

Amputations in Forest Products Manufacturing



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Amputations in Forest Products Manufacturing



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ABOUT THIS REPORT

From 1993 to 1997, more than 200 men and women in the British Columbia forest products manufacturing industry suffered amputations on the job. They lost fingers, hands, and even legs in a series of debilitating workplace accidents. All of the injuries were permanent. And, sadly, most—if not all—were preventable.

This report looks at the amputations that occurred in the industry during that five-year period. It examines the statistics behind the amputations and provides some important information about why and how many of these accidents occurred. It also reveals the high costs associated with amputations.

The Workers' Compensation Board (WCB) of British Columbia is working with the Forest Products Manufacturing Advisory Group (FPMAG) to develop a series of initiatives designed to reduce the number of amputations in the industry. This report is the first step in the process. It outlines some of the key steps that employers can take to reduce the number of amputations that occur in their workplaces. (The FPMAG is a forum with representatives from industry, labour, and the WCB's Prevention Division, created specifically to encourage the industry to take responsibility for workplace health and safety, and to develop a long-term injury reduction strategy.)

Working together we can make a difference.

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HIGHLIGHTS OF THIS REPORT

From 1993 to 1997, the WCB accepted 206 amputation claims from workers in the forest products manufacturing industry. Since most of the claims came from workers in sawmills, shake and shingle mills, and value-added wood products mills, this report focuses on those industry sectors. In all, it examines 148 of the 176 claims accepted for those industry sectors. (It does not include the 30 claims accepted from workers in pulp and paper or plywood mills.)

Equipment Type

The three primary sources of amputations were:

- Saws (30%)
- Conveyors (19%)
- Planers (11%)

Injury Causes

Four causes accounted for 95% of the amputations:

- Lack of guarding (or ineffective guarding) (32%)
- Failure to lock out or de-energize equipment (24%)
- Poor or non-existent work procedures (21%)
- Lack of training and/or supervision (18%)

Note: Most claims had more than one cause. For the purposes of this report, we've listed the primary cause as documented in the claims file.

Worker Experience

This report shows that all workers, even those with many years of experience in the industry or with a specific firm, suffered a higher proportion of amputations when they were new to the job or working on a new piece of equipment. In fact, employees new to the job (with six months or less experience) experienced 43% of the amputations.

Age

Young workers (15 to 24 years old) experienced 18% of the amputations. And workers under the age of 35 experienced 52% of the amputations. This suggests the need to include young workers in our prevention strategies.

Occupation

A breakdown by occupation reveals that saw operators experienced 30% of the amputations, millwrights/welders 17%, and planer operators 11%.

INTRODUCTION

This report looks at amputations suffered by workers in sawmills, shake and shingle mills, and value-added wood products mills from 1993 to 1997. It is designed to shed some light on the problem by showing where, when, and how most of the accidents occurred. Stakeholders can then use the information to develop a series of strategies to reduce the number of amputations experienced by workers within this industry. Amputations were selected as a focus because they are very traumatic injuries. Workers are left with permanent disabilities from which they never fully recover.

Where the Information Comes From

This report examines 148 of the 176 amputation claims accepted from workers in sawmills, shake and shingle mills, and value-added wood products mills from 1993 to 1997. (That's 84%.) One hundred and forty-eight claims records were used because that was the number available for analysis at the time this report was written.

This report does not include statistics for the 30 claims accepted from workers in pulp and paper or plywood mills during this time period. We chose instead to focus on the industry sectors from which the majority of claims originated.

All of the information in this report comes from WCB claim files. More specifically, it comes from the following documents within those claim files: the Employers Report of Injury or Industrial Disease (Form 7), the Workers Report of Injury or Industrial Disease (Form 7A), the Physician's Report, and when available, the Accident Investigation Report.

When the data was reviewed, the following assumptions were made:

- For any given claim, job titles may vary from one form to the next. This may depend on the perception of the person filling out the form (for example, the employer, employee, or physician). For the purposes of this report, we chose the job title that most closely matched the job function being performed at the time of the accident.
- The machine quoted as the source of injury was the device that actually amputated the body part or, in a few instances, the device that had the largest influence on the amputation.

Note: In some tables and charts, the percentages do not total 100 due to rounding.

Appendices 1 and 2

For more information about the amputation claims included in this report, see the appendices.

Appendix 1 provides a breakdown of claims costs and days lost per industry from 1993 to 1997. It also includes a breakdown of costs for pulp and paper and plywood mills, and provides some statistics from 1998.

Appendix 2 provides additional information about each of the 148 claims analysed in this report.

Classbins and Classification Units

Prior to January 1, 2000, the WCB used classbin numbers to describe different business or industry sectors. From that date forward, the WCB switched to a new system of classification units. Since this report looks at data from before the year 2000, it uses the older classbin system. However, for clarity's sake, the following table shows both classbins and classification units for the relevant industry sectors.

Table 1: Industry sector classbins and classification units

Industry sector	Classbin	Classification unit
Sawmills	10501	714022
Shake and shingle mills	10900	714023
Value-added wood products mills	10503	714015
	10505	714033
	10508	714032
	10509	714004
	10700	714007
		714017
		714025
		714035
	10703	714009
	10704	714031
10705	714038	

1998 Statistics

While this report focuses on amputations that occurred from 1993 to 1997, it is important to note that amputations continue to be a problem. From 1993 to 1997 the WCB accepted an average of 35 claims per year from workers in sawmills, shake and shingle mills, and value-added wood products mills. In 1998 the WCB accepted 42 amputation claims from that same group. Clearly the problem is not going away. If we want to reduce the number of amputations that workers suffer in these industry sectors, we must come up with a whole new prevention strategy.

Note: For information about claims costs from 1993 to 1998, see Appendix 1 at the back of this report.

AMPUTATIONS: A BREAKDOWN

This section provides information about the following categories:

- Equipment Type
- Injury Causes
- Worker Experience
- Age
- Occupation

Equipment Type

Figure 1 shows the types of machinery most frequently involved in amputations. Collectively, saws (of all types) were the highest source of amputation. Conveyors, planers, and belts and pulleys were also leading sources of injury.

Figure 1: Number of claims by equipment type, 1993–1997

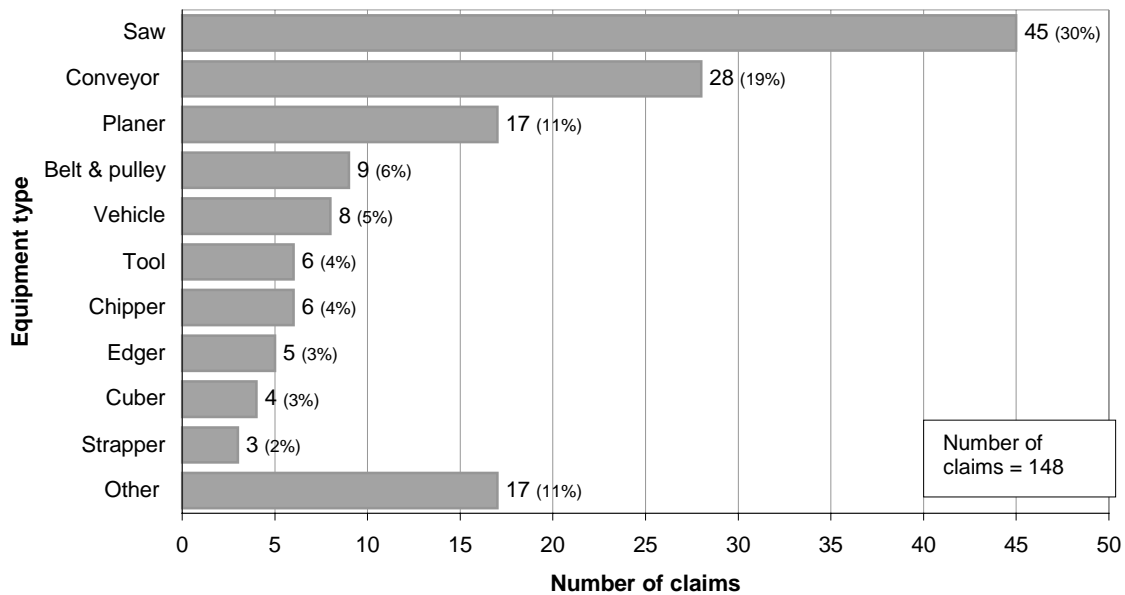
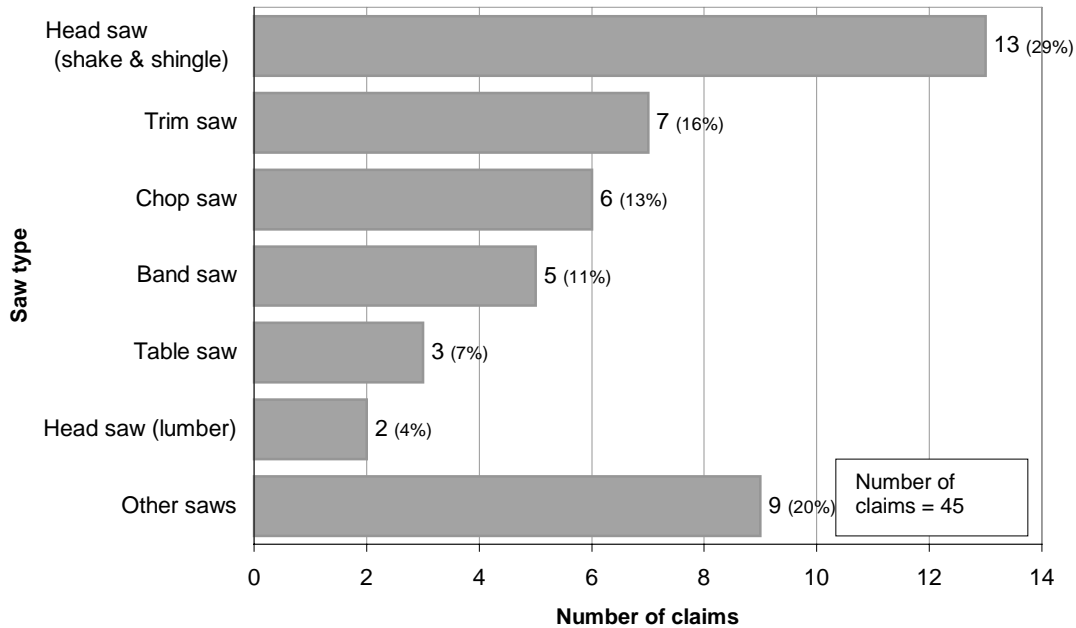


Figure 2 shows the types of saws most frequently involved in amputations.

Figure 2: Number of claims by equipment type for saw-related amputations, 1993–1997



Note: “Other saws” includes the following types of saws: power, resaw, flat, radial arm, groover, post, and ridge cap.

Saws

Saws were the number one source of amputation (30%). This is not surprising when you consider that many of the workers using saws, such as shake and shingle sawyers, must stand very close to the cutting edge of the blade. Within this category, the shake and shingle head saw resulted in the highest number of amputations, followed by trim saws and chop saws. Collectively these three types of saws accounted for almost 60% of the saw-related amputations.

Common causes of these accidents include the operator inadvertently touching the rotating saw with one hand while reaching for a piece of wood with the other hand and/or the operator inadvertently activating the saw while a hand was in the path of the cut.

Examples

- The first day on the job a trim saw operator left his hand resting on a piece of wood that was to be cut. He looked away and inadvertently pressed the foot pedal, activating the saw. The saw amputated the fingers and thumb on his left hand.
- A shingle sawyer on the job two months was changing the position of the wood block on the carriage when his hand accidentally hit the saw, severing three fingers.
- A 22-year-old chop saw operator tried to activate his saw. It didn't work. He cleared some wood out of the way and tried again, still expecting it not to work. To his surprise, it worked. Before he could move his hand out of the way, the saw amputated two of his fingers.
- A 17-year-old student had a summer job working on a chop line. He placed his hand under the saw guard and inadvertently stepped on the activation pedal, severing three fingers.

Conveyors

The second highest source of amputation was chain and belt conveyors (19%). Amputations typically occurred when workers got caught in the chain, sprocket, or rollers of the conveyor while attempting to clear a jam.

Examples

- A 19-year-old student working part-time in a lumber mill was attempting to remove a stick caught in the conveyor drive train. He caught his left hand in the belt. When he tried to use his right hand to remove the left one, it too got caught in the belt. Both hands were pinned for 20 minutes before help arrived. The severe crushing injury resulted in his right hand being amputated at the wrist and his left hand being partially amputated.
- A 22-year-old lost his ring finger on his first day on the job. When he tried to remove a piece of bark caught in a drive belt, his finger got caught in the conveyor.
- A worker was cleaning sawdust off a conveyor when his foot slipped. He was pulled through steel rollers up to his hip. The machine had to be disassembled to remove his leg. The leg was amputated above the knee.

Planers

Planers account for 11% of all amputation claims. In most cases, the planer operators were trying to clear jams when their hands were pulled into the planer blades.

Examples

- A 23-year-old lost all the fingers and thumb on one hand while trying to remove a board that was jammed in a planer. His glove got caught, pulling his hand into the knives.
- A worker was on the job one month when her gloved hand was pulled into the planer. She was trying to extract a board that had been misfed when it was suddenly pulled through the planer, taking her hand with it.
- A 10-year veteran was promoted to planer feeder. Shortly after his promotion, he tried to remove a piece of wood that was jammed in the machine. His hand was pulled in and severed at the wrist.

Belts and Pulleys

Six percent of all the amputation claims occurred when hands were caught between a belt and pulley, usually when a worker pulled on a drive belt to release a jam. Given the high gear ratio, belts can move back very quickly, crushing fingers between the belt and pulley before workers have a chance to react.

Example

- A man with 29 years' experience on the job caught his hand between a steel cable and pulley, severing three fingers.

Chippers

Chippers account for 4% of all amputations. In all cases the workers failed to de-energize the equipment and wait until the blade had stopped before they accessed the hazardous area.

Examples

- When a worker used a steel bar to stop the blade, the blade caught the bar, causing it to strike the worker's finger between the disk and top plate, amputating the middle finger.
- A worker was trying to "unjam" a chipper when his hand was crushed between the trim end and the conveyor.
- A millwright finished clearing a jam in a chipper, then turned the wheel while his hand was still in the way. Two fingers were crushed and had to be amputated.

Lumber Strappers

Three accidents occurred when workers got caught in lumber strappers. Causes included lack of guarding, poor guarding design, and lack of worker training.

Example

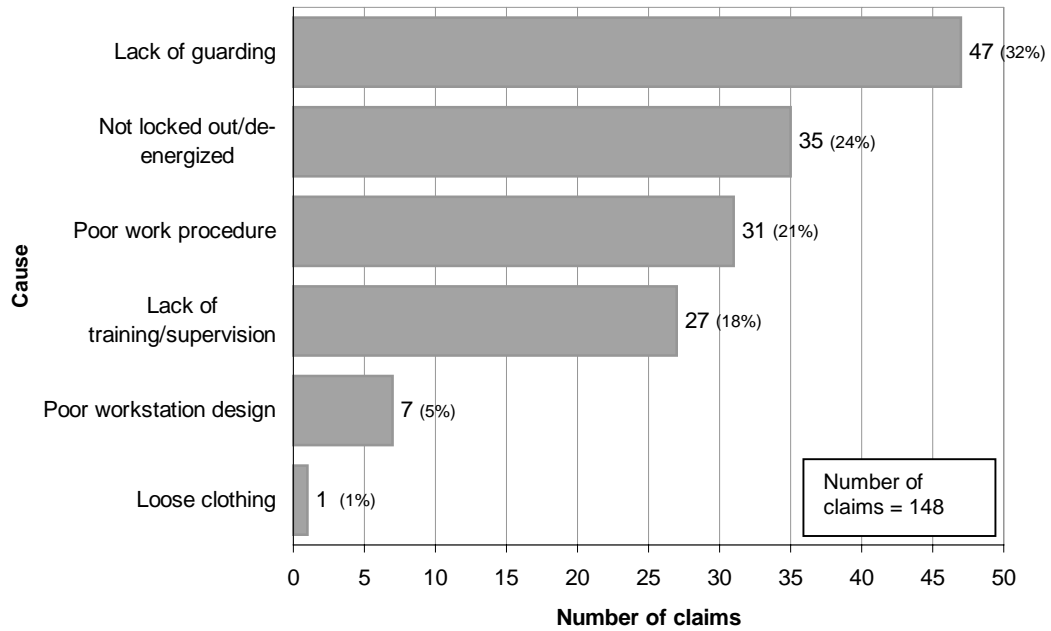
- During the banding cycle, a 28-year-old worker opened the guard to adjust a corner protector on the load of lumber. When she reached between the side press and package, the machine closed, resulting in the amputation of her right arm.

Injury Causes

Figure 3 shows the primary causes of amputations. These include a lack of guarding, failure to lock out or de-energize the equipment, poor work procedures, and lack of training or supervision. In fact, these top four causes account for 95% of all the amputation claims.

Perhaps this is the most significant section in this report because it suggests that all, or virtually all, amputations could be prevented. Solutions can be found through both improved engineering and improved administrative controls. Engineering solutions include machine or workstation designs that protect workers from potential hazards. They range from basic guarding of pinch points to using photo-eyes and interlock systems to de-energize and stop machines before workers enter hazardous areas. Administrative controls include written safe work procedures, thorough employee training, and improved supervision for all new workers. A typical and critical administrative control is to lock out machinery before entering a hazardous area. This ensures that the equipment cannot be inadvertently activated while a worker is nearby.

Figure 3: Primary causes of amputations, 1993–1997



One thing is clear from these results: employers, workers, and equipment suppliers must work together to implement solutions.

Worker Experience

Figure 4 shows the relationship between the amount of time workers had been on the job or with the firm and the number of amputations they suffered. Experience on the job refers to the amount of time an employee had been working on a new machine, with a new process, or in a new job. Experience with the firm was the time an employee had worked for the firm in any capacity.

Figure 4: Number of claims by job and firm experience, in three time increments, 1993–1997

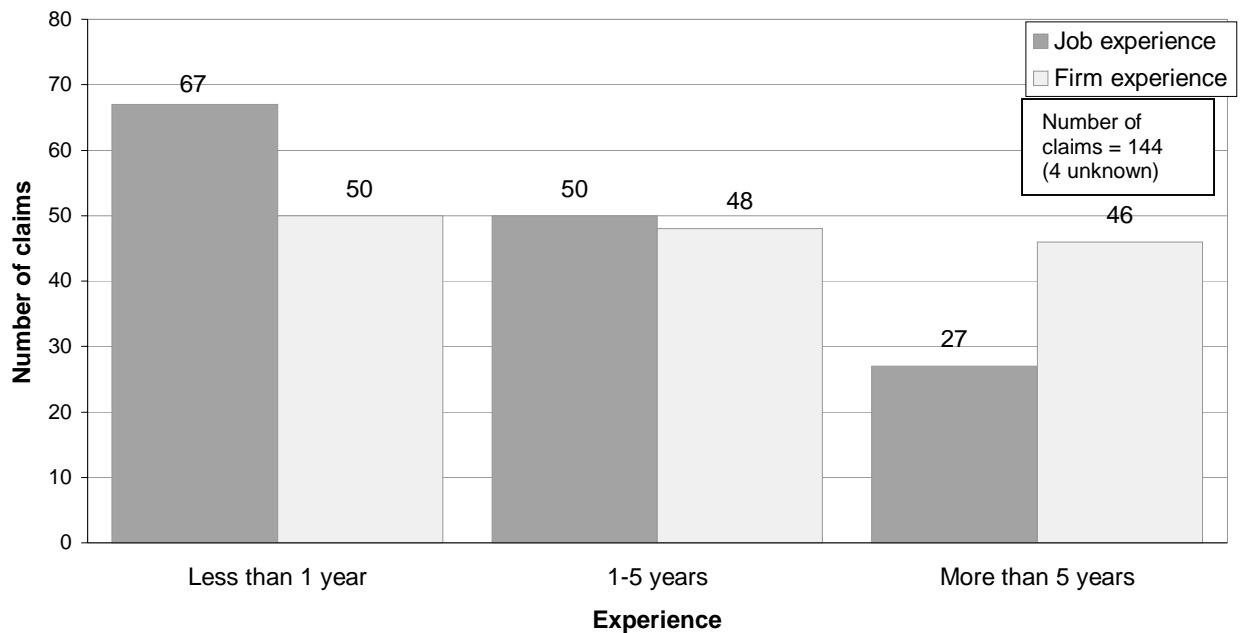
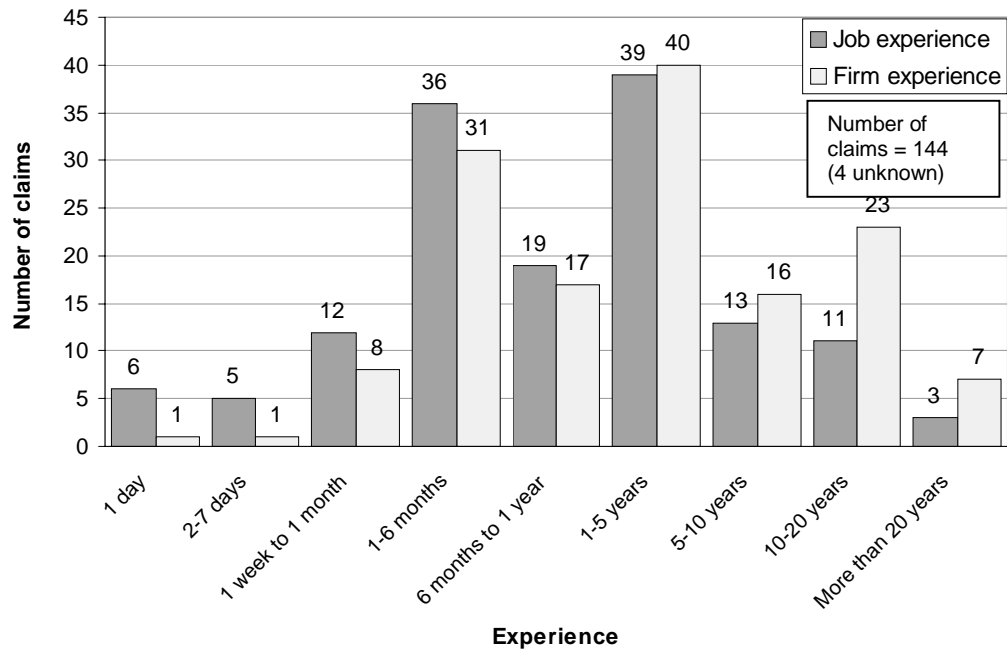


Figure 4 shows that approximately one-third of all amputations (50 claims) happened to workers in their first year with the firm. An even higher number of amputations (67 claims) happened to workers in their first year on the job. In other words, when it comes to amputations, experience with the firm is not as important as experience on the job. The more experience a worker has on a particular job (or with a particular machine), the less likely that worker is to suffer an amputation.

This suggests the importance of thorough training each time a worker is given a new job or expected to work on a new piece of machinery.

Figure 5 is particularly interesting in that it reveals that, from 1993 to 1997, 6 workers suffered amputations the first day on the job, and 11 suffered amputations the first week on the job.

Figure 5: Number of claims by job and firm experience, in nine time increments, 1993–1997

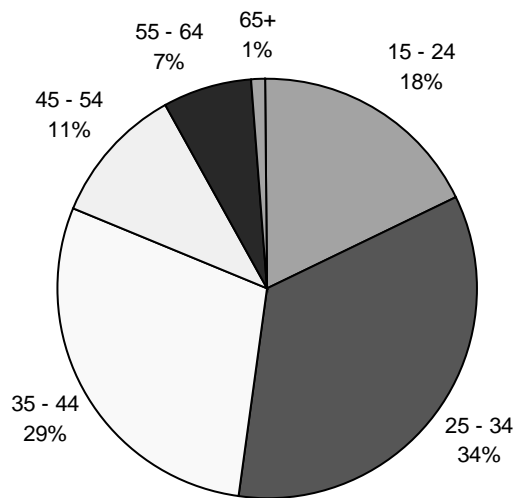


Note: In Figure 5, time periods do not overlap. For example, “1 week to 1 month” includes claims for workers with just over one week experience (8 days) to those with one month experience. And so on.

Age

Figure 6 shows the distribution of workers' ages at the time of the accidents. In all, 52% of the amputations happened to workers under 35 (ages 15 to 34). And 18% happened to workers from 15 to 24 years of age. This suggests the need to focus efforts on young workers who may be new to the job.

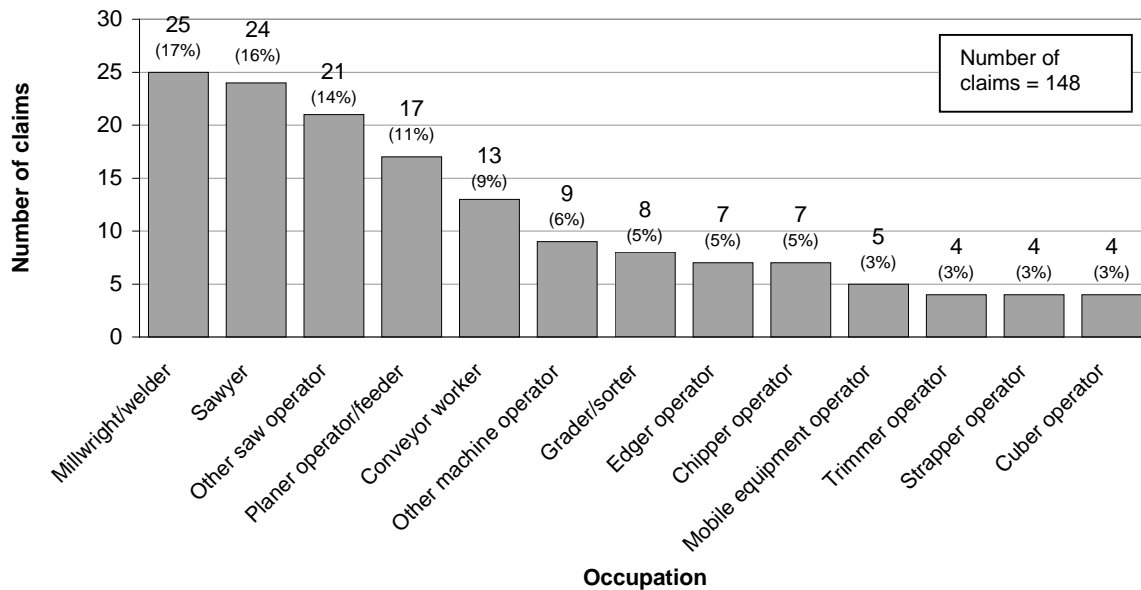
Figure 6: Claims by age, 1993–1997



Occupation

Figure 7 shows that millwrights/welders and saw and planer operators experienced more than half of the amputations. Maintenance workers such as millwrights and welders experienced 17%. Typically these are well-trained tradespeople. However, because of the nature of their work, they often have to work behind the primary guards and safety mechanisms. This places them in a high-risk area where additional controls are critical to the prevention of injury. As indicated in Figure 3, failure to de-energize or properly lock out machinery is one of the leading causes of amputations.

Figure 7: Claims by occupation, 1993–1997



Saw operators (sawyers and others) experienced 30% of the amputations. That's not surprising when you consider that many saw operators, such as shake and shingle sawyers, spend their days working close to moving blades. The design of the head saw places operators in hazardous positions. To avoid injury, constant vigilance is necessary. A strong case can be made for investing in new machine and workstation designs that can reduce this hazard.

Planer operators and feeders also suffered a large number of amputations (11%) largely due to the risks they took in trying to remove jams. Following safe work procedures and de-energizing equipment would go a long way to reducing these injuries.

Clearly these occupations (millwright/welder, saw operator, planer operator, and feeder) should be the focus of improved training and education. Prevention tactics should include:

- Installing or upgrading machine guards
- Improving employee training programs
- Improving lockout procedures to ensure equipment is completely shut down and de-energized

CLAIMS COSTS

This section of the report examines the costs associated with amputation claims accepted from workers in sawmills, shake and shingle mills, and value-added wood products mills from 1993 to 1997. This section also shows which equipment resulted in the most days lost; after all, time-loss has an associated cost and reflects the disruption to the lives of employees and their families.

Claims costs and days-lost data were provided by the WCB Statistical Services Department. (See Appendix 1 for a breakdown by industry.)

We begin by looking at the costs associated with the 176 amputation claims accepted from 1993 to 1997. These costs include time-loss benefits paid plus the amount reserved for ongoing pension benefits. Health care and rehabilitation costs are not included.

During this time, the amputations cost more than \$11.9 million and resulted in more than 23,000 days of lost work. That means the average claim cost approximately \$68,000 and resulted in more than 134 days of lost work. And if you add in the costs for amputation claims from workers in plywood mills and pulp and paper mills during that time, the claims costs jump to more than \$13.2 million, with more than 26,000 days of lost work. If you include costs for 1998 that number jumps to almost \$14 million. (For a breakdown of costs by industry, including figures for 1998, see Appendix 1.)

Equipment Type

The following tables show claims costs for the 148 claims we examined earlier in this report. They show how those costs break down by equipment type and days lost. They include time-loss benefits paid but do not include ongoing payments for pension benefits.

Table 2: Claims costs by equipment type, 1993–1997

Rank	Equipment type	Claims costs (\$)	Percentage of total costs
1	Saw (all types)	1,274,528	29
2	Planer	1,243,945	28
3	Conveyor	476,065	11
4	Belt and pulley	291,344	7
5	Chipper	194,741	4
6	Edger	182,166	4
7	Tool	174,338	4
8	Vehicle	167,023	4
9	Other lumber handling equipment	60,293	1
10	Cuber	51,029	1
11	Strapper	38,144	1
12	Other equipment	296,010	7
	Total	4,449,626	101

Table 3: Claims costs by equipment type for saw-related amputations, 1993–1997

Rank	Saw type	Claims costs (\$)	Percentage of costs
1	Chop saw	572,239	45
2	Trim saw	204,691	16
3	Head saw (shake and shingle)	141,379	11
4	Band saw	47,832	4
5	Head saw (lumber)	23,971	2
6	Table saw	22,978	2
7	Other saws	261,438	21
	Total	1,274,528	101

Table 4: Days lost by equipment type, 1993–1997

Rank	Equipment type	Days lost	Percentage of days lost
1	Saw (all types)	4,442	31
2	Conveyor	2,047	14
3	Planer	1,956	14
4	Chipper	999	7
5	Belt and pulley	948	7
6	Vehicle	624	4
7	Cuber	620	4
8	Tool	490	3
9	Edger	401	3
10	Other lumber handling equipment	228	2
11	Strapper	186	1
12	Other equipment	1381	10
	Total	14,322	100

Table 5: Days lost by equipment type for saw-related amputations, 1993–1997

Rank	Saw type	Days lost	Percentage of days lost
1	Trim saw	1,182	27
2	Chop saw	991	22
3	Head saw (shake and shingle)	888	20
4	Band saw	241	5
5	Head saw (lumber)	230	5
6	Table saw	106	2
7	Other saws	804	18
	Total	4,442	99

Saw-related amputations alone (from 1993 to 1997) cost almost \$1.3 million and resulted in more than 4,400 days lost. Planers resulted in almost as high a cost (\$1.2 million).

Conveyors also show a high cost and time-loss. Some examples of prudent investments for conveyors may include guarding pinch points and installing convenient de-energization and lockout systems to power down and secure the machinery before clearing jams. Similar arguments can be made for other machinery listed in Tables 2 to 5.

Claims Costs by Industry

Appendix 1 shows the distribution of claims costs and days lost per industry from 1993 to 1997. The majority of claims costs and days lost come from the sawmill industry. Lumber remanufacturing and shake and shingle mills also showed significantly higher losses than the rest of the forest products manufacturing industry. This reflects both the comparative sizes of these industries and the inherently higher risk.

Firm Costs

Based on the 148 claims analysed earlier in this report, Table 6 shows that a large portion of claims costs (46%) originated from a small portion of firms (22%). This means that approximately one-fifth of the firms were responsible for almost half the claims costs.

Table 6: Comparing costs by type of firm, 1993–1997

Type of firm	Percentage of firms	Cost (\$ millions)	Percentage of total claims cost
With more than one claim	22%	2.06	46%
With one claim	78%	2.39	54%

Note: Table 6 costs include time-loss benefits paid but do not include ongoing payments for pension benefits.

While more than one amputation in any given firm could just be a coincidence, the claim files reveal an interesting pattern. After the first accident, the people involved did not always seem to take the proper preventive action to ensure that similar accidents wouldn't happen down the road. This may be influenced by size of the firms (larger firms would likely have more claims) or it may be a reflection of the quality and effectiveness of the safety programs in those companies.

When more than one amputation occurred at any given firm, the second and subsequent amputations were often due to one of the following:

- Corrective actions didn't work because the true cause of the original accident was never determined and preventive measures were never implemented.

- Corrective actions were not implemented in a timely manner. Once implemented they worked, but unfortunately, often they were not taken soon enough.
- A proper risk analysis was not performed on new equipment or processes. This resulted in inadequate safeguards or poor work procedures. A repeat amputation occurred by the same means, but on a different machine.

Companies that have established good safety records should be encouraged to share their work practices and processes with others in the industry.

RECOMMENDATIONS

Interim Solutions

Within the forest products manufacturing industry, employers should be encouraged to take immediate steps to eliminate the leading causes of amputations through improved machine guarding, work procedures, training, and supervision. Some suggestions:

- Make sure all pinch points and other hazards are properly guarded to prevent inadvertent contact with these hazardous areas.
- Make sure that workers always fully de-energize and lock out all equipment before entering hazardous areas.
- Make sure that workers do not attempt to clear jams or make adjustments before the machinery has been shut down and rendered “safe.”

Efforts should also be focused on improving engineering and administrative controls in the areas where amputations are occurring. Some suggestions:

- Start with the types of equipment that are the primary sources of amputations. These include saws, conveyors, planers, belts and pulleys, chippers, and lumber strappers.
- Concentrate on the types of workers who are having the most amputation accidents. This includes workers who are young, workers who are new to a job or a piece of machinery, and workers in the following occupations: millwright, welder, saw operator, planer operator or feeder.

Long-Term Solutions

The forest products manufacturing industry should continue to expand collaborative initiatives among stakeholders. Working together, employers, workers, industry representatives, union representatives, and the WCB can develop a strategy for reducing amputations in the forest products manufacturing industry. Collaborative efforts should include the following activities:

- Work with firms that have low incident rates to identify and publicize best practices. Ensure that firms that have experienced more than one amputation are included in any and all prevention strategies.
- Develop and implement a worker orientation program for both young workers and those new to a job that can be used by every sector within the forest products manufacturing industry.
- Develop and pilot a supervisor training program for the forest products manufacturing industry. Such a program would help ensure that employees receive adequate supervision and that they reach and maintain a high level of competency.
- Work with stakeholders and equipment manufacturers to identify equipment guarding and other engineering solutions. The WCB should publish a manual that lists machine-guarding solutions for the types of equipment involved in amputations.

APPENDIX 1

Claims Costs and Days Lost Per Industry, 1993–1997 and 1998

Claims Costs and Days Lost per Industry from 1993 to 1997

Industry	1993			1994			1995			1996			1997			Total	
	cost \$	% (1)	days	cost \$	% (1)	days	cost \$	% (1)	days	cost \$	% (1)	days	cost \$	% (1)	days	Cost \$	Days
10501 - Sawmills, Chipping	1,705,747	54.6	2,381	1,132,317		2,641	1,310,776	67.5	1,979	1,602,871	52.1	2,700	1,386,354	42.1	2,497	7,138,065	12,198
10900 - Shingle or Shake Mills	472,301	15.1	586	306,028	17.3	570	225,948	11.6	1,092	259,589	8.4	1,861	363,655	11.0	1,447	1,627,521	5,556
10508 - Lumber Remanufacturing	718,652	23.0	456	74,470	4.2	853	114,139	5.9	597	936,652	30.4	647	393,549	11.9	981	2,237,462	3,534
10705 - Mfg. Chopsticks, Flooring	12,373	0.4	83	12,361	0.7	94	1,558	0.1	-	-	-	-	1,287	0.0	27	27,579	204
10700 - Mfg. Sash & Door, Moulding	57,356	1.8	488	38,991	2.2	201	135,757	7.0	298	51,479	1.7	381	54,626	1.7	356	338,209	1,035
10509 - Kiln Drying	-	-	-	-	-	-	-	-	-	-	-	-	14,716	0.4	96	14,716	96
10704 - Mfg. Wooden Box, Pallett	-	-	-	63,405	3.6	-	45,867	2.4	-	25,572	0.8	355	232,287	7.0	223	367,131	578
10505 - Mfg. Fence Posts, Poles,	-	-	-	-	-	-	6,952	0.4	166	7,323	0.2	190	49,786	1.5	-	64,061	356
unknown	-	-	-	-	-	-	-	-	-	20,380	0.7	50	159,809	4.8	-	180,189	50
																11,994,933	23,607
10701 - Plywood	117590	3.8	350	69193	3.9	122	35261	1.8	105	130,183	4.2	137	47,925	1.5	421	400,152	1,135
10400 - Pulp & paper	37937	1.2	309	67348	3.8	398	67048	3.5	321	43,131	1.4	246	591,722	18.0	643	807,186	1,917
Total	3,121,956		4,653	1,764,113		4,879	1,943,306		4,558	3,077,180		6,567	3,295,716		6,691	13,202,271	26,659

(2)

(3)

Claim Costs and Days Lost per Industry for 1998 and Total for 1993-98

Industry	1998			Total 1993-98	
	cost \$	% (1)	days	Cost \$	Days
10501 - Sawmills, Chipping	252,101	34.4	2,162	7,390,166	14,360
10900 - Shingle or Shake Mills	110,843	15.1	1,296	1,738,364	6,852
10508 - Lumber Remanufacturing	25,576	3.5	215	2,263,038	3,749
10705 - Mfg. Chopsticks, Flooring	-	-	-	27,579	204
10700 - Mfg. Sash & Door, Moulding	4,142	0.6	35	342,351	1,070
10509 - Kiln Drying	-	-	-	14,716	96
10704 - Mfg. Wooden Box, Pallett	29,273	4.0	123	396,404	701
10505 - Mfg. Fence Posts, Poles,	-	-	-	64,061	356
unknown	-	-	0	180,189	50
				12,416,868	27,438
10701 - Plywood	160,811	22.0	795	560,963	1,930
10400 - Pulp & paper	149,682	20.4	888	956,868	2,805
Total	732,428		5,514	13,934,699	32,173

(4)

(5)

Notes:

- (1) Percentage of total dollar cost of all industries listed for that year
- (2) Totals for the focus industries in this report, 176 claims
- (3) Totals including plywood and pulp&paper, 206 claims
- (4) Totals for the focus industries through 1998, 218 claims
- (5) Totals including plywood and pulp&paper through 1998, 225 claims

APPENDIX 2

Claims Summary, 1993–1997

Claims Summary, 1993 – 1997

No.	Equipment	Occupation	Experience with Firm	Experience on the Job	Body Part (1)	Age	Accident	Primary Cause of Accidents
Belt & Pulley								
1	Chipper belt/pulley	Labourer	4 months	4 months	1	20	Tightening chipper belts; put hand on belt before chipper quit turning. Hand was placed inside the guard and pulled into the pulley	Equipment not de-energized
2	DAE pulley	Millwright	6 months	6 months	5	26	Replacing belt on drive; hand caught between belt & sheave	Equipment not de-energized
3	V-belt pulley	Welder	1 ¼ years	1 ¼ years	4	43	While turning belt by hand, the belt was turned on by another worker at the other side. Finger was caught between V-belt & pulley	Not locked out
4	Cut off saw belt/pulley	Millwright	4 years	4 years	1,2,3,4,5	39	Turning cutoff saw using belts; hand jammed between belts & sheave	Poor work procedure
5	Pulley	Millwright	7 years	7 years	5	43	Checking machine, climbed on before it stopped, put finger between drive belt & pulley	Equipment not de-energized
6	Belt/pulley	Strip piler	10 years	10 years	5	35	Piling strips, guard not in place, finger caught in the drive belt	Lack of guarding
7	Drive belt pulley	Millwright	15 ¼ years	15 ¼ years	5	34	Guard fell down hitting his hand and knocking it into the belt drive	Equipment not de-energized
8	Tilt hoist belt/sheave	Tilt hoist operator	18 years	18 years	3	43	Caught finger while trying to release tension	Poor work procedure
9	Planer	Planer operator	29 years	29 years	2,3,5	59	Cable came off pulley. While replacing it, it rolled back & caught hand between cable & pulley	Equipment not de-energized
Chipper								
10	Chipper	Millwright	44 years	2 months	4, 3	73	Portable chipper clogged. Moved the wheel manually and crushed two fingers	Poor work procedure
11	Chipper	Clean-up worker	3 months	3 months	3	19	While using a crow-bar to stop the blade his finger was caught between the disc & top plate	Equip not de-Energized
12	Chipper	Attendant	17 years	1 year	leg	42	Cleaning sawdust waste return chain. Trying to catch a spool groove when his foot slipped, leg was caught and pulled through the 3 inch diameter rollers up to his hip	Lack of guarding
13	Chipper	Labourer	3 years	1 year	2,3	25	Hand was crushed between trim end and conveyor while trying to unjam the chipper	Equipment not de-energized
14	Chipper	Millwright	2 years	2 years	3	52	Finger was pulled into chipper while trying to remove a jammed block	Lack of guarding
15	Chipper	Grinder	8 ½ years	3 ½ years	2	31	Adjusting knife in holder when his foot caught the pedal activating the cylinder and struck hand	Lack of guarding

Claims Summary, 1993 – 1997

No.	Equipment	Occupation	Experience with Firm	Experience on the Job	Body Part (1)	Age	Accident	Primary Cause of Accidents
Conveyor								
16	Conveyor roller chain	Lumber piler	9 days	5 days	L.hand, 1	26	While under mill to clean up, mill started and another strip caught his arm pushing it into the conveyor chain and sprocket. Grabbed left hand with other hand, both hands went into sprocket.	Lack of training
17	Hew saw outfeed belt	Labourer	2 months	2 weeks	4	31	2x4 hanging on outfeed belt, tried to unjam, kicked up & pinched finger	Poor work procedure
18	Conveyor	Millwright	10 months	10 months	3	32	Prying with pinch bar, slipped & pinched finger	Poor work procedure
19	Conveyor rollers	Labourer	1 year	1 year	4	37	Caught finger between rollers while cleaning them	Poor work procedure
20	Conveyor	Oiler	8 years	4 years	1,2,3	38	Hand caught in conveyor	Lack of guarding
21	Conveyor belt	Chipper	13 years	13 years	5,4	50	Checking belt, slipped on debris, hand caught between belt & idler	Equipment not de-energized
22	Conveyor	Operator	Unknown	unknown	3,4	56	Trying to unjam conveyor, fingers caught in conveyor	Equipment not de-energized
23	Conveyor	Edger operator	1 1/3 years	6 months	5	51	Conveyor jammed and not moving, leaned on drive belt, vibration in mill caused belt to move pulling hand into the pulley at the motor	Equipment not de-energized
24	Conveyor	Labourer	3 months	3 months	1,2,3,4,5 & 1	19	Both hands caught in drive train while reaching into moving drive train to remove a stick	Lack of training
25	Conveyor chain	Load checker	4 months	11 weeks	2	20	Putting bag on, glove caught in lift, chain moved, finger caught between lumber	Poor work procedure
26	Chain – barker	Oiler	2 weeks	2 weeks	right leg	31	Oiling infeed chain; chain caught coveralls and pulled leg under the shaft	Loose clothing
27	Conveyor	Packer	10 years	10 months	2	45	Clearing out end of Grizzly conveyor; hand pulled in when glove caught in cogs	Lack of training
28	Grading table	Grader	2 months	2 months	1	20	Clearing wood jam between unscrambler bar and grading table when co-worker re-engaged chain feed bar. Feedbar caught thumb and pulled in between bar and grading table	Not locked out
29	Chain drive	Labourer	3 months	3 months	3	32	Reached to unclog pile of stickers when finger caught by chain sprocket	Lack of guarding
30	Conveyor Pulley	Fore person	4 months	4 months	2	34	While pulling chain on conveyor another worker turned on breaker switch	Not locked out
31	Sorting chains-pulley/cable	Labourer	4 months	4 months	3,4	19	Fingers caught in pulley while straightening board	Lack of training
32	Conveyor	Lumber piler	5 months	5 months	1	44	Handing equipment to sawyer; put hand on chain and thumb caught in roller	Lack of guarding
33	Chain Sprocket	Edger operator	6 months	6 months	1	34	Dust resulted in impaired vision; caught thumb between sprocket & chain	Lack of guarding
34	Conveyor chain	Attendant	4 years	1 year	foot -1,2	46	Foot caught in sprocket while straightening a log	Lack of guarding

Claims Summary, 1993 – 1997

No.	Equipment	Occupation	Experience with Firm	Experience on the Job	Body Part (1)	Age	Accident	Primary Cause of Accidents
35	Green chain	Sorter	1 1/3 years	1 1/3 year	5	33	Hit by 4x4 while throwing piece onto load	Poor work procedure
36	Scragg saw	Mill worker	2 years	2 years	3	25	Lifting log from Scragg saw; Hand slipped and finger caught between log and chain	Lack of guarding
37	Conveyor	Grader	18 years	2 ½ years	5	63	Overhead transfer chains stopped because chain was jumping. Pushed the Stop button. Put hand on frame when conveyor was activated by another operator	Equipment not locked out
38	Feeder chain	Feeder	3 years	3 years	4	23	While removing a splint the chain caught glove and pulled into drive sprocket	Lack of guarding
39	Conveyor debarker	Saw operator	7 years	7 years	5	43	Hand caught under log, crushing little finger	Poor work procedure
40	Resaw conveyor	Operator	15 years	8 years	4	32	Mitt caught in sprocket while unplugging a jam	Equipment not de-energized
41	Conveyor chain	Welder	19 years	19 years	5	43	Clearing jammed conveyor chain when finger caught between pipe and drive guard	Equipment not de-energized
42	Conveyor	Sawyer	N/A	N/A	1,2	22	Leaning on guard and slipped into chain and sprocket	Poor work procedure
43	Chain drive sprocket	Clean-up Worker	1 year	1 year	2	18	Cleaning up around edger; drive caught glove & pulled finger into sprocket	Lack of training
Cuber								
44	Barn shake machine	Cuber	1 ½ years	4 months	3,4	39	Reaching for a blank when the knife came down and cut fingers	Lack of guarding
45	Cuber	Cuber	7 months	7 months	2	34	Caught finger between splitter and block while cubing shakes	Lack of guarding
46	Cuber	Cuber	1 year	1 year	2,3	21	Using cuber to split wood and left fingers on top of wood when the blade came through	Lack of guarding
47	Cuber	Cuber	2 ½ years	2 ½ years	2	29	Left hand on wood while cubing blocks and the shingle knife cut off a finger.	Lack of guarding
Edger								
48	Mobile edger	Sawyer	1 week	1 week	4	36	While measuring a cut the bottom saw caught glove and pulled hand in.	Lack of guarding
49	Edger	Piler	2 months	2 months	3	23	Finger caught in press roller	Lack of guarding
50	Edger	Edger operator	1 year	3 months	5	34	Unjamming edger infeed when blocks broke loose and pushed finger against crossbar	Lack of guarding
51	Edger	Edger operator	2 ½ years	2 ½ years	4,5	31	Fixing jam at infeed of edger. Pushed the board by hand and caught hand in the infeed roll	Equipment not de-energized
52	Edger	Labourer	1 Day	1 Day	4	22	Piece of bark wrapped around edger. Reached to grab it and glove snagged in teeth	Lack of training

Claims Summary, 1993 – 1997

No.	Equipment	Occupation	Experience with Firm	Experience on the Job	Body Part (1)	Age	Accident	Primary Cause of Accidents
Lumber Handling								
53	Resaw	Labourer	5 months	3 days	5	17	Pulling lumber. Finger caught between 2 boards	Lack of training
54	Lumber sorting	Sorter	6 weeks	6 weeks	5	32	Reached in waste area to recover a piece of lumber. Hand caught in trim leg	Lack of training
55	Hoist	Labourer	3 ¼ years	3 ¼ years	1	34	Tried to pull board from strapped lift of lumber on hoist. It released and hit thumb	Poor workstation design
Other Machines								
56	Shake splitter	Operator	1 month	1 month	1,2	25	Adjusting a log. Log slipped, operator lost balance and activated control valve	Poor workstation design
57	Bark shredder	Maintenance	29 years	2 months	4,5	62	Opened chute door and stuck hand in to take out bark. Shredder caught fingers	Lack of training
58	Cant kicker	Foreman	1 year	2 months	1,2,3,4,5	30	Hand pinched between cant kicker and cant	Poor work procedure
59	Chip feeder	Millwright	6 months	6 months	4	44	While changing feeder knife, another person was turning chip feeder using drive belt. Finger severed when blade unexpectedly came around	Poor work procedure
60	Joiner	Reman	6 months	6 months	5	28	Pushing frame through joiner. Finger was below board surface and hit blade	Lack of training
61	Shaper	Operator	6 months	4 months	5	35	Feeding shaper. A piece of wood got stuck, tried to clear, glove caught in rollers	Lack of guarding
62	Sputter axe	Sawyer	27 weeks	27 weeks	2	30	Cleaning off axe with left hand when right hand (on switch) slipped and axe hit finger	Poor work station design
63	Dry kiln	Attendant	12 years	1 year	2	44	Opening kiln door. Catch released, weight forced handle up and pinched fingers	Poor work station design
64	Taper block	Millwright	14 years	4 years	4	34	Hand went into motor sheave and crushed by falling sheave	Lack of guarding
65	Moulder	Set up/filer	12 years	8 ½ years	2	?	Board broke apart while moving it through moulder. Board pushed up and hit finger, forcing it over edge of press plate	Lack of guarding
66	Scrambler table	Operator	23 years	15 years	3	42	Reached across to pull board when a board dropped on the hand and finger caught in chains under unscrambler table	Lack of guarding
67	Double-end tenoner	Operator	17 years	17 years	2	38	Shut off main power. Adjusting blower cover on tenoner when finger hit spinning cutter head	Equipment not de-energized
68	Trough	Millwright	17 years	17 years	5	57	Moving a trough, slipped and caught finger	Poor work procedure
69	Log deck	Operator	N/A	N/A	2	35	Hooking reduction gear on log deck. Slipped as it lifted and crushed part of hand	Poor work procedure

Claims Summary, 1993 – 1997

No.	Equipment	Occupation	Experience with Firm	Experience on the Job	Body Part (1)	Age	Accident	Primary Cause of Accidents
Planer								
70	Planer	Feeder	7 years	3 years	5	26	While adjusting pressure bar, hand slipped and caught between ice head and frame	Poor work procedure
71	Planer	Feeder	5 months	1 month	1,2,4	27	Wood stuck in planer rollers. Tried to remove and hand pulled in.	Lack of training
72	Planer	Feeder	10 years	6 months	wrist	34	Trying to remove broken a piece of lumber when hand was pulled into planer	Lack of training
73	Planer	Feeder	12 years	9 months	1	35	Feeder off but blades still on. Tried to remove piece of wood, lost grip, thumb hit blades	Equipment not de-energized
74	Planer	Grader	12 years	1 year	5	35	Straightening a board. Looked away and finger caught in sprocket	Poor work procedure
75	Planer	Feeder	1 ½ years	1 ½ years	1,2,3,4,5	23	While pulling a board out of the machine, glove was caught and hand pulled into cutter knives	Poor work procedure
76	Planer	Feeder	15 years	2 years	2,3	43	Planer jammed but not shut off. Tried to clear jam and hand was pulled in	Equipment not de-energized
77	Planer	Carpenter	2 ½ years	2 ½ years	1,2,3,4,5	57	Clearing jammed board, stumbled and caught hand in planer head	Lack of guarding
78	Planer	Sawyer	3 years	3 years	1	33	Placed hand near the running planer to remove piece of jammed wood and hand was pulled into the blade	Equipment not de-energized
79	Planer	Operator	19 years	3 ½ years	2	43	Clearing wood from planer sidehead and finger was pulled in	Equipment not de-energized
80	Planer	Operator	6 years	6 years	1	51	Glove caught when clearing sliver jammed in sidehead. Thumb was sucked into sidehead	Equipment not de-energized
81	Planer	Operator	7 years	7 years	4,5	51	Unplugging chip blanker side head elbow with a stick when the head grabbed stick and drew hand into knife	Poor work procedure
82	Planer	Operator	5 years	8 years	4, 3	29	Blowing down planer waiting for blades to stop. Blade caught end of air hose (copper tube) and pulled hand in along with air hose tube. Dynamic braking on planer heads didn't work.	Equipment not de-energized
83	Planer	Operator	17 years	9 years	2	41	Clearing jam in planer sidehead with stick. Stick caught and hand pulled in	Equipment not de-energized
84	Planer	Feeder	2 years	N/A	1,2	35	Planer jammed. Tried to remove wood and hand was sucked in	Lack of training
85	Planer	Mill worker	5 years	5 years	5	53	Feeding planer when a board jammed and hit worker. He fell forward and cut finger in saw	Lack of guarding
86	Planer	Operator	N/A	N/A	2	44	Checking planer guide and profile pressure bar for heat build-up. Foreman started feed sending in a 2 x 8 catching finger at pressure bar	Not locked out
87	Head saw	Sawyer	8 months	Less than 1 day	1	42	Accidentally reached into 48" headsaw	Lack of guarding
88	Head saw	Sawyer	2 years 10 months	Less than 1 day	3,4	37	While removing block from carriage his hand hit the saw	Lack of training
89	Saw	Sawyer	2 weeks	2 weeks	2,3,4	42	No comments	Lack of training

Claims Summary, 1993 – 1997

No.	Equipment	Occupation	Experience with Firm	Experience on the Job	Body Part (1)	Age	Accident	Primary Cause of Accidents
90	Head saw	Sawyer	1 month	1 month	1,2	31	Placed wood block onto carriage of shingle machine and started carriage. Failed to observe position of left hand while looking back into carriage. Blade struck hand.	Lack of training
91	Head saw	Sawyer	10 months	10 months	4	21	Sawing a block when hand hit saw	Lack of guarding
92	Head saw	Blocker	4 months	4 months	5	23	Removing shingle from machine and touched finger on headsaw	Lack of training
93	Head saw	Sawyer	5 months	5 months	4,5	26	Put hand out to prevent shingle from falling and hand struck saw	Lack of guarding
94	Saw	Sawyer	9 months	7 months	1,3	32	Turned off machine to remove shake but the saw didn't stop	Equipment not de-energized
95	Head saw	Sawyer	2 years	2 years	4	39	Reaching for shingle and hand hit headsaw blade	Lack of guarding
96	Head saw	Sawyer	4 years	4 years	3,4	45	Reaching for a shingle and hand hit saw	Lack of guarding
97	Head saw	Sawyer	5 years 10 months	5 years 10 months	5	45	Turned to see behind him and hand hit saw	Lack of guarding
98	Head saw	Sawyer	8 years	8 years	5	61	Shingle got caught and pulled finger into saw	Lack of guarding
99	Flat saw	Sawyer	2 months	2 months	4, 3, 2	26	Changing position of block in carriage. Forgot hand was on block while carriage moved into saw	Lack of training
Band Saw								
100	Band mill drop gate	Gateman	16 years	3 days	3	52	Reached for a board and stepped on activation pedal. Gate closed on hand	Poor workstation design
101	Band saw basher rolls	Operator	6 years	2 months	1	36	Basher rolls hit cant and slammed thumb	Lack of guarding
102	Band saw	Sawyer	9 months	9 months	3	39	Block slipped and hand hit saw	Lack of guarding
103	Band saw	Operator	1 year	1 year	3	35	While removing a sliver the piece of wood caught hand and pulled into saw	Equipment not de-energized
104	Band saw	Saw filer	7 years	7 years	4	49	Reached in to clean saw driver roll when hand was caught between roll and saw blade	Equipment not de-energized
Chop Saw								
105	Chop saw	Lumber grader	10 months	1 week	2,3,4,5	25	Right hand got tired, reached across with left hand and foot hit pedal to activate the saw	Poor workstation design
106	Chopper	Operator	2 years 1 month	3 weeks	3	33	Placed a bolt in lathe chuck but it wasn't centered and dropped. Pushed level to move chuck when fingers crushed between bolt & chuck	Lack of training
107	Chopline	Student labourer	3 months	3 months	3, 4, 5	17	Stepped on activation pedal while hand under saw guard	Poor workstation design

Claims Summary, 1993 – 1997

No.	Equipment	Occupation	Experience with Firm	Experience on the Job	Body Part (1)	Age	Accident	Primary Cause of Accidents
108	Chop saw	Foreman	1 ½ years	1 ½ years	1,2,3,4	38	Trimming on chop saw and caught hand in blade	Lack of guarding
109	Chop saw	Operator	21 years	1 year 9 months	4,3	45	Cutting trims with chop saw. Put block in conveyor and pinched fingers between side of saw and wood block. Saw cut fingers	Lack of guarding
110	Chop saw	Operator	3 years	2 ½ years	3, 2	22	Cutting last piece and used hand to clean trim ends away. Activated saw but it didn't work. Tried again while hand was in motion through the path of the saw and it worked this time	Lack of guarding
Head Saw								
111	Head saw	Millwright	6 months	6 months	3	23	Changing teeth. Shank broke and drove hand into saw	Lack of training
112	Tail saw	Sawyer	1 year	6 months	2	33	While sawing, reached back to grab slab when a log jerked and left hand was sucked into saw	Lack of guarding
Other Saws								
113	Power saw	Bucker/ grader	1 month	1 month	big toe	20	Slipped on a log while sizing logs in the log yard. Saw hit boot	Lack of training
114	Resaw	Sawyer	1 month	1 month	3,4	34	Band saw twisted due to ice on wood. The guide slipped and finger hit saw	Lack of training
115	Radial arm saw	Piler	2 months	2 months	3	18	Hand slid down board into saw	Lack of guarding
116	Groover saw	Sawyer – groover	3 months	3 months	4,5	20	Track on groover was jamming. Shut down, locked out, but didn't wait for the head to stop before putting hand in to remove jam	Lack of training
117	Saw post cleaning	Clean up	5 months	5 months	3,4,5	22	Tried to line up a post. It pivoted forward causing him to hit the trigger and blade cut finger	Poor work procedure
118	Ridge cap saw	Sawyer	1 ½ years	1 ½ years	2	25	Putting wood through ridge cap saw. Wood jumped and hand slid to the saw	Lack of guarding
119	Chop saw	Mill worker	4 years	4 years	2	26	While pushing board through chop saw, foot hit pedal activating saw prematurely	Lack of guarding
Table Saw								
120	Table saw	Saw operator	11 weeks	Less than 1 day	2	30	Retrieving piece that fell to side and finger accidentally hit blade	Lack of guarding
121	Table saw	Carpenter	7 months	7 months	1	36	Clearing off cuts on table saw when thumb caught in blade	Lack of guarding
122	Moulder	Wood worker	11 months	11 months	3,4	46	Moulder hold down clamp came loose and a piece of board caught the guard. Tried to move guard without stopping machine	Lack of training
123	Table saw	Labourer	10 weeks	Less than 1 day	2	30	Cutting wood blocks on a table saw. A piece fell to the side, tried to retrieve and finger hit blade	Lack of guarding

Claims Summary, 1993 – 1997

No.	Equipment	Occupation	Experience with Firm	Experience on the Job	Body Part (1)	Age	Accident	Primary Cause of Accidents
Trimmer								
124	Trim saw	Operator	4 months	4 months	4	22	Reached over guard on top of saw to pull board back. Hand slipped and struck saw.	Lack of training
125	Trimmer	Mill worker	2 years	2 years	3,4,5	22	Board jammed at even ending rolls. Removing board when it began operating carrying hand through sprocket	Equipment not de-energized
126	Trimmer	Air clip operator	6.6 years	2 years	1	41	Holding shake against trimmer, end tipped up and thumb hit saw	Poor work procedure
127	Trim saw	Millwright	2 ½ years	2 ½ years	2,3,5	36	Saws were slowing down. inadvertently put hand down on guard, pushing it down to expose blade and cut fingers	Equipment not de-energized
128	Trimmer	Sawyer	3 years	3 years	2	26	Hand slipped while trimming shingles	Lack of guarding
129	Trim saw	Millwright	10 ½ years	10 ½ years	3, 2	40	Saw still turning with power off while timing the chain. Finished job and turned to leave when hand hit saw	Equipment not de-energized
130	Clipper saw – trimming	Labourer	4 years	4 years	3	33	Using two hands to trim shingles. Glove caught and finger pulled into saw	Lack of guarding
131	Trim saw	Trimmer operator	3 years	1 day	1,2,3,4,5	33	Hand resting on wood ready to trim and accidentally hit foot pedal	Lack of training
Strapper								
132	Wrapper	Wrapper	2 years	3 months	3	31	While straightening lumber a finger was crushed between lift of lumber and steel roller	Lack of training
133	Strapper	Packager	14 months	14 months	right arm	28	Worker left control panel and opened gate during banding cycle. Reached between side press & package to reposition edge protector when lumber press closed on arm	Equipment not de-energized
134	Strapper	Millwright	15 years	15 years	2	57	Repairing cornerset on strapper. Corner placer released from jammed position and severed finger	Equipment not de-energized
Vehicle								
135	Truck	Forester	10 weeks	10 weeks	2	25	Driver swerving to avoid a moose. Rolled truck and flew out window. Not wearing seat belt	Lack of guarding
136	Forklift	Operator	1 ¼ year	1 3/4 year	2,4	35	Cleaning forklift cylinder when accidentally hit lifter bar. Cylinder fell and crushed fingers	Equipment not de-energized
137	Forklift	Carloader	5 years	2 years	2	26	Placing lumber on railcars. Caught finger between load and the stacker block he was holding	Poor work procedure
138	Dump truck	Loader	3 years	3 years	3	60	Adjusting dump truck tailgate. Chain securing tailgate shifted and crushed finger	Poor work procedure
139	Forklift	Welder	4 years	4 years	2	45	Fork suspended off floor with chain hoist. Pulled chain to move forks when chain slipped up and caught fingers between chain and fork	Poor work procedure
140	Forklift	Operator	16 years	16 years	4	35	While folding a strip cart it suddenly closed and slammed finger	Poor work procedure

Claims Summary, 1993 – 1997

No.	Equipment	Occupation	Experience with Firm	Experience on the Job	Body Part (1)	Age	Accident	Primary Cause of Accidents
141	Loader	Operator	30 years	30 years	4, 3	60	While trying to thaw out radiator, slipped and caught hand in loader fan	Poor work procedure
142	Boom boat	Maintenance person	31 years	31 years	4, 3	57	While hauling in logs, fingers caught between tow-bit and tow-line	Lack of guarding
Tool								
143	Grinder	Welder	19 years	6 months	1	39	While grinding a chain pin the pin jammed between the rest and machine, catching thumb between wheel & pin	Poor work procedure
144	Moving wood	Maintenance person	2 years	1 year	4	36	Assisting in clearing belt to spray booth. Lifted end of 4m long 5x5 onto metal shelf and dropped it on finger	Poor work procedure
145	Welder fan	Welder	10 years	10 years	5	31	Inserting pin in log loader. Bushing worn so pin cocked and pinched finger between hub and ear of loader shaft	Poor work procedure
146	Welder fan	Welder	1 year	1 year	2	53	Reaching to check governor when bent fan blade hit fingers. Fan shroud (guard) was bent as well	Poor work procedure
147	Pneumatic nailing press	Mill worker	2 years	2 years	1	21	Used hammer to release pneumatic press. Hammer bounced twice, activated nailing press	Poor work procedure
148	Air Cylinder	Mill worker	13 years	13 years	1	46	Adjusting air cylinder. While testing the cylinder came down and smashed thumb	Poor work procedure

Note (1) Body Part Numbering:

- 1 – thumb
- 2 – index finger
- 3 – middle finger
- 4 – ring finger
- 5 – little finger