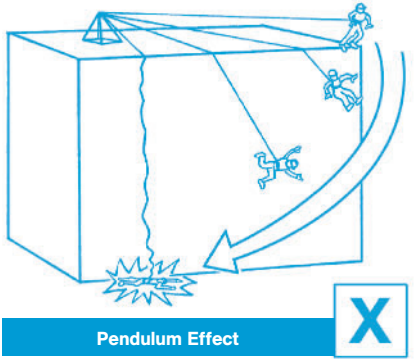
Before using an individual fall arrest system or a travel restraint system, workers should be trained in its use.

- Fall arrest systems are a type of plant and must be subject to hazard identification prior to use. It is good practice also to carry out a risk assessment
- Where practicable select a travel restraint system (designed to prevent a person entering the fall hazard zone) in preference to a fall arrest system
- Anchorage points must be able to withstand 15 kilonewtons (1500 kgs of force) or 21 kilonewtons (2100 kgs of force) if two persons are attached to the one anchor. This dynamic loading or force is based on the weight of one or two persons falling 2 metres
- 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
- Lanyards and inertia reels should be attached to the rear shoulder attachment point of the harness
- Lanyard systems must 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 must be used with all lanyard, harness and inertia reel systems
- Lanyards should not be used in conjunction with inertia reels as this can result in an excessive amount of free fall before the fall is arrested.
- Snap hooks need to be of the double action type, requiring at least two simultaneous, deliberate actions to open
- 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



Back View (Note D-Ring)

- Avoid using inertia reels in a horizontal configuration where, in the event of a fall, the line can be snagged on sharp edges and be severed
- Beware of using an inertia reel when working on a steeply pitched roof. In a fall down the inclined surface of a steeply pitched roof the inertia reel line may not lock up
- An arrest line may fail if it contacts an edge in a fall. Make sure that verification has been obtained from the manufacturer or supplier that it is safe to use with the specific type of edge 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
- To avoid roll-out make sure you use the same 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 (graphic shown below)
- 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)

Reference: WorkSafe Victoria Compliance Code Prevention of Falls in General Construction

Only operators of boom-type elevating work platforms where the boom length is 11 metres or more are required to hold a High Risk Work License.

Operators of all other types of EWPs must be competent and be able to demonstrate they have received instruction or training in operation and safe use of the EWP.

Certificates of competency issued by a Registered Training Organisation (RTO) must be able to demonstrate competency to operate in different plants - for example, scissor lift and cougar lift.

Safety Rules for EWPs

- The hirer or the supplier of the EWP must provide the user with training.in the particular EWP to be used This is particularly important for boom type EWPs
- The employer should assess the need for refresher training especially in regard to new models and types of EWPs
- Daily operational checks must be undertaken- including operation of audible and visible warning systems - and signed off in the log-book
- A slab terrain EWP must never be used on any other surface apart from concrete or level asphalt
- The capacity of all terrain EWP to travel on uneven surfaces should be carefully assessed as per the manufacturer's safety advice and specifications
- An anchored safety harness with an energy absorber must always be worn while in a boom type EWP
- Travel in an EWP with the boom elevated should be performed as slowly as possible. The clearance must be checked before the EWP is moved to a new position
- The safe working load written on the EWP must be checked to ensure it is not exceeded

- Reference should be made to EWP Manual Specifications in relation to the raising of pipes or other equipment. Unless the manufacturer specifies their suitability, guardrails of EWPs should not be used for lifting purposes. Special attachments may have to be installed if equipment is to be lifted
- Where RCD protection is provided on power outlets on EWPs these RCDs must be tested and tagged
- Lifting loads via cables and ropes from the EWP is not permitted
- The EWP should not be raised in high wind conditions (Refer to operator's manual)
- The EWP operator must know how to lower the platform in an emergency or if power is lost
- Persons should be kept clear of the operating area of the EWP. If used in a thoroughfare, a warning barrier of parawebbing or safety tape should be positioned to prevent persons from passing under the EWP
- An EWP should not be entered or exited when elevated (except in an emergency)

Increased risk – secondary guarding required

Preventing crush injuries in the use of EWPs

This risk occurs where EWP basket is required to be used near overhead/adjacent fixed structures. To control the risk implement the following:

- Physical barriers attached to the basket which reduce the likelihood of employees being crushed against structures (**figure 1**)
- Pressure sensing devices positioned over the control panel which detect pending crush incidents and prevent further hazardous movements (**figure 2**)
- Proximity sensing devices which prevent an MEWP's basket from manoeuvring into crushing proximity of fixed structures.
- Before positioning gas cylinders in an EWP ensure the following:

- Use of gas cylinders in "enclosed" EWPs (ie., where both the walls and floors allow the gases to accumulate) is considered unacceptable because of the fire risk from gas vapour emissions.
- The basket or platform should be of sufficient size to permit a 1 metre clearance between the worker's controls and the gas cylinders
- The cylinders are secured to withstand any lateral or vertical movement from the EWP

Figure 1 Example of physical barrier
Figure 2 Example of pressure sensing device

- The cylinders are positioned so as not to upset the balance of the EWP
- Cylinder valves, gauges and regulators should not be above the height of the EWP guard railing so as to prevent mechanical damage from obstructions
- Gas cylinders should not be attached to the outside of the platform unless the EWP has been specifically designed (or redesigned) for the purpose
- The gas cylinders can be safely loaded and unloaded into the EWP
- A fire blanket or extinguisher must be in an EWP when gas cylinders are on board

• An EWP must not be operated anywhere above overhead powerlines or within the following clearance distances (see Electrical Safety – Power line No Go Zones), unless permission has been obtained from the power supply company and a SWMS has been developed

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 dedicated safety observer and must have attended a Spotter Training Course and be appropriately certificated.

Mast Climbing Work Platforms

Reference: WorkSafe Victoria Compliance Code Prevention of Falls in General Construction

Erection and dismantling of mast climbing work platforms must be carried out, or directly supervised, by a person holding at least the intermediate scaffolding (class SI) or basic rigging (class RB) certificate of competency or equivalent High Risk Work Licence.

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

Mast climbing platforms must be subject to hazard identification prior to erection and a Safe Work Method Statement (SWMS) must be developed, taking the following into account:

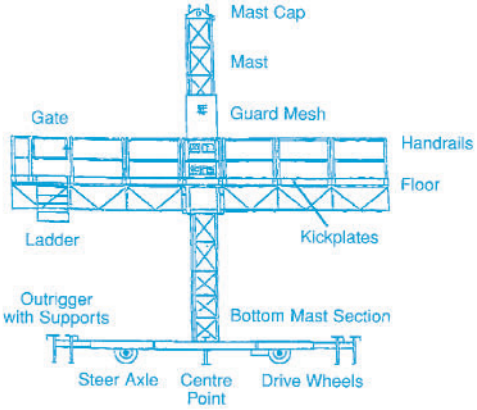
- Barricading where vehicular and pedestrian traffic is encountered
- Fencing around the mast climber to prevent unauthorised access
- The ground conditions/stability and outrigger positioning
- The proximity of powerlines and electrical equipment
- The development of an operator's daily checklist

Safe operation of mast climbers

- Daily operational checks must be undertaken, including operation of audible and visible warning systems
- Safe working loads must not be exceeded
- All persons must keep both feet on the platform deck while elevating
- The vertical path of travel must be checked for obstructions
- The mast climber must not be moved horizontally while personnel are on the platform

A mast climber must not be operated unless the person is trained in its use.

A mast climber must not be operated unless the person is trained in its use.



Ladders

Reference: WorkSafe Victoria Compliance Code Prevention of Falls in General Construction

The Prevention of Falls Part of the OHS Regulations 2007 states that the use of ladders as a measure to control the risk of falls over 2 metres in height may only be adopted if the following measures in order of priority from 1- 4 are not reasonably practicable:

1) On the ground - or solid construction
2) Passive fall prevention device
3) Work positioning system
4) Fall arrest system

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. They must be fit for purpose, appropriate for the duration of the task and set up correctly.

Given the potential severe injury consequences, resulting from low height falls onto concrete surfaces, the use of A-frame step ladders at any height should be avoided if mobile scaffolding and/or EWPs are practicable for use. If step ladders are necessary, the platform type of ladders should always be selected over “A” frames.

Extension ladders (at heights in excess of two metres) should only be used in circumstances where other forms of safe access cannot be practicably implemented e.g. in restricted spaces, or for limited duration tasks.

Ladders should conform to the following requirements:

- Industrial grade ladders not domestic grade ladders should be used
- Ladders should be checked for faults before use
- Ladders should be repaired by manufacturer or supplier
- Single stage (or extension) ladders should be placed at a slope of 4 (vertical) to 1 (horizontal)
- Single stage (or extension) ladders should be placed on stable, firm footing and secured top and bottom against movement

- Single stage (or extension) ladders should be footed by a second person positioned at the bottom of the ladder
- Both hands of persons using ladders should be free to ascend and descend
- Work performed off ladders must be performed facing the ladders
- Only tools which are easily operated with one hand should be used on ladders
- Persons using ladders should rest both feet on the ladder stiles
- The feet of persons using ladders should be no higher than the third tread from the top plate of step ladders or 900 mm from the top of single or extension ladders
- To avoid overreaching the belt buckle of persons using ladders should always be within the ladders' stiles
- Persons using ladders should not work over other persons
- Not more than one person should be on a ladder at any time

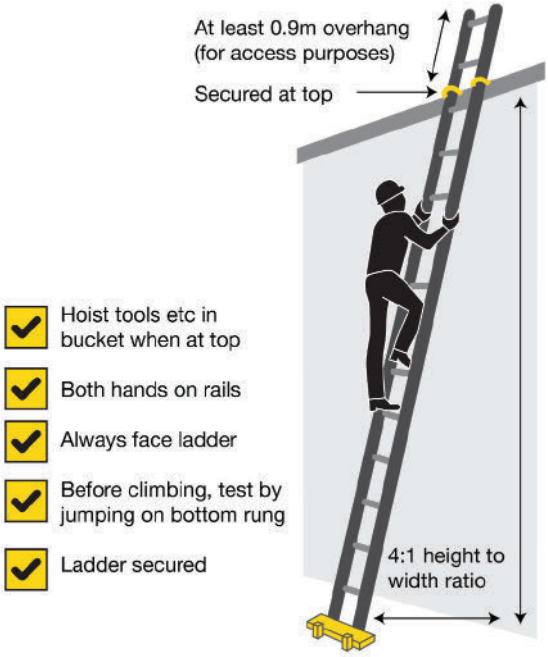
Ladders should not be used:

- 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
- 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"

Ladders do not constitute a safe work platform. A person can easily fall off a ladder and be injured.

Avoid using ladders when other work platforms are available.

Example of correctly set-up straight ladder



Part 4:
Controlling Hazards in Structural Work

Erecting Structural Steel

Reference: WorkSafe Victoria Industry Standard Safe Erection of Structural Steel for Buildings (2009)

Prior to erecting structural steel all workers should be inducted into a task specific SWMS which takes into account the following:

- Structural steel should only be erected by experienced riggers holding at least the Basic Rigging High Risk Work Licence (RB)
- 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, and fixed platforms)
- While 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. A WorkSafe certificate of competency (class WP) or equivalent class High Risk Work Licence is required for operating a Boom-type EWP with a boom of 11 metres or more
- The area under which structural steel is being erected should be cordoned off as a No Go Zone for other workers. This also includes the slewing path of the crane
- The erection design engineer should approve all temporary bracing of structural steel particularly if the area under, or immediately adjacent to, these steel components constitutes a work zone for other trades
- While under construction, the bolted connections and bracing are effective to ensure the stability of the steel structure in windy conditions

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.

Construction industry safety practice does not recommend the performance of work off the structural steel itself.

Roofing

Reference: WorkSafe Victoria Compliance Code Prevention of Falls in General Construction

A Safe Work Method Statement (SWMS) should be developed for each specific roofing contract. The SWMS should address fall protection needs for all roofing tasks such as the installation of the safety mesh, the laying of the sheets, and the installation of the box gutters.

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

- 2 mm, 450 MPa wire mesh installed from a safe work platform
- Box gutters installed from a safe work platform
- Perimeter guardrail system
- Scaffold tower for access

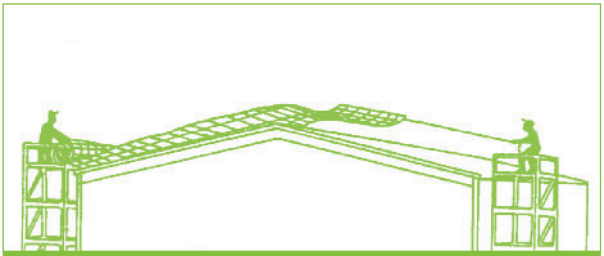
In relation to the installation of roof safety mesh, ensure the following:

- Mesh should be of 2 mm diameter with a NATA certificate (attached)
- A competent person should inspect safety mesh at the completion of installation to ensure correct method of fixing has been applied
- The mesh should be fixed to the purlins by drilling a hole in the top of the purlin and tying off with at least four full turns around the wire. Where mesh is to be fixed to timber purlins 40 mm x 3.5 staples should be used
- The runs of mesh should be side lapped by 150 mm (one opening width). Where purlin spacing exceeds 1.7 metres, intermediate stapling of the mesh should be carried out from underneath
- To make longitudinal joins, the knot and tie should be the full length of the tail wire, which should be 300 mm in length. The tail wire should be tied at least three times around the knot. The other tail wire is placed under the longitudinal wire and tied around the traverse wire. The 300 mm tail wire can be achieved by cutting the longitudinal wire close to the join. The join should be the full width of the mesh with every longitudinal wire joined

- The 2 mm wire mesh should be comprehensively installed across the entire skeletal frame of the roof prior to cutting the mesh for air conditioning penetrations
- The entire area of the roof frame needs to be meshed and the mesh then formally inspected to confirm that it has been installed in accordance with the manufacturers' instructions, before the roof is loaded with any bundles of sheeting.

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. There should be no work or movement across a fragile roof (or a roof containing unprotected skylights) unless a comprehensive fall protection system is in place. (e.g. guard rail protected walkways)
- Where trades other than roofing workers need to enter a roofing area under completion, 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

Reference: WorkSafe Victoria Compliance Code Prevention of falls in general construction

Floor openings, penetrations, pipe risers, voids 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. This protection may include fully meshed out guardrail panels, or guard rails with a top rail, mid rail and kickboard.

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

All shafts should be protected by a full length screen.

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 Individual Fall Protection System (IFPS).

For all work in shafts a Safe Work Method Statement (SWMS) 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. A copy of the SWMS should be attached to the permit or tag.

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 individual fall arrest system (IFAS) should be used.

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

Falling Objects

There is always the potential for falling objects to injure or kill persons when overhead work is carried out.

Where guardrails are protecting edges and voids make sure kickboards are in place to stop materials from falling over the edge.

In developing a Safe Work Method Statement 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 GO area should be established below overhead work
- A NO GO area or overhead protection should be provided in proximity of hoist (e.g. Alimak) access/egress points to prevent falling hoist components injuring persons
- The NO GO 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 GO area
- In certain circumstances a spotter may be necessary

Workers should be instructed to remember that there may be a danger to themselves from other trades working overhead and that their work may be a danger to those working below.

Workers can avoid being injured or injuring others by the following measures:

1. Always wearing a hard hat in work areas
2. Providing kickboards to scaffold working decks
3. Not leaving materials on scaffold working decks
4. Staying away from 'No Access' and 'No Go' areas
5. Keeping away from loads being lifted and slung loads
6. Securing loose material such as ply-board, iron-sheets and off-cuts against the wind
7. Not stacking materials close to unmeshed guardrails and perimeter edges
8. Alerting the supervisor and/or Health and Safety Representative of any falling object problem areas around the site

Demolition

Reference: WorkSafe Victoria Compliance Code Demolition 2018

Prior to demolition, the structure and the site should be investigated by a structural engineer and a work plan should be developed in consultation with workers and their elected Health and Safety Representatives. The work plan must call for a Safe Work Method Statement and induction of employees into their SWMS.

The work plan - which should identify hazards and propose appropriate control measures - should consider the following:

- 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 de-activated
- 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 and EWPs 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 shall also include the tying of scaffolding, and mast climbing platforms to the structure
- The demolition process needs to be undertaken in a way that does not affect the structural integrity of any other building or structure
- If individual fall arrest systems (IFAS) are used, the specific application of such equipment should be subject to a risk assessment and the development of a SWMS.

- 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 Individual Fall Protection Systems – IFPS (which may include fall arrest systems or travel restraint systems)
- 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 person holding at least the Intermediate Rigging High Risk Work Licence (RI)
- Jobs undertaken within ceilings require the provision of a solid and secure work platform

When undertaking the demolition of roofs adequate fall protection must be provided (catch platforms, IFPS, guardrails, purpose built roofing ladders).

Appropriate control measures must ensure that workers cannot fall through:

a) Brittle roofing materials

b) Holes

c) Over perimeter edges and leading edge

Work must not be performed above other employees where there is a danger of materials, tools or equipment falling

Concrete Cutting and Drilling

Reference: WorkSafe Victoria Industry Standard Safe Concrete Cutting and Drilling 2017

This document provides detailed advice about the hazards and the control measures necessary to perform this work safely.

Specific advice is provided on the following types of concrete cutting and drilling:

- Hand-held sawing
- Cutting slabs on the ground and road sawing
- Road sawing suspended slabs
- Wall sawing/track mounting
- Wire sawing
- Coring techniques
- Operators using a vacuum assembly to anchor a core drill

The key hazards involved in concrete cutting and drillings are as follows:

- Inverted cutting
- Respirable silica dust
- Toxic fumes
- Serious lacerations (kickback, blades breaking)
- Electrical shock in the use of electrical cutting saws
- Electrical shock in the contact with in-slab electrical services
- Damage to other services – gas and water
- Entanglement
- Falls from heights
- Damage to structures
- Working alone
- Excessive noise
- Vibration
- Hazardous manual handling

Safe work method statement

- Because concrete cutting and drilling is likely to fall into the category of High Risk Construction Work. a SWMS must be prepared before work can start

PPE

- Appropriate Personal Protective Equipment should be provided:

The following PPE should be provided:

- safety helmets
- hearing protection
- safety goggles
- face shields
- safety clothing, including safety boots, aprons, gloves and reflective vests
- respirators

Inverted cutting

- A hand-held saw should never be used for inverted cutting because the operator has no control of a cutting machine held above shoulder height
- Attach a track-mounted wall saw to guide tracks bolted to the slab
- Never use electric powered water-cooled saws for inverted cutting. If the saw is turned upside down, water can flood into the motor and cause the electricity to earth through the operator.

Locating services

- Locate and mark all services during initial safety planning using the 'Dial 1100 before you dig' service or by contacting the local government authority
- Consult the original drawings of the services and conduct a search for any 'as constructed' drawings in case there has been a change of location of services during installation (e.g. services located in floors, walls and cavities)
- If the services have been moved, use specialist equipment (e.g. a cable locator) to accurately determine where the services are now located prior to any cuts being made

- Disconnect any services that need to be cut through
- Ensure disconnections are confirmed and tagged by the relevant service personnel before the work begins
- After the work has finished the service personnel should reconnect the service and, if safe, remove the tags

Preventing damage to structures

- Confirm the location of any structural components or services within the slab or wall
- Seek advice from a structural engineer for all alterations to structural components
- Ensure a competent person supervises the work
- Carry out a risk assessment if components such as stressing tendons must be cut
- Locate and mark all components that will affect the strength of a structure if cut
- Seek advice and supervision from a structural engineer for all cuts to structural components

Electrical hazards in the operation of equipment

- All concrete cutting and drilling operations must comply with AS/NZS 3012, Electrical installations – construction and demolition sites.
- Never use electric powered water-cooled saws for inverted cutting unless it is specifically designed for the purpose. If the saw is turned upside down, water can flood into the motor and cause the electricity to earth through the operator.
- Remove pooled water (such as coolant water used in concrete or masonry cutting and drilling) with a wet and dry vacuum cleaner before any electrical equipment is used in the area
- Never use electric equipment for wet cutting unless it is specifically designed for the purpose – use hydraulic, pneumatic or petrol engine powered equipment instead
- Keep extension leads, plugs and electric powered tools away from dry cutting equipment or drilling water or slurry that cannot be easily removed.

- Map out the location of existing electrical or other services (e.g. gas, water and sewerage) before work begins.
- Use a power supply fitted with residual current devices (RCDs) for portable electrical equipment to protect against earth leakage shock. Test portable RCDs regularly to ensure they are working properly.
- Inspect and tag all electrical equipment used for cutting or drilling operations
- Suspend cords and extension leads above head height on stands, and use waterproof connectors where there is water

Dust and gases

- Where possible, use concrete and drilling equipment that is fitted with extraction devices to eliminate dust production at the source
- Use wet methods to minimise dust production and ensure enough water or coolant is supplied
- Remove slurry before it dries to prevent the dried material from generating dust that can be spread to other areas of the site.
- Provide extractor fans in confined spaces or poorly ventilated areas
- Consider using slower cutting and drilling equipment which produces less dust.
- Use respiratory protection in accordance with AS/NZS 1715, Selection, use and maintenance of respiratory protective devices to prevent inhalation of dust and toxic substances. Additional ventilation should also be provided.
- Use hydraulic, pneumatic or electric powered saws and drills, rather than petrol-driven equipment in confined or restricted spaces (Carbon Monoxide risk)
- If chemicals or other hazardous substances are used as aids in cutting or drilling operations, make sure they are used in accordance with the safety data sheet (SDS)
- Workers should change out of their work clothes at the site to prevent the spread of silica dust

Working at heights

- Carry out work at height from a safe working platform, preferably scaffolding

- Use appropriate mobile scaffold, taking into account stability and loading issues
- Use elevating work platforms where scaffolding is not practicable
- Never operate concrete cutting and drilling equipment while standing on a ladder
- Access to and egress from working platforms should be by a walkway or stairway, or a temporary work platform such as an elevating work platform, scaffold or personnel cage on a forklift

Noise

- Obtain information on the noise output of different models from manufacturers and suppliers before purchasing or hiring equipment
- Select the quietest suitable model and blade available
- Assess the suitability of using noise-reduced saw blades for a particular job
- Keep people not directly involved in cutting or drilling away from excessive noise areas
- Where practicable, erect temporary acoustic barriers around cutting and drilling areas to further reduce the spread of noise
- Provide operators with appropriate hearing protectors

Hazardous manual handling

- Suspend or support cutting and drilling equipment in a frame to reduce the forces and to avoid the need for awkward and static working positions
- Select lighter equipment, such as smaller diameter blades, where possible
- Avoid kick-back, push-back and pull-in situations by pre-checking blades and other saw components for wear and tear, assessing materials to be cut, locating hidden steel reinforcing and other obstructions, and avoiding hazardous cutting situations
- Provide gloves that allow equipment to be gripped more effectively

Vibration

- Purchase or hire equipment that does not have to be held or manually supported or vibrates less
- Equipment should be well-balanced, as light as possible and capable of being held in either hand (and in different sized hands)
- Ensure the equipment has vibration-absorbing handles or an even surface on the handles to distribute gripping force
- Consider wrapping metal handles with soft resilient rubber lagging to effectively reduce vibration exposure
- Provide gloves that allow equipment to be gripped more effectively

Entanglement

- Ensure all machinery is fitted with appropriate guarding
- Fit blades saw correctly
- Workers tie back long hair and don't operate machinery while wearing loose fitting clothing, including reflective safety vests

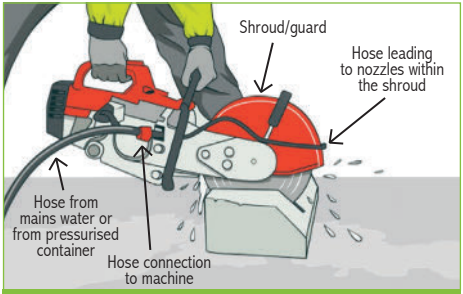
Loss of vacuum pressure

- Use bolt down stands where practicable
- If a vacuum attachment must be used, ensure the surface to be cut is able to maintain an adequate vacuum
- Monitor the equipment to ensure the vacuum pressure is maintained
- When a vacuum system is used to secure a drill stand to concrete, the compressor should have a receiver tank to ensure the operator has time to take action (if power is cut to the compressor) before the drill loses it hold

Working alone

- Avoid situations where operators need to work alone
- Carry out a risk assessment and consider supervision and emergency response procedures when developing safe systems of work
- Provide communication systems to enable an operator to call for assistance if anything goes wrong

Concrete cutting and clean-up using on-tool water suppression, dust extraction, and vacuuming.



Concrete cutting and clean-up using on-tool water suppression, dust extraction, and vacuuming.

Link to WorkSafe Victoria Industry Standard on Safe Concrete Cutting and Drilling 2017. Check below
worksafe.vic.gov.au/resources/safe-concrete-cutting-and-drilling-industry-standard

Trenching and Excavations

Reference: WorkSafe Victoria Compliance Code Excavation (2018)

In the new Excavation Compliance Code, the depth of 1.5 metres is no longer the benchmark for providing support for a trench. The Compliance Code states the following:

Where it is determined that there is a risk of ground collapse, or where there is a possibility of the sides of the excavation becoming unstable, the excavation needs to be supported irrespective of the depth.

The depth of 1.5 metres is only applicable for notification to WorkSafe of excavation work (including work on a shaft or trench) at least three clear days before commencement of this work. This notification does not apply if the excavation or trenching is part of building work for which a permit has been issued

Site Investigation

It is crucial that prior to excavation taking place, a site investigation is 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

In addition, the following should be in place prior to excavation work:

- A SWMS has been developed for all trenching/excavation tasks
- The SWMS includes control measures for the safe use of excavation plant
- The SWMS includes emergency procedures
- The SWMS covers control measures to prevent falls into trenches or excavations
- Employees have been inducted into the SWMS relevant to their trenching or excavation work

Employers should assess the competency of persons engaged in trenching and shoring work to determine the need for refresher training.

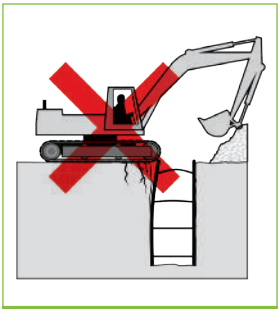
Trenching/Excavation Checklist

All trenching and excavation operations should be subject to a daily checklist system to make sure that specific SWMS safety controls and the following safety requirements are observed:

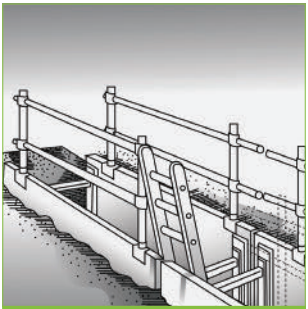
- No person ever enters an unsupported section
- Trenching supports are appropriate to the conditions (i.e. the need or otherwise for trench shields, close sheeting or benching)

A person should never enter an unshored or unbenched trench

- Spoil heaps are properly positioned at least 0.5 metres from the edges of the trench
- Safe ladder access, with side guarding is provided into the trench
- All workers wear safety helmets and high visibility vests (excepting persons performing hot works who should have non-flammable high visibility vests)
- No person is working alone in an excavation
- Emergency procedures are in place (e.g. rescue in the event of trench collapse)
- Persons do not remain in close proximity to where an excavator is operating
- 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
- Ensure workers not involved with the work and the public cannot access the trench and works area
- Where there is a risk of children or other members of the public accessing the works area ensure secure site fencing is provided to prevent access



Excavator too close to trench



Trench shield with guard rails attached and safe access ladder tied off

Tunnelling

A tunnel is an underground passage or opening in an approximate horizontal plane and which begins at the surface or from an excavation of any sort.

Design of tunnel

Engineering investigations and the anticipated excavation methods need to be considered in preparing a tunnel design:

- details on the tunnel dimensions and allowable unsupported excavation tolerances
- temporary and final support and lining requirements for each location within the tunnel
- ventilation requirements either natural or mechanical
- details of expected tunnel drive lengths and location of shafts excavation methods
- ground conditions and methods of ground support during construction

Tunnelling hazards and risks

- Tunnel stability – rock or earth falls and rock bursts
- Possible confined spaces involved ventilation- potential for air contamination or oxygen depletion
- Use of explosives
- The interaction of people with powered mobile plant
- Influxes of water, overhead seepage, ground and process water
- Uneven, wet or slippery surfaces
- Falling objects
- Falls from heights
- Contaminated groundwater
- Noise
- Vibration
- Heat and humidity

Risk controls

- Ground support (e.g. pre-formed tunnel lining segments, tunnel support sets, mesh, rock bolts, and shotcrete)
- Elevating work platforms in larger tunnels)
- Plant and vehicular traffic management systems
- Regular plant maintenance
- Pumps or dewatering systems to remove ground water
- Mechanical ventilation to control airborne contaminants and air temperature or
- Humidity
- Dust extraction
- Plant fitted with water scrubbers
- Plant fitted with catalytic converters
- Provision of breathing equipment

Deep Bulk Excavations

Bulk excavations are often undertaken when construction projects are required to make provision for large spaces (e.g. underground parking, basements.

Common hazards in deep bulk excavations

- Being buried from ground collapse
- Undermining the structural integrity of neighbouring structures, buildings footpaths/roadways
- Damage to buried essential services (for example, gas and sewerage pipes
- Falling into the excavation or piling holes, both people and plant
- Drowning if the excavation floods from rain or damaged water or sewer pipes.

Controls

A geotechnical engineer or civil engineer) should determine:

- ground conditions
-appropriate ground support or retention system for the site
- suitable systems of work for the installation of the ground support system

Controls when excavating

- Competent person supervises the work
- SWMS are developed and followed for the excavation and ground support works
- Workers never work ahead of the support or remove it prematurely
- Public is prevented from accessing the edge of the excavation or the site.

Drilling and Piling

Reference: WorkSafe Victoria Industry Standard Piling work and foundation engineering sites 2014

Piles and deep foundation engineering (PF work) includes a number of piles, ground improvement and retaining wall techniques.

Hazards

- Falls, into pile holes or excavations
- Contact with utilities services (e.g. overhead powerlines and underground cables or pipes)
- Entanglement in the rotating parts of the PF rigs
- Collapse of partially assembled PF rigs

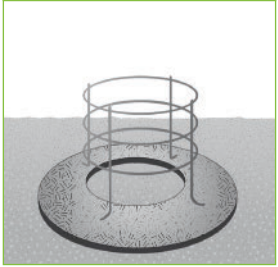
The following safety documentation must be in place

- Working Platform Certificate
- Evidence of Rig Annual and Major Inspection
- Operators' log book
- Pre-operational daily inspection
- Safe Work Method Statement (SWMS)

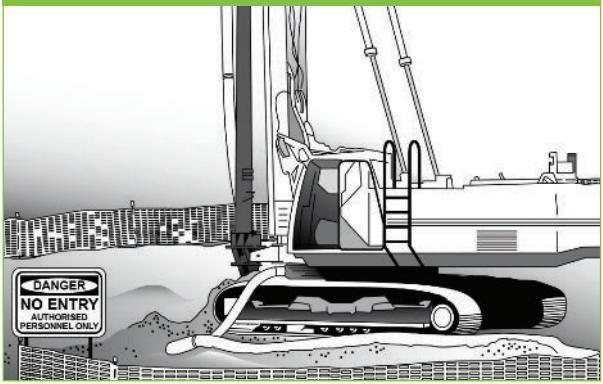
Onsite safety control

- Slopes are within the operating capacity of the equipment
- Bored pile excavations guarding
- Surface is able to support the weight of the operating PF equipment and any delivery trucks
- Area is clear from obstructions and excavations
- Excess water should be prevented from filling up the hole
- Equipment operated without encroaching the no-go zone' areas near overhead powerlines
- Underground services or buried structures are identified
- Operational safety zone can be established
- Spoil should be neatly positioned as far away from the edge of the pile excavation as practicable
- Public protection needs to be implemented

Pile hole guard with footplate



Rig enclosed in operational safety zone



Concrete Pumping

The WorkSafe Victoria Industry Standard – Concrete Pumping 2004 provides comprehensive advice on the safe use of concrete pumps.

Hazards associated with concrete pumping include the following:

- Traffic/public safety hazard
- Concrete placing boom structural failure - boom falling to ground
- Electrical – power line hazard
- Reversing concrete delivery truck pedestrian hazard
- Delivery hose hazard equipment/placing boom operation hazard
- Equipment under pressure hazard
- Entanglement/entrapment hazard - being crushed in the hopper

In the planning for concrete pumping activities the following issues should be considered:

- Site limitations and local street access
- Concrete pumping unit positioning
- Concrete truck delivery access and delivery sequence
- Barricading and No-Go Zones for concrete delivery operation
- Overhead power lines and other obstructions

Before the commencement of the concrete pumping operations, the concrete contractor, in cooperation with the concrete pumping contractor, should provide the principal contractor with the following OHS documentation:

- Safe Work Method Statements for the general operation of the concrete pump and the overall activity of the concrete pour
- Site specific (SWMSs) for the actual work to be performed on site:
  - The set up of the concrete pumping unit
  - The concrete pumping operation
  - Clean up procedures
  - Preparation for road travel on completion of work
- Plant safety hazard identification/risk assessments for the concrete pumping unit
- Current equipment maintenance log books

- Manufacturer's manual and operator's instructions
- An annual inspection report signed by a qualified engineer verifying that the concrete pumping unit is in sound mechanical condition and the placing boom does not exhibit critical areas of wear and stress
- A copy of the WorkSafe registration of the concrete placing boom and most industrial pressure vessels, including those used in spraying concrete
- Certificates of competency or equivalent High Risk Work Licences for operation of Truck Mounted Concrete Placing Boom
- If required a SWMS for the operation near overhead power lines of a concrete placing boom
- If required the nomination and qualifications of the designated spotter for power line NO GO ZONES

The concrete pump operator and the principal contractor must ensure that no persons are directly under the slewing radius of the concrete placing boom operation. A spotter and or barricades will be provided for that purpose.

Bunting and barricades and suitable signage should be installed around the perimeter of the work zone to exclude persons (other than the concrete contractor's employees and the concrete pump operator) from the area in which the concrete pour activity is taking place.

The concrete pumping contractor should ensure the following controls are in place before commencing pumping operations:

- The earth safety chain has been deployed
- The concrete pump unit's outriggers have been securely and properly positioned
- An inspection of the pipelines fittings and couplings has taken place
- The emergency shut down systems are in order
- Contingency planning for any break down of pump and need for replacement

- The receiving hopper is suitably protected by a safety grille
- Correct clean up procedures are in place

All persons involved in the concrete pumping operation and the concrete pour will be required to participate in an induction into their respective SWMS conducted by the contractor supervisor (s) concerned.

Formwork

The main hazards when working with formwork are the following:

- Falling from unprotected edges, from bearers, through holes in the formwork deck, and over the perimeter edge of the deck itself
- Collapse of the formwork during the concrete pour
- Falling formwork components during stripping of the formwork

Formwork failures can be caused by:

- Formwork not being designed by a competent person
- Formwork not constructed in accordance with the formwork design or specifications
- On-site changes to formwork due to site conditions not addressed in the design
- Damaged or sub-standard formwork components being used
- Removal of formwork before concrete achieves adequate strength
- Overloading of the formwork during concrete pouring operations.

A SWMS should be developed before any formwork installation. It should include:

- Reference to the proper design and approval of the formwork by the formwork engineer
- The installation of bunting or parawebbing and suitable signage around the perimeter of the formwork erection zone to exclude persons - other than the concrete/formwork contractor employees - from entering the area in which the formwork assembly is taking place
- 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 heads 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 Protection Systems where other forms of fall protection are not practicable

Formwork should not be erected unless it has been properly designed by a formwork design engineer. No person is permitted to be under the formwork during a concrete pour.

- Inspection by the formwork engineer before allowing concrete pours
- Certified advice must be obtained from the formwork engineer before dismantling the formwork assembly can commence. This advice should include any back-propping arrangements and/or re-shoring
- Drop stripping of the formwork will not be permitted

Preventing Injuries from Lifting Reinforcing Mesh

When workers lift reinforcing mesh to position 'bar chairs', they are at risk of injuring their back and arms from the repetitive and high force usually required to lift the mesh.

Workers may also have their fingers trapped under the mesh or potentially squashed by other workers walking on the mesh.

Workers should use a mesh lifter, which reduces the force required to lift the mesh and frees their hands for other work

Precast Concrete Panel Erection

Reference: WorkSafe Victoria Industry Standard – Pre-cast and Tilt-up Concrete for Buildings (2001)

Unsafe work practices or inadequate planning in the erection of precast concrete panels has caused a number of fatalities and major incidents in the building and construction industry.

A comprehensive safety checklist should be developed and completed prior to the commencement of precast concrete panel erection work. This checklist should be addressed well before the actual day the work is scheduled.

The safety checklist should address the following issues:

1) Site precast documentation

- Building permit
- Manufacturer's certificate of compliance (birthing certificate)
- Panel shop drawings
- Erection design and certificate of compliance
- Verification from Builder that the concrete slab for brace footings and panels is at least 20MPa
- Precast and tilt-up concrete for buildings
- Verification from an engineer that any proposed crane standing area (i.e. floor slab, suspended slab, or surrounding area) can safely carry the construction and erection loads

2) Site preparation/planning

- If applicable - power line hazard identified and appropriate controls put in place (including power supply company permit if required)
- Site access suitable for crane arrival and entry/exit of precast panel delivery trucks
- Traffic management controls determined and personnel allocated
- Consider public and workforce safety in crane lifting of panels
- Proximity of public facilities and/or site amenities should be considered in relation to erected precast panels under conditions of temporary bracing
- Correct selection of crane in terms of working radius and ability to rotate panels

- Before erection commences the builder should supply the erector with written verification from an engineer that any proposed crane standing area (i.e. floor slab, suspended slab, or surrounding area) can safely carry the construction and erection loads
- Sufficient space is available for mobile crane/outriggers and panel delivery trucks
- If applicable, hazards associated with erecting panels in excavations have been appropriately controlled
- Precast panel delivery based on lifting sequence plan with correct orientation of panels on trucks

3) Braces verification:

- Brace anchor bolts supplied by erector are the same as specified in shop drawings. (High Performance High Load Slip Controlled Anchors Bolts must be specified)
- The bracing capacities (WLL) are as recommended by erection design engineer
- The panel braces have permanent WLL markings on them as above
- The correct number of braces provided for each panel as per shop drawings (minimum of two per panel)
- Brace pins are of type that are secured/locked and can only be removed by using a tool
- Confirm braces are not to be removed under any circumstances, prior to written instruction from the erection engineer or project design engineer

4) Crane/rigging

- Rigging system verification
- Crane maintenance records
- Crane operator's certification or equivalent High Risk Work Licences
- Riggers certification or equivalent High Risk Work Licences
- Rigger equipment service records

5) Content of precast erector's SWMS to include the following

- Correct site details on SWMS
- Confirmation of birthing certificate for concrete precast panels
- Reference Builder's verification that concrete slab for brace footings and panels is at least 20MPa
- Correct selection of crane
- Certification or equivalent High Risk Work Licences of precast erection crew
- Inspection of rigging gear assured
- Barricading of mobile crane
- Control of power line hazard - if applicable
- Overhead path of the craned-in panels to avoid other trades or public
- Erection crew outside of drop zone
- Safe accessing of panels on the semi- trailer by dogman
- Retaining firm control of panel by crane prior to completed installation of braces
- Brace retaining pins are of a secured/locked type
- Traffic management controls
- Pre-planning of erection sequence
- PPE compliance of crew
- Assessment of windy conditions

6) SWMS induction

Prior to the commencement of work the precast panel erection crew should receives a site induction which includes its SWMS. The site Health and Safety Representative should be present at this SWMS induction session.

7) Storage of precast concrete panels on site

Approval and written instruction should be obtained from the engineer before a concrete precast panel is stored horizontally.

8) Avoidance of operating mobile plant near braces and concrete panels

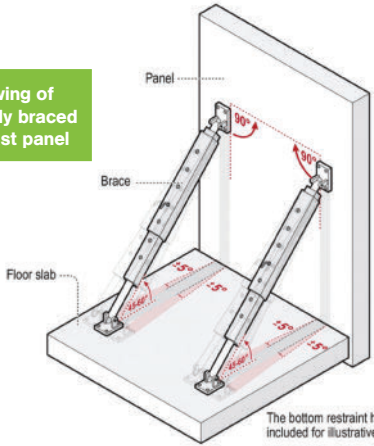
The use of mobile plant such as cranes, backhoes, excavators and elevating work platforms (EWPs) close to concrete element braces can be extremely hazardous due to the risk of the elements and /or braces being struck resulting in a subsequent collapse. Where it is necessary and unavoidable to operate mobile plant in close proximity to braces and concrete panels, dedicated spotters and barricading should be deployed and implemented.

Any excavation work carried out in the vicinity of brace footings should be approved by an engineer to ensure footings are not undermined.

9) Safe removal of braces

When removing braces, the bottom bolts of the braces should be removed first. The weight of the brace must then be supported with a crane or other suitable means prior to the removal of the top bolts. The braces should then be lowered in a controlled manner. Compliance with an engineer or their nominated agent's written instruction is required prior to the brace removal.

Drawing of correctly braced pre-cast panel



Part 5:
Electrical Safety

Residual Current Devices

RCD is a residual current device.

- The power supply to all electrical equipment on building and construction sites must be protected by a residual current device (RCD) with a maximum rated tripping current of 30mA
- All portable RCDs should be tested daily before use by operation of the test button
- All RCDs, while being used on site, must be tested by a licensed electrician for tripping current and time each calendar month
- These requirements also apply to RCDs on portable generators

Portable Generators

Portable generators not requiring an earth electrode should be used wherever reasonably practicable. Where a generator supplies portable tools and equipment, it should be fitted with a decal and displayed in a prominent position which clearly indicates whether the generator requires an earth stake.

Where portable generators are used on site, ensure the following:

- is fully serviceable and has been properly maintained where supplying a fixed installation
- is installed by a licensed electrician
- is inspected by a licensed electrical inspector before use
- a Certificate of Electrical Safety is provided
- is fitted with a 30 mA RCD - where supplying portable tools and equipment,

Socket-outlet(s) fitted to portable generators used on a construction site must be protected by residual current devices (RCDs), including those supplying power to a re-locatable site building via an extension lead.

Generators supplying power to re-locatable site buildings

- The extension lead must be protected by a residual current device (RCD)
- The generator must be capable of providing power to facilitate lighting, heating and boiling water at the same time
- The generator must be positioned so that any exhaust gases do not enter the re-locatable site building

Construction Switchboards

All construction wiring, including switchboards and wiring within transportable structures, must be inspected, tested and certified by a licensed electrician (A class) before connection to the mains supply.

Construction switchboards fitted with residual current device (RCD) protection should be used to supply all power on building and construction sites. Temporary switchboards should have:

- A door and a locking facility for circuit breakers and RCDs – which are tested on a monthly cycle
- A clear sign on the door stating "Keep Closed - leads through bottom"
- An insulated recess in the bottom for connecting extension leads
- Protection from the weather if used outdoors
- Protection against mechanical damage (electrical supply wiring should also be protected)
- A tie bar
- Suitable stands, or are attached to a wall. Post mounted boards must be securely fastened by coach screws or bolts
- A clearance of at least 1m maintained in front of the board

Never use an electrical power source, which is not protected by an RCD

Never reset an RCD, which has tripped. It should be checked and reset by an electrician

Extension Leads

- All electrical extension leads should be of a heavy duty type
- The sheath of electrical extension leads shall not contain the colour green
- Leads should not be longer than specified in the Industry Standard according to their amp rating. For example, at 10 amp electrical leads cannot exceed 35 metres and 20 amp leads cannot exceed 50 metres
- No extension lead should run from one floor to another on multi level sites
- Leads should always be insulated against contact with metal structures
- Leads should be raised on insulated stands or hooks to protect them from damage and to provide clear access for personnel and vehicles
- Multi-plug portable outlet devices must include over current and RCD protection

Make sure that the power tools and electrical leads in use have been properly checked and tagged.

Make sure that electrical leads are not lying in water or in contact with metal components.

- Leads must never run through water or be on the ground in potential contact with trafficable plant and machinery
- All 3 pin flat pin plugs and sockets used on extension leads shall be of the transparent or non-removable type moulded on to the cord
- Double adaptors and 3 pin plug adaptors (piggy-back) must not be used

Inspection and Tagging

- All plant including portable electrical equipment and electrical leads must be inspected and tagged in accordance with AS/NZS 3760 by a licensed electrician or electrician supervised (ES or L) prior to first use and at three calendar monthly intervals.
- New purchased equipment should be inspected and tagged prior to use (as a safeguard against the shoddy manufacturing of electrical products)
- Residual current devices (RCDs) should be tested every month
- All items tested should carry a test tag colour coded to indicate whether it is 'current'. Colour coding as per AS/NZS 3012 is preferable as it avoids any confusion

  Red = December to February

  Green = March to May

  Blue = June to August

  Yellow = September to November

- Tags should have a valid test date (that is within the period) and the electrician's registration number. Colour coding alone is not determination of currency; the tag must be read for the valid test date

Isolation and Danger Tagging

Before working on any electrical equipment, it must be isolated from power and the correct locking out and danger tagging procedure followed.

Demolition and Major Refurbishment Work

For all demolition and major refurbishment work the management of electrical safety should be the subject of a site specificSafe Work Method Statement. The SWMS should address the following issues:

- The isolation of the pre-existing power source from the area under refurbishment and/or demolition
- An inspection of the work zone for the existence of energised wiring prior to the commencement of each stage of work. Any electrical wiring which cannot be isolated should be tagged or marked using appropriate warning tape and should be appropriately mechanically protected against damage
- The establishment of an RCD protected switchboard for power and lighting

Reference can be made to the ETU De-energisation Procedure for Demolition Works located on the Internet at etu.asn.au/pdfs/2005/de-energising_procedure.pdf

Gas and Water Supply Electrical Precautions

It is possible for the gas installation pipes to act as an earth return path for stray currents when faults exist or occur on appliances. A temporary continuity bond must be used whenever a gas pipe, pipe fitting or meter is disconnected, replaced or removed. The temporary bond will carry 70 amps or more with insulated screw clamps to be used. The cable should be fitted with an insulated clip and clamp each end. (Refer to AS/NZS 3500 Plumbing and Gas Set: 2011- Plumbing and Gas Installations Set).

A bonding strap must be attached whenever any of the following work is performed and if there is a possibility of breaking an unsuspected electrical path.

- Cutting or disconnecting gas service pipes and fitting lines (AS5601)
- Disconnecting appliances or changing gas controls
- Cutting or disconnecting water service lines
- Connecting or disconnecting gas or water meters

The procedure for using the temporary continuity bond is as follows:

- The main switch or switches on the premises shall be switched off and a tag reading 'DANGER DO NOT SWITCH ON' attached over the switch
- Fit the continuity bond before disconnecting any pipe or fitting
- Fit the first clip to the upstream side (the service pipe side) of the work
- Ensure that the clips make good electrical contact; if necessary, clean the pipe and remove paint, rust, dirt or pipe wrapping
- Fit the second clip to the downstream side (the appliance side) of the work
- Carry out the disconnection and replacement of the meter or pipe work taking care not to disturb the temporary bond
- When the work has been complete, remove the clip on the downstream side first

Note: Always keep a watch for sparking when fitting the second clip or disconnecting the gas supply. A spark will only occur if there is an electrical fault. If it happens contact an electrical contractor to find the fault before continuing.

Plastic pipework

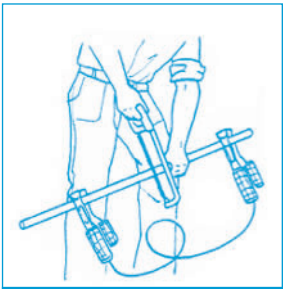
Method of discharging the static electricity related to plastic pipework:

- Wet the ground and dampen the pipe at the work area with a wet cloth
- Then drape the cloth from the pipe to the ground to provide a path to earth. Under these conditions any static electricity should now have been discharged safely (AS5601)

Neon testers

- A neon tester can be used to detect the presence of electrical voltage present. If electrical voltage is detected, an electrician must be notified and the fault corrected before any work is carried out
- A neon tester will not show neutral current, i.e., current using the pipework as a neutral return

Incorporating these requirements in a Safe Work Method Statement will reduce the risk of electrical incidents when working on metallic and plastic plumbing systems.



Applying a bridging device

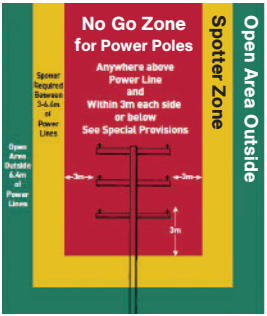
Overhead Powerlines (No Go Zones)

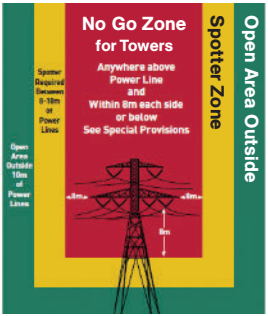
Ensure when operating plant near powerlines that the designated NO GO ZONE Rules declared by Energy Safe Victoria (**9203 9700**) are not breached.

All types of overhead powerlines 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.

NO GO ZONES - SCAFFOLDS		
	Horizontal	**Vertical**
Powerlines on poles	4.6m either side	5m below 5m above

ELEVATING WORK PLATFORMS, CRANES, CONCRETE PLACING BOOMS, EXCAVATING EQUIPMENT			
	NO GO ZONE		**SPOTTER ZONE**
	Horizontal	**Vertical**	
Powerlines on poles	3m either side	3m below Anywhere above	3m - 6.4m either side and 3m below
Powerlines on towers	8m either side	8m below Anywhere above	8m-10m either side and 8m below





Spotter (Safety Observer)

A Spotter is required for each item of plant or equipment operating in the vicinity of overhead electrical on any worksite.A trained dogman/rigger who is a qualified Spotter may act as a Spotter for any type of plant.

For all other plant, the Spotter must have a Certificate of Competency or WorkSafe Victoria license for that item for which he/she is required to be the Spotter.

A Spotter, whose sole duty is a safety observer, must have successfully completed or be qualified in the following areas: -

- Have a current Level 2 First Aid Certificate, which is to include a current Cardio Pulmonary Resuscitation / Expired Air Resuscitation (CPR/EAR) certificate.
- Must have undertaken an accredited approved spotter training course and hold an appropriate Spotter's ticket which is valid for a 3 year period.

Obtaining a Permit and Working Safely

Unless special written permission is obtained from the relevant power supply company, plant must never be operated within the above NO GO ZONE distances. Obtaining special written permission involves the following steps:

- Notify the power supply company when planning the work
- Obtain written permission
- Develop a safe work method statement with associated risk assessment
- Complete pre-start site job meeting

Note: 1) Special permission from the power supply company may involve permit conditions which typically could include the following:

- Bundling and relocating the overhead cables.
- Isolating power to the overhead powerlines for the duration of the work.

Note: 2) Tiger battens on powerlines serve the purpose of a visual warning only. They do not provide insulation to the live conductors. Other control measures which eliminate or substantially control and reduce the risk must be undertaken.

Ensure when working with long materials and equipment that their operation is kept well clear of overhead powerlines. Examples are:

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

For more specific advice on approach distances to overhead powerlines, refer to the Energysafe & WorkSafe Victoria Guidebook Using powered mobile plant near overhead assets (May 2018)

It must be remembered that overhead powerlines are almost always in close proximity to building and construction sites and their presence must be assessed at all stages of work which involve the use of cranes, telehandlers, earthmoving equipment, tip-up trucks, concrete placing booms, EWPs and scaffolding.

Part 6:
Cranes, Hoists and Earthmoving Equipment

Hazard Identification/Risk Assessment

The advice in this section includes requirements from the Plant Part of the OHS Regulations 2017.

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

There must be full compliance with the manufacturers' specifications for the operation and servicing, of all pieces of plant – especially cranes, hoists, concrete pumps, other mobile plant

The Plant Part of the OHS Regulations 2017 applies to major items of equipment including mobile plant used on building construction sites. All other hand operated (mechanical and manual plant) is covered currently by the provisions of the Victorian OHS Act 2004.

The Regulations require employers to carry out hazard identification on all major and mobile plant used on site.

A SWMS - which can incorporate plant hazard identification and risk assessment - should be developed for all tasks involving major and mobile plant, taking into consideration the following:

- 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

The Regulations state that the Risk Control Hierarchy must be applied when determining how plant hazards are to be controlled.

Safety Documentation for Use of All Major and Mobile Plant on Site

The person responsible for managing major and mobile plant on building and construction sites should ensure the following documentation is received from contractors:

- Up to date records and schedules of plant maintenance
- Plant hazard identifications (which may be included in a SWMS document)
- Plant Daily Operators' Checklists
- High Risk Work Licences for plant operators

A visual inspection of plant by a responsible person – in accordance with the Plant Daily Operators' Checklists – should be conducted prior to first use.

This information above, alongside the plant or equipment manufacturer's number and type, should be entered into the Plant Register.

The rules for operating mobile plant near overhead powerlines (see Electrical Safety – Overhead Powerlines) must be strictly obeyed.

High Risk Work Licences and Certificates of Competency for Operating Plant

A High Risk Work Licence is required for the operation of the following major and mobile plant equipment listed below. An up to date register of certificate or High Risk Work Licence holders should be on site.

- Tower crane operation licence CT
- Self-erecting tower crane operation licence CS
- Derrick crane operation licence CD
- Portal boom crane operation licence CP
- Bridge and gantry crane operation licence CB
- Vehicle loading crane operation licence CV
- Non-slewing mobile crane operation licence CN
- Slewing mobile crane operation licence (up to 20 tonnes) C2
- Slewing mobile crane operation licence (up to 60 tonnes) C6
- Slewing mobile crane operation licence (up to 100 tonnes) C1
- Slewing mobile crane operation licence (open/over 100 tonnes) C0
- Telehandler -capacity greater than three tonne and no work platform CN
- Telehandler-work platform, boom length 11 metres or greater, an EWP boom type WP
- Telehandler-slewing type (with a slewing limit greater than five degrees) CN licence
- Reach stacker operation licence 1 RS
- Boom-type elevating work platform operation licence WP
- Materials hoist (cantilever platform) operation licence HM
- Hoist (personnel and materials) operation licence HP
- Concrete-placing boom operation licence PB
- Forklift truck operation licence LF
- Order-picking forklift truck operation licence LO

Related information

A High Risk Work licence is also required for: scaffolding work, rigging work, (including erection of steel and precast concrete panels) and dogging work.

The High Risk Work licences are:

- Basic scaffolding licence SB
- Intermediate scaffolding licence SI
- Advanced scaffolding licence SA
- Dogging licence DG
- Basic rigging licence RB
- Intermediate rigging licence RI
- Advanced rigging licence RA

Items of major plant mobile plant should never be operated unless the intended operator has been fully trained and is competent in its use.

An up to date register of High Risk Work Licence holders should be on site.

A person in training for a High Risk Work Licence must be under the direct supervision of a High Risk Work Licence holder nominated by the employer.

Earth moving equipment should only be operated by persons who are trained and competent in its use and have Certificates of Competency issued by a RTO (Registered Training Organisation) for the types of plant detailed below:

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

Crane Safety

The safe operation of cranes involves the following requirements:

- Proof of registration with WorkSafe for mobile cranes with a safe working load greater than10 tonnes and truck mounted concrete placing booms (where applicable)
- Only persons with a High Risk Work Licence of the right class can operate cranes*
- Only persons with a High Risk Work Licence in dogging or rigging can sling and direct loads
- Dogging cannot be done by the crane operator, even if qualified
- All cranes should be subject to a daily checklist/ logbook completed by the operator
- Development of a Lift Plan
- Ensure that the crane set up area has been inspected for potential hazards and the surface is capable of sustaining the weight of the crane and the outriggers. This inspection should be documented
- Ensure that the counterweight slewing area is clear of obstacles and is barricaded
- Ensure sure that no load passes over workers or members of the public.

Maintenance of Personnel Hoists (Alimaks)

- Hoists must be installed using manufacturers specifications
- Hoists must be checked daily
- Hoist hirers and suppliers must complete maintenance work on hoists for every 40 hours of use, and major inspections after 10 years of service
- Hoist hirers and suppliers must keep a record of hoist inspections and maintenance
- Both hoists of a dual car personnel and material hoist should be removed from service during the activities of servicing, maintenance or jumping
- The maintenance crew should be in control of the operation of both cars until works are complete.

Safe Use of Vehicle Loading Cranes

Vehicle loading cranes (VLCs) are mounted on a truck or trailer and used to shift heavy loads.

VLCs with a capacity of 10-metre tonnes or more are only operated by a person holding a current licence to perform high risk work, either a class CV licence (vehicle loading cranes) or any slewing mobile crane class licence (e.g. C2, C6, C1 or C0)

Load estimation or slinging to move a load with a vehicle loading crane must be performed by a person with a High Risk dogging or rigging licence

If the person slinging or directing the load does not hold a dogging or rigging high risk work licence or equivalent, that person must be directly supervised by an appropriately licensed person under the following conditions:

- when expert opinion is required on the suitability of the lifting gear, including the method of slinging
- or if the load is out of the direct view of the operator.

Employers or operators should ensure:

- Ground surfaces are sufficiently stable and compacted to support the VLC outriggers
- Outriggers can withstand the load and forces applied during different lifting and slewing activities
- Site is assessed for underground services or recently backfilled excavations that may affect the stability of the crane.

Note: An engineer may also be required to assess the supporting surface, particularly if it is a suspended floor such as a multi-level car park.

- Outriggers are fully extended before operation and positioned in accordance with the manufacturer's specifications
- Boom and outriggers are interlocked to prevent boom operation if the outriggers are not fully extended
- Alternative machinery or equipment is used if obstacles or lack of space make it impossible to fully extend outriggers
- Operators are trained and instructed not to operate the VLC outside its safe operating limits.

Note: Only when a VLC is fitted with a slew limiting/slew sector controls system that prevents the VLC swinging a load into a sector outside of its rated capacity, can it be operated without fully extended outriggers (in a set-up known as short blocking)

- The rated capacity of the VLC is known before starting work. Operating a VLC outside its rated capacity can cause the truck to overturn. The rated capacity is determined by the manufacturer and should be verified by a competent person
- The working radius and mass of the load is calculated for all positions. If the rating is not displayed on the rated capacity chart for a particular working zone, lifting should not be attempted in that zone
- Suitable risk controls should be implemented to prevent operators being crushed between the VLC boom and the operator's control panel.
  - relocating the controls
  - using remote controls
  - installing slew limiters (to prevent the VLC boom contacting the operator)
  - installing physical barriers
  - ensuring operator controls are only operated from a position where the boom or load is not lifted over the operator
  - using controls that are self-centering so operation of the VLC stops when the operator releases the control
  - using emergency stop buttons that are easy to access, simple to use and capable of immediately shutting down crane movements. They should be manually reset after being activate
  - using an emergency stop system to ensure the boom cannot drop under its own weight or the weight of a load.
- A warning system should also be installed to alert the operator if the crane has not been fully stowed before driving. This will prevent VLCs damaging overhead wires or property as they exit sites
- Employers or operators should ensure operators complete a site-specific Safe Work Method Statement (SWMS) before they start any job

- Employers or operators should ensure VLC operator manuals are carried in the vehicle at all times
- Daily Operator Checklist log books are completed by the operator as recommended by the manufacturer
- Maintenance records of the VLC servicing and repairs are kept in an approved maintenance record log book in the vehicle
- Servicing is done according to manufacturer specifications and a clearly visible 'next service due' sticker is stuck to the top of the vehicle windscreen.

Special note:

In understanding the limitations for the use of vehicle loading cranes, the following should be noted:

Precision load placement refers to the precise placement of a load by a mobile crane undertaking activities that potentially expose workers to pinch points when guiding loads such as structural steel erection, concrete panel placement, or any accurate load positioning or work.

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 Use of Soft Slings

A 2012 Work Safe Victoria Safety Alert highlights the dangers associated with using synthetic fibre slings, often known as soft slings, in construction. The Alert addresses an incident in which a 950kg steel beam fell five metres when a round soft sling failed. The beam was being lifted for placement by a mobile crane and struck the boom of an occupied elevating work platform, and landed on the crane's outrigger.

Common causes of soft sling failure

- sharp edges on loads cutting slings
- slings being cut when contacting obstructions while under load
- mechanical damage from exposure to chemicals or UV light
- dirt or grit in the fibres, or poor storage or handling practices
- working load limit (WLL) being exceeded

Selection of slings

Soft slings should not be the default choice for lifting loads as they are more susceptible to damage than other sling types.

Sling selection should be based on risk management principles with the safest sling type used for each specific lift. There are a range of safer and suitable/alternative options when the use of "soft-slings" are being considered. All reasonable and practicable alternatives/ options need to be fully sourced and explored, prior to any final decision being made about the most appropriate and safest methods of lifting/transporting/placement of any loads/materials.

Soft slings should only be selected under the following conditions:

- ➜ After a comprehensive risk assessment has been completed in full consultation with all the relevant players (including site manager/s, health and safety representatives, high risk licence holder/s), and
- ➜ Protection of surface finish or paintwork of loads should not be factors in sling selection
- ➜ Where soft slings are deemed to be the most appropriate and safest method to do the lift, soft sling selection must be made by a person with a high risk work licence for dogging or rigging
- ➜ A range of sling sizes and types should be available to ensure the safest sling is selected.

Control measures for the use of soft slings

- Where the edges of a load are not rounded, the sling must be protected from the sharp edges with suitable packing material. If any corner has a radius of less than three times the compressed thickness of the soft sling, packing will be required. The packing should be secured to prevent release when tension is taken off the sling.
- Lifting operations on construction sites are high risk construction work and require a SWMS to be prepared and followed for the work. When soft slings are used to perform this work, the risk of sling failure should be considered and the measures to control the associated risks detailed in the SWMS.

Sling inspection

Regular inspections should identify damaged or defective slings and ensure they are removed from service before failure occurs:

- Soft slings must be checked by the person using the sling before each use.
- They must also be inspected by a competent person at least every three months.
- Where soft slings are exposed to harsh operating or storage conditions, more frequent inspection by a competent person is required
- A competent person is trained to inspect the slings to the requirements of the relevant Standard, including specific rejection and acceptance criteria (e.g. an inspection service of a specialist chain and sling supplier.)

Safe Operation of Earthmoving Equipment

The safe operation of earthmoving equipment involves the following requirements:

- Areas where earth moving equipment is operating should be cordoned off by safety bunting off to prevent unauthorised entry
- Earthmoving equipment should be fitted with: a) overhead protective devices to stop objects falling onto the operator; and b) roll over protection
- Earthmoving equipment should be fitted with reversing lights and beepers, etc
- Employees who operate plant must be provided with necessary training and supervision to enable them to perform their work in a way that is safe and without risks to health. Operators may have a certificate/card issued by an RTO, verifying competency in the particular type of earthmoving equipment to be operated
- Ensure that pre-operation daily checks and maintenance checks have been done prior to using earthmoving equipment
- Passengers must not be carried unless there is a passenger seat fitted
- Seatbelts must be fitted. The fastening of seat belts by operators should be enforced
- When machines are left unattended the plant should be shut down and the ignition keys removed
- Buckets (blades) and booms should be grounded before the operators vacate their machines
- Operators should know their machines' rollover limits and stay well within them
- Safe distances should be maintained from the edge of embankments. These edges should be clearly marked, provided with earth buffers or protected by spotters
- When descending grades, operators should use the same gear as they would if ascending the same grades
- Speed limit restrictions must always be observed
- The rule that loaded earthmoving equipment has right of way always applies
- Ensure that all spotters and others working nearby wear safety helmets and high visibility vests

Safe Operation of Forklifts

The safe operation of forklifts involves the following requirements:

- Operators must hold or High Risk Work Licence (class LF)
- Forklifts must operate within their Safe Working Load (SWL) limits
- The operation of forklifts must be separated from pedestrians either by safety barricades/cordoning or by traffic management Stop/Go bat
- Forklifts should be fitted with: a) overhead protective devices to stop objects falling on the operator; b) and roll over protection
- Forklifts should be fitted with reversing lights and beepers, etc
- Ensure that pre-operation daily checks and maintenance checks have been done prior to using forklifts
- The employer should assess the need for refresher training especially in regard to new models and types of forklifts which may be unfamiliar to the operator
- Passengers must never be carried on forklift trucks
- It is recommended that seatbelts should be fitted. The fastening of seat belts by operators should be enforced
- Persons must never be elevated or lifted unless approved lifting boxes are used
- Hard braking on a laden forklift can cause a forklift to lose stability
- Limit the speed at which a forklift may be driven
- Forklift loads should be lowered before travelling off and turning off the motor
- When travelling, fork lift tines should be lowered as close to the ground as is practicable because driving with raised loads can make the forklift unstable
- Forklifts should never be used over terrain for which they have not been designed. Note that uneven flooring and inclines can seriously impact on a forklift's stability
- When forklifts are left unattended the tines should be lowered, the gas bottles turned off, and the ignition keys removed

Part 7:
Traffic Management

The safe management of traffic in the building and construction industry has two distinct parts - both of equal importance:

1) Managing mobile plant hazards in relation to the public

This involves:

- The safe management of vehicles, mobile plant and equipment entering/exiting sites.
- The safe operation or positioning of plant on footpaths or roads on the external boundaries of sites.

2) Managing mobile plant operating within construction sites

This involves:

- Ensuring that there is a safe separation between pedestrian workers and mobile plant operating on sites.

Managing Truck/Plant Hazards in Relation to The Public

(Refer to the Road Management ACT 2004 and Worksite Safety Management Code of Practice for guidance)

WorkSafe requires Traffic Management Plans to be developed in the following scenarios where construction activities are likely to adversely affect public pedestrians and external traffic:

- Where entry into, or exit from, sites by construction vehicles will dangerously impede and compromise the flow of traffic on highways, arterial roads and busy streets
- Where it is necessary for heavy vehicles and major items of plant to reverse into construction sites from any public street or road. This also applies to the reversing out of sites onto any public street or road
- Where access for heavy delivery trucks and major items of plant is via a public car park. For example at a shopping centre complex
- In situations such as hospitals, schools or universities, where construction heavy vehicles and major items of plant share the internal access roads of these populated facilities
- Where the closure of footpaths and lanes of traffic adjacent to sites is required for construction purposes .i.e. the positioning of cranes, concrete placing booms, or the operation of mobile plant

The preparation of Traffic Management Plans should address the following:

- The development of a detailed risk assessment
- An assessment as to whether the site in question has sufficient resources to manage the traffic problem itself, or requires outside professional assistance
- Where dual carriageways are involved in built up areas, correct assessment and allocation of personnel resources to manage multiple interfaces with pedestrians and traffic
- Ensuring that personnel allocated to traffic management tasks have been formally trained at accredited courses
- Obtaining of all necessary council permits for footpath or partial road closures
- Provision of traffic controllers with Stop Go signage
- Need to install advance warning signage to alert of truck entry/exit movements
- Need to provide temporary barriers to re-route pedestrians, or to protect major plant and construction personnel from traffic incursion
- Physical barriers that are able to absorb errant vehicle impact, as the first choice/preference when work and or workers are required to be conducted on roads
- Physical barriers are deployed when outriggers of any plant (e.g. cranes, concrete pumps, EWP's) are on the road or at risk of being hit by an errant vehicle
- Where traffic management controls are in place, requirement for all construction personnel to wear high visibility clothing

Managing Truck/Mobile Plant Operating Within Construction Sites

Commercial construction sites

The following control measures should be considered:

- Minimisation of vehicles needing to access the site
- Clear access routes through site. One way traffic where practicable
- Provision of dedicated delivery areas and material storage areas
- Provision of crane loading bays (where applicable)
- For earth works activity, the provision of flagging or barricading to separate machinery from pedestrians
- The provision of spotters/Stop/Go traffic controllers where there are hazardous interfaces between trucks/plant and pedestrians
- Where practicable, barricading, or flagging to separate EWPs from pedestrians, particularly in thoroughfares
- High visibility reflective vests to be worn by those required to work near mobile plant
- Reversing lights/beepers on mobile plant, vehicles and trucks

Housing development

- Delivery vehicles not fitted with reversing alarms to be escorted whilst moving around the site
- Skid steer loaders to be fitted with isolation switches when unattended
- Site housekeeping maintained to allow orderly access/areas to subcontractor vehicles

Part 8:
Welding and Hotwork

Welding, soldering, cutting 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 be preferably attached to each welding and oxy acetylene kit.

A Safe Work Method Statement should be developed for all welding and hot work tasks. It 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
- The operator to wear non-flammable clothing
- The selection and wearing of the correct Personal Protective Equipment (PPE)
- Adequate ventilation of the work area
- Material Safety Data Sheets (SDS) for welding fluxes

Special precautions for working in confined spaces must also be considered. (Additional SWMS and permits are needed for work in confined spaces).

Oxy Acetylene or Lpg for Brazing and Cutting

General Advice for Use

- 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
- Before use, all equipment should be visually checked daily. Any equipment found to be damaged, leaking or suspected 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
- Material Safety Data Sheets for the gases are available to workers

- Optimum protection is provided when at the blowpipe end a flame (flashback) arrestor and a non-return valve for each gas line is fitted, and at the regulator end a flame (flashback) arrestor, a non-return valve and a temperature activated cut-off valve for each line is fitted. (AS 4839-2001)
- The crimping of "O" rings should only be done with the correct crimping tool
- Trolleys should be designed to be stable; to hold only one cylinder of each oxygen and fuel; have a strap or chain to secure the cylinders
- A fire extinguisher should be on hand for all oxy acetylene/LPG applications
- 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 any confined or restricted space
- Gas cylinders in the baskets of boom-type EWPs are only permissible if there is at least a 1 metre clearance between the controls and the cylinders and the sides and floor of the basket are not "enclosed" so as to allow gases to accumulate
- Gas cylinders should not be taken into a confined space
- Cutting and brazing work should not be performed from a ladder
- Flammable clothing, including types of high visibility vests, should not be worn by workers involved in gas cutting or welding

Transporting of Gas Cylinders (vehicle)

- Cylinders should always be transported in an upright position, and secured appropriately to prevent them tipping or falling over
- Where possible cylinders should be transported on open vehicles. Cylinders should not be covered with a tarpaulin
- Cylinder valves must be closed. (Where possible valve protection guards or caps should be fitted)
- All cylinders should be checked for leaks (e.g. with soapy water)
- Regulators, hoses etc should be removed from cylinders before transporting

- Cylinders should not be used while in an enclosed vehicle. Cylinders should be taken to the open air before use
- When lifting cylinders by crane, slings must not be used. An approved cylinder cradle is the appropriate lifting device
- Cylinders should never be rolled along the ground, as this can open or damage the valve

Storage of gas cylinders

- Cylinders should be stored in an upright position and secured in a well-ventilated area, preferably outdoors
- Cylinders should be stored away from direct sunlight
- Cylinders containing different gases should be separated in the storage area
- Full and empty cylinders should never be stored together
- Appropriate Dangerous Goods and 'No Smoking' signage should be displayed in the cylinder storage area
- Do not store cylinders in lunchrooms/amenities areas
- Cylinders must be kept away from ignition or artificial heat sources

Acetylene Safety Notes

Acetylene in its pure state is very unstable and will rapidly decompose. To make it safe to handle and store it is filled into compressed gas cylinders containing a porous filler material saturated with acetone. The acetylene gas is then dissolved into the acetone making it stable and preventing the possible decomposition of the gas.

It takes around seven (7) hours to fill a common "G" sized acetylene cylinder of 7.0 cubic metres (m3) as the acetone will only absorb the acetylene gas at one (1) cubic metre per hour or seventeen (17) litres per minute.

This is why the maximum withdrawal rate from an acetylene cylinder is limited to approximately 1/7 of the cylinder contents per hour. If you exceed this rate you could draw the acetone out of the cylinder. This is one of the major causes of flashbacks with oxygen/acetylene equipment.

For cylinders smaller than a "G" sized cylinder the withdrawal rate is even less. The following table gives the maximum withdrawal rate for the most common sized acetylene cylinders on the Australian market.

Size	Volume m3	Volume litres	Max withdraw litres/min
"G"	8.4 m3	8,400	20.0 l/m
"G"	7.0 m3	7,000	17.0 l/m
"E"	4.1 m3	4,100	10.0 l/m
"E"	3.2 m3	3,200	8.0 l/m
"D"	1.0 m3	1,000	2.4 l/m

Note: For applications exceeding these withdrawal rates cylinders need to be manifolded together.

Care must be taken before using any acetylene equipment to make sure that it does not exceed the flow rates for the acetylene cylinder being used.

Most manufacturers or suppliers of tips and nozzles have published information available on the flow rates and pressures needed for their particular tips and nozzles. The following table is for the "Comet 3" type of equipment, as it is by far the most common type of equipment found on the Australian market.

Type 41 cutting tips

Tip Size	Fuel flow & pressure l/min @ (kPa)	Oxygen flow & pressure l/min @ (kPa)
6	2.0 (100)	11 (200)
8	3.5 (100)	20 (200)
12	4.0 (100)	38 (200)
15	7.0 (100)	75 (350)
20	9.0 (100)	134 (400)
24	12.5 (100)	232 (500)
32	20.0 (100)	420 (600)

Welding tips

Tip Size	Fuel flow & pressure l/min @ (kPa)	Oxygen flow & pressure l/min @ (kPa)
4	1.5 (50)	1.5 (50)
6	1.5 (50)	1.5 (50)
8	2.0 (50)	2.0 (50)
10	3.0 (50)	3.0 (50)
12	4.0 (50)	4.0 (50)
15	6.5 (50)	6.5 (50)
20	12.0 (50)	12.0 (50)
26	22.0 (50)	22.0 (50)
32	38.0 (50)	38.0 (100)

Heating tips

Tip Size	Fuel flow & pressure l/min @ (kPa)	Oxygen flow & pressure l/min @ (kPa)
10 x 12 HT	22 (100)	23 (350)
8 x 12 HT	41–55 (100)	45–58 (150)
8 x 12 SHA1	41–55 (100)	45–58 (150)
12 x 12 SHA2	65 (100)	74 (200)
4 x 24 HT	95 (100)	100 (200)

Note: Make sure that you have flashback arrestors fitted at both torch and regulator end before using any of the equipment listed above, and ensure they have a suitable flow rate for the tip or nozzle you are using.

Guidance on Maintenance of Oxy Acetylene Equipment

Table 1 AS 4839-2001 Maintenance

Equipment	Weekly (if in constant use) or before every use (to be performed by the operator)	As nominated (to be carried out by a technically competent person)	Refurbishment or replacement intervals (Equipment condition determines whether refurbishment or replacement is required.)
1. Regulators (including their integral protective devices)	According to the manufacturer's instructions including-visual examination to determine suitability for service (e.g. gas, pressure rating, damage); condition of threads and sealing surfaces; and oil or grease contamination. Leak test all joints at working pressure.	Six monthly: Functional tests to ensure the correct operation of internal components.	Manufacturer or supplier recommendation, but not exceeding five years. *
2. Flash back arrestors and other external devices (including non-return valves)	Visual examination to determine suitability for service (e.g. gas, pressure rating, damage); condition of threads and sealing surfaces; and oil or grease contamination. Leak test all joints at working pressure.	Yearly as detailed in AS 4603: or following a flashback: Proper functioning of the non return valve and flashback arrestors. For pressure–activated valves, check there is no flow in the normal direction with the valve tripped.	Manufacturer or supplier recommendation, but not exceeding five years. *

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3. Hose assemblies	Visual examination to determine suitability for service (e.g. gas, pressure rating, damage); condition of cover; and sealing surfaces of the end fittings. Leak test all joints at working pressure.	Six monthly: Check for absence of cuts and excessive wear by bending the hose in a tight radius, to ensure reinforcement is not visible.	Determined by the hose assembly condition.
4. Blow pipes, mixers and attachments.	Visual examination for damage of threads and sealing surfaces of the hose connections and the attachment connections. Leak test all joints at working pressure.	Six monthly: Test control valve function. Blank the attachment connection and leak test for internal malfunction.	Manufacturer or supplier recommendation, but not exceeding five years. *

** Regulator elastomers and seals will wear and deteriorate in service and deteriorate out of service. Items stored for one year or over without use should receive inspection as per the annual maintenance inspection.*

Arc Welding

The two most common types of arc welding are:

- The electric arc welding of metal using a flux-coated electrode (manual metal arc welding) MMAW
- The electric arc welding of metal using a gas-shielded wire electrode (gas metal arc welding) GMAW

Welding fumes

Under the Hazardous Substances Part of the OHS Regulations 2017 welding fumes are considered to be a hazardous substance that is produced or generated from a non-hazardous substance.

The composition of welding fumes and vapours vary, depending on the materials being welded. Some substances found in welding fumes and vapours are Lead, Cadmium, Manganese, Zinc, Iron, Chromium and Nickel.

Welding fumes and vapours have long been considered cancer causing agents. More recently medical research has shown that they also damage the nervous system.

Many cases of acute poisoning due to exposure to one or more welding fumes or vapours have been documented.

Evidence also has shown that brain disorders such has Alzheimer and Parkinson's disease are associated with the occupational exposure of welders to these fumes and vapours.

Assessing the Risk

Prior to welding the following factors should be considered:

- The fumes and vapours created by the welding process
- Ventilation
- Whether the workplace is a confined or restricted space
- Monitoring of the atmosphere
- First aid
- Health surveillance

Risk Controls

- A Safe Work Method Statement (SWMS) must be in place to address the risk when working in an area that may have a contaminated or flammable atmosphere - and it must outline the control measures necessary to remove or control the risk.
- Only competent persons should perform arc-welding work.
- A welding helmet, auto-darkening lenses with positive air pressure must be selected.
- All welders must wear the appropriate protective clothing – eye protection, welding jackets, gloves, apron, overalls and clothing protecting exposed skin.
- The type of electrodes that are being used should be checked to ensure that there is compliance to the safety recommendations of the manufacturer or supplier.

- 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.
- Safety data sheets (SDS) for welding fluxes should be obtained and the information in the SDS should be assessed as part of the risk assessment for the proposed welding activity.
- If welding activity in poorly ventilated areas is unavoidable, ensure that appropriate fume extracting systems is used. This includes specially coated, electroplated steel.
- In order to reduce the amount of exposure from welding fumes workers should spend an equal amount of time on non-welding tasks.
- Hazardous welding dust should be cleaned from the work areas on a regular basis. The floors and work areas should be cleaned by wetting the dust and applying detergent after sweeping.
- Where sparks or slag may affect persons working at a lower level, either fire blankets or an appropriate barricade with signs restricting access should be used.
- Suitable firefighting 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.
- Employers are required under the OHS Regulations 2017 to monitor the health of their workers performing arc welding tasks

Electrofusing Polyethylene Pipes and Fittings

There is a risk of a fire causing property damage and injuring to workers involved in this activity because of the application of excessive heat over a short period of time. A draft effect may occur during the process, overheating the polyethylene causing the material to catch alight.

The following controls should apply:

- Adequate training should be provided to ensure the equipment is used as per the manufacturer's recommendations
- The equipment should also be calibrated to ensure the correct current is applied to the polyethylene at all times
- The draft effect can be reduced by placing a blank at the opening of pipe work prior to heating.
- A fire watch should also be carried out for the duration of the material manufacture's cooling time (Half hour for 40mm-100mm and one hour for 150mm plus) before leaving the material unattended
- The requirement for hot work permits, fire extinguishers, clearance zones, restricted and/or confined spaces and spotters, should also be addressed

Part 9:
Confined Spaces

The advice in this section includes requirements from the Confined Spaces Part of the OHS Regulations 2017 and the WorkSafe Victoria Compliance Code Confined Spaces 2018.

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

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

Confined Spaces may also involve entry into an environment where postural movement is severely restricted.

Under the Confined Spaces Part of the OHS Regulations 20I7 your employer is required to identify all hazards associated with work in a Confined Space. This must be done in consultation with workers and their elected Health and Safety Representatives.

All employees required to work in a Confined Space should receive full information, instruction and training in relation to hazards and risks and be inducted into the relevant SWMS for the Confined Space work.

Employers should assess the need for refresher training for their employees routinely engaged in Confined Spaces work.

Under the Confined Spaces Part of the OHS Regulations 2017 the employer must undertake the following in relation to work in a Confined Space:

- Eliminate or reduce hazardous substances or emissions from plant or services connected to the Confined Space
- Isolate or de-energise plant or live services connected to the Confined Space
- Ensure the Confined Space is purged of any contaminant
- Ensure that pure oxygen or gas mixtures with oxygen in a concentration greater than 21% by volume are not used for purging or ventilation of any contaminant in the Confined Space
- Ensure that the atmosphere of the space has a safe oxygen level or if that is not reasonably practicable the employee must be provided with air-supplied respiratory protective equipment
- Ensure that an employee is not exposed to an atmospheric

concentration of a contaminant in the Confined Space above the exposure standard for that contaminant, or if that it is not reasonably practicable the employee must be provided with air-supplied respiratory protective equipment or other appropriate respiratory protective equipment

- If there is a likelihood of fire or explosion in a Confined Space, an employer must ensure that no source of ignition is introduced to the space
- The employer must ensure that workers are not exposed to dangerous levels and concentrations of any flammable gas or vapour. (Refer to the Regulations for specific requirements)
- An employer must ensure that signs are erected in the immediate vicinity of a Confined Space (for the period for which work is performed) which identify the Confined Space and notify employees that they must not enter the confined space unless they have a Confined Space Entry Permit
- An employer must ensure that Confined Space control measures and risks in relation to work in a Confined Space are reviewed and revised:

(a) After any incident occurs involving work in a confined space

(b) The risk control measures do not adequately control the risks

(c) After receiving a request from a Health and Safety Representative

Confined Spaces Entry Permits

In accordance with the Confined Spaces Part of the OHS Regulations, work in a confined space must include the implementation of a Confined Spaces Entry Permit containing the following control measures and requirements:

- Applies to one Confined Space only
- Provide details of the Confined Space
- Measures to control the Confined Spaces risks
- Name(s) of employees permitted to enter the Confined Space
- Period of time that the permit is in operation
- Employer to retain each Confined Space Entry Permit 30 days from the date on which the permit ceases to be in operation
- A calibrated gas detector is used to monitor the flammable gas

or vapour concentration and oxygen levels. Testing needs to be done before an entry permit is issued, immediately prior to entry and continuously, while the employee is in the Confined Space

- Continuous communication from outside the Confined Space between a stand-by person assigned by the employer, and the employee(s) in the Confined Space
- The stand-by person must be fully trained and accredited in all confined spaces procedures including operation of confined spaces hoist and rescue lines
- Procedures in place to know when any employee is in the Confined Space
- Procedures to ensure that all employees have exited a Confined Space on completion of work covered by the Confined Space Entry Permit
- A written record of exit from Confined Space
- Emergency procedures which include:

- Ensure emergency procedures can be initiated from outside the Confined Space
- The rescue of any employee from the Confined Space
- First aid provided to any employee in the Confined Space and after rescue from the Confined Space
- Emergency procedures are rehearsed by the relevant employees
- Quick and effective execution of emergency procedures after an emergency arises in a Confined Space

Risks associated with the carrying out of the emergency procedures are eliminated or reduced so far as is reasonably practicable.

- Confined spaces hoist and rescue lines
  - Provision of air-supplied respiratory protective equipment if employee(s) carries out emergency procedures in a Confined Space which has an atmosphere that does not have a safe oxygen level or has a harmful level of any contaminant
  - Provision of all other necessary personal protective equipment used by employee(s) carrying out emergency procedures in a Confined Space. Employers to ensure compliance
  - Openings for the entry to and exit from a Confined Space are of adequate size to permit rescue operations and are not obstructed by fittings or plant. If that is not reasonably practicable an alternative safe means of entry to and exit from the space for rescue purposes to be provided
  - Plant provided for use in the emergency procedures to be maintained in a safe condition
- Relevant employees to be provided with information, instruction and training in all aspects of the Confined Space work including the permit requirements and emergency procedures

Confined Spaces should not be entered unless personnel have been fully trained, inducted into a SWMS and work in accordance with a Confined Spaces Entry Permit.

Part 10:

Explosive Powered Tools, Nail Guns, Compressed Air and Lasers

Explosive Powered Tools

Explosive powered tools (EPTs) 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 EPTs, their adjustment, dismantling, dangers and safety procedures.

Safe work method statements must be in place prior to use of EPTs.

EPTs should only be loaded immediately before use and all explosive charges should be kept locked when not in use.

Eye and hearing protection should be worn by all persons involved in EPTs tasks, including persons assisting.

EPTs 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 explosive charges may explode unintentionally
- Close to an edge or hole where there is a risk that the substance might crack or break:
  - For steel - within 15 mm of the edge
  - Concrete - within 75 mm of the edge
- On a roof, unless the area below the operators is 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 WARNING EXPLOSIVE POWERED TOOL IN USE sign posted in the operational area

The SWMS for the use of EPTs should state that the used explosive strips or charges are to be collected immediately after use and then secured so that they can be taken off-site for disposal. They should not be left lying around or disposed of in rubbish skips on site where children might look for and find them.

Nail Guns

Preventing injuries from nail guns

When operators carry the nail gun with the trigger depressed, the contact tip can accidentally be bumped and the nail can be discharged from the gun.

This can lead to serious injuries as nails can be discharged into the operator's – or nearby workers' – legs, hands and other body parts. Nails can also ricochet around the work area, possibly striking workers.

To eliminate or reduce the risk of injuries observe the following:

- Replace bump fire nail guns with sequential (only) firing nail guns wherever possible. In sequential mode, the contact tip must first be held against a workpiece and the trigger must be pressed before a nail is discharged. If the trigger is pressed first and the contact tip is bumped or held against the workpiece, the gun will not fire
- Do not use bump fire nail guns (including those that have a switchable trigger mechanism) if workers are required to climb ladders or other elevated areas with a loaded nail gun
- Do not use bump fire nail guns in areas where other workers are in close proximity to the operator
- Do not use bump fire nail guns in restricted spaces
- Regularly inspect and maintain nail guns and associated equipment to ensure they are in good working order and safe to use
- Follow manufacturer specifications and operating instructions for each nail gun. Do not assume all nail guns are the same
- Only use fasteners recommended by the manufacturer
- Ensure workers are trained in the safe use and operation of nail guns
- Ensure inexperienced operators (e.g. apprentices and trainees) are supervised by a competent person when using nail guns.

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'
- The tool and the main valve is switched off before replacing tools
- When turning air on, the air is introduced slowly into the system, ensuring that all controls are in the off position
- Ensure goggles, face shield or safety glasses are always worn when working with compressed air
- When using a nail gun all parts of the body are kept 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 completed, the main isolator is turned 'off' and the air is bled from the system

Compressed air should never be used as follows:

- To cool off or to blow dust off clothes, skin or hair
- Directed at persons
- For practical jokes
- If the air tool has a faulty operating valve or governor
- If the hose is kinked, thus cutting off the air supply

LASER SAFETY

Lasers should not be used unless they have a label indicating the classification of the laser. All lasers shall be used and maintained in accordance with the manufacturer's instructions.

According to the requirements of AS 2397: Safe use of lasers in the building and construction industry - Class 3B and higher lasers should not be used for construction activities except that Class 3B (Restricted) may be used, provided all applicable safety controls are enforced.

For Class 2, 3A and 3B (Restricted) lasers the following requirements are mandatory:

- All operators shall have appropriate training in the use and safe operation of the laser
- Warning signs of the correct type to be displayed at entry points and areas where the laser is used

Signs and training of personal operating Class 1 lasers are not required. However, it is recommended that such persons at least be familiar with the manufacturer's instructions for the proper use and care of the laser.

Part 11: Hazardous Substances and Dangerous Goods

Hazardous Substances

The advice in this section includes requirements from the Hazardous Substances Part of the OHS Regulations 2017 and the WorkSafe Victoria Compliance Code Hazardous Substances 2018.

Hazardous substances can include the following:

- Paints, solvents, glues, sealants
- Particle fibreboard, MDF, insulation material
- Concrete, cements, cement finishes, concrete sealants, and some plasters
- Grease, oils, fuels, asphalt/bitumen
- Welding fumes produced or generated from a non-hazardous substance
- Other hazardous substances such as wood dust, silica and lead produced from grinding, cutting, or sanding

Hazardous substances in soils

The PFAS group of chemicals - perfluorooctane sulfonate (PFOS), perfluoro-octanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS) - are man-made compounds.

They are in hundreds of products. Some examples are carpets (to make them stain-proof) and non-stick cookware. The chemicals also have industrial uses, including in substances like firefighting foams.

These chemicals may cause:

- Low infant birth weights
- Effects on the immune system
- Cancer (for PFOA)
- Thyroid hormone disruption (for PFOS)

The risk for workers is in contaminated soil on building and construction sites.

Workers who may potentially be exposed to PFAS must follow safe work procedures and recommendations given in the Safety Data Sheets (SDS).

Personal Protective Equipment (PPE) is a low level of control and should not be applied as a primary control without consideration of other risk control options.

Safety data sheets

The employer must find out if a substance is classed as hazardous by obtaining a Safety Data Sheet (SDS) for the substance from the manufacturer or importer.

- The manufacturer's SDS must be obtained
- Do not alter the SDS in any way
- If the SDS is older than 5 years obtain the latest SDS from the manufacturer
- SDS should be readily accessible to employees
- An SDS register should be accessible to First Aiders

If the SDS fails to provide sufficient technical information (e.g. does not identify the specific chemical entities) seek clarification from the manufacturer or expert advice from a qualified hygienist. This may include a reputable chemical data base.

Remember a SDS does not tell you whether a product is safe for use. Chemical products which have been classified as hazardous must be properly assessed as to their suitability for application on site.

Risk control

The Hazardous Substances Part of the OHS Regulations obliges employers/contractors to control the risks associated with hazardous substances at the employer's workplace by applying the Risk Control Hierarchy approach based on the criteria of reasonable practicability. **The controls below are in priority order for selection:**

1. Eliminate the hazard
2. Substitute the substance with a substance that is less hazardous or a less hazardous form of the substance
3. Isolate employees from the source of exposure to the hazardous substance4. Use engineering controls
5. Use administrative controls
6. Provide appropriate personal protective equipment to employees

In assessing whether elimination or substitution should apply, employers must consider the following:

- Some substances are prohibited and cannot be used (e.g. benzene, asbestos)
- There are also special requirements for some scheduled and/or carcinogenic substances (e.g. health surveillance, licence to use)
- Some chemical products may be deemed as unacceptable because under normal conditions of use these products release highly toxic vapours, fumes or dust which exceed the Exposure Standard nominated in the SDS

In order to document the required control measures, it is good practice for employers, in consultation with workers and their elected Health and Safety Representatives, to develop safe work method statements for hazardous chemical products which have been assessed as suitable for use.

Review of risk control measures

Employer must ensure that measures implemented to control hazardous substances risks are reviewed and, if necessary, revised in the following circumstances:

a) Before any change is made to systems of work that is likely to result in changes to hazardous substances risks

b) If an employer receives advice from a registered medical practitioner that adverse health effects have been identified by the health surveillance

c) After any incident occurs that involves a hazardous substance in the workplace

d) For any other reason, the risk control measures do not adequately control the risks

e) After receiving a request from a Health and Safety Representative

Atmospheric monitoring and exposure standard

Employers must ensure that atmospheric monitoring is carried out if there is uncertainty (based on reasonable grounds) as to whether the Exposure Standard is, or may be, exceeded; or atmospheric monitoring is necessary to determine whether there is a risk to health.

Employers must ensure that an employee is not exposed to an atmospheric concentration of a

hazardous substance supplied to, or generated at the workplace above the exposure standard for the substance or any of its ingredients.

Register of hazardous substances

A Register of Hazardous Substances must be kept at the workplace in accordance with following requirements:

- A list of the product names of the hazardous substances supplied to workplace
- A copy of the SDS for each of the hazardous substances supplied to the workplace
- The register is readily accessible to any employee who may be exposed to a hazardous substance

It is good OHS practice to document all chemical products used in the workplace in the following tabulated form:

- Date of entry
- Name of subcontractor
- Name of product
- Type of application or use
- Quantity involved
- Locations of chemical product on site
- Availability of SDS (Yes/No)
- Hazardous substance (Yes/No)
- Dangerous good (Yes/No)
- Safe work method statement necessary for use (Yes/No)

Before any chemical product is used employees have the right to ask their employer for all relevant information.

Before any chemical product is used employees have the right to ask their employer for all relevant information.

Dangerous Goods

Dangerous goods are classified on the basis of immediate physical or chemical effects, such as fire, explosion, corrosion and poisoning affecting people, the environment or property. Dangerous goods used at the site may include:

- Explosives
- Flammable liquids, such as unleaded petrol, kerosene, turpentine and flammable paints
- Corrosives, such as hydrochloric acid
- Oxy acetylene welding sets
- LPG

Ensure there is a Safety Data Sheet for each Dangerous Good. An SDS should provide the following relevant information.

- The Dangerous Good class if applicable
- The required correct Personal Protective Equipment when either handling or using the goods
- First Aid provisions
- Safe storage requirements
- Emergency procedures in case of spills or fire

Examples of control measures for dangerous goods commonly used on sites are as follows:

1. Flammable and combustible liquids

- Flammable liquids must be stored away from any ignition sources or sources of heat
- Containers should be kept closed when not in use and secured when the site is unattended
- All combustible materials should be removed from areas where flammable liquids are stored, used or decanted

- Flammable liquids must be transferred in a safe manner with a dry chemical fire extinguisher available as the extinguishing agent
- Ensure no personnel smokes cigarettes near flammable or combustible substances and display NO SMOKING signs where these are stored
- Oily rags which can spontaneously combust in hot weather should not be left in piles

2. Liquid Petroleum Gas (LPG)

- LPG cylinders must be kept in an upright position at all times and restrained from falling
- Cylinder valves should be kept closed when not in use
- Ensure LPG is not stored near ignition sources
- Provide a dry chemical fire extinguisher as the extinguishing agent
- LPG cylinders should never be turned upside down to freeze pipes
- LPG cylinders should be stored in a well-ventilated area away from combustible materials
- Security should be provided for cylinders when the site is unattended

3. Oxy acetylene welding sets

(See Oxy acetylene or LPG for Brazing and Cutting).

4. Explosives

- Explosives must be kept in a locked receptacle
- Discarded detonator boxes must not be left on the site
- Excess explosives must not be left on an unattended site
- An explosives licence must be obtained from WorkSafe to buy and discharge explosives

Filling Portable Generators

Filling portable generators with petrol creates vapours that can be easily ignited by static electricity or other ignition sources. Workers can be seriously injured if petrol ignites.

Where it is not practicable to use mains power or a diesel generator, a petrol generator may be used.

When filling a portable generator observe the following measures:

- Use approved fuel containers and funnels to reduce the risk of generating static electricity while decanting petrol
- Ensure suitable fire extinguishers are immediately accessible
- Ensure portable generators are always placed on firm ground, in well-ventilated areas, away from heat and possible ignition sources
- Do not fill generators inside a vehicle, trailer or plastic surface that prevents the discharge of static electricity
- Ensure the container cap is replaced tightly on the filled generator before moving the generator
- Allow the motor to cool and ensure the generator is in an upright position in a well-ventilated space before transporting

Further information and advice:

Acts & Regulations:

- Dangerous Goods Act 1985
- Dangerous Goods (Storing and Handling) Regulations 2012
- Dangerous Goods Storage and Handling Code of Practice 2013
- Dangerous Goods (Explosives) Regulations 2011

Acts and Regulations are available at legislation.vic.gov.au

(Orange background)

Class 1.1 - Explosives with a mass explosion hazard such as TNT, Gunpowder. Gelignite, etc.

(Orange background)

Class 1.2 - Explosives which are a projectile or fragmentation hazard, but not a significant mass explosion hazard eg. grenades, ammunition, etc.

(Orange background)

Class 1.3 - Explosives which are a fire and minor blast hazard, with minor projectile or minor fragmentation hazards.

(Orange background)

Class 1.4 - Explosives which are not a significant mass explosion hazard eg. flares, fireworks, safety cartridges, etc.

(Orange background)

Class 1.5 - Explosives with a mass explosion hazard, but are insensitive substances.

(Orange background)

Class 1.6 - Substances which are a minor explosion hazard, very insensitive substances.

(Red background)

Class 2.1 - Gases that can ignite in air on contact with a source of ignition.

(Green background)

Class 2.2 - Gases that are non flammable but may cause asphyxiation and/or represent stored energy hazard.

(White background)

Class 2.3 - Gases likely to cause death or serious injury to human health if exposed or by skin contact.

(Red background)

Class 3 -Liquids, the vapours of which can ignite in air on contact with a source of ignition.

Dangerous Goods Class Symbols

(Red & white stripe background)

Class 4.1 - Solids easily ignited eg. by sparks or flames, or liable to cause fire through friction.

Class 4.2 - Substances liable to spontaneously heat up and ignite.

(Red background to lower half)

(Blue background)

Class 4.3 - Substance which emits flammable or toxic gases when wet.

Class 5.1 - Substances likely to increase the risk and intensity of fire in other materials.

(Yellow background)

(Yellow background)

Class 5.2 - Substances that are thermally unstable and likely to react dangerously with other substances.

Class 6.1 - Toxic substances likely to cause death or severe injury to human or animal health if swallowed, inhaled or by skin contact.

(White background)

(White background)

Class 6.2 - Infectious substances liable to cause death or severe injury to human or animal health if swallowed, inhaled or by skin contact.

Class 7 - Substances (solid or liquid) which spontaneously emit ionising radiation. Category I, determined by radiation level of transport package. (Lowest level)

(White background)

(Yellow background to upper half)

Class 7 - Substances (solid or liquid) which spontaneously emit ionising radiation. Category II determined by radiation level of transport package.

Class 7 - Substances (solid or liquid) which spontaneously emit ionising radiation. Category III determined by radiation level of transport package.

(Yellow background to upper half)

(Black and white)

Class 8 - Solids or liquids able to cause, to varying severity, damage to living tissue. Maybe either acidic or caustic in nature.

Class 9 - Substances and articles which during transport present a danger not covered by other classes.

(White background)

Dangerous Goods Class Symbols

Part 12:
Control of Hazardous Dusts and Fibres

Silica Dust

Silica dust is created when concrete is cut, sawn or scabbled.

Under the Hazardous Substances Part of the OHS Regulations 2017, silica dust is considered to be a hazardous substance that is produced or generated from a non-hazardous substance.

Safe Work Australia recommends 0.02 mg/m3 as the workplace exposure standard for Silica and Crystalline.

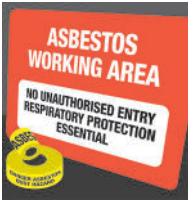
Respirable dusts containing crystalline silica can cause lung cancer, fibrosis, and silicosis. Such dusts may be generated from bricks, mortar, aggregate, sandstone and concrete, particularly when dry cutting, chasing, sawing, grinding or scabbling.

Alternative methods that avoid creating silica dust should always be considered and implemented as far as practicable.

A SWMS must be developed for all tasks where silica dust may be created. The SWMS should include the following controls:

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

Asbestos



The advice in this section includes requirements from the Asbestos Part of the OHS Regulations 2017 and the WorkSafe Victoria Compliance Codes:

- Managing asbestos in workplaces 2018
- Removing asbestos in workplaces 2018

The Safe Work Australia Model Code of Practice: How to safely remove asbestos, is another useful source of advice.

The dangers of asbestos in the causation of lung cancer, asbestosis and mesothelioma are widely known and well documented. In relation to mesothelioma, it should be noted that there is no known safe level of exposure.

The prescribed use of Phase Contrast Microscopy (PCM), to provide an exposure level of 0.01 f/ml as a clearance standard, cannot provide an absolute assurance of safety.

However, If the technique of Transmission Electron Microscopy (TEM) is used, levels of asbestos below 0.01 f/ml will be revealed. In the United States, TEM is now the standard for most airborne investigations, including clearance testing as well as environmental monitoring activities.

Before demolition or refurbishment work commences at a workplace, the person who manages or controls the workplace must -

(a) Review the Asbestos Register

(b) Revise the Asbestos Register if it is inadequate in identifying all the possible sources of asbestos - taking into account the proposed demolition or refurbishment work

This formal review is normally commissioned when plans are developed for demolition and refurbishment activities. The examination of the building or structure is undertaken by an approved Hygienist who produces a detailed report listing all the identified and possible sources of asbestos. The report will note that it has been undertaken in accordance with Division 6 Asbestos Part of the OHS Regulations 2017.

A person who manages or controls a workplace or plant at a workplace must identify asbestos that is likely to be disturbed by the proposed refurbishment work and ensure, so far as is reasonably practicable, that the asbestos is removed (Division 6 Asbestos Part of the OHS Regulations 2017).

In general, the Asbestos Part of the OHS Regulations requires asbestos removal work to be performed by licensed asbestos removalists.

Class A licensed asbestos removalists can remove all types of asbestos (whether friable or non-friable). A Class A Licence is now required to remove vinyl floor covering with a friable backing.

Class B licensed removalists can only remove non-friable asbestos-containing material.

If asbestos is found or suspected in the workplace it should not be disturbed in any way.

Procedure if previously unidentified asbestos-containing material is discovered

- Report the matter to your supervisor and Health and Safety Representative
- Work should cease in the immediate area where the suspected hazardous building material has been located
- Site management should contact an accredited Hygienist
- The Hygienist should provide advice and if required attend site to assess the material and collect a sample for subsequent analysis

- Where the suspect material has been confirmed to be hazardous the Hygienist should provide advice as to the extent of remedial action required, incorporating the following factors:
  - The extent of removal/clean up required
  - Precautionary measures to apply during the removal/clean up works
  - Any requirements of air monitoring during and/or at the completion of the removal/clean up works
- The necessary removal/clean up works should be performed by an appropriate licensed asbestos removal contractor
- Refurbishment work should only commence in the affected area once confirmation is obtained from the Hygienist that the area is safe for re-occupation by unprotected personnel

Control Plan

Prior to commencing asbestos removal work, the licensed asbestos removalist is required to prepare a Control Plan which identifies the specific control measures which the removalist will use to ensure employees and other people are not at risk when removal work is being conducted. It is similar to a Safe Work Method Statement (SWMS) but it focuses on the specific control measures necessary to reduce the risk from exposure to asbestos throughout that particular removal job.

Para-occupational air monitoring (immediately outside area where asbestos removal is taking place)

Para-occupational air monitoring must take place for friable asbestos and for non-friable asbestos that becomes friable in the removal process.

Para occupational monitoring for non-friable asbestos should be considered where there is a risk that people may be exposed to asbestos dust.

Clearance Certificates

A Clearance Certificate must be obtained prior to any person reoccupying a site where: any quantity of friable asbestos has been removed, and non-friable asbestos greater than 10 square metres has been removed.

The Clearance Certificate must state: a) an inspection by an independent person found no visible asbestos residue in the area from which the removal took place; and b) para-occupational air monitoring results in the area from which the removal took place indicate that the airborne asbestos fibre level is less than 0.01 fibres/ml of air as a time weighted average.

Synthetic Mineral Fibres (SMF)

SMF are fibres made from glass, rock or other materials. Common SMF products are Rockwool, Glasswool, Fibreglass, and 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 ceramic fibres are possibly carcinogenic.

Although under the Construction Part of the OHS Regulations 2017 a safe work method statement is not required for SMFs, it is good practice to develop a SWMS for the installation and removal of SMFs.

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

All those required to work with SMF should receive full information, instruction and training in relation

to hazards and risks.

Safe work practices should aim to eliminate the possibility of generating fibres and dust in the first place. However, where this is not practicable the following controls should apply:

- Respiratory protection (class P1 and P2)
- Cordoning off and designation of installation/removal areas with a 3 metre exclusion zone
- Use of hand tools in preference to power tools or tools fitted with dust extraction
- Eye protection, gloves and protective coveralls
- Removal of contamination using an appropriate vacuum cleaner
- Wetting loose SMF insulation materials prior to removal (where there is no electrical risk)
- Proper disposal measures (plastic sealed bagged material)
- The installation of SMFs in roof spaces of existing buildings, requires the isolation of electrical power for the duration of the task

Where practicable all products to be delivered on site in a form (encapsulated, wrapped or painted with a PVA sealant) that minimises release of fibres and/or dust when cutting and handling

Prior to work with new SMF material ensure that the Safety Data Sheet (SDS) for the product is obtained and read.

Medium Density Fibreboard (MDF) and Wood Products

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

Under the Hazardous Substances Part of the OHS Regulations 2017 wood dust is considered to be a hazardous substance that is produced or generated from a non-hazardous substance.

All those required to work with these products should receive full information, instruction and training in relation to hazards and risks and be inducted into the relevant SWMS for the work.
The SWMS should include the following controls:

- Prescribes the use of low formaldehyde (LFE) emission MDF
- 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
- Emptying of vacuum cleaner/dust extraction system bags in a manner that does not release any dust to the atmosphere
- Decontamination of work clothing and personal hygiene

Ensure that the SDS for the product is obtained and read prior to work with any of these products.
Ensure MDF and other particle boards are stored in a well-ventilated area.

Part 13:
Noise

The advice in this section includes requirements from the Noise Part of the OHS Regulations 2017 and the WorkSafe Victoria Compliance code March 2018

High noise levels are almost always present in construction sites but hearing damage may not be felt immediately. Loss of hearing ability is irreversible and may take years to develop.

Exposure standard

In accordance with the Noise Part of the OHS Regulations 2007 employers must identify if there is a risk to employees from noise levels in the workplace. This means that employers must determine whether the daily exposure standard for noise of 85 dB (A) and peak hold sound pressure level reading of 140 dB(C) – is likely to be exceeded.

Control measures

Employers must ensure that no employee at the workplace is exposed to noise that exceeds the exposure standard by implementing the following control measures based on the risk control hierarchy:

- Eliminate the source of the noise
- Substitute quieter plant or processes
- Use engineering controls (sound proof the plant in an enclosure)
- Use administrative controls (drastically reduce the time the person is exposed to the noise)
- Provide hearing protective devices as a last resort

If the employer has determined that noise levels will exceed the exposure standard, and it is not reasonably practicable to control the risk, within six months the employer must prepare a written record that describes the actions necessary to implement the control measure and when these actions will be carried out.

Noise areas and machinery and tasks where hearing protection must be worn, are required to be identified by signs, labels or other appropriate means.

Hearing tests

Those required to wear hearing protection must have:

- Hearing tests (Audiometric Testing) (within 3 months of start and every two years thereafter)
- Reduction in hearing level of 15db or greater over a two-year period, regardless of how many tests are undertaken over that two year period.
- At any time when reasonably requested to do so by the Health and Safety Representative of the designated work group of which the employee is a member

Employers should provide training about the effects of exposure to noise; control measures; and selection, fit and maintenance of hearing protective devices

Indicative noise levels for machinery and plant

The table shows how quickly you can be exposed to the maximum allowed daily noise dose if not wearing hearing protection

Noise level of tools and time taken to reach daily dose of 85dB (A)
Note: levels for operator position are indicative only

Tools	Average noise level in decibels	Peak noise	Time required to reach daily dose
Pile hammer	125	Not available	3 sec
Pneumatic rock breaker	120	Not available	10 sec
Angle grinder on metal	120	Not available	10 sec
Chainsaw	115	Not available	28.5 sec
Powder -actuated tool in masonry	109	147	Nil based on peak
Powder – actuated tool in timber	102	143	Nil based on peak

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Paslode nail gun	101	138	Nil based on peak
Electric grinder (on aluminium)	100	123	8 minutes
Cut - off saw	100	118	8 minutes
Electric hand planer	98	114	15 minutes
Masonry drill (timber then concrete)	98	111	15 minutes
Bench rip saw	97	116	15 minutes
Circular saw	96	113	15 minutes
Hammering 4 inch nail into timber	95	131	Nil based on peak
Bench grinder	94	113	30 minutes
Jig saw	93	112	30 minutes
Belt sander	93	105	30 minutes
Router	92	108	1 hour
Electric chain saw	91	112	1 hour
Electric drill in timber	89	100	2 hours
Electric sander (1/3 sheet)	81	103	8 hours

Note: levels for operator position are indicative only

The prevention of hearing loss involves measures to control and reduce noise at its source in addition to the wearing of hearing protective devices.

Part 14:
Hazardous Manual Handling

The advice in this section includes requirements from the Hazardous Manual Handling Part 3.1 of the OHS Regulations 2017 and the WorkSafe Victoria Compliance Code Hazardous Manual Handling 2018

Some of the injuries resulting from hazardous 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.

Hazardous movements and postures:

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 plasterboard ceiling
Repetitive or sustained movement	Bricklaying
Application of high force	Lifting heavy loads
Exposure to sustained vibration	Using jackhammer, pneumatic drill

Examples of control measures for hazardous manual handling

Control Measure	Examples
Eliminate the task if possible	Not manually lifting or carrying awkward dead weights such as cement blocks and cement bags
Change the workplace layout or environmental conditions	Placing materials at waist level rather than at floor level so they are easier to pick up
	Eliminating the need to push or pull objects up steep ramp. Providing good lighting and work areas free of obstacles with plenty of room to move with
Change systems of work	Timing and placement the frequency of handling and to avoid double handling.
	Team handling to reduce forces, postures on one person.
Change the object	Changing the load so it is easier to handle (e.g. 20 kg cement bags) Using tools that are light and have good grips and supports
Information training and instruction	Ensuring workers understand risks and know how to use proper manual handling techniques and equipment

Hazardous Manual Handling Part 3.1 of the Regulations

Under the Manual Handling Part 3.1 of the OHS Regulations an employer must, so far as is reasonably practicable, identify any hazardous manual handling undertaken, or to be undertaken, by an employee

Employers must ensure that the risk of a musculoskeletal disorder associated with hazardous manual handling is eliminated so far as is reasonably practicable.

If it is not reasonably practicable to eliminate the risk of a musculoskeletal disorder associated with a hazardous manual handling an employer must reduce that risk so by –

a) Altering:
- the workplace layout or
- the workplace environment or
- the systems of work

b) Changing the objects used in the hazardous manual handling

c) Using mechanical aids

Only as a last resort can there be a sole reliance on information, instruction or training to control the risk.

In determining measures to control risk of musculoskeletal injuries, the following factors must be addressed –

- Postures
- Movements
- Forces
- Duration and frequency of the hazardous manual handling
- Environmental conditions including heat, cold and vibration

An employer must ensure that manual handling risk control measures are reviewed and, if necessary, revised –

a) Before any alteration is made to objects used in a workplace or to systems of work.

b) Before an object is used for another purpose than that for which it was designed -if that increases the risk.

c) If new or additional information about hazardous manual handling becomes available to the employer

d) If an occurrence of a musculoskeletal disorder in a workplace is reported.

e) After any manual handling incident in which person required immediate treatment as an in- patient in a hospital.

f) If, for any other reason, the risk control measures do not adequately control the risk.

g) After receiving a request from a Health and Safety Representative.

Simple rules to avoid musculo-skeletal injuries

- Avoid the need to lift heavy weights – use of mechanical aids or two or more trained people
- Squatting down to the load; not bending the body over to lift
- Keeping the back upright and straight - using the leg muscles to lift
- Not lifting objects that are out of comfortable reach
- Avoid twisting - turn the feet not the hips or shoulders
- Ensuring that carry paths are clear of all obstacles
- Avoid working in a crouched or bent over posture in a restricted space

Part 15:
Personal Protective Equipment

When risks to health or safety cannot be controlled by other means the 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.

Safety Footwear

All personnel on site must wear safety footwear conforming to the relevant standard – AS/NZS 2210: Occupational protective footwear-Guide to selection, use and care

Hearing Protection

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

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 must be worn for electric arc welding. Welding screens should be used to protect the eyes of other persons from welding flashes.

Respiratory Protection

Approved face masks or respirators fitted with the appropriate filter should be worn when exposed to hazardous chemical vapours, fumes, dust or fibres. Employers must provide the correct type of respirator, train employees in fitting the devices and ensure that respirators are properly maintained and replaced as required. The Safety Data Sheets for the hazardous substance(s) involved will provide accurate information on the selection of respirators.

Individual Fall Protection Equipment (IFPE)

IFPE Includes safety harnesses, lanyards, shock absorbers and inertia reels. Correctly connected harnesses must be used in boom-type elevating work platform (EWPs) and crane-lifted workboxes. In all other cases, they should only be used when safe/protected work platforms are not practicable. This equipment should not be used unless workers have been fully trained.

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. (SDSs will provide accurate information on glove selection.) Gloves should be worn when handling objects such as sheet metal, wire cables etc.

Sun (UV) Protection

Australia has the highest rate of skin cancer in the world. Despite being almost preventable, skin cancer continues to affect at least half the Australian population.

In Australia, sunburn can occur in as little as 15 minutes on a fine summer day. All types of sunburn whether serious or mild, can cause permanent and irreversible skin damage and can lay the foundation for skin cancer later in life.

The workplace is a major source of exposure for many adult Australians. It is not surprising that outdoor workers who are required to spend long periods of time working in the sun, year after year, have a higher risk than average of skin cancer.

Health risks of over exposure to UV radiation include:

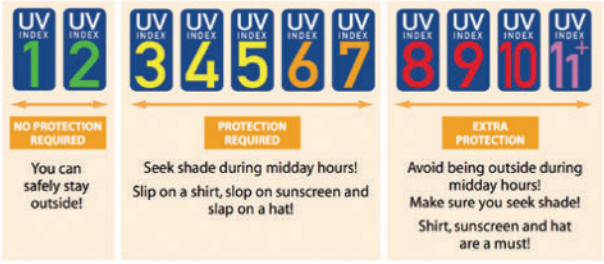
- Sunburn and other skin changes: sunburn ranges from skin reddening to severe and painful blistering of the skin
- Cataract of the eye lens: opacities in the eye lens lead to decreased vision and eventual blindness
- Skin carcinoma: several types of malignant skin tumours of the non-melanoma type are caused by UV radiation

- Malignant melanoma of the skin: this is a very severe cancer that can develop after many years of excessive exposure to the sun

UV radiation exposure to workers should be assessed and minimised by adopting the following safe work procedures, as far as reasonably practicable:

- Re-organising the work to avoid the UV peak of the day (when the UV index is greater than 3)
- Providing natural or artificial shade
- Wearing appropriate protective clothing i.e. long sleeve clothing, hats and sunglasses
- Applying SPF 30 or 50 plus sunscreen to unprotected skin

The UV index is a measure of UV radiation. The higher the UV index, the higher the risk of skin and eye damage. Use the UV index to plan sun-safe work activities.



Clear, specific rules on the use of personal protective equipment must be in place and enforced.
Where signage is displayed in an area for a type of PPE it should be enforced without exception.

Part 16:
Where to get further Help and Assistance

Regulations, Codes of Practice, Compliance Codes, Guidance Notes, Alerts And Australian Standards Relevant to Building and Construction

Please note: To ensure that the references to Australian Standards retain their currency they have been listed without dates. (The titles remain the same). To obtain the current applicable Standard please search on the internet as follows: search google with the title of the Standard and click on the reference which includes infostore.saiglobal.com

Safety Management Systems and OHS Organisation on Site

- AS/NZS 4804 Occupational health and safety management systems - General guidelines on principles, systems and supporting techniques
- AS/NZS ISO 45001 Requirements with guidance for use Occupational health and safety management systems - Requirements with guidance for use
- AS 1885.1 Measurement of occupational health and safety performance – Describing and reporting occupational injuries and diseases (known as the National Standard for Workplace injury and disease recording
- AS ISO 31000 Guidelines - Risk management – Guidelines
- WorkSafe Victoria Controlling OHS Hazards and Risks: A Handbook for Workplaces 2017
- WorkSafe Victoria A Guide to Risk Control Plans 2017
- Safe Work Australia Model Code of Practice Construction Work 2018
- WorkSafe Victoria Guide to Right of Entry by Authorised Representatives 2005
- WorkSafe Victoria Sample Checklist for Site Induction 2017

- WorkSafe Victoria Information About Safe Work Method Statements 2018
- WorkSafe Victoria Employer Representative Competencies 2005
- WorkSafe Victoria Running Effective Health and Safety Committee (HSC) meetings: A Health and Safety Solution 2017
- WorkSafe Victoria Consultation: Safety Basics 2018
- WorkSafe Victoria Consultation: Minimum Requirements for Complying with the Employer Duty 2017
- WorkSafe Victoria Consultation: A Guide for Victorian Workplaces 2017
- WorkSafe Victoria Checklist for Health and Safety Consultation 2012
- WorkSafe Victoria Guide for Workers Consultation, Representation and Resolving Health and Safety Issues 2012
- Safe Work Australia Work Health and Safety Consultation, Cooperation and Coordination Code of Practice 2018
- More Information About Resolving Health and Safety Issues 2012

Health and Safety Representatives

- WorkSafe Victoria More Information About Designated Work Groups 2012
- WorkSafe Victoria Consultation with Health and Safety Representatives 2012
- WorkSafe Victoria The Importance of Health and Safety Representatives 2019
- WorkSafe Victoria Powers of Health and Safety Representatives 2019
- WorkSafe Victoria Health and Safety Representative Training 2019
- WorkSafe Victoria Employee Representation: A Comprehensive Guide to Part 7 of the OHS Act 2004 2006

- WorkSafe Victoria Support for Health and Safety Representatives (HSRs)- Supporting Health and Safety Representative Access to Health and Safety Information Via the Internet 2017
- WorkSafe Victoria Health and Safety Representatives: Policy Positions 2008
- WorkSafe Victoria Discrimination Against Health and Safety Representatives 2019

General

- WorkSafe Victoria Fatigue Prevention in the Workplace: Your Health and Safety Guide 2019
- WorkSafe Victoria Preventing Work-related Stress: Examples of Risk Control Measures 2017
- WorkSafe Victoria Officewise - A Guide to Health & Safety in the Office 2006
- WorkSafe Victoria Compliance Code for Communicating Health and Safety Across languages 2008
- WorkSafe Victoria Working Alone Information Sheet 2011
- WorkSafe Victoria Workplace Bullying - Prevention and Response 2019

Amenities

- Worksafe Victoria Compliance Code - Facilities in Construction 2018
- Safe Work Australia Managing the Work Environment and Facilities Code of Practice 2018
- WorkSafe Victoria Compliance Code for Communicating Health and Safety Across languages 2008
- AS 1319 Safety signs for the occupational environment
- AS/NZS 1680 Interior lighting Series.
- WorkSafe Victoria Safety Alert Temporary Site Structures 2015

First Aid and Emergencies

- WorkSafe Victoria Compliance Code for First Aid in the Workplace
- Safe Work Australia Model Code of Practice - First Aid in the Workplace 2019
- WorkSafe Victoria Safety Alert Effective Emergency Response Plans 2011
- AS 3745 Planning for emergencies in facilities
- WorkSafe Victoria Evacuation Lighting on Construction Sites 2012
- AS 2293.Set Emergency escape lighting and exit signs
- AS 2444 Portable Fire Extinguishers and Fire blankets – Selection and Location
- AS/NZS 1841.1 Portable fire extinguishers General requirements
- AS/NZS 1850 Portable fire extinguishers – Classification, rating and performance testing
- AS 1851 Routine service of fire protection systems and equipment
- AS/NZS 1221 Fire hose reels
- HB 76 Dangerous goods - Initial emergency response guide
- HB 76 Dangerous goods - Initial emergency response guide

Qualifications & High-Risk Work Licences

- WorkSafe Victoria Certification, Licensing and Qualifications Checklist 2006
- WorkSafe Victoria High-Risk Work Licence: Licences for Forklift, Crane, Scaffolding, Rigging and Pressure Equipment Operation 2019
- WorkSafe Victoria All High-Risk Work Licence Classes 2019

Work at Heights

- Prevention of Falls Part of the Occupational Health and Safety Regulations 2017
- WorkSafe Victoria Compliance Code for Prevention of Falls in General Construction 2018

- Construction Safety Focus: Preventing Falls from Height in Building and Construction 2016
- WorkSafe Victoria A Guide to Falls Prevention 2017
- Model Safe Work Australia Code of Practice - Managing the Risk of Falls at Workplaces 2018

Housing/Timber Frames

- WorkSafe Victoria Victoria Compliance Code Prevention of Falls in Housing Construction 2018
- Model Safe Work Australia Code of Practice - Preventing Falls in Housing Construction 2018
- WorkSafe Victoria Carpenters: Erecting Prefabricated Timber Roof Trusses on a Second Storey Extension 2010
- WorkSafe Victoria Preparing to Erect Timber Wall Frames 2019
- WorkSafe Victoria Guidance Note Prevention of Falls in Construction Selection and Safe Use of Portable Ladders 2013

Other Fall Contexts

- WorkSafe Victoria Exterior Sign Erection and Installation Checklist 2014
- WorkSafe Victoria Guidance Note - Preventing Falls from Earthmoving Equipment 2012
- WorkSafe Victoria Safety Alert Employee Fatally Injured After Fall from Steel Stillage 2019

Scaffolding

- WorkSafe Victoria Guidance Note Fall Prevention for Scaffolders 2014
- WorkSafe Victoria Fall Prevention in Erecting and Dismantling Birdcage Scaffolding 2006
- WorkSafe Victoria Construction Safety Focus: Scaffolding 2018
- WorkSafe Victoria Suspended Scaffolds - What You Need to Know 2005
- WorkSafe Victoria Guidance Note - Frequently Asked Questions – Tower-frame scaffolds August 2006
- WorkSafe Victoria Safety Alert Potential for Dangerous Scaffolding Collapse 2019

- WorkSafe Victoria Safety Alert Electrical Power for Swing stages 2010
- WorkSafe Victoria Safety Alert Instability of Building Maintenance Units 2018
- AS 1576.1 Scaffolding – General Requirements
- AS/NZS 4576 Guidelines for Scaffolding
- AS 1576.4 Scaffolding - Suspended scaffolding
- AS/NZS 1576.6 Metal tube-and coupler scaffolding
- AS 1576.2 Couplers and accessories
- AS/NZS 1576.5 Scaffolding Part 5 Prefabricated splitheads and trestles
- AS/NZS 1576.3 Scaffolding Prefabricated and tube-and-coupler scaffolding
- AS/NZS 1892.5 Portable ladders - Selection, safe use and care
- AS/NZS 1892.1 Portable ladders – Metal
- Australian Standard AS1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation
- AS/NZS 1891.4 Industrial fall-arrest systems and devices - Selection, use and maintenance
- AS/NZS 1891.3 Industrial - fall arrest systems and devices - Fall arrest devices
- AS/NZS 1891.1 Industrial fall-arrest systems and devices - Harnesses and ancillary equipment
- AS/NZS 1891.2 Industrial fall-arrest systems and devices - Horizontal lifeline and rail systems

Roofing

- WorkSafe Victoria Compliance Code for Prevention of Falls in General Construction 2019
- WorkSafe Victoria Safety Alert Preventing Roof Collapses in Housing 2015
- WorkSafe Victoria Plumbers: Installing New Roof Gutters on a Second Storey Extension 2010
- WorkSafe Victoria Removal of Fragile Roofing 2017
- WorkSafe Victoria Construction - Lifting Plant onto Roofs: A Health and Safety Solution 2009

Erecting Structural Steel

- Worksafe Victoria Industry Standard, Safe Erection of Structural Steel for Buildings 2009
- Worksafe Victoria Compliance Code for Prevention of Falls in General Construction 2019
- Model Safe Work Australia Model Code of Practice- Managing the Risk of Falls at Workplaces 2018
- AS 4100 Steel Structures
- AS/NZS 1554.1 Structural Steel Welding – Welding of steel structures

Design of Buildings

- Safe Work Australia Model Code of Practice-Safe Design of Structures 2018
- AS/NZS 1170.1: Structural design actions - Permanent, imposed and other actions (
- AS/NZS 1170.0: Structural design actions - General principles
- AS/NZS 1170.2 Structural design actions - Wind actions
- AS 1170.4: Structural design actions - Earthquake actions in Australia
- HB 84 Guide to Concrete Repair and Protection
- AS 3600 Concrete structures
- AS 3959 Construction of buildings in bushfire prone areas
- WorkSafe Victoria Safety Alert Masonry structures - Instability Leads to Collapse 2004
- WorkSafe Victoria Safety Alert Danger of Freestanding Masonry Walls 2014

Elevating Work Platforms

- SafeWork SA Safe Operation of Elevating Work Platforms
- Workplace Health and Safety Queensland Safe Operation of an Elevating Work Platform 2009

- WorkSafe NZ Best Practice Guidelines Mobile Elevating Work Platforms 2014
- AS 2550.10 Elevating Work Platforms
- AS/NZS 1418.10 Cranes, hoists and winches – Mobile elevating work platforms
- WorkSafe Victoria Guidance Note - Elevating Work Platforms and the Placement of Gas Cylinders for Cutting or Welding 2007
- WorkSafe Victoria Controlling Crush Risks When Using Mobile Elevating Work Platforms (MEWPs) 2018
- WorkSafe Victoria Alert- Safe Loading of Elevated Work Platforms on Tilt Tray Trucks 2002
- WorkSafe Victoria Safety Alert Employee Fatally Electrocuted While Using an Elevating Work Platform 2019

Demolition

WorkSafe Victoria Compliance Code: Demolition 2019

- WorkSafe Victoria Model Safe Work Australia Code of Practice- Demolition Work 2018
- AS 2601 Demolition of structures
- WorkSafe Victoria Compliance Code for Prevention of Falls in General Construction 2019
- WorkSafe Victoria Safety Alert Preventing Floor Collapse 2018
- WorkSafe Victoria Construction Safety Focus: Demolition 2016
- WorkSafe Victoria Recycling Construction and Demolition Material 2017

Concrete Cutting and Drilling

- WorkSafe Victoria- Industry Standard on Safe Concrete Cutting and Drilling 2017
- WorkSafe Victoria Safety Alert Blades Fly off Demolition Saw 2011

Lifts

- AS/NZS 4431 Guidelines for Safe Working on New Lift Installations in New

Constructions (for false cars)

- AS 1735.1 Lifts, escalators and moving walks - General requirements

Trenches and Excavations

- WorkSafe Victoria Compliance Code: Excavation 2019
- Construction Part of the Occupational Health and Safety Regulations 2017
- Safe Work Australia Model Code of Practice -Excavation Work 2018
- WorkSafe Victoria Trench Shields and Road Plates 2017
- WorkSafe Victoria Safety Alert Workers Engulfed in Trench Collapse 2019
- WorkSafe Victoria Safety Alert Preventing Collapse of Bulk Excavations 2017
- WorkSafe Victoria Safety Alert Mobile Plant Overturns 2017
- WorkSafe Victoria Safety Alert Gas Pipes in Storm Water Drains and Sewers 2010
- WorkSafe Victoria Plumbers: Installing New Storm Water and Sewer Lines 2017
- WorkSafe Victoria Safe Pressure Testing of Pipes 2019
- WorkSafe Victoria Notice of Intention to Perform Construction Excavation Work 2018
- WorkSafe Victoria Information About: Emergency Procedures for Risk of Engulfment in Construction Work 2018

Earthmoving Plant and Civil Construction

- Plant Part of the Occupational Health and Safety Regulations 2017
- Civil Construction: A Guide to Managing Safety: Industry Standard 2017
- WorkSafe Victoria Construction Safety Focus: Powered Mobile Plant 2017
- WorkSafe Victoria Using Earthmoving Equipment Near Overhead Electrical Assets 2009

- WorkSafe Victoria Guidance Note Earthmoving Equipment Used as a Crane 2017
- WorkSafe Victoria Safety Alert Mobile Plant Overturns 2017
- WorkSafe Victoria Mobile Plant in Civil Construction Employer's / HSR's Prompt & Report Checklist 2007
- WorkSafe Victoria Safety Alert Heavy Construction Plant on Housing Sites 2018
- WorkSafe Victoria a Handbook for Workplaces Post Drivers - Industry Safety Standard 2017
- WorkSafe Victoria Earthmoving equipment - Use of Vandal-Proof Covers: A Health and Safety solution 2009
- WorkSafe Victoria Guidance Note -Preventing Falls from Earthmoving Equipment 2012
- WorkSafe Victoria Safety Alert Warning Devices on Powered Mobile Plant 2018
- WorkSafe Victoria Safety Alert Semi-Automatic Quick Hitches on Excavators 201
- WorkSafe Victoria Safety Alert Raised Tipper Trays can be Fatal 2010
- WorkSafe Victoria Safety Alert Controlling Entanglement Risks 2015
- WorkSafe Victoria Using Powered Mobile Plant Near Overhead Assets - Guidebook 2018
- WorkSafe Victoria No Go Zones for Underground Utility Services 2004
- WorkSafe Victoria Damaging Underground Electrical Cables: A Health and Safety Solution 2015
- WorkSafe Victoria Guide for Undertaking Work Near Underground Assets 2004
- AS 2294.1 Earth-moving machinery - Protective structures - General
- AS 2727 Chainsaws - Guide to safe working practice
- AS 4024.1 Safety of Machinery - series

Concrete Pumping

- WorkSafe Victoria Industry Standard – Concrete Pumping 2004
- NZ Concrete Pumping Association and WorkSafe Victoria Concrete Pumping Health and Safety Guidelines 2013
- WorkSafe Victoria Safety Alert Cleaning of Concrete Pumping Equipment 2009
- WorkSafe Victoria Concreters: Pouring a New Slab 2017
- WorkSafe Victoria Cleaning of Concrete Pumping Equipment 2009
- WorkSafe Victoria Construction Safety Focus: Mobile Concrete Boom Pump Safety 2018
- WorkSafe Victoria Concrete Delivery Pipeline Failures 2019
- AS 2550.15 Cranes – Safe use – Part 15: Concrete Pumps
- AS 1379 Specification and supply of concrete
- AS 1012.8.1 Methods of testing concrete - Method of making and curing concrete - Compression and indirect tensile test specimens
- WorkSafe Victoria Using Powered Mobile Plant Near Overhead Assets – Guidebook 2018
- WorkSafe Victoria No Go Zones for Overhead Electrical Power Lines 2004
- AS 2550.15 Safe Use-Concrete placing equipment
- AS 4041 Pressure Piping
- AS 2452.3 Non-destructive testing – Determination of thickness – Use of ultrasonic testing
- AS 4343 Pressure Equipment - Hazard levels

Formwork

- Worksafe Victoria Compliance Code for Prevention of Falls in General Construction 2019
- SafeWork NSW Draft Code of Practice – Formwork 2019
- Safe Work Australia Formwork and Falsework Guidance Material Package 2014
- Safe Work Australia Slip Jump Travelling Forms Guide 2014

- Safe Work Australia Information Sheet - Formwork Falsework 2014
- Safe Work Australia Falsework Guide 2014
- Safe Work Australia Guide to Formwork 2014
- Workplace Health and Safety QLD Formwork Code of Practice 2016
- SafeWork SA Industry Guide for Formwork 2012
- WorkSafe Victoria Construction Safety Focus: Formwork 2018
- WorkSafe Victoria Safety Alert Preventing Formwork Failures 2013
- AS 3610 Formwork for Concrete
- AS 2082 Visually stress-graded hardwood for structural purposes
- AS/NZS 2269 Plywood- Structural

Precast Concrete Panels

- WorkSafe Victoria Industry Standard – Pre-cast and Tilt-up Concrete for Buildings 2001
- WorkSafe Victoria No Go Zones for Overhead Electrical Powerlines 2004
- WorkSafe Victoria Brace Footings for Concrete Panels – Selecting the Correct Anchors 2009
- WorkSafe Victoria Construction Safety Focus Precast Panels and Mobile Cranes 2017
- WorkSafe Victoria Information About Precast and Tilt-up Concrete Construction 2017
- WorkSafe Victoria Checklist for the Manufacture of Precast Concrete Panels 2009
- WorkSafe Victoria Erection of Concrete Panels on Early Age Low Strength Concrete 2017
- WorkSafe Victoria Checklist for Onsite Erection of Concrete Panels 2006
- WorkSafe Victoria Checklist for Onsite Casting of Tilt-up Concrete Panels 2006

- WorkSafe Victoria Onsite Casting and/or Erection of Concrete Panels: Site and HSRs Prompt and Report 2009
- WorkSafe Victoria Safety Alert Precast Concrete Panel Falls from Truck 2019
- WorkSafe Victoria Safety Alert Securing Precast Concrete Panels 2014
- WorkSafe Victoria Safety Alert Brace Footing Installations on Concrete 2012
- WorkSafe Victoria Skewed Panel Braces can be Dangerous 2019
- WorkSafe Victoria Safety Alert Panel Axis is Critical for Single Crane Rotation 2013
- AS 3850 Tilt-Up Concrete Construction
- CCAA T55-/CIA Z10 Guide to Tilt-up Design and Construction
- AS 3600 Concrete Structures (Amendment 1-2010)
- AS 1012.1 Methods of testing Concrete
- AS/NZS 1252 High strength steel bolts with associated nuts and washers for structural engineering
- AS 2550.5 Cranes hoists and winches – Hi Safe use- Mobile cranes
- AS 4991 Lifting devices
- AS 1379 Specification and supply of concrete

Electrical

- WorkSafe Victoria Industry Standard-Electrical Installations on Construction Sites 2011
- Safe Work Australia Model Code of Practice - Managing Electrical Risks at the Workplace 2018
- WorkSafe Victoria Preventing Electric Shocks to Electricians 2017
- WorkSafe Victoria Information About Preventing Electric Shocks When Working in Ceiling Spaces 2017
- Energy Safe Code of Practice for Safe Electrical Work Low Voltage Electrical Installations
- WorkSafe Victoria Safety Alert Employee Fatally Injured While Reinstating 6600V Circuit Breaker 2018

- WorkSafe Victoria Preparing to Install Sub-mains for a New Electrical Switchboard 2019
- WorkSafe Victoria Preparing to Replace Light Fittings 2019 2019
- WorkSafe Victoria No Go Zones for Overhead Electrical Power Lines 2004
- WorkSafe Victoria Using Powered Mobile Plant Near Overhead Assets – Guidebook 2018
- WorkSafe Victoria No Go Zones for Underground Utility Services 2004
- WorkSafe Victoria Damaging Underground Electrical Cables: A Health and Safety Solution 2015
- WorkSafe Victoria Guide for Undertaking Work Near Underground Assets 2004
- WorkSafe Victoria Petrol Powered Portable Generators Controlling the Risk of Static Electricity When Refuelling Portable Generators 2011
- WorkSafe Victoria Safety Alert Petrol Powered Portable Generators 2011
- AS/NZS 3012 Electrical installations - Construction and demolition sites
- AS/NZS 3105 Approval and test specification - Electrical portable outlet device
- AS/NZS 3760 In-service safety inspection and testing of electrical equipment (Amendment 1-2011)
- AS/NZS 3000 - Australian/New Zealand Wiring Rules (Amendment 1-2009)
- GB 300 Guide to Changes in the AS/NZS 3000 Wiring Rules
- AS/NZS 3017 Electrical Installations – Verification Guidelines
- AS/NZS 3019 Electrical Installations – Periodic Verification
- AS/NZS 4836 Safe working on low voltage electrical installations
- AS/NZS 3500 Plumbing and Gas Set: Plumbing and Gas Installations Set

Cranes, Hoists, Lifting Gear

- Plant Part of the Occupational Health and Safety Regulations 2017
- High Risk Work Part of the Occupational Health and Safety Regulations 2017
- Schedule 3 High Risk Work Occupational Health and Safety Regulations 2017
- Safe Work Australia Model Code of Practice -Managing Risks of Plant in the Workplace 2018
- WorkSafe Victoria Compliance Code Plant 2019
- WorkSafe Victoria Your health and Safety Guide to Plant 2017
- WorkSafe Victoria Machinery and Equipment Safety – An introduction: A Handbook for Workplaces 2017
- WorkSafe Victoria Plant Hazard Checklist 2017
- WorkSafe Victoria Telehandlers - Design and licensing 2017
- WorkSafe Victoria Safety Alert Safety Fall from a Telehandler Man-Cage 2018
- SafeWork Australia Vehicle Loading Cranes Information Sheet 2015
- WorkSafe Victoria Safety Alert Tailgate Lifters and Loading Ramps on Vehicles and Trailers 2018
- WorkSafe Victoria Alert- Mini Crawler Cranes Overturn 2008
- WorkSafe Victoria Safety Alert Near Miss from Falling Counterweight 2019
- WorkSafe Victoria Safety Alert Employee Fatally Crushed Between Forklift Load and Mast 2019
- WorkSafe Victoria Safety Alert Tower Cranes: Pre-erection and Commissioning Inspections and Tests 2018
- WorkSafe Victoria Refuelling Tower Cranes: A Health and Safety Solution 2014
- WorkSafe Victoria Safety Alert Crane Inspection Records 2010
- WorkSafe Victoria Safety Alert Safety When Lifting or Suspending loads 2018

- WorkSafe Victoria Mobile Crane Checklist 2019
- WorkSafe Victoria Imported Cranes Compliance Communique Requirements for Imported and Second-Hand Cranes 2007
- WorkSafe Victoria Safety Alert Soft Sling Fails During Lift 2012
- AS 2550 Set Cranes – Safe use
- AS 2550.1 Cranes, hoists and winches - Safe use - General requirements
- AS 2550.3 Cranes, hoists and winches - Safe use - Bridge, gantry, portal (including container cranes), jib and monorail cranes
- AS 2550.4 Cranes, hoists and winches - Safe use - Tower cranes
- AS 2550.5 Cranes, hoists and winches - Safe use - Mobile cranes
- AS 2550.6 Cranes - Safe use - Guided storing and retrieving appliances
- AS 2550.7 Cranes - Safe use - Builders' hoists and associated equipment
- AS 2550.10 Cranes - Safe use - Elevating work platforms
- AS 2550.11 Cranes, hoists and winches - Safe use - Vehicle-loading cranes
- AS 2550.13 Cranes - Safe use - Building maintenance units
- AS 2550.15 Cranes - Safe use - Concrete placing equipment
- AS 2550.16 Cranes - Safe use - Mast climbing work platforms
- AS 2550.19 Cranes, hoists and winches - Safe use - Telescopic handlers
- AS 2550.20 Cranes, hoists and winches - Safe use - Self-erecting tower cranes
- AS/NZS1418.1 Set Cranes, hoists and winches Set
- AS 1418.1 Cranes, hoists and winches – General requirements
- AS 1418.2 Cranes (including hoists and winches) - Serial hoists and winches

- AS 1418.3 Cranes, hoists and winches - Bridge, gantry, portal (including container cranes) and jib cranes
- AS 1418.4 Cranes, hoists and winches - Tower cranes
- AS 1418.4 Cranes, hoists and winches - Mobile cranes
- AS 1418.6 Cranes, hoists and winches - Guided storage and retrieving appliances
- AS 1418.7 Cranes (including hoists and winches) - Builders hoists and associated equipment
- AS 1418.8 Cranes, hoists and winches - Special purpose appliances
- AS/NZS 1418.8 Cranes (including hoists and winches) - Vehicle hoists
- AS/NZS 1418.10 Cranes, hoists and winches - Mobile elevating work platforms
- AS 1418.11 Cranes, hoists and winches - Vehicle - loading cranes
- AS 1418.12 Cranes (including hoists and winches) - Crane collector systems
- AS 1418.13 Cranes (including hoists and winches) - Building maintenance units
- AS 1418.15 Cranes (including hoists and winches) - Requirements for cranes subject to arduous working conditions
- AS 1418.15 Cranes (including hoists and winches) - Concrete placing equipment
- AS 1418.16 Cranes (including hoists and winches) - Mast climbing work platforms
- AS 1418.17 Cranes (including hoists and winches) - Design and construction of workboxes
- AS 1418.18 Cranes, hoists and winches - Crane runways and monorails
- AS 1418.19 Cranes, hoists and winches - Telescopic handlers
- AS 4497.2 Round slings - Synthetic fibre - Care and use
- AS 1353.2 Flat synthetic-webbing slings - Care and use
- AS 1353.1 Flat synthetic-webbing slings – Product specification (Amendment 1-1998)

- AS 2321 Short link chain for lifting purposes
- AS 3775.2 Chain slings-Grade T- Care and use (Amendment 1- 2006)
- AS 3775.1 Chain slings-Grade T - Product specification (Amendment 1- 2006)
- AS 1666.1 Wire- rope slings- Product specification
- AS 1666.2 Wire-r ope slings- Care and use
- AS 2741 Shackles

Traffic Management

- AS 1742 Set Manual of uniform traffic control devices
- Code of Practice Worksite Safety – Traffic Management
- AS 3845 – Road Safety Barrier System
- SAA HB81- Field guide for traffic control at works on roads
- WorkSafe Victoria Construction Safety Focus: Construction Site Traffic Management Safety 2017
- WorkSafe Victoria Construction Safety Focus: Safe Worker and Traffic 2016

Explosive Power Tools

- AS/NZS 1873.1 Powder-actuated (PA) hand-held fastening tools - Selection, operation and maintenance

Welding

- AS 4839 The safe use of portable and mobile oxy-fuel gas systems for welding, cutting, heating and allied processes
- Safe Work Australia Model Code of Practice-Welding Processes 2018
- WorkSafe Victoria Safety Alert Storing gas cylinders in vehicles 2002
- AS 4603 Flashback arresters - Safety devices for use with fuel gases and oxygen or compressed air
- AS 2613 Safety devices for gas cylinders
- AS 2613 Safety devices for gas cylinders
- AS 4332 The storage and handling of gases in cylinders (Amendment 1-2005)

- AS 1674.1 Safety in welding and allied processes: Fire precautions
- AS 1674 Set Safety in welding and allied processes Set
- AS 1674.2 Safety in welding and allied processes: Electrical

Lasers

- AS 2397 Guide to safe use of lasers in the building and construction industry
- AS/NZS IEC 6082514 Safety of laser products - A user's guide
- Safe Work Australia - Laser Classifications and Potential Hazards Laser Information Sheet 2012

Confined Spaces

- Confined Spaces Part of the Occupational Health and Safety Regulations 2017
- WorkSafe Victoria Compliance Code for Confined Spaces 2018
- WorkSafe Victoria Safety When Working in Confined Spaces 2019
- WorkSafe Victoria Confined Spaces: Safety Basics 2018
- WorkSafe Victoria Safety Alert Safety When Working in Confined Spaces 2019
- Safe Work Australia Model Code of Practice - Confined Spaces 2018
- AS/NZS 2865 Confined spaces
- AS/NZS 60079.10.1 Classification of areas - Explosive gas atmospheres (IEC 60079-10 -1, Ed. 1.0 (MOD)

Chemical and Biological Hazards

- Hazardous Substances Part of the Occupational Health and Safety Regulations 2017
- WorkSafe Victoria Compliance Code: Hazardous Substances 2019
- WorkSafe Victoria Hazardous Substances: Safety Basics 2018
- WorkSafe Victoria Hazardous Substances: A Health and Safety Guide 2008
- WorkSafe Victoria Managing Chemicals in the Workplace: A Step-by-Step Guide 2017
- WorkSafe Victoria Health Monitoring How to Conduct Health Monitoring for Employees Exposed to Certain Hazardous Substances 2017
- WorkSafe Victoria Safety Data Sheets 2018
- Safe Work Australia Model Code of Practice- Managing Risks of Hazardous Chemicals in the Workplace 2018
- Safe Work Australia Model Code of Practice- Labelling of Workplace Hazardous Chemicals 2018
- Safe Work Australia Model Code of Practice- Preparation of Safety Data Sheets for Hazardous Chemicals 2018
- WorkSafe Victoria Industry Standard Contaminated Construction Sites Construction and Utilities 2017
- AS 4976 The removal and disposal of underground petroleum storage tanks
- Victorian Health and Human Services A Guide to Developing Risk Management Plans for Cooling Tower System 2015
- AS/NZS 3666.1 Air-handling and water systems of buildings–Microbial control –Design, installation and commissioning
- AS/NZS 3666.2 Air-handling and water systems of buildings–Microbial control–Operation and maintenance
- AS/NZS 3666.3 Air-handling and water systems of buildings–Microbial control–Performance-based maintenance of cooling water systems
- HB 32 Control of microbial growth in air-handling and water systems of buildings

Dangerous Goods

- Dangerous Goods Act 1985
- WorkSafe Victoria Code of Practice: The Storage and Handling of Dangerous Goods 2019
- WorkSafe Victoria Dangerous Goods Incident Reporting 2012
- WorkSafe Victoria Transporting Small Quantities of Dangerous Goods: Tools of Trade 2009
- Dangerous Goods (Storage and Handling) Regulations 2012
- Dangerous Goods (Explosives) Regulations 2011
- Dangerous Goods (HCDG) Regulations 2016
- Dangerous Goods (Transport by Rail) Regulations 2018
- WorkSafe Victoria Code of Practice Storage and Handling of Dangerous Goods 2013
- WorkSafe Victoria Dangerous Goods Incident Reporting 2012
- WorkSafe Victoria Commonly Used Dangerous Goods 2019
- WorkSafe Victoria Globally harmonized system (GHS) of classification and labelling of chemicals 2019
- WorkSafe Victoria Recognising Dangerous Goods 2011
- HB 76 Dangerous goods - Initial emergency response guide

Asbestos

- Asbestos Part of the Occupational Health and Safety Regulations 2017
- WorkSafe Compliance Code for Removal of Asbestos in Workplaces 2018
- WorkSafe Victoria Compliance Code for Management of Asbestos in Workplaces 2018
- Safe Work Australia Model Code of Practice - How to Safely Remove Asbestos 2018
- Safe Work Australia Model Code of Practice How to Manage and Control Asbestos in the Workplace 2018
- WorkSafe Victoria a Handbook for Workplaces Asbestos 2008
- WorkSafe Victoria A Step by Step Guide Managing Asbestos in Workplaces 2015

- WorkSafe Victoria a Step by Step Guide Managing Asbestos in Workplaces 2015
- WorkSafe Victoria Identification and Control of Asbestos in Workplaces 2017
- WorkSafe Victoria Removing asbestos – Before Demolition or Refurbishment 2010
- WorkSafe Victoria Asbestos-Contaminated Soil 2010
- WorkSafe Victoria Asbestos-Cement Water Pipe Management 2015
- WorkSafe Victoria Safety Alert Coveralls Used for Asbestos Removal 2010
- WorkSafe Victoria Safety Alert Reported Deterioration of Particulate Filters Update 2007
- WorkSafe Victoria Safety Alert Asbestos Bags Used as Carpet Underlay and Pipe Lagging 2010
- WorkSafe Victoria Safety Alert Asbestos in Imported Building Products 2017
- WorkSafe Victoria Safety Alert Management and Disposal of Asbestos 2013

Silica

- WorkSafe Victoria Dust Containing Crystalline Silica in Construction Work 2019
- WorkSafe Victoria Safety Alert Stone Benchtop Workers at Risk of Fatal Disease 2019
- WorkSafe Victoria Crystalline Silica: Safety Basics 2019
- WorkSafe Victoria Crystalline Silica Health Assessments 2019
- WorkSafe Victoria Free Crystalline Silica Health Assessments and Your Health Monitoring Duties 2019
- WorkSafe Victoria Stonemasons - Preventing Crystalline Silica Exposure: A Health and Safety Solution 2017
- WorkSafe Victoria Working with Engineered Stone 2019
- WorkSafe Victoria The prohibition on Crystalline Silica for Abrasive Blasting 2017
- WorkSafe Victoria Crystalline Silica Health Assessments 2019

Synthetic Mineral Fibres

- The Industry Code of Practice for the Safe Use of Glass Wool & Rock Wool Insulation 2003

Noise

- Noise Part of the Occupational Health and Safety Regulations 2017
- WorkSafe Victoria Compliance Code: Noise 2019
- WorkSafe Victoria Noise: Safety Basics 2019
- WorkSafe Victoria Noise Control: A Step-by-Step Approach 2017
- Safe Work Australia Model Code of Practice - Managing Noise and Preventing Hearing Loss at Work 2018
- WorkSafe Victoria Construction Noise Control Self-Assessment Checklist 2017
- AS 2436 Guide to noise control on construction, maintenance and demolition sites

Hazardous Manual Handling

- Hazardous Manual Handling Part of the Occupational Health and Safety Regulations 2017
- WorkSafe Victoria Compliance Code: Hazardous Manual Handling 2019
- Safe Work Australia Model Code of Practice - Hazardous Manual Tasks 2018
- WorkSafe Victoria Hazardous Manual Handling: Safety Basics 2018
- WorkSafe Victoria Hazardous Manual Handling Health and Safety Guide 2019
- WorkSafe Victoria Hazardous Manual Handling: Review and Revision of Risk Control Measures 2019
- WorkSafe Victoria Construction Safety Focus: Preventing Musculoskeletal Disorders 2019
- WorkSafe Victoria Loading Bricks, Blocks and Mortar Above Shoulder Height: A Health and Safety Solution 201
- WorkSafe Victoria Construction - Preventing Injuries from Lifting Reinforcing Mesh: A Health and Safety Solution 2009

- WorkSafe Victoria Reducing the Need to Manually Handle Concrete Blocks: Hazard Solution 2004
- WorkSafe Victoria Bricklaying Checklist for Builders and Building Trades Contractors 2017

Personal Protective Equipment

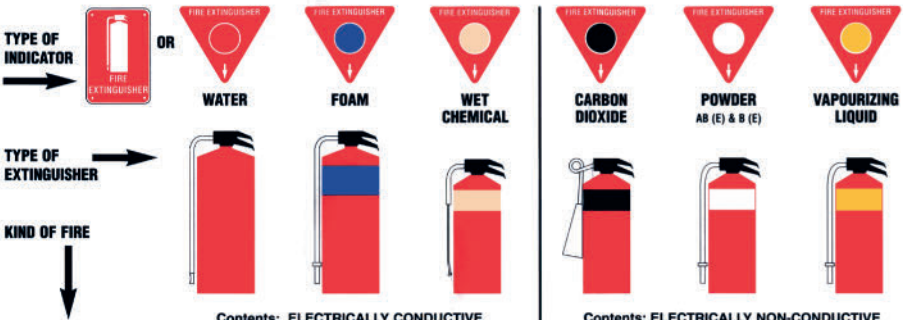
- AS/NZS 4501.2 Occupational protective clothing - General requirements
- AS/NZS 4501.1 Occupational protective clothing - Guidelines on the selection, use, care and maintenance of protective clothing
- AS/NZS 2161.2 Occupational protective gloves - General requirements
- AS/NZS 2210.1 Occupational protective footwear - Guide to selection, care and use
- AS/NZS 4399 Sun protective clothing - Evaluation and classification
- AS/NZS 4602 High visibility safety garments
- AS/NZS 1067 Sunglasses and fashion spectacles
- AS/NZS 1336 Recommended practices for occupational eye protection (Amendment 1-1997)
- AS/NZS 1337:1 Eye and face protectors for industrial applications (Amendment 1-2012)
- AS/NZS 1338.1 Filters for eye protectors - Filters for protection against radiation generated in welding and allied operations
- AS/NZS 1800 Occupational protective helmets - Selection, care and use
- AS/NZS 1269.3 Occupational noise management - Hearing protector program
- AS/NZS 1270 Acoustics - Hearing protectors
- AS/NZS 1715 Selection, use and maintenance of respiratory protective devices
- AS/NZS 1716 Respiratory protective devices

Note: See Work at Heights for Individual Fall Protection Equipment (IFPE) references.

NOTES

NOTES

PORTABLE FIRE EXTINGUISHERS
Suitability for different kinds of small fires



KIND OF FIRE	WATER	FOAM	WET CHEMICAL	CARBON DIOXIDE	POWDER AB (E) & B (E)		VAPOURIZING LIQUID
					AB (E)	B (E)	
WOOD, PAPER, TEXTILES RUBBISH, ETC	YES (MOST SUITABLE)	YES	YES	YES	YES	NO	YES
FLAMMABLE LIQUIDS	NO	YES (MOST SUITABLE)	NO	YES	YES	YES	YES
LIVE ELECTRICAL EQUIPMENT	NO	NO	NO	YES	YES	YES	YES
COOKING OILS AND FATS	NO	YES	YES (MOST SUITABLE)	YES	YES	YES	NO

PRECAUTIONS: For special Hazards such as water miscible flammable liquids and reactive metals - expert advice should be sought.
Rooms and confined spaces should be ventilated before re-entry after fire.

- Switch off power or fuel before attacking fire appliance / equipment.
- In all cases call the Fire Brigade on **000**.

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