

Guidelines for working around trucks

Loading and unloading

Produced by the Transport and Storage Industry Sector Standing
Committee for Workplace Health and Safety Queensland



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Foreword

Safety at work is an issue that concerns everyone; employers, employees, their families and the community.

Working around trucks is a major cause of injury in the transport and storage industry. To assist workers to work safely and to come home safely the *Working Around Trucks* guidance material has been produced. It provides practical and straight-forward information on how to manage the risks of injury associated with working around trucks.

This guidance material has been produced by industry for industry. Transport and Storage Industry Sector Standing Committee members who are industry leaders developed this material to support Workplace Health and Safety Queensland's preventative activities. The committee members are dedicated to making the transport and storage industry safer, their expertise and knowledge bring valuable employer, employee and union input to the development of industry safety solutions.

The growth of a diverse economy powered by bright ideas contributes to Queensland as a strong state. This guidance material for working around trucks is one of the bright ideas. The vision is for industry, supported by Workplace Health and Safety Queensland to implement the practical solutions to ensure workers make it home safely.

Peter Garske

Chair

Transport and Storage Industry Sector Standing Committee

Working around trucks – loading and unloading

Vehicles and mobile plant, moving in and around workplaces, have the potential to cause occupational injuries and deaths in workplaces in Australia.

Reversing, loading, unloading and pedestrian movement are the activities most frequently linked with workplace vehicle accidents.

Traffic and pedestrian movement at workplaces should be designed, planned and controlled so that pedestrians and vehicles can circulate safely.

Improving workplace traffic safety, in addition to reducing work-related injuries, can also improve workplace efficiency and productivity.

Workplace vehicle hazards may occur during:

- pedestrian movement at workplaces and coming into contact with mobile equipment
- vehicles or plant reversing and manoeuvring
- arrivals and departures
- loading and unloading
- hitching and unhitching trailers
- mounting or dismounting from vehicles
- securing loads, and
- maintenance work.

Most at risk from vehicles at workplaces are people who work with, or interface with vehicles and mobile plant, such as:

- cars
- vans
- forklifts
- trucks
- semi trailers and trailers
- tractors
- loaders
- buses, and
- utilities.

Other people at risk may include other workers, management, self-employed people, customers or visitors at workplaces.

Risk assessment

Employers are required by law to carry out regular risk assessments, identify hazards, assess the risk of injury or harm, review workplace procedures regularly and consider means of controlling or reducing these risks.

Risks must be controlled according to the hierarchy outlined in the *Workplace Health and Safety Act 1995* (the Act):

- **Eliminating** vehicle or pedestrian movement where possible, or removing the need for reversing.
- **Substituting** unsafe vehicles, loading facilities, road signage or road surfaces with safer ones.
- **Isolating** vehicles from pedestrians or vice versa.
- **Minimising by engineering controls** (e.g. pedestrian barriers, handrails, separate access doors for pedestrians and vehicles, speed limiting vehicles).
- **Applying administrative controls**, such as:
 - providing education, training, supervision and safe work procedures on vehicle movement at workplaces
 - ensuring a robust documented induction process takes place within the workplace before workers commence work
 - restricting pedestrian access in certain areas, or at certain times
 - enforcing appropriate site speed limits
 - preventing reversing in certain areas, or at certain times
 - providing designated parking for work and private vehicles
 - monitoring risks to ensure they remain as low as possible.
- Using **personal protective equipment (PPE)**, such as safety boots, helmets and reflective high-visibility garments. PPE is the lowest level of control.
- **Monitoring** the effectiveness of safety changes and safe work procedures through regular inspections, checks and record keeping.

Traffic management

Traffic routes

All traffic routes, manoeuvring areas and yards should be:

- safe for both vehicles and pedestrians at the workplace
- wide enough for the largest vehicle using them
- one-way if possible, with adequate passing space around stationary vehicles
- clearly signposted to indicate restricted parking, headroom, speed limits, vehicle movement and other route hazards
- surfaced with bitumen, concrete or other suitable material, and well drained
- free from steep gradients as far as possible (gradients that cannot be avoided should be clearly signposted, and plant should only operate on gradients if specifically designed to do so - use manufacturer's instructions as a guide)
- designed and controlled to ensure safe vehicle movement
- well maintained
- free from obstructions, grease or slippery substances
- free from damage to surfaces
- immediately cleaned or cleared following substance spills or falls from vehicles
- adequately lit, particularly junctions, buildings, plant, walkways and vehicles routes, and
- designed to avoid extreme light variation (e.g. drivers moving from bright sunlight into dull light or vice versa).

Vehicle operators exposed to hazardous sun glare should be provided with suitable protection (e.g. broad-brimmed hats, UV-rated eyewear, sunscreen, long-sleeved shirts and long trousers).

Clear road markings and signage should alert vehicle operators to:

- speed limits
- sharp bends
- junctions
- pedestrian crossings
- vehicle crossings
- blind corners
- steep gradients, and
- roadworks.

Pedestrian and mobile plant interaction

The safest way to protect pedestrians is to:

- eliminate the requirement for people and plant to operate at the same level (e.g. design the hazard out by building raised loading docks in new facilities)
- provide separate footpaths or walkways and eliminate pedestrian traffic where vehicles and mobile plant operate
- install pedestrian barriers (e.g. inward opening gates) at building entrances and exits to prevent pedestrians walking in front of vehicles
- make traffic routes wide enough for safety where separating pedestrians and mobile plant is not possible
- mark traffic routes (e.g. paint directional lines on the floor or ground)
- provide separate access ways for vehicles and pedestrians into buildings or enclosures, and
- provide vision panels in pedestrian doors entering vehicle areas.

Workplaces where pedestrians have to cross vehicle routes should have:

- clearly visible ground markings and signs
- clear pedestrian and vehicle visibility
- adequate lighting, and
- established and communicated right-of-way rules.

Parking areas

Onsite parking, if provided, should enable separation between work and private vehicles.

Private vehicles should be parked away from busy work areas where possible.

Walkways leading to and from parking areas should be:

- safely surfaced
- clearly marked
- adequately lit
- unobstructed
- signposted, and
- separated from vehicle routes.

Workers and customers, who bring private vehicles to workplaces, should be provided with, and comply with:

- specified safe routes
- clear safety signs at parking areas
- clear speed limit signs, and
- information and instruction on safe driving on workplace routes.

Loading bays and platforms

Loading bays should be situated in safe and suitable locations where vehicles can be manoeuvred easily, and near tarping areas.

Where practicable, they should be protected from adverse weather conditions, and should be subject to a risk assessment and safe work procedures.

Raised loading platforms should be:

- provided with safe access, egress and safe bays for people working at ground level
- clearly marked along the edges
- fitted with rails on the non-loading side, to reduce the risk of someone falling off the edge, and
- fitted with raised wheel-stop edges to prevent vehicles, such as forklifts and trolleys, rolling over the edge.

Reversing

Reversing accidents are a major cause of workplace injury and damage to vehicles, equipment and premises.

Most reversing accidents can be avoided by:

- removing the need for reversing (e.g. with drive-through loading and unloading systems)
- minimising the need for reversing (e.g. by reorganising loading and unloading procedures)
- providing clearly marked reversing areas visible to drivers and pedestrians
- excluding non-essential personnel from the area
- ensuring signallers wear high-visibility clothing and their signals can be clearly seen
- using radios and other communication systems
- ensuring drivers have another person to direct them if they cannot see clearly behind before reversing
- ensuring visiting drivers are familiar with workplace routes and reversing areas
- providing larger reversing areas
- placing fixed mirrors at blind corners
- fitting refractive lenses on rear windows to help drivers see 'blind spots'
- fitting reversing alarms to plant, and
- using flashing reversing lights on vehicles, especially if workplace noise is too loud for reversing alarms to be heard.

To reduce risks when reversing, keep rear vision mirrors, fixed safety mirrors and windscreens clean and in good repair, and reversing alarms in working order, loud enough to be heard above other work noises.

Injuries can occur when people at ground level assist in hitching trailers or trailed implements to semi trailer cabs, tractors and other prime movers. Safe procedures should ensure there is a clear form of communication between the operator and the hitcher. To prevent parked prime movers and trailers rolling, they should be parked:

- on level ground, preferably in a designated parking area
- with brake firmly applied and in gear, and
- with wheels chocked.

Any raised attachments, such as slashers or rotary hoes on tractors, should be lowered to the ground, and the engine stopped and the key removed.

Forklift instability – the risks¹

Forklifts can overturn as a result of:

- travelling with forks raised and no load
- turning sharply
- travelling across an incline or uneven ground
- travelling with a raised load
- carrying a load forwards down a slope
- carrying an unevenly balanced load, and
- braking hard when loaded.

Overturning and tipping

Overturning is a leading cause of death involving forklifts, accounting for one in six deaths. When an operator jumps, or is thrown from an overturning forklift, more often than not they end up trapped under the overturned forklift causing a fatality.

Research identified 10 key concerns in relation to forklift stability:

1. Most rollovers involve unladen forklifts, making the truck more unstable than a laden forklift with the load being carried low.
1. When operators apply the brakes on a laden forklift, they easily lose stability.
1. Even when stationary, forklifts have a small stability safety margin (i.e. 30-50% at rated load with the load down and 15-20% with a fully elevated load and mast vertical).
1. Manufacturer's information should always detail if the forklift's working capacity has been restricted by stability tests relating to (lateral) overturning, or (longitudinal) tipover.
1. Manufacturers should include vital information, such as the forklift's capacity at full forward tilt of the mast and at maximum load elevation, in their sales information.
1. Uneven flooring, particularly with a height difference in excess of 20 mm across the front wheels, can seriously impact on a forklift's stability when carrying its rated load at full height.
1. When undertaking high lifts, particularly over four metres, dual-wheel forklifts should always be used.
1. When driving with a raised load, or a raised empty load carriage, a forklift may become 'dangerously' unstable.
1. Loads attached to a forklift or suspended from a jib attachment are more likely to result in a full forward tipover when braking.
1. Forklifts can easily overturn if they make contact with overhead structures.

Lift capacity, the maximum load supported by the lift, and vertical lift travel are the most important forklift specifications to be considered in order to prevent forklift instability incidents.

Employers can help minimise effects of forklift instability by:

- establishing appropriately sized pedestrian exclusion zones - the speed travelled and type of load carried will impact on the size of the exclusion zone
- designing all new workplaces to ensure pedestrians and forklifts are completely separated
- ensuring seatbelts are fitted and correctly worn

¹ For further information see: <http://www.deir.qld.gov.au/workplace/subjects/forklift/index.htm>

- installing intelligent systems preventing forklifts being started unless a seatbelt is fastened
- purchasing forklifts with speed limiting devices
- removing incentives that may encourage forklift operators to drive too quickly
- reducing 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
- requiring suppliers to provide detailed information on all stability limitations, capacities at different lift height and lift positions, and how the limiting capacity was obtained
- buying forklifts with a slightly higher capacity than needed at the workplace
- looking for stability-enhancing features when buying a forklift
- hiring a forklift that suits the workplace environment, and
- negotiating a good deal with your supplier – get a safer forklift for your money.

Load carrying

When carrying loads on a forklift, take into consideration the following:

- Forklifts are heavy even without a load and just like heavy vehicles, (e.g. dump trucks) they are dangerous when not used correctly.
- Forklifts can still cause injury even when travelling at low speeds. At higher speed, and fully laden, the risk is even greater.
- 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, allowing manufacturers to detail the load each forklift 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. Ensure they do not exceed the forklift's capacity.
- 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, which can lead to tipping, particularly if the forklift is being driven at speed, around a corner or over an uneven surface.

Load handling

Check the load before starting the engine:

- if it's not placed correctly, reload it
- make sure the load is within the forklift load limit listed on the load capacity data plate
- if it's particularly long or wide, check if you need to take an alternative route
- if pallets are damaged, remove them, and
- ensure pedestrians are not present while operating a forklift.

Safety tips for forklift operators

The following are safety tips to ensure safe forklift operation:

- Where fitted, seatbelts must be worn and speed limits and stop signs obeyed.
- Avoid turning when negotiating grades, ramps and inclines.
- Slow down and sound the horn when approaching an intersection or corner.
- When getting off a forklift, ensure the parking brake is set, the forks are lowered and controls are neutralised.
- Passengers must not ride on a forklift unless there is an additional seat, footrest and seatbelt.
- Raising people on forks or pallets is a prohibited work practice.
- Order picking platforms must have guard rails to prevent falls. If it is possible for a person to extend their body over the guard or step from the platform, then a safety harness should be provided. The harness must be attached to a strong anchor point. A risk assessment should be conducted to determine the type of travel restraint system, or fall prevention system, suited to the activity and workplace environment.
- Use maintenance work platforms, with a meshed-in work area securely attached to the forks to raise people performing minor maintenance tasks.
- 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.
- Implement safe work procedures to ensure anyone on a work platform who is raised in a forklift can be rescued if an incident or breakdown occurs.
- Train workers on how to act if an incident should occur.
- If a side or forward tip over occurs, operators should not jump; instead they should stay in the cabin, hold on firmly and stay with the forklift leaning in the opposite direction of the overturn.
- A properly adjusted seatbelt will keep you safely in the cabin during an overturn.

Know the workplace

All employers must provide safe workplaces for workers, and any visitors to the workplace. All workers and employers have a responsibility to ensure forklifts are used in a safe manner. New workplaces should be designed to provide separate zones for pedestrians and forklifts. Before operating a forklift, the workplace should be assessed to ensure it is safe, and its conditions present no apparent risk of injury to a person, or damage to equipment or loads.

Following is an example of a checklist that can be expanded to reflect individual forklifts and their operating environment. Use the checklist to ensure the forklift can be operated in a safe and efficient manner, minimise forklift-related injuries, and ensure any inefficient or dangerous forklift practices are rectified.

Workplace checklist

Before operating a forklift, it is important to be familiar with the area of operation.

This can be done by taking a walk around and assessing the site to identify any hazards that may impact on the safe operation of a forklift and report any identified hazards to the supervisor.

To ensure the safe operation of a forklift at the site, check:

- pedestrian exclusion zones are marked
- ground surfaces are even and clear of obstruction
- pedestrian and vehicular traffic
- restricted and poorly ventilated spaces
- lighting conditions and noisy machines
- uneven floors, ramps and railway tracks
- overhead doorways, fittings, powerlines and obstructions
- wet and dry areas
- loading docks
- storage racking, and
- forklift operating paths.

Traffic management plan

A traffic management plan is essential to address many of the risks associated with the use of forklifts in the workplace. To reduce the risks of forklift-related incidents, traffic management plans should effectively separate powered mobile plant, such as forklifts, from pedestrians, including truck drivers. Safety of pedestrians is one of the most important aspects of a workplace traffic management plan.

The preferred way to develop a traffic management plan is to:

- identify any hazards
- assess the risks that may be caused by people coming into contact with a hazard, and
- put in place risk control measures to eliminate or minimise risks.

Consultation is central to developing a traffic management plan supported by all workplace parties. Workplace health and safety representatives (WHSRs), forklift operators, other workers and employers should all play a part. This will result in:

- more informed decisions
- a boost in job satisfaction and morale
- an improved commitment to workplace health and safety, and
- fewer workplace injuries.

When identifying risk control measures consider the source of the risk and develop practical, workable controls. Controls may include:

- developing efficient routes
- monitoring traffic flows
- reducing frequency of interaction with hazards
- substituting a forklift with other suitable load shifting equipment, and
- eliminating the risk altogether, where possible.

Once risk controls are in place, they must be regularly reviewed to gauge their effectiveness.

An effective traffic management plan can use a range of devices, including:

- pedestrian and forklift exclusion zones
- safety zones for truck drivers
- safety barriers
- containment fences
- reduced speed limiting devices (e.g. smart forklifts), and
- signage.

All those at the workplace, including visitors, must be advised of the site's traffic management plan.

Developing a traffic management plan

Devise a plan to separate pedestrians and forklifts. Forklift movements, braking distance, stability, environment, height of load and the type of load being handled must be considered when introducing pedestrian and forklift exclusion zones.

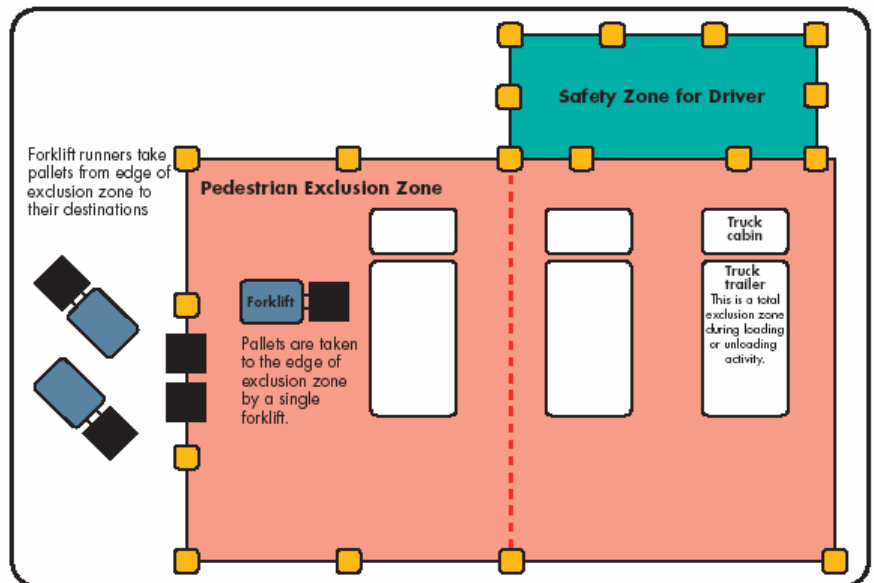
The optimum is to eliminate forklifts or substitute them with more pedestrian-friendly load shifting equipment. Workplaces should also be designed to eliminate, or at least minimise, pedestrian access to areas where forklifts operate. This can be done by:

- studying the frequency of forklift and pedestrian interaction and identifying areas where they come into conflict
- clearly marking 'No Go' exclusion zones for pedestrians and forklifts
- erecting barriers to protect marked pedestrian walkways and designated forklift operating areas
- providing designated pedestrian crossings, such as boom gates and overhead walkways
- implementing and enforcing procedures, such as clearly indicating when pedestrians and forklifts must give way to each other
- displaying clear warning and traffic management signs
- using proximity devices to trigger signals, boom gates, warning signs and other 'smart' technologies
- ensuring forklift warning devices and flashing lights are functioning at all times
- ensuring pedestrians wear high-visibility clothing (e.g. reflective vests), and
- ensuring all forklifts have high-visibility markings and that the workplace is well lit.

The diagram below is an example of a traffic management plan for truck loading/unloading in the workplace.

Example Traffic Management Plan for Truck Loading/Unloading

- Pedestrian Exclusion Zone**
A pedestrian exclusion zone has been established for a distance of three metres around the forklift, plus an additional allowance for the nature of the load and the speed travelled. 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.



Pedestrian exclusion zone

Designate exclusion zones for pedestrians and forklifts. A pedestrian exclusion zone has been established for a distance of three metres around the forklift, plus an additional allowance for the nature of the load and the speed travelled. Forklift movements within this zone are stopped before pedestrians enter. If a pedestrian is within three metres of a forklift, employers must do a risk assessment and introduce suitable risk control measures. Forklifts should be prohibited or minimised around tea rooms, time clocks, cafeterias, amenities and entrances.

Pedestrian walkways must be clearly marked. Installing physical barriers ensures workstations are separated from forklift travel areas. Audio warnings are just as important as visual ones. Use a mix of high volume alarms, horns and flashing lights to warn pedestrians of approaching forklifts. Flashing lights are imperative in areas with high levels of ambient workplace noise.

Use overhead dome mirrors to improve the safety of pedestrians and forklift operators at intersections and blind corners. Avoid placing bins, racks or storage units in areas that could obstruct a forklift operator's view.

Crushing is the most common form of forklift-related injury sustained by pedestrians. Even when travelling at low speeds, forklifts present significant risk to the safety of pedestrians. Half the pedestrians killed were crushed by forklifts that were barely moving. Too often, safe forklift practices are only introduced in a workplace after a worker has been killed or injured. Don't wait until a forklift-related death or injury takes place before implementing forklift and pedestrian exclusion zones.

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 an exclusion zone to inspect a load. Alternatively, if it is safe to do so, the system of work can allow 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 must be installed.

Forklifts

Only one forklift should operate at any one time in the pedestrian exclusion zone.

Reducing risks²

Simple safety practices, such as maintaining and obeying speed limits, observing stop signs, slowing down and sounding the warning device (horn) at intersections, still apply.

Once a task is complete, forklift operators should ensure the forklift is parked, shut down and secured in line with traffic procedures and the manufacturer's recommendations. Ensure the key is removed from the ignition.

Employers, WHSRs, forklift operators and other workers all have a part to play in ensuring safe forklift practices are observed. Small changes in behaviour can deliver significant safety improvements.

Action must be taken now to eliminate injuries and save lives.

Safe forklift operating procedures are often disregarded once an operator has gained a certificate of competency. A certificate of competency provides an operator with skills to operate a forklift safely; however, induction into a new workplace, or changed environments, unfamiliar forklifts and safe work procedures, is a must.

To be able to operate a forklift, the operator must:

- be trained in safe forklift procedures and the operator's manual
- hold a relevant certificate of competency
- lower the load before moving or turning
- move with the forks as close to the ground as possible, and
- lower the forks, apply the park brake, close the gas cylinder valve and remove the ignition key when leaving a forklift unattended.

Policies, procedures and legal requirements

All workplaces should have policies and procedures in place that ensure all workplace parties involved in forklift operations have a clear understanding of how they can make the workplace safer. Workplaces should also have policies and procedures on:

- hazard identification
- risk assessment
- risk control
- purchasing of machinery, and
- incident reporting and investigation.

² For further information see: <http://www.deir.qld.gov.au/workplace/law/codes/riskman/index.htm>

As part of policies and procedures in any workplace, an induction should be conducted for all new workers, to ensure that they are familiar, not only with the machinery they are required to operate, but the surroundings and procedures associated with that workplace. This induction should include casual and permanent workers.

A good induction process should consist of, but not limited to, the following:

1. introduction to the worksite
2. site security procedures
3. site layout and plan
4. injury and incident reporting procedures
5. HR policies and procedures
6. WHS regulations
7. evacuation procedures
8. hearing conservation
9. working at heights regulations
10. safe work procedures
11. introduction into site operating procedures, and
12. forklift safety.

Selecting a suitable forklift

Each workplace is different. Before purchasing, hiring or leasing a forklift, be aware of what forklift safety and ergonomic design features are best suited to your workplace. This can be the most effective way of avoiding safety problems and minimising operator injuries. If a forklift is needed to work in a flammable or explosive atmosphere, ensure it suits this purpose by referring to the manufacturer's recommendations. If forklifts are required to be used in poorly ventilated areas, ensure it is electric. WHSRs, operators and other affected workers should be consulted when purchasing new machinery. They are best placed to provide advice on good safety features and practices.

Incident reporting

All safety incidents involving forklifts must be promptly reported to a supervisor. Workplaces should encourage a culture of incident reporting. Immediate reporting allows immediate changes to be made to fix the cause of the incident and prevent similar occurrences. Reporting allows all associated hazards to be identified, procedures to be reviewed and risks to be assessed. Consultation ensures effective risk controls are identified and maintained.

Incidents can be caused by a wide range of factors. Each incident must be investigated before the cause can be determined.

Consultation

Employers need to consult with WHSRs and workers about all aspects of workplace health and safety, including putting safe forklift practices in place.

Usually workers know their work environment better than anyone else. Consultation with workers will:

- lead to identifying practical risk solutions
- ensure workers have a sense of ownership of any safety changes, and
- encourage workers to observe, maintain and include improved forklift safety practices as part of their daily work routine.

Remote sites – safety procedures

The following safety procedures ensure safety around trucks is maintained and adhered to when working remotely at customer sites:

- carry out a risk assessment on site and keep with the business where the forklift is being operated, including original quotes for work to be carried out
- provide all drivers with a copy of site safety procedures and risk assessments and make sure they acknowledge receipt of these, and
- conduct tool box talks about any new sites and any identified issues.

Record keeping

Keep copies of the risk assessment about the site in the transport/dispatch office. All drivers must be provided with copies of site procedures that were developed for the site/s

Notification by new client

Notify clients/s of safety requirements, including:

- carrying out a risk assessment
- requesting provision of safe work procedures in relation to working around trucks
- providing copies of safety inductions for the truck drivers, and
- making a traffic management plan of the site available to drivers.

If there has been no information provided by the client then:

- the supervisor must provide a safety inspection checklist to be completed by the driver
- the driver must complete all relevant questions and note any additional hazards that may be present and provide on return to home site, and
- a copy of the safety inspection list must be provided to the client.

Risk assessment

Where the customer is unable to provide a risk assessment or safe work procedures for working around trucks then:

- the company supervisor and the customer must ensure a risk assessment is conducted
- the risk assessment must be completed prior to any work being conducted on the site, and
- if high risk areas are identified, then no work should be completed until measures are taken to reduce or eliminate the risk

Safe work procedures for a remote site

Safe work procedures should include, but are not limited to:

- accessing the site
- parking trucks safely
- ensuring documentation is in a safe place
- providing adequate light
- unloading procedures clear and defined
- damage reporting procedure available, and
- reporting incidents and near misses.

Slips, trips and falls³

Every workplace needs to be examined, so that all slips, trips and falls hazards are identified. To assist in determining exactly where slips, trips and falls have happened, or are likely to happen, there are three easy steps to follow:

1. Inspect the premises. Developing a slips, trips and falls checklist may be helpful in identifying the sources of typical hazards in a specific workplace. Make a list of the locations of concern. For each location, record anything that could be high risk.
2. Consult with workers. Ask workers for their input, as they will know about any potential risks from their experience of doing the task. Helpful information will be in records of previous risk assessments. (see Appendix 1 for a sample forklift operator's daily checklist).

Pay particular attention to the following:

- floors and grounds
- housekeeping and cleanliness
- cleaning and maintenance methods
- lighting
- stairs, ramps and sloping surfaces
- walkways
- tasks being undertaken, and
- footwear.

High risk areas are:

- wet, oily or slippery floors
- uneven or sloping surfaces
- work areas where lifting and carrying tasks, and some other manual tasks, such as pushing and pulling, are performed
- where the pace of work causes people to walk quickly or run
- high pedestrian traffic areas
- where there are constant changes to workplace conditions, such as building sites
- unfamiliar locations, and
- accident locations that have not been secured and cleaned up.

³ For further information see http://www.deir.qld.gov.au/pdf/whs/slips_trips_falls_guide2007.pdf

3. Check records, including incident and injury reports, near miss reports, workers' compensation claims, and workplace inspection checklists.

Control measures

A control measure can be a process, procedure or action put in place to eliminate or minimise the risk posed by specific hazards. Control measures for risks identified should be developed and implemented in consultation with workers and attention given to hazard identification and risk controls in unfamiliar locations (e.g. when workers work off-site, or at clients' homes or offices).

Workplace design

Changing the workplace design can eliminate many hazards that can cause slips, trips and falls. Design and build workplaces with safety and comfort in mind. When new facilities are to be built, or existing facilities upgraded, it is an opportunity to avoid many common hazards by identifying potential slips, trips and falls hazards. In consultation with workers, analyse the tasks to be done by workers and the circumstances in which they will be done. Plan and discuss the movement paths of people and materials with architects and workers.

Design should consider:

- cords, leads, cables and power boards
- lighting
- floor surfaces, and
- work functions.

Some design controls to eliminate hazards include:

- providing power, telephone, computer and other equipment services from ducts in the floor or from the ceiling, eliminating the need for cords on the floor
- ensuring adequate lighting for work areas, floors, stairs and passageways
- installing floor surfaces suitable for the work area, such as high friction tiles with deep profiles for draining wet areas, and
- ensuring there is adequate storage space to keep materials out of work and traffic areas.

Flooring

The following tips will help improve floor surfaces and minimise the risk from slips, trips and falls:

- Consider the slip resistance of the floor surface (see Appendix 2 for information about floor surfaces and coverings).
- When the flooring itself is identified as a hazard, and installing new flooring is not reasonably practicable, there are a number of floor treatments that are designed to be used on existing flooring. This is a less expensive option than installing new flooring. However, this would be false economy if the treated floor is not sufficiently improved.
- Use treatments that substantially increase the surface roughness of the flooring. Be sure a floor treatment doesn't introduce a new hazard.
- Minimise changes in the floor level. If levels must change, install ramps rather than steps.
- Avoid sudden changes in floor surface texture, where possible. If such changes do occur, ensure good lighting and visual cues are in place.

- When footwear in the workplace cannot be controlled (e.g. where the public have access), an effective strategy must be put in place (e.g. installing softer flooring, such as thicker vinyl, cork or carpet). Increasing the roughness of surfaces can increase the slip resistance of floors. For example, concrete finished with a steel trowel is much smoother and therefore more slippery than concrete finished with a wooden float, or with a broom. Products that increase the surface friction will need to be maintained in accordance with the manufacturer's specifications.

Stair design

Key points to consider are:

- Ensure the proportions of the stair treads are the same throughout a flight of stairs.
- Apply non-slip edges (nosings) to improve safety on stairs and help give visual definition to the edge of the stairs. Metal nosings applied to carpeted stairs should have ample taper to blend smoothly with the carpet to prevent heels catching in the back edge of the nosing.
- Provide clear visual cues for the start and finish of the stairs, ample lighting above the stairs, and a tread pattern that does not reduce the visual definition of the edge of each individual step.
- Provide handrails.

For further information, refer to the *Building Code of Australia* and *AS 1657 Fixed platforms, walkways, stairways and ladders - Design, construction and installation*.

Ramp design

Install ramps instead of stairs, if there is space to make the change in level, without too great a slope. The following should be taken into consideration when installing ramps:

- Ensure the slope of a ramp conforms to the appropriate Australian Standard and *Building Code of Australia* specifications. The maximum ramp slope should be 1 in 8, or 1 in 14 if people with disabilities will need to use the ramp.
- Apply flooring with greater slip resistance on ramps than that used on level flooring.
- Provide clear visual cues for the start and finish of the ramps, ample lighting above the ramp, as well as a suitable tread pattern in the flooring.
- Provide handrails on ramps, as for stairs, and provide kerbs of at least 100 mm high on both sides to prevent trolleys running off the edge.

Lighting

Ensure both internal and external stairways and walkways are well lit. Lighting levels should accommodate changes in conditions, such as transitions from closed to open areas. For further information, refer to the *AS1680* series on interior and workplace lighting.

Drainage

When installing drainage, consider the following:

- Provide a means of containing and draining water, or other fluids, at machines or processes as required.
- If there is a substantial amount of fluid, provide channels in the floor covered by gratings. Use gratings as flooring if the work task is very wet and/or greasy.

- Surfaces should be slip resistant and not introduce a trip hazard with uneven surfaces. Duckboards, for example, may not be suitable because of uneven surfaces.
- Flooring that needs to be washed, or that will be wet at times, should be graded to drainage points to minimise pooling of water. The location of drains should be as close as possible to any source of liquid, and there should be adequate drainage points provided to avoid excessive changes in floor level due to grading.
- Use moulded floor tiles with deep profiles for draining fluids, especially if the edges of the patterns are sharp. High-pressure water sprays may be needed for cleaning the tiles. Build up of hardened grease or dirt can make high profile tiles ineffective.

Machinery and equipment

Before placing any machinery or equipment, consider the following to prevent slips, trips and falls:

- Carry out regular maintenance and inspection of production machinery for signs of leaks. Prevent machines spraying out liquids by adjusting or enclosing the machine.
- Contain liquids on the floor that may have come from production machinery. These can be contained to a small area surrounding the machine, by using a metal tray or a low concrete wall. Ensure the containment area is effective, well-drained and does not introduce further hazards.
- Put measures in place to deal with water from leaking pipes or condensation from air conditioning/refrigeration units in cold rooms. This can be a serious problem as pools of water can freeze on the floor.
- Use absorbent material rolls or flat sheets around the machine. Replace when they become soaked with fluid.
- Install exhaust systems to remove dusts or vapours that can settle on floors.
- Support electric cords and pneumatic hoses for air tools overhead to keep them off the floor.
- Avoid the use of extension cords, where possible, by using battery-powered tools.
- Ensure work and traffic areas are clearly defined and marked.
- Carry out regular site clean-ups to remove rubbish.
- When moving materials by hand or by trolleys that are pushed, ensure materials are not stacked high so the view of the floor ahead is obscured.
- Maintain three points of contact when accessing or exiting forklift and truck cabins (e.g. two hands and one foot or two feet and one hand) and use ladder and/or steps where they are provided.

Weather

Wet weather increases the risk from slips, trips and falls. To prevent this from occurring:

- have absorbent flooring materials set into the floor at entrances to stop rainwater, snow and mud being walked indoors
- provide leak proof receptacles at entrances to buildings for leaving wet umbrellas, and
- provide leak proof plastic bags at entrances if wet umbrellas have to be carried.

Spills

If spills occur in the workplace:

- ensure workplace policies and procedures for cleaning up spills clearly identify who is responsible for isolating and cleaning up the spill without delay
- ensure all staff is appropriately trained and instructed in the spills clean-up procedures
- ensure easy access to equipment and materials for cleaning up spills - use absorbent materials that do not leave a residue
- transport and carry substances in appropriate containers to avoid spills - use lids or covers where necessary, and
- use alternative containers if poor packaging causes spills.

External environments

External environments may also cause slips, trips and falls. Consider the following:

- uneven path sections are a common hazard, where the edge of one section is above or below the surface of an adjacent section and can be difficult to see
- uneven or sloping ground surfaces can be avoided or levelled
- lay path sections on a stable base material, which will prevent them from tilting over time, and
- housekeeping is needed where there are constant changes to workplace conditions, such as building sites.

Vegetation

Vegetation, such as moss on external paths, can be slippery, particularly in wet and shaded areas. Use commercial products to effectively remove these contaminants. Tree roots, leaf litter and wet grass can present slips, trips and falls hazards. Good maintenance can reduce these risks.

Housekeeping and cleaning

Cleaning procedures must be reviewed regularly. Good housekeeping involves scanning the workplace for hazards, such as:

- grease build up, spills and low objects
- newly cleaned and wet areas where people may walk, and
- untidy and cluttered work areas.

To ensure that housekeeping and cleaning are performed to an appropriate standard:

- Allow sufficient time for staff to carry out these tasks and routines.
- Implement policies and safe work procedures in consultation with workers.
- Train all relevant workers in appropriate policies and procedures, as well as in the safe use of chemicals and substances.
- Define the cleaning tasks, including appropriate sequencing of the work, so that the cleaners themselves are not put at risk by walking unnecessarily over wet surfaces.
- Ensure cleaning tasks are undertaken at an appropriate time and not during high traffic and busy periods, preferably outside normal work hours. If this is not possible, set up barriers and warning signs to keep people off the affected areas, or provide alternative routes for pedestrians if the usual route is being cleaned.

- Use cleaning agents and detergents, according to the manufacturer's directions. Consult manufacturers of cleaning products about suitable materials, equipment and procedures for minimising slipperiness, while still doing an effective cleaning job. For the safe use of cleaning products, refer to the manufacturer's information on the product label, the workplace register of hazardous substances, and the Material Safety Data Sheet (MSDS) for the product.
- Avoid build up of polish and other materials on floors (excess polish may be transferred to footwear and become a hazard elsewhere).
- Maintain dry conditions where polished floors are used.
- Finish wet cleaning processes by vacuuming up solutions or mopping dry, to minimise the time the floor is wet.
- Remove hardened grease from tiled kitchen floors, in order to benefit from any slip resistant texture of the tiles. This may require strong cleaning chemicals that should be thoroughly rinsed off with clean water. High-pressure water sprays may be necessary for cleaning profiled tiles.

Training staff

All workers should have a good understanding of slips, trips and falls hazards in their workplace. This understanding should be developed through induction and ongoing training sessions. Training should also be discussed as a part of the consultation arrangements in the workplace. Training workers is essential to ensure control measures are maintained and used. All workers play a part in maintaining good housekeeping and cleanliness. Workers must be trained to report any hazards to their supervisor and/or the person responsible for workplace health and safety.

The training topics should include:

- How to recognise slips, trips and falls hazards, and the part workers can play in minimising them.
- What action to take in the case of spills, covering procedures to clean up spills, and immediate action to take to warn others.
- The importance of regular floor surface cleaning, maintaining housekeeping and procedures for preventing slips, trips and falls hazards. Cleaning staff should be trained on the methods required and control procedures, such as restricting access and using appropriate signage during cleaning to warn of slippery floors.
- Information on the correct use of cleaning products, which can be found on the product label, or from manufacturers' recommendations.
- The importance of cleaning footwear regularly to remove material trapped between the treads.

Signage

Signage should be used to:

- alert people to surfaces that are wet following recent cleaning or spills, and
- indicate procedures, such as specific footwear required for certain locations, especially for visitors to the workplace.

Footwear

Wear the most appropriate footwear for the job and work environment. Refer to the workplace policy on footwear. Risk assessments should include the use of footwear as a control measure, where necessary.

General purpose work footwear should have the following characteristics:

- slip resistant sole material
- good tread pattern
- rounded heel edge with good area of contact (avoid raised heels with small contact area)
- cushioned sole, and
- close, but comfortable fit.

Checking that control measures are adequate

Risk assessments and control measures must be reviewed regularly, or whenever there is evidence that the existing risk assessment is no longer valid.

Review workplace control measures in consultation with workers when:

- an incident involving a slip, trip or fall occurs (even if it is a near miss)
- changes to the premises or nature of the work are proposed, and
- new equipment or work practices are introduced.

Make any necessary changes to prevent a recurrence. Consider the following points when reviewing controls:

- are the cleaning methods for any of the floors and paths fully specified and recorded?
- are all cleaning staff aware of the required methods and quality standards?
- are all staff trained in the procedures for dealing with spills?
- are all workers wearing the required personal protective equipment (PPE)?
- have any changes been made to floors, requiring new risks to be assessed?

All managers and supervisors should be aware of their accountability for hazards relating to slips, trips and falls, including:

- floor quality
- cleaning
- housekeeping
- machinery and equipment
- lighting
- ramps
- stairs, and
- drainage.

Manual tasks

Manual tasks are more than just lifting or carrying an object. They also include:

- lifting
- lowering
- pushing
- pulling
- carrying
- moving, and
- holding or restraining any object, animal or person.

Manual tasks can include a wide range of activities, such as pulling a lever, restraining an animal, or holding and operating a power tool.

Research has identified five ‘direct’ risk factors related to manual tasks that can cause or contribute to musculoskeletal disorders. These are:

- forceful exertions
- working postures – awkward and static
- repetition
- duration, and
- vibration.

These risk factors outlined in the *Manual Tasks Code of Practice 2000* directly stress the body and cause injury. One of these risk factors must be identified in the task in order for a risk of injury to exist. However, the more risk factors identified the greater the risk.

Forceful exertions put high levels of stress on muscles and body tissues. This includes force exerted by the body or force impacting on the body. Examples include lifting a very heavy or awkward load from the ground (e.g. lifting a person or a 40 kilogram cement bag), or force to the lower limbs resulting from jumping out of a vehicle.

Working postures

Awkward postures are postures where joints are at or near the extreme of their movement, (e.g. your head bent to the side so your ear is by your shoulder). Exposure to awkward postures can cause damage to the muscles and other tissues when they occur in combination with forceful exertion, another awkward posture (e.g. back bent and twisted), repetitive action, or if held for a prolonged period.

Static or fixed postures such as prolonged sitting or standing can sometimes be more fatiguing than tasks that require moderate movement. Your body has to work hard to hold the posture (leading to quicker muscle fatigue), putting greater stress on other tissue and giving your body less flexibility to deal with unexpected changes. Awkward postures are often caused by poorly designed work area(s), tools, equipment or work practices.

Repetition and duration involves making the same type of movement over and over (e.g. frequent lifting or working on a production line) or holding a position for a long time. There are even greater risks when repetition is combined with awkward postures, forceful exertions, fast movement, and/or cold conditions.

The work cycle is the time taken to perform the task once without interruption. Tasks involving short cycle times of less than 30 seconds and performed for more than one hour are considered to be a risk, because the same muscles and other soft tissues are being used continuously.

Duration is the amount of time a person is exposed to a risk factor (e.g. vibration, awkward postures) **without a break**. Long periods of activity increase the strain and wear and tear on the body. Duration may be considered a significant risk factor when a task is performed continuously for one hour or longer.

Vibration

Exposure to continuous or high intensity vibration is a concern as it increases the strain and wear and tear on the body.

There are two sources of vibration exposure according to the contact points between the body and the vibrating equipment:

- **Hand/arm** vibration can be caused by vibrating hand tools such as grinders, drills and circular saws, particularly if they are not properly maintained or not appropriate for the task. It can result in fatigue, pain, numbness, tingling, decreased sensation in the fingers, hand and arm.
- **Whole body vibration** commonly results from sitting or standing on work surfaces that vibrate such as trucks, forklifts, tractors or platforms. It is associated with general discomfort and lower back pain.

For further information on manual tasks see:

Sprains and strains in the transport and storage industry:

http://www.deir.qld.gov.au/pdf/whs/sprains_strains_transport_factsheet2005.pdf

Sprains and Strains: http://www.deir.qld.gov.au/pdf/whs/sprains_strains_booklet2005.pdf

Preventing manual tasks injuries

Workers' compensation statistics show that one-third of all occupational injuries in Australia occur during manual tasks. This injury rate has not been reduced by traditional approaches, which concentrated on correct lifting techniques, and saw the weight of an object as the only source of danger. The most successful approach is a systematic one, which aims to 'design out' the whole range of possible causes of injury during manual tasks. Workers and their WHSRs should be involved in this process.

Common causes of manual task injuries include:

- lifting gates
- pulling taut liners curtains
- handling freight (including overuse injuries which develop over time), and
- restraining loads (use of 'dogs' and chains).

Common manual task injuries include:

- strains and sprains
- hernias
- disc herniations, and
- aggravation of degenerative conditions.

Personal protective equipment (PPE)

- gloves
- helmets
- wrap around/UV safety glasses
- high-visibility garments
- wrist guards
- steel-capped safety footwear
- long-sleeved shirts and long trousers
- hearing protection, and
- sun protection.

Work at height

- use tarp spreaders, and
- use fall arrest equipment.

Maintenance and reporting

Preventing injury by:

- reporting damaged equipment
- implementing preventative/scheduled maintenance routines, and
- conducting pre-start inspections.

Appendix 1

Sample forklift operator's daily checklist

OperatorForklift S/No

*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.

If you notice any faults with any aspects of the forklift listed below, do not use it.

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

Before starting the forklift, always check pedestrian exclusion zones are marked and that ground surfaces are even and clear.

Then check the following is satisfactory:

- | | |
|---|--|
| <input type="checkbox"/> Tyres | check all tyres and look for any visual wear or damage |
| <input type="checkbox"/> Fluids | check oil, hydraulics, battery, fuel and coolant |
| <input type="checkbox"/> Seating | check the condition and adjustment of seating |
| <input type="checkbox"/> Warning devices | check lights, horn and reversing beeper |
| <input type="checkbox"/> Capacity | check load-capacity plate is fitted, legible and correct |
| <input type="checkbox"/> Mast | check mast for any wear to lift chains and guides, inspect hydraulic cylinders, look for any leaks |
| <input type="checkbox"/> Forks | inspect forks for any sign of damage |
| <input type="checkbox"/> Seatbelt | make sure your seatbelt is securely fastened |

Once started, observe:

- | | |
|--|---|
| <input type="checkbox"/> Controls | after start up, check all pedals and controls |
| <input type="checkbox"/> Brakes | check brakes and parking brake for proper operation |

Appendix 2

Checklist for the prevention of slips, trips and falls.

If any of these hazards are ticked, action needs to be taken.

Floors

- Can water be walked onto smooth floors (e.g. foyers) on rainy days?
- Are there any hard, smooth floors in wet or oily areas?
- Are there any leaks of fluids onto the floor from processes or machines?
- Is poor drainage causing pooling of fluids?
- Are there any floor surface transitions not easily noticed (any ridge that is as high as a footwear sole or higher)?
- Is there any ice or water on cold room floors?
- Is the floor slippery when wet?
- Are any anti-slip paint, coating profiles or tapes worn smooth or damaged?
- Are there any isolated low steps (commonly at doorways)?
- Are there any trip hazards due to equipment and other objects left on the floor?
- Are there any raised carpet edges or holes worn in carpets?
- Are there any tiles becoming unstuck or curling at the edges?
- Are there any holes or unevenness in the floor surface?

Stairs and ramps

- Is the lighting insufficient for ramps or steps to be seen clearly and without glare?
- Do any steps have too small a rise, tread or an excessive nosing?
- Are any step edges (nosings) slippery or hard to see?
- Are the steps uneven, or are there excessive variations in step dimensions?
- Are handrails inadequate on stairs?
- Are ramps too steep, or too slippery?

Lighting

- Is there insufficient lighting in passageways and at flooring transitions, ramps or stairs?
- Does the lighting throw distracting shadows or produce excessive glare?

Outdoor areas

- Is there a build up of moss or other vegetation on pathways?
- Are there any surface transitions not easily noticed (any ridge that is as high as a footwear sole or higher)?
- Are there potholes in footpaths or walkways?

Housekeeping

- Is there a build up of polish on floors?
- Is there an excessive residue of detergent?
- Do workers have to walk on floors wet from washing?
- Are wet floor signs not available or not used correctly?

- Do you need to provide information/training/advice to contractors regarding cleaning procedures?
- Is any paper, rubbish, dirt, spills etc. left on the floor?
- Are aisles poorly marked and cluttered?
- Are any anti-slip paint, coating profiles or tapes worn smooth or damaged?
- Are there any trip hazards due to equipment and other movable objects left lying on the ground?
- Do spills (wet or dry) occur regularly during work processes?

Tasks

- Do workers have to walk or work on greasy, oily or wet floors that are not adequately slip resistant?
- Do loads that are carried or pushed interfere with forward vision?
- Are the loads to be carried excessive, or likely to upset a person's balance?
- Do heavy trolleys have to be pushed up ramps?
- Are workers hurried due to time constraints?

Footwear

- Do the workers' safety shoes lack grip?
- Are the tread patterns on safety footwear too worn?
- Are the tread patterns clogged with dirt?

References

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