

**OCCUPATIONAL HEALTH AND SAFETY  
MANAGEMENT SYSTEMS AND TRAINING  
IN THE FOREST PRODUCTS INDUSTRY**

**LEE MAXWELL**

**1996 GOTTSTEIN FELLOWSHIP REPORT**

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## JOSEPH WILLIAM GOTTSTEIN MEMORIAL TRUST FUND

The Joseph William Gottstein Memorial Trust Fund was established in 1971 as a national educational Trust for the benefit of Australia's forest products industries. The purpose of the fund is *"to create opportunities for selected persons to acquire knowledge which will promote the interests of Australian industries which use forest products for the production of sawn timber, plywood, composite wood, pulp and paper and similar derived products."*

Bill Gottstein was an outstanding forest products research scientist working with the Division of Forest Products of the Commonwealth Scientific Industrial Research Organization (CSIRO) when tragically he was killed in 1971 photographing a tree-felling operation in New Guinea. He was held in such high esteem by the industry that he had assisted for many years that substantial financial support to establish an Educational Trust Fund to perpetuate his name was promptly forthcoming.

The Trust's major forms of activity are,

1. Fellowships - each year applications are invited from eligible candidates to submit a study programme in an area considered to be of benefit to the Australian forestry and forest industries. Study tours undertaken by Fellows have usually been to overseas countries but several have been within Australia. Fellows are obliged to submit reports on completion of their programme. These are then distributed to industry if appropriate.
2. Seminars - the information gained by Fellows is often best disseminated by seminars as well as through the written reports.
3. Wood Science Courses - at approximately two yearly intervals the Trust organises a week-long intensive course in wood science for executives and consultants in the Australian forest industries.
4. Study Tours - industry group study tours are arranged periodically and have been well supported.

Further information may be obtained by writing to,

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At the time of taking up his Fellowship **Lee Maxwell** was the training, safety and continuous improvement co-ordinator with Sterlands Pty Ltd of Gosford, NSW.

He was responsible for establishing occupational health and safety policies and procedures, and various training activities for 200 employees at two manufacturing sites.

The purpose of his Fellowship was to develop a clear understanding of realistic benchmarks that have proven to be instrumental in supporting successful OH&S programs.

On his tour he studied state-of-the-art training in the forest products industries with particular emphasis on the frame and truss sector.

Lee travelled extensively in the USA visiting a diverse range of establishments. He also examined relevant programs within the Australian industry, as well as making a brief visit to New Zealand.



***Occupational Health & Safety Management Systems  
and Training in the Forest Products Industry***

a

1996 Gottstein Fellowship Report

by

Lee Maxwell

November, 1996

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## Acknowledgements

I wish to thank the Joseph William Gottstein Memorial Trust Fund for awarding me this Fellowship and making this benchmarking tour and this report possible.

I would like to thank Sterlands Pty. Ltd. for allowing me the time away from my job to undertake this project, with special thanks to John Simon and Roy Edwards for their encouragement to apply for the Fellowship and support to see it through.

I would like to thank the following sources which/who helped me in preparing for and identifying contacts for this project:

- "Guidelines for Benchmarking Occupational Health and Safety", New Horizons Consultancy
- Best Practice Benchmarking Self Help Manual
- National Safety Council (of America)
- Jim Thompson, General Manager, NSW Forest Industries Training Board Ltd.
- Denise Clayton, Occupational Health & Safety Co-ordinator, Victorian Association of Forest Industries
- Peter Hutchinson, Gang-Nail Australia Ltd.

And lastly, I wish to thank all those listed in Appendix A who gave freely of their time to answer my questions, show me their systems and allow me to see (and photograph) their operations. There were many people who hosted my project, so I apologise to anyone from the companies surveyed in this report whose name is left out of this list.

Thank you to everyone.

Occupational Health & Safety Management Systems and Training  
in the Forest Products Industry

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## Executive Summary

Last year, in NSW forest products industries, there were 8,107 weeks lost due to work related accidents at a gross incurred cost of \$17.5 million. This statistic only reflects accidents incurring 5 days or more lost time. In addition, the recognised ratio of indirect to direct costs varies between 1:3 and 1:7. Collectively the cost of workplace injuries throughout Australia is astronomical.

This benchmarking project has attempted to compare safety performance statistics and identify systems and programs used to reduce injuries, accidents and workers compensation costs. It has also endeavoured to identify successful training programs used in the development of employees, both in the safety arena and in the employee's career path.

The most common factor with all companies surveyed was their management's involvement in safety programs. Site and Operations Managers present safety training on a regular basis, Production Managers and department heads conduct safety inspections with occupational health & safety committees and chief executives open safety training videos.

Team meetings are common to all companies, providing a venue for cross communication, with safety usually featuring first on meeting agendas.

Refresher safety training occurs in most enterprises, which keeps safety in the forefront of everyone's mind and reinforces employees' and managers' legal and moral responsibilities.

There is a wide variety of motivational techniques but most focus on providing some form of reward / recognition to employees for achieving a set safety goal. Where past achievements have resulted in very good statistics, targets are set to reduce performance by half, for example. Some companies include safety performance as an integral part of their managers' yearly performance review.

Companies with similar types of manual handling risks (for example, frame & truss manufacturing) have, on average, a lost time accident frequency rate of 24 (per million man hours worked). This may serve as a benchmark for other companies with similar risks.

Various manual handling risks are identified in this report and some engineering control measures also feature which may be useful to enterprises in the same industry.

Rehabilitation plays an important role in reducing workers compensation costs. Most companies surveyed had senior managers taking an active role in a worker's rehabilitation program. There was a difference of opinion whether companies should provide light duties to workers who injure themselves outside the workplace.

Companies had varying degrees of safety training and documented employee development and career path programs. Some of the US companies required a 90 day probationary period for new employees, providing the extensive induction (and sometimes the medical) after 30 days.

The larger companies had well established and documented career path structures, with some providing a university approach to their safety and career opportunities.

Australia appears to be leading the way with their nationally recognised competency standards, though most companies are slow to implement published assessment procedures.

The author trusts this report will prove useful to members of the Forest Products Industry in their efforts to reduce workplace injuries and provide a more structured approach to employee career development.

## 1 - Introduction

Occupational health and safety (OH&S) is a life and death struggle in industry. <sup>4</sup> The cost of industrial accidents and diseases is becoming astronomical. Last year the cost of accidents in Australia exceeded \$10 billion and the working days lost far exceeded those lost through industrial disputes. <sup>4</sup> These costs are borne by every Australian worker to the tune of an estimated \$1200 per year. <sup>1</sup>

Many organisations have recognised the enormity of the situation and have invested heavily in improving their OH&S performance through a planned OH&S policy, a policy that clearly demonstrates the organisation's intent, commitment, responsibilities, accountabilities and minimum standards towards safety. Hammer <sup>5</sup> states that "many corporate managers continue to believe that careless workers are really to blame for accidents." The untrained person might agree, however through careful analysis and documented investigations it is increasingly apparent that the root causes of most occupational accidents are deficiencies in the OH&S Management System. <sup>6</sup>

So a key objective of this benchmarking project was to identify what companies with successful oh&s systems \* are doing to produce low accident frequency rates and low workers compensation costs.

Another objective of the project was to identify training programs used in the development of staff, both in the safety arena and in the employee's career path.

The author presents this report to members of the Australian Forest Products Industry in the hope that the information and ideas may be used to help reduce accidents and injuries and present ideas for employee training and career development.

The following companies agreed to be surveyed for this occupational health & safety and training project:

\* recognised by the National Safety Council (of America) & Victorian Association of Forest Industries

### Australia

- Australian Newsprint Mills Ltd., Albury, NSW
- Brown & Dureau Building Materials, Morwell, Victoria
- Carter Holt Harvey Wood Products Mill, Myrtleford, Victoria
- CSR Timber Products, Chatswood, NSW

### New Zealand

- Carter Holt Harvey Taupo Saw Mill, Taupo, New Zealand
- Fletcher Wood Panels, Auckland, New Zealand

### USA

- Gang-Nail Truss Co. of Visalia, Visalia, California
- Imperial Components, Inc., St. Charles, Illinois
- International Paper Co., Memphis, Tennessee
- Johnson & Johnson, New Brunswick, New Jersey
- NVR Building Products Co., Thurmont, Maryland
- Riverwood International Corp., Wood Products Division, Huttig, Arkansas
- Stark Truss Company, Inc., Canton, Ohio
- Thomasville Furniture Industries, Inc., Thomasville, North Carolina
- Weyerhaeuser, Tacoma, Washington
- Wood Structures, Inc., Biddeford, Maine

Following are some of the more creative programs and systems currently in use. The author has consciously not passed judgement on the appropriateness of any of the reported systems, but presents them as ideas only, for your consideration.

## 2 - Background Statistics

Prior to presenting the findings of this benchmarking project, it is important to understand the overall costs to industry and to the community for workplace injuries. The author has therefore extracted the most recent figures from the New South Wales Workers Compensation Statistical Bulletin, 1994/95. <sup>1</sup>

In 1994/95 (year ending June 30), \$838 million was the gross incurred cost of employment injuries in NSW. (Gross incurred cost is defined as "the sum of payment plus an estimate of future liability if the claim is still open at the end of 1994/95".) This was the result of 62,840 injuries (of 5 days lost or more) of which 42,505 were workplace injuries and 16,811 were occupational diseases. This represents an increase of 7% over 1993/94 figures. The incidence of employment injuries was 28.6 per 1,000 workers, a 1% increase over the previous year. Seventy workplace fatalities were reported to insurers last year.

In the forestry and logging sector, there were 3 fatalities and 164 permanent or temporary disability cases (could not determine incident rate as "relative standard error exceeds 25"). In the wood and furniture manufacturing sector there were no fatalities but 240 permanent disability cases, 682 temporary disability cases of less than 6 months and 91 temporary disability cases of 6 months or longer with an incidence rate of 37.5 / 1,000 workers (compared to 19.3 across all industries).

Although not the highest in the state (storage was 81.6 / 1,000 workers), the high gross incurred costs were significant enough to warrant active programs and systems to reduce these results.

In forestry and logging, there were 633 weeks lost at an average of 5.7 weeks per case and a median of 2.4 weeks (half the cases were more than 2.4 weeks, half were less than 2.4 weeks). The gross incurred cost was \$5,151,000 where the average was \$31,410 per case and the median was \$3,304.

In the wood and furniture manufacturing sector, there were 7,474 weeks lost to temporary disability cases, at an average of 9.7 weeks and a median of 2.7 weeks. The gross

incurred cost totalled \$12,387,000, the average being \$12,228 and the median being \$2,897.

Other statistics, such as males vs. females, incidence by occupation, age comparisons, duration rate of cases, injury types, etc. can be found in the WorkCover publication "New South Wales Workers Compensation Statistical Bulletin, 1994/95".

See Appendix B for chart on additional statistics

Of the 19.3 incidents / 1,000 workers, 7.5 of these are a result of body stressing or manual handling.

Although WorkCover Authority records only lost time injuries which incur a temporary disability of 5 days or more, the commonly recognised standard is one full shift lost (1 day). It therefore stands to reason that a measurement against this statistical standard would be significantly greater, in all categories, than those reflected in the WorkCover Statistical Bulletin. All the more reason to upgrade and action existing safety management systems.

It should also be recognised that significant indirect costs are incurred by companies for work place injuries; costs such as treatment time, loss in productivity (e.g. stopping to see what is going on, clean up after an accident, reporting the accident, investigation of the accident, loss of skills, retraining, etc.). The recognised ratio of indirect to direct costs varies between 1:3 and 1:7 (and sometimes higher). Using any similar ratio, it is clear to see the total cost of workplace injuries is enormous.

### 3 - Measurement & Control Systems

#### Measurement of safety performance

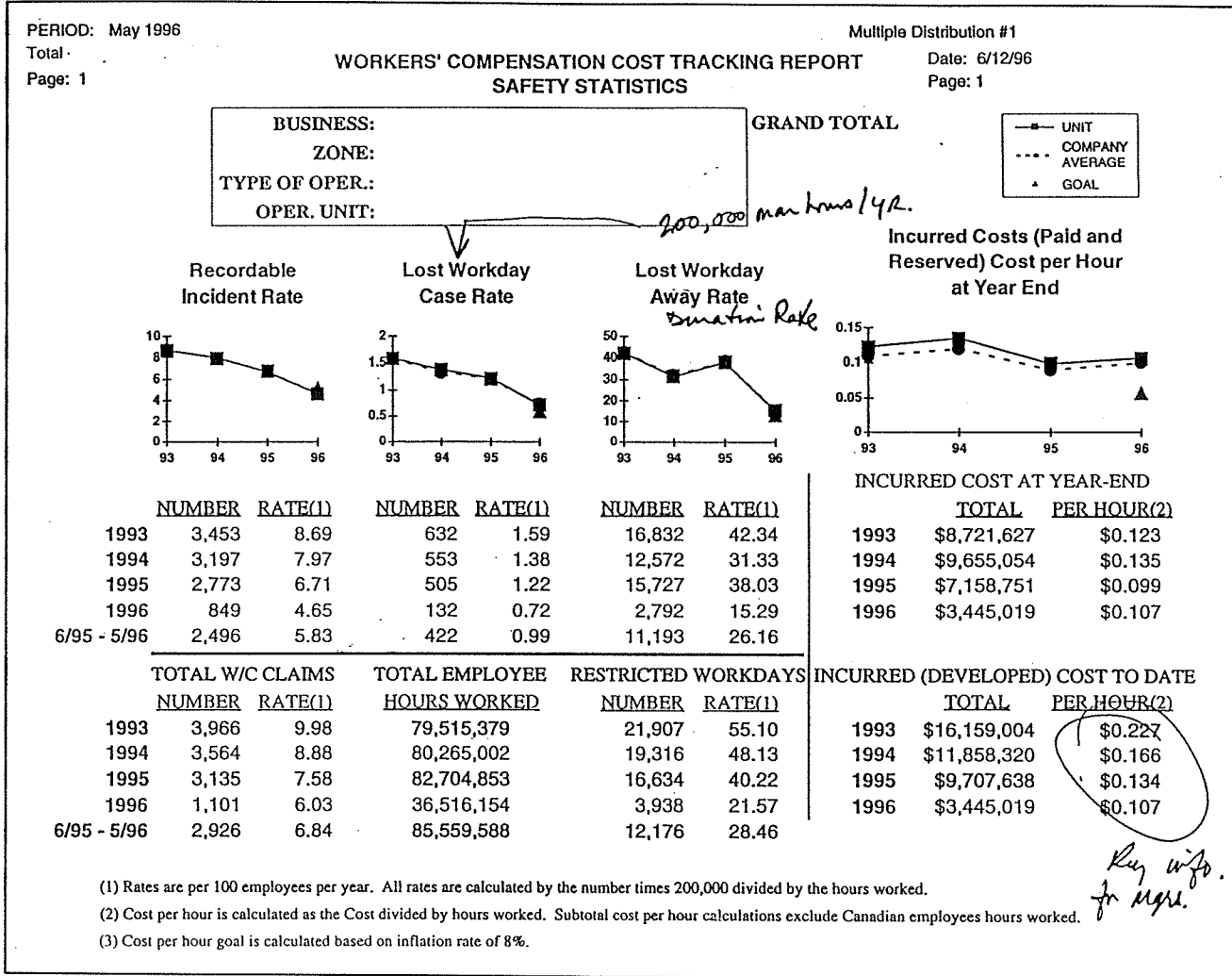
The recognised criteria for measuring safety performance in Australia is Lost Time Accident (Incident) Frequency Rate (number of lost time accidents per million man hours worked) calculated by multiplying the total number of LTA's (of 1 full shift day duration or more) times 1 million, divided by the total number of man hours worked in the same measured time period.

Another measurement common to Australian industry is the Severity Rate, defined as the number of days lost per million man hours worked and is calculated by multiplying the number of days lost by 1 million and dividing by total hours worked (of all workers, including overtime). The severity rate is a measure of the impact on the operations and costs of safety performance. As well as reflecting the number of injuries (safety performance) it is a measure of the effectiveness of rehabilitation and the ability to get people to return to work. The severity rate is sometimes referred to as the Safety Performance Indicator (Duration Rate x LTFR) <sup>2</sup>

A third measurement is the Duration Rate which reflects the number of days lost per lost time injury, and is calculated by dividing the number of days lost by the number of lost time injuries (or dividing the severity rate by the lost time frequency rate). <sup>2</sup> It is generally felt this statistic indicates how serious the injuries are.

The two companies visited in New Zealand also measured their performance by LTAFR. US companies are required to keep a register of injuries and submit results, monthly, to OSHA (Occupational Safety & Health Administration). This is done on the OSHA 200 Log, which reflects injuries (or illnesses) requiring lost time (days away from work) or days on restricted work activities. (see appendix C). Their statistics are measured against 200,000 man hours (vs. our 1 million), as this is approximately the number of hours worked in one year by an average size company of 100 employees. To relate their performance, it was necessary to multiply their reported results by 5 to compare against a similar time frame.

Most US companies were more interested in measuring compensation costs against number of employees (e.g. compensation cost per man hour) (see safety statistics report, below) or workman's compensation cost per employee.



One objective of the benchmarking project was to determine a realistic (best practice) target for forest industry products companies with similar manual handling risks. The truss and frame companies visited provided the following LTAFR:

- Wall Truss (CHH) 27
- Gang Nail of Visalia 20
- Imperial Components 29
- Stark Truss 6.3
- Wood Structures 30.5
- NVR 30



### Communicating Results

It is not sufficient to measure and track safety statistics without disseminating the results to the people most concerned. What good are statistics if they are not used for the betterment or improvement of performance? So the author asked the question of all companies, "how & to whom do you communicate your results?". Also, "how do you disseminate and discuss safety issues?"

Some of the larger companies (Weyerhaeuser, CSR, ANM, etc.) have safety newsletters which feature statistical results and address safety issues. ANM publishes such a newsletter weekly. Some companies post statistics, either in the form of graphs or even the OSHA 200 Log (see Appendix C), on bulletin boards for all staff to see. Wood Structures issues safety notes periodically with pay slips and Gang Nail of Visalia stops production for a monthly plant safety meeting, often featuring the chief executive officer of the company.

All companies hold periodic team (shift) meetings where safety usually features first on the agenda. Other issues of concern are discussed as well. This is generally recognised as a venue for cross communication; to allow employees to voice their concerns and ask questions of management, and for management to inform employees of business issues, safety concerns, work procedures, etc.

When International Paper creates their management objectives, safety always features first, followed by management and quality. Riverwood International requires its supervisors to meet weekly (for approx. 1/2 hr ) to discuss safety issues on their mill site. Weyerhaeuser plans to publish a safety news letter page on the Internet soon.

### Performance Statistics

Safety performance varied considerably across all the companies surveyed. The largest company (Johnson & Johnson [healthcare] with 87,000 employees in 125 countries) had a LTAFR of 1.5 while the smaller, more manually intensive companies averaged around 24.

	<u>LTAFR</u>	
• ANM (340 employees)	7.5	
• CHH Myrtleford (405)	10	(Wall Truss 27)
• Brown & Dureau Bldg Products (180)	2.76	
• CSR Timber Products (4,100)	10	
• CHH Taupo (240)	6	
• Fletcher Wood Panels (490)	24	
• Gang Nail of Visalia (198)	20 *	
• Weyerhaeuser (40,000)	5	
• Imperial Components (120)	29 *	
• Stark Truss (632)	6.3 *	
• Wood Structures (125)	30.5	
• Johnson & Johnson (87,000)	1.5	
• NVR Building Products (350)	30	
• Thomasville Furniture (6,500)	5.4	
• International Paper (75,000)	2.2	
• Riverwood International (180)	14.4	

\* based on an estimate of man hours worked

Performance improvement targets were generally set according to prior performance. For example, where a company had already achieved low frequency rates (below 5), an objective of reducing prior year's result by 1/2 may be set for the enterprise or site. Where accident frequency rates are very low, other targets might be set for the enterprise, e.g. reduce the severity rate, or reduce the number of doctor's treatment cases. This would reflect a truer picture of how a site was managing their accident rates through safety management systems. Some site managers are required (performance review) to maintain their site's safety performance in the top quartile of their industry.

#### What systems / programs are in place to produce results?

Some companies within Australia have adopted the NSCA's (National Safety Council of Australia) 5 Star Safety Program (ANM, Brown & Dureau). CSR Timber Products chose to invest in the NSCA's SBi (Safe Behaviour Involvement) program with varying degrees of success. Some Victorian companies (CHH Myrtleford, Brown & Dureau) have or intend

to adopted the Safety MAP (Management Achievement Program) created by Health & Safety Organisation, Victoria (see Appendix D, Safety Map diagnostic chart).

CHH Myrtleford Safety MAP team (representatives from each of the major sections on site) meet weekly to set the program in place, facilitated by their Quality & Safety Systems Supervisor, Martin Peet.

CSR has developed its own Safety Health & Environment Management System which includes 12 compliance standards, such as commitment & policy, improvement plans, responsibility, hazard identification & control, training, audit & measurement, etc. They have also recently created a safety professional network between all of its Timber Products subsidiaries. In addition to quarterly workshops, the network communicates monthly by teleconference to work toward common goals. Where one site has a well developed contractor induction program, other sites can utilise and customise the same one, saving them time and effort. (Why re-invent the wheel?)

All enterprises visited had an active Safety Committee, most with more than one senior manager on the committee. The advantage of this is for on the spot approval (authorisation) of recommended changes to policies or procedures.

Some of the larger companies (e.g. Weyerhaeuser, J&J, ANM) have well developed training systems, with computer assisted training packages, for important training such as Lockout Tagout, chemical handling, confined spaces, hot work, fire extinguishers, etc.. Others involve supervisors and managers (as well as shop floor trainers) in the safety training.

It is not unusual for companies to include safety performance as a part of a manager's performance review. The author was told that at BHP, safety constitutes 25% of a manager's performance review (as it is at Riverwood International), while prospective site managers at DuPont are required to spend 2 years as a safety officer before being promoted to Site Manager. Managers at International Paper miss out on earning bonus if their (site's) safety performance is down and at J&J and CSR, safety is included in management's job descriptions and goals.

CHH Taupo's success is based on their management's high visibility to safety. Stewart Collins, the Site Manger, conducts a 4 hour safety refresher course for plant employees every 5 weeks, taking turns with other managers/supervisors in presenting the training. He confesses to enjoy presenting the training, with an added bonus that it gives him an opportunity to meet with his employees, in a quiet environment, to talk safety and hear from them regarding shop floor issues.



Weyerhaeuser has a program which focuses on improving employees' physical condition as a means to reduce accidents (see Appendix E, Wellness Program).

Some companies utilise their equipment suppliers to help with safety training of specific equipment. For example, Imperial Components employees are trained in safe nail gun usage by the suppliers of the nail guns and fire extinguisher training by the local fire department while at Wood Structures, drivers are trained in the hazards of high powered electricity by the local electricity supplier. This may or not be at a cost to the enterprise, however it is a means of keeping abreast of the very latest in safety training. Such organisations could also be approached to assist in the development of in house training programs.

Wood Structures also utilise a temporary employment agency for their new employees. This agency conducts preliminary safety training (via a safety video) and all new employees remain in labourer only positions until completion of their 90 day probation. At this time, a medical examination is conducted as well as a formal safety induction. Stark Trusses offers full time employment and conducts intensive safety induction training after 30 days probation.

Drug and alcohol testing for pre-employment is common amongst US companies and, where state laws permit, post accident testing is carried out routinely. Stark Truss, having sites in various states, has to comply with Florida law, for example, which states if the post accident test proves positive, the worker receives no compensation (but may retain his job) and Ohio law where the employer must prove it was drug related. Where substantiated by a medical report, the employee would be terminated. Stark Truss conducts 4 random breath tests on employees per year, chosen by computer, and in accordance with the Department of Transport regulations, 50% of their drivers are tested for drugs and 25% are tested for alcohol each year. A person may also be tested if there is "reasonable suspicion". The worker is first counselled on the spot and then driven to a local centre for testing. Also, under the DOT regulations, if a worker admits they have a drug problem, they must pay for the rehabilitation program themselves, and may be tested at anytime thereafter. At the introduction of these regulations (2 years ago), people were terminated or resigned. Today, most offenders have been weeded out.

At Wood Structures, their employee candidates are given a back and grip strength test, but they caution that under the American Distribution Act, employment cannot be denied on the basis of medical condition.

Thomasville Furniture and International Paper have ergonomic teams at their plants to address the injuries they are experiencing from RSI (a.k.a. OOS - Occupational Overuse Syndrome and CTD - Cumulative Trauma Disorder). This worked well with back injuries at Thomasville and now they are focusing on ergonomics.

Thomasville has an OFI form (Opportunity For Improvement) which is used to identify safety hazards and a S.A.F.E. Card (Safety Action From Employees) which allows

employees an opportunity to identify where safe working conditions can be improved in their area. Under the DuPont STOP program (Safety Training Observation Program) they also utilise an observation checklist and observation report for unsafe acts by workers.

International Paper has developed a full safety curriculum under the banner of their own Environment Health & Safety University, created and presented by their corporate safety department. Broad subjects offered include Fundamentals of Safety Management, Human Elements of Safety, Ergonomics and Miscellaneous Safety, each having 5 - 8 modules of 2 - 6 hours each. See Appendix F for a matrix of required courses for various safety responsible positions. These are presented in modular form and employees may attend the travelling "University" at scheduled times and geographical locations, as planned by the corporate safety team. There is standing room only at the week long sessions.

IP also has a hefty incentive to make their managers manage their injured workers; a \$10,000 fine (to the site) if the injured employee does not return to work within 14 days.

Riverwood International requires their supervisors to talk to at least one employee per day on a safety related issue. This is tracked by their completion of a "one-to-one" report reflecting who they spoke to and what the topic of conversation was. It may have been a positive reinforcement for doing something safely or a negative comment for an unsafe behaviour. This then forms part of the supervisor's performance review at the end of the year.

#### What systems were in place before?

At NVR, the supervisors used to expect the safety co-ordinator to look after safety. Through training, the supervisors and managers gradually assumed responsibilities towards safety in their own sections. This then made it easier to get workers released from their section to attend meetings, inspections, accident investigations, etc.. At International Paper, 8 years ago, they promoted a policy that safety is a line manager's responsibility. Their induction videos and safety videos are opened by the Chairman of the Board of IP.

At Imperial Components, there was no accountability. For example, the maintenance department repaired the saws but didn't replace the saw guards.

Some companies recognise that human behaviours contribute to a large portion of accidents, and not just unsafe conditions. Riverwood International focuses on behaviours rather than conditions when identifying risks in the workplace. CSR has adopted the NSCA's safety program called Safe Behaviour Involvement, which focuses on behaviours rather than conditions.

## What Is SBI?

The aim of SBI is to improve safety performance by increasing the use of standard practices, thereby reducing the frequency accidents occur in the workplace.

Standard practices are actions or procedures which reduce the risk of an accident. But more on that later.

Increasing the use of standard practices is only one part of a total safety/risk management programme, which everyone in the company can act on. Indeed, what makes SBI successful is that it gets everyone involved in safety - across all levels of the organisation, even visitors, contractors and customers!

In the SBI process, everyone takes part in identifying problems, assessing these problems, identifying, evaluating solutions and conducting safety sampling.

It is very important to realise SBI is a positive approach. It does not seek to blame or reprimand individuals. There are often valid reasons why standard practices are not used. SBI helps us to understand these reasons and overcome them.

Remember, safety is everyone's responsibility, so everyone needs to be involved in SBI.

## How Does It Work?

In a nutshell, SBI has four key stages.

### 1. Problem Identification

Before you solve any problem, you first have to know what it is. In the problem identification stage of SBI, risks in the workplace are identified, and standard practices to reduce these risks are defined and prioritised.

### 2. Risk Assessment

The second step is called risk assessment. In this stage, the reasons why risks are still taken, by not using agreed standard practices, are analysed. The frequency with which standard practices are used is measured by you and your colleagues in an on-going, continuous improvement process.

### 3. Risk Control

In this stage practical solutions are identified and implemented. All risk control options other than behavioural changes, such as engineering redesign and administrative changes, are examined first. Standard behaviours and practices are always the last, but often necessary, risk control options.

### 4. Evaluation

The SBI process is evaluated to make sure it is producing the required results of minimal risk taking, and reduced accidents.

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IP's Safety University curriculum focuses on Human Elements of Safety (see curriculum Appendix G).

### What has been done to change behaviour?

Management's visible commitment to safety is the single biggest common denominator amongst all surveyed companies. Supervisors, line managers and site managers, as well as superintendents and divisional managers all get physically involved in safety, either by presenting safety training, "walking the walk" and "talking the talk" or opening safety training videos, emphasising safety as being just as important as quality and production in determining the success of a company.

The development of formalised induction and training programs, the role modelling by managers & supervisors and the regular team meetings to discuss issues with all staff have enabled companies to improve employees attitudes and behaviour towards safety.

Brown & Dureau redesigned their organisational structure by replacing shift supervisors with staff shift managers. Previously, a shift supervisor was "an old mate" who was promoted into the position and not receptive to training or safety responsibilities. The new staff shift managers are salaried employees who are given extensive training in leadership and safety.

Gang Nail of Visalia is about to introduce a Manager's Citation Pad, to be issued for good as well as bad (unsafe) safety behaviours. Wood Structures' approach is to create a culture of trust amongst its employees to encourage them to report accidents / incidents rather than conceal them (counter productive) for fear of reprimand or written warning. Unless the safety violation is really negligent, they try not to write up an employee for a safety violation.

The general manager at NVR, Harry Loudon, holds a plant meeting every 2 months, to discuss plant issues, including safety, accidents, rewards, etc. Twice a year he invites feedback and evaluation from the employees. This is a highly visible means of demonstrating his commitment to safety.

Weyerhaeuser uses a pre-involvement check list to determine whether a site is ready to introduce a new safety program (see Appendix H Site Evaluation for BBSM Readiness). This ensures that valuable time and effort is not wasted trying to introduce a site to a new safety program when there are other issues requiring resolution before the new program



should be introduced. They also have clearly defined "Safety Expectations of Leadership in the Corporate Region" (See Appendix I) where they state that "Success in safety can be attained by making a commitment to establish and communicate clear measurable goals and put into effect actions conducive to safe behaviour." The expectations include Role Modelling, Accountability, Create the Culture, Employee Safety Training, Safe Reliable Methods (i.e. JSA's, SOP's, etc.) and Incident Reporting and Follow-up.

Weyerhaeuser is also looking to broaden their safety measurements beyond the standard metrics (i.e. Lost Time Accidents, Severity Rate, Duration Rate, etc.). IP too recognises the negativity of these measurements and are looking to identify more positive approaches.

## 4 - Motivation / Commitment to Work Safely

### What do you do to motivate your employees?

Introducing new employees to your safety programs and training them in your enterprise standards is not always enough to ensure they maintain safe (standard) work practices. Often workers need a little bit extra to remind and encourage them to do their bit to ensure safe work practices are used in their work area. Following are some creative ideas that are or have been used to motivate workers to work safely.

Many companies provide prizes in the form of caps, mugs, T-shirts, key rings, vouchers, etc. to steer clear of monetary incentives, while others have quite substantial dollar incentives.

Thomasville Furniture has a Penny a Day safety incentive program which provides an ever increasing pot for workers to win 10% each quarter. The company puts one penny (cent) for every man-hour worked into a fund. At the end of the quarter two employees will receive 10% of the pot. Remainder of the pot compounds each quarter. Therefore, fourth quarter payout is much larger than first quarter. The remainder of the pot is used for all departments towards a luncheon or gift at the conclusion of 1 year without a lost time injury or less than 8 recordable injuries. These targets of course may be varied to suite the enterprise's past performance. Where a department has a recordable injury during a "safe quarter" all employees in the same department are excluded from the drawing during that quarter.

Imperial Components plays Safety Bingo, where \$50 - \$300 can be won by an individual. When one worker in a group (work team) has an injury, all the team's bingo cards are revoked, to start afresh with new cards.

ANM has for many years provided incentives in the form of badges, mugs, caps, etc. for individuals who surpass 1, 3, 5, 7, etc. years without a lost time injury. Kevin Anderson, the OH&S Co-ordinator, questions its effectiveness as a motivator. He is now assessing department awards, such as certificates or money (\$500?) towards a trip after 15 years without a LTI. He is also assessing team rewards, steering clear of LTI's and focusing on

participation in safety, e.g. number of times a worker has participated in safety audits, or the number of actions completed from audits in one's own section.

ANM also funds charities by providing, to the Safety Committee, \$1,000 if the company goes 30 days without a LTI, \$2,000 for the second month and \$3,000 for each month thereafter, to be donated to a charity of choice by the Safety Committee.

CHH Myrtleford provides sales vouchers to employees when their area surpasses lost time injury free targets (e.g. \$40 voucher for 100,000 hours lost time injury free, \$50 voucher for additional 100,000 hrs.)

Brown & Dureau prefers to focus on regular reminders to employees of their responsibilities under the Occupational Health & Safety Act, but they do provide safety related gifts, such as home fire extinguishers, first-aid kits, smoke alarms, etc. for surpassing 1 year without a LTI.

Most of the largest companies (J&J, Weyerhaeuser, IP, CSR, etc.) leave the incentive programs to individual sites, however most avoid monetary rewards, preferring to provide material gifts or events such as BBQ's, luncheons, or drawing for larger prizes at the end of the year. CSR Timber Products' Sheryl Navin stresses the importance of fitting the recognition to the size of the achievement. In other words, don't pay out big for reaching 100,000 man hours such that you can not afford a more significant reward for 500,000 man hours. Weyerhaeuser and J&J recommend the safety incentives should be shifted regularly (every 6 - 12 months) to overcome the attitude of "you owe me".

CHH Taupo provides a boat trip (on Lake Taupo), with partners, for exceeding 200,000 hours; also watches, shirts, etc., and not money or vouchers (they consider this to be counter productive). At Stark Truss, in addition to monthly rewards for safety performance, if a site goes LTA free for a year, they have a draw for a 3 day cruise, preceded by much hype and publicity.

Weyerhaeuser has a scheme where employees receive a token for a high achievement. The token then goes into a barrel. The more tokens received during the year, the better chance at winning the big prize at the end of the year. Some prizes have been as big as

a boat. Paula Stewart stresses that this type of scheme is not necessarily approved of any more. Instead, she would prefer to see recognition for participation in safety programs, similar to what ANM is considering.

Fletcher Wood Panels has a more low key approach to motivation & recognition. Their sites receive a congratulatory note for achieving 2 years without a lost time injury. They have a "Thank You" card which is completed and handed to an employee for a job well done.



TO	<input type="text"/>
FOR	<input type="text"/>
FROM	<input type="text"/>
DATE	<input type="text"/>



They also have a Most Valuable Player recognition, which may or may not be safety related. Entries are evaluated by a set team, and rewards may include a jacket, bag, restaurant voucher, etc. These achievements ("work well done") are discussed at the Operations Meeting as well; person's name and what they did.

Gang Nail of Visalia puts in \$1,000 per month for a safety drawing. If you have had no safety violation for the month, your name goes in the barrel and you have a chance of winning \$50, names drawn until the \$1,000 is depleted. They also have a similar draw for perfect attendance as well as an ideas program which pays on ideas that lead to improvement in quality, safety or production.

J&J encourages sites to create their own incentive schemes. They may incentivise supervisors for creating safety incentive programs, and team members for participating. It may include a disclaimer for an employee to be excluded from the incentive scheme if he has an accident and doesn't report it.

NVR includes safety in their evaluation program. Individuals may get a merit increase in wages based on this evaluation. They also incentivise work areas with knocking off work 15 minutes early one day for achieving 30 days without a lost time accident, pizzas for lunch for 50 days, pig roast for 85 days and a plaque & shirt for 1 year. They too provide attendance rewards and new ideas rewards. NVR has a 50% staff turnover during the 90 day probationary period, but only 1% after that. A major concern to Harry Loudon is how to keep senior employees motivated. He addresses this by job enrichment; identifying and delegating new and differing responsibilities to these employees. They also have a corporate gain sharing plan, which is, in effect, a bonus program.

International Paper also agrees measurements and incentives should be directed at employees participation in safety programs. They focus heavily on Behaviour Process and recognise the importance of empowering work groups to set their own goals rather than being directed by management's goals. Ownership of setting and achieving the goals is the motivator for the hourly wage earners. Their culture has changed from the safety professional being held accountable for safety, to the manager and now it is the employees. For example, if a worker is found guilty violating the Lockout Tagout policy,

he may be fired. This of course requires management to be consistent in their approach to discipline for the system to work.

How does your management demonstrate their commitment to safety?

A key principle to the success of any occupational health & safety management system is an employer's commitment. To be effective, managers (as well as supervisors) must engender commitment from all levels of the organisation by actively and visibly actioning their own instructions and directions (policies & procedures). All managers and employees have a role to play to establish this commitment in their own area of operation. Management must also demonstrate their commitment by providing sufficient resources to support the operation of the system.

All sites visited have active safety committees, with varying levels of managers participating on the committee. They also provide the resources necessary to manage and promote their safety program, in funding incentives, repairing and maintaining plant & equipment or releasing employees to participate in safety programs or training.

ANM has employed a safety professional, Tony Pumpa, to drive the SAM (Safety Audit Manager) and Version 2 of the NSCA's 5-star program at ANM. They also require the site general manager to sign off on all incident and investigation reports, to ensure all levels of management are involved and actions are followed through.

CHH Myrtleford has also funded the Victorian Safety MAP at their site, led by Martin Peet, their OH&S and Risk Manager, with team members from each of the site's sections. This team meets weekly to follow the Safety MAP health & safety audit system which will help them measure the performance of their health & safety program, implement a cycle of continuous improvement for their operations, introduce benchmarking standards for health and safety and gain recognition for their achievements.<sup>7</sup> Martin advises that managers' attitudes towards safety vary with age and "old school", but none are negative and most are dollar conscious.

Brown & Dureau provides an EAP (Employee Assistance Program) and funds an industrial chaplain who counsels workers in need. Their senior managers are on the safety committee and also address safety issues to work groups (team meetings).

At CSR, safety is always the first item on the agenda at senior manager meetings. They have a Board Environmental Health & Safety Committee who visit sites (approx. 6 times per year) and the Timber Products division manager, Henry Pens, takes a personal interest in all lost time injuries in his division (4,100 employees) through his requirement for notification of and recommendations to prevent further injury, within 24 hours of the accident. Safety also features in management's performance review.

CHH Taupo's site manager as stated earlier, presents a 4 hour refresher training course every 5 weeks (as do other supervisors). Accident reports and hazards are tabled at site meetings for action and then fed back to employees. The Operations Manager at Imperial Components also conducts much of the shop floor training and the company pays overtime for their workers to attend safety training.

The managing director at Fletcher Wood Panels may often be seen visiting sites and talking with employees about safety in their area as does the president of Gang Nail of Visalia, Tim Rouch. Tim is 100% compassionate about the welfare of his employees and is personally involved in the rehabilitation of injured workers.

At J&J staff meetings, safety questions are always asked before introduction of new equipment and a manager might be asked to relocate his/her office into the operations area to ensure high visibility (leading by example). They conduct safety talks (tail gate talks) and a site's Statement of Commitment is posted and updated annually. All supervisors are also required to attend a two week Management Safety School.

At NVR, the production manager conducts Safety Walks with the safety committee and some of the supervisors are utilised to conduct training.

Thomasville Furniture is about to include safety (25%) as part of the performance review for its plant superintendents. They hold weekly team meetings where they discuss department and plant goals, safety issues (including performance and injuries) and other relevant topics and they provide annual training for their Safety Council (Committee) and chairperson.

At CHH Taupo, the HR department is working to develop a manpower pool of casuals who can be called on to fill in when staffing is going to be depleted due to training, meetings, etc.

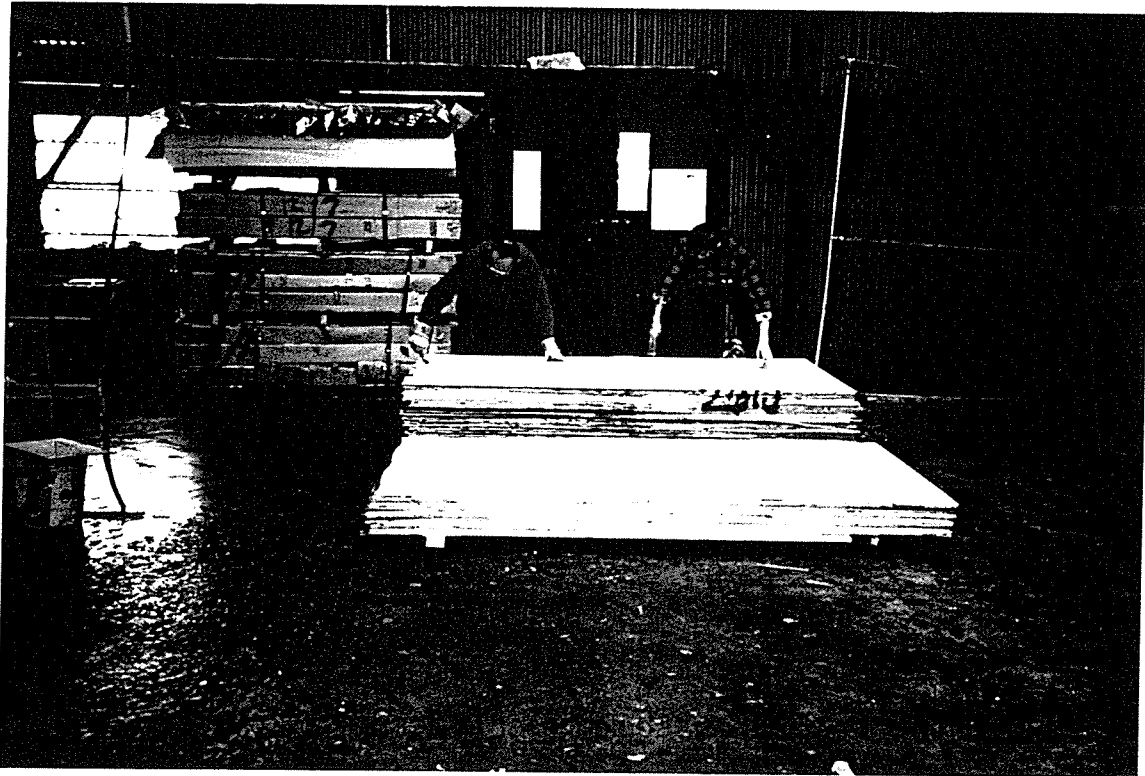


## 5 - Industry / Injury Types & Controls

### Injury Types

An objective of this exercise was to identify common types of injuries experienced by forest products companies (especially those in the frame and truss sector) and how they are minimised or overcome. Common to almost all companies visited was a broad spectrum of manual handling injuries. These included sprains and strains of backs, shoulders and wrists, repetitive strains (RSI, OOS, etc.), lacerations and contusions.

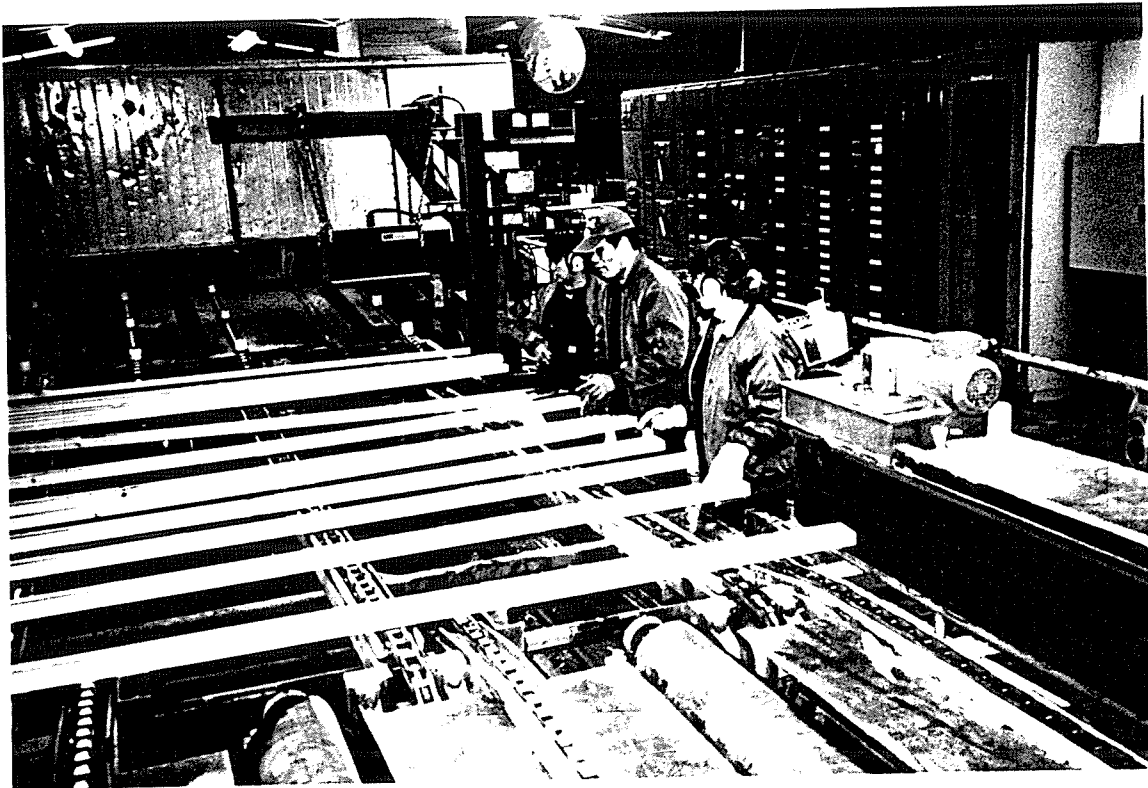
Following are some photographs depicting some of the more common tasks which present manual handling risks to the worker and should therefore be addressed by the employer through the hierarchy of control measures.



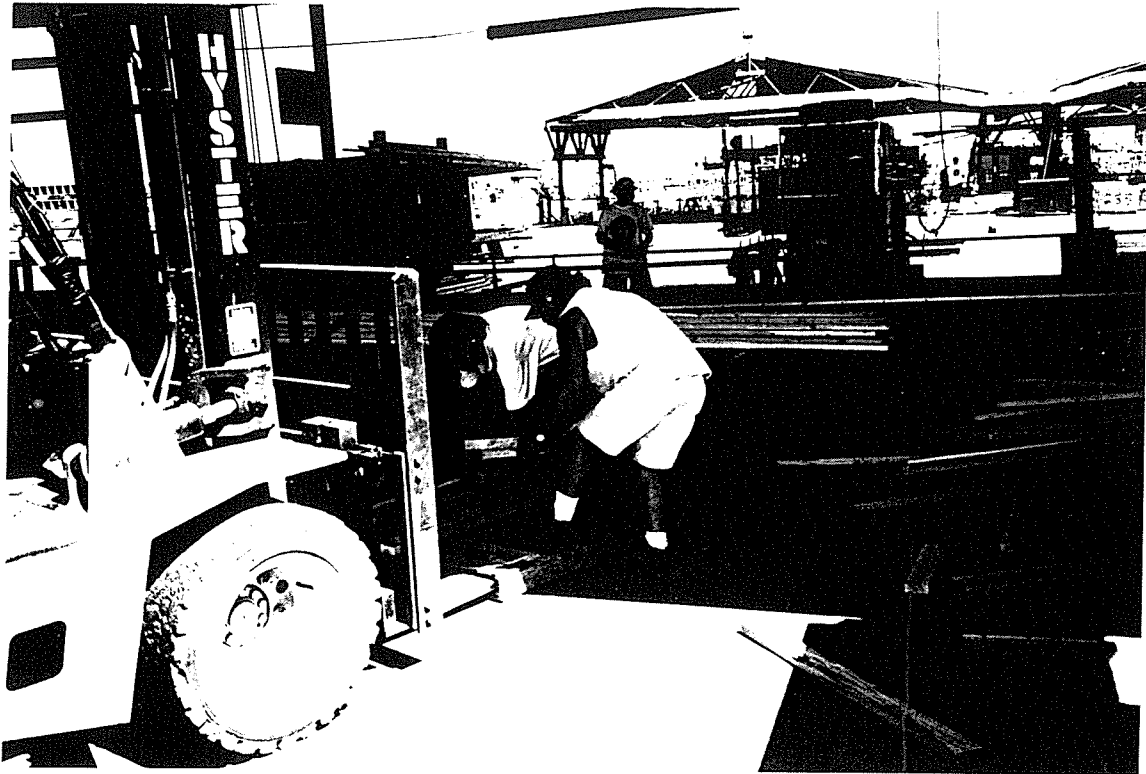
*CHH Myrtleford workers filling holes in ply sheets*



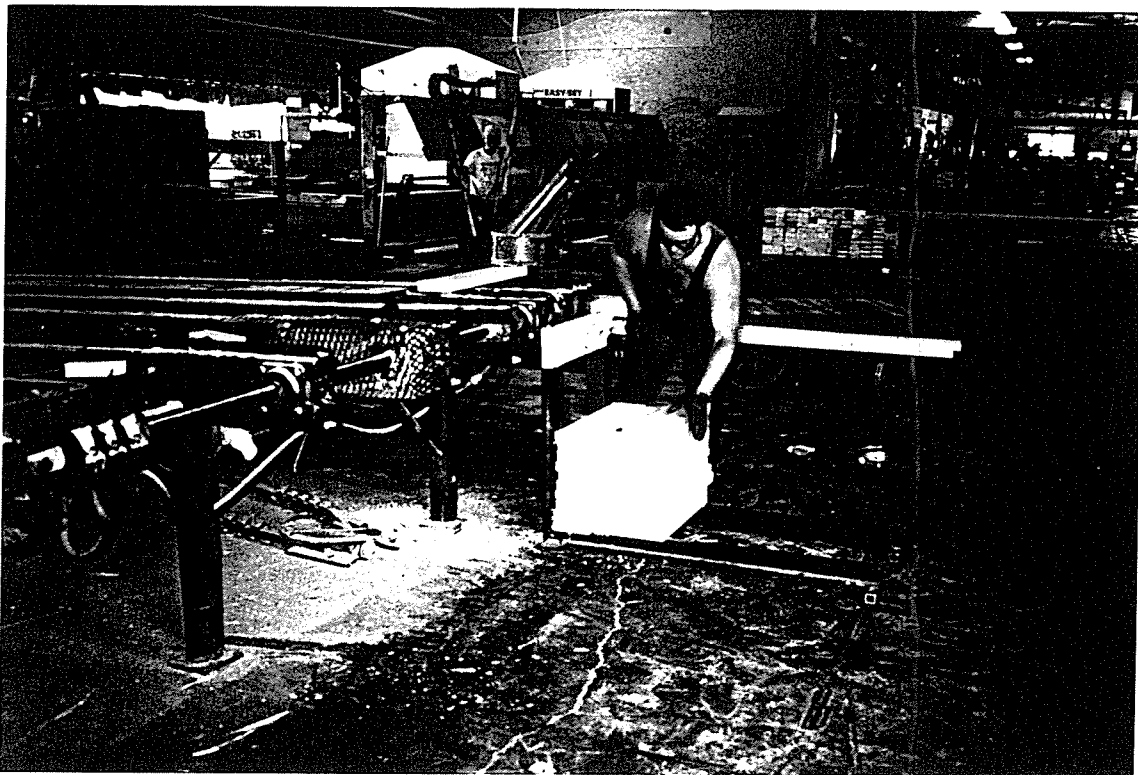
*Brown & Dureau worker clearing a jam up in mill*



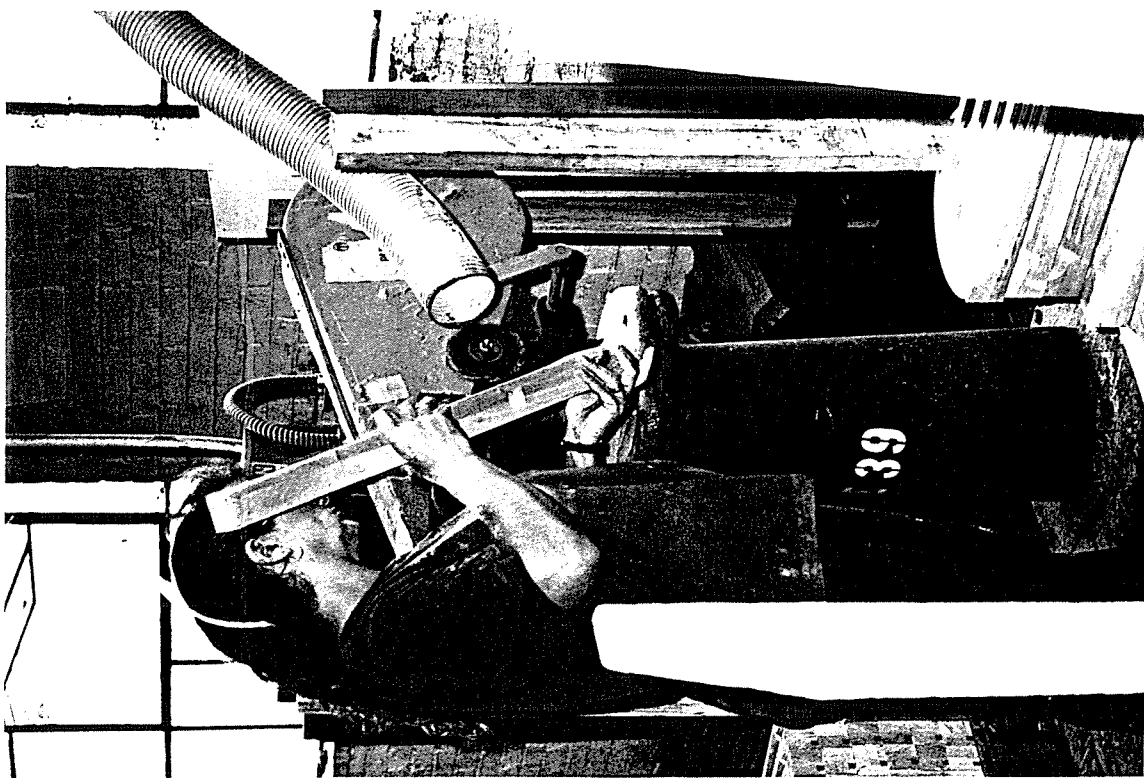
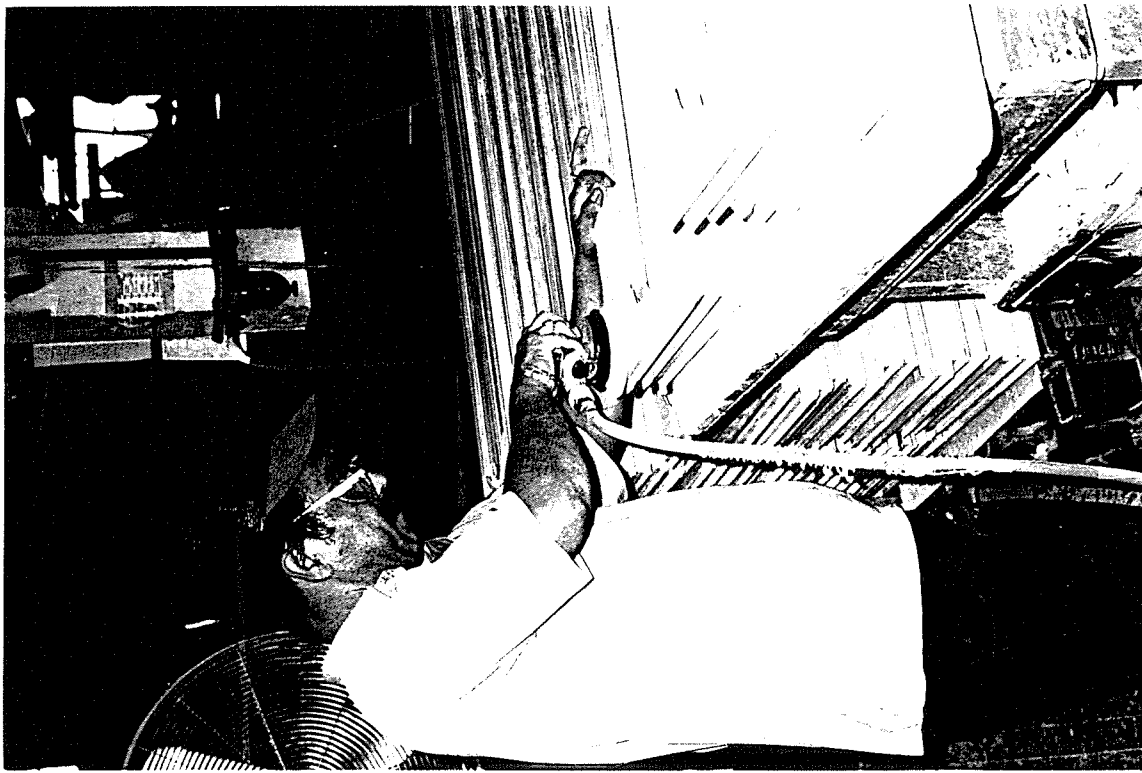
*Brown & Dureau workers grading timber (constant turning over of wrist)*



*Gang Nail of Visalia (typical of anywhere) risk of back strain*

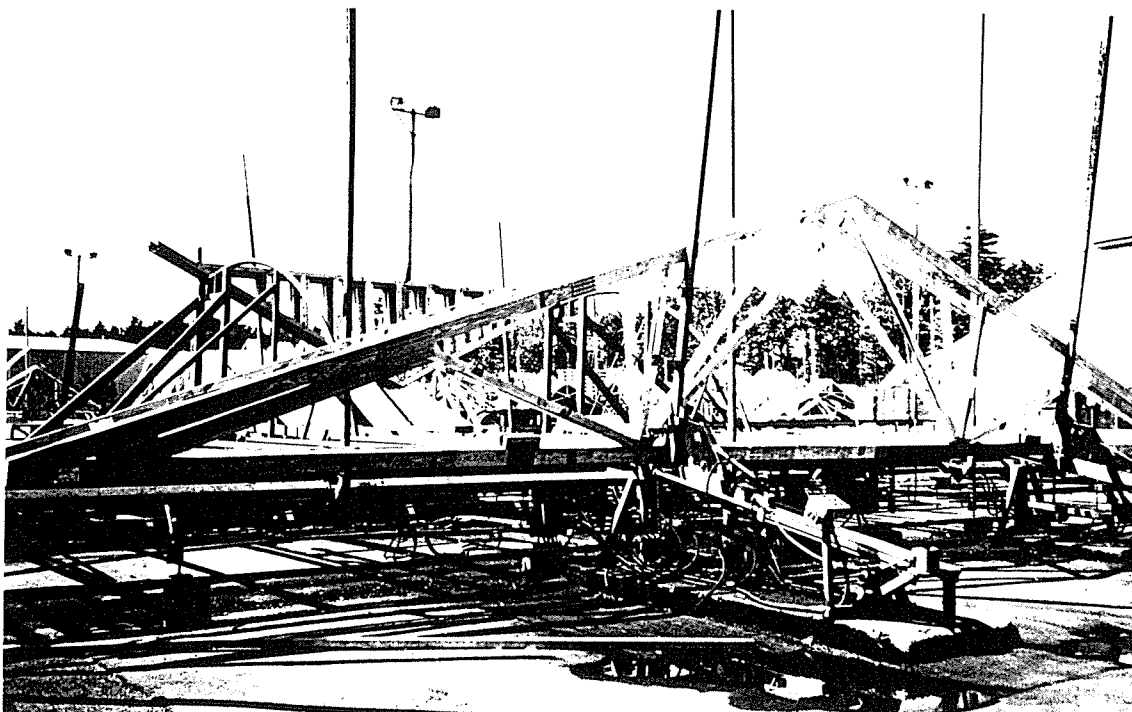


*Imperial Components - other areas need assessments to reduce bending*

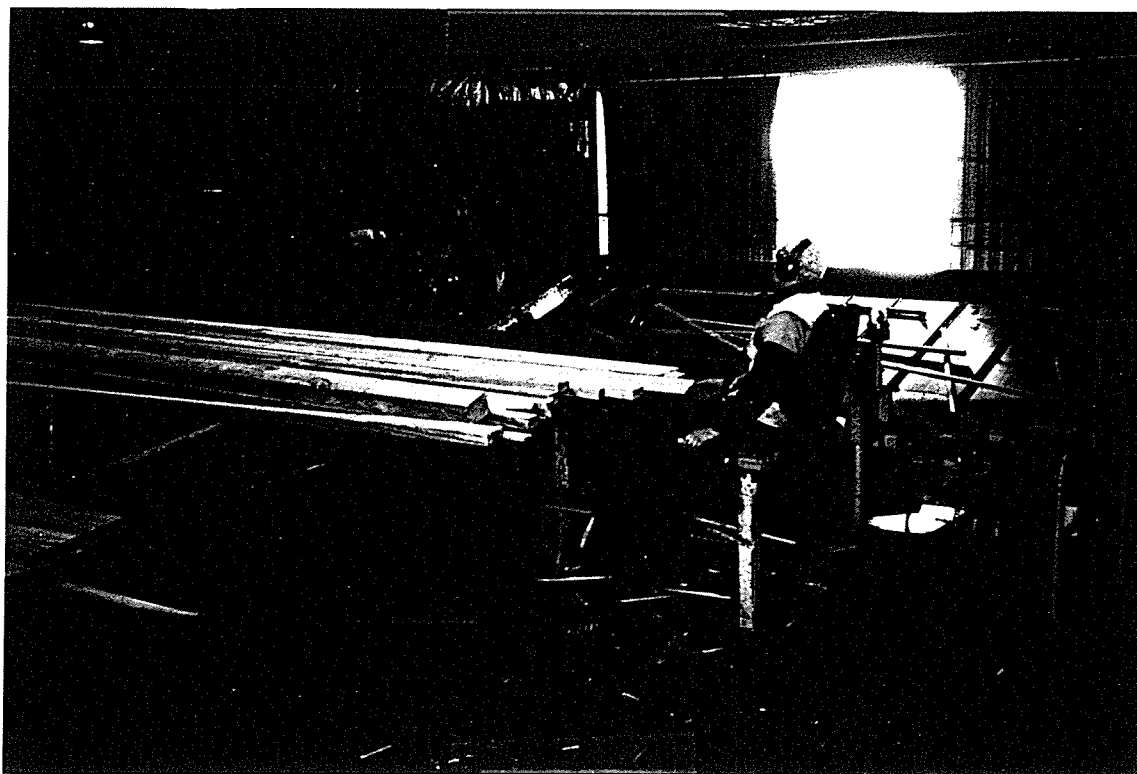


*Thomasville Furniture - RSI & Carpal Tunnel risks when sanding the same size pieces*

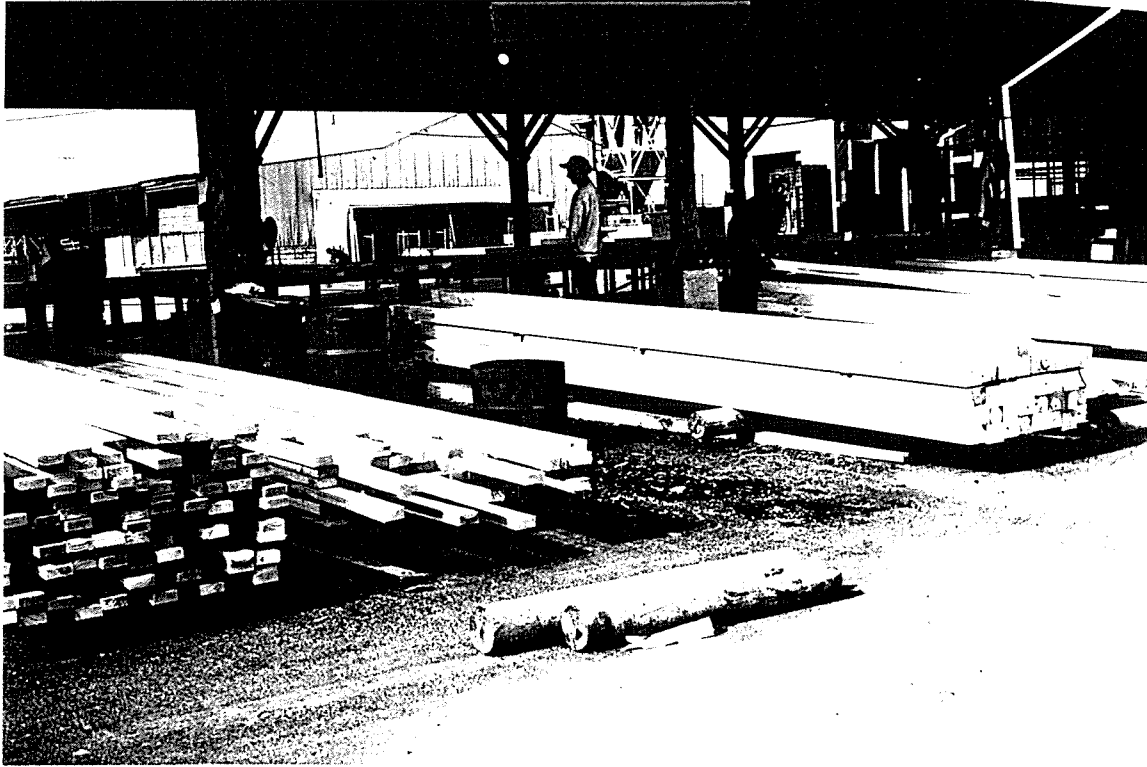
The following photographs depict various control measures companies have introduced to minimise or eliminate manual handling risks.



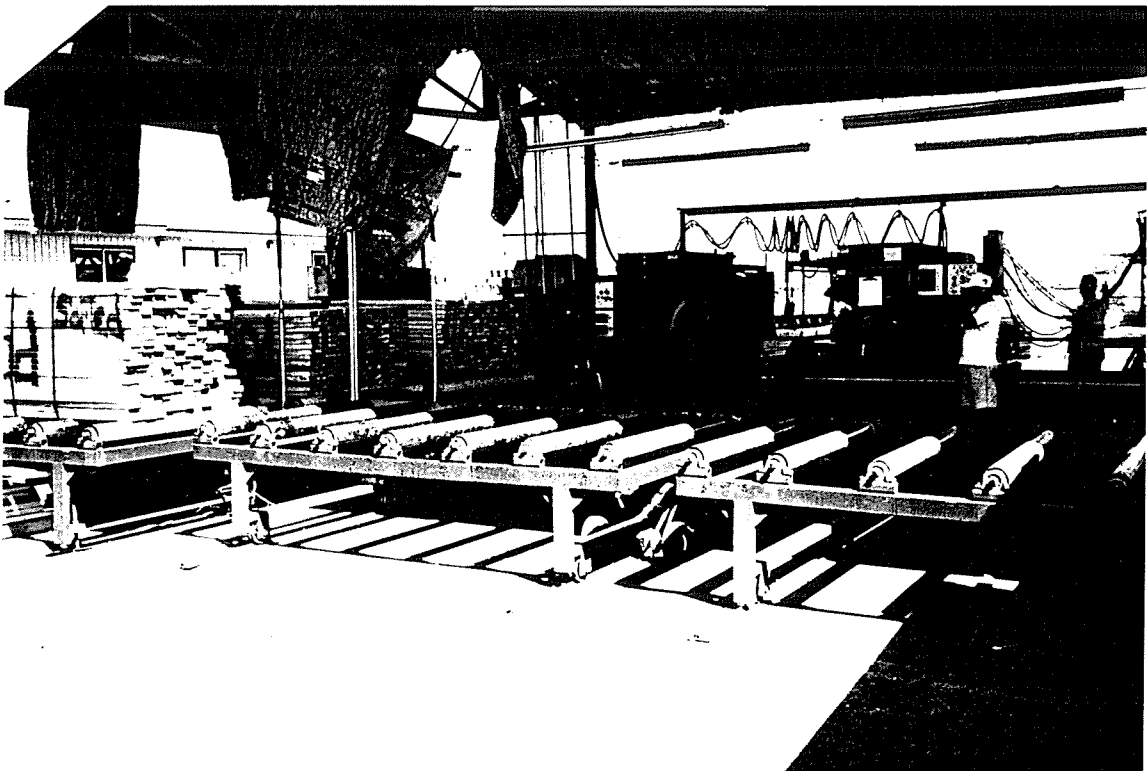
*Wood Structures (& others) use mechanical devices to lift and manoeuvre heavy trusses*



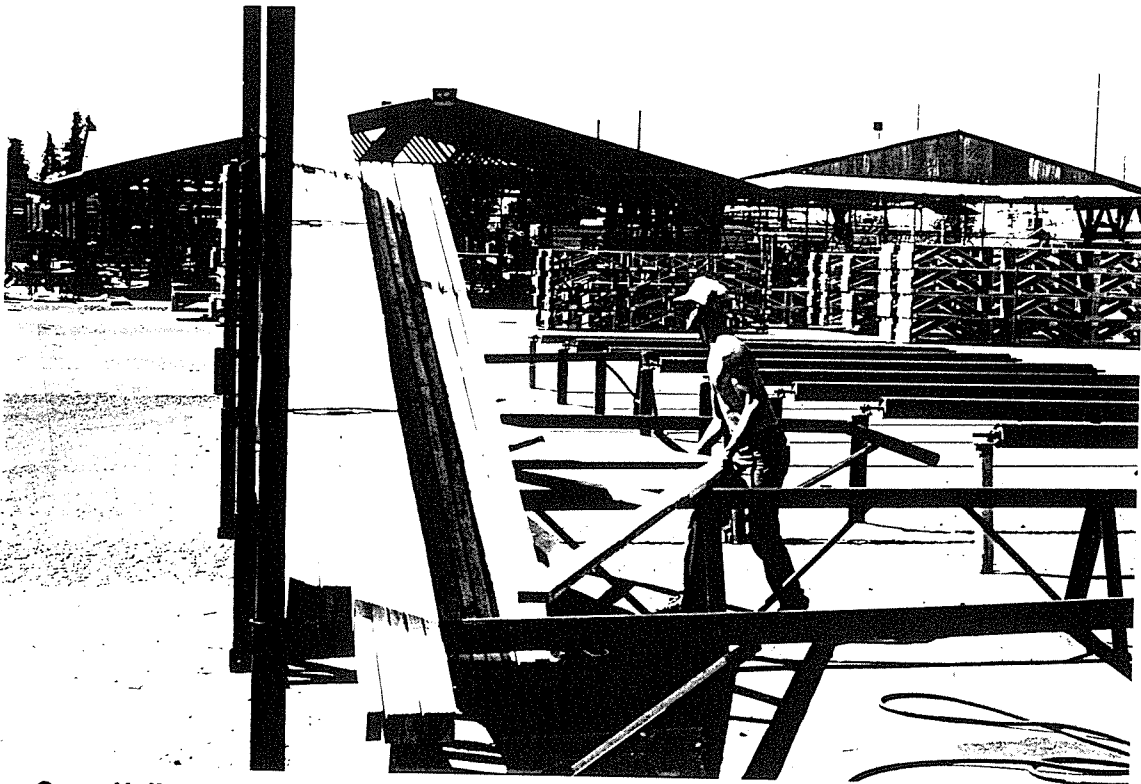
*CHH Taupo minimises back strain of timber sorter with cushioned chair & foot rest*



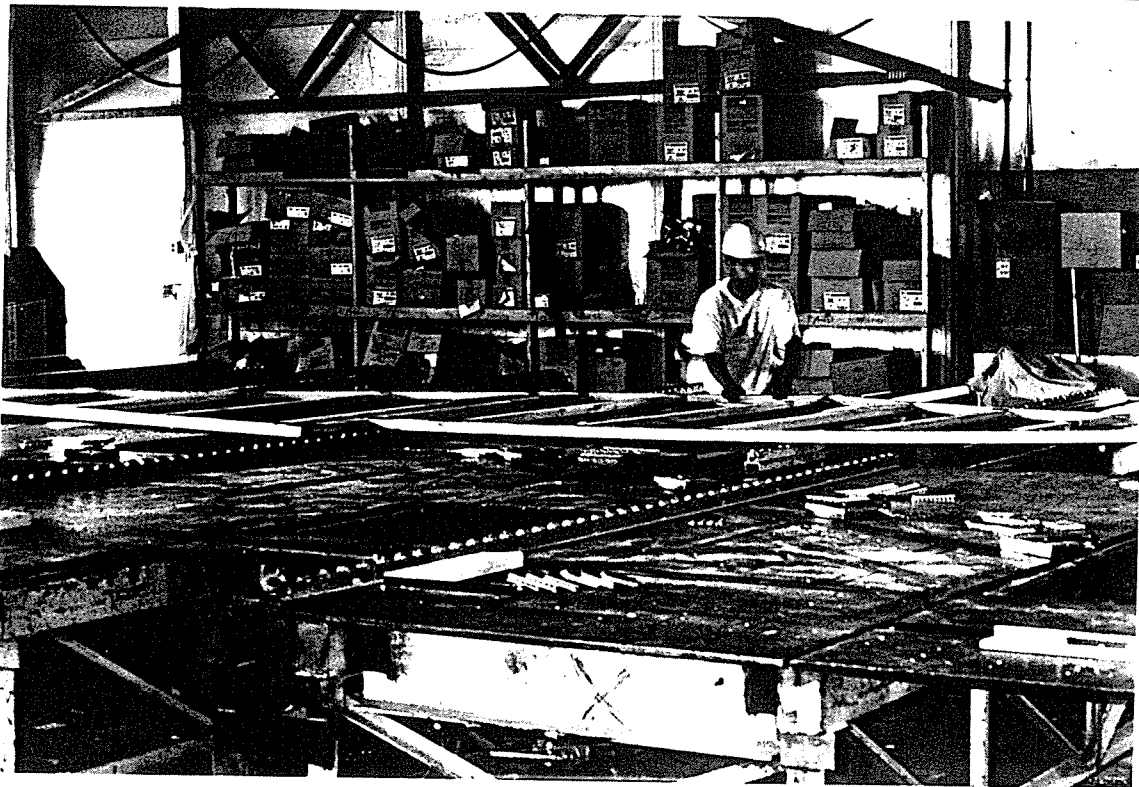
*CHH Taupo uses logs to roll timber packs out for strapping & pick up*



*Gang Nail of Visalia uses raised rollers on tracks to move timber packs into place for the component cutter*



*Gang Nail of Visalia have well designed racks for movement and storage of trusses*



*Imperial Components (typical of most in the USA) use truss lifters (rollers)  
to raise finished truss off table and pull onto rollers for final press*

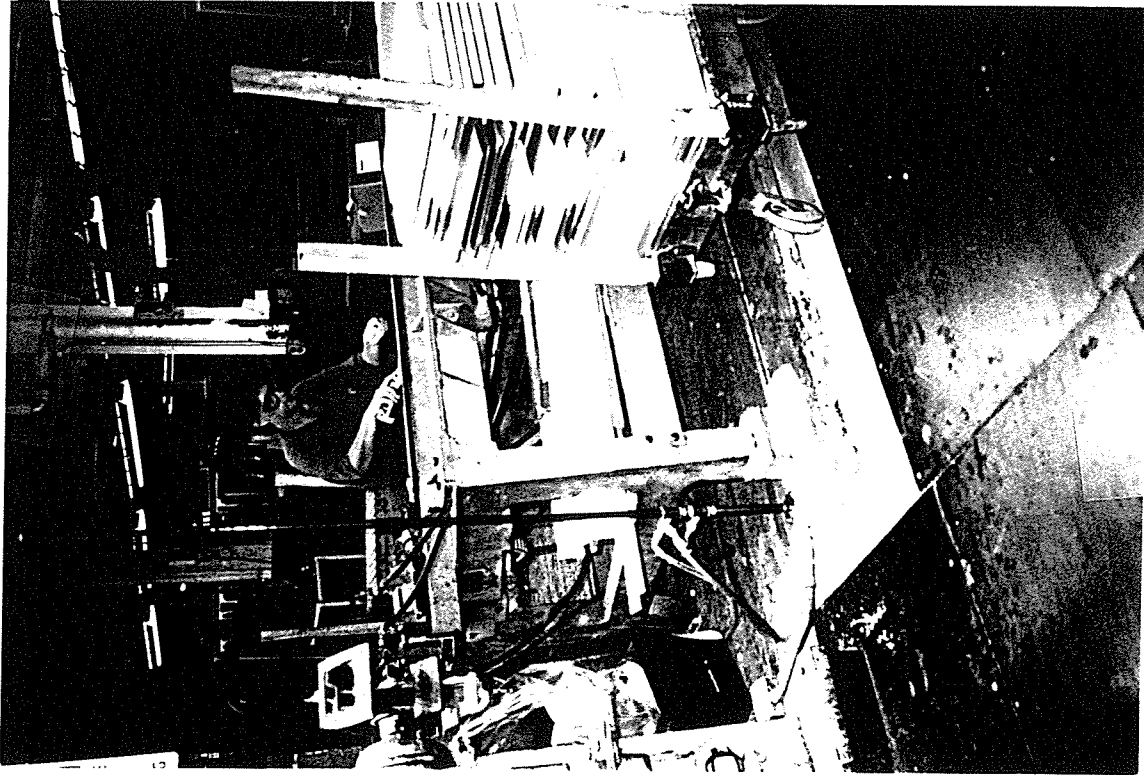


*Imperial Components - most timber packs are on roller racks, to minimise stooping & bending*



*Wood Structures the simplest device (2"x 12" length of timber on edge, with support ends affixed), serves to minimise stooping to the floor to retrieve truss components*





*Thomasville bench has been elevated at the back to minimise reaching*

### Systems to control these types of injuries

The hierarchy of hazard control should be used in all cases when considering means to eliminate or minimise risks to health & safety. “At the first and most desirable there are those situations which are intrinsically safe. At the least desirable end of the spectrum are procedures for escape, survival and rescue.”<sup>8</sup> The following are recognised as the accepted approaches to hazard control:

- Elimination - by design, replacement, etc.
- Substitution - with less hazardous materials or processes; the resultant task should be more tolerable
- Minimise - inventories of raw materials, intermediates, wastes and finished products
- Engineering Controls - at source, e.g. automation, remote control, parallel redundant systems, over-design, bonding
- Engineering Controls - to reduce exposure , e.g. guarding, mechanical handling, ventilation, binding

- Administrative Controls - e.g. Safe Working Practices, housekeeping, training & supervision, emergency procedures, work permits, maintenance schedules, registers of critical items, etc.
- Personal Protective Equipment (PPE) <sup>8</sup>

By design, this hierarchy of controls should be considered from the top down, rather than resorting to the quickest, easiest or cheapest fix which may not always be the best.

Following are various means used by the surveyed companies in an effort to minimise the risks to their employees. There is no indication whether or not a company has used the hierarchy of controls in resorting to these control measures.

ANM has various health programs, including 6 monthly program where a health nurse checks all workstations for compliance to standards and suitability to the worker. They conduct on site vision testing of employees and provide manual handling training.

CHH Myrtleford utilises the hierarchy of hazard controls to modify equipment, like adding handles onto timber carts [see photo] and provide electric tugs to pull carts.



***CHH Myrtleford added handles to timber carts to minimise manual handling risks***

CSR has various programs including manual handling assessments, back care programs and ergonomics. They provide a functional capacity assessment as a part of their pre-placement program. CHH Taupo provides an exercise program which includes job pause exercises and job rotations. Their occupational health nurse sits on the OH&S Committee, along with the company doctor, and the physiotherapist and rehabilitation provider conduct work assessments to determine the risks associated with the jobs.

At Imperial Components, they have the backing of the union to impose a mandatory drug test on all employees suffering a work related injury that requires professional medical attention, as do other American companies.

Many companies provide yearly refresher safety training, and at Wood Structures, they shut the entire plant down for yearly training, presented or co-ordinated by the OH&S (HR) Manager and the Production Manager. At Riverwood International, they review safe lifting procedures with their employees twice yearly.

Thomasville and International Paper have ergonomics teams which address ways and means of reducing manual handling injuries. Thomasville now focuses on ergonomics, having had a successful back injury correction team.

IP, because of the number of vehicles they have on the road, checks drivers' licences periodically as well as driving records, salesmen included.

## 6 - Rehabilitation

### Rehabilitation System

As previously stated, a measurement of the effectiveness of rehabilitation in a company is their Severity Rate, defined as the number of days lost per million man hours worked. The severity rate is a measure of the impact on the operations and costs of safety performance.

It was difficult to determine severity rates for all surveyed companies as many, especially in the USA, didn't measure this statistic. ANM's (duration rate) averaged 11.4 days last year but this was severely affected by one injury lasting 45 days; most were 1 - 4 days. Brown & Dureau averaged 8.28 days while CHH Taupo was 8 hours. CHH Myrtleford had a severity rate of 220 (days lost per million hours worked) and CSR Timber Products was approx. 340.

Practically all companies utilise a commercial rehabilitation provider if the injury is long term, say greater than 2-3 weeks. The standard procedure, common to most, is for the company rehabilitation co-ordinator to communicate with the treating doctor, the injured worker and his supervisor to co-ordinate a return to work program involving light duties. Some of the larger companies have the luxury of an on site occupational nurse who would necessarily get involved in the rehabilitation program.

Thomasville and Stark Truss include in their job descriptions Physical Demands (Functional Analysis) of the job, which is used at interview stage as well as designing a rehabilitation program for an injured worker.

STARK TRUSS COMPANY, INC.

PHYSICAL JOB DESCRIPTION AND FUNCTIONAL ANALYSIS

TITLE: Stacker  
DEPARTMENT: Truss Department  
LOCATION:

ESSENTIAL FUNCTIONS:

- Gripping and grasping and flexion
- Reaching.
- Standing and walking for eight hour work shift.
- Operates hand controls.
- Pushing and pulling approximately 20-80 pounds.
- Twisting and bending of wrists.
- Marking precut lumber.

SECONDARY FUNCTIONS:

MACHINE/EQUIPMENT/TOOLS USED:

SAFETY EQUIPMENT:

- Mandatory - Hard hat, safety glasses with side shields, steel toed boots.
- Dust mask and hearing protection available but not required.

QUALIFICATIONS:

Formal education: N/A  
Skills: N/A  
Experience: N/A  
Knowledge: N/A

WORKING CONDITIONS:

- All work inside - not completely temperature controlled - cold in winter, hot in summer.
- Works around moving machinery.
- Works around and with people in a team approach.

REPORTING RELATIONSHIP:

-

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Stacker  
Page Two

The aim of this statement is to describe the general duties, responsibilities, and qualifications of persons classified within this position. It should not be interpreted as a complete list of all duties performed by individuals with this position/title. Further, it should not be interpreted as a complete list of all duties performed by individuals of this position/title on a daily basis.

I have read these duties and responsibilities and understand them.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

# THOMASVILLE FURNITURE INDUSTRIES, INC.

## PHYSICAL DEMANDS EVALUATION

Plant D                      Sub-Assembly / Cabinet                      DATE 4/1/92

TITLE, CLASSIFICATION: \_\_\_\_\_

JOB NO. 490                      SUB ASSEMBLY #5

C SA-309

PHYSICAL DEMANDS	EXTENT	ADDITIONAL INFORMATION (Protective Equipment, Etc.)
<b>GENERAL</b>		
Hours per day	7 1/2	
Days per week	5	
<b>AUDIO-VISUAL</b>		
Hearing	✓ or —	
Near vision	—	
Far vision	✓	
Mid-range	—	
Peripheral vision	✓	
Color perception	✓	
Depth perception	✓	
<b>PSYCHOLOGICAL</b>		
Works alone	✓	
Works closely with others	✓	Seldom - depending on job
<b>PHYSICAL TASKS</b>		
	✓ / —	Hrs/Shift
Standing	✓	6 1/2 HRS DAY
Sitting	—	—
Walking	✓	1 HRS DAY
	✓ / —	C / I / S **
Climbing	—	—
Work at Heights	✓	5
Bending	✓	I
Crouching/Stooping	✓	I
Pushing/Pulling	✓	I
Twisting	✓	I
Reaching	✓	C
Lifting/Lowering	✓	C
<b>Weights</b>		
1 - 15 lbs.	✓	C
15 - 30 lbs.	✓	C
30 - 50 lbs.	✓	S
Over 50 lbs.	✓	S
Floor to Knuckle	✓	I
Knuckle to Shoulder	✓	I
Shoulder and above	✓	S
Carrying Distance	✓	I
Extreme Postures		I
Hand - Wrist	✓	I
Elbow - Shoulder	✓	I

\*\* Continuous = ≥80%                      Intermittent = 11-79%                      Seldom = ≤10%

(OVER)

## SUPPLEMENT FOR PHYSICAL DEMANDS

PHYSICAL DEMAND	FREQUENCY		ADDITIONAL INFORMATION:
	Routine	Occas.	
Cold		✓	Temperature range 65° and above Temperature range 45° and below over 85 dbc - hearing required
Heat		✓	
Noise		✓	
Hand Tools	✓		seen down - d. pl - P. in Gen, etc
Confined Space	-	-	
<b>CHEMICAL USAGE</b>	FREQUENCY		
	Routine	Occas.	
<b>SKIN, MUCOUS MEMBRANE</b>			
Solvents	-	-	
Caustics	-	-	
Acids	-	-	
Cutting oils	-	-	
Epoxyes	-	-	
Assembly Glue	✓		Water base glue
<b>RESPIRATORY</b>		✓	wood Dust - within OSHA std
Hulsance dusts		✓	" " " " " "
Formaldehyde	-	-	
<b>PROTECTIVE EQUIPMENT</b>			
Required:			
Respirator	-	-	
Safety Glasses	✓		
Hearing Protection		✓	for 1st floor use
Rubber Gloves		✓	dipping, handle guides
Kickback Apron	-	-	
Hard Hat	-	-	
See Material Safety Data Sheet for Further Break Down of Chemical Information			

  
 Signature of Evaluator

The president of Gang Nail of Visalia takes a personal role in the rehabilitation of his injured workers by communicating with the doctor and the rehab. provider to identify and provide appropriate light duties.

Regarding the rehabilitation of workers who injure themselves outside of work, companies are divided in their approach to providing "light duties". ANM and CHH Myrtleford provide rehabilitation plans for their "socially" injured workers, CHH stating that they are able to use this program as a tool to encourage workers to come in early when they genuinely injure themselves at work. Other companies that do provide such a program include (but not limited to) Imperial Components, Stark Trusses and Wood Structures, provided it is not a regular occurrence. CSR explains that work injuries will take precedence over non-work injuries for light duties but Brown & Dureau, Thomasville and Riverwood International do not provide light duties for fear that "a worsening of condition" while on the job may become a workers compensation claim.

Other companies treat each case on the merits of the individual. If he has been a good, honest, loyal worker and it is not prone to repeated injuries, a company might accommodate him. Otherwise, he stays off until fully fit to resume pre-injury duties.



## 7 - Safety Training

### Safety Training

All companies subject new employees to a safety induction which may vary from a couple of hours by the employment manager to an elaborate and well documented program conducted in 3 stages over 1 year, presented by various management staff.

ANM utilises CD ROM computer training packages (some developed in house) to train and refresh employees in occupational health & safety. The package has a HR component and 5 oh&s components (emergency alarms, confined spaces, isolation, hot works, & fire extinguishers) which an employee must pass before proceeding to the shop floor. Now that they have more PC's available on the shop floor, they are able to re-test employees, yearly, which was difficult in the past. Other companies using computer based training packages include Weyerhaeuser and Johnson & Johnson.

Most companies train, at induction, in isolation procedures (known as Lockout / Tagout in the USA, a regulatory mandate for training) as well other safety and site specific issues which may include

- PPE (personal protective equipment)
- Blood Borne Pathogens (Hep B & C, AIDS)
- safe work practices
- evacuation procedures
- fire fighting
- first-aid
- danger / near miss reporting
- confined spaces
- EPA issues
- communication skills
- (sexual) harassment

NVR Building Products uses their own in-house produced videos to help in the safety presentations to new employees while the job function training is conducted by the crew leaders. They also provide yearly hearing tests and forklift training to their staff.

Thomasville Furniture also use their own videos in the induction training and some commercial videos for chemical handling (MSDS), hazard communication, noise hazards and hearing conservation. They provide annual safety training for their Safety Councils in a topic which may be selected by the Safety Compliance Manager and presented by invited guests skilled in the nominated topic.

ANM is developing a drug and alcohol awareness training package as well as a confined spaces package. They provide first-aid training to their employees and pay them \$200 per year to keep their certificates current. They also subsidise gym membership for employees who wish to improve their physical fitness. CHH Myrtleford has the luxury of a qualified ambulance officer working on site who provides yearly first-aid training.

Brown & Dureau provides contractor safety training and Fletcher Wood Panels in Auckland bring in a specialist from ACC (Accident Compensation Corporation) to present the legal responsibilities to employees and managers.

Stark Truss used to have a 50% staff turnover. Medicals and full inductions became very expensive so they changed to giving medicals and full inductions after 30 days. This factor, along with the additional training and drug testing, may have contributed to the reduction in turnover which is now at 25%. Because they utilise their staff to build picnic tables in the cold winter months (when the building industry is at a low) they have had no layoffs for more than 2 years.

Wood Structures holds periodic breakfasts for their 12 truck drivers and invites speakers from various companies to present at the breakfast; electricity hazards from the electric company, safe crane operation from a crane company, safe driving tips from a trucking company, etc..

International Paper has site specific safety induction which includes all the mandated training topics (e.g. PPE, Blood Borne Pathogens, Lockout Tagout, etc.) as well as other specific categories such as fire brigade and forklift refresher training. Their EHS University has been detailed on p.14 (What systems / programs are in place to produce results?).

What impact does training have on your safety performance?

Most companies agreed this was not an easy question to answer because it was very difficult to quantify. ANM and Brown & Dureau felt that training had a significant contribution to their safety performance. CHH Myrtleford feels it provides a partial contribution, stating that they have just concluded a fork lift training program for their drivers, have had no accidents since the training, therefore it must have contributed.

CSR also had difficulty in quantifying it, however Sheryl Navin did relate a 12 week exercise program provided to one of their sites, with the end results showing greater stretchability of workers than before the start of the program. She also suggests that accident investigation training has improved the thoroughness of investigations and therefore led to reduced accidents.

Robert Lawless, at Wood Structures, feels that training develops skills, good will, awareness and new ideas which develop individuals and in turn improves safety.

## 8 - Career Development

### What training do you provide (internal & external) for employee career development? (multi-skilling?)

All companies surveyed (those with recognised best practice training programs) had career paths documented for their employees. At ANM all training commences with occupational health & safety. If an employees fails at this stage, he is not permitted to progress further until he has had a "cooling off" period of 14 days and passed a re-assessment. He is then able to pursue a very structured career path (yet dynamic enough to cater to future needs) made up of a number of streams, including

- |                     |                     |
|---------------------|---------------------|
| - Workplace trainer | - Paper Mill        |
| - Warehouse         | - Supply            |
| - Woodmill          | - Pulp and Services |
| - Water Treatment   | - Laboratory        |
| - RCF               |                     |

See Appendix J for Career Structure Principles and flowcharts.

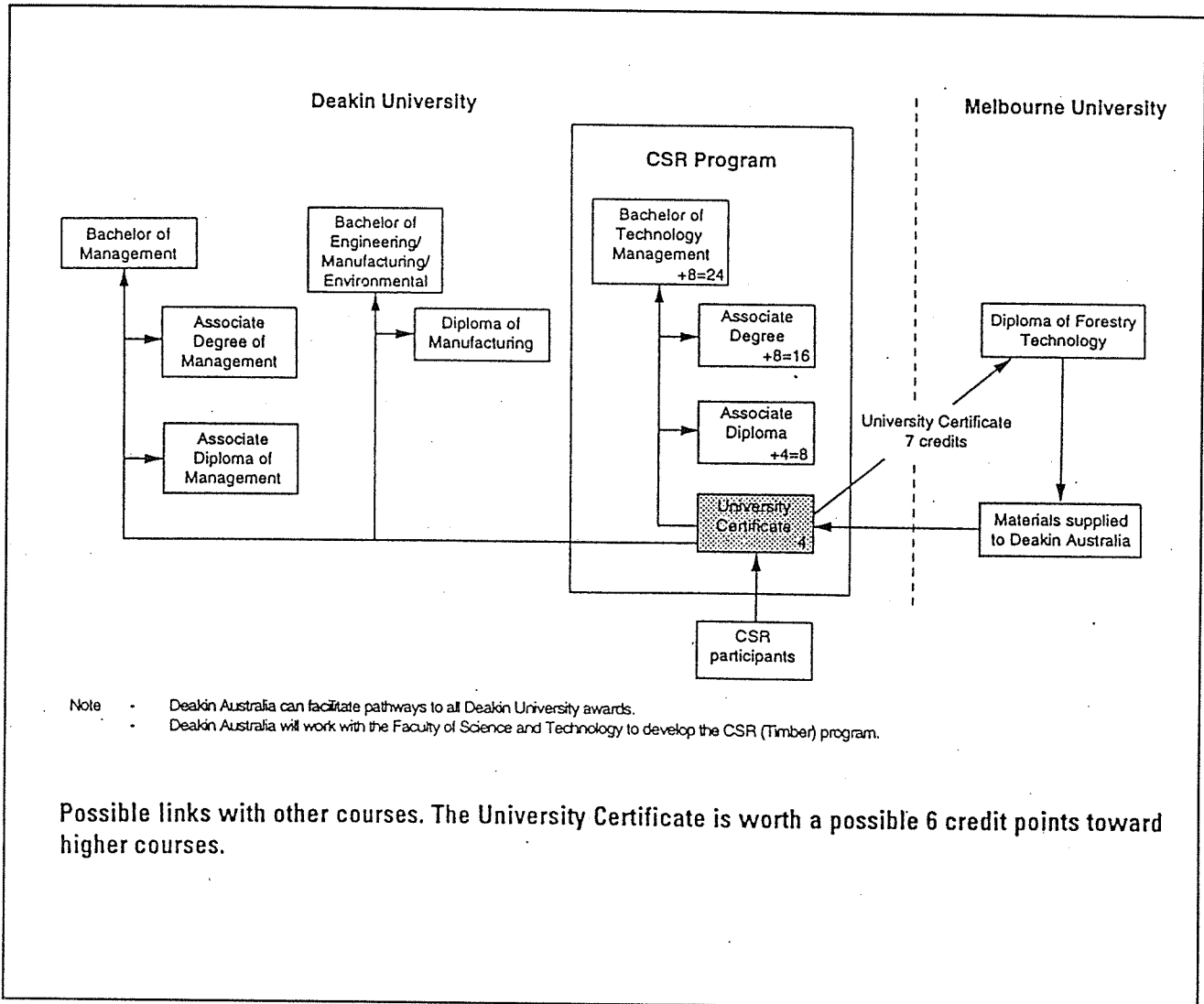
CSR Timber Products, in conjunction with Deakin Australia, has created the University Certificate in Technology Management. The course has been developed to offer training for team leaders which will:

- provide a base level of skills and knowledge for the day-to-day performance of their jobs
- develop, through education in the wider aspects of the business, a team leader who can respond more flexibly to the demands of a rapidly changing workplace
- provide entry level training which will allow access into higher education.<sup>9</sup>

The course is administered through written material and is supported by workshops / residentials, video and audio tapes and by teleconference contact sessions with tutors and subject experts. In addition, the course uses modern technology to assist in the delivery process, in the form of a Computer Managed Learning (CML) software package. The software helps assess the students mastery of the modules, helps in the administration of the program and monitors the progress of each student thus allowing

each student to plot an individual course through the modules according to their needs or preferences.

The following flow chart shows how The University Certificate can link in with other courses of tertiary education.



Many companies encourage sites to utilise external commercial training providers where possible. CHH Myrtleford prefers to use the local T.A.F.E. college (Technical And Further Education) to train their category 1 trainers and others, saying that it allows the employees an opportunity to develop their own network and meet their counterparts in other industries as well as providing them the occasional opportunity to get off site for the duration of the training.

Brown & Dureau have used TABMA's Training Education & Management Services while CHH Taupo may use the New Zealand equivalent, Forest Industries Training Corp. as well as Massey University Business Management courses and correspondence courses through a Polytechnic Institution.

Wood Structures state that 65% of their plant employees have participated in one course or another over the past 18 months. Courses are available through the University of Southern Maine and may include computer skills, reading & writing, communications, supervisor communications, science in the workplace, life skills, high school degree or mathematics in the workplace.

### Competency Standards?

In Australia, nationally recognised standards have been published by Forest and Forest Products Employment Skills Company Ltd. for the Manufacturing and Merchandising sector, Sawmilling and Processing sector and Harvesting sector of the forest products industries. Corresponding assessment manuals have been produced to enable workers to achieve, through a standard procedure by an accredited assessor, national recognition for a particular unit of competency in one of these sectors. The theory being that once a competency level has been achieved, and certified, this skill level will be recognised throughout Australia such that the employee will not have to start at the bottom if he changes company and / or state. He will be able to slot into the same level as that which he has been certified.

A few companies surveyed have commenced using these standards to assess their employees while others have developed their own enterprise specific standards with which to assess.

### Do you have competency based training?

Johnson & Johnson certifies their safety professionals , as well as industrial hygienists and ergonomists. The Corporation recognises these accomplishments and rewards them with an increase in salary. International Paper is moving towards having all of their safety personnel credentialed in their EHS University.

What accreditation do your trainers have?

Most Australian companies surveyed have trainers with at least Category 1 accreditation as do the New Zealand companies. In the USA, the generally accepted practice is to have those people with the most skills in the job (developed over time) as the shop floor trainers. They may not, however, have formal trainer qualifications (e.g. Train the Trainer Category 1).

Due to time constraints, not all training departments were surveyed (J&J, Weyerhaeuser, IP) but Weyerhaeuser says their safety trainers are those with the most skills, which have been developed with frequency on the job but no formal training qualifications provided. J&J's safety professionals have regular training as well as self training (via computer aided learning (CD ROM ?)).

What systems do you have for an employee to be assessed in a particular skill (job function) for promotion?

Career paths and or skills structures are developed through a consultative process with the ECC at ANM and Brown & Dureau. (See Appendix J, ANM) Others develop a training matrix based on the number of operators needed for that job function (e.g. CHH Myrtleford).

At Brown & Dureau, new job applicants are screened for literacy levels at the application stage (completion of the job application in view of the employer). They require the applicant to be able to read basic English to follow safety signs and standard procedures.

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- 6 *Advanced Occupational Health & Safety Management*, NSCA, Module 2, p.2.
- 7 *Safety MAP Initial Assessment Guide and Workbook*, Department of Business and Employment, 1995, Health and Safety Organisation.
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- 9 *Introduction to the University Certificate in Technology Management*, Deakin Australia, brochure
- 10 *Your Guide to Safe Behaviour Involvement*, National Safety Council of Australia Ltd., pp. 5 & 7.



## Appendix A

### Australian Newsprint Mills Ltd., Albury, NSW

- Kevin Anderson, Occupational Health & Safety Co-ordinator
- Tony Pumpa, OH&S Project Officer
- Jim Hislop, Senior Training Officer

### Carter Holt Harvey Wood Products Mill, Myrtleford, Victoria

- Martin Peet, Occupational Health & Safety and Risk Manager

### Brown & Dureau Building Materials, Morwell, Victoria

- Ron Miller, Occupational Health & Safety Manager
- Craig Backman, Training Co-ordinator

### CSR Timber Products, Chatswood, NSW

- Sheryl Navin, Environment, Safety & Health Manager
- Graham Marks, OH&S Co-ordinator, Mt. Gambier site
- Neil Walsham, OH&S Co-ordinator, Mitcham site

### Carter Holt Harvey Taupo Saw Mill, Taupo, New Zealand

- Fran Hyde, Human Resources Co-ordinator
- Stewart Collins, Site Manager

### Fletcher Wood Panels, Auckland, New Zealand

- Gavin Johnston, Environmental Advisor

### Gang-Nail Truss Co. of Visalia, Visalia, California

- Tim Rouch, President
- Carl Shoening, Production Manager

Weyerhaeuser, Tacoma, Washington

Paula Stewart, Corporate Director, Safety Health & Risk Management

Don Trantham, Manager, Corporate Safety and Health Support Services and  
Transport Safety

Rob Olson, Safety Co-ordinator, Research & Development

Sue Clark, Workers Compensation

Mary Marten, Wellness Program

Imperial Components, Inc., St. Charles, Illinois

Joe Vierthaler, General Manager

Rick Parrino, Operations Manager

Stark Truss Company, Inc., Canton, Ohio

Wendie Yakubisin, Risk Manager

Doug Saunier, Plant Manager (Canton)

Christine Culpepper, Personnel Director

Wood Structures, Inc., Biddeford, Maine

Robert Lawless, Human Resources Manager (Safety)

Jim Poulin, Maintenance Manager (Operations)

Johnson & Johnson, New Brunswick, New Jersey

Milt Umbenhouer, Corporate Safety Affairs Manager, Safety Administration

Mary Mach, Director, Information & Support Safety & Industrial Hygiene

NVR Building Products Co., Thurmont, Maryland

Harry Loudon, Manufacturing Manager, Thurmont Manufacturing Division

Randy Gibens, Production Supervisor (Safety Officer)

Thomasville Furniture Industries, Inc., Thomasville, North Carolina

Nelson Bailey, Manager, Safety Compliance

**International Paper Co., Memphis, Tennessee**

**Steven Brenske, Manager, Safety Services, Environment, Health & Safety**

**Mike Johnson, Regional Safety Co-ordinator, Environment, Health & Safety**

**Riverwood International Corp., Wood Products Division, Huttig, Arkansas**

**Robert Packman, Plant Manager, Huttig Complex**

Table 2.5 Nature of injury: Number, incidence, time lost and cost

Nature of injury and bodily location	Fatal	Permanent disability	Temporary disability		Total cases
			6 months and over	Less than 6 months	
	No.	No.	No.	Inc. (a)	Inc. (b)
<b>Males</b>					
Fractures and dislocations	8	871	345	2,840	4,064
Limbs	0	691	267	2,210	3,168
Other	8	180	78	630	896
Sprains and strains	0	2,972	1,364	12,998	17,334
Back	0	1,495	729	6,485	8,709
Limbs	0	901	406	4,160	5,467
Neck and shoulders	0	332	135	1,410	1,877
Other	0	244	94	943	1,281
Concussion	4	15	4	67	90
Open and superficial wounds	9	925	274	4,247	5,455
Limbs	1	860	238	3,713	4,812
Head (including eyes)	2	41	23	344	410
Other	6	24	13	190	233
Contusions and crushings	0	416	212	2,637	3,165
Limbs	0	301	130	1,790	2,221
Trunk (including back)	0	39	38	373	450
Other	0	76	44	363	474
Burns	2	96	37	754	889
Limbs	0	53	16	544	613
Head (including eyes)	2	16	10	87	113
Other	2	27	11	123	163
Multiple injuries and other	42	123	42	407	614
<b>TOTAL MALES</b>	<b>65</b>	<b>5,418</b>	<b>2,278</b>	<b>23,850</b>	<b>31,611</b>
<b>Females</b>					
Fractures and dislocations	0	186	108	624	918
Limbs	0	160	89	527	776
Other	0	26	19	97	142
Sprains and strains	1	1,351	789	5,468	7,609
Back	0	621	387	2,787	3,795
Limbs	1	362	222	1,535	2,120
Neck and shoulders	0	212	120	705	1,037
Other	0	156	60	441	657
Concussion	0	1	2	39	42
Open and superficial wounds	1	104	41	803	949
Limbs	0	91	38	714	843
Head (including eyes)	0	8	1	56	65
Other	1	5	2	33	41
Contusions and crushings	0	112	84	813	1,009
Limbs	0	67	43	484	594
Head (including eyes)	0	16	16	130	162
Other	0	29	25	199	253
Multiple injuries and other	0	17	8	225	250
Limbs	0	12	7	195	214
Head (including eyes)	0	2	0	10	12
Other	0	3	1	20	24
Multiple injuries and other	3	14	7	92	116
<b>TOTAL FEMALES</b>	<b>5</b>	<b>1,785</b>	<b>1,039</b>	<b>8,064</b>	<b>10,893</b>

(a) Inc. (Incidence) is the number of injuries per 1,000 workers

(b) Time lost is not included for temporary disability cases resulting in three or more years off work

Table 2.5 Nature of injury: Number, incidence, time lost and cost (cont.)

Nature of injury and bodily location	Temporary disability cases only		Gross incurred cost	
	Total	Time lost (weeks) (b)	Total \$ '000	Median \$
	Average	Median	Average	Median
<b>Males</b>				
Fractures and dislocations	10.5	5.0	16,584	4,535
Limbs	10.4	5.3	13,936	4,553
Other	10.9	4.7	23,249	4,431
Sprains and strains	8.5	2.6	249,248	2,853
Back	8.6	2.4	138,311	2,541
Limbs	8.2	2.7	63,546	3,114
Neck and shoulders	8.4	2.6	26,729	2,800
Other	8.7	3.1	20,662	1,630
Concussion	5.9	1.9	4,374	3,335
Open and superficial wounds	5.9	2.0	46,947	1,666
Limbs	5.8	2.0	39,740	1,624
Head (including eyes)	6.3	1.6	3,797	1,389
Other	6.3	2.5	3,409	2,242
Contusions and crushings	6.9	2.1	28,564	1,848
Limbs	6.3	2.0	16,461	1,731
Trunk (including back)	8.3	2.1	5,150	1,681
Other	8.8	2.3	6,953	2,474
Burns	5.2	2.0	7,846	1,269
Limbs	4.5	2.0	2,792	4,535
Head (including eyes)	5.6	1.4	588	5,205
Other	7.7	2.4	4,466	27,397
Multiple injuries and other	7.6	1.6	24,075	3,000
<b>TOTAL MALES</b>	<b>8.0</b>	<b>2.6</b>	<b>428,453</b>	<b>2,601</b>
<b>Females</b>				
Fractures and dislocations	13.0	5.7	12,823	4,977
Limbs	12.7	5.9	10,236	5,000
Other	15.0	5.0	2,567	4,531
Sprains and strains	10.5	2.7	95,782	2,735
Back	10.3	2.7	47,994	12,647
Limbs	10.4	2.9	22,444	10,587
Neck and shoulders	11.4	2.9	15,352	14,804
Other	10.9	3.0	9,991	3,524
Concussion	7.2	1.9	202	4,819
Open and superficial wounds	5.0	1.7	3,708	3,908
Limbs	4.2	1.6	3,012	3,573
Head (including eyes)	7.2	2.1	321	4,945
Other	8.3	2.1	375	9,143
Contusions and crushings	8.3	2.1	8,005	7,834
Limbs	7.7	2.0	3,691	6,213
Trunk (including back)	8.9	2.6	1,368	8,447
Other	2.1	2.946	11,644	1,657
Burns	3.9	1.7	783	3,132
Limbs	3.9	1.7	515	2,407
Head (including eyes)	3.8	1.6	189	15,726
Other	3.5	1.4	79	3,301
Multiple injuries and other	7.3	2.0	1,753	15,109
<b>TOTAL FEMALES</b>	<b>9.8</b>	<b>2.6</b>	<b>123,056</b>	<b>2,354</b>

Appendix B

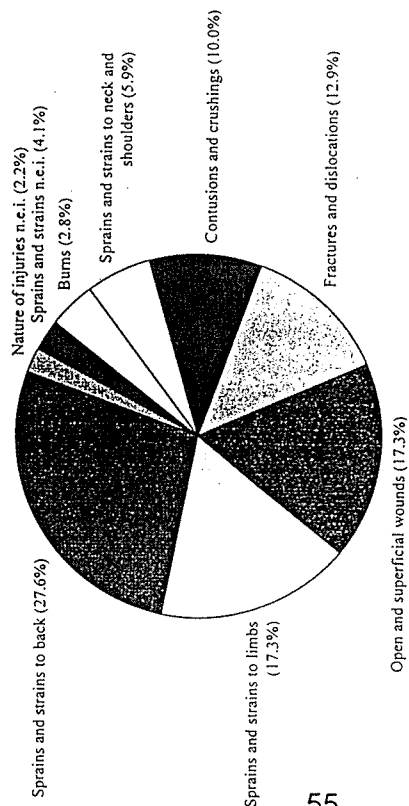
**Table 2.5 Nature of injury: Number, incidence, time lost and cost**  
(cont.)

Nature of injury and bodily location	Fatal	Permanent disability	Temporary disability		Total cases	
			6 months and over	Less than 6 months	No.	Inc. (a)
<b>Fractures and dislocations</b>	8	1,057	453	3,464	4,982	2.3
Limbs	0	851	356	2,737	3,944	1.8
Other	8	206	97	727	1,038	0.5
<b>Sprains and strains</b>	1	4,323	2,153	18,467	24,944	11.3
Back	0	2,116	1,116	9,272	12,504	5.7
Limbs	1	1,263	628	5,696	7,588	3.5
Neck and shoulders	0	544	255	2,115	2,914	1.3
Other	0	400	154	1,384	1,938	0.9
<b>Concussion</b>	4	16	6	106	132	0.1
<b>Open and superficial wounds</b>	10	1,029	315	5,050	6,404	2.9
Limbs	1	951	276	4,427	5,655	2.6
Head (including eyes)	2	49	24	400	475	0.2
Other	7	29	15	223	274	0.1
<b>Contusions and crushings</b>	0	528	296	3,350	4,174	1.9
Limbs	0	368	173	2,274	2,815	1.3
Trunk (including back)	0	55	54	503	612	0.3
Other	0	105	69	573	747	0.3
<b>Burns</b>	2	113	45	979	1,139	0.5
Limbs	0	65	23	739	827	0.4
Head (including eyes)	2	30	12	143	187	0.1
Other	45	137	49	499	730	0.3
<b>TOTAL PERSONS</b>	70	7,203	3,317	31,915	42,505	19.3

(a) Inc. (Incidence) is the number of injuries per 1,000 workers  
(b) Time lost is not included for temporary disability cases resulting in three or more years off work  
(c) Includes sex not stated (1 case)

**Figure 2.6 Nature of injuries - Males**

(Source: Table 2.5)



**Table 2.5 Nature of injury: Number, incidence, time lost and cost**  
(cont.)

Nature of injury and bodily location	Temporary disability cases only		Gross incurred cost		Persons
	Total	Median	Total	Median	
	Time lost (weeks) (b)	\$ '000	\$	\$	
<b>Fractures and dislocations</b>	42,744	11.0	80,222	16,102	4,595
Limbs	33,386	10.9	54,405	13,794	4,650
Other	9,358	11.5	25,816	24,871	4,492
<b>Sprains and strains</b>	185,622	9.1	345,030	13,832	2,809
Back	93,742	9.1	186,305	14,900	2,314
Limbs	53,335	8.8	85,991	11,332	3,000
Neck and shoulders	22,100	9.4	42,081	14,441	2,999
Other	14,445	9.4	30,653	15,817	4,039
<b>Concussion</b>	708	6.4	4,577	34,673	2,043
<b>Open and superficial wounds</b>	30,614	5.7	50,655	7,910	1,512
Limbs	26,529	5.7	42,752	7,560	1,497
Head (including eyes)	2,153	6.1	4,119	8,671	1,500
Other	1,532	6.5	3,784	13,810	2,221
<b>Contusions and crushings</b>	26,374	7.3	36,569	8,761	1,731
Limbs	15,990	6.6	20,151	7,159	1,627
Trunk (including back)	4,665	8.5	6,519	10,651	1,634
Other	5,719	9.0	9,899	13,251	2,174
<b>Burns</b>	5,005	4.9	8,629	7,576	1,153
Limbs	3,314	4.4	3,307	3,999	1,081
Head (including eyes)	583	5.4	777	6,215	1,058
Other	1,108	7.1	4,545	24,305	2,600
<b>Multiple injuries and other</b>	4,087	7.5	25,828	35,381	2,079
<b>TOTAL PERSONS</b>	295,154	8.4	551,509	12,975	2,524

**Figure 2.7 Nature of injuries - Females**

(Source: Table 2.5)

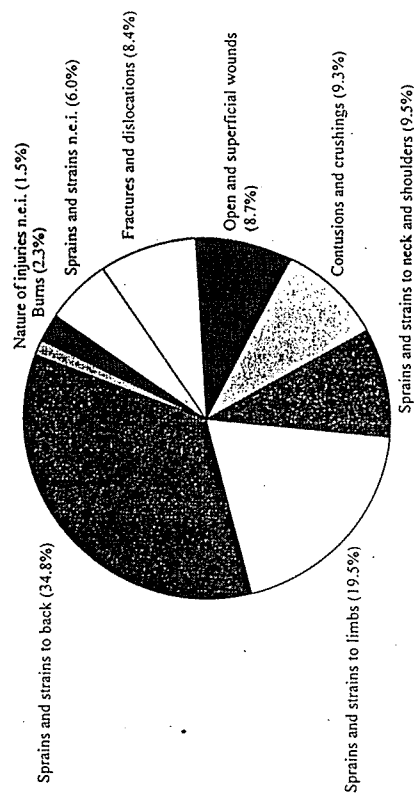


Table 2.6 Industry statistics: Number and incidence by bodily location (selected categories)

Industry	Head and eyes		Neck and shoulders		Back		Arm	
	No.	Inc. (a)	No.	Inc.	No.	Inc.	No.	Inc.
<b>Persons</b>								
Agriculture, forestry and logging etc.	84	2.1	126	3.2	453	11.5	199	5.0
Agriculture	75	2.5	105	3.5	372	12.3	171	5.6
Forestry and logging	5	*	1.5	*	39	*	11	*
Services to agriculture and other	4	0.6	6	0.9	42	6.6	17	2.7
Mining	45	2.0	126	5.7	379	17.0	74	3.3
Coal	33	2.0	68	3.1	191	19.1	61	3.7
Other	12	2.0	16	2.7	68	11.3	13	2.2
Manufacturing	356	1.0	681	1.9	2,587	7.4	991	2.8
Food, beverages and tobacco	60	1.0	177	3.0	559	9.6	301	5.2
Textiles	9	1.3	12	1.7	57	8.2	20	2.9
Clothing and footwear	3	0.2	16	1.0	44	2.7	25	1.5
Wood and furniture	26	1.0	58	2.1	268	9.9	84	3.1
Paper, paper products, printing and publishing	16	0.4	31	0.7	156	3.5	50	1.7
Chemical, petroleum and coal products	20	0.8	43	1.6	153	5.8	39	1.5
Non-metallic mineral products	12	0.8	35	2.3	156	10.2	40	2.6
Basic metal products	44	1.5	69	2.3	216	7.3	60	2.0
Fabricated metal products	76	2.2	66	1.9	331	9.6	123	3.6
Transport equipment	44	3.2	51	3.7	193	13.8	56	4.0
Other machinery and equipment	27	0.5	74	1.3	285	5.1	121	2.2
Miscellaneous manufacturing	19	0.8	49	2.2	169	7.5	72	3.2
Electricity, gas and water	10	0.3	39	1.2	149	4.4	33	1.0
Construction	172	1.4	294	2.4	1,176	9.6	401	3.3
Building construction	46	1.3	68	1.9	276	7.8	108	3.0
Non-building construction	38	2.6	90	6.2	359	24.7	87	6.0
Special trade construction	88	1.2	136	1.9	541	7.4	206	2.8
Wholesale trade	61	0.4	168	1.0	665	4.1	192	1.2
Retail trade	138	0.4	335	1.0	1,333	4.1	507	1.6
Transport and storage	133	1.2	289	2.5	968	8.5	290	2.5
Road transport	62	1.3	145	3.1	458	9.9	144	3.1
Other transport	46	1.1	81	1.9	336	7.9	78	1.8
Services to transport	18	0.9	22	1.0	79	3.8	30	1.4
Storage	7	1.6	41	9.3	95	21.6	38	8.6
Finance, property and business services	98	0.3	185	0.6	716	2.5	241	0.8
Finance and insurance	10	0.1	37	0.4	123	1.3	39	0.4
Property and business services	88	0.5	148	0.8	593	3.1	202	1.0
Public administration	53	0.7	224	3.0	753	10.2	200	2.7
Community services	163	0.3	712	1.5	2,939	6.3	613	1.3
Health	65	0.4	440	2.4	1,902	10.5	348	1.9
Education, museum and library services	28	0.2	100	0.5	441	2.4	121	0.7
Other	70	0.7	172	1.6	596	5.6	144	1.3
Recreation, personal and other services	123	0.6	225	1.2	851	4.5	367	1.9
Entertainment and recreational services	25	0.6	51	1.3	130	3.2	64	1.6
Restaurants, hotels and clubs	88	0.7	145	1.2	625	5.1	270	2.2
Personal and other services	10	0.4	29	1.1	96	3.6	33	1.2
Not stated and other	0	n.a.	7	n.a.	17	n.a.	6	n.a.
<b>TOTAL PERSONS</b>	<b>1,436</b>	<b>0.7</b>	<b>3,411</b>	<b>1.6</b>	<b>12,986</b>	<b>5.9</b>	<b>4,114</b>	<b>1.9</b>

(a) is the number of injuries per 1,000 workers  
...standard error exceeds 25%

Table 2.6 Industry statistics: Number and incidence by bodily location (cont.) (selected categories)

Industry	Hands and fingers		Leg		Feet and toes		Multiple locations	
	No.	Inc.	No.	Inc.	No.	Inc.	No.	Inc.
<b>Persons</b>								
Agriculture, forestry and logging etc.	289	7.3	427	10.8	112	2.8	78	2.0
Agriculture	223	7.4	361	11.9	102	3.4	67	2.2
Forestry and logging	30	4.7	31	4.9	6	0.9	8	0.3
Services to agriculture and other	145	6.5	293	13.1	52	2.3	106	4.8
Mining	97	6.0	235	14.4	36	2.2	80	4.9
Coal	48	8.0	58	9.6	16	2.7	26	4.3
Other	2,355	6.7	1,358	3.9	507	1.4	421	1.2
Manufacturing	455	7.8	282	4.8	125	2.1	99	1.7
Food, beverages and tobacco	22	3.2	31	4.5	6	0.9	13	1.9
Textiles	34	2.1	12	0.7	5	0.3	13	0.8
Clothing and footwear	362	13.4	121	4.5	44	1.6	22	0.8
Wood and furniture	170	3.8	83	1.8	27	0.6	35	0.8
Paper, paper products, printing and publishing	62	2.3	64	2.4	20	0.8	21	0.8
Chemical, petroleum and coal products	88	5.8	76	5.0	19	1.2	18	1.2
Non-metallic mineral products	168	5.7	162	5.5	59	2.0	44	1.5
Basic metal products	416	12.1	187	5.4	83	2.4	54	1.6
Fabricated metal products	157	11.3	125	9.0	37	2.7	22	1.6
Transport equipment	262	4.7	140	2.5	46	0.8	58	1.0
Other machinery and equipment	159	7.1	75	3.3	36	1.6	22	1.0
Miscellaneous manufacturing	50	1.5	85	2.5	13	0.4	36	1.1
Electricity, gas and water	794	6.5	969	7.9	227	1.8	202	1.6
Construction	242	6.8	230	6.5	59	1.7	51	1.4
Building construction	176	12.1	272	18.7	44	3.0	48	3.3
Non-building construction	376	5.2	467	6.4	124	1.7	103	1.4
Special trade construction	423	2.6	398	2.5	138	0.9	100	0.6
Wholesale trade	909	2.8	638	2.0	224	0.7	188	0.6
Retail trade	338	3.0	678	5.9	192	1.7	167	1.5
Transport and storage	158	3.4	306	6.6	87	1.9	89	1.9
Road transport	97	2.3	233	5.5	53	1.2	49	1.1
Other transport	49	11.1	70	15.9	38	8.6	15	3.4
Services to transport	304	1.1	476	1.6	129	0.4	134	0.5
Storage	29	0.3	71	0.7	12	0.1	19	0.2
Finance, property and business services	275	1.4	405	2.1	117	0.6	115	0.6
Finance and insurance	243	3.3	494	6.7	78	1.1	111	1.5
Property and business services	543	1.2	1,288	2.7	230	0.5	428	0.9
Public administration	233	1.3	486	2.7	84	0.5	220	1.2
Community services	99	0.5	315	1.7	59	0.3	83	0.5
Health	211	2.0	487	4.6	87	0.8	125	1.2
Education, museum and library services	664	3.5	562	3.0	146	0.8	183	1.0
Other	59	1.5	148	3.6	37	0.9	22	0.5
Recreation, personal and other services	544	4.4	366	3.0	96	0.8	145	1.2
Entertainment and recreational services	61	2.3	48	1.8	13	0.5	16	0.6
Restaurants, hotels and clubs	9	n.a.	11	n.a.	3	n.a.	5	n.a.
Personal and other services	7,066	3.2	7,677	3.5	2,051	0.9	2,159	1.0
Not stated and other								
<b>TOTAL PERSONS</b>	<b>7,066</b>	<b>3.2</b>	<b>7,677</b>	<b>3.5</b>	<b>2,051</b>	<b>0.9</b>	<b>2,159</b>	<b>1.0</b>

Table 2.8 Mechanism of injury: Number, incidence, time lost and cost

Mechanism of injury	Permanent disability: and over		Temporary disability: Less than 6 months		Total cases
	Fatal	No.	No.	Inc. (a)	
<b>Males</b>					
Fall from a height	9	645	258	2,421	3,333
Fall on the same level	0	660	321	3,387	4,368
Stepping on object	0	36	13	192	241
Hitting stationary object	0	163	95	1,315	1,573
Hitting moving object	0	313	94	1,574	1,981
Hit by falling object	7	280	125	1,504	1,916
Trapped by objects	6	503	107	1,116	1,732
Hit by moving object	17	438	151	1,991	2,597
Body stressing	0	1,974	937	8,315	11,226
Lifting, carrying objects	0	1,157	599	5,115	6,871
Handling objects	0	420	204	2,000	2,624
Other	0	397	134	1,200	1,731
Contact with hot objects	2	70	28	576	676
Contact with electricity	4	11	5	41	61
Contact with chemicals or substances	3	29	14	183	229
Other mechanisms of injury	17	296	130	1,235	1,678
<b>TOTAL MALES</b>	<b>65</b>	<b>5,418</b>	<b>2,278</b>	<b>23,850</b>	<b>31,611</b>
<b>Females</b>					
Fall from a height	0	122	75	518	715
Fall on the same level	0	333	215	1,635	2,183
Stepping on object	0	4	2	19	25
Hitting stationary object	0	45	29	327	401
Hitting moving object	0	35	15	357	407
Hit by falling object	0	41	25	247	313
Trapped by objects	0	53	12	180	245
Hit by moving object	3	51	25	305	384
Body stressing	1	977	575	3,799	5,352
Lifting, carrying objects	0	531	311	2,279	3,121
Handling objects	1	234	146	898	1,279
Other	0	212	118	622	952
Contact with hot objects	0	13	6	199	218
Contact with electricity	0	1	0	10	11
Contact with chemicals or substances	1	6	3	48	58
Other mechanisms of injury	0	104	57	420	581
<b>TOTAL FEMALES</b>	<b>5</b>	<b>1,785</b>	<b>1,039</b>	<b>8,064</b>	<b>10,893</b>

(a) Inc. (incidence) is the number of injuries per 1,000 workers

(b) Time lost is not included for temporary disability cases resulting in three or more years off work

Table 2.8 Mechanism of injury: Number, incidence, time lost and cost (cont.)

Mechanism of injury	Temporary disability cases only		Gross incurred cost	
	Total	Time lost (weeks) (b)	Total	Median
	Average	Median	\$ '000	\$
<b>Males</b>				
Fall from a height	24,883	9.4	60,335	18,102
Fall on the same level	29,590	8.0	55,838	12,783
Stepping on object	1,196	5.9	2,146	8,903
Hitting stationary object	9,266	6.6	11,107	7,061
Hitting moving object	9,231	5.5	13,163	6,644
Hit by falling object	11,802	7.3	26,571	13,868
Trapped by objects	9,912	8.1	24,028	13,873
Hit by moving object	14,286	6.7	33,246	12,802
Body stressing	80,210	8.7	160,568	14,303
Lifting, carrying objects	51,054	9.0	95,973	13,968
Handling objects	17,806	8.2	34,036	12,971
Other	11,350	8.6	30,559	17,654
Contact with hot objects	3,161	5.2	5,206	7,701
Contact with electricity	430	9.3	1,554	25,475
Contact with chemicals or substances	1,119	5.7	3,287	14,352
Other mechanisms of injury	12,144	8.9	31,405	18,715
<b>TOTAL MALES</b>	<b>207,229</b>	<b>8.0</b>	<b>428,453</b>	<b>13,554</b>
<b>Females</b>				
Fall from a height	6,169	10.5	8,692	12,157
Fall on the same level	19,455	10.6	24,481	11,214
Stepping on object	254	12.1	330	13,188
Hitting stationary object	2,685	7.6	2,282	5,691
Hitting moving object	1,666	4.5	1,408	3,459
Hit by falling object	2,227	8.2	2,296	7,336
Trapped by objects	1,249	6.5	2,126	8,678
Hit by moving object	2,163	6.6	2,762	7,194
Body stressing	46,114	10.7	69,362	12,960
Lifting, carrying objects	25,899	10.1	39,686	12,716
Handling objects	11,338	11.0	17,160	13,417
Other	8,877	12.2	12,516	13,147
Contact with hot objects	771	3.8	557	2,555
Contact with electricity	24	2.4	31	2,782
Contact with chemicals or substances	254	5.0	900	15,515
Other mechanisms of injury	4,894	10.3	7,830	13,477
<b>TOTAL FEMALES</b>	<b>87,924</b>	<b>9.8</b>	<b>123,056</b>	<b>11,297</b>

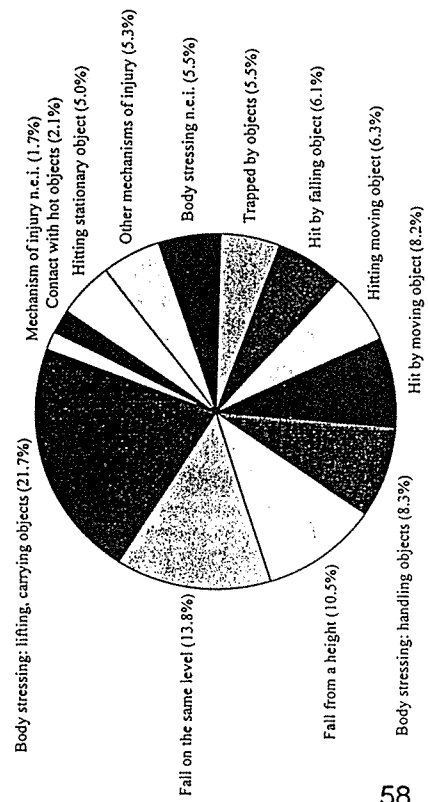
**Table 2.8 Mechanism of injury: Number, incidence, time lost and cost (cont.)**

Mechanism of injury	Fatal	Permanent disability and over 6 months	Temporary disability		Total cases	
			6 months	Less than 6 months	No.	Inc. (a)
<b>Persons</b>						
Fall from a height	9	767	333	2,940	4,049	1.8
Fall on the same level	0	993	536	5,022	6,551	3.0
Stepping on object	0	40	15	211	266	0.1
Hitting stationary object	0	208	124	1,642	1,974	0.9
Hitting moving object	0	348	109	1,931	2,388	1.1
Hit by falling object	7	321	150	1,751	2,229	1.0
Trapped by objects	6	556	119	1,296	1,977	0.9
Hit by moving object	20	489	176	2,296	2,981	1.4
Body stressing	1	2,951	1,512	12,114	16,578	7.5
Lifting, carrying objects	0	1,688	910	7,394	9,992	4.5
Handling objects	1	654	350	2,898	3,903	1.8
Other	0	609	252	1,822	2,683	1.2
Contact with hot objects	2	83	34	775	894	0.4
Contact with electricity	4	12	5	51	72	0.0
Contact with chemicals or substances	4	35	17	231	287	0.1
Other mechanisms of injury	17	400	187	1,655	2,259	1.0
<b>TOTAL PERSONS</b>	<b>70</b>	<b>7,203</b>	<b>3,317</b>	<b>31,915</b>	<b>42,505</b>	<b>19.3</b>

(a) Inc. (Incidence) is the number of injuries per 1,000 workers  
 (b) Time lost is not included for temporary disability cases resulting in three or more years off work  
 (c) Includes sex not stated (1 case)

**Figure 2.8 Mechanism of injury - Males**

(Source: Table 2.8 - Males)



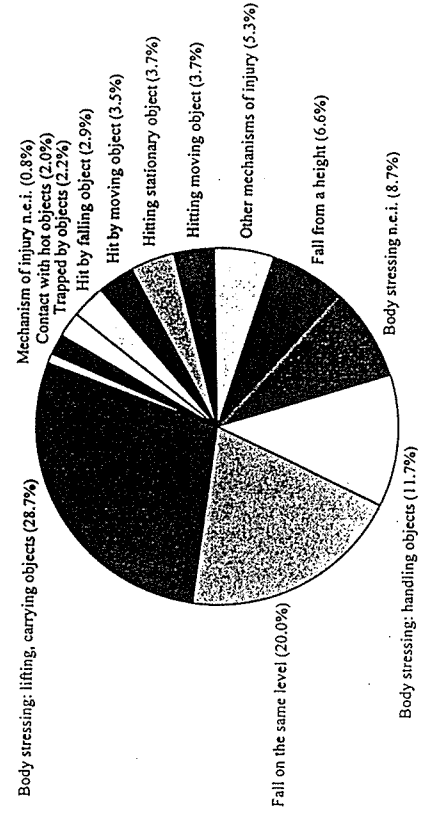
58

**Table 2.8 Mechanism of injury: Number, incidence, time lost and cost (cont.)**

Mechanism of injury	Temporary disability cases only		Gross incurred cost		Persons
	Time lost (weeks) (b)	Total \$ '000	Average \$	Median \$	
Fall from a height	9.6	31,052	17,048	3,750	3.6
Fall on the same level	8.9	49,045	12,260	2,891	2.9
Stepping on object	6.4	1,451	2,475	9,306	2.3
Hitting stationary object	6.8	11,950	6,783	1,429	1.9
Hitting moving object	5.4	10,897	6,101	1,336	1.9
Hit by falling object	7.4	14,029	12,951	2,073	2.4
Trapped by objects	7.9	11,161	26,154	13,229	2.3
Hit by moving object	6.7	16,448	12,079	2,060	2.6
Body stressing	9.4	126,324	13,870	2,802	2.6
Lifting, carrying objects	9.3	76,933	13,577	2,564	2.6
Handling objects	9.1	29,144	13,117	2,850	2.7
Other	9.9	20,227	16,035	3,907	2.9
Contact with hot objects	4.9	3,931	5,763	6,447	1.9
Contact with electricity	8.1	454	22,008	4,291	2.6
Contact with chemicals or substances	5.6	1,373	14,587	1,305	1.7
Other mechanisms of injury	9.3	17,038	17,368	3,300	3.0
<b>TOTAL PERSONS</b>	<b>8.4</b>	<b>295,154</b>	<b>12,975</b>	<b>2,524</b>	<b>2.6</b>

**Figure 2.9 Mechanism of injury - Females**

(Source: Table 2.8 - Females)





File or Case Number	Date of Injury or Onset of Illness	Employee's Name	Occupation	Department	Description of Injury or Illness	Extent of and Outcome of Injury		Type, Extent of, and Outcome of ILLNESS										
						Fatalities	Nonfatal Injuries	Type of Illness		Fertility		Nonfatal Illnesses		Illnesses With Lost Workdays		Illnesses Without Lost Workdays		
(A)	(B)	(C)	(D)	(E)	(F)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
PREVIOUS PAGE TOTALS																		
1	1/26	Fletcher, Harold	Craftsman	Roofs Days	Laceration - left hand													
2	1/30	Gates, William	Driver	Trucking	Sprain of left knee													
3	1/31	Murff, Brian	Craftsman	Roofs Days	Contusion - right thigh													
4	2/13	Anderson, Tom	Craftsman	Roofs Nights	Contusion left rib													
5	2/27	Christensen, Harold	Craftsman	Roofs Days	Sprained back													
6	2/28	Thomas, Roger	Craftsman	Roofs	Lower back strain													
7	3/10	Scott, Rick	Craftsman	Roofs	Laceration - right thumb													
8	3/10	Ocham-pough, Michael	Craftsman	Roofs Days	Right facial laceration													
9	3/14	Patzka, Frank	Craftsman	Roofs Days	Superficial puncture wound abdomen													
10	3/16	Williams, Deryl	Craftsman	Roofs Days	Inflammation - right elbow													
11	3/17	Jendziszewski, Mark	Craftsman	Roofs Days	Puncture - left hand													
12	3/20	Blair, David	Craftsman	Roofs Nights	Puncture - index finger													
13	3/23	Gonzalez, Demasa	Craftsman	Roofs 2ND	Puncture - left palm													
14	4/6	Baker, James	Craftsman	Roofs 1ST	Strain left shoulder													
15	4/11	Widdley, Cedric	Craftsman	Roofs 2ND	Contusion, left wrist													
16	4/13	Stevens, Edward	Craftsman	Roofs 1ST	Contusion, R knee L hand													
17	4/13	Thomas, Roger	Craftsman	Roofs 3RD	Laceration, index finger													
18	4/13	Thomas, Patricia	CRAFTSMAN	Roofs 1ST	CUTS IN FINGERS - LEFT EYE													
TOTALS (Do not include on cases with lost workdays)																		

Appendix C

ILLNESSES

INJURIES

**ELEMENT**

**Health and safety systems not implemented**

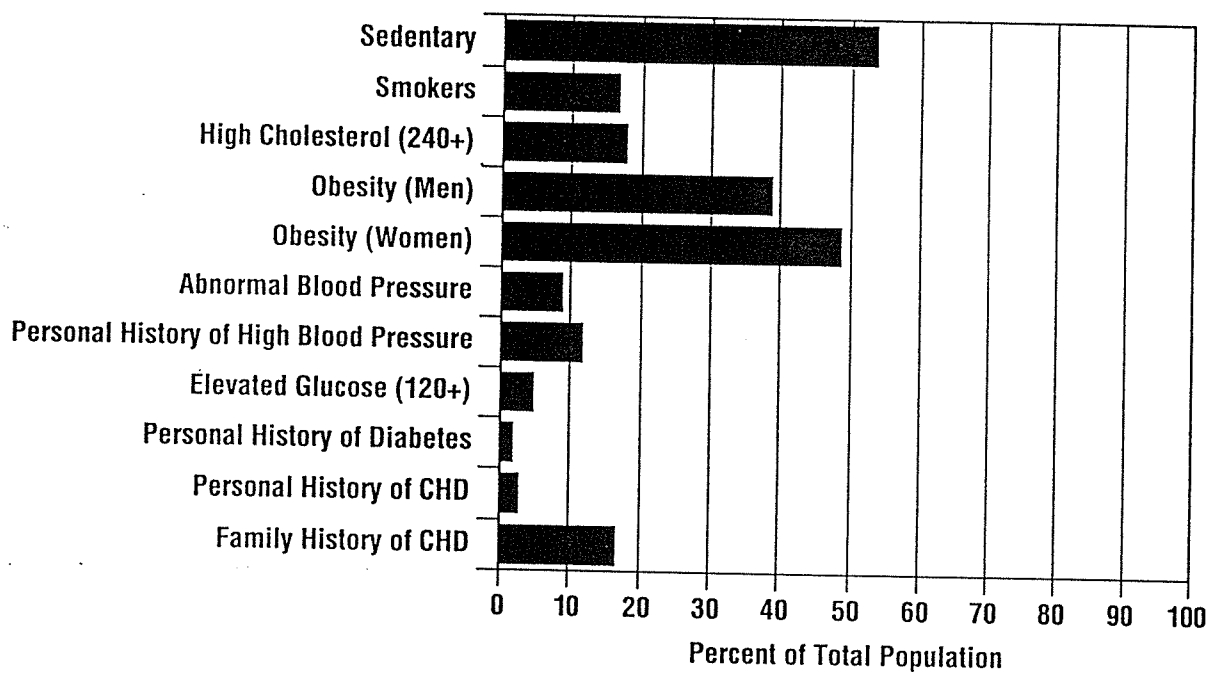
**Best practice in health and safety**

<b>1</b>	<b>BUILDING AND SUSTAINING COMMITMENT</b>	No published health and safety policy statement No statement of health and safety responsibilities	Health and safety committee in place Health and safety responsibilities defined for most positions	Regularly reviewed health and safety policy Management encourages active health and safety committee and consultation with employees Systems ensure accountability for all functions
<b>2</b>	<b>DOCUMENTING STRATEGY</b>	No strategy plan for health and safety management No procedures manual	Low use of procedures manual Manual not reviewed in past 24 months	Management bound by health and safety strategy plan Procedures manual informs decision-making and expresses strategy
<b>3</b>	<b>DESIGN AND CONTRACT REVIEW</b>	No pre-contract or pre-design review	Key contracts reviewed for major risks Training in health and safety provided for design staff	System in place for reviewing all projects and contracts at the tender and design stages
<b>4</b>	<b>DOCUMENT CONTROL</b>	Ad hoc distribution of health and safety documents Out-of-date information displayed on notice boards	All documents are signed and dated prior to circulation	A procedure ensures that obsolete documents are removed from circulation All health and safety documents are archived
<b>5</b>	<b>PURCHASING</b>	Purchase orders do not specify health and safety requirements	Health and safety specifications documented for recognised high-risk materials or equipment	Approved supplier arrangements Suppliers informed of health and safety requirements
<b>6</b>	<b>WORKING SAFELY BY SYSTEM</b>	Verbal instructions predominate for work method control Personal protective equipment (PPE) not available to staff Basic emergency equipment supplied	Safe work procedures enforced for recognised high-risk activities Reliance on PPE in risk control Emergency procedures understood widely Supervisors trained in health and safety	Executives emphasise the productivity and cost-efficiency gains to be derived from sound management of work methods Fully documented safe working procedure Identification and risk assessment are part of continuous improvement process Risk control emphasis is on systems and not other than PPE
<b>7</b>	<b>MONITORING STANDARDS</b>	Inspections are incident-driven and emphasise physical hazards	Inspections are well-ordered and detailed but repeatedly find the same problems	Inspections form an integral part of system management Recorded weaknesses are actioned Environment and health monitoring operating
<b>8</b>	<b>REPORTING AND CORRECTING DEFICIENCIES</b>	No accident/incident reporting	Incident reporting only for compensable injury Sound investigation procedures but inadequate follow-up	Investigations encourage open dialogue and seek out root causes of incidents Comprehensive reporting systems Scheduled follow-up investigations set tight deadlines for action if weaknesses have not been addressed
<b>9</b>	<b>MANAGEMENT MOVEMENT AND MATERIALS</b>	Health and safety not considered in handling and storage Identification of materials incomplete and inadequate	Manual handling tasks assessed High risk materials handling tasks identified Hazardous substances stored in controlled-access areas	Inventory of hazardous substances is up-to-date Documented handling procedures for all substances are adhered to. Program for reduction in manual handling tasks
<b>10</b>	<b>COLLECTING AND USING DATA</b>	Rudimentary records are kept to comply with legislation Few retained records	Data used to set priorities Records maintained in a standard format	Records systems have been designed to enable the collection of information that can contribute to continuous improvement programs Statistical analysis is used to identify key trends Performance targets clearly defined
<b>11</b>	<b>AUDITING OF MANAGEMENT SYSTEMS</b>	No system auditing occurs	Auditing of selected high risk hazards and processes	Auditing of the health and safety management system is a scheduled management activity Audits used to achieve management accountability
<b>12</b>	<b>DEVELOPING SKILLS AND COMPETENCIES</b>	Informal induction includes verbal safety training No training program Informal training in work procedures	Formal induction includes documented health and safety training Training for personnel undertaking high risk tasks	Regular training needs analyses carried out Professional development programs for senior management include health and safety management modules All training is documented

**Appendix D**

## Appendix E

### Major Health Risk Highlights 1995



Participation: 32 Locations  
2,811 Employees

Appendix F

EHS REQUIRED CURRICULUM

#	CURRICULUM Title	Length (hr.)	EHS COORD.	SAFETY SUPV./ ENGIN.	IH SPECLIST.	ENVR. SUPV./ ENGIN.	ERGO. TEAM LEADER	BEHAVIOR STEERING Committee
101	Fundamentals of Safety Management	2	X <sup>1</sup>	X*				
102	General Industry Safety & Health Standards	6	X <sup>1</sup>	X*				
103	OSHA Inspection Procedures	2	X <sup>2</sup>	X*				
104	Incident Investigations	2	X <sup>1</sup>	X*			X	X**
105	Safety KES Process	4	X <sup>1</sup>	X*				
201	Fundamentals of Influencing Behavior	2	X <sup>1</sup>	X				X
202	Organization & Behavior Process Support	2		X				X
203	Behavioral-based Operating Procedures	2	X <sup>2</sup>	X				X
204	The Safe Behavior Observation Process	4	X <sup>2</sup>	X				X
205	Reinforcement and Correction Techniques	2		X				X
206	Data Collection and Process Improvement	2	X <sup>2</sup>	X				X
310	Ergonomics Fundamentals	2	X <sup>1</sup>	X			X	
330	Ergonomic Risk Factors	2	X <sup>1</sup>	X			X	
340	Ergonomic Job Analysis - Anthropometry	2	X <sup>2</sup>	X			X	
342	Ergonomic Job Analysis - MMH	2	X <sup>2</sup>	X			X	
344	Ergonomic Job Analysis -Upper Extremity	2	X <sup>2</sup>	X			X	
350	Ergonomic Solution Development	6		X			X	
360	Implementing an Ergonomics Program	4		X			X	
370	Office Ergonomics	2						
410	Contractor/Construction Safety	6						
420	Control of Hazardous Energies Program	4		X				
430	OSHA Voluntary Protection Program	2	X <sup>2</sup>	X				
440	Workers' Compensation Management	2	X <sup>2</sup>	X				X**

CURRICULUM		Length (hr.)	EHS COORD.	SAFETY SUPV./ ENGIN.	IH SPECLIST.	ENVIR. SUPV./ ENGIN.	ERGO. TEAM LEADER <sup>o</sup>	BEHAVIOR STEERING Committee
#	Title							
450	OSHA Recordkeeping	2	X <sup>2</sup>	X				
455	OSHA 200 Log Recordkeeping Guidelines	4						
460	Process Safety Management	2		X				
470	Fire Protection/Emergency Response Fund.	2	X <sup>1</sup>	X				
480	Confined Space	4		X				
490	Participation in Safety Key Element Survey	-	X <sup>2</sup>	X				
501	Fundamentals of Environmental Regulations	20	X <sup>1</sup>			X		
510	Permitting Air Pollutions Sources	12						
520	Hazardous Waste Management	16						
590	Participation in an Environmental Audit	-						
610	Fundamentals of Industrial Hygiene	16	X <sup>1</sup>		X			
611	Industrial Hygiene Terminology	1						
612	Industrial Hygiene Calculations	2			X			
613	Conducting Chemical-Specific Training	1						
614	Fundamentals of Laboratory Safety	2						
615	Chemical Authorization and Management	1	X		X			
620	Quantitative Chemical Exposure Assessment	2			X			
621	Qualitative Chemical Exposure Assessment	2			X			
622	Confined Space Monitoring	3						
630	Hearing Conservation Program Management	4						
631	Noise Monitoring and Exposure Assessment	2			X			
640	Implementing Respiratory Protection Programs	2			X			
650	Preplanning Emergency Responses	3						
660	Asbestos Rules and Regulations	2						

CURRICULUM		Length (hr.)	EHS COORD.	SAFETY SUPV./ ENGIN.	IH SPECLIST.	ENVIR. SUPV./ ENGIN.	ERGO. TEAM LEADER	BEHAVIOR STEERING Committee
#	Title							
661	Asbestos Implementation	2						
662	Lead	3						
663	Ventilation	2						
670	Ionizing Radiation	2						
671	Laser Hazards and Evaluations	3						
680	Chemical Protective Clothing	2			X			
690	How to Manage Industrial Hygiene Training	2			X			
698	NCG Surveys	2						
699	Performing an IH KES	-	X					
800	Presentation Skills	4		X				

**LEGEND:**

- <sup>1</sup> Level 1 - Required within 12 Months of EHS Coordinator Assignment
- <sup>2</sup> Level 2 - Required within 24 Months of EHS Coordinator Assignment
- \* Course Should be Completed Prior to Other Curriculum Requirements
- \*\* Required for Committee Leaders and/or Facility Program Coordinators (optional for other team members)
- <> All indicated classes are required for team leaders and/or facility ergonomic coordinators. Additionally, classes 310, 330, 340, 342, 344 & 350 are recommended for all ergonomic team members.

## EHS RECOMMENDED CURRICULUM

CURRICULUM		Length (hr.)	EHS MANAGER	CONTRACTOR COORDINATOR
#	Title			
101	Fundamentals of Safety Management	2	X*	X
102	General Industry Safety & Health Standards	6	X*	X
103	OSHA Inspection Procedures	2	X*	X
104	Incident Investigations	2	X*	X
105	KES Process	4	X*	
201	Fundamentals of Influencing Behavior	2	X	
202	Organization & Behavior Process Support	2	X	
203	Behavioral-based Operating Procedures	2	X	
204	The Safe Behavior Observation Process	4	X	
205	Reinforcement and Correction Techniques	2	X	
206	Data Collection and Process Improvement	2	X	
310	Ergonomics Fundamentals	2	X	
330	Ergonomic Risk Factors	2	X	
340	Ergonomic Job Analysis - Anthropometry	2	X	
342	Ergonomic Job Analysis - MMH	2	X	
344	Ergonomic Job Analysis - Upper Extremity	2	X	
350	Ergonomic Solution Development	6	X	
360	Implementing an Ergonomics Program	4	X	
370	Office Ergonomics	2		
410	Contractor/Construction Safety	6		X
420	Control of Hazardous Energies Program	4		X
430	OSHA Voluntary Protection Program	2	X	

CURRICULUM		Length (hr.)	EHS MANAGER	CONTRACTOR COORDINATOR
#	Title			
440	Workers' Compensation Management	2	X	
450	OSHA Recordkeeping	2	X	X
455	OSHA 200 Log Recordkeeping Guidelines	4		
460	Process Safety Management	2		
470	Fire Protection/Emergency Response Fund.	2	X	
480	Confined Space	4		X
490	Participation in Safety Key Elements Survey	-	X	
501	Fundamentals of Environmental Regulations	20	X	
510	Permitting Air Pollution Sources	12		
520	Hazardous Waste Management	16		
590	Participation in an Environmental Audit	-	X <sup>2</sup>	
610	Fundamentals of Industrial Hygiene	16	X	
611	Industrial Hygiene Terminology	1		
612	Industrial Hygiene Calculations	2		
613	Conducting Chemical-Specific Training	1		
614	Fundamentals of Laboratory Safety	2		
615	Chemical Authorization and Management	1	X	X
620	Quantitative Chemical Exposure Assessment	2		
621	Qualitative Chemical Exposure Assessment	2		
622	Confined Space Monitoring	3		
630	Hearing Conservation Program Management	4		
631	Noise Monitoring and Exposure Assessment	2		
640	Implementing Respiratory Protection Programs	2		
650	Preplanning Emergency Responses	3		



CURRICULUM		Length (hr.)	EHS MANAGER	CONTRACTOR COORDINATOR
#	Title			
661	Asbestos Rules and Regulations	2		X
660	Asbestos Implementation	2		X
662	Lead	3		X
663	Ventilation	2		X
670	Ionizing Radiation	2		X
671	Laser Hazards and Evaluations	3		X
680	Chemical Protective Clothing	2		
690	How to Manage Industrial Hygiene Training	2	X	
698	NCG Surveys	2		
699	Performing an IH KES	-		
800	Presentation Skills	4		

**LEGEND:**

\* Course Should be Completed Prior to Other Curriculum Requirements

## Appendix G

# INTERNATIONAL PAPER SAFETY CURRICULUM

### FUNDAMENTALS OF SAFETY MANAGEMENT COURSE OFFERINGS

- 101: Fundamentals of Safety Management (2 hours)
- 102: General Industry Safety & Health Standards (6 hours)
- 103: OSHA Inspection Procedures (2 hours)
- 104: Incident Investigation (2 hours)
- 105: Safety Key Elements Survey (4 hours)

### HUMAN ELEMENTS OF SAFETY COURSE OFFERINGS

- 201: Fundamentals of Influencing Behavior (2 hours)
- 202: Organization and Behavior Process Support (2 hours)
- 203: Behavior-based Operating Procedures (2 hours)
- 204: The Safe Behavior Observation Process (4 hours)
- 205: Reinforcement and Correction Techniques (2 hours)
- 206: Data Collection and Process Improvement (2 hours)

### ERGONOMIC COURSE OFFERINGS

- 310: Ergonomic Fundamentals (2 hours)
- 330: Ergonomic Risk Factors (2 hours)
- 340: Ergonomic Job Analysis - Anthropometry (2 hours)
- 342: Ergonomic Job Analysis - Manual Materials Handling (2 hours)
- 344: Ergonomic Job Analysis - Upper Extremity (2 hours)
- 350: Ergonomic Solution Development (6 hours)
- 360: Implementing an Ergonomics Program (4 hours)
- 370: Office Ergonomics (2 hours)

### MISCELLANEOUS SAFETY OFFERINGS

- 410: Contractor Safety Management/Construction Industry  
Safety and Health Standards (6 hours)
- 420: Control of Hazardous Energies (ZES/Lockout) Program (4 hours)
- 430: OSHA Voluntary Protection Program (2 hours)
- 440: Workers' Compensation Management (2 hours)
- 450: OSHA Recordkeeping (2 hours)
- 460: Process Safety Management (2 hours)
- 470: Fire Protection and Emergency Response Fundamentals (2 hours)
- 480: Confined Space (4 hours)

\* Many of these courses are modularized mini-sessions for courses formerly offered by Corporate Safety. Their relationships are shown on the next page.

## Appendix H

### Site Evaluation for BBSM Readiness

#### Suggested Criteria:

(Yes/No Response)

#### Plan Criteria

A fully-developed strategic/operations plan is in place and current which meets the intent of the following:

\_\_\_\_\_ \* The desired future state is in writing. A vision, mission or some other descriptive document would suffice.

\_\_\_\_\_ \* The values and principle basis for the health and safety program is in writing.

\_\_\_\_\_ \* An exercise has occurred to ensure alignment between the site and the company's vision, values and goals..

\_\_\_\_\_ \* There is a clear, written description of the current state in health and safety.

\_\_\_\_\_ \* A gap analysis has been performed between desired future state and current state.

\_\_\_\_\_ \* Behavior-based safety is clearly a key leverage indicated by gap analysis between current state and desired future state.

\_\_\_\_\_ \* There is a written, long-term health and safety plan to close the gap.

\_\_\_\_\_ \* There is an on-track operational plan in health and safety for the current year clearly tied to long-term plan and desired future state.

\_\_\_\_\_ \* The success measures for each element of the H&S operational plan including "continue and abort" criteria are established as well as a method to track and analyze results.

\_\_\_\_\_ \* Responsibilities assigned for the H&S operational plan.

\_\_\_\_\_ \* Responsibilities are being executed according to plan.

\_\_\_\_\_ \* Realistic expectations and success criteria are developed for BBSM implementation along with measures, tracking and analysis processes.

#### Leadership Understanding and Support Criteria

Site leader and site leadership team members can evidence a full understanding and are committed to the following:

\_\_\_\_\_ \* The principles of BBSM.

\_\_\_\_\_ \* The commitment required (both in terms of personal commitment and organizational resources).

\_\_\_\_\_ \* The long-term nature of BBSM implementation.

\_\_\_\_\_ \* BBSM is a supplement to and not a substitute for reliable, healthy safety management systems.

## Other Leadership Criteria

\_\_\_\_\_ \* Site leader and leadership team has historical proof of follow-through on H&S projects.

\_\_\_\_\_ \* Site leader and LT personally commit to provide the organizational time and resources necessary to implement BBSM.

\_\_\_\_\_ \* Site leader and LT are willing to take on more immediate, high-leverage activities that are identified in the initial assessment - opportunities such as Individuals at Risk, Individual Safety Growth Plans, or JSA's. Site leader is willing to use success criteria from these areas as continue/abort criteria for BBSM implementation. Note: There are often opportunities that are identified in the initial assessment that, if taken advantage of, could produce more immediate safety results while giving BBSM the time to properly evolve. If support is not at a site to execute against an identified, basic opportunity, it would be in everyone's best interest to abort the BBSM effort.

## Other Criteria

\_\_\_\_\_ \* Employees have access to Employee Assistance Program.

\_\_\_\_\_ \* Current state measures indicate that a moderate to high degree of trust exists between management and labor and the site wants to continue to improve.

\_\_\_\_\_ \* Site is willing to support full involvement of hourly as well as management personnel in BBSM.

\_\_\_\_\_ \* Site has support of leadership, union members and employees to implement and use behavior-based safety processes.

\_\_\_\_\_ \* Site has historical trend of following through on projects.

\_\_\_\_\_ \* Documentation exists to demonstrate the ability of the site to fully implement and maintain other initiatives, not just safety related ones. Some examples may be AWARE training, systematic problem analysis and solution, and statistical process control.

## Success Enhancers:

\_\_\_\_\_ \* Site has adopted the direction of HPWS, and can demonstrate progress.

## Appendix I

### Safety Expectations of Leadership in the Corporate Region

**Demonstrative  
safety &  
leadership  
commitment**

Success in safety can be attained by making a commitment to establish and communicate clear measurable goals and put into effect actions conducive to safe behavior.

Expectations...	Recommended Actions & Ways to Accomplish...
Role Modeling	<ul style="list-style-type: none"> <li>• Visibly demonstrate safe behavior and good work practices.</li> <li>• Participate in safety programs and activities:               <ul style="list-style-type: none"> <li>— Safety Committee/Council</li> <li>— Safety Inspections (i.e., Housekeeping)</li> <li>— Safety Audits</li> <li>— Incident Investigations, Reviews, and Follow-ups</li> </ul> </li> </ul>
Accountability	<ul style="list-style-type: none"> <li>• Develop annual Safety Management Plan (include measurable targets &amp; goals).</li> <li>• Document roles &amp; responsibilities within organization (include Business Resumption Plan)</li> <li>• Hold Managers, Supervisors, Team Leaders, and Employees accountable for meeting their responsibilities.</li> <li>• Undertake regular walk-through inspections.</li> <li>• Review all accident, incident, and near-miss reports and follow-up to ensure measures have been taken to correct problems.</li> <li>• Ensure safety training for employees (periodically review records or reports).</li> </ul>
Create the Culture	<ul style="list-style-type: none"> <li>• Stress to employees safety is <u>Top Priority</u> at Weyerhaeuser</li> <li>• Communicate safety goals and policies throughout the organization.</li> <li>• Integrate Safety &amp; Health activities in overall planning cycle.</li> <li>• Sponsor safety improvement teams</li> <li>• Encourage &amp; support employee involvement in safety activities</li> </ul>

*Continued on back*

# Safety Expectations of Leadership in the Corporate Region,

Continued

**Use existing processes**

Success of a safety program depends upon its acceptance by those to whom it is directed. Program acceptance depends on the understanding of all elements and processes of safety.

Expectations...	Recommended Actions & Ways to Accomplish...
Employee Safety Training	<p>Team Leaders will:</p> <ul style="list-style-type: none"> <li>• Identify safety training needs for each employee based on job tasks, hazard exposure potential, and compliance requirements.</li> <li>• Provide support for necessary training resources.</li> <li>• Review organization's safety training records at least annually to ensure initial and refresher training are accomplished as needed and required.</li> </ul>
Safe Reliable Methods (i.e., JSA's, SOP's, etc.)	<ul style="list-style-type: none"> <li>• Develop reliable processes for all operations and procedures that include hazard and risk analysis.               <ul style="list-style-type: none"> <li>— Note sequential steps to a task.</li> <li>— Identify all hazards.</li> <li>— Specify control measures.</li> </ul> </li> </ul>
Incident Reporting & Follow-up (i.e., SOS, Injury/Illness, Near-Miss, Unsafe Conditions/Behaviors)	<ul style="list-style-type: none"> <li>• Investigate all serious injuries and near-misses.</li> <li>• Start investigation within 24 hours.</li> <li>• Complete corrective actions within 30 days for serious incidents.</li> </ul>

**Use facts & data**

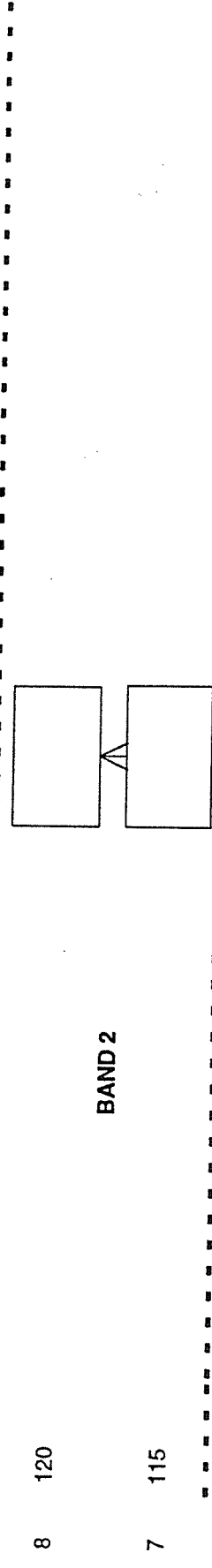
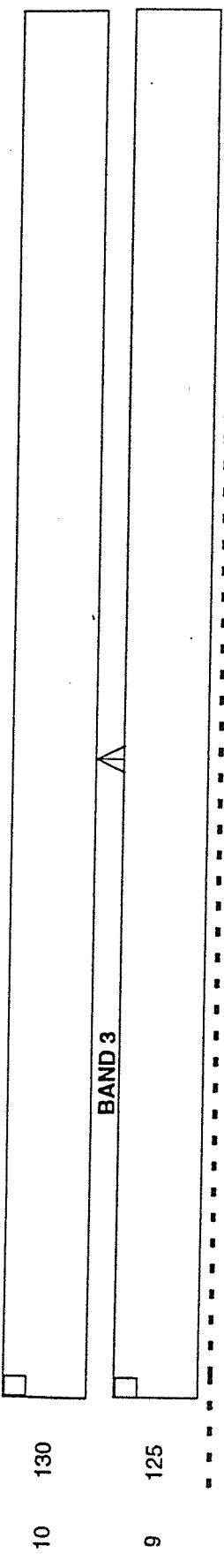
- Focus on trends, not specific incidents.
- Verify your team has their current near-miss and safety data on injuries/illnesses documented and displayed.

**Resources for information**

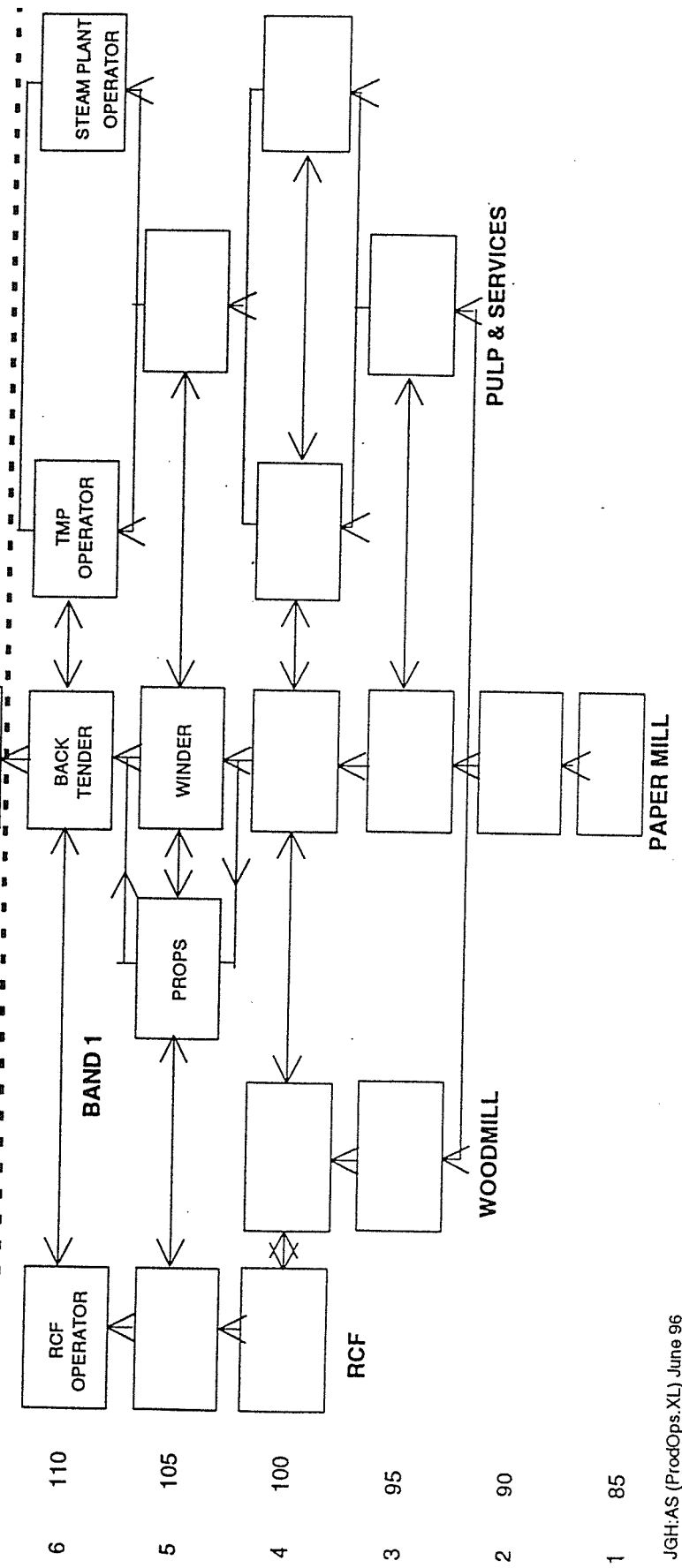
This document was developed from the following sources:

- 1997 Areas of Safety Emphasis
- Weyerhaeuser South East Pulp, Paper, & Packaging Mill Safety Benchmarking Key Learnings (for Safety Success)
- VPP (Voluntary Protection Program) Self Assessment Check list.
- Corporate Safety & Health Resource Manual, Section 1 - Management
- Safety Milestone Audit Criteria

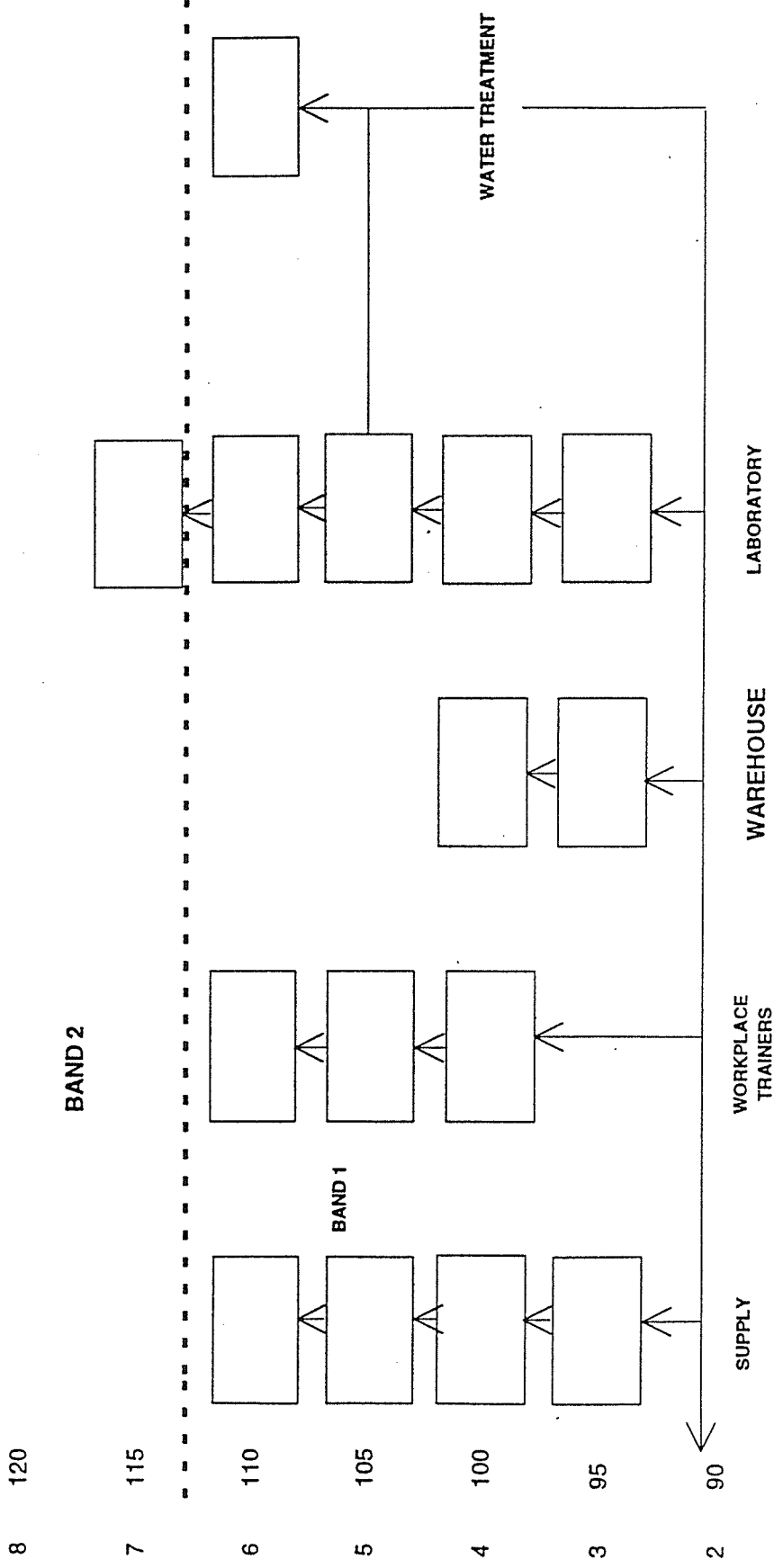
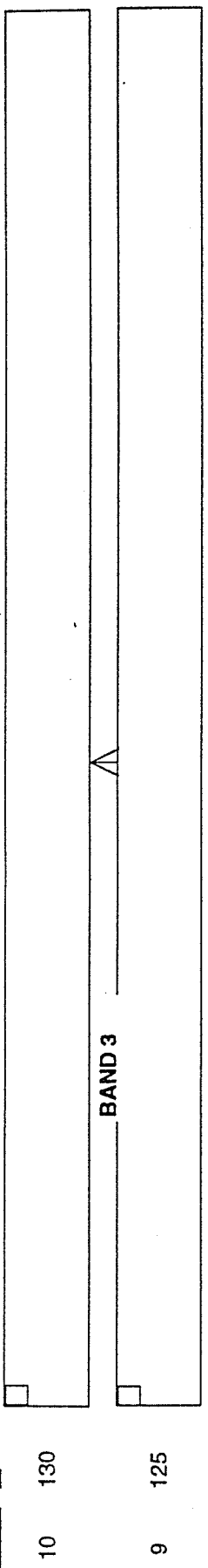
PROCESS OPERATOR  
 GRADE %



Appendix J



PROCESS OPERATOR  
 GRADE %



NOTE: 1. Movement between streams can occur at any level provided there is need (organisational vacancy).  
 2. Although not shown, the structure does provide for multi-point entry which also provides the opportunities for maximising recognition of prior learning.



**WORKPLACE TRAINER -E(NEW EMPLOYEES)  
NEWSPRINT PRODUCTION OPERATIVE LEVEL**

LVL	PROPOSED TITLE	% RATE	TECHNICAL SKILL BLOCKS CORE	TECHNICAL SKILL BLOCKS SUPPORT	PROCESS ACTION SKILLS	ORGANISATIONAL INTERACTION SKILLS	FORMAL QUALIFICATIONS
4	Process Operator Level 4	105	<ul style="list-style-type: none"> <li>Conduct training</li> </ul>	<ul style="list-style-type: none"> <li>OH&amp;S</li> <li>Housekeeping</li> <li>Operate computer terminals</li> <li>Winder operations 1</li> <li>Operate rewinder</li> <li>Operate wrapper</li> <li>Equipment inspections</li> <li>Control Dryer Screens</li> <li>Basic instrumentation</li> <li>Basic pneumatics</li> <li>Basic hydraulics</li> <li>Basic electrical systems</li> <li>Operate Vax</li> <li>Operate crane</li> <li>Maintain production flow</li> <li>Restore production</li> <li>Assist with PM clothing changes</li> <li>Maintain basement</li> <li>Roster trainees</li> <li>MMS (level 1)</li> </ul>	<ul style="list-style-type: none"> <li>Quality system</li> </ul>	<ul style="list-style-type: none"> <li>Managing effective working relationships (NGMS 106)</li> <li>Dealing with conflict (NCS 005)</li> </ul>	<ul style="list-style-type: none"> <li>Workplace Trainer 1</li> <li>Workplace Assessor</li> <li>Fluid flow (chemical plant skills NCC 2.3)</li> <li>Certificate of Pulp &amp; Papermaking</li> </ul> <p align="center"><u>Unit</u></p> <ul style="list-style-type: none"> <li>24 Pulp Refining and Screening</li> <li>25 Use and effects of Chemical Additives</li> <li>26 Paper Defects</li> <li>27 Paper Mechanical and Physical Qualities</li> <li>31 Measurement</li> <li>35 Heat Work and Energy</li> <li>43 Fibre/Water Recovery/Safety Practices</li> </ul>

## Appendix K

### Company names and reference locations in report

Australian Newsprint Mills, Ltd	pp. 2, 5, 11, 12, 13, 20, 21, 22, 24, 36, 38, 42, 43, 44, 46, 46, 49, 51, 73
Brown & Dureau Building Materials	pp. 5, 12, 18, 21, 24, 28, 38, 42, 44, 45, 48, 49, 51
Carter Holt Harvey Wood Products Mill, Myrtleford	pp. 6, 12, 13, 21, 24, 27, 36, 38, 42, 44, 45, 47, 49, 51
CSR Timber Products	pp. 6, 11, 12, 13, 17, 21, 25, 37, 38, 42, 43, 46, 50, 51
Carter Holt Harvey Taupo Saw Mill	pp. 6, 12, 14, 21, 25, 26, 31, 32, 37, 38, 48, 51
Fletcher Wood Panels, Auckland	pp. 6, 12, 22, 25, 44, 51
Gang-Nail Truss Co. of Visalia	pp. 6, 10, 11, 12, 18, 23, 25, 29, 32, 33, 42, 51
Imperial Components, Inc.	pp. 6, 10, 12, 14, 15, 20, 25, 29, 33, 34, 37, 42, 52
International Paper Co.	pp. 6, 11, 12, 13, 15, 16, 23, 37, 44, 48, 54, 62
NVR Building Products Co.	pp. 6, 10, 12, 16, 18, 23, 25, 43, 52
Riverwood International Corp., Wood Products Division	pp. 6, 11, 12, 13, 16, 17, 37, 42, 53
Stark Truss Company, Inc.	pp. 6, 10, 12, 15, 21, 38, 39, 42, 44, 52
Thomasville Furniture Industries, Inc.	pp. 6, 12, 15, 20, 25, 35, 37, 38, 40, 41, 42, 44, 52
Weyerhaeuser	pp. 2, 6, 11, 12, 13, 14, 18, 19, 21, 43, 49, 52, 61, 69, 71
Wood Structures, Inc.	pp. 2, 6, 10, 11, 12, 14, 15, 18, 31, 34, 37, 42, 44, 45, 48, 52