

ACT WorkCover

A Guide to



July 2005

This publication is based on the WorkSafe Victoria publication *"Forklift Safety - Reducing the Risk"* and its accompanying CD - *"Forklift Safety - Don't Learn it by Accident"*.

Disclaimer

This document provides general information about the rights and obligations of employees and employers under ACT occupational health and safety laws.

It is intended to provide general information about the law and is not intended to represent a comprehensive statement of the law as it applies to particular problems or to individuals, or substitute for legal advice.

You should seek independent legal advice if you need assistance on the application of the law to your situation.

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Introduction

The forklift truck can be one of the most dangerous pieces of equipment in the workplace. A medium sized forklift weighs about the same as your average dump truck and can cause just as much damage and injury when travelling around your workplace.

This guide will help you to identify some of the potential risks, and provides solutions and tips to help reduce injuries and fatalities resulting from unsafe forklift operation.

Most importantly, the guide provides employers and business owners with detailed information about developing a forklift Traffic Management Plan, which is the key to eliminating or minimising the serious risks to health and business performance associated with poor forklift practices.

Overview of Forklift Injuries and Fatalities

- Collisions with pedestrians and loads falling onto pedestrians (29% of injuries, 56% of fatalities)
- Rollovers and unexpected movement of forklifts crushing operators (29% of fatalities)
- Persons falling from makeshift platforms elevated on forklift fork arms (12% of fatalities)
- Slips, trips and falls getting on and off forklifts (operators) (27% of injuries)
- Body stressing (sprains and strains) while driving forklifts (operators) (19% of injuries)

Pedestrians and Forklifts Don't Mix

The key lesson to be learnt is that pedestrians must be kept at a safe distance from working forklifts. Even at low speeds, an unexpected movement of the forklift can crush a bystander against a fixed structure or another vehicle.

Without significant change to the way forklifts are used, there will be an ongoing and unacceptably high risk of serious injuries and death.

For people suffering severe injury, or the surviving families of people killed, the effects are devastating. For employers and business owners that failed their legal duty to provide a safe workplace, the legal and financial costs can be overwhelming.

Sadly, many employers and employees only become aware of dangerous practices as the result of a serious accident at their workplace. Supervisors and managers must be aware of how a forklift is operated, and the hazards involved.

Please take the time to read and understand this information, and then take a look at your forklift operations. **And do it today.**

Forklift Traffic Management

When pedestrians work or move in close proximity to operating forklifts, there is a risk of serious injury occurring. Ensuring the safety of pedestrians is a critical aspect of workplace traffic management.

Protecting pedestrians at the workplace requires decisive action to prevent, not just discourage, pedestrians and forklifts from coming into close proximity. **Don't learn forklift safety by accident!**

Pedestrian exclusion zones and forklift exclusion zones must be based on forklift movements, braking distance, stability of the forklift and the loads being handled.

Forklift traffic management is not a matter of "common sense". Forklift traffic management is about minimising risk through the application of systematic controls supported by clearly defined and enforced "rules of the road".

Health and Safety Representatives, forklift operators, other workers and employees should all play a part, and will result in many ideas and observations related to forklift operations, safety and possible solutions.

When identifying risk control measures consider the source of the risk and develop practical, workable controls. Once risk controls are in place they must be regularly reviewed to gauge effectiveness.

Traffic Management Plans

A traffic management plan is essential to address many of the risks associated with the use of forklifts in the workplace. Safety of pedestrians is the most important aspect of a workplace traffic management plan.

When preparing Traffic Management Plans:

- Carefully study the way forklifts and pedestrians move, or need to move, around your workplace and identify all places where there is potential for collisions between forklifts and pedestrians, or forklifts and other vehicles, columns, racking etc
- Consider the way the forklift mast, load or stacked goods obstruct the operator's view
- Consider the braking distance of laden forklifts, the distance loads could fall (including rolling/ splashing) and the factors affecting forklift stability.
- Consider the most efficient route for traffic flows and reduced frequency of interaction with hazards.

Traffic Management Plan Controls may include:

- substituting a forklift with other suitable load shifting equipment and, where reasonably practicable, eliminating the risk altogether.
- Change the workplace layout to minimise cross flow of traffic, intersections and blind spots, and to separate pedestrians from forklift traffic and operations
- Clearly define forklift operating areas as pedestrian (including truck driver) exclusion zones, and pedestrian walkways/work areas as forklift exclusion zones
- Provide physical barriers around pedestrian walkways and work areas to define pedestrian safety zones and to prevent pedestrian access to forklift operating areas other than at defined pedestrian crossings. Don't rely only on painted lines and high-visibility vests to keep pedestrians safe.
- Base forklift speed limits and the boundaries of pedestrian and forklift exclusion zones on the braking distance of laden forklifts, the distance loads could fall (including rolling/splashing) and the factors affecting forklift stability
- Conduct specific workplace proficiency training for forklift operators and include procedures that require forklifts to stop work if pedestrians enter a pedestrian exclusion zone

- Provide training and procedures on forklift traffic safety to all employees and any visitors at the workplace, and supervise work to ensure that procedures are followed
- Maintain good area lighting, ensure that high-visibility clothing is worn by pedestrians, and ensure that forklifts, obstructions, low beams/doorways edges, drains etc are marked with high-visibility colours

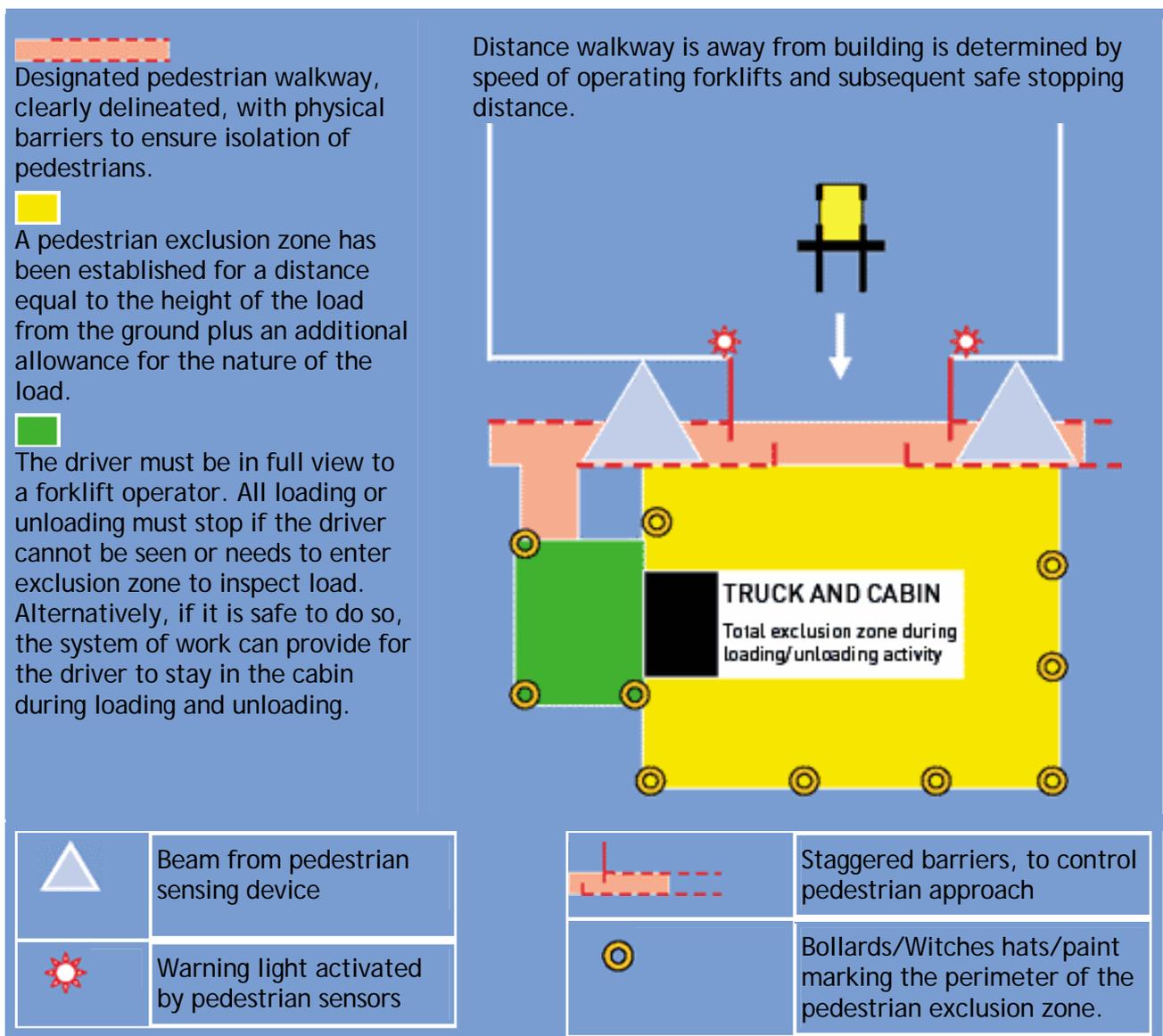
The section “Traffic Management Plan Comparative Chart” at the end of this guide gives details of many specific risks, issues and controls that should be considered when preparing plans.

Basic Traffic Management: Example

As outlined the key to effective forklift traffic management is to separate pedestrians and operating forklifts. The following diagram illustrates how the principles outlined in the comparative charts can be adopted to implement an effective traffic management system for the workplace.

Objectives of this diagram are to:

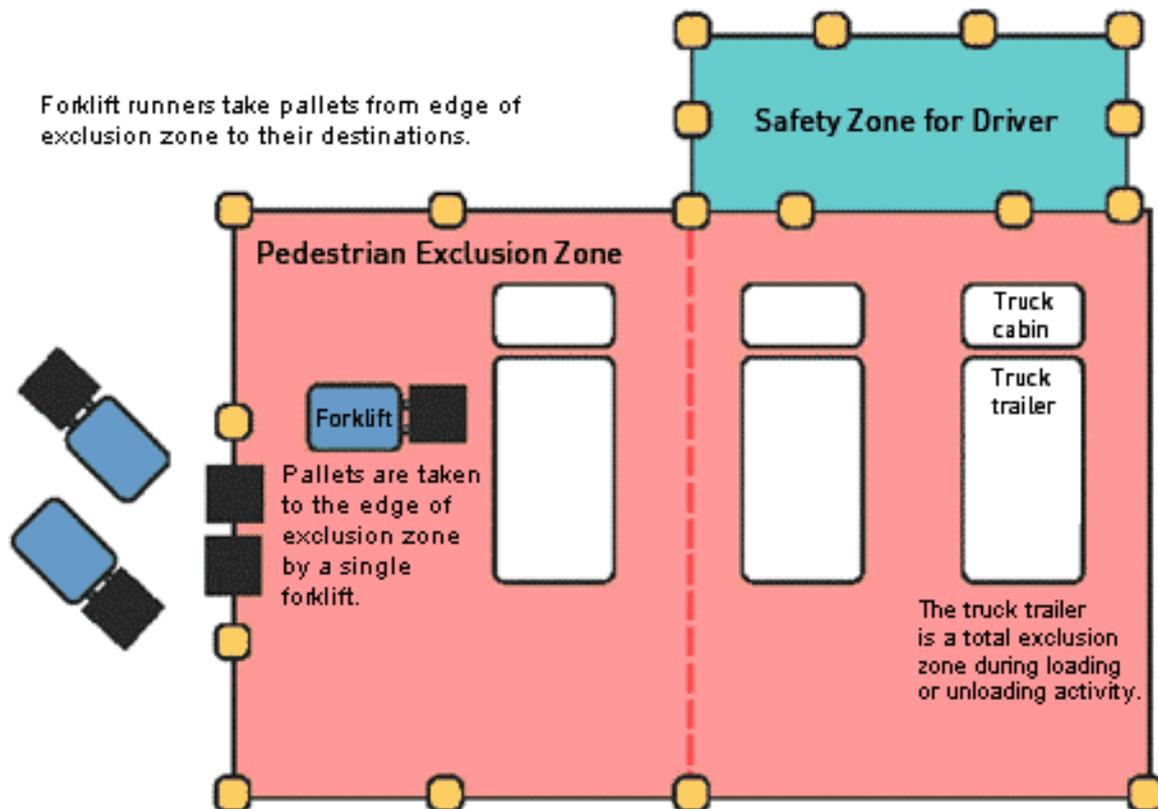
- Convey clear separation principle
- Convey stopping distances and relationship to speed and space
- Pedestrian/forklift intersections are minimised
- Convey higher level of controls.



Truck Loading And Unloading: Example

As outlined the key to effective forklift traffic management is to separate pedestrians and operating forklifts.

The following is an example of how the principles outlined in the comparative charts can be adopted to implement an effective traffic management system for the loading and un/loading of vehicles.



- **Pedestrian exclusion zone**
A pedestrian exclusion zone has been established for a distance equal to the height of the load on the ground plus an additional allowance for the nature of the load. Forklift movements within this zone are stopped before pedestrians enter.
- **Safety Zone for Driver**
The driver must be in full view to a forklift operator. All loading or unloading activity must stop if the driver cannot be seen or needs to enter exclusion zone to inspect load. Alternatively, if it is safe to do so, the system of work can provide for the driver to stay in the truck cabin during loading and unloading.
- **Bollards/Witches Hats/Paint**
Bollards marking the perimeter of the pedestrian exclusion zone have been installed.
- **Forklifts**
Only one forklift operates in the pedestrian exclusion zone.

Forklift Stability

Overtuning poses the most danger to forklift operators in the workplace. It is a leading cause of operator deaths involving forklifts, accounting for one in six such deaths.

Driving with raised forks, cornering too fast, striking low doors or beams, driving across inclines and uneven ground are the main causes of forklifts overturning. Colliding with another vehicle, braking too quickly and towing disabled forklifts can also cause overturns and fatalities.

To be effective a forklift must be manoeuvrable. To achieve manoeuvrability, forklifts are designed to be compact, making them less stable than other vehicles and mobile plant.

Forklifts have a range of limitations, from maximum load weight to speed. These factors affect the operator and the forklift itself, employers should ensure the workplace conditions suit the forklift and the tasks it performs.

Key Risks to Forklift Stability

Research has identified 10 key concerns in relation to forklift stability:

1. Most rollovers involve unladen forklifts, because unladen trucks are less stable than a laden forklift with the load being carried low.
2. When operators apply the brakes on a laden forklift they easily lose stability.
3. Even when stationary, forklifts have a small stability safety margin - 30-50% at rated load with the load down and 15-20% with a fully elevated load and mast vertical.
4. Sales materials do not always detail if the forklift's working capacity has been restricted by stability tests relating to (lateral) overturning or (longitudinal) tipover.
5. Manufacturers do not always include vital information in their sales materials, such as the forklift's capacity at full forward tilt of the mast and at maximum load elevation.
6. Uneven flooring, particularly with a height difference in excess of 40mm across the front wheels, can seriously impact on a forklift's stability when carrying its rated load at full height.
7. The stability of dual wheel forklifts is required when undertaking higher lifts, particularly over four metres.
8. A forklift may become 'dangerously' unstable when driving with a raised load or a raised empty load carriage.
9. Loads attached to a forklift or suspended from a jib attachment are more likely to result in a full forward tipover when braking.
10. Forklifts can easily overturn if they make contact with overhead structures.

Lift capacity, that is, the maximum load supported by the lift and vertical lift travel, are the two most important forklift specifications to prevent forklift instability incidents.

Managing Rollover Risk for Forklift Operators

When an operator jumps or is thrown from an overturning forklift, there is a very high likelihood that they are trapped under the overturned forklift and a fatality occurs.

When a forklift overturns, the safest place for the operator is in the cabin with a seatbelt on. If body restraints have been fitted they should be worn. The operator is advised to hold on, stay with the truck and lean in the opposite direction of the overturn. While seatbelts may be an inconvenience, they may save the operators life.

If a lateral turnover occurs in a stand-up type forklift with rear access, the operator should exit by stepping backwards.

Managing Rollover Risks, for Employers

Employers have a primary duty to provide a safe workplace.

Providing a safe work environment, training, well maintained machinery and effective traffic management plans all play an important part in reducing the risks posed by forklifts in the workplace.

All employees, including managers and supervisors, have a duty to ensure the actions they take, or don't take, do not put themselves or others at risk.

Employers can help mitigate the effects of forklift instability by:

- Ensuring seatbelts are fitted, correctly worn. Installing intelligent systems can prevent forklifts being started unless the seatbelt is fastened.
- Purchasing forklifts with speed limiting devices.
- Removing incentives that may encourage forklift operators to drive too quickly.
- Reduce the speed limit around the workplace.
- Using forklifts with a greater capacity for a given load.
- Using dual wheeled forklifts that provide an extra margin of safety in lateral stability when lifting loads above 4.5 metres.
- Require suppliers to provide detailed information on all stability limitations, capacities at different lift heights and lift positions, and how the limiting capacity was obtained.
- When buying or leasing a new forklift, look for stability-enhancing features and the capacity to meet all workplace needs.
- Ensure operators possess a competency certificate, have received detailed site/task-specific training, and demonstrate high levels of competency in all tasks
- Ensure floor imperfection do not exceed 20mm across the front wheels where off centre loads may be manoeuvred at full height.

Design Features and Intelligent Systems

Design features and intelligent systems that can help eliminate risks posed by forklifts in the workplace include:

- mechanisms that prevent forklifts from starting when the driver is not restrained by a seatbelt or another device
- limiting travel speeds to as low as 8km/h (9km/h for dual tyred forklifts), except where manufacturers can provide stability figures to show otherwise.
This would assist in reducing the occurrence of side tipovers. (Uneven operating surfaces could require a lower speed limit)
- speed limiters that reduce the maximum speed of a forklift depending on the load, its height and turning radius
- systems that monitor and limit the number of wheel rotations while the forks are elevated, to prevent forklifts being driven with raised forks; and
- load weighing devices on forklifts.
- maximum hydraulic pressure to mast lift cylinders can be set at about 110% of the rated load at full height with the mast vertical to prevent overloading.

Speed and Braking Distance

While a forklift’s brakes are less effective than other vehicles’, they could still cause a tipover or loss of load when applied heavily in an emergency.

Too many workplaces rely on the operator to apply ‘just the right amount’ of brakes to quickly stop the forklift without causing it to tip over. Usually, the only warning a driver will receive of this happening is when the back wheels come off the ground. This is unacceptable.

Employers should purchase forklifts with speed limit devices and, where practicable, retro-fit older trucks to ensure speed limits are observed and safety precautions taken.

At all workplaces, speed limits should be prominently displayed, observed and enforced. Signs must be placed so that they can be easily seen by forklift operators.

The speed at which a forklift can stop in an emergency is determined by the speed at which it was travelling, the weight of its load and road surface. As such, forklift braking distances must be considered when planning for, and managing, forklift travel paths.

The emergency stopping distance of a fully loaded forklift is often significantly underestimated when planning for pedestrian safety. Monash University Accident Research Centre (MUARC) research showed that a laden forklift cannot use its maximum braking as the load will slide or fall from the forks, or the forklift will tip over forwards. The table below shows the minimum braking distance for common forklifts travelling on an even surface.

Minimum Actual Emergency Stopping Distance

Monash University Accident Research Centre findings on emergency braking distances for typical forklifts on a level surface - based on a driver reaction time of 1.5 seconds

Speed Braking Distance

Speed (km/h)	6	12	14	16	18	20	22
Speed in metres per second	1.7	3.3	3.9	4.4	5	5.6	6.1
Distance travelled while driver reacts to emergency (m)	2.5	5	5.8	6.7	7.5	8.3	9.2
Minimum Theoretical Emergency Stopping Distance (m)	2.8	6	7	8.5	9.5	11	12.5
Minimum Actual Emergency Stopping Distance - test results (m)	2.9-3.2	7-8	8-10	9.5-12	11-14	13-16.5	14.5-19

NOTES:

The Theoretical Emergency Stopping Distance (m) is the calculated minimum emergency stopping distance under full braking with no allowance for stability.

The Actual Emergency Stopping Distance (m) is the minimum result of forklift braking tests without losing load or tipping over but decelerating at the extreme limits of stability.

The values given are based on an alert and skilled driver braking on a level, non-skid surface. The reaction distance may be doubled if the driver is distracted.

So, what does this data mean?

It tells us that at a speed of 14km/h, a forklift will travel four metres in one second and needs at least 10 metres to stop safely. And that even at 6km/h (walking pace) a forklift needs at least three metres to stop.

It also indicates that emergency stopping distances must be taken into consideration when developing a traffic management plan.

Effective traffic management planning, intelligent systems fitted to forklifts (Smart Forklifts) and appropriate operator behaviour are the three major contributors to minimising the incident of pedestrian injuries.



Loads and Load Handling

Even without a load, forklifts are extremely heavy and can be the cause of serious injury even when travelling at low speeds. Just like other heavy vehicles (such as dump trucks) their use is dangerous if it is not correctly and carefully controlled.

Forklift operators must ensure each load is carried, lowered and set down in compliance with the manufacturer's recommendations and company procedures.

A forklift's capacity is the maximum weight it can safely carry at a specified load centre. Load capacity data plates are a useful tool, that allows the manufacturer to detail the load each truck can safely lift.

The rated capacity of a forklift must always be noted and never exceeded. Marked weight, a weight gauge or scale can be used to weigh loads and ensure they do not exceed the forklift's capacity at a given load centre.

Overloading can damage the forklift as well as present additional health and safety risks to operators and pedestrians in the workplace.

Together with the weight, the shape and size of a load affects the way it should be lifted.

When a load is raised, the forklift is less stable. Tilting forwards or backwards with a raised load will also affect stability.

Driving with a raised load is a dangerous practice impairing stability and easily leads to tipovers and turnovers, particularly if the forklift is being driven at speed or around a corner or on an uneven surface.

Operator Checks

It is in an operator's interest to ensure all precautions are taken.

- Familiarise yourself with a new type of load or a new forklift.
- Check that the load is within the forklift load limit listed on the load capacity plate.
- When operating a forklift at grade, the load must be tilted back and raised only as far as needed to clear the road surface.
- If it's not placed correctly, reload it.
- If it's particularly long or wide, check if you need to take an alternative route.
- If pallets are damaged, remove them.
- Ensure pedestrians are not present during forklift operations.

Forkarm Attachments

Where other types of loads are required to be moved, specialist removable attachments should be used. For example, 200 litre drum-lifting attachments are available and jibs are commonly used to sling loads.

- When an attachment is fitted to a forklift the dynamic and operating characteristics may change, making it necessary to de-rate the forklift capacity and restrict some operating controls.
- Attachments such as side shift devices, jibs and extension forks must have rated capacities and information on the type of forklift that is suitable for use in connection with the attachment.

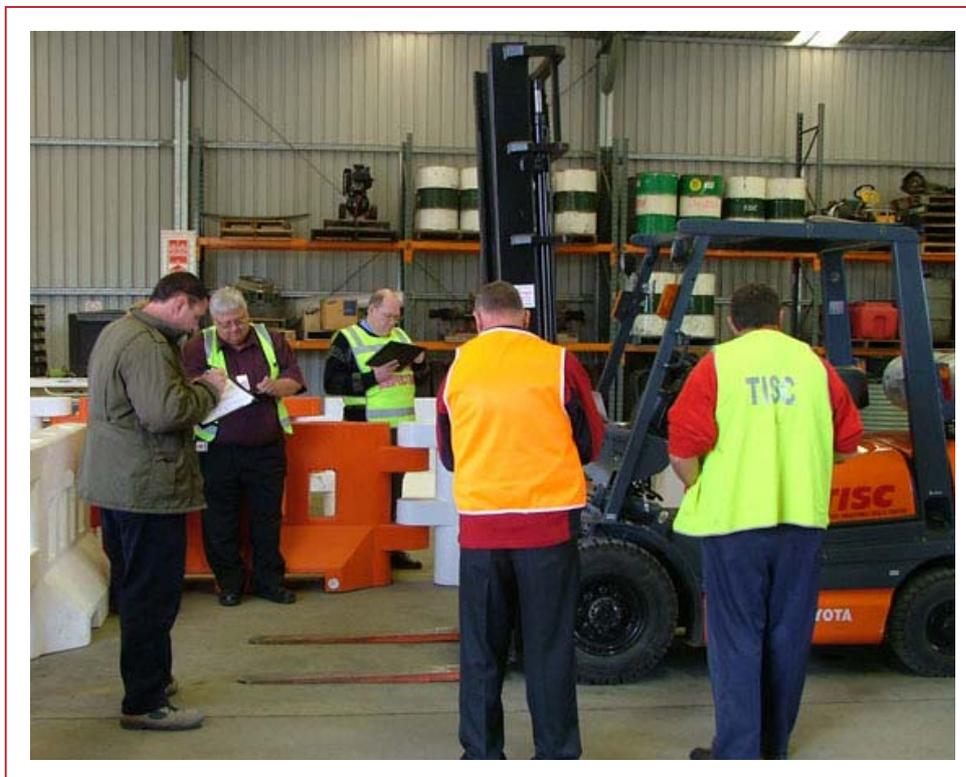
If an attachment is designed and manufactured on site, design calculations must be done by, or checked by, a competent engineer.

- Unintentional detachment from the fork carriage or the fork arms must be prevented
- Sideways displacement must be prevented.

A competent welder must be used for any required welding. The attachment should be weighed, and the weight marked on it, together with any safe-working-load restrictions.

Before any attachment is used, the forklift manufacturer (or the manufacturer's operating manual) must be consulted to ensure that it is safe to be used on that model forklift truck, and the load plate is to be annotated for any attachment(s) likely to be used.

Training in the use of all removable attachments for operators must be provided and documented, and supervision provided where necessary.



Raising People

Forklifts (other than purpose-built order-picking lift trucks) are designed for lifting loads - not people. Raising people on pallets or on the bare fork arms is extremely dangerous and is not to be done.

You must ensure that the crucial safeguards, risks and legal duties involved with raising people are fully understood in your workplace. Refer to the procedures for the use of work platforms set out in Australian Standard AS 2359.2 - Powered Industrial Trucks Part 2 - Operation and Australian Standard AS 2359.6 - Powered Industrial Trucks Part 6 - Safety Code.

Maintenance Work Platforms

Maintenance work platforms with a meshed in work area securely attached to the forks can be used to raise people performing minor maintenance tasks.

In considering the use of a maintenance work platform on a forklift the following points must be observed:

- Platforms should not be used by workers who have not completed the necessary safety training.
- These platforms should only be attached to a complying designated forklift with a load capacity data plate stating attachments that may be used. To use a forklift with a maintenance work platform it must have tilt levers locked out and restricting hydraulic valves fitted.
- Before anyone is raised on a forklift, safe work procedures must be in place to ensure they can be rescued if an incident or breakdown occurs.
- The risks associated with using the forklift must be assessed and determined to be no greater than the risks involved in using plant or equipment specifically designed to raise people

It should be noted that where a task is carried out on a regular or longer-term basis (eg stock picking or stock taking in a warehouse or general production work), the use of plant or equipment specifically designed to raise people will generally be practicable and should therefore be used.

Order Picking Lift Trucks

Order picking lift trucks are designed to raise people.

- The platform must have guard rails to prevent falls from the platform.
- People on the platforms must wear a full body harness and shock absorbing lanyard attached to a strong anchor point.

Poorly Ventilated Workplaces

Forklifts powered by internal combustion engines (petrol, diesel or LPG) should not be used in an enclosed space. Where ventilation may be inadequate - electrically powered forklifts are the safer alternative.

The health effects associated with internal combustion engine emissions can quickly become fatal, particularly as a result of carbon monoxide (CO) poisoning, a deadly, colourless and odourless gas produced by combustion engines.

LPG forklift trucks generally have a 'cleaner' exhaust than petrol or diesel powered engines. However, they can still produce dangerous levels of airborne contaminants such as carbon monoxide if they are used in a poorly ventilated place, such as a cold store or freezer room.

As an example, a working forklift with a 1.8 litre LPG engine operating in an unventilated 60,000 cubic metre warehouse (10m x 60m x 100m) could take just 30 minutes to exceed exposure standards for carbon monoxide.

Forklift engines also produce other gases that can be harmful or fatal, as well as consuming available oxygen.

The dangers are compounded by the fact that exposure to gases or reduced oxygen levels impairs judgement and reflexes, causes dizziness and increases fatigue - creating further serious hazards.

Slips, Trips and Falls

Believe it or not, almost a third of all forklift injuries involve slips, trips and falls while getting on or off forklifts often resulting in musculo-skeletal back injuries.

The high incidence of slips, trips and falls clearly shows a need to review and change work practices.

The design of access steps, grab-rails and the layout of the foot pedals, steering wheel and cabin floor surface of exiting forklifts are important. These factors should be considered when purchasing a new forklift.

To manage risks associated with slips, trips and falls, it is necessary to:

- Purchase or refit forklift so that each forklift has;
 - steps that give a good footing
 - anti-slip surfaces and
 - grab handlesto provide three points of contact (hands & feet) while mounting or dismounting the forklift
- Ensure that uneven surfaces are removed or minimised
- Ensure forklift operating and parking areas are well lit and clear of obstructions
- Redesign work practices to minimise the need for operators to get on and off the forklift
- When getting off a forklift always check
 - the parking brake is set,
 - the forks are lowered and
 - the controls neutralised.
- Discourage operators from jumping from the forklift

Sprains and Strains

Body stresses, such as muscular sprains and strains and other soft-tissue injuries, incurred while driving forklift typically represent 20% of injuries.

Common body-stress injuries include straining the neck while looking up during high stacking, and back or neck strains caused by looking behind while driving in reverse. Work practices that require the operator to twist around while driving should be reviewed. Vision aids that reduce neck 'craning', particularly during difficult high-level stacking, can assist in reducing these types of injuries.

Injuries such as back strains often arise as a result of hitting bumps or driving on an uneven surface. These injuries indicate a need to review the quality and condition of forklift seats, which are often in a poor or damaged condition. Road surface conditions in areas where forklifts operate must be maintained.

Sprains, strains and soft-tissue injuries to the neck and back can cause long-term health problems if the cause remains unchecked, severely limiting operator efficiency. These injuries can also result in long-term costs and human suffering. Obviously, the initial outlay in purchasing or leasing an 'operator friendly' forklift can be easily recouped by preventing these types of injuries.

To manage risks associated with sprains and strains, it is necessary to:

- Purchase forklifts that employ a good ergonomic design that reduces the effort required to operate controls, steering, brakes etc (eg air over hydraulic controls)
- Purchase or re-fit forklifts to include vision aids (eg closed-circuit video systems) which reduce neck craning or twisting
- Maintain level ground surfaces in the forklift operating area
- Maintain the operator's seat and cabin area, so that they are always in good condition.



Maintenance

Regular forklift maintenance, carried out in accordance with manufacturers' recommendations, plays a critical role in preventing breakdowns and other mechanical failures that can affect safety.

Common faults affecting safe operation of Forklift trucks are:

- Faulty brakes
- Worn hydraulic hoses
- Low hydraulic fluid levels
- Sub-standard tyres
- Sub-standard seat
- Operator controls that are not marked correctly or working properly
- Lights and warning devices that are not working

Maintenance Program

Employers, managers and supervisors need to implement an effective program that ensures proper forklift inspection, fault reporting and maintenance are conducted.

This program should include the following key elements:

- Nomination of a manager to be responsible for maintenance of the forklifts
- An effective system for ensuring scheduled inspection and maintenance work is carried out
- Competent in-house mechanics to repair and service the forklifts as necessary, or a contract with a competent organisation to provide repairs and servicing in accordance with manufacturer's recommendations
- Supervision of maintenance work to ensure safe performance of the work
- The provision of adequate information, instructions and training to inspection and maintenance workers (including written procedures for the work, hazards associated with the work, safety procedures etc)
- An up-to-date maintenance register for each forklift in the workplace:
 - detailing the people responsible for undertaking the inspection and maintenance work
 - identifying the frequency and type of inspection or maintenance to be carried out
 - records of the date and nature of inspection and maintenance tasks carried out, including the name of the person who performed the inspection and/or maintenance, and any (or all) recommendations made.

Note: A service report should contain a statement that the forklift has been maintained to manufacturer's specifications. If ongoing faults prevent the making of this statement, these faults should be clearly recorded, together with any recommendations on the serviceability of the forklift.

Note: Where tyres are replaced with non-original equipment, the manufacturers recommendations and information on the effects of different tyre types on dynamic stability should be recorded in the maintenance register.

Pre-Operational Checks

Before any forklift is operated in your workplace each day or shift, make sure that the forklift operator checks that the forklift is ready to be used, capable of doing the required tasks and safe to operate.

If a defect affecting the safe operation of a forklift is detected, the forklift must be immediately taken out of service and is not to be used until the fault is rectified.

Any faults or damage should be reported in accordance with established site procedures.

Forklift Safety Checklists are an effective reminder of basic safety checks and are available from ACT WorkCover. Be sure to attach them to your forklifts.

They are made of a wipe-clean plastic magnets, so they're able to be re-used again and again.

Forklift Safety

Driver's Daily Checklist


ACT WorkCover

If you notice any faults with any aspect of the forklift listed, "Tag" and notify your supervisor. **Do Not Operate!**

Forklift operators must also look out for their own personal safety by wearing appropriate protective clothing, high visibility vests and enclosed shoes.

Driver _____ Forklift _____

S/No _____ Date _____

Before starting the forklift always check pedestrian exclusion zones are marked and that ground surfaces are even and clear. Then check the following are satisfactory:

- TYRES** check all tyres and look for any visual wear or damage
- FLUIDS** check oil, hydraulics, battery, fuel and coolant
- SEATING** check the condition and adjustment of seating
- WARNING DEVICES** check lights, horn and reversing beeper
- CAPACITY** check load-capacity plate is fitted, legible & correct
- MAST** check mast for any wear to chains and guides, inspect hydraulic cylinders, look for any leaks
- FORKS** inspect forks for any sign of damage

Once started, observe:

- CONTROLS** after start-up, check all pedals and controls
- BRAKES** check brakes and parking brake for proper operation

Note This pre-operational check is an example and should not be used in place of a thorough risk assessment of all workplace operations. It does not include all hazards related to the use of your forklift.

Contact ACT WorkCover on
6205 0200
or visit at Level 4, Eclipse House,
197 London Circuit
to pick up magnetic checklists for your
forklift.

Legal Requirements

The Occupational Health and Safety Act 1989 aims to:

- Secure the health, safety and welfare of persons at work
- Protect persons at work against risks to health and safety
- Assist in securing safe and healthy work environments
- Eliminate, at the source, risks to the health, safety and welfare of persons at work
- Provide for the involvement of employees and employers (and associations representing employees and employers) in the formulation and implementation of health and safety standards

Anyone who is responsible for the safe use of forklifts must be familiar with the requirements of the *Occupational Health and Safety Act 1989* and the *Occupational Health and Safety (Certification of Plant Users and Operators) Regulation 2000*.

There is also detailed guidance on how to achieve your legal obligations in the National Standard for Plant [NOHSC:1010 (1994)], an approved Code of Practice in the ACT.

Contact ACT WorkCover for further information.

Employers' Duties

Employers have the primary duty to ensure safety at their workplace. This is expressed as a legal duty under the Act to provide and maintain a safe working environment, and extends to ensuring the safety of employees and others in the workplace, such as visiting delivery truck drivers, contractors or customers.

This includes ensuring the safe working condition of plant (including forklifts), and that safe working systems are used.

Employees, managers and supervisors also have a duty to ensure that their acts or omissions do not endanger themselves or other employees.

ACT WorkCover can, and does, seek to prosecute employers under the *Occupational Health and Safety Act 1989*, particularly where negligence contributes to an injury to an employee or other in the workplace. Penalties could have a devastating effect on any business.

Consultation

The Act requires an employer to consult with employees on occupational health and safety matters in the workplace.

Consultation with health and safety representatives and other employees about forklift safety issues and proposed changes, is an effective way to identify problems and develop solutions.

In addition, consultation ensures that employees have 'ownership' of safety changes are therefore more likely to observe, maintain and include forklift safety as part of daily work practices.

Employees' Duties

The Act requires that employees co-operate with employers in relation to any action taken by the employer to comply with health and safety requirements.

In addition, employees must take reasonable care not to put at risk the health and safety of others.

Policies and Procedures

Clearly documented policies and procedures help ensure that all people involved in forklift operations can develop a clear understanding of actions and issues that can contribute to a safer workplace.

Policies and procedures cover areas such as hazard identification and management including a Traffic Management Plan, purchasing, incident reporting and investigation.

Selecting A Suitable Forklift

Before purchasing, hiring or leasing a forklift, you should know what safety and ergonomic design features a forklift needs to suit your particular workplace.

Making smart decisions when selecting a forklift for your business is your first and most cost-effective way of avoiding inherent, ongoing safety problems.

Consult with your health and safety representatives and other employees about how to 'buy in' good safety features and practices, and avoid future problems.

In selecting a forklift for a particular operation, make sure that the forklift is capable of safely handling the different types of load. Do this by referring to its load chart, and allowing a safety margin, so that the forklift is not operating at the edge of its capacity.

You should also ensure that it is suitable for the particular environment. If a forklift is required to work in a flammable or explosive atmosphere, make sure that a specially designed forklift for such purpose is used (by referring to the manufacturer's recommendations). Similarly, select electric forklifts for use in poorly ventilated areas.

Incident Reporting

All incidents and near misses involving forklift trucks need to be promptly reported to the appropriate managers or supervisors.

Reporting helps ensure that a record is kept of the factors that contributed, allowing changes to be made to address the causes of the incident, and prevent further similar problems.

Developing and encouraging a culture of incident reporting is important, particularly in relation to 'near misses' and other incidents that might otherwise go unreported.

Invariably, the cause of an incident involves many factors, and it is important to avoid pointing the finger at individuals. Instead, approach the investigation as a learning process that can help to prevent future incidents that could result in serious injury or death.

Training and Licensing

ACT WorkCover is the Government agency responsible for issuing certificates of competency for forklift truck operation within the ACT.

Certificates of competency issued in the ACT now cover nationally uniform certificate classes.

The 2 certificate classes for forklift truck operation are:

LF: FORKLIFT TRUCK OPERATION

(covers operation of all forklift trucks except order-picking forklift trucks)

LO: ORDER-PICKING FORKLIFT TRUCK OPERATION

(covers operation of all order-picking forklift trucks)

Possession of a certificate of competency indicates that the holder has achieved a basic standard of competency in forklift operation. It is important that site-specific and ongoing refresher training be provided by the employer, to build and maintain operator competency.

Building and rewarding forklift-operator excellence can provide a valuable second line of defence to the main risk controls implemented at the workplace.

Additional training is required for use of forklift attachments. The national certificate classes for forklift truck operation are a minimum qualification based on general use with standard fork arms.

Employers requiring operators to use purpose-designed attachments must make sure that the operator has received sufficient extra instruction and training in their proper use.

The special attachments included within the assessment for the forklift certificate class are the jib attachment, and purpose-designed work platforms.

Trainees are permitted to operate forklift trucks, provided they are under direct supervision of a person holding an appropriate certificate or equivalent qualifications. Direct supervision generally means that the trainee is within sight and hearing range of the person supervising the work.

All employees in a workplace must be properly supervised, regardless of certificates of competency.

Traffic Management Plans

As already stated, a documented Traffic Management Plan is an invaluable aid to resolving many of the hazards and issues associated with forklift operations.

It is highlighted that Traffic Management Plans will govern all activities and procedures relating to forklift operations, and should cover areas such as:

- Pedestrian exclusion zones
- Black spots
- Loading and unloading
- Right of way
- Policy development
- Maintenance
- Incident reporting and investigation
- Site layout
- Designated traffic zones
- Use of attachments
- Signage
- Purchasing
- Training

The Traffic Management Plan should be reviewed on a regular basis and updated when workplace changes or equipment upgrades occur.

Traffic Management Plan Comparative Chart

The following comparative chart sets out the general principles of traffic management that apply to any workplace with forklift operation. It provides a useful guide to assist with identification of the hazards and issues and the means of controlling risks when preparing a Traffic Management Plan for your workplace.

Activity/Issue	High Risk	Medium Risk	Low Risk
<p>Traffic management plan (All Traffic)</p>	<p>Traffic management is dealt with in an ad hoc way. No safe work procedures are in place. Safe work procedures are not understood or enforced.</p>	<p>Traffic is managed by the enforcement of individual safe work procedures at each area of the workplace. Procedures have been developed from a detailed study of actual vehicle movements around the workplace.</p>	<p>A comprehensive traffic management plan, dealing with all likely traffic control issues, has been prepared and documented. Everyone affected by the plan understands and applies the traffic management principles. The effectiveness of the plan is regularly reviewed in collaboration with workers. Plan has been developed from a detailed study of actual and projected traffic movements in which all probable vehicle/vehicle or vehicle pedestrian interactions have been identified and assessed.</p>
<p>Arrangement and marking of roads, intersections, pedestrian walkways and vehicle parking/loading areas (All Traffic)</p>	<p>Traffic movements are not supervised or controlled.</p>	<p>A detailed site map showing premises layout, traffic flow, speed limits, hazardous areas and specific safety instructions is displayed at the entrance to the premises. Visiting drivers receive instructions on restrictions and safe movement about the site before entering. Staff on site are familiar with traffic movements around the premises Roads and pedestrian walkways are well formed and clearly marked. Signage is provided at strategic locations. Individual work areas supervise and control traffic movements Note: It is recommended that familiar road signs eg 'Stop' and 'Give Way' be used.</p>	<p>A detailed site map showing premises layout, traffic flow, speed limits, hazardous areas and specific safety instructions is provided to all visiting drivers and employees at the workplace. All persons moving about the site have received induction training and have a clear understanding of traffic control systems and safety procedures. Roads are well designed and formed, clearly marked and clear signage indicates traffic flow, speed limits, parking, manoeuvring and loading areas, pedestrian access/crossings and required "give way" and cautionary actions. Barriers are installed around hazardous or sensitive areas. Traffic movements are centrally supervised. Note: It is recommended that familiar road signs eg 'Stop' and 'Give Way' be used.</p>

Activity/Issue	High Risk	Medium Risk	Low Risk
Traffic Flow and Signs	Traffic movements are not supervised or controlled	<p>A detailed site map showing premises layout, traffic flow, speed limits, hazardous areas and specific safety instructions is displayed at the entrance to the premises.</p> <p>Visiting drivers receive instructions on restrictions and safe movement about the site before entering. Staff on site are familiar with traffic movements around the premises</p> <p>Roads and pedestrian walkways are well formed and clearly marked. Signage is provided at strategic locations.</p> <p>Individual work areas supervise and control traffic movements</p> <p>Note: It is recommended that familiar road signs eg 'Stop' and 'Give Way' be used.</p>	<p>A detailed site map showing premises layout, traffic flow, speed limits, hazardous areas and specific safety instructions is provided to all visiting drivers and employees at the workplace. All persons moving about the site have received induction training and have a clear understanding of traffic control systems and safety procedures.</p> <p>Roads are well designed and formed, clearly marked and clear signage indicates traffic flow, speed limits, parking, manoeuvring and loading areas, pedestrian access/crossings and required "give way" and cautionary actions. Barriers are installed around hazardous or sensitive areas. Traffic movements are centrally supervised.</p> <p>Note: It is recommended that familiar road signs eg 'Stop' and 'Give Way' are used be used.</p>
Traffic Flow and Signs	<p>No defined direction of travel, forklifts or heavy vehicles operate in haphazard manner across all areas of workplace.</p> <p>Movement of forklifts is haphazard and not controlled.</p>	<p>Traffic flow is defined by signs and floor markings. Movements are controlled by supervision.</p> <p>One-way traffic flow is used to avoid congestion in high traffic areas.</p>	<p>Traffic flow is defined by familiar road signs. Stop, Give Way signs or traffic lights control intersections. One-way traffic flow is used to avoid congestion.</p> <p>Movement of forklifts is controlled with particular forklifts operating in designated areas and no overlap between areas.</p>
Signage for frequently used pedestrian routes and forklift operating areas	No signs or if there are signs they are not in prominent areas or where forklifts are operating. Signs and markings are illegible or inconsistent across the workplace and provide insufficient information about intended use.	Signs prominently displayed at entrance to workplace and forklift areas warning of presence of forklifts: For example - "Forklifts operating in this area". There are no signs specific to the workplace's own traffic management system. Pedestrian walkways and forklift operating areas are legibly marked to show their intended use.	<p>Signs conforming to Australian Standard AS 1319 are prominently displayed at entrance to workplace and in forklift operating areas reminding pedestrians and forklifts drivers about critical parts of the workplace's traffic management system. For example - "Pedestrians Prohibited - Forklift Operating Area"; "Pedestrian Safety Zone - Forklifts Prohibited"</p> <p>Pedestrian walkways, roadways and forklift operating areas are clearly marked with high visibility "self evident" lines and signs.</p>
Speed limits	No speed limits enforced or speed limits fail to consider load stability and forklift stopping distance factors.	<p>Speed limits have been determined through a comprehensive risk assessment taking account of stability under braking and forklift stopping distances.</p> <p>Speed limits are enforced through supervision or speed monitoring.</p>	Speed limits have been determined through a comprehensive risk assessment taking account of stability under braking and forklift stopping distances. Forklifts and other mobile plant are fitted with speed limiting devices.

Activity/Issue	High Risk	Medium Risk	Low Risk
Barriers	<p>No physical barriers at high-risk areas.</p> <p>No proper risk assessment carried out. Vehicles move in close proximity to pedestrians. Doorways open directly onto roads.</p>	<p>Physical barriers are provided at high-risk areas e.g. blind corners or places where heavy vehicles eg. forklifts are close to pedestrian areas. Doorways that open onto roadways are protected by barriers to prevent pedestrians stepping into the path of moving vehicles.</p>	<p>Physical barriers protect all marked pedestrian walkways.</p> <p>In addition to physical barriers in areas where pedestrian traffic is common there are large fixed bollards set out from “blind” corners to protect pedestrians in all other areas.</p>
Layout of work area - intersections etc	<p>Unnecessary intersections resulting from poor premises layout are evident.</p> <p>Intersections are poorly illuminated and have no signage to control traffic flow. Blind corners exist.</p>	<p>Roadways and Plant/equipment eg racking are designed to minimise the number of intersections where vehicle/vehicle or vehicle/pedestrian conflicts can occur.</p> <p>Intersections are provided with signs to indicate priority/give way requirements to control traffic flow. Intersections are well illuminated and signage provides advanced warning for both vehicles and pedestrians.</p>	<p>Roadways and Plant/equipment eg racking are designed to minimise the number of intersections where vehicle/vehicle or vehicle/pedestrian conflicts can occur.</p> <p>Intersections are provided with automatic barriers/traffic lights to control traffic flow. Intersections are well illuminated and signage provides advanced warning for both vehicles and pedestrians. No blind corners.</p>
Pedestrian Walkways	<p>Pedestrians share walkways with forklifts.</p> <p>Forklifts operate in close proximity to pedestrians.</p> <p>Doorways open directly onto roads.</p>	<p>Painted lines delineate separated pedestrian walkways and forklift operating areas. In addition bollards are provided at high-risk areas. Separation of forklifts and pedestrians is closely supervised and strictly enforced. .</p> <p>Doorways that open onto roadways are protected by barriers to prevent pedestrians stepping into the path of moving vehicles</p>	<p>Physical barriers protect all marked pedestrian walkways. In addition to physical barriers in areas where pedestrian traffic is common there are large fixed bollards set out from “blind” corners to protect pedestrians in all other areas.</p>
Pedestrian crossings	<p>No systems are in place for pedestrian crossing areas to manage pedestrian traffic crossing roads.</p>	<p>Pedestrian crossings are provided at high traffic areas A “priority” or “give way” procedure applies to pedestrian crossings. Prominent signs specify who must give way.</p> <p>Forklift/vehicle proximity warning devices indicate approaching vehicles.</p> <p>Self-closing gates eg spring gates that open towards approaching pedestrians are provided to ensure that pedestrians must stop before crossing.</p>	<p>Pedestrian crossings are carefully planned, clearly marked, clear of obstructions and speeds are limited to suit required forklift stopping distances and load stability.</p> <p>A “priority” or “give way” procedure applies to pedestrian crossings. Prominent signs specify who must give way.</p> <p>Forklift/vehicle proximity warning systems incorporating temporary pedestrian barriers such as boom gates etc. at crossings.</p>
Pedestrian Exclusion Zones	<p>No pedestrian exclusion zones around forklift operating areas. Pedestrians cross or work in forklift operating areas</p>	<p>Forklift operating areas are delineated by floor markings and/or signs eg ‘Pedestrians Prohibited - Forklift Operating Area’ . Pedestrian access is controlled by supervision.</p>	<p>Barriers surround forklift operating areas. Signs eg ‘Pedestrians Prohibited - Forklift Operating Area’ are displayed. .</p> <p>Forklift operations occur only outside of business hours with no pedestrians/employees in vicinity.</p>

Activity/Issue	High Risk	Medium Risk	Low Risk
Pedestrian Exclusion Zones (in vehicle loading/unloading areas)	Loading crew or other pedestrians are permitted to move in close proximity to working forklifts or the vehicle loading activity.	There is no acceptable interim alternative.	<p>A clearly defined pedestrian exclusion zone is designated around the vehicle being loaded. The extent of the exclusion zone is determined from a comprehensive risk assessment of all loading operations.</p> <p>A minimum exclusion zone size should be established for a distance equal to the height of the load from the ground plus an additional allowance for the nature of the load e.g. potential to bounce, roll or splash contents.</p> <p>Lines or large bollards delineate the exclusion zone.</p> <p>All forklift movements are stopped if pedestrians e.g. loading crew need to enter the exclusion zone.</p>
Pedestrian Safety Zones for Drivers of Trucks and Loading Crew	No markings, bollards, or safety zones for the driver or loading crew.	<p>A clearly defined safety zone protected by large portable bollards/barriers is provided so that the driver or loading crew can supervise loading at a safe distance from moving forklifts. There are specified exclusion zones around vehicle trailers and forklift operating areas.</p> <p>If there is no risk of the cabin being damaged by a load or the forklift, the driver remains in the truck cabin during loading and unloading operations.</p>	<p>A clearly defined safety zone protected by large fixed bollards/barriers is provided so that the driver or loading crew can supervise loading at a safe distance from moving forklifts and falling loads; or Loading supervision is achieved via remote means such as closed circuit TV and/or radio communications; or The loading supervisor's observation post is elevated and visible to the forklift operator at all times.</p> <p>If there is no risk of the cabin being damaged by a load or the forklift, the driver remains in the truck cabin during loading and unloading operations.</p>
Pedestrian Safety Zones (Specific zones where pedestrians carry out an activity within or adjacent to a forklift operating area).	No markings, bollards, or safety zones are provided around pedestrian work areas	<p>A clearly defined safety zone protected by portable bollards/barriers is provided around all pedestrian work areas throughout the workplace.</p> <p>Designated forklift drop off zone is provided on extremity of pedestrian safety zone. Forklift limit of travel is delineated by lines on the floor. Incoming product/components are moved into work areas area using pedestrian operated load shifting equipment.</p>	<p>A clearly defined safety zone protected by large fixed bollards/barriers is provided around all pedestrian work areas throughout the workplace. Amenities and administrative areas are designed to be accessible from the pedestrian safety zone with minimal need to cross traffic areas.</p> <p>Designated barricaded forklift drop off zone for incoming product/ components, on the outside of pedestrian safety zone. Product/components are then moved into pedestrian safety zone by use of pedestrian operated load shifting equipment.</p> <p>Completed product moved to outside of work areas area and collected by forklifts from there.</p>

Activity/Issue	High Risk	Medium Risk	Low Risk
Temporary Pedestrian Work Areas	No markings, bollards, or safety zones are provided around temporary pedestrian work areas.	A clearly defined safety zone surrounded by high visibility portable bollards or barriers eg witches hats, posts and chains, portable construction barriers etc is provided around all temporary pedestrian work areas Aisles are closed by chains and high visibility signs to prevent forklift access while pedestrians are working.	As temporary control measures rely heavily on administrative controls there is no evident low risk solution.
Visibility of Pedestrians, Forklifts and other Vehicles	Vehicles are not fitted with horns, flashing lights and reversing alarms or if fitted have become inoperative. High visibility clothing is not issued or is not worn by people moving about the workplace. Pedestrian and traffic areas have inadequate or low-level area lighting and does not assist visibility of pedestrians and forklifts.	All site vehicles are equipped with flashing lights, horns and reversing alarms. All persons (including vehicle drivers) moving about the site wear high visibility clothing at all times Area lighting clearly illuminates pedestrians and vehicles in all traffic areas.	All site vehicles are equipped with high visibility marking (eg yellow and black stripes), flashing lights, horns and reversing alarms. Visiting vehicles must demonstrate that horns and reversing alarms/lights are working and lights must be on while on the premises. All persons (including vehicle drivers) moving about the site wear high visibility clothing at all times. High visibility clothing is available for all visitors. Area lighting clearly illuminates pedestrians and vehicles in all traffic areas.
Vehicle activities on roads adjacent to workplace	Loading/ unloading of trucks etc is carried out on public roads, footpaths, car parks without signage, supervision or controls to protect members of the public moving in the vicinity.	All site vehicle activity on adjacent public roadways is in compliance with road safety legislation. Traffic controls have been developed in consultation with local government authorities and Police. Traffic controls assure the safety of members of the public by providing clear signage and trained flag persons/spotters to control passing vehicular and pedestrian traffic.	The site design eliminates the need to carry out any site activities on adjacent public roadways or footpaths, public car parks etc.
Warning Devices on Forklifts and Other Mobile Plant	No audible or visible warning devices on forklifts.	Audible/visible warning devices fitted to all forklifts, but their effectiveness has not been proven as an outcome of a Risk Assessment process.	Audible/visible warning devices fitted to all forklifts and effectiveness has been proven through Risk Assessment process. The use of these devices is supported by operator induction into Safe Work Procedure and regular maintenance regime.

Activity/Issue	High Risk	Medium Risk	Low Risk
Layout of work area - intersections etc	<p>Unnecessary intersections resulting from poor premises layout are evident.</p> <p>Intersections are poorly illuminated and have no signage to control traffic flow.</p>	<p>Roadways and Plant/equipment eg racking are designed to minimise the number of intersections where vehicle/vehicle or vehicle/pedestrian conflicts can occur.</p> <p>Intersections are provided with signs to indicate priority/give way requirements to control traffic flow.</p> <p>Intersections are well illuminated and signage provides advanced warning for both vehicles and pedestrians.</p> <p>Pedestrian forklift intersections are controlled by convex mirrors and audible warning devices ie sounding of horns.</p>	<p>Roadways and Plant/equipment eg racking are designed to minimise the number of intersections where vehicle/vehicle or vehicle/pedestrian conflicts can occur.</p> <p>Intersections are provided with automatic barriers/traffic lights to control traffic flow. Intersections are well illuminated and signage provides advanced warning for both vehicles and pedestrians. Blind corners eliminated.</p> <p>Intersections are controlled by smart technology to detect pedestrians and alert forklift operators.</p>
Parking areas for multiple vehicles	<p>No special arrangements in place when more than one vehicle is being loaded.</p>	<p>Portable physical barriers used around forklift operating zones where more than one vehicle is being loaded.</p> <p>Warning systems are used to alert forklift drivers if they have moved into another exclusion zone.</p>	<p>Fixed physical barriers or scheduling of operations make it impossible for a forklift that is not supposed to be involved in a loading operation to intrude into another designated exclusion zone while loading operations are underway.</p>
Supervision	<p>Loading operations are not supervised or planned.</p>	<p>Supervision of loading operation occurs on a needs only basis.</p>	<p>Loading operators are under constant supervision and safe loading procedures are enforced.</p>
Controlling who uses forklifts	<p>There is no specific procedure or control of who operates the forklift.</p>	<p>A key control procedure is implemented to ensure that only competent forklift operators have access to the keys and forklift. This procedure is managed by the forklift operators.</p>	<p>A key control procedure is implemented to ensure that only competent forklift operators have access to the keys and forklift. Managers or supervisors are in control over access to keys to the forklift.</p>
General storage housekeeping	<p>Excess stock stored in a haphazard manner resulting in blind spots.</p>	<p>Overflow areas are provided.</p>	<p>Premises capable of coping with seasonal variations through provision of stock overflow areas.</p>
Loads falling from tynes during loading/unloading of product in storage racks	<p>Stock stored above head height is unbalanced and not secured to pallet in any manner.</p>	<p>There is no safe alternative.</p>	<p>All stock above head height is secured to pallets by strapping or wrapping.</p>
	<p>Operator uses pedestrian spotter to alert them if pallet is not level or load is unstable.</p>	<p>Raised loads are level, balanced and pedestrians are excluded from close proximity to forklift operation.</p>	<p>Camera fitted to forklift to enable operator to 'see' pallets at all times during loading and unloading to ensure pallets remain level</p>

Activity/Issue	High Risk	Medium Risk	Low Risk
	Using damaged pallets to store product on, product distributed unevenly on pallet to compensate for pallet damage.	There is no safe alternative.	Pallets checked regularly for any damage and loads evenly distributed and within capacity of pallet.
	Product dislodged from pallets fall into aisle behind.	Pedestrian exclusion zone is extended to include aisles behind those currently being accessed.	Guards between racking which is back to back to eliminate possibility of dislodged product falling into aisle behind.
Supervision & Training	No site specific induction is undertaken for pedestrians regarding the risk to them arising from the operation of forklifts on the site.	Only employees in immediate areas undertake induction training to raise awareness level regarding risks associated with forklift operations.	Site specific induction for all potential pedestrians occurs and is refreshed regularly. Induction training incorporates location and use of designated pedestrian walkways, wearing of PPE, what exclusions zones exist and why.
	Forklift operators are not provided with site specific and task specific training.	In-house site and task specific training of forklift drivers is provided that is reviewed and updated annually. (Training records are kept)	Detailed in-house site and task specific training of forklift drivers is provided (Training is documented and records kept).
Loading Docks	Bridge Plate/ Loading ramps are manufactured without obvious regard to loading forces, necessary width or edge guarding.	Loading ramps (bridging plates) properly engineered, full width of vehicle being loaded and fitted with raised edge guarding having high visibility markings.	Automatic dock levellers used at all loading points. Edges of loading docks clearly defined with high visibility markings.
	Reversing of heavy vehicles into loading dock area is not supervised or controlled.	The loading dock area has lines painted to assist the vehicle driver to reverse the vehicle Reversing is supervised and controlled.	Dock designed to allow vehicle to drive through rather than reverse in.
	Keys are left in vehicles.	There are no safe alternatives.	The vehicle key is taken off the driver to prevent vehicle driving off during unloading operation.
	Trailer movement prevented only by parking brakes. Loading ramp not secured to loading dock or trailer.	Loading ramps locked to loading dock - trailer brakes applied and wheels chocked against movement.	Automatic trailer braking chocks and parking brakes used. Vehicle driver applies hand brake and vehicle is restrained by automatic hook engagement during unloading of the vehicle Automatic gate installed to prevent vehicle driving off during unloading operation.
	No edge marking on docks or ramps.	Edges of loading docks clearly defined with high visibility markings.	Edges of loading docks clearly defined with high visibility markings and truck proximity warning devices are in place.



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