
Workplace Health and Safety Queensland

Compliance audit report: Materials handling equipment

**Queensland
November 2007 – June 2008**

Introduction

An audit of material handling equipment was conducted across Queensland from November 2007 to June 2008. The audit provided safety performance information on a number of risk factors associated with the use of this equipment.

What is materials handling equipment?

Materials handling equipment is used to move a load and is found in a variety of workplaces. Materials handling equipment can range in size and design from the humble office trolley to a 1000 tonne mobile crane. Equipment types targeted in this audit were counterbalanced forklifts and hand operated equipment (pallet jacks, hand trolleys, etc.).

Why have an audit?

Anecdotal information from inspectors indicate there has been a number of serious injuries from workers being hit by forklifts. An analysis of workers' compensation data (2002–2006) across all industries examining materials handling equipment (forklift trucks, trolleys and handcarts) identified that the top three mechanisms of injury are:

- muscular stress while handling objects other than lifting, carrying or putting down (20 per cent of all injuries)
- being hit by moving objects (7 per cent of all injuries)
- falls on the same level (6 per cent of all injuries).

When only fatality data (2002–2006) across all industries for materials handling equipment (forklift trucks, trolleys and handcarts) was examined, the three mechanisms of injury are:

1. falls from height
2. being hit by moving objects, and
3. being trapped between stationary and moving objects.

The broad objective of the audit was to improve health and safety outcomes for workers who come into contact with forklifts. A secondary objective was to ascertain the safety performance of industry when using forklifts.

A number of fatalities have occurred in Victoria involving forklifts overturning and trapping the driver under the forklift. Worksafe Victoria introduced a requirement for seat belts to be worn while operating a forklift. However, Queensland injury statistics (2002–2006) do not identify overturning as a causal factor in fatal incidents. Therefore, the audit was to investigate the extent of risk factors at workplaces that related to the overturning of a forklift. The audit was to also ascertain if there are common significant causal factors for muscular stress injuries.

What was audited?

The audit consisted of two parts:

- i) firstly the traditional compliance audit of forklift maintenance and use; and
- ii) a new component of inspectors rating the workplace from one to five on their minimisation of risks associated with forklift use.

Specific rating benchmarks were developed for each risk factor using the following principles:

- rating one indicates poor performance at minimising risk factors
- rating three indicates the workplace was minimising a majority of risk factors
- rating five indicates current industry best practice.

Inspectors could take enforcement action on any risks identified during the audit process.

The following risk factors were audited in the workplace survey:

- operator competency (operators placing others at risk by excessive speed, colliding with stationary objects, erratic operation, etc.)
- operator protection (secure seats, falling object protection, seat belts, etc.)
- carrying loads (exceeding lifting capacity, placing pallets in racks and on trucks, use of attachments)
- operating surfaces (pavement condition, gradients, etc.)
- traffic management (forklift interaction with other vehicles and pedestrians)
- maintenance (mechanical faults that cause risks to operators and others).

How was the audit conducted?

Workplace audit:

Regional and district offices selected workplaces at random for audit. Audit tools were developed to provide resources for the audit process. These tools highlighted the sections of the *Code of Practice for Plant 2004* and parts of Australian Standard 2359 (Industrial trucks) for design limitations of forklifts and their operational environment.

Workplace survey:

The survey by inspectors was conducted on a sample of 847 of the 3100 workplaces audited. Inspectors were asked to rate the workplace from one to five and provide a reason for this rating. As the performance survey was essentially a trial of this type of audit and a subsequent learning experience for the inspectors, the workplaces were not advised of the performance survey being conducted. The workplace was given feedback on the specific compliance issues assessed.

Audit results

Workplace audit:

Inspectors visited 3100 workplaces and conducted audits of forklifts and a minor amount of other equipment such as pallet jacks and self propelled pallet jacks. Figure one indicates the percentage of workplaces visited for each industry sector. Retail and wholesale and manufacturing industry sectors represented approximately 75 per cent of audits conducted.

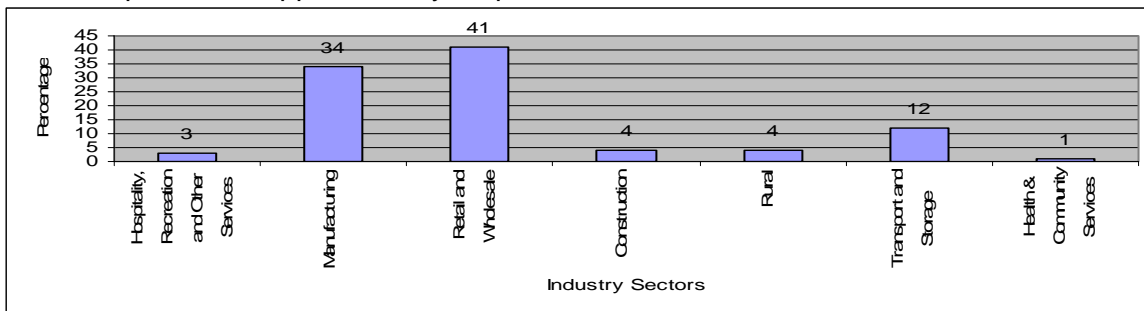


Figure 1 Industry sectors

Figure 2 details the number of notices for the specific risk factors. A total of 2103 notices were issued. The majority of the notices issued for maintenance were for mechanical defects that could be quickly rectified by a competent person. Eighty notices were issued for forklift operators not having a licence or a trainee not having a training log book. A previous audit of the transport and storage industry had identified pallet racking as a significant issue and in this audit 44 notices were written about pallet racking.

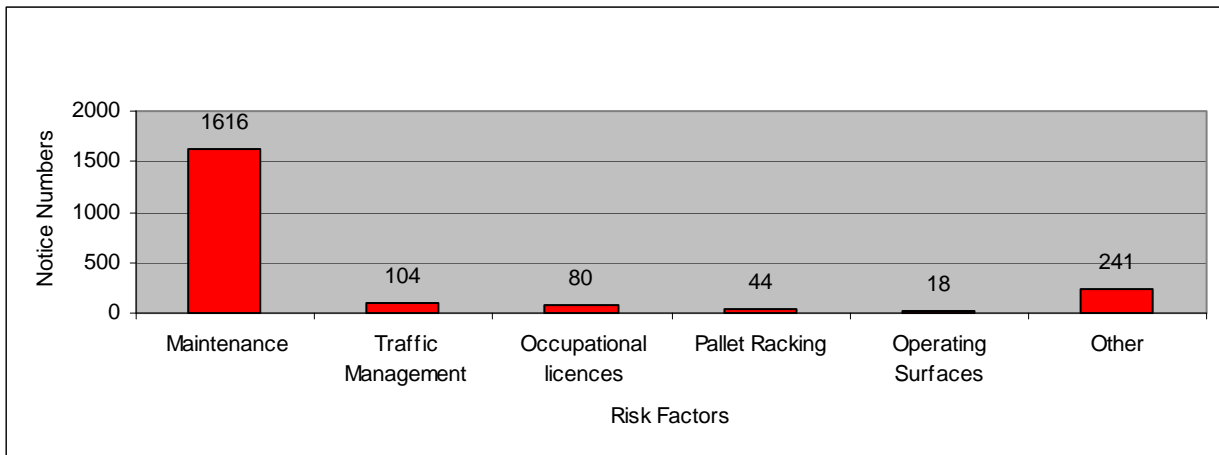


Figure 2 Risk factors

Workplace survey:

Inspectors were given an opportunity to decide on an appropriate rating for workplace safety performance using observations made during the audit. These ratings provided a basis to establish industry wide performance from the perspective of the auditing inspectors. Figure 3 indicates that inspectors considered that the majority of workplaces used forklifts and other materials handling equipment in a safe way with the number of higher safety performers being greater than the lower performers.

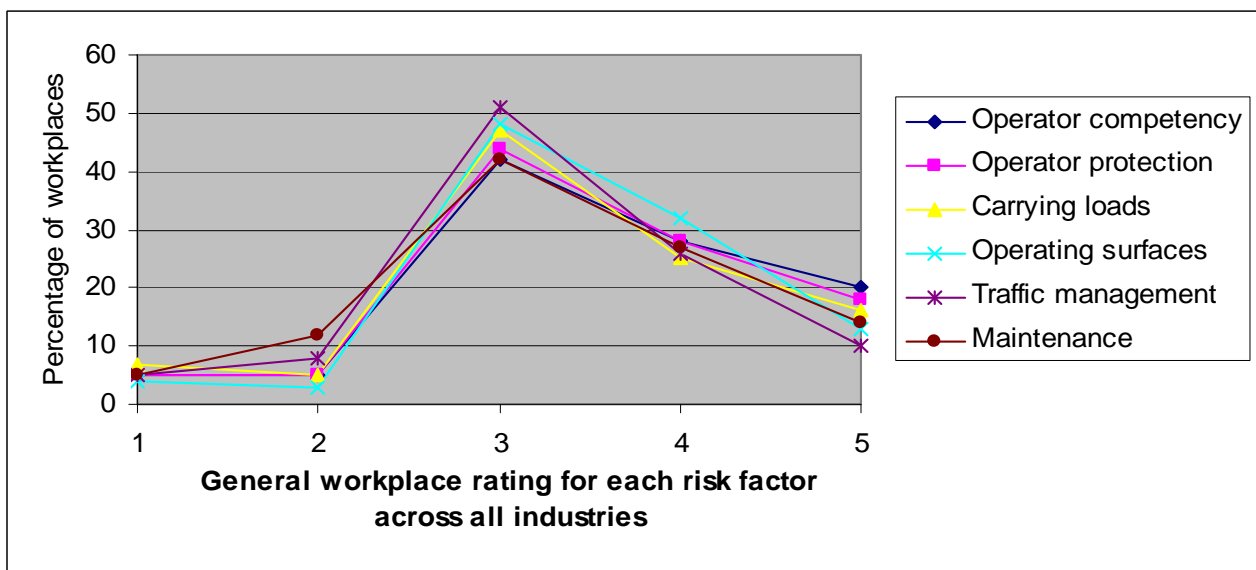


Figure 3 General workplace rating for each risk factor across all industries

Industry sector performance:

Figures 4 to 6 show workplace survey results for the three industry sectors that accounted for approximately 75 per cent of workplaces audited.

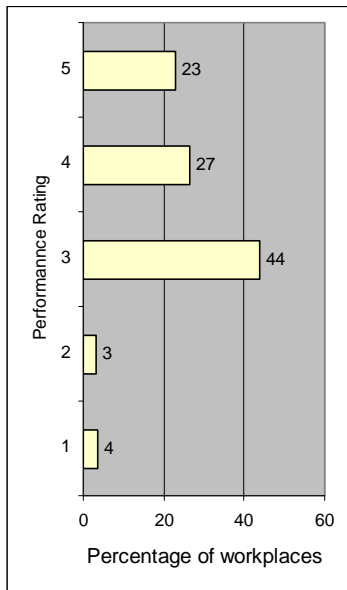


Figure 4 Workplace survey (Retail and wholesale)

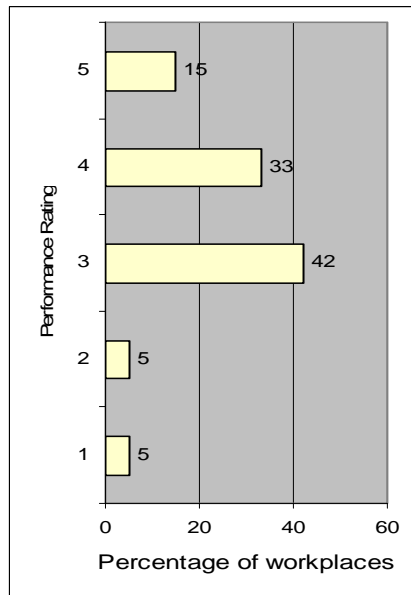


Figure 5 Workplace survey (Manufacturing)

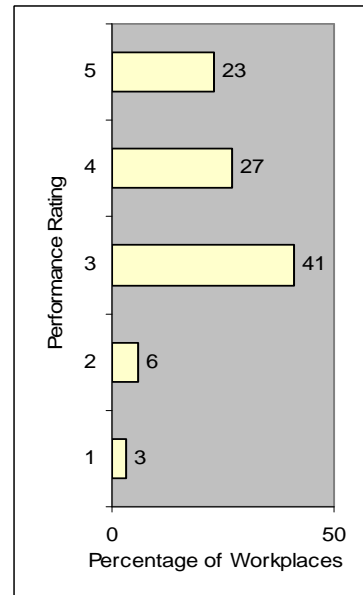


Figure 6 Workplace survey (Transport and storage)

Discussion

The workplace survey was an initiative to provide alternate audit results to the traditional counting of notices. Figures 4 to 6 indicate that the major industry sectors using the types of materials handling equipment subject to the audit were, at the time of the audit, performing at acceptable levels of risk minimisation with some workplaces achieving industry best practice.

The identification of significant causal factors relating to “muscular stress while handling objects other than lifting, carrying or putting down” was an objective of the audit. However, inspectors did not find a significant number of non-conformances and inspectors did not report significant causal factors in the survey.

Risks related to operator competency, operator protection, carrying loads and operating surfaces are significant causal factors for potential injuries to forklift operators while the forklift is moving. Moving forklifts have the potential to expose operators to the risk of crush injuries from overturning. The inspector survey and the analysis of the notices indicated industry performance at a satisfactory or higher rating. However, a significant number of notices were issued for operators not having licences. The audit findings do not support mandating the wearing of seat belts although wearing of seatbelts when fitted is recommended.

An analysis of inspector’s traffic control ratings are summarised below:

- pedestrian access not controlled (31 per cent)
- improvement required (7 per cent)
- workers aware of traffic management (30 per cent).

Inspectors considered that the control of forklift and pedestrian interaction in a shared workspace should be improved to minimise the potential risk of injury to pedestrians.

Inspector’s reasons for maintenance ratings were:

- no maintenance program (14 per cent)
- defects observed (7 per cent)
- inadequate in house servicing (15 per cent)
- limited regular maintenance (26 per cent).

Defective mechanical forklift components (brakes, steering, warning devices, worn tyres, etc.) increase the potential risk of injury to pedestrians and operators from not being able to control the movement of a forklift or warn of its approach.

Where to from here?

The following issues should be considered to minimise risks from forklift operation.

1. Workplaces should adopt the highest level control within the hierarchy of controls set out in section 27A(2) of the *Workplace Health and Safety Act 1995* (elimination, substitution, isolation, engineering, administration and use of personal protective equipment) to manage exposure to risks. The introduction of traffic control systems that physically separate workers from machines can be an effective means of managing risks if there is adequate monitoring to ensure that systems are being maintained (barriers or signs are still effective/visible) and rules are being complied with by operators and pedestrians. Some specific rules that can assist in minimising the risk are:
 - limiting forklift speed to walking pace
 - ensuring pedestrians maintain a distance of greater than three metres from forklifts – with appropriate marking and training to ensure this is well understood within the workplace, and
 - developing systems of work for forklift operators to identify the position of pedestrians before moving.
2. Australian Standard AS 2359.2 *SAA Industrial truck Code Part 2 Operation*, provides further guidance for forklift operation in the following areas:
 - rules for operators
 - operating procedures for an individual forklift
 - procedures covering site conditions, and
 - maintenance, repair and modification.
3. Forklifts should be maintained to design specifications of the manufacturer and Australian Standard AS 2359 *SAA Industrial truck Code* to minimise the risk of injury to workers and others.

For more information

Further information regarding traffic management and forklifts is available at

www.worksafe.qld.gov.au:

- *Guidelines for working around trucks-loading and unloading (2008)*

Additional information can be obtained from the following Worksafe Victoria publications at

www.worksafe.vic.gov.au:

- *A Guidebook of Industrial Traffic management and Forklift Safety (2003)*
- *Forklift Safety Reducing the Risk (2006)*

As with any research, these findings represent only what was found at the time the workplace visits occurred and are only relevant to the industries visited.

For further information visit www.worksafe.qld.gov.au or call 1300 369 915.

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November 2007 – June 2008. Version 1. Last updated 18 February 2009.