



Employment profile and future demand for scaffolders and riggers in New Zealand

A report for Opportunity Training

Prepared by Infometrics Ltd

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Executive summary

Employment of scaffolders is driven largely by the construction industry, where 88% of the total scaffolder workforce was employed in 2006. Riggers were also most likely to be employed in construction (44%), with a further 26% employed in the manufacturing industry.

The construction boom saw scaffolders experience the highest growth in employment between 2001 and 2006 (55%). The number of employed riggers also grew by 37% over the same period, dampened by the number of riggers employed in the slower growing manufacturing industry.

Scaffolders have a relatively young age profile. Between 2001 and 2006 there was strong employment growth in most of the younger age categories and in 2006 the highest concentration of workers was in the 20-24 year category. Riggers have an older age profile than Scaffolders, with the highest concentration of riggers being in the 35-39 year age category. Because there were significantly more riggers aged over 50 in 2006, retirement will have a larger impact on the rigger workforce than on the Scaffolder workforce over the coming years.

Between 2001 and 2006, there was a significant increase in the proportion of both scaffolders and riggers who identified themselves as Maori or Pacific Islanders. By 2006 almost 45% of scaffolders and 36% of riggers were Maori while 13.4% of scaffolders and 8.5% of riggers identified themselves as Pacific Islanders.

Scaffolders and riggers experienced similar increases in qualification levels between 2001 and 2006. The proportion of scaffolders with vocational qualifications increased from 22% in 2001 to 32% in 2006. The proportion of riggers with vocational qualifications increased from 21% to 31% over the same period.

The vast majority (82%) of scaffolders and riggers were employed in the North Island in 2006. More than one-third were employed in the Auckland region. Most regions experienced strong employment growth for both scaffolders and riggers between 2001 and 2006. Growth was higher in the North Island (49%) than in the South Island (41%).

Driven by the construction industry, demand for scaffolders is expected to recover from 2009 onwards, following a sharp fall off in activity since 2006. The demand for scaffolders is expected to regain the peak of 2006, with employment reaching 790 workers by 2013. Out to 2009, the demand for riggers is expected to decline less than that for scaffolders as demand from the manufacturing industry holds relatively steady. Demand for riggers is expected to reach the 2006 peak by 2011, with 600 workers employed. Employment will continue growing at a steady rate thereafter to reach an estimated 620 workers by 2013.

Due to the net effect of workers entering and leaving the occupation, we estimate that about 60 riggers and 50 scaffolders will need to be replaced between 2008 and 2013.

In total it is estimated that about 80 positions for scaffolders and about 90 positions for riggers will become open over the next five years due to new positions being created and vacated positions needing filling.



Replacement demand will exceed new demand for both occupations. Under the outlook for the construction and manufacturing industries that has been outlined above it is estimated that a total of about 30 new positions for both riggers and scaffolders will be created in New Zealand over the next five years. By contrast about 50 scaffolder and 60 rigger positions will need filling through replacement.



Introduction

This report provides a profile of the employment of scaffolders and riggers in New Zealand. It describes the characteristics of the workforce in terms of numbers employed, qualification attainment, and regional and ethnic distribution. The report offers a view of the outlook for the major employing industries of scaffolders and riggers which informs our view of the future demand for the occupations. Finally the report investigates the extent of future job openings arising from the need to replace employees who leave their jobs.

Employment profile of riggers and scaffolders

Employment by industry

The vast majority (88%) of Scaffolders are employed in the construction industry, while a smaller number are employed in manufacturing and the Plant Hire or Leasing sub-industry of Property and Business Services (5%). Riggers are employed across a wider number of industries. In 2006 the highest proportion were employed in construction (44%) followed by manufacturing (26%).

Table 1. Employment of Scaffolders and Riggers by broad industry, 2006

Industry	Scaffolder	Rigger
Agriculture, Forestry and Fishing	0%	3%
Mining	0%	2%
Manufacturing	4%	26%
Electricity, Gas and Water Supply	0%	0%
Construction	88%	44%
Wholesale Trade	0%	7%
Retail Trade	1%	1%
Accommodation, Cafes and Restaurants	1%	0%
Transport and Storage	0%	4%
Communication Services	0%	3%
Finance and Insurance	0%	1%
Property and Business Services	5%	7%
Government Administration and Defence	0%	0%
Education	0%	0%
Health and Community Services	0%	0%
Cultural and Recreational Services	0%	4%
Personal and Other Services	0%	1%
Total	100%	100%

Employment by occupation

Scaffolders showed the highest growth in employment between 2001 and 2006 due to the boom in the construction industry over that period. The number of scaffolders employed increased by 55% over the five year period. Riggers also showed strong growth (37%) but employment growth was moderated by the number of riggers employed in the slower growing manufacturing industry.



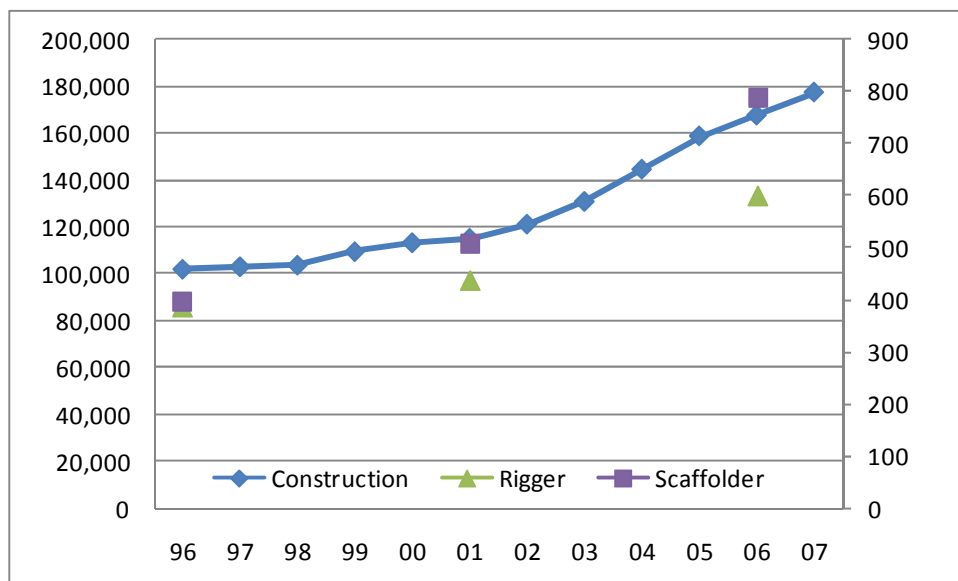
Table 2. Employment of scaffolders and riggers operators

Year	Scaffolder	Rigger	Total
1996	396	387	783
2001	507	438	945
2006	786	600	1386

Source: Population census, Statistics New Zealand

The relationship between employment of scaffolders and riggers and employment in the construction industry is shown in figure 1 below.

Figure 1. Relationship between employment of scaffolders and riggers employment in non-residential construction



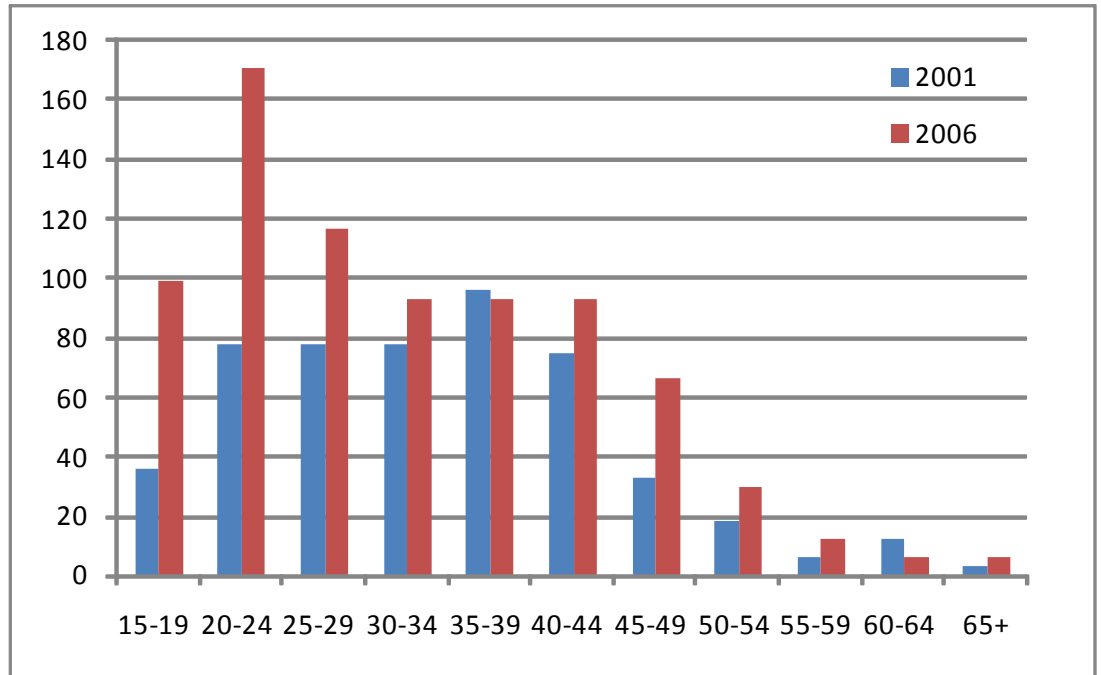
Source: Population census, Statistics New Zealand, Infometrics estimates

Age profile

The Scaffolder occupation has a young age profile. Figure 2 below shows that the highest concentration of workers is in the 20-24 year category. There was strong growth in employment in most of the younger age categories over the five years to 2006.



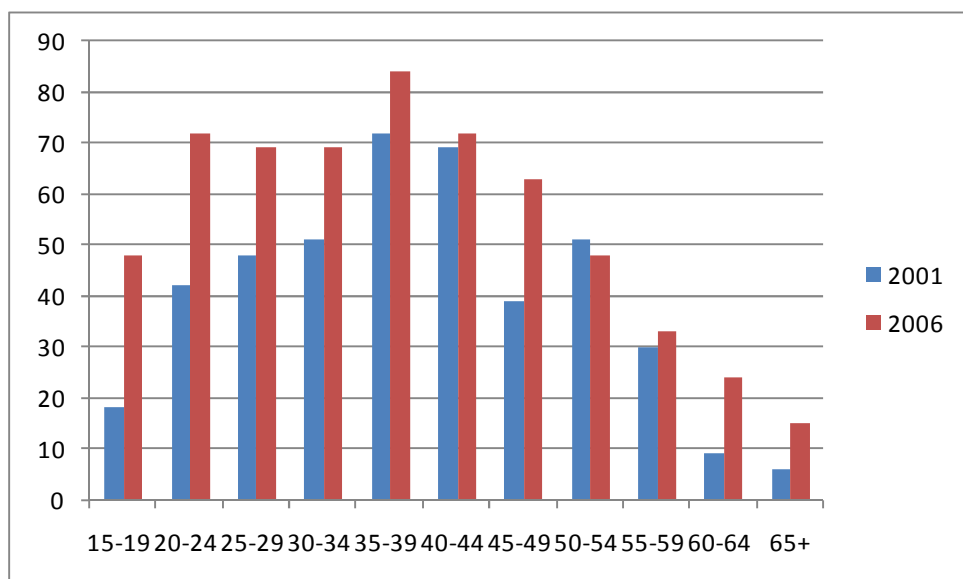
Figure 2. Employment of scaffolders by 5-year age category, 2001 and 2006.



Source: Population census, Statistics New Zealand

Riggers have an older age profile than Scaffolders (Figure 3). The highest proportion of Riggers is in the 35-39 age category and there are significantly more Riggers in the age categories above 50 than there was in 2006. This suggests that over the next decade, retirement will have a larger impact on the rigger workforce than on the Scaffolders workforce.

Figure 3. Employment of Riggers by 5-year age category, 2001 and 2006



Source: Population census, Statistics New Zealand



Ethnicity

An increase in the proportion of both scaffolders and riggers who identified themselves as Maori was measured between 2001 and 2006 (see Table 3). By 2006 almost 45% of scaffolders and 36% of riggers were Maori. A significant increase in the proportion of Pacific Peoples was measured in each occupation as well. Changes in the classification of ethnicity between the 2001 and 2006 census¹ do not allow an accurate measure of the proportion of European scaffolders and riggers.

Table 3. Ethnic composition of scaffolders and riggers, 2001 and 2006

	Scaffolder			Rigger		
	Maori	Pacific	Other	Maori	Pacific	Other
2001	42.6%	10.7%	46.7%	33.6%	2.7%	63.7%
2006	44.7%	13.4%	42.0%	35.5%	8.5%	56.0%

Source: Population census, Statistics New Zealand

Qualifications

Scaffolders and riggers have similar qualification profiles and experienced similar increases in qualification levels between 2001 and 2006. The proportion of scaffolders with vocational qualifications (Certificate levels 1-4 and diplomas level 5 and 6) increased from 22% in 2001 to 32% in 2006. The proportion of riggers with vocational qualifications increased from 21% to 31% over the same period. Almost three quarters of riggers and scaffolders had no post school qualifications in 2006.

Table 4. Number and proportion of scaffolders by qualification, 2001 and 2006

	No post school qualification	Vocational	Degree or Higher	Total
	2001	386	112	9
2006	521	251	15	786
2001	76%	22%	2%	100%
2006	66%	32%	2%	100%

Source: Estimated from population census, Statistics New Zealand

¹ Persons who recorded their Ethnicity as 'New Zealander' were included in the European category in 2001 whereas they were included in the 'Other' category in 2006.



Table 5. Number and proportion of riggers by qualification, 2001 and 2006

	No post school qualification	Vocational	Degree or Higher	Total
2001	339	93	6	438
2006	404	186	11	600
2001	77%	21%	1%	100%
2006	67%	31%	2%	100%

Source: Estimated from population census, Statistics New Zealand

Region

The vast majority (82%) of scaffolders and riggers were employed in the North Island in 2006. More than one-third was employed in the Auckland region. The second highest proportion were employed in Waikato (11%) followed by Bay of Plenty (10%), Canterbury (9%) and Wellington (9%).

Most regions experienced strong growth in employment of scaffolders and riggers between 2001 and 2006. Growth was higher in the North Island (49%) than in the South Island (41%). The highest growth rate was in Manawatu-Wanganui, although this was off a low base.

Table 6. Employment of scaffolders and riggers by region, 2001 and 2006

	2001	2006	% growth (2001-2006)	Regional share of national (2006)
Northland	49	60	22%	4%
Auckland	342	497	45%	36%
Waikato	97	148	53%	11%
Bay of Plenty	70	133	90%	10%
Gisborne	4	5	25%	0%
Hawke's Bay	24	41	71%	3%
Taranaki	58	82	41%	6%
Manawatu-Wanganui	12	37	208%	3%
Wellington	105	131	25%	9%
North Island	761	1134	49%	82%
West Coast	8	0	0%	0%
Canterbury	101	120	19%	9%
Otago	46	69	50%	5%
Southland	17	32	88%	2%
Tasman	0	4	-	0%
Nelson	8	14	75%	1%
Marlborough	0	14	-	1%
South Island	180	253	41%	18%
New Zealand	941	1387	47%	100%

Source: Estimated from population census, Statistics New Zealand



Future new demand for scaffolders and riggers

An earlier section of this report showed that the vast majority of scaffolds are employed in the construction industry. Consequently the future demand for scaffolders is closely linked to the prospects in that industry. Riggers are also concentrated mostly in the construction industry but with a sizeable proportion employed in manufacturing. This section offers a view of future prospects in the construction and manufacturing industries and how this will affect future demand for scaffolders and riggers.

Construction industry

Activity in the construction industry peaked in 2006 following a five-year construction boom (see Figure 4). Since then activity has declined and is expected to bottom out in mid-2009 after which growth will resume. However, over the next five years the level of activity is not expected to regain the heights of the mid 2000s.

Figure 4. Construction work put in place (1995/96 \$m)



Source: Statistics New Zealand and Infometrics estimates

The following factors contribute to our view of future growth in the construction industry:

- Residential construction is expected to decline into 2009. The industry is under pressure due to the lack of buyer demand arising from slowing net migration and high interest rates (property investors are especially discouraged by high interest rates). However, a persistently tight labour market, tax cuts, and good income growth will help restore consumer confidence in 2009 leading to recovery in residential construction from the second half of 2009 onwards.



- In late 2007 there was a run of consents for large government-funded projects, along with a few private sector developments. These will start translating into construction activity during 2008. Large consents granted over the last nine months include office buildings in Wellington (total \$96m), an extension to Ngawha geothermal power station (\$69m), work on Auckland's art gallery (\$60m), a hostel for Victoria University (\$43m), an apartment building in Wellington (\$33m), Foodstuffs distribution centre (\$30m), Rimutaka prison extensions (\$27m), and work at Waikato Hospital (\$26m).
- Non-residential construction activity outside of the non-government sector is unlikely to match activity in the government sector over the next year. Persistently high interest rates imply that financing new projects will still be expensive, and in an environment where overall domestic economic activity is soft, the appetite for new developments will remain muted.
- The slowing of employment growth over the next few years will slow the growth for commercial buildings (the size of the workforce is a major driver the demand for workspace). Employment is likely to grow by 1.3%pa over the next two years which is substantially slower than the 1.9% recorded over the last decade.
- The slowing of household spending (one of the main drivers of the current economic slowdown) will dampen the growth in demand for retail space. Retailers are likely to defer any expansion plans until demand conditions start to improve (most likely late 2008 or early 2009). Growth in retail space will be much less rapid than during the consumption boom of the last 5-6 years.
- The demand for accommodation buildings will show modest growth. The tourism sector is under pressure from the high value of the New Zealand dollar and high oil prices. The number of visitors to New Zealand is expected to grow by no more than 2.5%pa over the next three years. The \$27m consent for work on Rimutaka prison which was issued in December 2007 will provide some impetus to the accommodation building sector.
- Strong growth in industrial building construction is forecast over the next few years driven mainly by the construction of new facilities for the food manufacturing industry. For example, Fonterra has been building a new cheese plant near Timaru, and a new milk powder plant is planned at Edendale in Southland. Construction activity is likely to be concentrated in provincial areas, with high commodity prices for agricultural products offsetting the effect of the exchange rate on profits. Urban manufacturers (eg in Manukau) will continue to struggle.
- Weakness in the domestic economy is likely to stunt overall growth in infrastructure work over the next two years. Out into 2009, activity will recover strongly, with growth hitting 14%pa by the end of the year. Some of the acceleration will be due to projects put in train by Labour prior to the election, while some of the growth will be fed by National's willingness to partner with the



private sector to get work done (we predict a change of government in late 2008).

- Stadium building for the Rugby World Cup in Auckland, Dunedin, and Christchurch is in various stages of planning, and there are a number of other sport-related projects in the pipeline as well. These projects should help lift activity from the middle of 2009.
- There is little scope for any substantial lift in apartment building activity over the next 2-3 years.
 - Oversupply in many regions will mean that demand will simply not be sufficient for developers to be able to go ahead with new projects.
 - Ongoing increases in construction costs, through rising material costs, consent fees, and development levies, will have a negative impact on the viability of apartment construction. Although traditional housing developments face these costs as well, the affordability of housing in new subdivisions may actually improve over the next couple of years as land prices come under downward pressure. Land prices are not a major factor in the final price of apartments.
 - Low rental yields and high interest rates hit investor demand for apartments more heavily than traditional housing. Without the land component associated with traditional housing, apartments are unlikely to enjoy capital gains to anywhere near the same extent. So a substantial improvement in rental yields will be necessary before investor interest in apartments is likely to be rekindled.

Beyond 2010, we expect growth in overall non-residential construction activity to be gradual. History shows that the non-residential building sector in New Zealand typically has periods of very strong expansion followed by some contraction and then an extended period of flat or relatively slow growth, before the next boom begins. Moderate medium-term prospects for employment growth and economic growth, combined with tighter credit conditions than those prevailing over the last five years, will prevent another building boom within the next five years. These factors will also be reflected in slower property price growth, with the possibility of some price falls, which will limit construction growth for commercial and industrial buildings.

We also see little scope for a turnaround in the apartment market over the next five years. Although the proportion of people living in apartments in the Auckland metropolitan area remains lower than for comparable cities in Australia, factors such as credit availability, quality issues, development levies, and overinflated sales prices (off the plan or for initial sales) will all limit apartment construction over the next five years. Outside Auckland, current oversupply issues are likely to persist until at least 2011, preventing any further growth in activity.



Manufacturing

The manufacturing industry offers limited opportunities for employment growth in New Zealand. We estimate that the manufacturing industry will grow on average by 2.4%pa between 2008 and 2013. Improvements in productivity will result in employment in the industry only growing by a modest 0.4%pa.

The manufacturing industry will remain under pressure into 2009 from high interest rates and the high exchange rate which make New Zealand's products less competitive in the international market. Manufacturing should rebound from the middle of 2009 as interest rates fall and the New Zealand dollar weakens. The industry will be buoyed by robust growth in both Australia and China. The Emissions Trading Scheme will impose some constraint on the manufacturing industry, especially the metal product and machinery manufacturing sub-industries.

Our view on the future performance of the manufacturing industry is informed by the following considerations:

Historical performance

Activity in the manufacturing industry recovered in the year to March 2008 (rising by 0.6%pa), after falling sharply over the previous two years. The industry has averaged 0.5% growth over the past five years – a poor performance largely related to the strong local currency over the past three years.

The recovery in the March 2008 year primarily occurred in metal product (up 6.0%pa) and machinery and equipment (6.0%pa) manufacturing. Other manufacturing types have struggled as weak dairy volumes and low meat prices dampened the level of food manufacturing activity.

Next few years

Over the year to March 2009, manufacturing growth is expected to be limited (around 1.0%pa). A high exchange rate, elevated interest rates, and slowing domestic economic conditions will take their toll on the industry.

Interest rates will begin to ease towards the end of 2008, providing a lower exchange rate environment heading into 2009. As a result, growth in the industry is expected to recover to about 2.8% over the year to March 2010.

Emissions Trading Scheme

An over-riding issue for the manufacturing industry in the outer years of our forecast period is the emissions trading scheme, which is due to be introduced in the manufacturing industry by January 2010. Also important is the implementation of the emissions trading scheme in the electricity generation industry, which is scheduled to occur in 2010. Manufacturing is extremely energy intensive and the scheme will have a significant impact on input costs for the manufacturing industry.

The emissions trading scheme will have a material impact on the cost of creating manufactured goods – leading to lower levels of activity and weaker levels of investment. Even though the scheme does not come



into effect until 2010, the uncertainty surrounding the scheme creates risks that will limit plant and machinery investment in the industry.

The impact of the emissions trading scheme is likely to be particularly severe for the metal product manufacturing, as the industry is forced to take on the liability associated with its high emissions profile. Furthermore, the lack of product differentiation in the industry will stop them being able to pass on much of this cost increase through price rises.

If the emissions trading scheme goes forward demand for new plant and capital in the manufacturing industry will be significantly negatively affected.

Implications for the future demand for scaffolders and riggers

Scaffolders are predominantly employed in the construction industry and the demand for scaffolders in the future will be determined by the demand for labour in that industry. The above section suggests that the demand for scaffolders will recover from 2009 onwards, following a sharp fall off in activity since 2006. The demand for scaffolders is expected to regain the peak of 2006 in the outer years of our forecast horizon (ie 2012/13).

The demand for riggers is expected to decline less than for scaffolders between 2006 and 2009 as sustained demand from the manufacturing industry will compensate for declining demand from the construction industry. Demand for riggers will reach the 2006 peak by 2011 and continue growing at a steady rate thereafter.

Table 7. Employment of scaffolders and riggers, 2006-2013

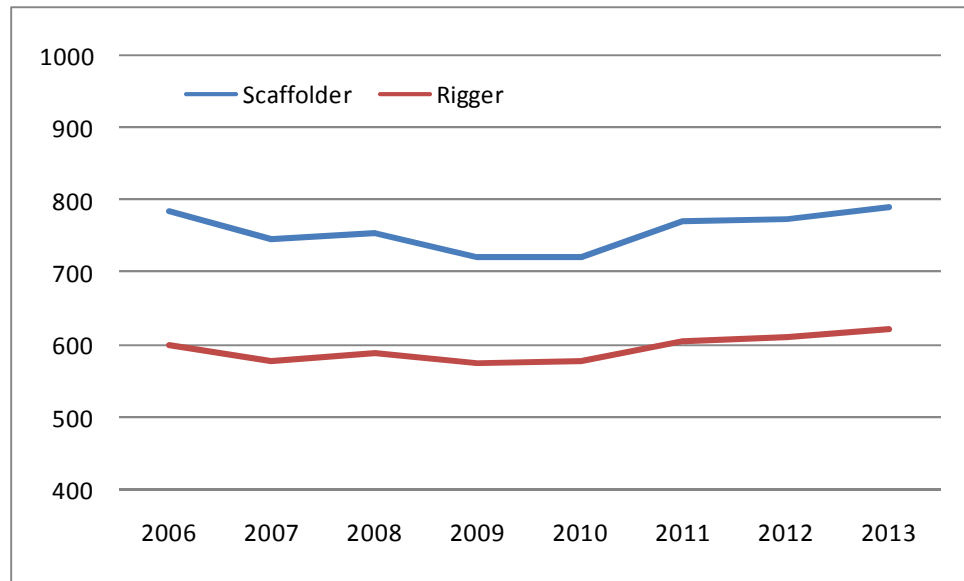
Year	Scaffolder		Rigger	
	Employment	Change in number of jobs	Employment	Change in number of jobs
2006	790	0	600	0
2007	750	-40	580	-20
2008	760	10	590	10
2009	720	-40	580	-10
2010	720	0	580	0
2011	770	50	600	20
2012	780	10	610	10
2013	790	10	620	10
2008-2013		30		30

Source: Infometrics estimates and population census, Statistics New Zealand

Table 7 shows that employment of scaffolders is expected to grow from 760 in 2008 to 790 by 2013. This suggests that a net 30 new positions will be created over the forecast period. Employment of riggers is expected to grow from 590 in 2008 to 620 in 2013, also a net increase of 30 positions.



Figure 5. Demand for Scaffolders and Riggers (2006-2013)



Source: Infometrics estimates and population census, Statistics New Zealand

Future Replacement Demand

Job openings in an occupation are a result of both employment growth (new demand) and the need to replace workers who leave the occupation (replacement demand). This section provides estimates of future replacement demand for scaffolders and riggers operators ie the net number of positions that will come open due to individuals leaving the scaffolding and rigging occupations. Our method takes into account the various reasons why people leave occupations including retirement, leaving/re-entering the workforce (either permanently or temporarily to start a family, study etc), emigration/immigration, career change or promotion, and poor health/death or recovery.

The method we have used to estimate net replacement demand in each occupation is based on the methodology developed by Shah and Burke² in Australia. Further details of our approach are provided in Appendix A.

We estimate that the net replacement rate for scaffolders is 0.9% per annum. Based on an employment level of 786 in 2006, we estimate that about 50 scaffolders will need to be replaced on a net basis between 2008 and 2013. The net replacement rate for riggers is 1.8% per annum. Based on an employment level of 600 in 2006 we estimate that about 60 riggers will need to be replaced on a net basis over the next five years.

Note that this is a net amount which is the difference between the total number of positions that are vacated each year (through retirement, occupational change, emigration etc) and the total number of positions that are filled (through occupational change, immigration etc).

² Shah C and Burke G. 2001. 'Occupational replacement demand in Australia'. *International Journal of Manpower*, Vol. 22, No. 7, pp. 648-663. Centre for the Economics of Education and Training, Monash University.



Total Future Demand for Scaffolders and Riggers

It is estimated that about 80 positions for scaffolders and about 90 positions for riggers will open over the next five years due to new positions being created and vacated positions needing filling. Replacement demand will exceed new demand for both occupations. Under the outlook for the construction and manufacturing industries that has been outlined above it is estimated that a total of about 30 new positions for both riggers and scaffolders will be created in New Zealand over the next five years. By contrast about 50 scaffolder and 60 rigger positions will need filling through replacement.

Table 8. Total future demand for crane operators

	Scaffolders	Riggers
New jobs	30	30
Replacement demand	50	60
Total	80	90



Appendix A. Methodology for estimating net demand replacement

Infometrics have used the cohort-component method used by Shah and Burke³ to estimate replacement demand. The cohort-component method uses estimates of employment by occupation and age category at two different points in time, to establish the inflows and the outflows in each occupation in each age-cohort. Shah and Burke used annual data, however due to the lack of availability of this type of data for New Zealand, data from the 2001 and 2006 Census was used in this study.

The net flow from an occupation was estimated as the sum of the change in the size of each age cohorts between 2001 and 2006. If the size of the cohort decreased then there has been an outflow, whereas if the cohort increased the net outflow is equal to zero. This is true if the number of people employed in an occupation is expanding, however if employment is decreasing then the net outflow is equal to sum of outflows less the size of the employment decline. Total net outflow from an occupation is estimated by summing the net outflow from each age cohort. The five year net demand replacement rate is estimated by dividing the total net outflow by employment in the occupation in 2001. This rate is converted to an annual rate.

The above method provides historical estimates of net replacement demand rates for scaffolders and riggers. In order to estimate the total number of job openings in the next five years we assume that the historical net replacement rates continue into the future.

³ Shah C and Burke G. 2001. 'Occupational replacement demand in Australia'. *International Journal of Manpower*, Vol. 22, No. 7, pp. 648-663. Centre for the Economics of Education and Training, Monash University.