Department of Labour
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SHEET-METAL WORKER:
OCCUPATIONAL SKILL SHORTAGE ASSESSMENT

2004 Situation: Genuine skill shortage

Current Situation: Genuine skill shortage

Short-term Outlook: Genuine skill shortage

1 Executive Summary

1.1 Findings from the 2005 Survey of Employers who have Recently Advertised indicate that employers had considerable difficulty filling sheet-metal worker vacancies in New Zealand. Only about one in four sheet-metal worker vacancies were filled within ten weeks of advertising. This report considers these survey results in the context of trends in the demand for and supply of sheet-metal workers.

Table 1: Employer Survey Indicators, 2005

	Fill Rate	Average Number of Suitable Applicants
Sheet-Metal Worker	23%	0.6
All Trades Surveyed	37%	1.0

Source: Survey of Employers who have Recently Advertised, Department of Labour.

1.2 The number of employed sheet-metal workers has not increased since the early 1990s. This relatively unchanged demand for labour does not mirror the steady output growth in the metal product, and machinery and equipment manufacturing industries. Firms in these industries have continued to grow by incorporating labour saving technological and organisational practises into their workplace to maintain and enhance productivity.

1.3 The supply of sheet-metal workers probably diminished during the late 1990s and early to mid 2000s. Training levels have been extremely low with the training rate averaging just 1.1% between 2001 and 2004. This was inadequate to cope with retirements which occurred at 1.2% per annum. The supply of sheet-metal workers was further depleted by migratory flows with New Zealand experiencing a substantial net loss of sheet-metal workers and other metal trades workers between 1998 and 2005. The training rate increased considerably in 2005.

1.4 Although training levels have increased recently, the low levels of training coupled with retirements and net migratory outflows during the late 1990s and early to mid-2000s has resulted in a decline in the supply of sheet-metal workers. This decline in supply occurred in the context of a long term trend of constant demand. The Department therefore concludes that there is a **genuine skill shortage** of sheet-metal workers which is reflected in the low fill rate of 23%.

1.5 In the short-term, the demand for sheet-metal workers will subside as market conditions soften. Even with increased training levels though, employers will still experience difficulty in filling their vacancies. A shortage of sheet-metal workers is likely to continue and it will take some time to fill these many existing vacancies in the labour force.

2 Introduction

2.1 This report investigates skill shortages for sheet-metal workers in New Zealand.

2.2 The following section presents key findings from the Department of Labour's (the Department's) *Survey of Employers who have Recently Advertised* (SERA). This survey provides an indication of employer's success in filling advertised vacancies for sheet-metal workers as well as other information on their recruiting experiences. The next two sections investigate trends in the demand for, and supply of, sheet-metal workers. The penultimate section presents some of the issues that arise from the matching of demand and supply in the labour market, such as wage rates. Finally, the 'Assessment' section considers all the information presented in the report and provides a view on whether the occupation is in shortage, and if so, the type of shortage being experienced. A short-term outlook for the shortage situation is also offered.

2.3 Further background to this occupational report, including a discussion of the methodology; a glossary of terms; and an overview of the Department's *Survey of Employers who have Recently Advertised*, including the survey questionnaire, can be found in the 'Background and technical note' at http://www.dol.govt.nz/publications/jvm/trades/2005/background.asp.

2.4 *Sheet-Metal Workers in New Zealand*

2.4.1 Sheet-metal workers (coded 72122 in the New Zealand Standard Classification of Occupations) are skilled trades' people who manufacture, install and repair a range of light metal products such as vents, machine guards, vats and aircraft bodywork. They are sometimes referred to as light metal fabrication engineers.

2.4.2 The Department estimates that there were approximately 3,600 sheet-metal workers employed in New Zealand in 2005. According to the 2001 Census,

sheet-metal workers were employed primarily in the manufacturing (84%) and construction (7%) sectors. Workers in this trade are predominately male, with women making up only 3% of the workforce. In terms of workload, 22% of sheet-metal employees work at least 50 or more hours each week, which has important implications for workplace productivity. In the Census 7% of sheet-metal workers indicated that they were self-employed with no employees.

2.5 *Note on Occupational Classification*

2.5.1 Household Labour Force Survey and External Migration data from Statistics New Zealand are only available at the 3-digit occupational level, with sheet-metal workers falling in the 3-digit category *metal moulders, sheet-metal and related workers*. According to the Census, sheet-metal representation in this occupational group fell from 31% in 1991 to 23% in 2001. Therefore, trends in employment and migration reported from these sources should be interpreted with some caution.

3 Survey of Employers who have Recently Advertised

3.1 This section presents the key findings from the SERA and highlights the experiences of employers recruiting sheet-metal workers.

3.2 The SERA provides insights into skill shortages by assessing how difficult it is for employers to fill vacancies. The measure used to determine the degree of difficulty in filling a vacancy is a 'fill rate'. This rate presents the proportion of vacancies included in the SERA sample which were filled with an adequately qualified and experienced person within ten weeks of advertising. Occupations with fill rates lower than 80% are typically regarded as being in shortage, while fill rates lower than 40% usually indicate that the occupation is in acute shortage.

Table 2: SERA Results for Sheet-Metal Workers and All Trades Surveyed by the Department, August 2005

	Number of Employers	Number of Vacancies	Fill Rate[1]	Average Number of Suitable Applicants per Vacancy[1]
Sheet-Metal Workers	41	64	23%	0.6
All Trades Surveyed	885	1480	37%	1.0

Source: Survey of Employers who have Recently Advertised, Department of Labour.

1 The 'All Trades Surveyed' fill rate and average number of suitable applicants per vacancy figures were both weighted to compensate for any under or over sampling of individual trade worker occupations in the 2005 survey.

3.3 Results from the 2005 SERA show that only 23% of sheet-metal worker vacancies were filled within ten weeks of being advertised, down from 38% in 2004. The current fill rate is well below the average for all surveyed trade occupations (37%). On average, there were only six suitable sheet-metal worker applicants for every ten vacancies.

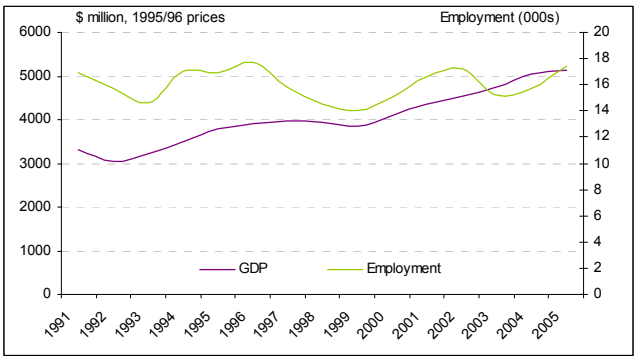
4 Demand for Sheet-Metal Workers

4.1 This section presents the factors which influence the underlying demand for sheet-metal workers. Demand is measured by the number of sheet-metal workers required by employers at current wage rates.

4.2 *Historical Demand*

4.2.1 According to the 2001 Census, sheet-metal workers were heavily concentrated in the metal products (58%) and the machinery and equipment manufacturing (17%) industries, which produce a variety of industrial and consumer products such as boats and fuel tanks. Output in these sectors grew on average by 3.7% per annum between 1991 and 2005.

Figure 1: Metal Industries GDP & Employment of Metal Moulders, Sheet-Metal & Related Workers, 1991-2005



Source: Economic Survey of Manufacturing; Household Labour Force Survey. Statistics New Zealand.

4.2.2 Household Labour Force Survey data shows that employment of *metal moulders, sheet-metal and related workers* remained more-or-less constant between 1991 and 2005, despite strong output growth in the metal manufacturing sectors (see Figure 1). The lack of growth in sheet-metal worker employment can be partially attributed to the adoption of computer-controlled saws, lasers, shears and presses that have enabled workers to increase their productivity.

4.3 *Future Demand*

4.3.1 Demand for sheet-metal workers may subside in the short-term as the Performance Manufacturing Index (PMI)[5] suggests that over the next year, the metal product industry output will decline. The PMI is a leading indicator of industry activity based on a monthly survey of the manufacturing enterprises.

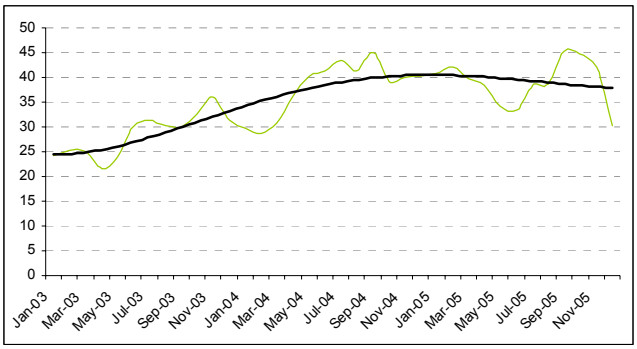
4.3.2 In the longer-term, demand for manufactured metal products and machinery and equipment is likely to remain strong. According to forecasts from the New Zealand Institute of Economic Research, between 2005 and 2010 the average annual growth for the metal products and machinery and equipment industries will be 2.6% and 3.3% respectively. These projections exceed the average annual growth forecasts for the whole economy. As noted earlier, this growth may not translate into increased demand for sheet-metal workers due to technological improvements.

[5] The ANZ-Business NZ Performance of Manufacturing (PMI) is a composite index based on the diffusion indices for production, new orders, deliveries, inventories and employment with varying weights.

4.4 *Changes in Market Conditions*[6]

4.4.1 The Department's Job Vacancy Monitor (see Figure 2) shows that the number of advertised vacancies for sheet-metal workers has recently declined. The finding suggests that recruiting conditions have eased after a long period of increasing job advertisements. In the three months to December 2005, there were 25% fewer advertisements for sheet-metal workers compared to December 2004.

Figure 2: Number of Advertised Vacancies for Sheet-Metal Workers



Source: Job Vacancy Monitor, Department of Labour.

5 Supply of Sheet-Metal Workers

5.1 This section looks at the various sources contributing to the supply of sheet-metal workers. Supply is measured by the number of people willing and able to work as sheet-metal workers at current wage levels.

5.2 *Training - National Certificate (Level 4) Qualifications and Equivalent*

5.2.1 This section investigates the growth in supply of *fully qualified* sheet-metal workers through training. Trainees who choose to work in this trade must enrol in the National Certificate in Engineering Fabrication – Light (Level 4) programme. This is the nationally recognised qualification for sheet-metal workers which is designed by Competenz to meet employer needs. On average, it takes a trainee three years to achieve this certificate.

5.2.2 In 2005, there were 405 trainees enrolled in this programme, which represents a significant increase from the 2001 total of 312 (see Table 3). New programme enrolments have also reached a five year peak of 184 new trainees in 2005.

5.2.3 The number of achievements fluctuated around an average of 40 per annum between 2001 and 2003, before increasing considerably in the next two years to reach 105 in 2005 (see Table 3). There were no non-national certificate qualifications at the equivalent level of the national certificate awarded over this period.

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[6] Analysis of the Job Vacancy Monitor suggests that it is an indicator of change in labour market tightness, or change in the degree of difficulty of recruiting staff. An increase in vacancies typically indicates increasing difficulty in recruiting staff and vice versa. While changes in demand usually dictate changes in labour market tightness, it can also be affected by changes in supply conditions, such as a rise in net migration.

Table 3: Number of Trainees Enrolled for and Achieving the National Certificate in Engineering Fabrication – Light, Level 4

National Certificate in Engineering (Fabrication – Light) Level 4 (Competenz)			
	Total Enrolments	New Enrolments	Achievements
2001	312	164	58
2002	371	133	25
2003	369	118	38
2004	392	131	63
2005	405	184	105

Source: Competenz.

5.2.4 The training rate for sheet-metal workers is presented in Table 4. This indicator provides an approximate measure of the rate at which the supply of fully qualified sheet-metal workers can potentially grow through training. The training rate is calculated by expressing the number of trainees who achieve the relevant qualification as a percentage of total employment in that occupation. The training rate for sheet-metal workers was 2.9% in 2005, which was slightly lower than the average rate of 3.3% for all trades surveyed by the Department. The training rate for sheet-metal workers was extremely low prior to 2005, averaging just 1.1% between 2001 and 2004.

Table 4: Training Rates for Sheet-Metal Workers[7], 2005

	Sheet-metal Workers	All Trades Surveyed
2001	1.3%	2.0%
2002	0.5%	2.2%
2003	1.0%	2.2%
2004	1.6%	2.7%
2005	2.9%	3.3%

Source: Department of Labour.

5.4 ***Migration***

5.4.1 Migration data for sheet-metal workers is presented at the broader occupational category of *metal moulders, sheet-metal and related workers*. Between 1998 and 2005, New Zealand has lost a net 509 of these trade workers through migratory flows (see Table 5). Departures have declined from a high of 358 in 1998 to 127 in 2005, while arrivals have remained fairly static at around 140 per annum.

5.4.2 In the SERA, employers were asked to speculate as to why sheet-metal workers moved overseas. Many employers surveyed believed that they went to Australia for financial and lifestyle reasons.

[7] The training rates for 'all trades' were calculated for the 14 trade occupations that were examined in-depth using data from the SERA Intensive 2005. As the composition of occupations being examined changes from year-to-year, so will the training rates.

Table 5: Permanent and Long-term Arrivals, Departures and Net Migration of Metal Moulders, Sheet-Metal and Related Workers, 1998-2005 December Year End[8]

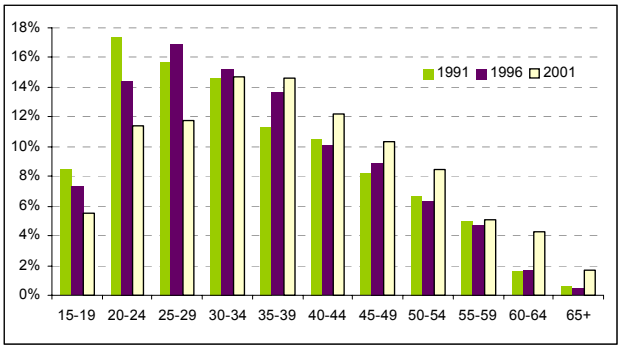
	1998	1999	2000	2001	2002	2003	2004	2005
Arrivals	164	127	156	149	139	131	126	140
Departures	358	286	288	193	115	149	125	127
Net Migration	-194	-159	-132	-44	24	-18	1	13

Source: External Migration, Statistics New Zealand.

5.5 *Retirements*

5.5.1 Based on the 2001 Census results, it is estimated that approximately 1.2% of sheet-metal workers retire each year, which amounts to a loss of approximately 45 sheet-metal workers. This is below the average retirement rate for all trade occupations (1.3%). In 2001, the average age of the sheet-metal workforce was 38. Figure 3 shows a large decline in the percentage of employed sheet-metal workers in the younger age groups between 1991 and 2001. In 1991, 25% of employed sheet-metal workers were aged under 25 in comparison to 16% in 2001.

Figure 3: Age Profile of Sheet-Metal Workers, 1991-2001



Source: Census of Population and Dwellings, Statistics New Zealand.

6 Matching of Supply and Demand

6.1 This section considers some of the issues that arise from the labour market matching of the supply of sheet-metal workers with the demand for sheet-metal workers.

6.2 *Salaries*

6.2.1 Data from the Labour Cost Index (LCI) suggest that wage rates for sheet-metal workers are below average for all trade workers. The June 2005 survey measured the average wage of sheet-metal workers at $18.16 per hour, compared with an average of $19.81 for all trade occupations. Comparing June 2004 and June 2005 LCI data shows that wages for sheet-metal workers have increased by 7.8% - a greater increase than that for all trades over this period (4.8%). This movement suggests that employers of sheet-metal workers are attempting to address their shortage by increasing wages to attract and retain workers.

[8] Migration data is only available at the broader 3-digit category level of Metal Moulders, Sheet-metal and Related Workers. Sheet-metal workers represent about 58% of the category and therefore trends at the 3-digit level are regarded as being reflective of trends for sheet-metal workers.

Table 6: Average Hourly Wage Rates for Sheet-Metal Workers[9]

	2004	2005
Sheet-Metal Worker	$16.85	$18.16
All Trades	$18.90	$19.81

Source: Labour Cost Index, Statistics New Zealand.

6.3 *Coping with Shortages*

6.3.1 Employers of sheet-metal workers interviewed in the SERA indicated that they would take a number of measures to address their skill shortages. Eight in ten employers interviewed stated that they would make more use of overtime, and change the way staff performed their jobs. Seven in ten indicated that they would use contractors and provide additional training to existing staff in order to fill the gap.

7 Assessment

7.1 This section considers all the information presented in this report on employers' recruiting experience, supply and demand trends, and matching issues and offers a perspective on whether there is a shortage of sheet-metal workers and the nature of the shortage. A short-term outlook for the shortage situation is also offered.

7.2 Manufacturing firms employing sheet-metal workers have achieved strong growth between 1991 and 2005. However, this growth in output has not translated into growth in demand for sheet-metal workers, due to the adoption of labour saving technology.

7.3 The supply of sheet-metal workers probably diminished during the late 1990s and early to mid 2000s. Training levels have been extremely low with the training rate averaging just 1.1% between 2001 and 2004. This was inadequate to cope with retirements which occurred at 1.2% per annum. The supply of sheet-metal workers was further depleted by migratory flows with New Zealand experiencing a substantial net loss of sheet-metal workers and other metal trades workers between 1998 and 2005. The training rate increased considerably in 2005.

Box 1: Skill Shortage Definitions

Genuine Skill Shortage

Occurs when employers have difficulties filling their job vacancies because there are not enough individuals with the required skills in the potential labour market to fill the positions on offer.

Recruitment and Retention Difficulty

Occurs when there is a considerable supply of individuals with the required skills in the potential labour market but they are unwilling to take up employment at current levels of remuneration and conditions of employment. Retention problems are often a major contributor to this condition.

7.4 Although training levels have increased recently, the low levels of training coupled with retirements and net migratory outflows during the late 1990s and early to mid-2000s has resulted in a

[9] The data shown from the LCI are unadjusted mean hourly rates. Caution should be taken with interpreting this information due to the relatively small sample sizes, particularly at the occupational level. Furthermore, the LCI is designed to measure changes in, rather than the actual level of, wage and salary rates.

decline in the supply of sheet-metal workers. This decline in supply occurred in the context of a long term trend of constant demand. The Department therefore concludes that there is a **genuine skill shortage** of sheet-metal workers which is reflected in the low fill rate of 23%.

7.5 Growth in output in the metal industries is expected to be minimal in the immediate future, but longer term output growth projections are positive. These strong industry prospects, however, will not necessarily translate into an increased demand for sheet-metal workers. Muted demand together with the recent increase in training levels will contribute to an easing in shortages, although some shortage will persist.

For queries regarding this report please contact info@dol.govt.nz.