

Manual



CPCCWHS1001 - Prepare to work safely in the construction industry

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CPCCWHS1001 - Prepare to work safely in the construction industry

This unit of competency specifies the mandatory work health and safety training required prior to undertaking construction work. The unit requires the person to demonstrate personal awareness and knowledge of health and safety legislative requirements in order to work safely and prevent injury or harm to self and others. It covers identifying and orally reporting common construction hazards, understanding basic risk control measures, and identifying procedures for responding to potential incidents and emergencies. It also covers correctly selecting and fitting common personal protective equipment (PPE) used for construction work.

Learning Program

As you progress through this unit of study, you will develop skills in locating and understanding an organisation's policies and procedures. You will build up a sound knowledge of the industry standards within which organisations must operate. You will become more aware of the effect that your own skills in dealing with people have on your success or otherwise in the workplace.

Additional Learning Support

To obtain additional support, you may:

Contact information services such as Infolink, Equal Opportunity Commission, Commissioner of Workplace Agreements, Union organisations, and public relations and information services provided by various government departments.

How to Get the Most Out of Your Learner Guide

Read through the information in the learner guide carefully. Make sure you understand the material. Some sections are guite long and cover complex ideas and information. If you come across anything you do not understand:

- 1. Talk to your facilitator;
- 2. Discuss the issue with other people (your workplace supervisor, fellow workers, fellow students);
- 3. Try to relate the information presented in this learner guide to your own experience and to what you already know.
- 4. Ask yourself questions as you go. For example, 'Have I seen this happening anywhere?' 'Could this apply to me?' 'What if...' This will help you make sense of new material, and build on your existing knowledge.
- 5. Talk to people about your study. Talking is a great way to reinforce what you are learning.
- 6. Make notes

Chapter 1: Health and Safety Legislative Requirements of **Construction Work**

Health and safety are critical areas of construction work. Construction workers are exposed to more health and safety hazards and risks than office workers. They use construction equipment

and machinery and perform construction work tasks that could pose harm to their health and safety if not performed correctly.

Chapter 1 will discuss the health and safety legal requirements that apply to construction work. The Work Health and Safety Act identifies obligations that duty holders must fulfil in order to have a healthy and safe working environment and so that construction workers are not exposed to any harm.

This chapter will discuss:

- Basic roles, responsibilities, and rights of duty holders
- . Duty of care requirements
- Safe work practices in construction work.

WHS Legislation

As this chapter will be talking about health and safety legislative requirements, refer to the legislation that is enforced in your state/territory.

(Qld)

Work Health and Safety Act 2011 The sets out requirements and standards for building healthy and safe workplaces. It outlines what you must do to protect the health, safety and welfare of workers and other people in a place of work.







Work Health and Safety Regulation 2011

codes of practice

The provides detailed information on how to **prevent or minimise risks** in your place of work.

The Act and the Regulation are supported by <u>codes of</u> <u>practice</u> that give practical advice on how to meet your work health and safety responsibilities. High Risk Activities have a code of practice.



1.1 Basic Roles, Responsibilities, and Rights of Duty Holders

Work Health Legislation appoints duty holders in organisations and workplaces and their roles and responsibilities. Duty holders are appointed with roles and responsibilities to ensure that the health and safety of everyone – workers and other people at the worksite are protected and that they are not exposed to any harm. In construction work, duty holders are also appointed.

Person Conducting Business or Undertaking (PCBU) and Business Owners

For this Act, a person conducts a business or undertaking

- whether the person conducts the business or undertaking alone or with others; and
- whether or not the business or undertaking is conducted for profit or gain. A business or undertaking conducted by a person includes a business or undertaking conducted by a partnership or an unincorporated association.
- If a business or undertaking is conducted by a partnership (other than an incorporated partnership), a
 reference in this Act to a person conducting the business or undertaking is to be read as a reference to
 each partner in the partnership.
- A person does not conduct a business or undertaking to the extent that the person is engaged solely as a worker in, or as an officer of, that business or undertaking.
- An elected member of a local government does not in that capacity conduct a business or undertaking.
- A regulation may specify the circumstances in which a person may be taken not to be a person who conducts a business or undertaking for the purposes of this Act or any provision of this Act.
- A volunteer association does not conduct a business or undertaking for the purposes of this Act.
- In this section, volunteer association means a group of volunteers working together for 1 or more community purposes where none of the volunteers, whether alone or jointly with any other volunteers, employs any person to carry out work for the volunteer association.
- In a construction work setting

PCBUs or business owners take on the following roles and responsibilities:

Project Manager (person commissioning the project)

Responsible for:

- coordinating with the designer of the structure and the principal contractor to discuss and establish project specifications and safety matters for the construction work to be undertaken
- providing funding and resources to undertake the construction work in a safe manner, e.g. construction materials, equipment that complies with safety regulations and standards, Personal Protective Equipment (PPE), etc.

Principal contractor

Responsible for:

- Management and control of WHS risks associated with construction work through the implementation of proper risk management processes (hazard identification, reporting, risk assessment, risk control, and review of controls, etc.)
- Ensuring that the site is secured from unauthorised access, through:
 - o Signages
 - o Security personnel and checks in place.
- Planning, implementing, maintaining, and reviewing the WHS Management Plan for the construction work, through:







- o Establishment of safe work practices for workers to follow
- o WHS consultation and participation activities

PCBU and business owner's rights

Employers have the right to hire and dismiss workers based on poor performance, serious misconduct, and if the worker has engaged in an activity that poses a serious risk to the health and safety of another person or to the reputation or viability of the business, e.g. if the worker consistently did not follow safe construction practices, even when proper training and risk management have been conducted and put the health and safety of others in serious risk. Employers have the right to expect reasonable work performance from their staff, e.g. follow safety practices and protocols for undertaking construction work, ensuring the relevant licences are current, reporting hazards as soon as the staff becomes aware of them, participate in WHS activities such as risk management, inspections, and WHS consultations.

Officers and Supervisors

People who participate in the making of major decisions that can affect the substantial or whole part of the business are officers defined by the WHS Act, which includes board members, directors or senior managers. These officers have a duty to exercise due diligence and to ensure that a business or undertaking complies with the WHS Act and Regulations. Included in this is also taking reasonable steps to ensure the business or undertaking implements processes that comply with a duty of consulting workers as well as co-operating and co-ordinating activities and consulting with other duty holders.

Health and Safety Committees

Health and safety committee is a group established under the WHS Act that facilitates cooperation between a PCBU and workers to provide a safe place of work. The committee must have at least 50 percent of members who have not been nominated by the PCBU, that is workers or HSRs.

Health and Safety Representatives

A health and safety representative is a worker who has been elected by a workgroup under the WHS Act to represent them on health and safety issues.

Workers

A person is a worker if the person carries out work in any capacity for a person conducting a business or undertaking, including work as

an employee; or

- a contractor or subcontractor; or
- an employee of a contractor or subcontractor; or
- an employee of a labour hire company who has been assigned to work in the person's business or undertaking; or
- an outworker; or
- an apprentice or trainee; or
- a student gaining work experience; or
- a volunteer; or(i)a person of a prescribed class.
- For this Act, a police officer is—
 - a worker; and
 - at work throughout the time when the officer is on duty or lawfully performing the functions of a police officer, but not otherwise.
 - The person conducting the business or undertaking is also a worker if the person is an individual who carries out work in that business or undertaking.

Worker

In a construction work setting, workers may take on the following roles and responsibilities:

- following safety practices while undertaking construction work
- · identifying and reporting hazards, incidents and injuries in the workplace
- keeping the work area clean, tidy and free from debris
- not using or being affected by drugs and/or alcohol while at work
- using required PPE
- following safety practices while undertaking construction work and when performing work tasks and using equipment







Workers' rights

- Right to conduct work in a workplace that is free from health and safety risks.
- A worker may cease or refuse to carry out work if the worker has a reasonable concern that to carry out the work would expose the worker to a serious risk of their health or safety, emanating from immediate or imminent exposure to a hazard.

Entry Permit Holders

The WHS Act provides authorised union officials (entry permit holders) with entry rights if they have specific reasons to enter workplaces where there are 'relevant workers'.

A worker is classified as a 'relevant worker':

- if they are a member or are an eligible member of the union that the permit holder represents
- if they have industrial interests the permit holder's union is relevant and entitled to represent
- if they work at a relevant workplace

A workplace may be entered by entry permit holders to enquire into a suspected contravention, inspect documents and records of employees not held by the person or persons conducting the business or undertaking, and to consult with and advise workers.

1.2 Duty of Care Requirements



Duty of care requirements are the legal obligations of duty holders. Duty of care is often symbolised as a legal term, and most people should be aware of their duty of care in regard to occupational health and safety. Duty of care is applied to a range of situations and can be briefly described as the obligation a sensible person would have in circumstances when acting toward the public and others. If the actions of a person do not ensure attention, caution, care and prudence, then these actions are considered negligent. In the workplace, each of us has a responsibility to keep safe. This will ensure that we keep ourselves safe, keep the general public safe, and keep our workmates or anyone who is affected or comes into the workplace safe.

Person Conducting Business or Undertaking (PCBU) and Business Owners

A PCBU has the duty to manage health and safety risks if:

- they employ staff,
- their business or undertaking could possibly put other people at risk,
- they are in charge of the management of workplace or fixtures, fittings or plant at the workplace,
- if they design, manufacture, import or supply plant, substances or structures, and
- if they install, construct or commission plant or structures.

A PCBU must:

- ensure that a work environment that does not risk the health and safety of employees and visitors is provided and maintained,
- ensure that plant and machinery are maintained adequately and that the employed systems of work are
 as safe as reasonably practicable and are without any risk to the health and safety of a person, and
- ensure that the health and safety of others will not be affected by work duties.

This is in line with the PCBU's duty of care in the Work Health and Safety Legislation:

A person conducting a business or undertaking must ensure, so far as is reasonably practicable, the health and safety of—

- workers engaged, or caused to be engaged by the person; and
- workers whose activities in carrying out work are influenced or directed by the person; while the workers
 are at work in the business or undertaking.
- A person conducting a business or undertaking must ensure, so far as is reasonably practicable, that the health and safety of other persons is not put at risk from work carried out as part of the conduct of the business or undertaking.

Without limiting subsections (1) and (2), a person conducting a business or undertaking must ensure, so far as is reasonably practicable:

- the provision and maintenance of a work environment without risks to health and safety; and
- the provision and maintenance of safe plant and structures; and
- the provision and maintenance of safe systems of work; and







- the safe use, handling and storage of plant, structures and substances; and
- the provision of adequate facilities for the welfare at work of workers in carrying out work for the business or undertaking, including ensuring access to those facilities; and
- the provision of any information, training, instruction or supervision that is necessary to protect all
 persons from risks to their health and safety arising from work carried out as part of the conduct of the
 business or undertaking; and
- that the health of workers and the conditions at the workplace are monitored for the purpose of preventing illness or injury of workers arising from the conduct of the business or undertaking.

PCBUs or business owners of construction services apply this duty of care in working safely in construction work by:

- Liaising with the person commissioning construction work and the designer of a structure to discuss project information and safety matters, in accordance with WHS Regulations.
- Managing and controlling WHS risks associated with construction work.
- Ensuring that the site is secured from unauthorised access.
- Planning, implementing, maintaining, and reviewing the WHS Management Plan for the construction work, especially during toolbox meetings or OHS/WHS meetings.
- Informing others about the WHS Management Plan for the construction work, as well as providing the training necessary for the implementation of the WHS Management Plan to relevant staff.
- Ensuring that the workplace/construction site, as well as the means of entering and exiting the site, are free from risks to the health and safety of any person (including workers at the site, visitors at the site, and people in the vicinity of the worksite, etc.).
- Working in accordance with relevant safety standards and WHS codes of practice.

Workers



Under the WHS Act workers are also duty holders and have a duty to take reasonable care that they do not adversely affect the health and safety of other persons and to take reasonable care of their own health and safety. Workers must also comply, within reason, with instructions from the PCBU that allow the PCBU to be compliant with the WHS Act. They must also cooperate with any reasonable policy or procedure related to work health or safety that the PCBU has told them about. Employees have defined and identified responsibilities, and to ensure this, the law imposes obligations for the employees to:

- comply with instructions given regarding health and safety in the workplace,
- use personal protective equipment appropriately,
- avoid interfering or misusing anything provided for workplace health and safety,
- ensure that no risk is in place at the workplace, and
- not injure themselves wilfully.

The responsibilities of others include:

- not recklessly or wilfully interfering with anything provided in the interest of health and safety
- adhering to safety directions by workplace representatives or principal of the workplace concerned

This is in line with workers' duty of care in the Work Health and Safety Legislation:

While at work, a worker must:

- take reasonable care for his or her own health and safety; and
- take reasonable care that his or her acts or omissions do not adversely affect the health and safety of other persons; and
- comply, so far as the worker is reasonably able, with any reasonable instruction that is given by the
 person conducting the business or undertaking to allow the person to comply with this Act; and
- co-operate with any reasonable policy or procedure of the person conducting the business or undertaking relating to health or safety at the workplace that has been notified to workers.

Workers' duty of care is outlined below:

- Ensure that acts performed while undertaking construction work do not put the health, safety, and wellbeing of others at risk.
- Follow safety practices while undertaking construction work:
- o follow safety procedures when performing work tasks and using equipment
- o identify and report hazards, incidents and injuries in the workplace
- o keep the work area clean, tidy and free from debris
- o not using or being affected by drugs and/or alcohol while at work







o use required PPE

Work in accordance with relevant safety standards, WHS codes of practice, and the WHS Management Plan and safety policies and procedures implemented for the construction site.

1.3 Construction Safe Work Practices

Safety is the most important issue in all construction tasks. Setting out tasks may be considered relatively low risk; however, any worker on a construction site must follow all site safety

regulations and procedures. The following are safe work practices that must be followed in construction work to ensure risks are managed and avoided.

Drinking water, hand washing and toilet access facilities

PCBUs must provide safe access to drinking water, handwashing, and toilet access facilities. These are basic amenities that workers must have access to for sanitation purposes and to prevent contamination and infection. This is also in line with the PCBU's duty of care to provide a safe working environment for its workers and the Code of Practice for managing work environment and facilities.

Drinking water facilities: Important guidelines for the correct use of drinking water facilities:

- Check the label of facilities, e.g. is it safe for drinking?
- Use clean disposable or washable drinking containers.
- Avoid sharing drinking containers to avoid the risk of spread of diseases.
- Dispose of drinking containers properly.
- Use drinking facilities according to manufacturer instructions.
- Avoid washing hands in the drinking facility.

Hand washing facilities: Important guidelines for the correct use of hand washing facilities:

- Access and use handwashing facilities as instructed and as required at the construction site (e.g. after visiting the toilet, after handling chemicals, or handling greasy machinery).
- Check the label of handwashing facilities; usually, handwashing facilities used in the actual work process are separate.
- Follow correct handwashing procedures.
- Avoid throwing garbage into the handwashing facility to avoid clogging.
 Toilet access facilities

Important guidelines for the correct use of toilet access facilities:

- Keep toilet facilities clean after use, flush toilet after use.
- Dispose of used tissue paper properly.
- Wash hands after going to the toilet.

Safety procedures for work tasks and equipment

Any construction task must be done safely to avoid risks of injuries, incidents, and emergencies. Tasks must be done in accordance with safety procedures, especially when using the equipment. Below are examples of using equipment and performing work tasks safely.

Safe Manual Handling

Do not use any equipment unless you are trained/qualified and inducted into the use of such equipment **Assess the risks involved** - in any manual handling task, means considering all of the following:

Consider the posture - Stooping, reaching forward, overhead or sideways, either for prolonged periods of time or repeatedly can increase the risk of MSD. Technically, risky postures can be defined as those involving:

- bending the back forwards or sideways more than 20 degrees
- twisting the back more than 20 degrees
- bending backwards more than 5 degrees
- bending the head forwards or sideways more than 20 degrees
- twisting the neck more than 20 degrees
- working with one or both hands above shoulder height
- reaching behind the body















- reaching forward or sideways more than 30cm from the body
- squatting, kneeling, crawling, lying or jumping
- standing with most of the body's weight on one leg
- twisting, turning, grabbing or wringing actions with fingers, hands or arms
- excessive bending of the wrist

Consider the duration and frequency of the task - In some circumstances, a manual handling activity may present minimal risk if undertaken once a day. However, if it has to be performed frequently throughout the day, the risk may increase. As a general guideline, repetitive means - done more than twice a minute. Sustained means held for more than thirty (30) seconds at a time. For example:

- Holding down the trigger of while operating a power tool
- Pushing a trolley
- Lying underneath a vehicle while reaching up to work on it.

Consider the nature of the task - especially if it involves high force. If the task requires a level of force that most people, or the employees required to do the task, would find difficult because of the effort it requires. High



forces can be risks even if they are not repetitive or sustained. This means that any task involving high force must be assessed as a risk, even if the task is only done occasionally or for short periods. The longer and more often the high force, the greater the risk. Some high forces involve the whole body - e.g. lifting or lowering heavy weights. Others involve parts of the body, such as arms.

Consider the condition of the workplace - Physical conditions in the workplace such as a poorly maintained floor surface, poor housekeeping, vibration and extreme temperatures may increase the risk of injury.

Consider the type of object - Not all manual handling tasks involve the handling of compact objects. The size, shape and structure of the load can all affect the risk of injury. In some cases, the load is a moving or living object presenting particular risks. Moving live people and animals is also counted as a manual handling.

The six steps to a safer lift include the following:

- 1. Stop and think plan the lift, can I use a lifting aid?
- 2. Stand close to the load and keep your feet apart for stability.
- 3. Do not bend your back bend your knees.
- 4. Get a firm grip and keep the load close to your body.
- 5. Don't jerk the load lift it smoothly.
- 6. Keep your arms and the load close to your body, and when turning, use your feet rather than twisting.

Basic Rules of Hand Tool Safety

Do not use any equipment unless you are trained/qualified and inducted into the use of such equipment

If you are not familiar with the task, or the tool to be used, check with someone who has experience and ask them to demonstrate how it should be used safely and effectively. Remember, whatever tool you are using, you must consider the likely hazards. For example:

- Tools that involve physical impact (e.g. hammers, shovels) may cause blunt-force injury.
- Tools with sharp edges (e.g. saws, cutting blades) may cause lacerations.
- Heavy tools may cause injury if dropped.

5 Basic Rules of Hand Tool Safety

- Keep all tools in good condition with regular maintenance. ...
- Use the right tool for the job. ...
- Examine each tool for damage before use and do not use damaged tools. ...
- Operate tools according to the manufacturers' instructions. ...
- Provide proper personal protective equipment (PPE)

This safe procedure must be strictly followed to avoid/minimise risks associated with this task, including eye damage/irritation, injury on body part/hand (from the use of hammer), inhaling brick dust etc.

Safe procedures for unloading a pallet of 20kg bags of concrete into a container

Do not use any equipment unless you are trained/qualified and inducted into the use of such equipment

- Ensure appropriate PPE is used (eye protection, boots).
- Ensure the operator of any machinery is properly trained.
- Ensure the path is clear of any tripping hazards.





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- Use mechanical lifting aids, like a forklift or pallet jack to move the pallet as close as possible to the container for unloading.
- Use other lifting aids like a hand trolley or wheelbarrow to move the bags any distance over 5 metres into the container.
- Use good manual handling practices to unload the bags of concrete one by one.
- Ensure everything is put away correctly on completion of the job.

These correct and safe procedures for the movement of concrete and manual handling must be strictly followed to avoid/minimise risks associated with this task, tripping, manual handling injuries, muscle strain, eye damage from cement dust, etc.

Keeping the work area clean, tidy and free from debris

Importance of keeping designated work areas clean

It is important to keep work areas clean to ensure any residual chemical spills, dust, materials, trash, or stains are removed and properly disposed of in the worksite. Any residues of chemicals, hazardous substances, materials, trash, dust, and stains pose health and safety risks to other workers and civilians. When chemical spills and dust come into contact with skin or when inhaled can lead to serious health problems and even death. Some of these residues are also fire hazards, and when ignited can lead to explosions and fires.

Importance of keeping designated work areas tidy

It is important to keep work areas tidy and organised because equipment and power tools lying about on the floor are hazards that could lead to health and safety risks, e.g. unused equipment left on the middle of the road could cause vehicular and mobile plant accidents, which could lead to serious injuries, fatalities and property damage. Equipment left lying around could also be accidentally turned on and injure workers and pedestrians in the area.

Importance of keeping designated work areas free from debris

It is important to keep work areas free from debris because debris is considered a hazard at a construction site, e.g. if scraps and discarded materials lay scattered on the floor or ground, workers may trip on them which may cause injuries or even death. Some debris is also toxic, e.g. asphaltic materials, and some are fire hazards, e.g. lumber, wall coverings, etc. Debris left on the ground is also dangerous to mobile plant operation and vehicles as these plants and vehicles may collide with them, leading to accidents in the workplace. If work areas are filled with debris, it will also negatively impact the time necessary to complete construction tasks.

Drugs and alcohol at work

When you enter a workplace, you must present yourself as ready to work and in a fit state. You must not enter a site if under the influence of alcohol or drugs. A strict no drug or alcohol policy must be maintained by all principal contractors, responsible people and relevant persons within their worksite, and they must remain vigilant and identify anyone who is affected by drugs or alcohol. Being clear of any influence of drugs and alcohol is important while undertaking construction work to avoid the adverse effects of these substances including dulled senses and impaired judgement. This is to avoid/minimise the risks of injuries, illnesses, and fatalities caused by these side effects in the workplace. Excessive alcohol consumption and working while under the influence of alcohol have adverse effects at work. These include impaired problem-solving skills, judgement, concentration, reaction times, and coordination, which could adversely affect the worker's safety and that of others - especially if the worker is involved in high-risk work, e.g. working at heights, operating machinery/plant, handling hazardous substances, welding, etc. This could lead to injuries, illnesses, even death of the person under the influence and others as well as damage to property. E.g. Since a plant operator is responsible for operating the plant safely they must ensure that they remain clear-headed and alert during the entire operation. Being under the influence could lead to the operator passing out (due to overdose or alcohol intoxication), which may lead to inadvertently driving the plant towards other construction workers in the area causing great harm such as injuries and even death. Cannabis, heroin and amphetamines are some illegal drugs that pose serious health and safety risks to the user and other people if the user is under the influence of any of these drugs while undertaking construction work.





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Cannabis or THC (tetrahydrocannabinol)

Tetrahydrocannabinol (THC) in marijuana affects a worker's reaction time, coordination, motor skills, and depth perception, and creates sensory distortions. If the worker is operating machinery, plant or equipment or working at heights and under the influence of cannabis or THC, they are putting themselves and others in serious danger, e.g. with delayed reaction time, hampered coordination, motor skills, and depth perception, the worker could find it hard to stay alert to the hazards around them and therefore could not respond in time. They may also miss completing steps in their tasks that are crucial to perform the tasks safely and correctly.

Heroin

Upon using heroin, the user will feel drowsy and very relaxed, and their physical and psychological senses will also be dulled. Workers who are under the influence of heroin while undertaking construction work put themselves and others at risk, e.g. as the driver of a plant, they could endanger the whole operation – they could hit another person, cause damages to the plant and other properties, etc.

Amphetamines

Use of amphetamines could lead to physical side effects such as blurred vision, rapid heart rate, abdominal pain, lack of judgement and coordination, etc. Workers who are under the influence of amphetamines while undertaking construction work put themselves and others at risk, e.g. while operating machinery or driving, they may take unnecessary risks and drive in an aggressive manner. Other users may also display hostile and aggressive behaviour towards other workers.

Bullying and harassment in the workplace

Workplace bullying is verbal, physical, social or psychological abuse by your employer or manager, another person or group of people at work.

Bullying at work happens when:

- a person or group of people repeatedly act unreasonably toward a worker or a group of workers
- the behaviour creates a risk to health and safety.

Workplace harassment includes repeated behaviours that are offensive and aggressive in nature, such as belittling and threatening behaviours directed at an individual worker or a group of workers.

How can bullying and harassment be prevented in the workplace?

- Be fully aware of the workplace's policies and procedures for anti-workplace bullying and harassment.
- Being fully aware of signs of workplace bullying and harassment.
- Report cases of bullying and harassment to the appropriate channels in the workplace, e.g. supervisor or HR staff.

Importance of avoiding workplace bullying and harassment:

- Bullying and harassment are major sources of workplace stress.
- Bullying and harassment are considered core psychosocial hazards, which could lead to alcoholism (according to the article 'Workplace harassment, active coping, and alcohol-related outcomes' in the Journal of Substance Abuse), post-traumatic stress disorder (PTSD), and other psychological effects such as anxiety and nervousness.
- If not managed, in extreme cases, bullying and harassment could lead to violent behaviour, which could lead to injuries.

Selecting and using required PPE

Personal protective equipment (PPE) is protective clothing that is designed to protect the wearer's body from injury or infection. It is important to select and use appropriate and required PPE for the following reasons:

Selecting the appropriate PPE helps effectively reduce exposure to hazards, e.g. safety glasses are not
effective for work tasks where there are airborne particles such as dust so goggles must be selected
instead.





Below are appropriate PPE to be used for different types of construction work.

Construction work	Appropriate PPE to be used				
Working at	Hard hat, safety harness, steel-toe boots/construction boots				
heights,					
Welding	Heavy-duty gloves/welding gloves, welding mask, overalls, protective jacket.				
Operating a chainsaw	Heavy-duty gloves, earmuffs/hearing protection, goggles, face mask				
Concreting	Safety gloves, Hard Hat, Safety Glasses, Long Pants, Safety Boots and Hi Vis Garments.				

Smoking only in designated areas

It is important to strictly comply with designated smoking areas at a construction site because construction work involves a number of flammable and combustible liquids, e.g. fuel for operating some machinery and plant. If workers do not comply with these designated smoking areas and they smoke anywhere, cigarette butts not extinguished properly could come in contact with these flammable and combustible liquids, which could then start a fire or an explosion. Additionally, there are laws in place on smoking in workplaces to ensure employees are not harmed by inhaling second-hand smoke. Anti-Tobacco Legislation in Queensland makes a number of outdoor public places smoke-free. Smoking is banned within 5 metres as of September 2016 from non-residential building entrances. This includes entrance to government buildings, commercial buildings, shopping centres, banks and other non-residential buildings. The smoking ban also includes the use of all smoking products, including e-cigarettes.

Even though smoking on all construction sites in Queensland is not explicitly banned by Anti-Tobacco Legislation, employers and other PCBUs have the obligation to eliminate health risks to workers and others at work sites under health and safety laws, or for risks that cannot be eliminated, minimise them. As passive



smoking is known to carry a health risk, and this risk can be exacerbated by the presence of the dust and chemicals often found on construction sites, employers should not allow smoking in enclosed areas on construction sites, as part of their general duty of care. On the construction sites of some large construction firms, smoking is banned by established policies, except in designated smoking areas. An area can only be designated for smoking if it is not in an enclosed space and is at least 15 metres away from any designated storage for flammable or combustible goods, hazardous substances or dangerous goods (e.g. gas cylinders, liquefied petroleum gas or LPG storage, shipping container or similar containers or may be flammable or combustible materials).

places where there may be flammable or combustible materials).

Storing and removing waste and debris

Below are examples of storing and removing waste and debris in construction work:

Proper and safe removal of liquid wash out (liquid waste):

- Should not be disposed of in general waste stream.
- Engage professional third-party service providers/ licenced contractors for waste management to collect, treat, and correctly dispose of the liquid waste through licensed waste treatment facilities.

Proper and safe storage of liquid wash out (liquid waste):

 Should be stored in holding tanks or packaged in drums, intermediate bulk containers, or approved small containers.

Proper and safe removal of bricks removed from a wall:

- Place sheets around the work area so that any dust and debris will be collected on these sheets.
- Wear correct PPE safety glasses
- Use masonry chisel
- Strike bricks with a hammer
- Load removed bricks into a wheelbarrow and transfer them safely for disposal

Proper and safe storage of debris:

- Use approved storage containers.
- Use portable storage containers of approved size, type, and make
- Use storage containers that are watertight, non-corrodible, pest resistant.





Chapter 2: Construction Hazards and Risk Control Measures

A **hazard** is a source or a situation with the potential for harm in terms of human injury or ill-health, damage to property, damage to the environment, or a combination of these. For example, noisy machinery, using chemicals and working at heights. A **risk** is the chance of something happening that will have a negative effect. For example, the likelihood of a person's hearing being affected by working with noisy machinery, or the potential of a person falling when working in a high building. It is important to be aware of the hazards that are present in construction work and to fully understand how they may cause harm. Knowing what these hazards are will then help you identify how to appropriately manage or mitigate the harm they may cause. Chapter 2 will discuss construction hazards and appropriate risk control measures for these hazards. It will cover:

- Basic principles of risk management
- Construction hazards
- Purpose and use of Personal Protective Equipment
- Measures for controlling hazards

2.1 Basic Principles of Risk Management

Risk management in construction is critical to ensuring workers and other people are not put in harm's way throughout a construction operation. Persons conducting business or undertaking (PCBU) or business owners must ensure appropriate measures are taken and monitored to mitigate all risks associated with hazards present at a construction site. Risk management is basically the identification of hazards and the assessment and control of risks associated with the hazards identified. For example, if a building is to be constructed where pedestrians pass by, project stakeholders must implement risk management and set up measures so that the health and safety of pedestrians is not put at risk. Project stakeholders do this by carefully assessing the construction work prior to actual operation and identifying all hazards of the construction work, including falling objects, any excavations, etc. Risks from these hazards are then analysed based on their likelihood and severity; then risk controls are identified and implemented. Risk controls include putting up barriers/barricades and setting up pedestrian walkways. These risk controls are then regularly monitored for effectiveness.

Basic principles of risk management

Basic principles of risk management are as follows:



- **Hazard identification:** This involves inspecting a work site or a work task and determining whether an object or a possible event may cause harm.
- **Risk assessment:** This is often completed in conjunction with employees and supervisors to ensure a consensus is reached. Common practice, and advice from the local regulator should also be utilised.
- **Risk control/minimisation:** This involves working through the hierarchy of controls to eliminate or minimise risks as much as reasonably practicable. Again everyone on the construction site needs to work together to form a consensus.

Steps in risk management

Below are the steps in risk management: **Identify hazards**

Hazard identification involves finding things and situations that could potentially cause harm to people. It involves reviewing/inspecting and identifying hazards in the physical environment, equipment, materials, and substances used, as well as in work tasks, and how they are performed and work design and how this work is managed.

Assess risks







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Risk assessment involves reviewing and analysing what could happen if someone is exposed to a hazard and the likelihood of it happening. This includes analysing how hazards may cause harm, how severe this harm could be, and how likely the harm could occur.

Consult and report

Consulting and reporting in the context of risk management involves touching base with those affected by the hazards and the risk management process. This involves reporting the hazards identified to workers affected and consulting with them regarding decisions to be made in the management of these hazards.

Control hazard Control of haza

Control of hazards involves managing the risks associated with these hazards. These risks are managed through implementing controls in accordance with the hierarchy of controls (elimination, substitution, isolation, engineering, admin controls, and personal protective equipment (PPE)).

Review risk controls

Reviewing risk controls ensures that the controls put in place to manage risks are and remain the most effective measures. To review risk controls the affected site, work task, equipment, etc. are inspected again to see if the hazards and associated risks are still there.

2.2 Construction Hazards

Identifying the hazards associated with construction work is the first step in the risk management process. These are examples of hazards commonly found in construction work.

- the construction workplace itself; its layout, accessibility, location and condition
- incorrectly erected equipment; the use of ladders, unguarded holes, unguarded excavations, penetrations and voids, trenches, shafts and lift wells, fragile and brittle surfaces such as cement sheet roofs, skylights, fibreglass roofs and unprotected formwork decks.
- falling objects, such as equipment, debris and tools
- trenches collapsing
- structures collapsing
- the handling, storage, use and disposal or transport of hazardous chemicals
- asbestos and asbestos-containing materials where present
- gases, arcs and welding fumes
- manual hazardous tasks
- the interface with trade activities or other works
- the physical working environment that presents the risk of immersion or engulfment, electric shock, slips, trips, falls, fire or explosion, vibration, heat, cold, static electricity, radiation or a contaminated atmosphere, and confined space where present

Asbestos-containing materials



Asbestos refers to a group of fibrous silicate minerals. Anyone who needs to disturb asbestos should take special precautions since it can cause lung disease if inhaled. Some of the most common household building materials that contain asbestos are asbestos-cement products such as 'AC sheeting' and 'fibro'. Building materials that contain asbestos are generally not considered a risk to health unless they are deteriorating, broken or disturbed in such a way that they produce dust, which contains asbestos fibres. Asbestos poses health risks when asbestos particles are released into

the air and breathed in. Inhaling asbestos particles can cause asbestosis (lung disease marked by severe fibrosis), lung cancer, and mesothelioma (cancer of the pleura).

Cold environments

Working in cold environments can cause harm, such as:

- Cold stress
- Hypothermia
- Frostbite
- Trench foot
- Chilblain









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Heat

Working in the sun or working in hot indoor conditions are common in construction work. Prolonged exposures to these hot environments may cause:

- Cancer
- Heatstroke
- Heat stress
- Dehydration
- Worker fatigue
- Sunburn and irreversible skin damage in some cases

To manage risks associated with heat and working in hot environments:

- Leave hot work until cooler periods of the day, if possible.
- Employ coolers or fans as appropriate.
- Know the effects of dehydration and its warning signs
- Drink plenty of fluids, preferably water



Confined spaces

An end People storage during within o

An enclosed or partially enclosed space is defined as a 'confined space'.

People die in Australia each year in various confined spaces, which may range from storage vessels to complex industrial equipment. A large number of these fatalities occur during attempts to rescue another person from a confined space. Other hazards found within confined spaces can also cause serious injuries.

Below are hazards commonly found in confined spaces:

- Harmful airborne contaminants from a build-up of hydrogen sulphide in sewers, vapours from paints, adhesives, solvents or cleaning solutions.
- Unsafe oxygen levels, as a result of oxygen displacement from gases produced during biological processes such as methane in a sewer.
- If a sparking electrical tool or static on a person is introduced into a space containing a flammable atmosphere, a fire or an explosion is likely to result.
- Plastic, sand, liquid, fertiliser, grain, coal, coal products, fly ash, animal feed and sewage may cause engulfment (to be swallowed up or immersed by material), which may result in asphyxiation.

Drugs and alcohol

When you go to a workplace, you must present yourself as ready to work and in a fit state.

You must not enter a site if under the influence of alcohol or drugs. A strict no drug or alcohol policy must be maintained by all principal contractors, responsible people and relevant persons within their worksite, and they must remain vigilant and identify anyone who is affected by drugs or alcohol. Being clear of any influence of drugs and alcohol is important while undertaking construction work to avoid the adverse effects of these substances - including dulled senses and impaired judgement. This is to avoid/minimise the risks of injuries, illnesses, and fatalities caused by these side effects in the workplace. Excessive alcohol consumption and working while under the influence of alcohol have adverse effects at work. These include impaired problem-solving skills, judgement, concentration, reaction times, and coordination which could adversely affect the worker's safety and that of others especially if the worker is involved in high-risk work, e.g. working at heights, operating machinery/plant, handling hazardous substances, welding, etc. Any of these effects could lead to injuries, illnesses, or even the death of the person under the influence and others as well as damage to property. E.g. Since a plant operator is responsible for operating the plant safely, they must ensure that they remain clear-headed and alert during the entire operation. Being under the influence could lead to the operator passing out (due to overdose or alcohol intoxication) which may lead to inadvertently driving the plant towards other construction workers in the area causing great harm such as injuries and even death. Cannabis, heroin and amphetamines are some illegal drugs that pose serious health and safety risks to the user and other people if the user is under the influence of any of these drugs while undertaking construction work.





illegal drug	Risk of using drugs while undertaking construction work
Cannabis or THC (tetrahydroc annabinol)	Tetrahydrocannabinol (THC) in marijuana affects a worker's reaction time, coordination, motor skills, and depth perception, and creates sensory distortions. If the worker is operating machinery, plant or equipment or working at heights and under the influence of cannabis or THC, they are putting themselves and others in serious danger, e.g. with delayed reaction time, hampered coordination, motor skills, and depth perception, the worker could find it hard to stay alert to the hazards around them and therefore could not respond in time. They may also miss completing steps in their tasks that are crucial to perform the tasks safely and correctly.
Heroin	Upon using heroin, the user will feel drowsy and very relaxed, and they will also feel their physical and psychological senses are dulled. If taken in large amounts or ingesting a strong batch, the user could overdose, which may lead to irregular heartbeat, passing out, or even death. Workers who are under the influence of heroin while undertaking construction work put themselves and others at risk, e.g. as the driver of a plant, they could endanger the whole operation – they could hit another person, cause damages to the plant and other properties, etc.
Amphetami nes	Amphetamines are central nervous system (CNS) stimulants. Use of amphetamines could lead to physical side effects such as blurred vision, rapid heart rate, abdominal pain, lack of judgement and coordination, etc. Workers who are under the influence of amphetamine while undertaking construction work put themselves and others at risk, e.g. while operating machinery or driving, they may take unnecessary risks and drive in an aggressive manner, other users may also display hostile and aggressive behaviour towards other workers.

Dust

This is a general term used to describe different types of dust that you may find on a construction site. There are three main types:

- silica dust created when working on silica-containing materials like concrete, mortar and sandstone (also known as respirable crystalline silica or RCS).
 - It is found in:
 - o most rocks, sands, and clays
 - o products such as concrete, mortar, brick, blocks, pavers, tiles, natural and composite stone benchtops
 - o cement-based materials such as fibre-cement sheeting and autoclaved-aerated concrete.

They are generated from high-energy processes such as cutting, sawing, grinding, drilling, polishing, scabbling and crushing of silica-containing materials. High exposures to RCS over a short period of time:

- May lead to silicosis, which is an incurable lung disease that may lead to disability and death.
- May lead to lung cancer, renal cancer, chronic obstructive pulmonary disease (COPD).
- wood dust created when working on softwood, hardwood and wood-based products like MDF and plywood;
- lower toxicity dusts created when working on materials containing very little or no silica. The most common include gypsum (e.g. in plasterboard), limestone, marble and dolomite.

Electrical equipment

Electricity is a major hazard, if not correctly controlled; this can present a significant risk to workers on a building site. Electricity has been referred to as 'a silent killer', and safety precautions must be observed accordingly. Electrical hazards include:

Power lines: Electromagnetic radiation from high voltage power lines can adversely affect the health of people staying near them. Strong electromagnetic frequencies coming from these power lines can interfere with the human body's natural EMF, which may result in disruption of the sleep cycle, stress levels, immune system, and DNA.







Electrical cords: Damaged, worn, cracked and corroded electrical cords increase chances of electrical accidents such as firepower surges, arc faults and other serious consequences such as injuries or death caused by electrocution.

Electrical equipment: Portable electrical equipment including plugs, sockets, and electrical connections, may get worn/damaged from use, especially when used outdoors and in damp surroundings. Use of defective electrical equipment may lead to electrical shocks leading to muscle spasms, palpitations, nausea, vomiting, collapse, and unconsciousness. Electrical explosions can also happen, which may lead to fire accidents and fire-related injuries.

Equipment operation

Construction work relies a lot on equipment operation. It is important that we are aware of the hazards common in equipment operation.

Mechanical hazards associated with equipment operation					
Hazard	Risk				
Rotating shafts, pulleys, sprockets, and gears	Entanglement of a person's hair, clothing, gloves, etc.				
Hard surfaces moving together	Crushing injury				
Cable or hose connections	Slips, trips, and falls, e.g. oil leaks				

Non-mechanical hazards associated with equipment operation						
Hazard	Risk					
Dust	May lead to silicosis, an incurable lung disease that may lead to disability and death. May lead to lung cancer, renal cancer, chronic obstructive pulmonary disease (COPD).					
Explosive or flammable atmospheres	Fire-related injuries, burns, or death					
Heavy metals (lead, cadmium, mercury)	Lead poisoning, mercury poisoning					

Excavations and trenches

Trenches and excavation are serious hazards at construction and building sites. Hazards in trenches and excavations include:

- Falling or dislodging of earth or rock
- Falls from one level to another
- Falling objects
- Inappropriately placed excavated materials, plant or other loads
- Unstable adjoining structure caused by the excavation
- any previous disturbance of the ground including previous excavation
- the instability of the excavation due to persons or plant working adjacent to the excavation
- the presence of or possible inrush of water or other liquid
- hazardous manual tasks
- hazardous chemicals
- vibration and hazardous noise, and
- overhead essential services (powerlines) and ground-mounted essential services (transformers, gas and water meters).

There are several risks associated with these hazards, and these may include:

- excavated material collapsing and trapping a worker
- the death or injury of a worker
- open excavation-related accidents including falling and its resulting injuries
- damaging adjacent structures and properties
- damaging underground services in the vicinity
- confined space considerations such as providing safe egress and entry points

Falling objects

Falling objects can cause serious injuries and pose a significant risk to members of the public or workers at construction sites if control measures are not implemented to minimise or eliminate associated risks. A person could receive fatal head injuries if equipment or building materials are not secured or prevented from falling. Objects that could fall include:







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- parts of a structure being dismantled or being built
- demolished walls
- materials stacked or stored at the workplace
- waste or construction material
- debris
- plant
- tools
- scaffolding components
- precast concrete panels

When work is undertaken in open excavations or at heights, there will be risks of objects falling on people, machines could topple over or rollover. If work cannot be performed safely from solid construction or the ground, safety measures such as temporary work platforms and perimeter guard rails (e.g. work boxes, scaffolding and elevated work platforms) should be provided. Here are ways you can manage risks in relation to falling objects:

- Put something in place to stop the object from falling, if possible. This can be done by installing secure barriers, screening nets, and catch platforms.
- If an object can't be prevented from falling, stop it free-falling. This can be done by implementing a safe system of raising and lowering the object.
- Where an object can't be prevented from free-falling, make necessary arrangements to ensure no one gets hurt from these falling objects. This can be done through establishing exclusion zones, installing overhead protection on mobile plant, and wearing personal protective equipment (e.g. safety hard hat.)

Hazardous substances

Many building sites commonly have hazardous substances, so their use, disposal and storage must be controlled. Their associated risks must be made aware to any and all workers who use or come in contact with any of these substances. A material safety data sheet (MSDS) is intended to provide emergency personnel and workers with procedures for working or handling with that substance in a safe manner and includes information such as physical data (boiling point, flash point, melting point, etc.), health effects, first aid, toxicity, reactivity, disposal, storage, spill handling procedure and protective equipment. The format of the MSDS will vary from source to source depending on national requirements within a country. Correct labels and signs must be used, allcontrol measures must be in place and the risk must be made known to any workers coming into contact with the materials.



Below are some hazardous substances commonly used in construction work and the harm they may cause:





Cement and cement-based products such as mortar and concrete	Exposure to dust from cement and cement-based products such as mortar and concrete can irritate the eyes, nose, throat, and upper respiratory system and can cause serious skin problems such as dermatitis and burns.
Lead	High levels of lead exposure (from lead dust and fumes) can cause damages to the brain and central nervous system, which may result in coma, convulsions and even death.
Solvents	Solvents found in paints, thinners, resins, and glues may cause health problems when inhaled, ingested or when they come in contact with skin. They may cause bronchial irritation, dizziness, skin irritation and severe toxicological effects, particularly in enclosed or unventilated environments.
Isocyanates	Isocyanates are compounds classified as carcinogens (cancer-causing). Exposures to isocyanates may lead to asthma and other lung problems.
Carbon monoxide	Carbon monoxide is a colourless and tasteless poisonous gas produced by engines and gas-powered equipment. Inhaling CO can cause dizziness, vomiting and nausea, and unconsciousness and death if exposed to high levels.

Australian Dangerous Goods Code

Below are all the hazard classes of dangerous goods according to the Australian Dangerous Goods Code:

Class #	Hazard class
1	Explosive substances and articles
2	Gases
3	Flammable liquids
4.1	Flammable solids, self-reactive substances and solid desensitized explosives
4.2	Substances liable to spontaneous combustion
4.3	Substances which, in contact with water, emit flammable and/or toxic gases
5.1	Oxidizing substances
5.2	Organic peroxides
6.1	Toxic substances
6.2	Infectious substances
7	Radioactive material
8	Corrosive substances
9	Miscellaneous dangerous substances and articles

High-risk licence

Safework Australia lists the following areas of construction work as high-risk and therefore a high-risk licence is required for workers who will be working in these areas. A high-risk licence ensures that a worker is fully trained, capable, and competent before working in these areas.

- Basic to advanced scaffolding
- Dogging
- Basic to advanced rigging
- Tower crane
- Self-erecting tower crane
- Derrick crane
- Portal boom crane
- Bridge and gantry crane
- Vehicle loading crane, etc.

In-ground services

Death or injury may be caused by existing underground services to workers on-site.

Underground essential services, such as gas, water, sewerage or electricity may cause harm when locations of pipes, lines, and tanks for these services are not established properly prior to the excavation or trench work commencing. Potential risks include:

- Fire or explosion (piping and gas services)
- Excavation and site flooding (sewerage and water)





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- Personnel being electrocuted (electrical conduits, services and cabling)
- Services being damaged and costing thousands in dollars from repair bills, which can be recovered from responsible persons

There needs to be a well-established plan for controlling risk and carrying out site work where disruption or damage to existing services may occur. A person conducting an undertaking or business with management or control of a workplace must take all reasonable steps to obtain current underground services and all included information that relates to areas adjacent to the workplace before commencing excavation work. All persons that are carrying out excavation work must be provided with this information and to ensure it is readily available for inspection under the WHS Act until the excavation is completed or if there has been a notifiable incident relating to excavation, 2 years after the incident has occurred.

Long work hours

A lack of alertness and awareness can be an effect of fatigue, and can result in injuries becoming more likely due to the acceptance of lower standards and slowing of reaction times of safety in the workplace. Fatigue can be caused by long work hours. A person who experiences fatigue may accept lower standards, lose concentration, be less aware of the risk, and have poorer physical coordination.

Manual tasks

Manual handling refers to any activity or task that involves lifting, lowering, pushing, pulling, carrying, holding, or restraining something. It can include repetitive movement, repetitive or sustained force, high or sudden force, sustained or awkward postures, exposures to vibration. Below are examples of manual handling tasks in construction:

- Plasterboard installation
- Crate operation for moving materials
- Removal of structural members by hand during demolition
- Erection of 1800mm temporary fencing during site setup
- Laying concrete stormwater pipe in a trench during excavation work

Source: worksafe.qld.gov.au (a more comprehensive list found here)

Incorrect lifting in the workplace causes several injuries among people who attempt to move objects which are far too awkward or heavy to move unassisted or manually. These injuries could lead to musculoskeletal disorders (MSDs). MSDs occur through gradual wear and tear caused by repeated or continuous use of the same body parts, including static body positions and through strenuous activity or unexpected movements such as when loads being handled move or change position suddenly. Examples:

- Sprains and strains of muscles, ligaments and tendons.
- Back injuries including damage to the muscles, tendons, ligaments, spinal discs, nerves, joints and bones.
- Joint and bone injuries or degeneration, including injuries to the shoulder, elbow, wrist, hip, knee, ankle, hands and feet.
- Nerve injuries or compression (for example carpal tunnel syndrome).
- Muscular and vascular disorders as a result of hand-arm vibration.
- Soft tissue injuries such as hernias.
- Chronic pain (pain that lasts longer than three months).
- Acute pain (pain that lasts less than three months).

Before lifting materials, think about the load you're going to move, plan a route and look for obstacles that will make a move difficult, hazardous or impossible. Injuries can be as mild as sprains and strains or be as serious as ruptured spinal disks, permanent musculoskeletal damage, breaks and fractures.

Safe Manual Handling

Think – PLAN

- Where am I going?
- What am I lifting?
- Are there any aids available?
- Do I need help?
- Are there any obstructions in my path?

Think – GRIP

Ensure the grip is secure.









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- Are there suitable handholds?
- Is the load likely to slip?
- Keep arms within the boundary of the body

Think – FEET

- Am I wearing suitable footwear for this task?
- Place feet apart to give a good balanced posture.
- Place the leading foot so it is positioned slightly forward in the direction of travel.

Think – LIFT

- Keep relaxed
- The upward movement starts with the head.
- Make the movement as smooth and progressive as possible.
- Use the power of the legs
- Keep the load close to the body.
- Keep the heaviest part towards you
- If you need to turn, move the feet. Do not twist the body.
- Put the load down then adjust it if necessary.

Think – POSTURE

- Keep spine in its normal alignment.
- Bend from knees but do not over flex them.
- Keep shoulders and knees in normal alignment
- Keep the shoulders level.

Noise



Over time, stressors such as extreme temperature, vibration, and noise can affect a person and lead to irreversible damage. Being exposed to excessive levels of noise, even in just a short amount of time, can result in permanent hearing damage or loss. Heavy machinery or plant operators are often exposed to the aforementioned hazards. A worker becomes increasingly affected by vibration, noise, heat or cold over time, so these have serious implications on safety.

Below are examples of construction equipment that are considered noise hazards:

- Jackhammer
- Chop saw
- Chain saw
- Hammer drill

Exposures to excessive noise pose risks to a person's health, including:

- Hearing loss
- Heart disease
- Fatigue
- Aggression
- Reduction in the immune response
- Loss of concentration
- Stress
- Hypertension

Plant and vehicles

A plant may be machinery, equipment, a container, an implement or tool and includes anything fitted or connected to any of those things. Plant includes items as diverse as lifts, cranes, computers, machinery, conveyors, forklifts, vehicles, power tools and amusement devices.

Mobile plant is any plant that is provided with some form of self-propulsion that is ordinarily under the direct control of an operator and includes:

- earthmoving machinery (e.g. rollers, graders, scrapers, bobcats)
- excavators
- cranes
- hoists
- elevating work platforms
- concrete placement booms
- reach stackers and forklifts.







Noise vibration, heat, etc. can affect operators of equipment and plant, as well as those working close to them. Keeping a careful lookout and being aware of the risk, movement and location of all plant are necessary for all persons on-site. Understanding and attentiveness of the work being undertaken by machinery is a very important part of staying safe and being aware. Below are hazards common in plant operation and their associated risks:

Hazards	Risks				
Moving parts of the	Person/plant operator's hair, clothing, gloves, necktie, etc. can get caught or				
Parts of the plant collapsing	Person can get crushed by the part of the plant that collapsed, causing serious injury or death.				
High-pressure	Mechanical failures of pressurised elements of a plant may release fluids that can				
hydraulic fluid	cause burns and serious illnesses to the plant operator and other people nearby.				
Electrical leads and wires	Electrocution, electrical shock and burns to the plant operator and other people nearby.				
Repetitive movements	Manual handling risks such as musculoskeletal diseases.				
required to operate	Source: safeworkaustralia.gov.au				
the plant					

Additionally, poor ground conditions, such as muddy ground (due to rain or presence of a substantial amount of water), can create a risk for mobile plants to overturn. The presence of cavities or penetrations could adversely affect the mobile plant stability, which can lead to the plant overturning. This could lead to the serious injury or death of the plant operator and other people within the vicinity of the plant. Traffic movements at a worksite, especially with multiple mobile plants operating at the site, (e.g. vehicles including powered mobile plant moving in and around a workplace, reversing, loading and unloading), can lead to accidents such as mobile plants colliding with each other, plant overturning, etc. An accident could cause damage to the plant and trigger mechanical failures that can result in the release of high-pressure hydraulic fluid, gases, vapours etc., which could lead to serious injuries or even death of the plant operator(s) and people within the vicinity and also cause damage to the property.

Structural collapse

The structural collapse of trenches, walls, buildings, cranes etc. can cause serious injury or death for workers in the immediate area of the collapse and due to the unexpected, sudden nature of a collapse, workers have no time to respond. Unplanned structural collapse can occur from a variety of factors, including but not limited to: poor ground conditions, presence of water in the ground (e.g. from heavy rains, or soil that is mixed with water from underground springs, or streams), the type of ground the structure is built on, cavities or penetrations in the ground that have been covered but still exist, etc. These factors can lead to unplanned collapse, such as the collapse of a building or a structure (or a part of). Unplanned structural collapse poses a significant danger to construction workers as well as the people in the vicinity. Debris or collapsed parts may fall on and crush people, causing significant injuries and even death, as well as massive property damage. People may also get trapped under the collapsed parts. Workers should watch weather reports to be informed in advance of strong winds or other adverse weather conditions. This will allow them to provide extra support for the structure if necessary. Cautious workers needn't be the victim of structural collapses; all it takes to remain safe is preparation, awareness of the hazards and knowledge of the correct procedures to avoid accidents.

Underground services (e.g. gas, water, sewerage, electricity)

Underground essential services, such as gas, water, sewerage, electricity may cause harm when locations of pipes, lines, and tanks for these services are not established properly prior to the excavation or trench work commencing. If these pipes, lines, and tanks are damaged due to the excavation or trench work, electrocution, explosion, gas escape, and flooding may occur, causing injury or death.

Unguarded machinery

Safety devices and correct guards must be fitted onto plant and power tools in order to minimise the risk of injury. To make sure that the user is safe, a guard device must be present, and it must be properly fitted onto the machinery. The use and fitment of all guards on equipment must be taught to all persons who will use that equipment. Clothing, jewellery and loose hair must also be considered when using any equipment or plant which has fast-moving or rotating parts.







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Trips and falls

Injuries may be caused by tripping, so you can prevent these injuries by controlling the use of ropes and leads or cables on-site. Cables, leads and ropes can cause people to trip and should be run at height and kept above the floor level. Workers have been killed or incurred serious injuries by falling from high areas at their workplace.

Waste materials

Setting up suitable storage facilities and locations on-site is needed to keep the site clean and safe. The collection and storage area may include skips or bins in which to keep waste materials. Prevent run-off or watercourse contamination because these may occur due to incorrectly managed areas for waste collection. Good practices in housekeeping minimise associated risks, which include:

- tripping
- fire
- disease
- damage to plant
- cuts, abrasions and lacerations

Ultraviolet radiation

Each year, UV radiation and sun damage affect thousands of Australians. Most of the cases are from exposure

whilst working on or around construction and building sites. The primary source of UV radiation is sunlight and, as a significant number of construction workers work outdoors during the day, construction workers receive up to 10 times more UV exposure than indoor workers. UV radiation is also widely used in industrial practices including construction work, e.g. UV radiation from lighting used in construction work, welding, and using plasma torches. UV radiation exposure may lead to sunburn, erythema (skin reddening), photodamage (photoaging), photocarcinogenesis, eye damage, alteration of the immune system of the skin, and chemical hypersensitivity, and skin cancers. Acute excessive exposure may lead to sunburn or erythema (skin reddening). However, chronic exposure to UV radiation can lead to a number of degenerative changes in the cells, fibrous tissue and blood vessels of the skin. UV radiation exposure also accelerates skin ageing, and the gradual loss of the skin's

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elasticity results in wrinkles and dry, coarse skin. Because UV is harmful, each of us has the responsibility to keep ourselves protected from it by:

- wearing adequate and appropriate clothing (sunglasses, long sleeves, hats, etc.)
- applying skin protection, such as applying sunscreen
- working in areas that are shaded from sunlight if possible
- providing equipment that gives work areas shade from sunlight
- using scheduling to minimise exposure to harmful UV rays or sunlight

UV protective clothing or hard hat sun shield is used to protect the wearer's head from injuries as well as protect the head, neck, face, and scalp from harmful UV rays which can potentially cause cancer. UV protective clothing or hard hat sun shield are used when doing construction work outdoors under the heat of the sun. Sunscreen is also used to protect the skin from the harmful effects of the sun and to prevent sunburn. Sunscreen is used when doing construction work outdoors work outdoors under the heat of the sun.



Working at heights



Workers have been killed or incurred serious injuries by falling from high areas at their workplace. Risk of falls from working at heights, including scaffolding, can most effectively be minimised by eliminating the need to work at height. If this is not possible, other preventative measures can be implemented following the Hierarchy of Controls. These may include installing a fall prevention device, which may include guard rails or barriers and roof safety mesh. Workers working at heights must also be provided with safety-standard harnesses. Additionally, the risks associated with scaffolding work can be minimised through the identification of the hazards present. Hazards in scaffolding work can be identified by:

- Walking around the workplace to identify areas where scaffolds are used, or scaffolding work is
 performed and where there is interaction with vehicles, pedestrians and fixed structures.
- Looking at the environment in which the scaffold is to be used, including checking ground conditions.



Manual

- Identifying the major functional requirements of the scaffold, e.g. the maximum live and dead loads and access requirements.
- Inspecting the scaffolding before and after use.
- Asking workers about any problems they encounter or anticipate at your workplace when constructing or interacting with scaffolds and scaffolding work—consider operation, inspection, maintenance, repair, transport and storage requirements.
- Inspecting the erected scaffold.
- Reviewing your incident and injury records, including near misses.

2.3 Purpose and Use of PPE

Personal protective equipment (PPE) refers to any kind of equipment, clothing or substance designed to be worn in order to protect the wearer from risks of injury or illness. Personal protective equipment (PPE) should only be considered as a control measure when a worker cannot avoid being exposed to risk, and the risk cannot be minimised in any other way; or when it is used alongside other control measures as a last line of defence between the hazard and the worker. Personal protective equipment does not control a hazard or minimise risk at the source. PPEs commonly used in construction work include:

Safety goggles, safety glasses

Purpose: To protect and shield the eyes against harmful dust, airborne particles, liquids or chemical splash, irritating gas, vapours and fumes.

Application/used for: Safety goggles are used where heat, dust, chemicals, or flying or falling objects, fragments, particles are present or may occur, such as welding, handling chemicals, woodworking or other tasks where it is generally dusty.

Important guidelines on how to wear safety goggles correctly:

- The glasses sit comfortably on the candidate's face, i.e. there are no uncomfortable pressure points behind the ears or on the side of the head.
- Nose piece lies comfortably on the candidate's nose, and there is no pinching.
- Candidate can see in all directions without major obstructions.
- Frames fit close to the face without hitting the candidate's eyelashes.
- The glasses should stay in place even when the candidate moves their head front to back and side to side.
- Lenses should cover the eyebrow and any soft tissues around it.

Hearing protection, earmuffs

Purpose: To prevent noise-induced hearing loss. It is designed to reduce the noise energy reaching and causing damage to the inner ears.

Application/used for: Earmuffs are used where workers are exposed to excessive noise levels (e.g. equal or greater to 85 decibels), e.g. operating a jackhammer, chop saw, chain saw, hammer drill, etc. or working in the vicinity where these pieces of equipment are being used, plant operations, excavations, and demolitions, etc.

Important guidelines on how to wear earmuffs correctly:

- Position ear cups over ears.
- Adjust the height of earcups, so they fully enclose ears and seal tightly against the head.
- Place headband so it sits straight on the head.

Hard hat, safety helmet

Purpose: To protect the head from injuries by resisting and deflecting blows caused by falling objects or from collision with a platform or another object and by absorbing and defusing the shock of impact caused by these.

Application/used for: Hard hats are used where there are risks of free-falling objects from roof scaffolding, poorly secured loads being lifted, dislodgement of rocks, soil, and bricks and when working at heights, such as excavation work, working within the construction site of a building, etc.

Important guidelines on how to wear hard hats/safety helmets correctly:

Check the hard hat for any defects or damages.













- Adjust the harness suspension so that there is proper clearance (approx 1 to 1¼ inches between hat and head).
- Ensure the user is not wearing anything else under the hat, e.g. baseball cap or a sock cap.

High visibility retro-reflective vest

Purpose: To ensure the wearer remains visible to moving vehicles or any machinery. This is to avoid any untoward incidents such as machinery (or any part of) hitting or colliding with a worker or a vehicle/plant (or any part of) running over a worker.

Application/used for: High-visibility retro-reflective vests are worn where workers are in an area near any machinery plant/vehicles operating, e.g. roadwork, paving, pedestrian control for ongoing construction work, etc. This is also used where construction work is undertaken during night-time or where there is a limited source of light, e.g. underground or excavation works.

Important guidelines on how to wear high visibility retro-reflective vests correctly:

- The correct size must be selected.
- The vest fits the wearer with some allowance for the garments to be worn underneath.
- The vest is done up properly around the body, i.e. the vest is not worn backwards.
- There are no loose or dangling components from the vest.
- The vest should sit correctly on the body and stay in place.

Safety boots, safety footwear, or steel-toe boots

Purpose: To protect the wearer's feet from falling objects or compression, prevent against punctures that may come from below, slips, trips, and falls, and electrical hazards.

Application/used for: Safety boots are worn where there are risks of free-falling objects from dislodgement of bricks or rocks, dropping tools such as a hammer, where work is conducted in slippery or unstable floors/platforms, where there are sharp objects on the ground, e.g. excavation works, plant operation, etc.

Safety harness

Purpose: To protect its wearer from injuries caused by falling from a height by securing the wearer through a restraint system comprised of a body support element, which is the harness; a connection, e.g. a lanyard or rope; a connector, e.g. hook or karabiner; and an anchorage, usually a secured pole.

Application/used for: Safety harnesses are worn when working at heights, e.g. installation of roofing tiles, scaffolding, etc.

Respiratory protection equipment or respirator

Purpose: To protect the wearer from inhaling hazardous substances in the air, such as dust, airborne microorganisms, harmful fumes, gases, and vapours.

Application/used for: Respirators are worn when doing work that involves the use of cement or cement-based products, leads, solvents, and gas-powered equipment, which emit carbon dioxide, and other substances that can cause harm to the body when inhaled.

The Workplace Health and Safety Act 1995 states that risks have control measures and that those should be assessed, implemented and reviewed to minimise or prevent exposure to risk. On the hierarchy of control measures, administrative controls and PPE are at the bottom. Personal protective equipment should not be relied on as the main control measure since it does not control the hazard at the source unless it is an interim or temporary measure or when all options higher on the list of controls have been exhausted. As a control measure, the effectiveness of PPE is limited. Some issues associated with PPE are that:

- it causes discomfort to the wearer,
- it makes working harder,
- it creates other issues that put a person's health and safety at risk, and
- using it can be costly and expensive in the long run

Appropriate personal protective equipment must be checked by employers to be up to standards. Who pays for PPE can be determined through negotiations in the workplace. In deciding who should provide PPE, consider:

whether the equipment is available,













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- whether workers can use the PPE outside work, such as with boots or sunglasses,
- whether workers need to have equipment personally fitted, and

any agreements regarding the provision of PPE in the relevant industrial award or enterprise

PPE provides the proper protection at the level it is designed for when it:

- gives appropriate protection from the risk and is appropriate for the type of work,
- protects its user adequately,
- does not create additional health and safety risks,
- is usable alongside another PPE (e.g. earmuffs with a hard hat),
- properly fits the user,
- does not cause interference or aggravate any of the user's medical conditions,
- is easy to use,
- is comfortable, and
- complies with relevant Australian Standards.

Consultation must be done with workers when selecting PPE in order to consider each person's style preference and individual characteristics.

When using PPE, ensure:

- that the usage of the equipment properly follows the instructions provided by the manufacturer,
- that the PPE is fitted correctly to the user,
- that workers have received instruction and training on how to use PPE, and
- that there are signs displayed that remind workers of areas where PPE must be worn.

The training of workers regarding PPE regarding the provision, correct use, storage and maintenance arrangements should be given:

- whenever a new worker is employed,
- whenever new PPE is acquired, and
- every now and then to remind workers of these arrangements.

Storing and maintaining PPE

When storing PPE, care should be taken that it is stored cleanly and in a fully operational way. Over the course of its storage and use, it should be checked regularly, and it should be accessible whenever needed.

Maintenance is vital for the continued effectiveness of PPE. The program of maintaining PPE should include the identification and recording of:

- the responsibilities and duties in maintenance,
- the procedures for storing PPE,
- the procedures for cleaning PPE,
- the procedures for checking PPE, and
 - the criteria on replacing PPE.

PPE is used to minimise risk to health and safety. A person conducting the business or undertaking who directs the carrying out of work must provide PPE to workers at a workplace unless PPE has been provided by another person conducting business or undertaking. Workers, as reasonably able, wear or use the equipment in accordance with any training, information or reasonable instruction by the person conducting the business or undertaking. Visitors to the workplace should also be provided with personal protective equipment such as gloves, hard hats, high visibility clothing, and respiratory equipment that must be worn on a construction site and to protect them from health and safety risks. PPE must be worn by visitors in accordance with any training, information and instruction provided to them by the person conducting business or undertaking.



2.4 Measures for Controlling Hazards

Assessing Risks:

A risk assessment involves considering what could happen if someone is exposed to a hazard and the likelihood of it happening. A risk assessment can help you determine: how severe a risk is, whether any existing control measures are effective, what action you should take to control the risk and how urgently the action needs to be taken. A risk assessment can be undertaken with varying degrees of detail depending on the type of hazards and the information, data and resources that you have available. It can be as simple as a discussion with your workers or involve specific risk analysis tools and techniques recommended by safety professionals.





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Common risk at road work sites

Work out how hazards may cause harm

In most cases, incidents occur as a result of a chain of events and a failure of one or more links in that chain. If one or more of the events can be stopped or changed, the risk may be eliminated or reduced. One way of working out the chain of events is to determine the starting point where things begin to go wrong and then consider: 'If this happens, what may happen next?' This will provide a list of events that sooner or later cause harm. In thinking about how each hazard may cause harm, you should consider:

- the effectiveness of existing control measures and whether they control all types of harm
- how work is actually done, rather than relying on written manuals and procedures
- infrequent or abnormal situations, as well as how things are normally meant to occur.

Consider maintenance and cleaning, as well as breakdowns of equipment and failures of health and safety controls.

Likelihood

Likelihood is the chance of something happening and can be established using the example likelihood measures as detailed in the below Table.

Risk matrix – likelihood descriptions

Likelihood	Description						
Almost certain	 Expected to occur in most circumstances, or Expected to occur at least 8 in 10 times the event or action occurs, i.e. more than a 80% chance of occurrence, or Will probably occur with a frequency in excess of 10 times per year. 						
Likely	 Expected to occur multiple times during any given year, or Expected to occur between 8 in 10 and 1 in 10 times the event or action occurs, i.e. between a 10% to 80% chance of occurrence, or This risk is known to occur often but less than 10 times per year 						
Possible	 Expected to occur once during any given year, or Expected to occur between 1 in 10 and 1 in 100 times the event or action occurs, i.e. 1% to 10% chance of occurrence, or This risk is known to have occurred on occasions 						
Unlikely	 Expected to occur once every 1 to10 years, or Expected to occur between 1 in 100 and 1 in 1000 times the event or action occurs, i.e. 0.1% to 1.0% chance of occurrence, or This risk could occur but not often 						
Rare	 Not expected to occur in the next 10 years ie less than once every 10 years, or Expected to occur less than 1 in 1000 times the event or action occurs, i.e. less than 0.1% chance of occurrence, or It is unusual that this risk occurs, but it has happened 						

Work out how severe the harm could be

- To estimate the severity of harm that could result from each hazard you should consider the following questions:
 What type of harm could occur (e.g. muscular strain, fatigue, burns, laceration)? How severe is the harm? Could the hazard cause death, serious injuries, illness or only minor injuries requiring first aid?
 - What factors could influence the severity of harm that occurs? For example, the distance someone might fall or the concentration of a particular substance will determine the level of harm that is possible. The harm may occur immediately if something goes wrong (e.g. injury from a fall) or it may take time for it to become apparent (e.g. illness from long-term exposure to a substance).
 - How many people are exposed to the hazard and how many could be harmed in and outside your workplace? For example, a mobile crane collapse on a busy construction site has the potential to kill or injure a large number of people.
 - Could one failure lead to other failures? For example, could the failure of your electrical supply make any control measures that rely on electricity ineffective?





• Could a small event escalate to a much larger event with more serious consequences? For example, a minor fire can get out of control quickly in the presence of large amounts of combustible materials.

Consequence is the outcome resulting from a risk being realised. The appropriate consequence rating may be selected using the consequence measures contained in the below table.

Rating	Impacts
Insignificant	No treatment required
Minor	First aid treatment required
Moderate	Medical treatment required or Lost Time Injury
Major	Single fatality or major injuries or severe permanent disablement
Catastrophic	Multiple fatalities

Actions: A: Identify the Consequences B: Assess the likelihood C: Apply the risk rating and select the controls

A		<mark>B</mark> Likelihood					Rating Key:VH=Very High,H= High,M= Medium,L= Low,N=NegligibleConsequenceKey:CAT=Catastrophic,MAJ=Major,MOD=Moderate,MIN=Minor,INS=InsignificantLikelihoodKey:AC=AlmostCertain,L=Likely,P=Posible,UL=Unlikely,R=RareRar				
		AC	L	Р	UL	R	Risk	C Suggested treatment a	pproach		
C o n s	CAT	VH	νн	н	н	м	νн	Unacceptable. Must be corrected.	Significant and urgent action is required to eliminate the safet risk or reduce the consequence of likelihood of the risk and overa risk exposure.		
q u e n	MAJ	VH	νн	н	м	L	н	Should be corrected or the risk significantly reduced, even if the treatment costs are high.	Immediate action is required, and effort must be made to eliminate of the risk is or minimised so far as is practicable if elimination is not reasonably practicable.		
e	MOD	н	н	м	L	L	M Should be corrected or the risk significantly reduced, if the treatment cost is moderate, but not high.		Action is required and effort must be made to ensure that the risk is eliminated so or minimised so far as is practicable if elimination is not reasonably practicable.		
	MIN	н	м	L	L	L	L	Should be corrected or the risk reduced, if the treatment cost is low.	A level of safety risk that requires monitoring and review to ensure that the safety risk remains at this level.		
	INS	М	L	L	L	N	N	No action required	Safety risk has been determined to be so low that no further action is required. In this case the consequence is considered to not result in any injury to any person.		

Control the Risk

The most important step in managing risks involves eliminating them so far as is reasonably practicable, or if that is not possible, minimising the risks so far as is reasonably practicable. In deciding how to control risks you must consult your workers and their representatives who will be directly affected by this decision. Their experience will help you choose appropriate control measures and their involvement will increase the level of acceptance of any changes that may be needed to the way they do their job.





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There are many ways to control risks. Some control measures are more effective than others. You must consider various control options and choose the control that most effectively eliminates the hazard or minimises the risk in the circumstances. This may involve a single control measure or a combination of different controls that together provide the highest level of protection that is reasonably practicable.

Some problems can be fixed easily and should be done straight away, while others will need more effort and planning to resolve. Of those requiring more effort, you should prioritise areas for action, focusing first on those hazards with the highest level of risk.

Hierarchy of Control

Hierarchy of control is a system used to minimise or eliminate the risks of hazards identified.

The diagram shows the Hierarchy of Controls. The diagram shows the five controls that can be implemented to manage the risks of hazards. It is important to note that when controlling risks, we don't simply pick any control from the hierarchy out of whim. However, a careful analysis of the risks is done along with consultation of workers and a review of how it will affect the entire work. Effectiveness of risk control options is also weighed in the selection of controls. Your understanding of these levels is important in the implementation of control measures:



Elimination: Elimination is the physical removal of the hazard. As shown in the diagram above, it is the most effective hazard control. For example, for working at heights, the most effective risk control measure is moving the piece they are working on to ground level.

Substitution: Substitution is the second most effective risk control measure. It means replacing something (usually the identified hazard or something that produces the hazard) with something less hazardous, for example, replacing lead-based paints with titanium white.

Engineering: The third most effective means of risk controls. They do not eliminate the actual hazards, but they are designed to isolate the hazard or keep people away from the hazard. For example, wirings on the floor that may cause people to slip and fall, wiring management is the next best risk control that can be implemented if the wires cannot be removed. Enclosures and barricades are also set up around the vicinity of an excavation work when the excavation work cannot be removed/eliminated.

Administrative controls: Administrative controls are designed to guide how people work. This is done through process/procedure implementation or changes, training, and installation of safety signs and symbols and warnings. These controls do not remove the hazards or minimise the risk of the hazards as the first three controls discussed here, but they limit or prevent people's exposure to the hazards.

Personal protective equipment (PPE): Personal protective equipment (PPE) includes safety glasses, goggles, safety gloves, high-vis vests, hard hats, etc. PPE is the least effective way to control risks. PPE is used in situations where the hazard could not be eliminated or substantially minimised and is usually used in conjunction with administrative controls.

Chapter 3: Health and Safety Communication and Reporting Processes



For construction work to be done as safely as possible, a solid communication and reporting system for all health and safety matters needs to be developed and implemented throughout the project. Everyone involved in the construction work also needs to be fully aware of and/or trained in this system.

A construction project's health and safety communication system include:

- Health and safety documents
- Appointed health and safety personnel
- Safety signs and symbols
- Procedures for reporting hazards, incidents, and injuries





3.1 Health and Safety Documents

In order to ensure construction works are carried out safely, health and safety documents are kept and distributed to workers.

Job safety analysis (JSA)

Job safety analyses (JSA) are written procedures created to review the steps of a work task, identify the hazards that are associated with the job, and to put risk management controls as per the hierarchy of controls into place, so all risks are controlled as far as what is reasonably practical.

- Job Task Analysis (JTA)
- Job Hazard Analysis (JHA)
- Job Safety and Environment Analysis (JSEA)

The process is generally the same where the job task is broken down into steps, with the hazards and their associated risks being identified; controls are assessed for acceptability (usually with a risk matrix) and additional controls added if reasonably practicable to reduce the risk (see example below).JSA's are formatted as:

Job steps	Hazards	Existing controls	Risk ranking	Additional Controls
List sequence of the main steps required to perform the task	List for each step the specific hazards that could be present when the step is carried out	Identify the controls that are currently developed to prevent or minimise the hazard	CLR	Identify the controls that are required to be developed and implemented to reduce the risks of the hazard
1				
2				

Job Safety Analysis - Long Term Signage Installation Excerpt (TMP) Page 6

WORK POTENTIAL HAZARD		Risk Rating before	CONTROL MEASURES	Pers	Risk Rating after
Generator shut down and secure for next use	Fire Strain / back injuries	3	Shut down generator allowing for enough time for it to cool down Use team lifting or crane to reposition generator	Crew	4
Power Tools	-				
Use of jack hammer	Noise – hearing damage Dust – lung damage Injury to operator from bit – particularly hands / fingers and/or feet. Injury to back and joints from Manual Handling. Damage to hearing from constant noise.	3	Isolate the noise from workers or wear hearing protection; Wear a dust mask or half or full face respirator Before starting to break, chip, or drill into a wall, floor or ceiling, thoroughly confirm that such items as electrical cables or conduits are not buried inside. Check machine is switched off before plugging into the wall. Disconnect from the wall before changing accessories. Make sure work area is ventilated to avoid dust accumulation. Keep the power cord away from the bit. Gloves, Eye and Hearing protection are to be worn	Crew	4

Safe Work Method Statement (SWMS)

The purpose of SWMSs is to assist supervisors, workers, and other stakeholders in the workplace to fully understand the requirements for carrying out high-risk construction work in a safe and healthy manner. The





SWMS outlines how to conduct work activities in a logical sequence, identifies hazards and determines control measures to mitigate risks associated with these hazards. SWMS are mandatory for high-risk construction activities. Other industries and activities may choose to utilise the principles of SWMS to record how the task is to be done, what hazards have been identified and what controls are to be implemented. The following table is part of the example provided in the "Construction Work Model Code of Practice":

What are the tasks involved?	What are the hazards and risks?	What are the control measures?
tasks involved?Bricks delivered.Movementofpoweredmobileplant.WorkingWorkingadjacenttoorina road,shippinglane,railwayoranothertraffictrafficcorridorthatisinusebypedestriansortraffic.	hazards and risks?Movementofpowered mobile plantandbeing struck,including forklift usedforunloading anddelivery vehicle.Beingstruckbyvehicles, workers, intrafficcorridoradjacent road.Fallingobjectsfallingcorridoror	Implement and prepare traffic management in the workplace and making available to workers: Clearly identifying exclusion zone for the mobile plant (barricades and signage as per site plan) and being controlled during vehicle loading/unloading operations. Trained road traffic controller(s) as to direct traffic leaving or entering site and controlling traffic (pedestrian and vehicle) on adjacent roadways and pedestrian footpaths. Using traffic signals or temporary safety barriers that are portable to control/direct traffic flow as required. Delivery from brick vehicle to be unloaded on-site (not a public roadway).
	adjacent road striking vehicles.	Brick pallets to be placed adjacent to work areas of bricklaying, clear of workplace traffic routes and inside workplace boundaries.

Safe Work Method Statement - Traffic Control SWMS Excerpt Page 7

Site specific Hazards and controls not covered by this SWMS must be recorded in the Work Method Traffio App before implementation

WORK ACTIVITY	POTENTIAL HAZARD What can go wrong?	Risk Rating before	CONTROL MEASURES	Staff	Risk Rating after
4.13 Fatigue Managem ent	Loss of Concentration Mind is not on the job Vehicle incident on return journey	1	As time on site approaches 10 hours including travel time both ways, site staff to inform TMP Rosters. Rosters contacts client and ascertains time remaining on job and organises TMP responses, which could include: replacement, continuing job with set completion times, or cease work.	тс	3
4.14 All control measures to be monitored, reviewed regularly during shift.	Hazards change	2	Signs and traffic control devices to be checked before work start and at regular intervals during shift. Observe TC interactions with moving mobile plant. Inspections are to be recorded on Signage Inspection form. Any failure of a control measure will be reported immediately to a supervisor for action.	TC	3
4.15 Traffic Control during adverse weather conditions	Potential Lightning Strikes and reduced visibility	2	 When controlling traffic in adverse weather conditions such as heavy storms an on-site risk assessment shall be conducted to assess the safety of continuing to control traffic. Where storm conditions include imminent lightning strikes, consideration should be to suspending works to allow all site workers and TCs to seek safe shelter conditions. In the event that active traffic control must continue temporarily for reasons of public or road worker safety, TCs may cease using Stop/Slow bats and control traffic instead using approved hand signals only. In periods of low light, the TC must use approved hand signals together with an illuminated wand or a torch fitted with a luminous cone attachment. Where a wand or torch is used in these circumstances, it is held in the 	TC	3





			upright position to indicate"Stop", and moved in a sweeping sideways motion to indicate "Slow". Where the imminent risks posed by the above-mentioned hazards no longer exists, the traffic control is to revert to normal operating procedure, that is, controlling traffic using stop/slow bats, and where appropriate, continued use of illuminated wands or torches.		
5.1 Reversing vehicle to recover traffic control devices	Personnel being struck by reversing vehicle	1	IF AT ALL POSSIBLE DO NOT REVERSE: TRAVEL FORWARD AND RETURN BACK INTO POSITION (GO AROUND) When there is no alternative to reversing a spotter must be used. Vehicles must have rotating beacons flashing or operational arrow board. The vehicle must be fitted with an operational reversing alarm. Movements are to be notified by radio communication. Move cones to the shoulder then drive forward to collect from shoulder. This speeds up the opening of lanes is safer for the driver collecting as now on the shoulder.	TC	3
5.2 Loading Equipment	Team exposed to passing traffic. Struck by passing traffic Passing traffic confused by traffic control devices Manual Handling /Musculoskeletal injuries	1	Monitor that escape route established (must occur). DO NOT walk or unload from traffic side of vehicle unless a work vehicle with flashing arrow or rotating or flashing lights is positioned between the personnel exiting the vehicle and approaching traffic if working within a live traffic lane and the work vehicle is position as far from the live traffic as is possible. Only handle one sign at a time. When handling traffic cones be aware of your own limitations and not lift beyond these limitations. Manually handle less cones if too heavy.	тс	3

Safety Data Sheets (SDS)

The purpose of SDS is to provide critical information about hazardous chemicals, including their identity, ingredients, health and physical hazards, safe handling, storage procedures, emergency procedures, and proper disposal. As discussed in Section 2.2 (Hazardous substances), a Material Safety Data Sheet (MSDS) is intended to provide emergency personnel and workers with procedures for working with or handling that substance in a safe manner, and includes information such as physical data (boiling point, flash point, melting point, etc.), health effects, first aid, toxicity, reactivity, disposal, storage, spill handling procedure and protective equipment. The format of the MSDS will vary from source to source depending on national requirements within a country. Correct labels and signs must be used, the risk and all control measures in place must be made known to any workers coming into contact with the materials.

See next 2 pages for an example of a Safety Data Sheet for Ezi-Weld.

Health hazard Carchagen Mitsgenkap Agender braitsy Agender braitsy	Flame • Flamshes • Arrabots • Arrabots • Saf-fording • Ginit Kommole gas • Saf-fording • Ginit Kommole gas • Saf-rectione • Copera controles	Exclamation mark • other value and real • abort value and real
Gas cylinder • Gased under pressure	Corrosion • Sept consider / Kerns • Ger dange • Conside do metale	Exploding bomb Explosives • Setwardes • Organic perseites
Flame over circle	Environment (Nor-Mendatory) Aquality Aquality Advicely	Skull and crossbones







Page 2 of 6 before reusing. If unitation occurs or you feel unwell or pain seek medical attention. Wash with copious quantities of water for at least 15 minutes. As a precaution seek Freat symptomatically and as for fluorides/borates exposure. Contact Poisons Information Centre. Contain and/or collect and seal in labelled non metallic drums/containers. Dispose of according to Fire fighters to wear self-contained breathing apparatus (SCBA) and protective clothing if risk of Wear protective equipment as advised above. Avoid walking through spilled product as it can be Not combustible. However toxic emissions may result in a fire, notably fluorides (hydrogen and ocal, state and federal statutory authorities. Do not flush away into sewers or other waterways. Once main body of material cleaned up, wash area down with copious guantities of water. nduce vomiting. Seek immediate medical assistance or contact a Poison Remove victim from area of exposure. For all except minor offects, seek Wash with plenty of water. Remove contaminated clothing and wash Rinse mouth with water. Give plenty of water or milk to drink and SPECIALISTS IN FLUXES FOR WELDING, BRAZING & SOLDERING MATERIAL SAFETY DATA SHEET In case of fire use extinguishing media appropriate to surrounding fire. Precautions for Fire Fighters and special protective equipment EZI-WELD 602 Product is a non flammable and a non combustible paste. Mothods and Materials for containment and clean up. 6. ACCIDENTAL RELEASE MEASURES dippery when spilt. Wash thoroughly after handling, Medical Attention and Special Treatmont FIRE FIGHTING MEASURES exposure to products of decomposition. Hazards from Combustion Products 4. FIRST AND MEASURES Information Centre. medical attention. medical advice. 2XEmergency Procedures Extinguishing Media Revision May 2014 Hazchem Codo: potassium). First Aid Ingestion: Inhaled: Skin: Eyo: ŵ Page 1 of 6 extiteria of Australian Safety and Compensation Council (ASCC). Classified as Dangerous Goods In case of contact with eyes, rinse immediately with plenty of water This product is a mixture. Some of its ingredients make it Hazardous Substance according to In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible) Avoid exposure - obtain special instructions before use. SPECIALISTS IN FLUXES FOR WELDING, BRAZING & SOLDERING MATERIAL SAFETY DATA SHEET IDENTIFICATION OF MATERIAL AND SUPPLIER COMPOSITION/INFORMATION ON INGREDIENTS Keep locked up and out of reach of children and seek medical advice Please ensure that this MSDS is received by the appropriate person. May cause harm to the unborn child. Fax 02 4872 1968 Poisons Information Centre Tel 131 126 EZI-WELD 602 Proportion according to criteria of the Australian Daugerous Goods Code. A general purpose Silver Brazing Flux 10-<30% 30-60% to 100% Do not breathe vapours After Hours tel 02 4868 1973 Wear suitable gloves May impair fertility Toxic if swallowed 2. HAZARDS IDENTIFICATION Braemar NSW 2575 Causes burns Ingredients determined not to be hazardous CAS Number 7789-29-9 Tel 02 4872 1967 EZI-WELD 602 10 Gautry Place 10045-35-3 W.I.S. Sales Statement of Hazardous Nature R25 R34 R60 R61 S1/2 \$23 \$26 S37 \$45 553 Potassium BiFluoride Revision May 2014 Contact Details: Chemical Ensity Product Name: Safety Phrases Other Names: Risk Phynecs Corrosive Boric Acid Toxic Use: ž ŝ





MATEXIAL SAFELY BALA SHEEL	MATCHIAL SAFETY DATA SHEET EZZI-WULLE 602
EZI-WELD 602	EZI-WELD 602
	10. STABILITY AND REACTIVITY
7. HANDLING AND STORAGE	Denvical Stability
'recautions for Safe Handling Vash thoroughly after handling. Observe good personal hygiene and use good industriat practice.	roduct is stable under normal conditions of uso, storage and temperature.
Conditions for Safe Storage tow away from foodstuffs.	Dauditions to Avoid to data available
tore in cool, dry place and keep containers closed when not in use. Containers should be well have the shelled.	acompatible Materials tore in plastic containers, avoid contact with metallic containers.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION R	fazardous Decomposition Products
Fit Intional Exposure Standards to value assigned by Australian Sufey and Compensation Council (ASCC). R Iowever, for Phoorides as F TWA: 2.5 mg/m3 (ASCC). N	luorides can be given of in a fire, particularly potassium fluoride and hydrogen fluoride. fazardous Renetious to data available.
iological Limit Values to Data Available	11. TOXICOLOGICAL INFORMATION
Ingineering Controls Vicon using, cnsure ventilation is adequate so as to maintain air concentration below exposure andards. If using exhaust ventilation a local unit is preferable to a general unit. A void breathing finnes given off during brazing operations. When product is not being used, seal containers.	ince a mixture no specific data available. Considered that it maybe toxic if swallowed. ymptoms of Fluoxide overexposure may include selivation, neusea, vomiting, abdominal pain, aver and laboured breathing. This is not considered relevant to normal industrial uso but mphasises the need for care in handling and use. /ork to TLV and use good occupational work practice.
ersonal Protective Equipment veralls, growers and mask are recommended. Wash contaminated equipment before ausing. Always wash hands before smoking, eating, drinking or going to the toilet. Safety shower ad eye bath should be available.	califi affects: oute; Ingestion: May be fatal if swallowed, may cause irritation Eye: May cause irritation. Skin: May cause irritation.
9. PHYSICAL AND CHEMICAL PROPERTIES	Inhaled: May cause irritation of the respiratory tract. Symptoms may include sore throat, coughing, shortness of breath, headache and nausea.
u) Appearence: White Paste Ch	bronic: No data available
) Odour: None	
b) pH No Data Available N Vanonir Presence: N/A	2. ECOLOGICAL INFORMATION
i) Vapour Density N/A	
) Boiling Point: N/A BC BC BC NO	cofoxicity o data available for mixture
ε) ιντειμικά κοματ. Αρχινών, 4-10 μες C 1) Solubilityr · · Partially soluable in water	
) Specific Gravity: 1.5	wsistence and Degrudabity
Bulk Density: approx. 1.5 g/cc) Flammable Information Net Amplicable	O URBA RAZITADISE 10X TITXTOKE





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3.2 Roles of Designated Health and Safety Personnel

The following are designated health and safety personnel who are appointed with responsibilities to ensure the workplace is safe and does not pose health and safety risks to workers and other people.

First Aid Officer

The role of the First Aid Officer is to quickly assess the situation and provide immediate, lifesaving, and medical assistance to a casualty.

Health and Safety Representatives (HSRs)

The role of health and safety representatives is to give workers a voice in health and safety matters at their workplace.

HSRs' role involves:

- Undertaking workplace inspections
- Reviewing the circumstances of workplace incidents
- Accompanying a WHSQ inspector during an inspection
- Representing the workgroup in health and safety matters
- Attending an interview about health and safety matters with a worker from the workgroup (with the consent of the worker)
- Requesting that a health and safety committee be established
- Participating in a health and safety committee
- Monitoring compliance measures
- Investigating work health and safety complaints from workgroup members
- Inquiring into any risk to the health and safety of workers in the workgroup
- Issuing provisional improvement notices and directing a worker to cease unsafe work (where the HSR has completed the approved training).

Health and Safety Committee (HSC) Members

HSC members facilitate cooperation between a PCBU and workers in developing and carrying out measures to ensure health and safety at work. This includes health and safety standards and participating in the development of rules and procedures for the workplace.

Supervisors

In relation to work health and safety, the supervisors' role involves:

- Ensuring workers comply with WHS policies, procedures, standards, etc.
- Identifying and reporting any incidents and hazards.
- Undertaking safety training as required in their role.
- Managing workers who are returning to work after an injury.

3.3 Safety Signs and Symbols

Safety signs have an important role keeping people safe in the workplace by raising awareness and potentially highlighting dangerous activities or situations.

Signs are intended to locate or identify activities and areas that require the use of specialised equipment, attention or work procedures and are colour coded.

Signs to identify procedures or action have specific colours:

- "DO NOT" red signs (stop sign)
- "MUST DO" blue signs (wear PPE)
- "BE AWARE" yellow sign (pedestrian sign)
- "INFORMATION" green sign (exit sign)

Below are examples of signs that are commonly found in a construction site:







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Emergency information signs including exits, emergency equipment and first aid



EMERGENCY SPILL KI

spill kit Fire signs: location of fire alarms and firefighting equipment





PWD Access Fire Exit



Fire extinguisher



Fire alarm

RISK OF ELECTRIC SHOCK

Risk of radiation or radiation hazard

Hazard signs and symbols: danger and warning

Risk of electric shock or electrical hazard

Regulatory signs and symbols: prohibition, mandatory and limitation or restriction

-IKE HOSE REF

Fire hose reel



Safety harness must be worn in this area



Forklift Speed Limit 10km/h



No entry authorised persons only



Maximum height in meters



Hard hat area or hard hat/safety helmets must be worn.



No smoking

The maximum height limitation/height restriction means that vehicles or plant passing through a path or an area should not exceed the height indicated on this sign. Any plant or vehicle that exceeds the max height of the area or path is at risk of colliding with a structure or hanging objects in the area/path. If the sign says 4.6 Mtrs. It means the max height is 4.6 meters and any equipment or plant exceeding this height is not allowed to pass through.







The forklift speed limit means that forklifts in the area must not exceed the 10km/h speed. This is to ensure speed is controlled within the area (to avoid any accidents, injuries and property damage) and to ensure safe transport of materials. The number 10 here means 10 kilometres per hour. This means that the forklift must run on 10 km/h or below within the area.

Safety and lockout tags: danger and out-of-service tags

Every person working on isolated equipment should fit their own lock and/or danger tag. Alternatively, another management approved system that achieves an equivalent level of safety may be used. When using locks or danger tags, consider the following:

- tags should be dated and signed
- locks should be accompanied by a corresponding tag to identify who has locked out the plant
- . tags and locks should only be removed by the person who applied them or by the supervisor after consultation with the signatory of the danger tag
- in the event that the person who applied the danger tag is unavailable, their tag or lock may only be . removed in accordance with a management approved procedure
- . danger tags and/or locks should be fitted to all isolation points

The Danger: Do not operate tag means that the machinery and equipment to which this tag is DANGER attached should not be used/operated and people who can operate or use the DO NOT OPERATE machinery/equipment are those qualified/certified. This tag also means that people who are not qualified and operate or use this machinery/equipment are put in immediate danger. SEE BACK SIDE

DANGER

LOCK OUT

The Danger: Lock Out Electricity Before Working on Equipment means that the machinery or equipment or any hazardous energy source must be turned off or rendered inoperative before work is started on the machinery or equipment. This is to prevent the machinery or equipment from ELECTRICITY starting up accidentally.



ASBESTOS



The Danger: Out of service tag means that the machinery or equipment is not to be used until further notice. It could mean that the machinery or equipment (or a part of) is defective and could pose serious risks once it is used/operated.Out-of-service tags are used to identify equipment or machinery that has been taken out of service due to a fault, damage or malfunction. The out-of-service tag is to be securely fixed to the operating control power isolator with the appropriate details completed on the tag (explaining the reason for the machine being 'out of service').

The out-of-service tag should not be removed until the equipment is safe to be returned to service, or the reason for the out-of-service tag no longer exists.

The out-of-service tag may be removed by:

- . the person who attached it,
- . the supervisor responsible for the operation or repair of the equipment, or
- the maintenance person who carried out the repairs.



The Danger Demolition Work in Progress sign means that there is demolition work in progress in the area/vicinity, and it means that entering the area/vicinity could pose serious health and safety DEMOLITION risks. This sign usually comes with a mandatory PPE sign (e.g. safety helmet must be worn/hard hat area).

3.4 Procedures for Reporting Hazards, Incidents and Injuries

Hazard reporting

Hazard identification is important because this helps determine any situation or object that can cause harm to a person, e.g. a worker. By carefully identifying each hazard in a workplace, hazard controls can be put in place as detailed within the hierarchy of controls. This will allow mitigation of the risks as far as is reasonably practical. Hazards need to be reported in accordance with organisational policies and procedures, so that information on these hazards is relayed to the workers and they are made fully







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aware of them. Hazards reported are recorded on the Risk Register, which helps you keep track of what is currently being done to address these hazards or if these hazards have already been addressed. Data recorded on the Risk Register is also used to produce safe work method statements and procedures for correct and safe execution of a task. These method statements and procedures are then provided to the workers for strict compliance. When reporting hazards follow your organisation's policies and procedures for reporting hazards. These usually involve:

- Reporting the hazard to your direct supervisor
- Filling out a Hazard Report form or a Hazard Identification form
- Providing details about the hazard, including:
 - o the location of the hazard
 - o a description of the hazard

Incident reporting

Serious safety incidents and serious work-related injuries and illnesses must be reported as it is required by the Work Health and Safety Laws. According to WHS laws, the regulator must be immediately notified, and if they request written notification, the notification must be submitted within 48 hours. All incidents at the workplace must be reported in accordance with organisational health and safety policies and procedures and requirements. It involves:

- Reporting the hazard immediately to a supervisor, which can be done orally/verbally initially;
- Then immediately followed by filling out the workplace's form for Hazard Reporting.
- Responding immediately and not waiting for site inspections

When reporting incidents:

- Provide an overview of the incident
- Identify who was involved in the incident
- Describe the condition of who was involved in the incident
- Describe the status of any equipment (were there any damages to the equipment/plant?)

See an example of an Incident/Accident Reporting Process below:

A traffic controller must take the following action if a minor accident/incident occurs within their designated worksite or traffic control operational area:

Initial Response Traffic Control (TC) Initial • Call for assistance if needed. • • Notify the worksite supervisor. • • Maintain effective traffic control. • • Move the TC station to a suitable location that includes the accident site in the TC operational area. •

• Record sufficient notes of the incident, including observations, in order to complete an incident report.

Initial Response to Injury

- Stop Work. Make the situation
- safe.
- Seek first aid treatment.
- Report the incident as soon as you can.

If the situation is more serious or poses further risk of injury to persons or damage to property, the traffic controller must:

- Notify the worksite supervisor immediately.
- If the situation requires evacuation of the area, inform vehicle drivers of the situation and direct them to turn around and find an alternative route.
- Relocate the traffic control station to a safe position clear of any real or potential danger.
- Record sufficient notes of the incident including observations in order to complete an incident report.

Chapter 4: Incident and Emergency Response Procedures

In line with the PCBU's duty of care requirements in the WHS legislation, response plans must be developed and set in place in the event of an incident or emergency. As we learned in Chapter 2, there are many hazards in construction work, and these construction hazards could lead to incidents and emergencies at work. It is important to be prepared and to know what to do in the event of these incidents and emergencies. This chapter will talk about:

- Procedures for responding to incidents and emergencies
- Procedures for accessing first aid
- Types and purpose of fire safety equipment











4.1 Procedures for Responding to Incidents and Emergencies

Incidents

Below are examples of incidents resulting in personal injury, damage to property, near misses and dangerous occurrences.

Incident resulting in personal injury: A construction worker working on a scaffold slips and falls four meters to the ground because his safety harness was not properly connected. He sustained injuries including a broken rib and ankle and some cuts and bruises on his arm. His head was protected from any injury thanks to his safety helmet.

Incident resulting in damage to property and a near miss: A concrete cart was free-falling from the third floor and was about to hit a group of workers downstairs. The worker who was using the cart immediately shouted to alert the workers downstairs, and the workers were able to run away where the cart fell and crashed. No one was injured in the incident.

Near miss: A construction worker working on a scaffold slips on condensation that had dripped onto the platform. His safety harness restrains him from falling, so no injuries were sustained.

Incident resulting in damage to property: The driver of a forklift noticed that his controls were not working. As he instantaneously noticed he was fast approaching the wall of the warehouse, he jumped out of the forklift. He didn't sustain any injuries, but the forklift collided with the wall of the warehouse causing damages to both the forklift and the warehouse. No one else was injured in the incident.

Below are examples of dangerous occurrences

- An uncontrolled escape, spillage, or leakage of a substance
- An uncontrolled implosion, explosion, or fire
- An uncontrolled escape of gas or steam
- An uncontrolled escape of a pressurised substance

Notifiable incidents: Notifiable incidents are:

- Incident resulting in personal injury
- Incident resulting in damage to property
- Near misses or dangerous incidents that did not cause injury but may pose an immediate and significant risk to persons or property.

If you are unsure whether an incident that occurred is notifiable or not, contact the relevant state/territory regulator to seek advice and confirm whether the incident is a notifiable incident.

Incident response

How you must respond to incidents in the workplace is outlined in the organisation's work health and safety policies and procedures. Below are examples of appropriate responses to different types of incidents:

Incident where a worker has sustained minor bruises from slipping and tripping on a wet and slippery surface Contact and alert the first aider on the worksite

- Take care not to disturb the incident site until an inspector arrives
- Do not run to the person, as the ground is wet and slippery
- Approach the person calmly and reassuringly and be alert to hazards and other dangers within the area
- Avoid rushing to move the person
- Talk to the person to ascertain how the accident occurred
- Assist them in working out where it hurts most and examine the person to see if there is obvious bleeding or contorted limbs (aside from the bruising)
- Try to keep the person as still as possible
- If there are no other obvious injuries, carefully help the person up to a sitting position and watch out for signs of dizziness, pain, and discomfort
- Wait for the first aider to arrive and attend to the person
- Record it in the register of injuries

Incident involving an unconscious worker who was struck by one of the moving mechanical parts of a plant

- Contact and alert the first aider in the work site
- Take care not to disturb the incident site until an inspector arrives
- Be alert to hazards and other dangers within the area, including the moving mechanical parts of the plant
- Avoid rushing to move the person
- Keep the person lying down with their head and shoulders slightly elevated
- Do not move the person unless necessary, e.g. the person needs to be moved away from the plant









- o If the person needs to be moved avoid moving their neck and don't remove the person's safety helmet
- Try to keep the person as still as possible
- Wait for the first aider to arrive and attend to the person
- Record it in the register of injuries
- Establish this as a notifiable incident and make the regulator aware as required

Incident reporting

All incidents at the workplace must be reported in accordance with organisational health and safety policies and procedures and requirements. This involves:

- · Reporting the hazard immediately to a supervisor, can be done orally/verbally
- Immediately followed by filling in the workplace's form for Hazard Reporting
- Do not wait for site inspections

When reporting incidents:

- Provide an overview of the incident
- Identify who was involved in the incident
- Describe the condition of who was involved in the incident
- Describe the status of any equipment (were there any damages to the equipment/plant?)

Emergencies

Below are emergencies that may occur in construction work.

Fire: There are many factors that can potentially lead to fire emergencies. In construction, hazards that may contribute to fire incidents and emergencies include hot work operations, use of temporary heaters, flammable, and combustible materials, smoking near flammable and combustible materials, plant failure, etc.

Good housekeeping and a clean workplace are important in mitigating fires and other fire-related emergencies.

Fire emergency response: Raise the alarm

• If safe, ensure the immediate safety of anyone in the vicinity of the fire.

- Raise the fire alarm if it has not been raised.
 - o If breaking the glass alarm panel, be careful not to hurt yourself.
- o If the fire alarm is not within your immediate reach, shout 'fire, fire, fire' to alert others.
- Contact relevant personnel such as supervisor or wardens, if safe to do so.
- Evacuate the vicinity.

Fight the fire

- If safe to do so and if trained to use firefighting equipment attempt to extinguish the fire.
- Select the correct fire extinguisher, Class A D. Do not use water on a fire that has been caused by flammable liquids or live electrical equipment.

Evacuate

- Evacuate the building as instructed by the warden.
- Walk quickly and calmly to the assembly area do not run or push others.
- Remain in the assembly area with the rest of the group until instructed to leave by the warden or Fire Emergency Services Personnel.
- Do not enter the site until it is declared safe by the ECO or Fire Emergency Services Personnel.

Chemical spill

Chemical spill emergencies can happen anywhere and anytime. They are typically caused by unsafe handling of chemicals, improper chemical storage (i.e. leaking containers, chemical storage tank ruptures), improper chemical disposal, or toxic black smoke or release of harmful gases, liquids and vapours from plant failure or collision. To avoid chemical spill emergencies, chemicals should be stored in specific locations, often in cabinets or cages (depending on the chemical) with clear labelling with the safety data sheets (SDS) applicable close by.

In the event of a chemical spill emergency:

Raise the alarm

- If safe, ensure the immediate safety of anyone in the vicinity of the chemical spill.
- Evacuate the immediate area of the chemical spill.

Report the spill to your immediate supervisor or Safety Officer.

Isolate the hazard









Pagle Focused Training

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- Anyone who has been exposed to the chemical, if it is safe to do so, must be moved to the decontamination area.
- If the person(s) exposed are seriously injured, they must be treated first. First Aid Officer to be notified immediately.
- Restrict movement into and through the affected area to avoid spreading contamination.
- Install temporary barricades and warning signs around the vicinity of the area.

Evacuate

- Evacuate the area as instructed by emergency personnel
- Walk quickly and calmly to the assembly area do not run or push others.
- Remain in the assembly area with the rest of the group until instructed to leave by the Warden or Emergency Services Personnel.
- Do not enter the site until it is declared safe by the ECO or Fire Emergency Services Personnel.

Injury to personnel

Injuries to personnel may be caused by hitting or being hit by an object (e.g. part of a plant or equipment), injuries from manual hazard tasks such as lifting, pushing, or pulling objects/equipment and falling from a height.

Structural collapse

Structural collapse can occur from a variety of factors, including but not limited to: poor ground conditions, presence of water in the ground (e.g. from heavy rains, or when soil is mixed with water from underground springs, or streams), the type of ground on which the structure is built on, cavities or penetrations in the ground that have been covered but still exist, etc. These factors can lead to unplanned collapse, such as the collapse of a building or a structure (or a part of).

Toxic Emission

Toxic emissions happen when hazardous air pollutants, air toxins, or toxic gas are released and diffused into the air. Depending on the quantity released, its spread can be further aggravated by meteorological conditions (e.g. wind, wind speed and direction) and the topography of the environment. In construction, these may come from asbestos/asbestos-containing material, formaldehyde, di-isocyanates, flame retardants, or silica.

Flammable vapour emission

Vapours are often a by-product of flammable products, such as gasoline, kerosene, paint thinner, and solvents. It is important to note that flammable liquids do not burn themselves, it is the mixture of the liquid's vapours and air that will burn at a certain temperature (flashpoint). When this occurs, explosions or fires may follow immediately.

Vehicular accident

Vehicular accidents happen when a vehicle collides with another vehicle, a pedestrian, animal, road debris, or other stationary objects on the road, such as a tree or a building. Vehicular accidents in construction may occur in a civilian car colliding or hitting the perimeter fence of the construction site, car falling into an excavation/trench, car colliding with a construction worker, especially when there are not sufficient signs or signage is minimally lit.



Mobile plant accident

Mobile plant accidents occur when there are multiple mobile plants operating at a site or when ground conditions are poor (e.g. due to rain or presence of a substantial amount of water), which may cause the mobile plant to overturn and injure people or damage property in the process. In this instance, there is a risk of mobile plants colliding with each other, which could lead to serious injuries, fatalities, and property damage.

4.2 Procedures for Accessing First Aid

Persons conducting business and undertaking (PCBUs) or business owners, in line with their duty of care requirements, must provide their workers access to first aid resources, including:

- First aid equipment and facilities, e.g. first aid kit
- Trained personnel who can provide first aid, or first aiders

PCBUs, in relation to first aid, must:









- Conduct risk assessment of the construction work to determine first aid requirements, while taking into
 consideration nature of work, types of hazards present, size and location of the worksite, and number of
 people at the worksite.
- Install the first aid kits in a prominent and accessible location(s) in the work area where it can be easily and promptly retrieved if needed.
- Display standard first aid signage indicating the locations of first aid kits at the worksite. Signage installed must be compliant with AS 1319: 1994 Safety Signs for the Occupational Environment.
- Arrange for first aid training to be delivered to the people assigned to administer first aid in the workplace. Alternatively, a first aider from another business/third-party service provider can be arranged.

Accessing first aid in the workplace

Here are the steps you can follow to access first aid in the event of an incident, injury, or illness involving another person at the worksite.

- Check for danger to you, any bystanders, and then the injured or ill person. Ensure that you do not put
 yourself in danger when assisting another person.
- Check if the person is conscious or if they are responsive.
- Call a first aider and/or retrieve the first aid kit from the designated first aid location (as indicated by the first aid signages in the work area); or
- Ask a bystander to call a first aider or to retrieve the first aid kit.
- Call triple zero (000) and answer questions asked by the operator.

4.3 Types and Purpose of Fire Safety Equipment

Fire blankets

A fire blanket is used to extinguish minor fires or to wrap around a person in case of fire. **Fire extinguishers**

A fire extinguisher is an active fire protection device used to extinguish or control small fires

during emergency situations. There are different types of fire extinguishers used for different purposes. It is important to know the right type to use for the type of fire – using the wrong type could make the fire worse!

Туре	Purpose
Water	To put out fires from ordinary combustibles such as wood, paper, and textiles.
Carbon dioxide	To put out fires from live electrical equipment and flammable liquids
Powder	To put out fires from ordinary combustibles such as wood, paper, and textiles, flammable liquids, live electrical equipment, and gaseous fires.
Foam	To put out fires from ordinary combustibles such as wood, paper, textiles and flammable liquids.

These types are labelled, as shown below:











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Hose reels and mains

Fire hose reels

Hose reels are used to release high-pressure water to fight Class A fires: paper, textiles, wood, most plastics, and rubber.

Hose mains

The main is where the hose reel is attached to. It is the main water supply which can be turned on and off.





Appendix A — Practical Assessment Images

Task 6 - Hazard Identification and Reporting







Manual Doc Control Version: 3 Date: 540042022 Reviewed by: BA/SK Approved by: BA Safety Equipment

Task 14 - Fire Safety Equipment Task 14 - Fire Safety Equipment 2







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Task 15 – Safety Signs and Symbols













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