

February 2005

**SKILL SHORTAGE ASSESSMENT
OCCUPATION: CARPENTER**

Current situation: Skill shortage

Short term outlook: Skill shortage

Executive summary

1. Results from the Survey of Employers who have Recently Advertised (SERA), indicate that there is currently a shortage of carpenters. Only 38% of vacancies advertised by employers included in the survey were filled within six weeks of advertising. On average, there were just seven suitable applicants for every 10 advertised positions. This report considers these survey results in the context of trends in the demand for and supply of carpenters.

Table 1: employer survey indicators, 2004

	Fill rate	Average number of suitable applicants
Carpenters	38%	0.7
All trades surveyed	41%	0.7

Source: Department of Labour, SERA

2. Carpentry is an occupation closely associated with the construction industry. It follows that the surge in building activity over the past three years has resulted in strong growth in demand for carpenters. This level of demand is expected to be maintained through 2005 on the back of sustained activity in the construction industry.
3. The number of trainees enrolled for the carpentry national certificate level 4 qualification rose strongly in 2002 and 2003. However, the number of trainees achieving this qualification in 2003 was still low considering the rapid growth in demand for carpenters arising from the construction boom. This level of output from training is expected to increase sharply in a few years time as there has recently been a large increase in the number of enrolments. The supply of carpenters in New Zealand has been diminished through net migratory outflows in the seven-year period to 2004.
4. The shortage of carpenters is expected to persist through 2005. The current high level of demand for carpenters is likely to continue on the back of sustained activity in the construction industry through 2005. Although trainee numbers will continue to rise, the existing number attaining level 4 qualifications are too low to cope with the current shortfall of carpenters as well as the loss of carpenters through retirement. DoL therefore expects carpenter shortages to persist through 2005.

Introduction

The purpose of this report is to investigate skill shortages in the carpenter occupation in New Zealand. The report aims to give an assessment of whether there is a shortage of carpenters and to provide an insight into demand and supply factors contributing to this situation. It also offers an outlook for shortages in this occupation.

Carpenters work with wood and wood-based materials and are involved in many different kinds of construction activity. Carpenters need to know the building codes covering issues like how and where certain materials can be used, and usually need to be able to do a range of tasks, from the more basic construction work (ie. framing) to detailed finishing and renovation work. Individuals with good basic overall training can switch between residential building or renovation work and commercial construction work, depending on which offers the best work opportunities.

About 30% of carpenters are self-employed and may alternate between working for a contractor and working by themselves on small jobs. The Department of Labour (DoL) estimates that approximately 18,000 carpenters were employed in New Zealand in 2003.

A background and technical note to this report is available from DoL. The note provides an overview of the broader Job Vacancy Monitoring Programme, of which this report is an output. It also provides a brief description of the employer survey conducted for this report and explanations of indicators and definitions used in the report.

Note on occupational classification

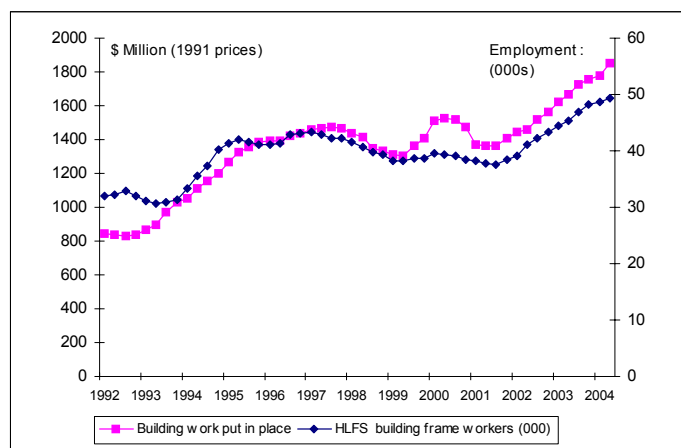
For the most part, this report presents information for the 5-digit occupational category of *carpenters and joiners* (code 71121 of the New Zealand Standard Classification of Occupations). However, certain data sources, such as the Household Labour Force Survey (HLFS) and External Migration data, are only available at the broader 3-digit category of *building frame and related trade workers* (code 711). Due to the close association of the 5-digit occupations (carpenters, bricklayers, stonemasons, builders and boat builders) in this broader category trends at the broader level are regarded as being reflective of trends of the constituent occupations. In 2001, carpenters accounted for 38% of the employment of *building frame and related trade workers*.

Demand for carpenters

Historical demand

The demand for *building frame and related trade workers* is cyclical in nature and is closely associated with activity in the construction industry (figure 1). For instance, during the building boom of 1994 and 1995, the value of buildings completed rose by 14% (annual average) while employment of *building frame and related trade workers* grew by 18% (see figure 1). During the building downturn of 1998 and 1999, the decline in building completions of 6% was accompanied by a drop in

Figure 1: value of building work in place and employment of building-frame trades workers



Source: Statistics New Zealand

employment of *building frame and related trade workers* of 6%.

The recent building boom has again been accompanied by strong growth in demand for *building frame and related trade workers*. Indeed, employment has grown by 28% in the three years to June 2004.

Future demand

The DoL's demand overview for the construction sector, (which is given in Appendix 1), suggests that the current high level of activity in the construction industry will be sustained through 2005. It follows that the current level of demand for carpenters will continue for the next year or so.

Summary

Carpentry is an occupation closely associated with the construction industry. It follows that the surge in building activity over the past three years has resulted in strong growth in demand for this trade. This level of demand is expected to be maintained through 2005 on the back of sustained activity in the construction industry.

Supply of carpenters

Training – National certificate (Level 4) qualifications and equivalent

This section investigates the growth in supply of *fully qualified* carpenters through training. It considers three sources of supply:

1. The award of the National Certificate in Carpentry (Level 4) by the Building and Construction Industry Training Organisation (BCITO). This is the nationally recognised qualification for carpenters which is designed by BCITO to meet the needs of employers in the construction industry. It takes an average of three years to attain this qualification.
2. The award of the National Certificate in Carpentry (Level 4) by other providers such as polytechnics.
3. The award of qualifications apart from national certificates which are deemed to be equivalent to the national certificate in terms of level and number of credits.

The national certificate awarded by BCITO accounts for the vast majority of qualifications achieved at this level. Table 2 shows that the total number enrolled has more than doubled between 2001 and 2003 which should lead to a large increase in level 4 achievements in the next few years. This growth in enrolments is partly driven by the future introduction of the Licensed Building Practitioner regime. Therefore, some of the increase comprises existing experienced carpenters seeking qualifications in order to meet the necessary regulatory requirements. The award of qualifications to these individuals will not necessarily increase the stock of skills. However, a portion of the increase will comprise apprentices and less skilled (and unqualified) carpenters who will contribute to the enlargement of the skill pool when they attain this qualification.

Table 2 shows that in addition to 556 national certificate Level 4 qualifications, there were also 120 non-national certificate qualifications at the equivalent level of the national certificate awarded in 2003. A list of national certificate level 4 and equivalent qualifications and the proportion of trainees enrolled for these qualifications is provided in Appendix 2.

Trainees obtaining these Level 4 qualifications are regarded as fully qualified carpenters. However, some employers consider the relevance and length of the applicant's experience in the trade to be of greater importance than a qualification. Indeed, the 2001 population census shows that over half of employed carpenters had no post-school

qualification. Formal qualifications will become increasingly important in the future with the introduction of the Licensed Building Practitioner regime.

Table 2: number of trainees enrolled for the National Certificate in Carpentry Level 4 and other equivalent qualifications

		National Certificate in Carpentry Level 4 (BCITO)	National Certificate in Carpentry Level 4 (Other providers)	Other equivalent qualifications	Total
2001	Total enrolled	2,205	Not available	Not available	
2002	Total enrolled	2,712	771	Not available	
2003	Total enrolled	4,641	556	120	5317

Source: BCITO, Tertiary Education Commission (TEC)

Table 3: number of trainees achieving the National Certificate in Carpentry Level 4 and other equivalent qualifications

	National Certificate in Carpentry Level 4	National Certificate in Carpentry Level 4 (Other providers)	Other equivalent qualifications	Total
2001	254	Not available	Not available	
2002	364	226	0	590
2003	345	93	3	441

Source: BCITO, Tertiary Education Commission (TEC)

Training rate indicators are given in table 4. A comparison of the number of trainees achieving the national certificate in carpentry (level 4) and equivalent qualifications with the number of carpenters employed yields a training rate of 2.5% in 2003. While this is higher than the average for all trades (1.8%), it is still low considering that demand for carpenters has been growing at close to 10% per annum over the past few years. By comparison, the annual training rate for carpenters in New South Wales, Australia, was 4.3%.

An alternative measure of training levels is the training enrolment rate (NC level 4) which compares the number of trainees enrolled for the national certificate with the number of carpenters employed. The training enrolment rate for carpenters was 29.5% in 2003 which was higher than the SERA average of trades surveyed.

Training – Other related qualifications and courses

While the level 4 national certificate and equivalent non-national certificates may be regarded as the qualification required to be a *fully qualified* carpenter, there are other lower level qualifications available in carpentry (such as MIT Certificate in Carpentry Level 3). These qualifications may be regarded as adequate to some employers of carpenters, especially during times of acute skill shortages. They are also of significance as these qualifications may staircase trainees towards the national certificate level 4 qualifications. Credits obtained in these qualifications may be recognised towards a national certificate level 4, should the trainee later wish to become a fully qualified tradesperson. A list of these qualifications and the proportion of trainees enrolled in courses leading to these qualifications is also provided in Appendix 2.

Training in these courses is reflected in the training enrolment rate (all related training) which compares the number of trainees enrolled in all carpenter-related training with the

number of employed carpenters. The training enrolment rate (all related training) is measured at 36.6% for 2003 (table 4).

Finally, a number of other government-funded vocational educational and training programmes (including Training Opportunities, Youth Training and Skill Enhancement Training) offer trades related training which lead to credit achievement on the National Qualifications Framework. A further 278 people were enrolled for this training in 2003¹ (see Appendix 2).

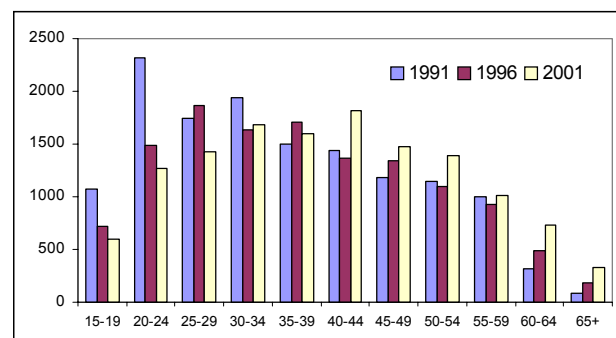
Table 4: training rates for Carpenters

Indicator	Explanation	Carpenter (NZ)	All SERA trades surveyed (NZ)	Carpenter (NSW, Australia)	All trades (NSW, Australia)
Training rate (national certificate L4 and equivalent)	Number of trainees achieving relevant national certificates (level 4) and equivalent non-national certificate qualifications expressed as a percentage of employment in that occupation.	2.5%	1.8%	4.3%	2.8%
Training enrolment rate (national certificate L4 and equivalent)	Number of trainees enrolled for relevant national certificates (level 4) and equivalent non-national certificate qualifications expressed as a percentage of employment in that occupation.	29.5%	16.3%		
Training enrolment rate (all related training)	Number of trainees enrolled in all relevant courses expressed as a percentage of employment in that occupation.	36.6%	30.5%		

Source: Department of Labour (New Zealand), Department of Employment and Workplace Relations (Australia)

A number of employers spoke of the fall off in training during the 1990s and how this impacted on current shortages. One employer commented, 'I knew years ago that there would come a time when there wouldn't be enough apprentices coming through and there would be a shortage'. These observations are supported by census data which show the large decline in carpenters in the 15 to 24 years age group between 1991 and 2001 (figure 3). The percentage of carpenters in this age group decreased from 25% in 1991 to 15% in 2001.

Figure 3: age profile of carpenters



Source: Statistics New Zealand, Census

Migration

In the four years to June 2001, migratory departures of *building frame and related trade workers* exceeded arrivals, leading to a net loss of 1,523 people. This represents more than 4% of the number of people employed in this category in 2001. In the three subsequent years this outflow has turned into a net gain of 502 people. Table 4 shows that the main contribution to this turn around has been a large increase in arrivals, with a somewhat smaller easing of departures.

¹ Enrolments in these programmes are not included in the training enrolment rate (all related training).

Table 5: permanent and long-term (PLT) arrivals, departures and net migration of building frame and related trades workers

Year to June	1998	1999	2000	2001	2002	2003	2004
PLT annual arrivals	536	494	590	605	779	896	1014
PLT annual departures	776	990	992	990	733	690	764
PLT net migration	-240	-496	-402	-385	46	206	250

Source: Statistics New Zealand, External Migration

Although these recent net gains are encouraging, the results of the SERA interviews showed some resistance amongst New Zealand builders to employing immigrant carpenters, due to issues such as language and knowledge of New Zealand building modes and conditions. One employer noted, 'If they don't speak good English I don't interview them'.

Retirement

It is estimated from the 2001 population census that approximately 290 carpenters retire each year. Comparing this figure with the 2003 level of employment yields a retirement rate of 1.6% i.e. this proportion of carpenters will retire each year.

In spite of the physical nature of carpentry work, population census data shows that carpenters are becoming noticeably older. In 1991, 3% of carpenters were aged 60 years or older; this had increased to 8% in 2001. This is somewhat higher than the average for all trades (6%). The ageing of the carpenter workforce indicates that an increasing number of carpenters are likely to cut back hours or retire over the coming years.

Summary

The number of trainees enrolled for the carpentry national certificate level 4 qualification rose strongly in 2002 and 2003. However, the number of trainees achieving this qualification in 2003 was still low considering the rapid growth in demand for carpenters arising from the construction boom. This level of output from training is expected to increase sharply in a few years time as there has recently been a large increase in the number of enrolments. The supply of carpenters in New Zealand has been diminished through net migratory outflows in the seven-year period to 2004.

Employer recruiting experiences

Overall shortage of carpenters

Results from SERA suggest that there is a severe shortage of carpenters as only 38% of positions included in the survey were filled within six weeks of being advertised. Table 6 shows that the fill rate for carpenters was similar to the overall fill rate for all surveyed construction trade positions (35%), which indicates that these shortages are an industry-wide problem. The difficult recruiting environment for carpenters is further emphasised by the fact that there was an average of just 0.7 suitable applicants for each carpentry vacancy, only a marginally better supply situation than last year when the figure was 0.6.

Table 6: SERA results for all occupations

	Number of employers	Number of positions	Positions filled	Fill rate	Suitable applicants	Average number of suitable applicants per vacancy
Carpenters	22	71	27	38%	53	0.7
All building trades surveyed	69	190	66	36%	103	0.5
All trades surveyed	240	453	186	41%	337	0.7

Source: Department of Labour, SERA

What are employers paying?

Data from SERA suggests that wage levels for carpenters are highly competitive. The mean wage offered by employers was almost \$26 per hour while some were offering up to \$35 per hour for highly experienced and qualified carpenters. This average rate was the highest amongst all trades included in SERA. Employers tell us that wage levels have risen considerably over the past twelve months in response to shortages. This is supported by the Labour Cost Index (LCI) which shows that carpenter wages have risen by 5.1% in the twelve months to June 2004. This is higher than the 4.3% growth for all trades.

Wages in the construction industry are probably highly flexible due to the nature of employment arrangements. A large number of carpenters are employed on short-term contracts meaning that they can renegotiate their wages on a regular basis. Wages also increase as building contractors are able to pass on higher wage costs to consumers in a market where the demand for housing exceeds supply.

Employers from other sectors of the economy have commented on how rising wages in the construction sector have impacted on their own industries. They mention how tradespeople with transferable skills, such as cabinet makers and boat-builders, have moved into carpentry positions due to higher wages in the construction industry. An employer of boat-builders commented that the building boom was the worst thing to happen to the boat-building industry as a fully qualified boat-builder could earn more as a hammerhand.

Average hourly wage levels recorded in SERA were considerably higher than those recorded in the Labour Cost Index (LCI). This may be due to SERA measuring wage levels offered to fill new positions which are being renegotiated on a frequent basis, whereas the LCI measures wage levels for existing filled positions.

Table 7: carpenter average hourly wage rates

	Mean
SERA – carpenter	\$25.86
LCI – carpenter/joiner	\$17.86
LCI – all trades	\$19.54

Source: Department of Labour (SERA), Statistics New Zealand (LCI)

Outlook

The shortage of carpenters is expected to persist through 2005. The current high level of demand for carpenters is likely to continue on the back of sustained activity in the construction industry through 2005. Although trainee numbers will continue to rise, the existing number attaining level 4 qualifications are too low to cope with the current

shortfall of carpenters as well as the loss of carpenters through retirement. The DoL therefore expects carpenter shortages to persist over 2005. The situation may improve in a few years time when training outflows increase considerably.

For further information, contact:

Robert Haig, ph 915 4619, robert.haig@dol.govt.nz

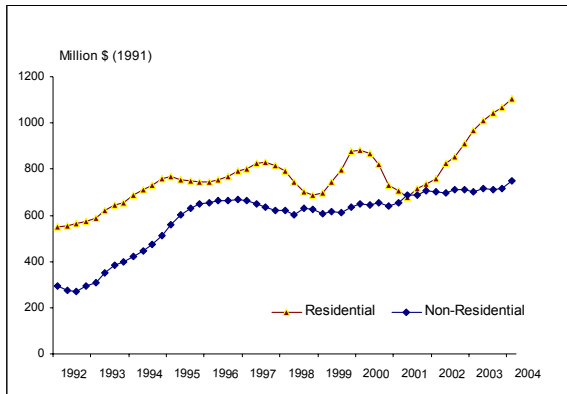
Andrew Whiteford, ph. 04-915 4568, andrew.whiteford@dol.govt.nz

Disclaimer: The Department of Labour has made every effort to ensure that the information contained in this report is reliable, but makes no guarantee of its accuracy or completeness and does not accept any liability for any errors. The information and opinions contained in this report are not intended to be used as a basis for commercial decisions and the Department accepts no liability for any decisions made in reliance on them. The Department may change, add to, delete from, or otherwise amend the contents of this report at any time without notice. The material contained in this report is subject to Crown copyright protection unless otherwise indicated. The Crown copyright protected material may be reproduced free of charge in any format or media without requiring specific permission. This is subject to the material being reproduced accurately and not being used in a derogatory manner or in a misleading context. Where the material is being published or issued to others, the source and copyright status should be acknowledged. The permission to reproduce Crown copyright protected material does not extend to any material in this report that is identified as being the copyright of a third party. Authorisation to reproduce such material should be obtained from the copyright holders.

Appendix 1: Construction Industry Overview

New Zealand has experienced three years of strong growth in construction activity. Figure 1 shows the rapid (36%) growth in building work put in place between mid-2001 and mid-2004. The boom has resulted in construction sector employment growth of 31%

Figure 1: building work put in place, residential and non-residential



Source: Statistics New Zealand

over the same period. The strong construction industry growth has been driven mainly by activity in the residential sector. The non-residential sector has been flat. Growth in the residential sector has been driven by a range of factors. These include low real interest rates from early 2001 to early 2004, high population growth caused by record net immigration, strong wage and job growth, offshore investment, a previous lull in building activity, and falling household sizes.

Table 1: construction activity and employment, years to June 2001 and June 2004

Construction indicator	Year to June 2001	Year to June 2004	June 2001-June 2004 % change
Work put in place (1991\$m)	5,452	7,408	36%
Residential building consents (number)	19,345	32,851	70%
Non-residential building consents (number)	16,169	15,983	-1%
Construction employment (number of people)	114,300	149,100	31%

Source: Statistics New Zealand

Outlook for the residential sector

The residential sector is likely to slow considerably from the high growth experienced in the past few years. This is because all the key drivers of that growth have turned. Interest rates have risen,¹ lower net inward migration² has slowed population growth, the downturn in international education may hurt apartment building, and the high exchange rate may discourage offshore investors. September 2004 Consensus Forecasts from New Zealand Institute of Economic Research (NZIER) predict that residential investment will grow by 4.8% in the year to March 2005 and then fall by 9.3% in the following year.

Outlook for the non-residential sector

Non-residential building activity is expected to grow strongly in 2005. This is reflected in an upward trend in building consents since late 2003 (figure 2). Growth will be driven by increased government expenditure on corrections, education and health facilities,

¹ The Central Reserve Bank increased its Official Cash Rate to 6.5 per cent in October 2004, a rise of 1.5 percentage points since the beginning of 2004.

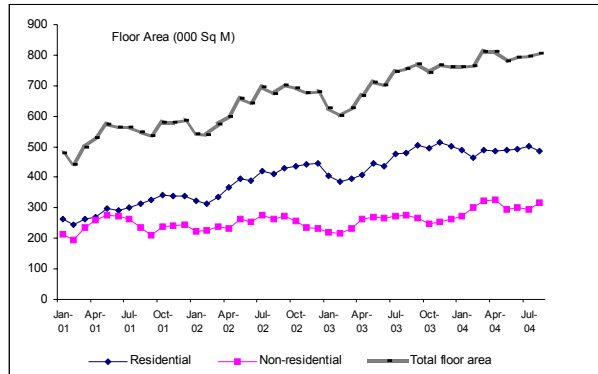
² Net inward migration (permanent and long-term arrivals less departures) fell to 22,000 in the year to June 2004 from 42,500 a year earlier and the Department of Labour expects it to continue falling to 15,000 in the year to March 2005 and 10,000 in the year after.

upgrading and construction of new primary processing facilities, ongoing construction of retail premises and growing demand for office space arising from strong employment growth.

Overall outlook

Current high levels of construction activity are expected to be maintained in 2005 as growth in the non-residential sector compensates for the expected slowdown in the residential sector. This will result in current levels of employment being sustained. However, the shift in emphasis from residential activity to non-residential will require a transfer of workers from one sector to the other and a change in the mix of skills applied in the construction sector as a whole.

Figure 2: building consents issued, residential and non-residential



Source: Statistics New Zealand

APPENDIX 2. TRAINING ENROLMENTS FOR CARPENTER TRADE: 2003

Enrolments in National Certificate Level 4 and equivalent qualifications: 2003

Qualification Title	Qualification Code	Provider Name	Level	Credits	Share of Enrolments (%)
Carpentry	NC5224	Tairawhiti Polytechnic	4	286	3.0%
National Certificate in Carpentry	NC5224	Bay of Plenty Polytechnic	4	286	8.2%
National Certificate in Carpentry	NC5224	Eastern Institute of Technology	4	286	1.2%
National Certificate in Carpentry	NC5224	G and H Training Limited	4	286	64.0%
National Certificate in Carpentry	NC5224	Northland Polytechnic	4	286	1.6%
National Certificate in Carpentry	NC5224	Unitec New Zealand	4	286	9.0%
National Certificate in Carpentry	NC5224	Universal College of Learning	4	286	1.8%
National Certificate in Carpentry	NC5224	Manukau Institute of Technology	4	286	11.2%
Certificate in Applied Timber Construction and Technology	HV4197	Wellington Institute of Technology	4	360	
Total					100.0%

Enrolments in other qualifications

Qualification Title	Qualification Code	Provider Name	Level	Credits	Share of Enrolments (%)
Ag Challenge Limited Carpentry Certificate Level Four	PC9195	Ag Challenge Ltd	4	102	0.1%
Carpentry (Advanced)	NC5500	Nelson Marlborough Inst of Technology	4	40	0.3%
Certificate in Carpentry	NE4572	Nelson Marlborough Inst of Technology	4	120	5.1%
Certificate in Carpentry	NE4363	Nelson Marlborough Inst of Technology	2	120	0.9%
Certificate in Carpentry	PR4703	Whitireia Community Polytechnic	3	121	1.5%
Certificate in Carpentry	BP3220	Bay of Plenty Polytechnic	2	120	1.6%
Certificate in Carpentry	OT4870	Otago Polytechnic	2	120	4.3%
Certificate in Carpentry (Residential and	WC2857	Tai Poutini Polytechnic	na	120	1.8%

Commercial)					
Certificate in Carpentry	CH3421	Christchurch Polytechnic Inst of Tech	2	120	16.7%
Certificate in Pre-Employment Carpentry -	MA3984	Universal College of Learning	2	120	3.3%
Certificate in Pre-Trade Carpentry	HV4113	Wellington Institute of Technology	2	120	5.0%
MIT Certificate in Carpentry	MN4335	Manukau Institute of Technology	3	120	12.9%
MIT Certificate in Carpentry	MN4335	Manukau Institute of Technology	3	120	0.2%
MIT Certificate in Carpentry	MN4350	Manukau Institute of Technology	4	60	5.7%
Carpentry (Pre Trade)	AO3075	Aoraki Polytechnic	2	120	1.2%
Carpentry Advanced Trade Certificate.	AT5211	Waikato Institute of Technology	na	na	3.2%
Carpentry Block Stage 1 - 3	TC5211	Aoraki Polytechnic	na	na	1.1%
Carpentry Pre-Trade 01	PC2486	Tumahaurangi Trust	na	120	5.2%
National Certificate in Carpentry (Advanced)	NC5500	Christchurch Polytechnic Inst of Tech	4	40	1.2%
National Certificate in Elementary Construction Skills	NC0751	Tai Poutini Polytechnic	2	40	1.1%
Pre-employment Carpentry (Module D+E)	PC2471	G and H Training Limited	3	85	0.2%
Short Courses in Carpentry	G52161	Unitec New Zealand	na	na	0.5%
SIT Certificate in Carpentry - Pre Trade	ST4914	Southern Institute of Technology	2	120	12.8%
SIT Certificate in Practical Woodcraft & Design	ST4879	Southern Institute of Technology	2	120	2.6%
NC in Carpentry	na	Building & Construction ITO	3	na	11.4%
Total					100.0%

Enrolments in Training Opportunities Programme, Youth Training and Skill Enhancement Training related to the carpenter trade

Course name	Programme type	Share of Enrolments (%)
Carpentry Skills	TOP	4.3%
Introduction to Carpentry	YOUTH	6.1%
Carpentry & Landscaping	TOP	1.4%
Introduction to Carpentry	TOP	0.4%
Introduction to Carpentry	YOUTH	2.9%
Carpentry & Landscaping	TOP	5.0%

Introduction to Carpentry	TOP	0.4%
Introduction to Carpentry	YOUTH	5.8%
Skill Enhancement Carpentry	SE	5.8%
Intro to Carpentry - One Off	YOUTH	1.8%
Carpentry & Construction - CAM	YOUTH	7.6%
Hands On Carpentry - TKT	TOP	4.7%
Carpentry Joinery& Engineering	YOUTH	9.0%
Carpentry, Joinery&Engineering	TOP	7.6%
Carpentry Trade Training	YOUTH	2.9%
Carpentry,Joinery&Engineering	YOUTH	5.0%
Carpentry & Automotive Trades	YOUTH	20.9%
Carpentry and Mechanical Engineering	YOUTH	6.1%
Introduction to Carpentry	YOUTH	1.8%
Certificate in Pre-Trade Carpentry	SE	0.7%
Total		100.0%