

TLILIC0005

**Licence to Operate a Boom Type
Elevating Work Platform
(boom length 11 metres or more)**

Student Manual

Modskills⁺



TALENTED TRAINING RTO 45144

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Introduction

This training course is based on the National High Risk Licence Unit of Competency TLILIC0005 Licence to Operate a Boom-Type Elevating Work Platform (boom length 11 metres or more) from the Transport and Logistics Industry Training Package.



Course Overview



You will learn how to:

- Plan your work. Conduct routine checks.
- Set up the elevating work platform. Operate the elevating work platform.
- Shut down and secure the elevating work platform.

After you have finished the course, you can be assessed for a National High Risk Licence.

What is a Boom-Type Elevating Work Platform?

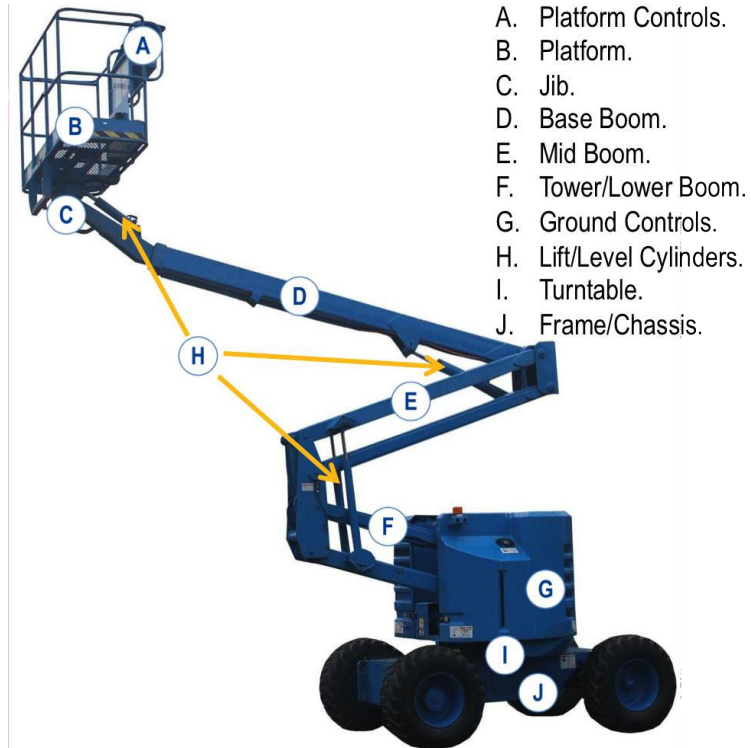
A boom-type elevating work platform is a telescoping device, hinged device, or articulated device or any combination of these used to support a platform on which workers, equipment and materials may be elevated to perform work.

A high-risk work licence is required to operate an EWP with a boom over 11 metres in length. The 11-metre boom length is measured as:



- a) The vertical distance from the floor of the platform to the surface supporting the elevating work platform with the platform at its maximum height; or
- b) The nominal reach, measured horizontally from the centre point of rotation to the outer edge of the platform in its most

Parts and Movements of a Knuckle Boom-Type Elevating Work Platform



The parts of a knuckle boom-type EWP are:

The movements of a knuckle boom-type EWP are:



Parts and Movements of a Telescopic Boom-Type Elevating Work Platform

The parts of a telescopic boom-type EWP are:



- A. Platform Controls.
- B. Platform.
- C. Jib.
- D. Boom Assembly (Fly Boom & Mid Boom).
- E. Base Boom.
- F. Lift Cylinder.
- G. Upright.
- H. Ground Controls.
- I. Turntable.
- J. Frame/Chassis.

The movements of a telescopic boom-type EWP are:



High Risk Work Licence (HRWL) requirements



Your HRWL has to be renewed every 5 years.

Once you pass your assessment you will have 60 days to submit (apply for) your interim licence.

You must renew your licence within 12 months of its expiry otherwise:

- Your licence can't be renewed.
- You need to repeat the course and re-apply for your licence.
- You need to enrol in the course again and be supervised by somebody who has a current licence for the same class.

You can only conduct high risk work without a licence if:

- **You are enrolled in a high risk licence (HRWL) course and are supervised by someone with the same class of licence.**

Any licensed worker must take reasonable steps to make sure the way they work does not impact on the safety of themselves or any other worker. This is their legal duty of care.

Failing to work safely can result in the health and safety regulator (Worksafe):

- **Suspending or cancelling your licence.**
- **Refusing to renew your licence.**
- Ordering that you are reassessed to ensure you are competent.



Your employer might ask you for evidence that you have a high risk licence before you start any high risk work. You can show them:

- Your licence.
- Proof from the training company that you have passed your assessment.
- Proof that you are currently enrolled in a course.

Legislative and Regulatory Requirements

This section introduces you to the legislation (or laws) which guide your activities as a worker. It covers some of the basic things you must do to ensure you always meet the necessary legislative requirements of your role.

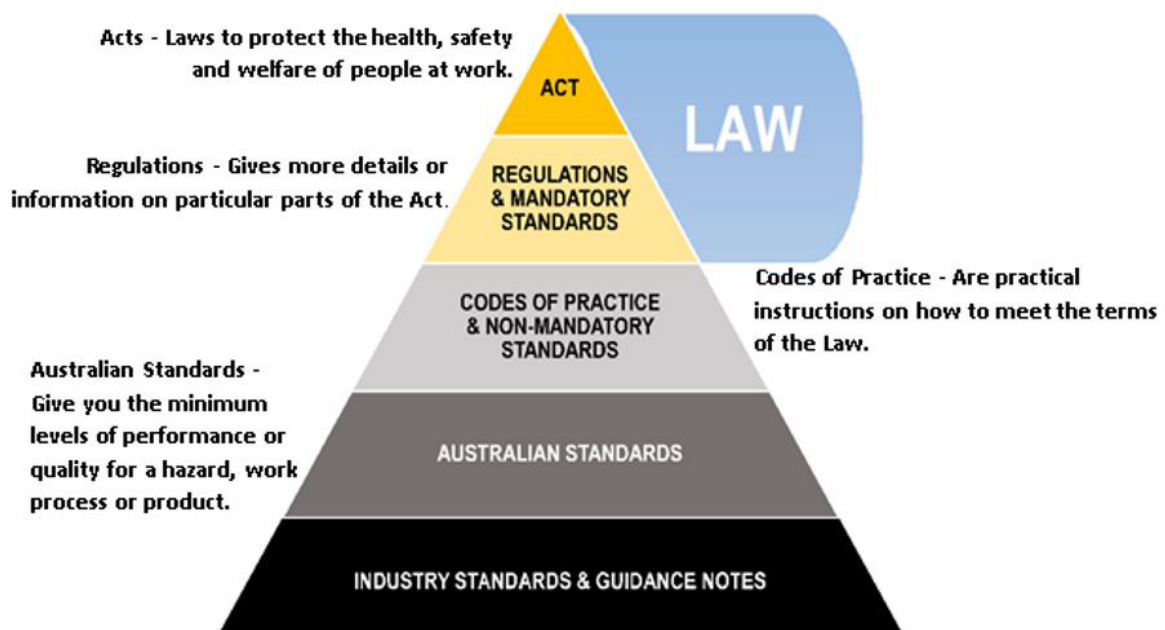
Society has laws to ensure the health, safety and wellbeing of citizens and to protect land, the environment and property from loss or damage. The vast majority of people follow these laws because doing so makes our society a more civilised place to live in – now and for future generations. In addition, there are the penalties that apply when laws are broken.

In most cases laws are not broken deliberately. Instead it is usually because of a lack of knowledge or failing to take adequate care. Unfortunately, ignorance of the law or carelessness is not an acceptable defence in a court of law. Your best course of action is to be fully aware of the legislative requirements of your work and to use this knowledge when making decisions.

Legislation produces Acts of Parliament; e.g. *WHS Act 2011 (Cwlth)*. From the Act, the Government then produces the **Regulations**; e.g. *WHS Regulations 2011 (Cwlth)*. The Regulation performs the function of supporting the Act by providing the specific details of how the Act will be implemented in a day-to-day situation.

An approved **Code of Practice** is a practical guide to achieving the requirements of law (i.e. legislation and regulation). e.g. the model Code of Practice developed by Safework Australia, aims at achieving the standards under the *WHS Act 2011 (Cwlth)* and the *WHS Regulations 2011 (Cwlth)*.

Legislation, Regulation, Codes of Practice and Standards



Duty of Care

All workers have responsibilities in a workplace to take reasonable steps to ensure the health and safety of themselves and others. This is called a '**Duty of Care**'.

All EWP licence holders have a duty to make sure that they:

- **Ensure the health and safety of themselves and others**
- **Follow site rules (policies and procedures)**
- **your actions or omissions must not adversely affect the health and safety of others).**
- **Not intentionally interfere with or misuse anything provided at the workplace for WHS**

Duty of care applies to:

- Employers/PCBUs and self-employed persons.
- Persons in control of the workplace.
- Supervisors.
- Designers.
- Manufacturers.
- Suppliers.
- Workers.
- Inspectors.



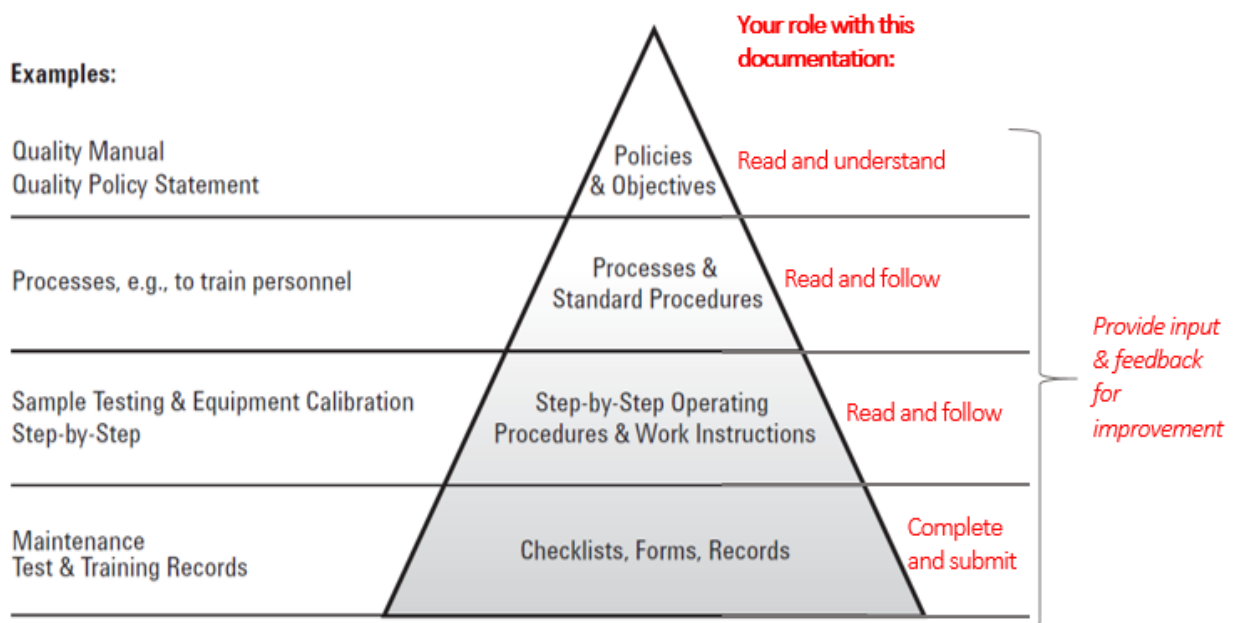
Workplace Safety Instructions and Procedures

All work needs to follow the worksite and company’s safety policies and procedures.

Procedures help to make sure that all work is done in a safe way, without damaging equipment or putting people in unsafe situations. They also help to make sure that work is done in the correct order and doesn’t interrupt or get in the way of other work that is happening on the site.

Your work instructions will tell you the safest way to do the job, and the equipment that you will need to use. It is a good idea to check your work instructions with your boss or supervisor to make sure you know exactly what you need to do.

The following diagram provides the range of documents within your workplace which cover the site’s Safety Management System, Plant and Equipment, Maintenance, Communications, Industrial Relations, Finances, Environment Protection, and so on.



You may have access to these documents through your supervisor or perhaps through an internal electronic document system. You would have been educated with the most important documents when you underwent your employment induction.

Workplace safety information sources and/or locations may include:

- **Manufacturer’s specifications** (instructions, guideline, checklists).
- **Legislation and regulations**
- **Australian Standards**
- **Codes of practice**
- **Management plans**
- **WHS policy**

- Industry operating procedures
- Operations Manual
- Workplace policies and procedures (work instructions, operating procedures, checklists).

If you don't know where to get your instructions or you can't understand them, you can ask your boss or supervisor. They will tell you where to find your work instructions and/or explain what they mean.

Your PCBU (employer) holds primary duty of care to ensure the health and safety of its workers.

To do this they must:

- Provide and maintain a safe workplace without risks to the health and safety of workers
- Provide suitable PPE
- Provide and maintain safe plant (EWP)
- Provide safe structures
- Provide and maintain safe systems of work
- Provide adequate facilities
- Provide any information, training, instruction or supervision for the work to be undertaken safely
- Make arrangement to ensure the safe use, handling and storage of plant, structures and substances



Working with an unfamiliar EWP

You have just obtained your EWP licence, if you are working with an unfamiliar EWP the PCBU (your employer) must provide the following prior to you commencing work:

- Information on the EWP
- Training on the use of the EWP
- Instruction on how to use the EWP safely
- Supervision whilst you first operate the EWP

When planning your work, some things other than hazards you will need to think about are:



- Permits/PPE required for the task?
- Location and specifics of the task?
- Safe access and egress from the EWP?
- Communications on site, are they safe and adequate?
- EWP capacity, type and reach?
- What equipment is required for the task?
- Are spotters required to safely carry out the task?
- Is a SWMS required?
- Boom movements to access the task once the EWP is in position?
- Skills, experience and qualifications of EWP operators?
- Suitable safety equipment including appropriate fall arrest harness and lanyard?

Remember:

P.L.A.C.E.S

- Permits/PPE required
- Location of task
- Access and egress
- Communication methods/Capacity of EWP
- Equipment required for the task
- Specifics of task/Spotters required/SWMS

or

S.C.A.L.P.E.

- Specifics of task/Spotters required/SWMS
- Communication methods/Capacity of EWP
- Access and egress
- Location of task
- Permits/PPE required
- Equipment required for the task

Hazard vs Risk



CHECK FOR HAZARDS AS HAZARDS CREATE RISK.

A **HAZARD** is something that may cause harm or damage.

RISK is the chance of a hazard causing harm (death, injury or illness) or damage.

And or when using a risk matrix it is likelihood x consequence.

If you can remove or at least control a **HAZARD** you can reduce the **RISK** involved.

Hazard Identification

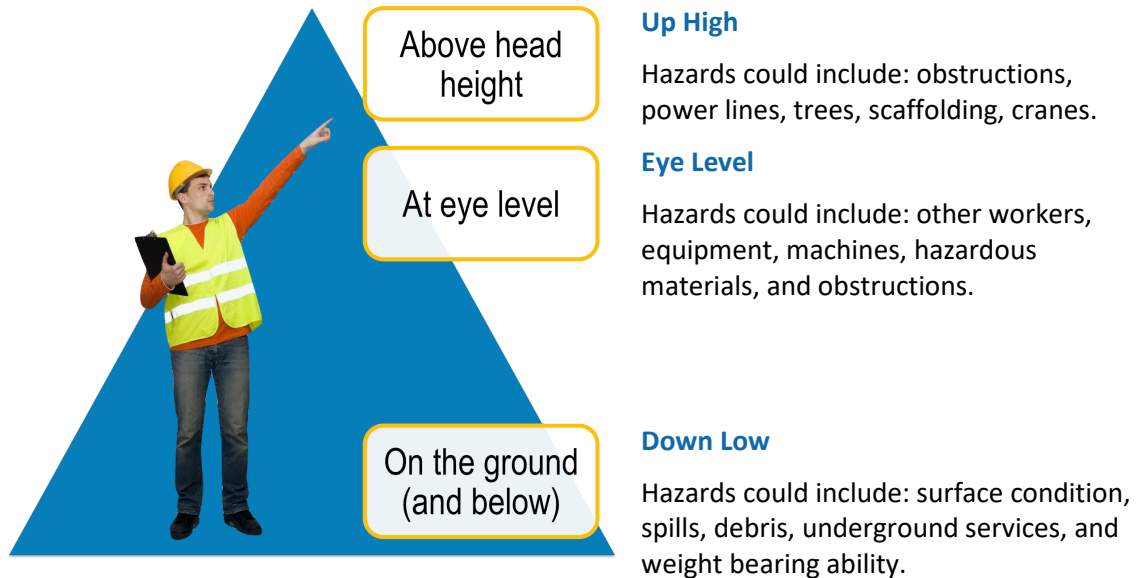
It is important that suitably knowledgeable personnel/workers are involved in the hazard identification process. Each worksite has its own specific risks and hazards. A site induction needs to inform you of any hazards which exist on site.

Some of these hazards can be removed through staff training, better equipment and safe work methods. Talk to the OHS/WHS officer for more information. Each specific worksite will have risk management procedures, safety systems and information, and procedures for communication, reporting and record keeping.

Before conducting a risk assessment at a work site, check to see what systems and procedures are in place as they may affect the outcomes of the risk assessment. It is important that suitably knowledgeable personnel/workers are involved in the hazard identification process.

Before any work is started, the worksite should be inspected to make sure all information is gathered and that all job and legislative requirements can be met.

To identify possible risks and hazards walk all around the work area and check:



Make a note of any hazard you identify in the area. Remember, a hazard can also be a situation, so keep an eye on how the people around you are working.

You should also check records of injuries and incidents, safety tags and talk to other workers. Part of your job is to look around to see if you can find any hazards before you start using the EWP.

Hazards are not only environmental; they may be caused by the way a job is carried out, or by the equipment being used.

Sometimes it may be the amount of time a worker is exposed to a particular situation that creates a hazard. This may depend on the physical condition, experience or training of the worker and may create more risk to one person than another. For instance, long-term exposure to sunlight or heat may cause a worker to become dizzy.

Safe Work Practices

Safe work practices are methods that must be implemented to make sure a job is carried out as safely as possible and are governed by legislative requirements and workplace procedures.

Safe work practices include:

- Day-to-day observation of OHS/WHS policies and procedures
- Emergency procedures
- Risk assessment
- Use of basic fire-fighting equipment.













Safe work practices relate to:

- Access to site amenities, such as drinking water and toilets.
- Drugs and alcohol at work.
- General requirements for safe use of plant and equipment.
- General requirements for use of personal protective equipment and clothing.
- Housekeeping to ensure a clean, tidy and safer work area.
- Preventing bullying and harassment.
- Smoking in designated areas.
- Storage and removal of debris.

Safe work practices should be referred to, and documented, when completing Safe Work Method Statements as a guideline for how to carry out a task safely.

Safe Work Method Statements

A Safe Work Method Statement (SWMS) details how specific hazards and risks, related to the task being completed, will be managed and is developed by the employer/PCBU for their

Safe Work Method Statement												
Company: (Name, Contact Person & Phone)												
Project/Site:		Principal Contractor:										
Job Task:	Boom Lift – Working from	SWMS No.:										
Date Created:		Revision Number:		Review Date:								
Workers Involved in Developing this SWMS												
Print Name:	Signature:	Print Name:	Signature:									
Relevant Australian Standards / Codes of Practice / Legislation												
Material Safety Data Sheets Required												
Plant & Equipment Required												
Licenses / Competencies Required												
Hot Work Permit <input type="checkbox"/> Yes	Confined Space Permit <input type="checkbox"/> Yes	Crane Lift Plan / Permit <input type="checkbox"/> Yes	Other Permit <input type="checkbox"/> Yes									
Applicable Permit Number(s):												
PPE Required:												
High Risk Work:	<input type="checkbox"/> Structural Collapse	<input type="checkbox"/> Confined Spaces	<input type="checkbox"/> Work in Tunnel	<input type="checkbox"/> Explosives								
<input type="checkbox"/> Fall from Heights > 2m	<input type="checkbox"/> Demolition of Structures	<input type="checkbox"/> Excavation >1.5m	<input type="checkbox"/> Mobile Plant	<input type="checkbox"/> Drowning								
<input type="checkbox"/> Asbestos	<input type="checkbox"/> Pressurised Gas Pipes/Mains	<input type="checkbox"/> Electrical	<input type="checkbox"/> Traffic	<input type="checkbox"/> Tilt-up/Precast Concrete								
<input type="checkbox"/> Telecommunication Towers	<input type="checkbox"/> Contaminated/Flammable Atmosphere	<input type="checkbox"/> Extremes of Artificial Temperature	<input type="checkbox"/> Chemical/Fuel/Refrigerant Lines									
Task/Location Specific Risks:	<input type="checkbox"/> Ground Conditions	<input type="checkbox"/> Noise	<input type="checkbox"/> Water Pollution	<input type="checkbox"/> Weather								
<input type="checkbox"/> Access & Egress	<input type="checkbox"/> Compressed Air	<input type="checkbox"/> Cultural / Heritage Area	<input type="checkbox"/> Soil Pollution	<input type="checkbox"/> Obstacles / Buildings								
<input type="checkbox"/> Overhead Obstructions	<input type="checkbox"/> Quick Cut Saw	<input type="checkbox"/> Snakes / Vermin	<input type="checkbox"/> Rotating Machinery									
<input type="checkbox"/> Underground Services	<input type="checkbox"/> Angle Grinder	<input type="checkbox"/> Dust	<input type="checkbox"/> Fatigue									
<input type="checkbox"/> Pedestrians / Workers	<input type="checkbox"/> Hot Work / Burns	<input type="checkbox"/> Significant Trees	<input type="checkbox"/> Exposure to UV									
<input type="checkbox"/> Unauthorised Persons	<input type="checkbox"/> Poor Lighting	<input type="checkbox"/> Flora & Fauna	<input type="checkbox"/> Ignitions Sources	<input type="checkbox"/> Other (refer to hazard prompt list)								

employees/workers.

SWMSs fulfill a number of objectives:

- Legislative and regulatory requirements.
- They outline a safe method of work for a specific job.
- They provide an induction document that workers must read and understand before starting the job.
- They assist in meeting legal responsibilities for the risk management process, hazard identification, risk assessment and risk control.
- They assist in effectively coordinating the work, the materials required, the time required and the people involved to achieve a safe and efficient outcome.
- They are a quality assurance tool.

The Safe Work Method Statement must be available for inspection at any given time. It must also be reviewed each year and amended if necessary.

Safe Work Method Statements may also be referred to as Safe Work Procedures (SWP) or Job Safety Analysis (JSA).

Manufacturers' Guidelines And Specifications

These requirements will be documented in operator's manuals, equipment specifications and work instructions. Designers and manufacturers have a responsibility to ensure that structures, plant and equipment meets strict criteria for the safe operation and protection of workers while also meeting relevant environmental standards.

Recent cases have occurred where designers and manufacturers have been prosecuted for not adequately catering for health and safety or environmental requirements. Where design faults or obvious environmental risks are present in equipment or in the deliberate use of such equipment, the manufacturer and the employer/PCBU can be held liable for any incidents that may arise.

Risk Management

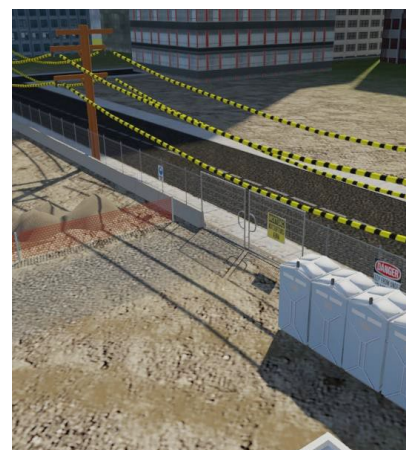
Risk management is the process of reducing or managing the risks when working with a hazard or in a hazardous situation and should take into consideration the context of the organisation and worksite.

Consultation and communicating with others and monitoring and review should be planned for and carried out at every stage of the risk management process.

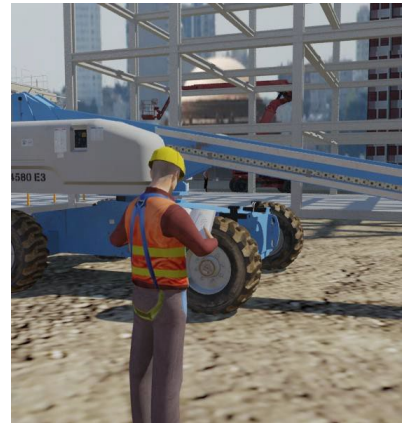
Workplace/EWP Hazards

Common workplace hazards and hazards that EWP operators face include:

- **Ground conditions:**
 - Surface condition.
 - **Underground services.**
 - Weight bearing ability.
 - **Recently back filled trenches.**
 - **Slopes.**
- **Poor lighting**
- **EWP faults**
- **Traffic:**
 - Pedestrians
 - **Vehicles**
 - **Other plant.**
- **Overhead hazards:**
 - **Power lines.**
 - **Overhead service lines.**
 - **Obstructions**
 - **Trees**
 - **Scaffolding**
 - **Service pipes.**
 - **Bridges**
- **Poor Weather:**
 - **Lightning**
 - **Storms**
 - **Wind**
 - **Rain**
- Surrounding structures:
 - **Buildings**
 - **Obstructions**



- Site hazards:
 - Other workers.
 - Other equipment and machines.
 - Facilities
 - Other equipment.
- **Other specific hazards:**
 - Dangerous materials.
 - Chainsaws
 - Pressure washers.
 - Tidal areas.



Once a hazard has been identified you will need to apply risk control measures before starting work and as hazards arise.

Consulting with Other Workers about Hazards and Risks

Controlling a hazard can be a team effort and it's important that everybody knows what they need to do and how/if they need to change their work process to suit.

Communication and consulting with others are an important part of the risk management process and should take place at all stages.

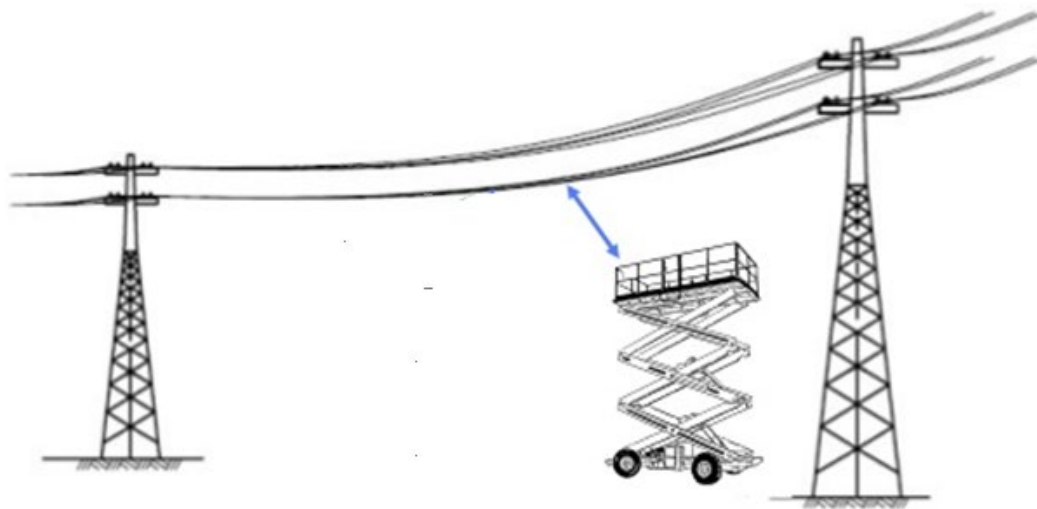
Identifying risks and hazards and coming up with ways of controlling them includes talking to the people with knowledge of the situation, or who are directly affected by any action you may take.

Make sure you talk to the right people. This can include:

- Safety officers.
- Supervisors.
- Other workers/Colleagues.
- Managers who are authorised to take responsibility for the workplace or operations.
- Health and Safety Representatives (HSR's)
- Site engineers (where applicable).

It is important to communicate with these people before starting on a worksite to ensure that you know about specific site hazards, rules (ie policies and procedures) and the specifics of the task.

Working Near Electric/Power Lines



Working near power lines can be dangerous if you are not careful.

It is very important that you know the **Safe Approach Distances (SADs)** for different types of power lines and the steps you must take if your need to work closer than the Safe Approach Distance.

SADs, No Go zones or authorised distances (depends on the state) means the minimum distance any part of the crane or load can be to live overhead uninsulated power lines.

Generally, if you need to work closer than the Safe Approach Distance (SAD) you must:

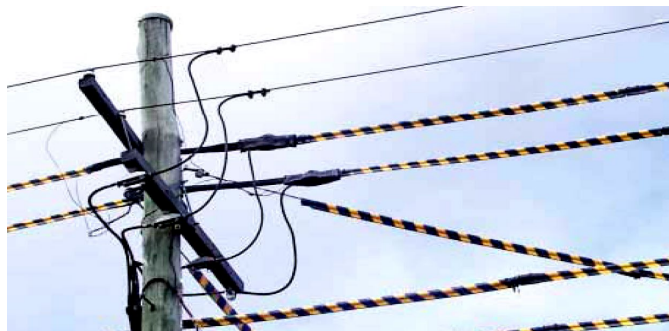
- **Have the power lines isolated or insulated by an authorised person.**
- **Use a spotter** (depending on local laws and rules).
- Contact the local electrical authority for permission to work closer (this is called an exemption).

Distances are different depending on the state or territory you are working in and the voltage of the power lines. You should contact the local electrical authority/provider or state regulator for information and advice about the voltage of power lines in your area and state.

Visual Indicators to Identify Overhead Power lines

There are several indicators used to identify powerlines overhead, they include:

- Tiger tails are used to clearly show the location of overhead power lines. Tiger tails DO NOT insulate the power lines so exclusion zones and safe operating distances must still be used, even when tiger tails are in use.
- Power line marker balls.
- Safety warning/danger signs.
- Markers of different colours
- Painting the lower section of the pole up to 3 metres above the ground



Tasmania

In Tasmania equipment must not be closer than the following distances to uninsulated power lines:

Power Line Type	Distance
<u>Up to and including 133,000 Volts (poles) or LV</u>	<u>6.4m</u> (or 3m with a safety observer)
<u>Greater than 133,000 Volts (towers) or HV</u>	<u>10m</u> (or 8m with a safety observer)

Queensland

The Queensland Electrical Safety Regulation breaks down the distances in detail. Exclusion zones are broken down not only by size of electric/power line but also by the competency level of the operator. This means that the requirements should be clarified with the electrical authority before work commences even if the distance appears to be outside the zones.

The following minimum distances are provided as guidance:

Electric/Power Line Type	Distance
Up to 132kV	3.0m
132kV up to 330kV	6.0m
330kV and above	8.0m

New South Wales

In New South Wales, for anyone who is not accredited, equipment operation may not be any closer than the following distances to electric/power lines:

Electric/Power Line Type	Distance
Up to and including 132kV	3.0m
Above 132kV up to and including 330kV	6.0m
Above 330kV	8.0m

To work closer than these distances requires authority from the relevant electrical authority and adherence to cl.64(2)(e) of the regulations.

Australian Capital Territory

In the ACT mobile plant operators and persons erecting or working from scaffolding must maintain a safe minimum distance to power lines as outlined in the table below:

Electric/Power Line Type	Distance
Less than 33kv	4.0m
33kV or more (transmission lines)	5.0m

Victoria

In Victoria the Framework for Undertaking Work Near Overhead and Underground Assets states that equipment must not be closer than the following distances to electric/power lines:

Electric/Power Line Type	Distance
Distribution lines up to and including 66kV (power poles)	6.4m (or 3.0m with a qualified spotter)
Transmission lines greater than 66kV (towers)	10m (or 8m with a qualified spotter)

South Australia

In South Australia mobile plant operators and persons erecting or working from scaffolding must maintain a safe minimum distance to power lines as outlined in the table below:

Electric/Power Line Type	Distance
Up to 132kv (including 132kv poles)	6.4m (or 3.0m with a spotter)
132kv or more (including 132kv towers)	10.0m (or 8.0m with a spotter)

Western Australia

In Western Australia this falls under Regulation 3.64 from the OSH Regulations and states the following as the minimum distances:

Electric/Power Line Type	Distance
Up to 1kV (insulated)	0.5m
Up to 1kV (uninsulated)	1.0m
Above 1kV and up to 33kV	3.0m
Above 33kV	6.0m

Northern Territory

In the Northern Territory equipment must not be closer than the following distances to electric/power lines:

Electric/Power Line Type	Distance
Up to and including 132kV (distribution lines)	6.4m (or 3m with a spotter)
Greater than 132kV (transmission lines)	10m (or 8m with a spotter)

Contact with Power Lines

If the EWP makes contact with power lines you must:

1. Try to break contact with the power lines or remain in EWP.
2. Warn others, send or call for help.
3. In an emergency, jump clear without touching the EWP and the ground at the same time. Hop or shuffle until your at least 8m away from the EWP.
4. Report the incident to your supervisor and safety regulator.
5. DO NOT use the EWP until it has been checked ok and returned to service.

Task-Related Hazards

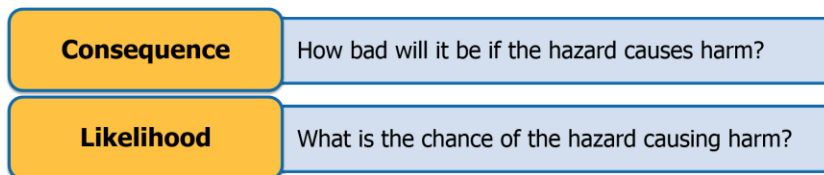
There may be other factors that you need to consider when planning out the task that are not necessarily site hazards, but hazards relating to the way the task is carried out.

When planning out the task some things you may consider are:



Risk Analysis

Once you have identified the hazards on site or related to the work you will be doing you need to assess their risk level. Risk levels are worked out by looking at 2 factors:



Using a table similar to the one shown here you can analyse how high the risk level is.

When using this Risk Matrix, Risk is consequence x likelihood

Risk Matrix	Consequence
--------------------	--------------------

Likelihood	1. Insignificant	2. Minor First Aid Required	3. Moderate Medical Attention and Time Off Work	4. Major Long Term Illness or Serious Injury	5. Catastrophic Kill or Cause Permanent Disability or Illness
1. Rare	Low	Low	Moderate	Moderate	Moderate
2. Unlikely	Low	Low	Moderate	Moderate	High
3. Possible	Low	Moderate	High	High	Extreme
4. Likely	Moderate	Moderate	High	High	Extreme
5. Almost Certain	Moderate	High	High	Extreme	Extreme




For example, a hazard that has a Major consequence and is Almost Certain to occur has a risk level of Extreme.

Likelihood	Consequence				
	1. Insignificant	2. Minor First Aid Required	3. Moderate Medical Attention and Time Off Work	4. Major Long Term Illness or Serious Injury	5. Catastrophic Kill or Cause Permanent Disability or Illness
1. Rare	Low	Low	Moderate	Moderate	Moderate
2. Unlikely	Low	Low	Moderate	Moderate	High
3. Possible	Low	Moderate	High	High	Extreme
4. Likely	Moderate	Moderate	High	High	Extreme
5. Almost Certain	Moderate	High	High	Extreme	Extreme

The risk level will help you to work out what kind of action needs to be taken, and how soon you need to act. The table below is an example of a site risk policy:

Risk Level	Action
Extreme	This is an unacceptable risk level The task, process or activity must not proceed .
High	This is an unacceptable risk level The proposed activity can only proceed, provided that: <ol style="list-style-type: none"> 1. The risk level has been reduced to as low as reasonably practicable using the hierarchy of risk controls. 2. The risk controls must include those identified in legislation, Australian Standards, Codes of Practice etc. 3. The risk assessment has been reviewed and approved by the Supervisor. 4. A Safe Working Procedure or Work Method Statement has been prepared. The supervisor must review and document the effectiveness of the implemented risk controls.
Moderate	This is an unacceptable risk level The proposed activity can only proceed, provided that: <ol style="list-style-type: none"> 1. The risk level has been reduced to as low as reasonably practicable using the hierarchy of risk controls. 2. The risk assessment has been reviewed and approved by the Supervisor. 3. A Safe Working Procedure or Work Method Statement has been prepared.
Low	The proposed task or process needs to be managed by documented routine procedures, which must include application of the hierarchy of controls.

The action you take will depend on:

-  The organisation's policies.
-  The worksite's procedures.
-  Relevant laws and regulations.

Hazard Control Measures

Once risks have been identified, analysed and evaluated, hazard treatment options need to be considered.

Control measures generally fall into three categories. You can:

- eliminate the hazard
- minimise the risk
- use 'back-up' controls when all other options in the previous categories have been exhausted

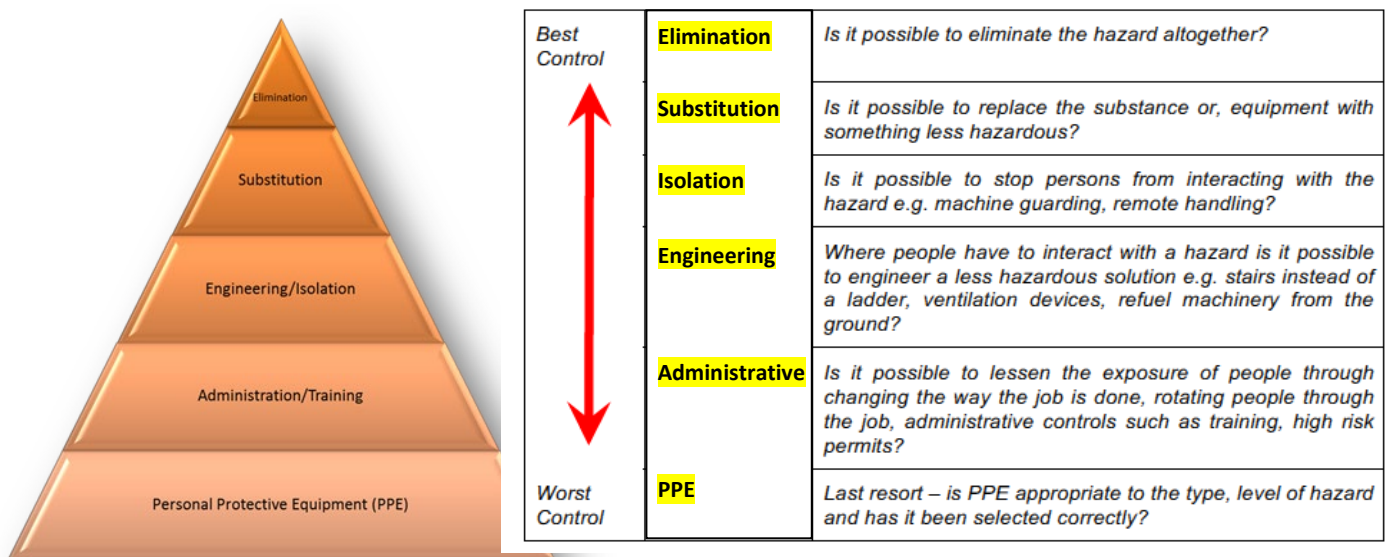
The best way to control a hazard is to eliminate it. The elimination of a hazard is the first choice in a system called the 'hierarchy of controls'

The WHS Regulations require duty holders to work through this hierarchy to choose the control that most effectively eliminates or minimises the risk in the circumstances. This may involve a single control measure or a combination of two or more different controls.

Hierarchy of Control

The Hierarchy of Hazard Control is the name given to a range of control strategies used to eliminate or control hazards and risks in the workplace. The Hierarchy has 6 levels:

The following order is recommended:



It is important to consider all of the options available when deciding on the best course of action. Not all options are feasible or possible under some circumstances.

You may need to use a number of control measures in conjunction to reduce the risk level to an acceptable level. The risk treatment plan should clearly identify the order in which to implement the individual risk treatments.

There are dangers and risk of injury to any individual in the vicinity of an operating forklift truck, including pedestrians or site personnel. Control measures should be applied before commencing any task and as soon as a hazard has been identified.

Personal Protective Equipment

Personal protective equipment (PPE) can help to reduce the effects or chance of being hurt. **All PPE must be inspected for serviceability prior to use**

All operators working in the EWP basket need to have:

- **A safety harness and fittings.**
- **Hard hat.**

The safety harness must be securely fitted to the operator and connected to an anchor point within the platform of the EWP.

Other common PPE includes:

- Hard hats.
- Earmuffs.
- Safety goggles.
- Boots.
- Gloves.
- Hi-visibility clothing.
- Respiratory equipment.
- Arm guards.
- UV-protective clothing and sunscreen.

Personal Protective Equipment (PPE) is designed to provide protection and limit damage for individual workers. It is important that you are aware that PPE is not designed to prevent injury, it simply helps to avoid damage.

Make sure that you have, at least, the minimum PPE requirements on at all times.

PPE must be supplied by your employer and you must be trained to fit and use it correctly. The types of PPE required will be determined during the planning stage of the task.

The 2 main hazards for a person standing near or under an operating EWP are:

- **Crush points**
- **Falling object hazards**

Implement The Control Strategy

Once you have come to the conclusion that the action is appropriate, feasible and reduces the level of risk to an acceptable level, it is time to take action and implement the control measures.

Plan out, in detail, the steps required to implement the control strategies.

This plan is called the Risk Treatment Plan.

Consult with other workers and management to ensure the implementation is done correctly and does not have a negative bearing on other trades, procedures or workers.

Once the risk control measure is in place you will need to review the level of risk to determine if more needs to be done to lower the risk level.

The acceptable level of risk is determined by an organisation's policy, goals and objectives towards safety.

Talk to your supervisor or health & safety representative if you are not sure about whether or not the risk has been reduced enough to carry out the work.

If you determine the risk to be at an unacceptable level, the work must not be carried out until the situation can be reviewed by an authorised person.

Part of preparing the site includes setting up any hazard controls. This might include erecting barricades to keep pedestrians outside of the work area, setting up extra lighting or having electric/power lines insulated or disconnected.

If the work area is going to be shared with pedestrians, site personnel, vehicles or mobile plant and other machinery you will need to make sure you have selected the appropriate control measures.

These may include:

- **Warning signs and barriers.**
- A flag person/**spotter**
- Pedestrian and vehicle **exclusion zones**.
- **Flashing lights/Traffic Management plan (TMP)**
- Hoardings, gantries or scaffolding.



Make sure that any control measures are consistent with workplace and safety standards. If you are unsure about any safety or control measures, check with your OHS/WHS officer or supervisor.

Other measures may include:

- Disconnecting power when working near electric/power lines or overhead services.
- Putting safety tags on electrical switches/isolators to stop somebody from turning the power back on while you are working on or near electric/power lines.
- Insulating electric/power lines.
- Moving any obstructions out of the way.
- Wearing personal protective equipment such as high-visibility clothing and non-slip work boots.
- Setting up adequate lighting in the work area.

The combination of control measures you choose will need to be clearly outlined in the risk assessment or SWMS.

Specific Control Strategies for Operating at Night or in Darkened Areas

If EWP operations are being carried out at night, or in darkened areas, adequate or sufficient lighting needs to be provided across the entire work area.

This is to ensure that the operator and associated personnel can see properly and carry out their work safely.



Monitoring and Reviewing the Risk Management Process

Monitoring and review are an important part of the risk management process and should be planned for at every stage. It involves regular surveillance and checking and responsibilities concerning it should be clearly defined.

The risk treatment plan should be complete and adhere to workplace policies and procedures. The risk treatment plans should be discussed with appropriate personnel/workers and included within the management process of the organisation.





Monitoring and review should:

- Be used to detect any changes, including changes to risks, which may require revision of treatments, or the emergence of new risks.
- Ensure that treatments and controls are effective and efficient.
- Aim to improve risk assessment through obtaining further information.
- Be used to analyse events and changes that have occurred through the implementation of the process and any lessons that may be learned from this.

It is important that monitoring and review results are recorded and reported according to organisational policies and procedures.

Picking the Right EWP for the Job

Depending on the job at hand there are a number of different EWPs available. The height, reach, safe working load, ground conditions and terrain all play a part in selecting the correct EWP.

Type	Description	Example
Trailer Mounted EWP	These elevating work platforms are mounted on a moveable trailer and can be towed by most vehicles with a tow ball. They have manually adjusted stabilisers to provide stability for the platform while it is being used and have a range of working heights up to 26 metres.	
Self-Propelled EWP with Telescoping Boom	These EWPs are self-propelled units for use on flat slabs or firm unsealed areas. The work platform is elevated using a straight extension (telescoping) boom. There are controls at ground level and on the platform.	
Self-Propelled EWP with Telescoping Knuckle Boom	These EWPs are self-propelled units for use on flat slabs or firm unsealed areas. The work platform is elevated by a boom, which has at least two main sections, with a knuckle between them, and is mounted on a turret that allows slewing. This arrangement permits the boom to reach up and over obstacles. Both sections of the boom may incorporate a telescoping extension. There are controls at ground level and on the platform.	
Vehicle-Mounted EWP	These EWPs are usually road-registered trucks with a boom or knuckle boom mounted on the truck chassis. The boom is mounted on a turret to allow slewing, and outriggers are fitted to the chassis. There are controls at ground level and on the platform.	

Rated Capacity

The other consideration to make when selecting which EWP to use is the rated capacity of the machine. **The rated capacity will be found or marked on the data plate, in manufacturing specifications or marked (or labelled) on the EWP.**

The rated capacity includes the weight of all workers, tools and equipment in the platform.

For example: If the rated capacity of the EWP you are operating is 275kg then the maximum weight of persons and equipment in the platform must not exceed 275kg.

NEVER overload the EWP – doing this will make the EWP unstable and can cause damage to its structure.

When selecting which EWP to use you must also consider the boom length capabilities in relation to the work to be completed. The boom length capabilities are the nominal reach and vertical reach of the machine.

The nominal reach of an EWP is calculated by the horizontal distance from the centre point of rotation to the outer edge of the platform.

The vertical reach of an EWP is measured as the vertical distance from the ground or surface the EWP is on to the floor of the platform.

Both of these lengths are calculated when the platform is at maximum extension and will be available in the manufacturer’s guidelines.

Data plate/Manufacturers plate

Below is a picture of an EWP data plate on a JLG 460SJ (this details the EWP’s serial no, DOM, model, platform height and reach, rated capacity, side force, gradeability, max extended working angle or incline, weight of EWP and wind speed).



Forces and Loads

When operating an EWP you need to be aware of the various forces and loads that affect the EWP:

Forces and Load	Explanation
Live Load	<u>The total weight of persons and/or equipment in the EWP platform.</u>
Dead Load	<u>The weight of the EWP.</u>
Wind Load	<u>The effect of wind acting upon EWP taking into account the degree of the exposure of the site and nature of your work. Refer AS 2550, usually <u>12.5 m/s</u></u>

You need to be very careful when operating an EWP in windy conditions as falling objects, EWP tip over and EWP damage may occur.

If you are up working in your EWP and the wind speed starts to exceed manufacturers specifications you should:

1. Stop work
2. Safely lower to ground
3. Report to supervisor and make area safe

You will find the maximum wind speed marked on the data plate, in the manufacturing specifications or marked/labelled on the platform.

 <h2 style="display: inline;">Beaufort Scale of Wind Force</h2>				
Beaufort Force	Description	When You See or Feel This Effect	Wind (mph)	Wind (km/h)
0	Calm	Smoke goes straight up	less than 1	less than 2
1	Light air	Wind direction is shown by smoke drift but not by wind vane	1-3	2-5
2	Light breeze	Wind is felt on the face; leaves rustle; wind vanes move	4-7	6-11
3	Gentle breeze	Leaves and small twigs move steadily; wind extends small flags straight out	8-12	12-19
4	Moderate breeze	Wind raises dust and loose paper; small branches move	13-18	20-29
5	Fresh breeze	Small trees sway; waves form on lakes	19-24	30-39
6	Strong breeze	Large branches move; wires whistle; umbrellas are difficult to use	25-31	40-50
7	Moderate gale	Whole trees are in motion; walking against the wind is difficult	32-38	51-61
8	Fresh gale	Twigs break from trees; walking against the wind is very difficult	39-46	62-74
9	Strong gale	Buildings suffer minimal damage; roof shingles are removed	47-54	75-87
10	Whole gale	Trees are uprooted	55-63	88-101
11	Violent storm	Widespread damage	64-72	102-116
12	Hurricane	Widespread destruction	73+	117+

Engineer Diary (www.strleng.blogspot.com)

Communication methods and Equipment

It is important to communicate with your workmates when you are on a worksite. There are many methods of communication. You may need to read things like Safety Data Sheets (SDS), Job Safety Analysis worksheets, work permits and written instructions.

As an EWP operator you need to be able to communicate with workers around you while you work, and you need to be able to understand the instructions to use the EWP safely.

These can include:

- Manufacturer's guidelines (instructions, specifications, checklists).
- Industry operating procedures.
- Workplace procedures (work instructions, operating procedures, checklists).

Workplace communications may take the form of:

- **Verbal or Fixed channel two-way radios.**
- **Signs and written instructions.**
- Making and interpreting **hand signals**.
- Bells, buzzers and whistles.
- Active listening.
- Questioning to confirm understanding and appropriate worksite protocol.



- **Verbal communication** - This is spoken communication, either face-to-face or via communication devices such as phone and radio.



- **Non-verbal communication** - This is wordless communication as expressed through gestures, facial expressions and eye contact. These forms of non-verbal communication are often referred to as body language.



- **Written communication** - This is any communication that relies on written words, such as email, text messages, faxes, reports and completed documents.

Identifying appropriate communication methods

Communication is a major factor in creating and maintaining a safe and efficient workplace. Different forms of communication are used throughout various workplaces e.g. verbal, written instructions, listening, signage, hand signals, appropriate work permits, etc ...

To ensure your workplace is safe and healthy, employers, employees, managers, contractors and visitors must communicate with each other and work together.

Workplace communications may take the form of:

- Verbal or Fixed channel two-way radios.
- Signs and written instructions.
- Making and interpreting hand signals.
- Bells, buzzers and whistles.
- Active listening
- Questioning to confirm understanding and appropriate worksite protocol

Communication Equipment

You will need to inspect and check your communications equipment before starting work and after use.

You need to choose what type of communication methods in the planning stage of the job.

If you are given an unclear signal or communication by your spotter or co-worker you need to stop work immediately and clarify the signal.

Mobile phones

Mobile phones have made a huge difference to the way we communicate in the workplace. On a mine site that is covered by GSM, mobile phones play a principal role in enabling quick and efficient communication.



While mobile phones have been a major boon to communication, they can hinder work if not used appropriately. Here are some tips for safe use of your phone and for ensuring you control your phone, rather than letting it control you!

- Do not use mobiles in flammable environments.
- When on work time, restrict mobile phone conversations to essential work-related calls; check your company's policy on mobile phone use while on duty.
- Do not use your mobile while you are driving or operating an item of equipment or trying to do any other work task that requires your undivided attention.
- Turn off mobiles during meetings and important conversations.

Satellite phones



Remote mining and natural gas sites rely on satellite communication networks to connect their operations to phone and internet services and ensure work can carry on as usual. While connectivity at the desk in the site office is generally available, issues can escalate when working in the field.

Satellite phones require a clear, wide and direct line of sight between the handset and the sky. Factors such as atmospheric conditions, geographical features and thick tree cover may affect reception. However, when working in the field mobile satellite connectivity is required not only for safety purposes, but to also increase the efficiency of daily tasks.

Care instructions that apply to mobile phones also apply to satellite phones.

Two-way radios

Two-way radio is the preferred communication device when continuous and instant contact is required during specific tasks. Two-way radios are suitable only for short-range communication which, depending on the set-up, can range from 1–15 kilometres.



Most two-way radios use either UHF (Ultra High Frequency) or VHF (Very High Frequency) bands.

Radio functions

The functions available on a two-way radio will vary by make and model but the basic functions are:

- Push-to-Talk (PTT) button. This is used to enable your transmission. While the PTT button is held down, you can only make transmissions. Release it to receive transmissions from the other radio.
- Volume.
- Squelch control (used to suppress background noise).

Radio operation techniques

Here is a typical two-way radio procedure. Be sure to check the procedures that apply on your site, as they may differ.

1. Select the relevant channel for your site.
2. Check the channel is clear.
3. Press the Push-to-Talk (PTT) button when you are ready to make a transmission. Know what you are going to say before starting the transmission. This will reduce the need for ums and ers.
 - a. Speak into the microphone:
 - b. Hold the microphone vertical, close to your mouth.
 - c. Pause for a moment before speaking to avoid parts of the message being cut off. Pause also before releasing the PTT button to prevent cut-offs at the end of your message. Use the proword 'Over' when you complete a part of a transmission.
 - d. Speak across the face of the microphone.
 - e. Speak with natural rhythm; avoid pausing and the use of 'er' or 'ah'.
 - f. Speak steadily and not fast.
 - g. Avoid shouting into the microphone.
4. End the transmission with 'Out', letting the person you are talking to know that the transmission is done.

Radio protocol

Two-way radios are used for quite specific purposes, so you need to be aware of some of the basic guidelines for appropriate use:

- Use them only for essential business or emergency communication, not chit-chat.
- Keep messages short and to the point.

Do not break into others' transmissions. You will need to inspect and check your communications equipment before starting work and after use.

You need to choose what type of communication methods in the planning stage of the job.

Emergency Procedures

All workers need to have access to emergency procedures. These are commonly found within your immediate work area, centralised filling systems, signage on walls and direct from your Fire Warden or Health and Safety Representative etc.

Safety Signage

You **MUST** always obey safety signs in the workplace. An example of some commonly used signs within the workplace are listed below:



If an unsafe incident does occur, it is important to ensure that the right personnel are made aware so that they can control the situation or work to prevent it in the future (i.e. Safety Officer, Supervisor, Managers and/or HSR - Health Safety Representatives).

Reporting and Record Keeping

Make sure you record any action you've taken and talk to your supervisor and OHS/WHS officer about the control strategies in place.

Reports and records could include:

- Risk Assessment Reports.
- Incident Reports.
- Job Safety Analysis (JSA).
- Safe Work Method Statements (SWMS).

Keeping records is important as they can help ensure that any risk management activities are traceable.

Records also provide a basis for improving methods and tools in the risk management process, as well as improving the overall process.

Logbook

Each EWP should have a logbook that matches the EWP data plate.

Before using the EWP check the logbook to make sure the EWP is in working order. These are commonly found in a yellow waterproof pouch attached to the EWP basket.



The EWP logbook contains the following details and records of:

- **Sign off on the Daily safety checklist.**
- **Date of Manufacture (DOM) and serial number (and that the logbook matches the EWP).**
- **Faults and faults repaired section**
- **EWP operation (dates, times and operator names).**
- **Periodic inspections, 3 monthly and Annual inspections are completed.**

If the service logbook indicates that the EWP has not been tested in accordance with the requirements of Australian standard; AS 2550 or that the **EWP has faults that have not yet been repaired you should:**

- Isolate/turn it off/Tag out the EWP.
- Record in the logbook (if appropriate).
- Report the defects to supervisor.

Only the person who made the repair or an authorised person is allowed to remove and Out of Service Tag but always refer to your company's policy for the specific details and procedure.



Pre-Operational Visual Checks



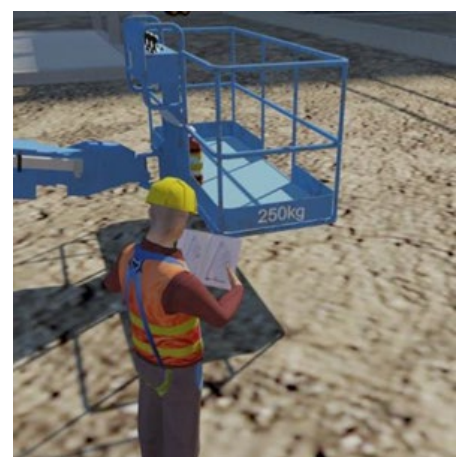
Always check the EWP before you use it. **As the EWP operator it is your responsibility to make sure that the EWP is inspected and ready for use.** It is important that the EWP is inspected before starting work as the inspection can **ensure that the EWP and any equipment is safe to use and free from defects or damage.**

Refer to the manufacturer's/operator's manual and workplace rules for routine machine inspection procedures and documents such as inspection checklists.

For an example of an EWP Inspection Checklist see Appendix A.

Pre-operational/visual checks will include:

- **Ensure that the logbook matches the EWP,** up to date and all previous defects have been rectified.
- **Make sure that there are no safety tags on the plant** – Only the person who put the tag on and a person who is authorised in accordance with workplace safety procedures are allowed to remove a safety tag. Unless you are authorised never remove safety tags from any plant or equipment.
- **Inspect all fluid levels** (this includes fuel, battery levels, hydraulic fluids and engine oil) and **no fluid leaks.**
- **Check cables and hoses**
- **All pins and bolts intact and secure**
- **Guards are intact and secure**
- **Inspect tyres, tyre nuts** and tyre pressure– Ensure these are in line with manufacturer and legal requirements. It is extremely important that the tyres are inflated to the correct pressure as stated on the load chart or in the operator's manual. The capacity and stability of the EWP depends on the tyres being correctly inflated.
- **Inspect outriggers and packing (if applicable).**
- **Inspect EWP for any obvious signs of damage.**





- **No cracked welds**
- **Ensure signage is present and legible – These need to be in place and readable to ensure the operator is aware of the capacities and capabilities of the EWP.** They also identify safety features, emergency and standard operating procedures and possible hazards associated with the equipment.

Inspect the boom/jib for any structural damage

This can be indicated by:

- **Cracks in the boom, superstructure or welds.**
- **Bends and/or twists** in the boom or superstructure.
- Visual rust from welds or joints.
- Flaking paint.
- **Loose bolts or pins.**
- **Oil leaks.**

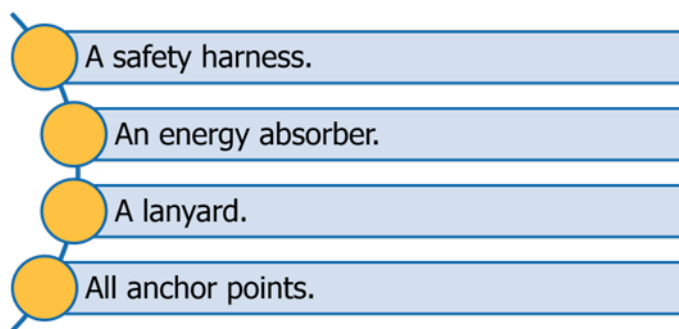


If you identify any damage or defects when completing the pre-operational/visual inspection of the EWP you should:

- **Isolate/turn it off/Tag out the EWP**
- **Record in the logbook (if appropriate).**
- **Report the defects to supervisor**

Safety Equipment

You must check all safety equipment before starting up the EWP. Safety equipment that is required by an EWP operator includes:



The safety harness and lanyard are the most important piece of protective equipment that an EWP operator needs to use.

Check that the harness fits properly and that it is in good condition. When inspecting your harness ensure that you check the:

- Manufacturers tag (D.O.M, within 10 years of its expiry date).
- Made to A/S or equivalent.
- 6 monthly periodic inspection (as a minimum).

- Check fall indicators or for evidence of a fall.
- Webbing and stitching.
- Snap hooks and karabiners.
- Buckles, adjusters and D rings.
- Cuts, tears, abrasions.
- UV, paint, chemical and oil damage



For an example of a harness inspection checklist see Appendix B.

Check the energy absorber and lanyard assembly for damage or wear, and check that it is correctly attached to the harness.

Whenever climbing into the EWP basket always use 3 points of contact. Check that the gate on the EWP basket closes automatically behind you.

There are specific reinforced anchor points within the EWP basket that the lanyard needs to be attached to.

Check that these anchor points are in good condition and that the lanyard attaches properly, allowing you to move freely in the basket.

EWP Controls

Read the operator’s manual if you are not familiar with the EWP to learn where the controls are located.

Check the ground controls are clearly marked. Once in the basket, check that all controls are clearly and properly marked.

Start the EWP

If the pre-operational visual inspection shows that there are no faults then start up the EWP according to the manufacturer’s start-up procedure.



Post-Start (Operational) Checks

If the pre-operational visual inspection shows that there are no faults then start up the EWP according to the manufacturer’s start-up procedure.

Once the pre-operational checks have been completed and the EWP has been started, **you should begin the post-start (post-operational) inspection.**

These checks include:

- **Check the ground and platform controls.**
- **Test the brakes and steering.**
- **Full function test.**
- **Checking warning lights, alarms and devices.**
- **Check E stops and crush bar are operational.**
- **Remove any slew locks (if fitted).**
- **Any rescue controls (including and any pump down devices, manual bleed down valves or battery rescue controls).**
- **Safe slewing radius is available.**

Other checks may include:

- Ensuring that hazard controls are in place.
- Ensuring the operator has clear vision across the work zone (where applicable).
- Testing communication methods and equipment.
- Performing a full function test.

The next step is to check the basket controls:

- Turn the select switch to platform/basket.
- Use 3 points of contact to climb into the EWP basket.
- Attach your harness and put on your hard hat (safety helmet), rubber-soled steel cap shoes and other PPE as required.
- Make sure the self-closing action of the platform gate is working.
- Test the dead man switch to make sure it is functional – this switch acts as an interlocked safety device in that no function will operate unless it is activated.
- Test the automatic levelling device.
- Check all alarm systems.

Test each of the control levers in the basket to make sure all operations are functioning correctly and smoothly.

It is important that throughout the operational checks you test the EWP to the full extent of its capabilities to ensure that it is functioning correctly and is safe to use.

Check Controls

Once these checks have been made you should ensure the ground controls are functioning at full capacity.

The ground controls are used for rescue and testing purposes.

Using the ground controls check the following operations:



- Lift and lower the boom.
- Slew the boom to the left and right, making sure there are no potential hazards in performing this function. If the boom cannot be slewed, check that the slew locking pin has been removed.
- Telescope the boom out to the range required for the tasks to be undertaken and back again.
- Check the auxiliary power unit on diesel and gas machines. If the machine does not have an auxiliary power unit or emergency lowering valves (taps), refer to the operator's manual for instruction on how to lower the machine in the event of an emergency

If you are confident that the ground controls are working, then check the basket controls:

- Turn the select switch to platform/basket.
- Use 3 points of contact to climb into the EWP basket.

- Attach your harness and put on your hard hat (safety helmet), rubber- soled steel cap shoes and other PPE as required.
- Make sure the self-closing action of the platform gate is working.
- **Test the dead man switch acts as a safety interlock device in that no function will operate unless it is activated.**
- Test the automatic levelling device.
- Check all alarm systems

Test each of the control levers in the basket to make sure all operations are functioning correctly and smoothly.

Test the following movements/functions:

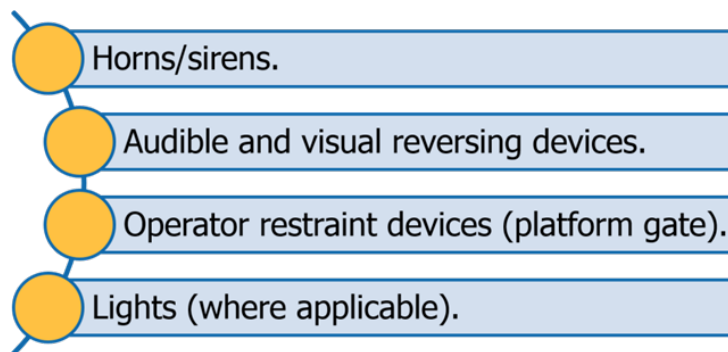
- Raise and lower boom.
- Slew left and right.
- Telescope boom in and out.
- Hinging.
- Articulating

It is important that throughout the operational checks you test the EWP to the full range of its capabilities to ensure its safe to use/free from defects and to help familiarise yourself with the EWP.



Check Safety Devices

Part of the EWP start-up process is checking that all safety devices are working before you start the job. Safety devices include:



Make sure each of these is working correctly before using the EWP.

Test and Check Communication Equipment

Don't forget to check that any communication equipment you are planning to use is working properly and is appropriate for the job before you start the task.

Report All Faults

If you find any defects, damage or signs of interference (tampering) during your inspection of the EWP you must:

- Immediately stop operating the EWP.
- **Isolate the EWP and attach a safety tag to it.**
- **Record the fault in the EWP service book and any other location outlined in site procedures.**

- Report the fault to an authorised person, such as your supervisor, for corrective action to be taken.

DO NOT use the EWP until it has been fixed, signed off by a competent person and returned to service.

Ground Suitability

Before setting up the EWP you need to check the ground suitability for the machine.

Check the ground or surface for the following factors that might influence the safe operation of the EWP:

- Rough uneven ground.
- Backfilled ground.
- Soft soils.
- Manhole covers/trench covers/steel grates.
- Unstable rock.
- Soft bitumen.
- Cracked concrete.

The work area should be flat and able to stand the weight of the machine.

If it is not flat, or if it has a soft base or has been backfilled etc., you will need to make sure you have the required ground cover, such as steel plates and/or sleepers, to control the hazards associated with loose or unstable ground.

If you are required to set up the EWP on a concrete slab ensure that an engineer has inspected it and provided a report indicating that the slab is capable of supporting the EWP and any other loads placed in or on it.



Setting up an EWP outrigger or wheel next to a recently excavated trench may lead to EWP instability and tip over.

Position EWP

When setting up the EWP it is important that you are aware of your surroundings and adapt your EWP set up procedures to the environment you are working in.

The set up procedure involves the following tasks:

- Drive to the work area.
- Setting up the EWP.
- Traffic control.
- Stabilise EWP.

Drive To The Work Area

Check that the way is clear before moving the EWP to the work area. Look out for other workers, obstructions and other equipment that is working in the area.

Upon arrival at the worksite ensure that you:

- Notify the relevant people (site foreman, safety officer, etc), discuss your work program with them and seek their advice.
- Check the environmental conditions, including the wind speed, to ensure they are within the manufacturer's specifications.

Assess Weather Conditions

Before setting up the EWP it is important that you take note of the weather conditions. The manufacturer guidelines will outline the maximum wind velocity in which operations can continue.

Some EWPs have their wind velocity capacity marked on them or it can be located on the data plate. It is important that if the wind speed exceeds the manufacturer's specifications all work with the EWP is stopped.

There are some great weather apps available that you can access to check weather conditions in your area.

Operating the EWP in windy conditions can cause hazards such as:

- Uncontrollable boom movement.
- Tipping over of the EWP.
- Falling objects.
- Dislodgement of power cables from cable guides.
- Reduced visibility because of debris, dust or insects

Set Up

Before setting up the EWP ensure that you check:

- The safe working radii.
- The position of the EWP in relation to the work to be undertaken.
- Adequate clearances from obstructions and/or hazards.
- Ground conditions.
- Movements of other vehicles and plant.
- EWP range diagram

Set the EWP up as close as possible to the work that you are required to do, but at the same time create minimum disturbance to others.

If you have to position the EWP close to recent excavations or trenches, the rule of thumb – depending on the soil condition – is that you set up the EWP as far away from the excavation as it is deep. For example, if the excavation is 2m deep you would not set up closer than 2m to the excavation.

The general rule is a 1:1 ratio.

Firmly apply the parking brake and place the transmission in neutral (or in accordance with the manufacturer's recommendations).

It is important that the EWP is set up level and you can achieve this by checking it with a bubble level indicator or a spirit level. Some EWPs are also fitted with a tilt sensor or slope alarm that will tell you if it is not level.

Make sure the EWP will not be on a slope that exceeds the manufacturer's recommendations.

Positioning Close To Buildings

When setting up an EWP close to buildings you should consider:

- **Is building protection required**
- **Ground conditions**
- **Underground services or structures**
- **Uncompacted ground, loose backfill or erosion**
- **Traffic, other people or plant**
- **Powerlines and overhead structures**
- **Whether the boom can be set up to slew away from the building (if possible).**
- **Use of a spotter/s**
- **Foundations and structural bearings**



You could also consider:

- The access and egress.
- Whether the position of the EWP is appropriate.
- Whether screens are required for fragile and easily damaged parts of the building such as windows.

Positioning In A Confined Area

When setting up an EWP in a confined area ensure that you consider:

- The access and egress – will the EWP fit in and out of the confined space?
- Obstructions and personnel/workers.
- Is a guide needed?
- Can the boom be slewed safely?

Stabilise EWP



If the EWP does not have outriggers, you should position the EWP wheels on steel plates or other suitable baseplates.

If the EWP has outriggers, you can use steel plates, hardwood packing, baseplates or heavy rubber matting to support the outriggers.

Pig-sty packing should be arranged so that each layer is at a 90° degree angle to the one before and that the last layer of packing ends up in line with the outriggers.

The outriggers need to be fully extended, unless they are also being used to level the machine.

Never reset the outriggers while the machine is elevated as this can cause major instability and allow the machine to overturn.

Remember to avoid soft ground, sloping surfaces or other conditions that may affect the stability of the unit.



Setting up an EWP outrigger or wheel next to a recently excavated trench may lead to EWP instability and tipover.

If the work area where you are required to set up the EWP is soft or waterlogged, have a competent person carry out an assessment of the area.

Use steel plates, mats on timber pads or concrete rafts to help distribute the weight of the EWP.

If the EWP begins to lean to one side while you are using it, immediately lower the platform and check the outriggers to ensure stability.

Check the ground conditions and repack the outriggers before continuing.

If you are setting up next to a building with an underground level or car park, have a competent person assess the ground conditions before you set up.

There is a possibility that the weight of the EWP could cause the walls of the lower levels to crack or collapse.

If the EWP is set up, but one or more of the wheels or outriggers starts to sink you should:

- Stop operations.
- Return the EWP to the ground.
- Relocate the EWP to safer ground.
- Rectify the sinking if possible. If not possible, relocate the EWP to an area where stability can be obtained.



Packing



Selecting the correct packing is important. There are different kinds and sizes of packing available:

- **Steel plates.**
- **Mats on timber planks.**
- **Hardwood packing (pig-stying or cribbing).**

Pig-sty packing should be arranged so that each layer is at a 90° degree angle to the one before.

Sloping Surface

If the EWP is being set up on a sloping surface, position the outriggers/stabilisers on the lower sloping side first, again making sure the area is clear of personnel/workers before lowering the outriggers/stabilisers. This will allow you to level the platform and then engage the remaining stabilisers.



Apply Hazard Control Measures

Once the EWP has been set up it is important to put any hazard control measures into place.

If any new hazards are identified during the operation, ensure that work is stopped until hazard control measures have been put into place and the risk is at an acceptable level.

Hazard control measures can include:



- Disconnecting the power.
- Adequate lighting to meet illumination requirements.
- Insulated power lines.
- Moving obstructions out of the way of operations.
- Pedestrian and traffic barricades and controls.
- Personal protective equipment (PPE).
- Safety tags on electrical switches/isolators.
- Using safety observer inside exclusion zone.
- Suitable area for set-up with firm and stable ground for EWP operation.
- Installing trench covers on excavations (as required).

Traffic and Pedestrians

Traffic Control

Before setting up the EWP on a busy street you should always check with the local authorities and councils whether there are any permits required for traffic control or any exclusion zones are needed.

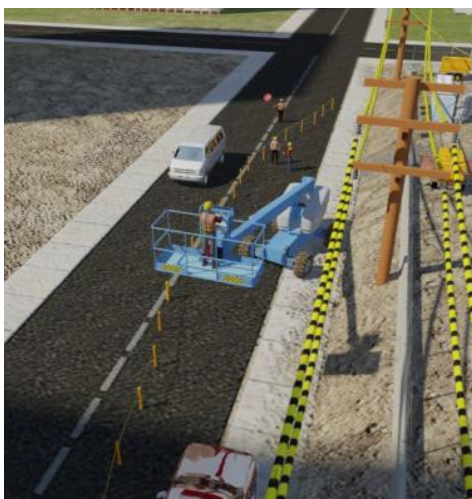
Place all the required traffic control displays and warning devices. Warning signs at the front and rear should be placed at least 50 metres, but not more than 150 metres, from the vehicle.

Ensure any necessary barricades or road marker cones are placed along the side of the vehicle.

Road marker cones should be arranged to keep traffic clear of the area where the elbow of the boom will be operating.



Controls For Pedestrians/Workers



When working with an EWP it is important to ensure the safety of the operator and all other personnel/workers. It is imperative for the safety of all persons around the EWP that exclusion zones are put in place.

Exclusion zones ensure that no personnel/workers or objects are at risk of being struck by the EWP when it is in motion or by falling objects.

DO NOT ever raise or lower the boom over people.

When people are under or near the boom they are unsafe and at risk of serious injury or death.

If someone enters your work area or exclusion zone while operating the EWP you should:

- Stop work
- Notify the spotter (if applicable)
- Inform the person to leave the work area
- If a safety rule has been breached or compromised talk to your supervisor.

Storage of tools and equipment

All tools and equipment should be evenly spread, stored safely and securely in tool bags/buckets, fixed tool boxes etc to:

- Prevent falling objects hazards
- Prevent tools/parts from jamming the 'dead man' control.
- Prevent trip hazards
- Help stabilize/balance the platform.
- Ensure a high standard of housekeeping in the EWP platform.

DO NOT leave tools lying around on the floor of the EWP platform



Operate EWP



Before operating the EWP ensure that the risk treatment plan has been reviewed and all hazard control measures are in place.

Prior to elevation always look up and around to make sure there are no overhead obstructions or electric/power lines that might have been overlooked.

When thinking about the safe path of movement for the boom. You will need to be aware of:

- Ground conditions
- Safe clearances from structures or obstacles.
- Clear travel path.
- Other workers and plant in the area.
- Any other traffic in the area.
- **Power lines, overhead structures** and other services.
- Speed of boom movements

Before raising the platform

Always look up and around to make sure there are no **overhead structures** or **power lines** that might have been overlooked. You should also think about:

- **The safe working radius of the EWP.**
- **Powerlines, overhead structures.**
- **Traffic and other plant.**
- **Equipment and tools are secure.**
- Harness and lanyard fitted, attached and secured.
- The surrounding area including visibility, nearby equipment or structures.



If you are tasked to operate an EWP over a body of water you may need to consider:

- **Your rescue plan, rescue boats.**
- **Wearing of a life jacket.**
- **Not wearing a Fall arrest harness and lanyard.**

Once you are sure that it is safe you can start the elevation by shifting the control lever. Do not operate the lift at a high speed, especially if you are in a confined area. Raise, slew and telescope the boom to get the platform into the correct position. Elevate the EWP to the full extension required, provided it is safe to do so.

All EWP operators must continually monitor boom and platform movement to identify any hazards that may arise and control them accordingly.

Mobile EWP

Moving (or 'mobiling') an EWP requires special care, because of the greater risk of destabilising the machine. Never move an EWP with its outriggers extended.

Mobiling or moving a self propelled EWP whilst elevated should be avoided but is based on a dynamic risk assessment (ie ground conditions use, use of spotter etc). You should only travel in turtle or creep speed whilst elevated.

If you have to move an EWP with an elevated platform:

- **Never travel over rough or uneven ground.**
- **Where possible always travel with boom sections retracted, lowered and jib or knuckle raised so you can clearly see any site hazards.**
- **Be constantly aware of ground conditions, overhead structures, power lines, services, other people, low level structures, other machinery and traffic.**
- **Travel at creep or turtle speed with utmost caution, staying alert to make sure the surface is flat with no gradients or speed humps etc.**
- **A use of a spotter is always advised.**

The EWP should never be used as a crane for lifting anything outside the basket or platform, and slings should never be attached to the guardrails of the EWP unless it has been specifically designed for the purpose of shifting loads.

The following safety measures need to be applied when moving an EWP:

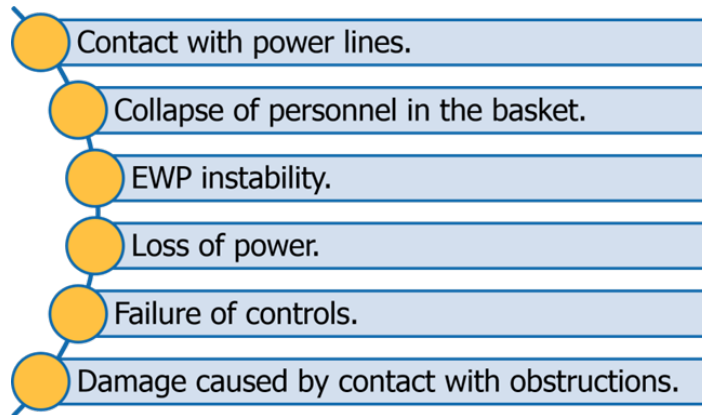
- Before mobiling the EWP ensure that you have determined the path of movement for the boom and all hazards have been identified and all controls have been put in place.
- Retract the boom section(s) of the machine and lower the basket to a level where you can clearly see the path of the EWP to ensure the path is not rough or uneven.
- Keep a good watch out for people at ground level.
- Ensure all warning devices are operating.
- Ensure that the tyres are inflated to the correct pressure as per the manufacturer's instructions.
- Wear your harness and have it attached to the anchor point.
- Make sure the boom is in line with the chassis and the basket is behind the drive wheels.
- Check that the turntable/basket lock is engaged (where fitted).
- Be constantly alert for potholes, obstructions, people, other machinery and any other hazards.
- If the EWP is fitted with axle lockouts ensure that they have been activated.
- Make all of your steering movements smoothly.
- Travel at an extremely slow speed, as per the manufacturer's specifications.
- If you are moving an EWP up or down a hill:
 - Always travel with the platform pointing up the hill.
 - Always follow the manufacturer's specifications.



Emergency Procedures

Any number of things can go wrong while you are operating the EWP. The best thing you can do is know how to deal with these situations when they happen to give you the best chance of avoiding injury.

Unsafe situations could include:



An emergency situation is the only time that it is appropriate to disengage the dead man control to stop the platform from moving. Depending on the kind of emergency there are a range of actions that should be taken. All action should follow your site or organisation emergency response policies and procedures.

If an unsafe incident occurs you will need to:

- Stop work immediately.
- Tell people in the immediate vicinity. Try to work out what the problem is.
- Resolve the problem if you can, or lower the EWP platform. Record the details of the incident in the logbook.
- Report the problem to an authorised person or as per workplace requirements.
- Stop other people from entering the area as it may be unsafe.

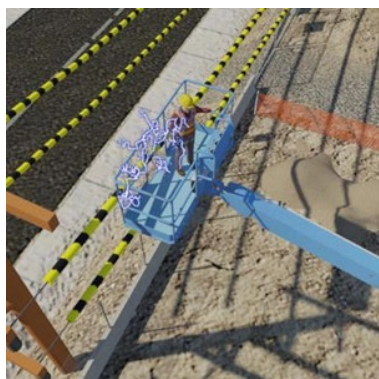
Generally, in the case of an emergency you need to tell other people at the site, safety officers, managers, supervisors and emergency services about it. When you are passing on details make sure you clearly explain:

1. Sound the alarm/warn others, send or call for help
2. Location or where the emergency is
3. Nature of Emergency



Contact with Power Lines

If the EWP comes into contact with power lines you should:



1. Sound the alarm, send or call for help.
2. Try to break contact with the power lines or remain in platform
3. In an emergency, jump clear without touching the EWP and the ground at the same time then hop or shuffle until at least 8m clear of EWP.
4. Report the situation to management, power company and the safety regulator.
5. Make sure the EWP is checked properly before it is used again.

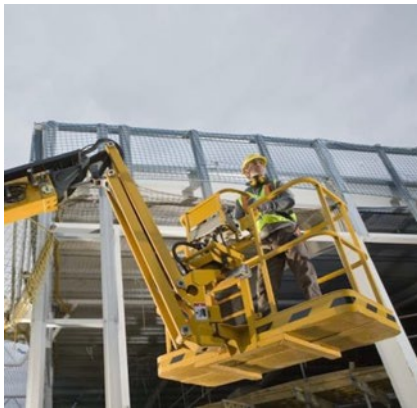
Collapse of Personnel in the Basket

If you are on the ground and your workmate up in the basket appears to have fainted and has slumped down inside the basket, you should:

- Try to make contact with the person (yell out to them or try to contact them through the communication equipment being used).
- If you get no response, call for first aid or ask someone else to go for first aid assistance.
- Check for hazards in or around the work area, such as power lines or dangerous materials that might have caused asphyxiation.
 - If no hazards are found and the machine is safe, switch it to ground controls and lower the person down.
 - If there is an electrical hazard, do not touch the machine. Call the electrical authority to have the electricity supply shut down and the problem rectified.

EWP Starts to Tilt to One Side

If the EWP begins to tilt:



- Stop work immediately and lower the platform to the ground.
- Get out of the platform, alight from the machine and check out why there is a lean (e.g. packing sinking into a soft or unstable ground surface, or an outrigger hydraulic ram slowly leaking internally).
- If you are not sure, seek advice from a competent person before any attempt is made to elevate the platform again.
- In most cases you will need to relocate the EWP to stable ground.

Motor Cuts Out

If the motor of the EWP cuts out or the controls fail, the platform must be lowered to the ground.

This can be done by:

- Communicating with personnel who are on the ground to assist in lowering the EWP.
- Using the hydraulic accumulator, if the EWP is fitted with one, which would have enough pressure to slew if needed and then lower the platform.
- **Using the battery rescue controls** (if applicable).
- If the EWP is not fitted with the above options or they haven't worked, the **hydraulic bleed valves or pump down devices** can be used for emergency lowering.

Abnormal Noises and Movements

If at any time during the operation of the EWP there is an abnormal movement of the boom or abnormal noises you should immediately stop using the EWP, tag it out of service and report the fault to the appropriate person as per site procedures.

If you hear a loud noise or feel vibrations coming from the boom section whilst operating the EWP you should:

- Stop work.
- Notify all people in the immediate vicinity.
- Investigate the cause of the problem.
- Resolve the issue if possible, or lower the EWP platform.
- Tag out the EWP.

- Record the details in the logbook and report it to an authorised person.
- Have an inspection carried out to identify whether damage has occurred.
- Do not use the EWP until any defects have been fixed.

Warning Lights, Cut-Outs and Alarms

If during the operation of the EWP you observe any defects through warning lights, cut outs or alarms you should:

- Stop work.
- Identify what the problem is, if possible.
- Lower the platform (where applicable).
- Tag the EWP out of service.
- Record the details in the logbook.
- Report the issue to the appropriate person as per site procedures.
- **DO NOT** use the EWP until the defect has been identified and repaired.



Platform Drops, Moves or Tilts



If during the operations of the EWP you feel the EWP platform drop, move or tilt you should:

- **Stop work, safely lower to ground**
- **Assess and rectify the situation if safe to do so**
- **If the EWP has a fault:**
 - Isolate/turn off and tag out the EWP
 - Record in logbook
 - Report to supervisor

Shut Down EWP

Once you have completed the EWP task and are closing down operations for the day, you need to follow the shut down procedures outlined by the manufacturer.

The shut down procedures could include:

1. Stop and safely lower to ground
2. Disconnect/remove harness and lanyard and store
3. Remove tools and equipment from platform
4. Shutdown in line with manufacturers specifications
5. Conduct post-operational inspection
6. Record and report any defects (if found)
7. Remove keys
8. Recharge/refuel
9. Make area safe
10. Raise upper boom to a safe height for storage (this prevents other plant from hitting the platform).

Close Down Of A Trailer-Mounted EWP

When shutting down a trailer-mounted EWP ensure that you follow the manufacturer's and site instructions. The steps to closing down a trailer-mounted EWP may include the following:

1. Checking to make sure no hazards are below the boom.
2. Lining the boom up with the chassis and lowering the bottom boom arm into the cradle. Once this is lowered you should then lower the top boom onto the bottom boom.
3. Remove your safety harness, stow it in the cylinder provided in the corner of the basket and refit the lid on the cylinder.
4. Disembark from the basket and gather and stow your tools.
5. Raise the outriggers and pin them (where required).
6. Gather up any packing materials and place them in the designated area.
7. Install the boom locking pin or strap.
8. Turn off the motor or (for a truck-mounted machine) disengage the Power Take Off (PTO). Remove the key from ignition.



Post-Operational Checks

Check the machine for breakages, other damage or leaks. More specifically, you need to check:

- All the hydraulic arms, to make sure they have not been damaged or bent during the machine's operation.
- The boom, for dents or cracks in its welds and joints
- The slew ring, for any bending or other damage.
- The basket, to make sure it is in good working order and has not been damaged.
- The outriggers/stabilisers, to make sure they are in good order.
- All safety devices, to make sure that they are intact and operational.

Report any faults or damage to your supervisor/manager immediately, make sure they are noted in the log for corrective action and, where necessary, make sure warning tags are attached to the machine.

Appendix A: EWP Daily Inspection Checklist

Company name:	Name of operator:	Date: ___/___/___	Time:
Make/make model of EWP:	Work site location:		
Remember: If in doubt refer to manufacturers specifications or talk to your supervisor			
AS2550.10 states that an EWP shall be periodically inspected at least every 3 months and annually by a competent person.			

Components	Checklist	Tick or x	N/A	Comments
Prestart/Visual Inspection				
Data plate and decals/signage	In place and legible, checklist/logbook is present and applicable to the EWP			Out of Service tag attached? Yes/No
Operators manual	In place, legible and applicable to EWP			
Tyres, wheels, outriggers	Inflation, damage, covers, wheel nuts, cracks, wheel nuts and bolts			
Boom and jib	Cracks, bent, no damage, oil leaks			
Slew gear and pinion	Not cracked, greased, bolts secure and intact			
Steering linkages and axle lockout rams	Secure and intact, damage.			
Underneath machine	Leaks, loose parts, no damage.			
Hydraulics hoses (rams, connectors) and cables	Damage, leaks. All bolts secure, intact.			
Covers and guards	Damage, wear, secured, intact.			
Lights/fixtures/safety devices	Intact and secure, no damage			
Fluid levels	Engine and hydraulic oil, transmission oil, coolant, engine pre-cleaner.			
Battery	Cleanliness, leaks and secure.			
Overall engine	Damage, dirt buildup, leaks, engine mounts, fan and belts.			
Counterweight	Secure, no damage			
Platform and anchor points	Secure and intact, no damage			
Overhead protection (crush bar)	Fitted, secured, no damage, operational			
Operational/Start up Checks				
Check ground controls	Full function test, e-stops			
Check battery rescue controls	Full function test			
Check secondary & tertiary rescue controls (if applicable)	Full function test			
Check gauges	Clear and functioning.			
Check platform controls and crush bar	Full function test, brakes and steering			
Alarms, flashing lights	Secure, intact, audible and functioning.			

Post Operational Checks (shutdown)
A post operational inspection is a combination of the prestart/visual inspection and operational/start up inspection
Remember, if any fault is identified: Isolate/Tag it out, record in checklist or logbook and report to supervisor

Action taken to repair Forklift (if any):		Return to service authority by supervisor:	
Comments/repairs made:		Supervisor name:	Signature:
Name of repairer:	Date of repairs:	By signing above the supervisor checks and agrees that the forklift is safe, fit for use and can be re entered into service.	

Appendix B: Safety Harness and Lanyard Inspection Checklist

Company name:		Name of operator:	
Type, make and serial number:		Date of inspection:	
Work site location			
Remember: If in doubt always refer to manufacturers specifications or talk to your supervisor			
AS1891.4 states that a harness and lanyard shall be periodically inspected at least every 6 months by a competent person.			
Components/Checklist	✓	✗	Fault report and action taken to repair/remove harness/lanyard from service
Check manufacturers tag (10 years expiry)			
Check for periodic inspection tag (6 monthly max).			
Check any fall indicators			
Webbing: Cuts or tears. Abrasion damage. Excessive stretching. Damage due to contact with heat, corrosives or solvents. Deterioration due to rotting, mildew or ultraviolet exposure.			
Snap Hooks: Distortion of hook or latch. Cracks or forging folds. Wear at swivels and latch pivot pin. Open rollers. Free movement of the latch over its full travel. Broken, weak or misplaced latch springs. Dirt or other obstruction e.g. rust.			
Buckles & Adjusters: Distortion or other physical damage. Cracks and forging laps where applicable. Bent tongues. Open rollers.			Out of Service tag attached? Yes/No
Sewing: Broken, cut or worn threads. Damage or weakening of threads due to contact with heat, corrosives, solvents or mildew.			
D-Rings: Excessive 'vertical' movement of the straight portion of the D-ring. Cracks, especially at the intersection of the straight and curved portions. Distortion or other physical damage of the D-ring. Excessive loss of cross-section due to wear.			
Return to service authority by supervisor			