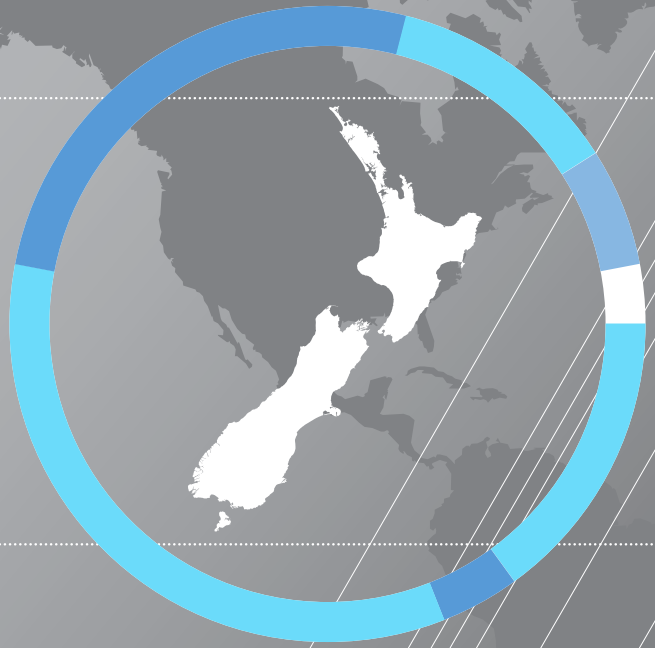
The New Zealand Sectors Report 2013

## FEATURED SECTOR

# Construction



New Zealand Government

**MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT**
HĪKINA WHAKATUTUKI

MBIE develops and delivers policy, services, advice and regulation to support economic growth and the prosperity and wellbeing of New Zealanders.

MBIE combines the former Ministries of Economic Development, Science + Innovation, and the Departments of Labour and Building and Housing.

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# New Zealand Sectors Report 2013

The New Zealand Sectors Report comprises the Main Report and six additional, separate, reports providing an in-depth analysis of six individual sectors. The seven reports are:

| | |
|---|---|
| **1** | **The New Zealand Sectors Report 2013: Main Report** |
| | **Featured Sector Reports** |
| **2** | **Information and communications technology (ICT)** |
| **3** | **High technology manufacturing** |
| **4** | **Construction** (this report) |
| **5** | **Petroleum and minerals** |
| **6** | **Tourism** |
| **7** | **Knowledge intensive services** |

# Minister's foreword

**I am pleased to present this report on the construction sector and the central role it plays in the New Zealand economy.**

The construction sector generates more than $30 billion in revenues annually and plays a fundamental role in our lives and in the economy. It employs around 170,000 people in a wide variety of occupations.

When construction is booming, the impacts flow through to the whole economy, including mining, logging and the manufacture of materials and fittings. It also generates work for a wide range of professional service providers such as engineers, architects, designers and surveyors.

Construction and maintenance of infrastructure and buildings is an important activity in every community in every region. In the average year construction products contribute up to 50 per cent of gross fixed capital formation. The quality of infrastructure – be it transport, telecommunications or electricity networks, water storage and reticulation, schools, hospitals and recreation facilities – is critical to productivity and economic growth. Supply and quality of housing, and the built environment more generally, is central to the welfare of New Zealanders.

In recent years industry and the Government have faced up to some long-standing challenges in the sector, including the weather-tightness issue, the sector's relatively poor productivity performance and its highly cyclical nature. Work is underway to address these challenges on many fronts, including through the Building and Construction Productivity Partnership, established with industry in 2010.

There are significant challenges with the Canterbury rebuild and increasing the supply of housing in Auckland. The Government recently concluded the Auckland Housing Accord with the Auckland Council to address the shortage of housing.

The Government continues to work on progressing the Canterbury rebuild through the Canterbury Earthquake Recovery Authority, and with support from many Government agencies.

Through reforms to the Resource Management Act and initiatives such as the Roads of National Significance, the Government is working to take cost out of the regulatory system and speed up the development of basic, commercial and industrial infrastructure, while maintaining and improving the quality of outcomes.

There are 58 actions in the Government's Business Growth Agenda directed at the construction sector. A number of these are actions to enhance skills, employment and innovation.

This report provides a comprehensive overview of key facts with some commentary from industry leaders. It is intended to complement the growing body of research on New Zealand's construction sector. I hope it will make clear the key role construction plays in the New Zealand economy and generate robust and informed debate, as the construction sector enters a period of unparalleled activity.

**Hon Steven Joyce**
MINISTER FOR ECONOMIC DEVELOPMENT
MINISTER OF SCIENCE AND INNOVATION
MINISTER FOR TERTIARY EDUCATION, SKILLS AND EMPLOYMENT
MINISTER FOR SMALL BUSINESS
ASSOCIATE MINISTER OF FINANCE

# Key terms and data limitations

### Defining sectors

A sector is an area of economic activity in which businesses or other organisations (e.g. government or voluntary organisations) share a similar market or produce a similar product or service. Examples are retailing (businesses that sell products directly to consumers) and telecommunications (provision of communications services using wired or wireless infrastructure).

This report uses data grouped into sectors using the Australian and New Zealand Industrial Classification codes (ANZSIC codes). A business or other type of organisation is classified to an ANZSIC code based on its predominant activity. The term 'sector' is often used interchangeably with the term 'industry'.

### Sources

The numbers in this report come from multiple sources. Data sourced from Statistics New Zealand is the latest that was available as at mid-December 2012. Some of this data is provisional and may change.

The data used covers different time periods for different metrics. For example, goods exports is for the year ended June 2012, while labour productivity is for the year ended March 2010.

### Export data

Some export data for cross-cutting sectors uses international sources in order to provide a longer time series. These sources may not agree with Statistics New Zealand data due to differences in the group of exported products being allocated to the relevant sector.

### Use of the term 'firm'

The term 'firm' is used generically. It includes all relevant entities, some of which are not firms at all, such as those in the charities, government, education and health sectors.

### Example firms

This report provides examples of firms which are believed to belong to the sector. The example firms provide a partial answer to a key question on the composition of a sector: which firms are in it?

Firms are classified by Statistics New Zealand as being part of an industry sector according to their predominant activity. This is explained fully on the Statistics New Zealand website. The classification of each firm to a sector using the Australian and New Zealand Standard Industrial Classification (ANZSIC) system is **confidential** to Statistics New Zealand.

Because of the confidentiality rules, MBIE has used other publicly available sources to determine which firms are likely to belong to a sector. These sources may be inaccurate or incomplete.

### Quotes and interviews

A limited number of interviews with sector leaders were carried out in the preparation of this report. Anonymous quotes from these interviews that illustrate key themes have been included. The opinions expressed are those of the industry participants. Additional quotes from public sources have also been used.

**A full explanation of the data sources and limitations is provided in the Appendix.**

# Report objective

The New Zealand Sectors Reports Series is a set of seven publications that provides a factual source of information in an accessible format on the key sectors that make up the New Zealand economy.

New Zealand needs to encourage all industry sectors to operate at their peak potential to meet the goals of our Business Growth Agenda. This report provides information on New Zealand's construction sector.

The report does not intend to draw policy conclusions. Its aim is to provide a comprehensive report card on the state of New Zealand's construction sector for business people, exporters, policy makers, media commentators, economists, academics, students and anyone with an interest in New Zealand's economic development.

The Ministry of Business, Innovation & Employment (MBIE) welcomes comment and feedback on this report, and on the measures the Government is taking to facilitate the development of a competitive and successful construction sector. Email sectors.reports@mbie.govt.nz

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# Executive summary

## The construction sector is diverse, labour-intensive and highly cyclical

**Situation**

- The construction sector is the fifth largest sector in the New Zealand economy. It employs over170,000 people, 7.6% of the workforce. In 2010 it generated 6.3% of GDP (nominal).

- Despite the GFC and the associated downturn in construction activity, the sector employs 36,000 more workers today than in 2002, a 30% increase.

- The sector is a key driver of economic growth. Production from the sector accounts for around 45–50% of gross fixed capital formation in the economy annually, providing basic infrastructure, housing and commercial, industrial and public buildings.

- Inputs to the sector come from a wide range of other industries and professions, including mining, wood processing, manufacture of materials and fittings, banking and finance, lawyers, accountants, engineers and architects.

- The construction workforce itself covers a wide range of skill levels, from labourers and tradespeople to project managers and engineers.

- Construction is a highly diverse sector. The sub-sectors that make up construction have very different characteristics.

**Building construction (residential and non-residential building)**

- Residential and non-residential building together employ 44,000 workers, close to half of whom are self-employed.

- Residential building is mainly made-up of self-employed builders or small building firms that typically build two to three houses a year, as well as a range of alteration and repair work.

- Non-residential building firms tend to be larger in size to accommodate scale projects such as offices and industrial buildings.

**Construction services**

- Construction services is a large and diverse sub-sector, employing some 96,000 workers, 37% of whom are self-employed. Included are many occupations which typically are sub-contracted to both small and large building projects. These include electricians, plumbers, concreters, carpet layers, plasterers, joiners and so on.

**Heavy and civil engineering**

- Heavy and civil engineering firms specialise in large infrastructure projects such as roads, dams, tunnels, and telecommunications and electricity networks. The sub-sector has 35 large firms (employing more than a hundred people) and these account for 72% of employment, or 20,000 workers. The sector includes some of New Zealand's largest firms, such as Fulton Hogan.

**Challenges**

- The construction sector faces some well-documented challenges. These are the subject of a significant amount of work by both the sector and government, such as the work of the Building and Construction Productivity Partnership. Productivity growth has generally been below that for the economy as a whole. For every hour worked in the sector, $34 of GDP is generated (2010). This is significantly below the all-sector labour productivity average of $48 per hour worked.

- The sector experiences the highs and lows of the business cycle more acutely than the economy as a whole. In times of high demand there are bottlenecks with the supply of trained and skilled labour, with immigration often filling the gaps.

# Executive summary *continued*

**Challenges *continued***

- During a downturn, experienced and skilled labour is often lost to the industry. In addition, the high volatility appears to be a disincentive to firms investing in training and in capital equipment.

- The greatest challenge is the unprecedented workload that will be placed on the industry in the next few years, driven by the Canterbury rebuild, the demand in Auckland for housing and infrastructure investment, and the weather-tightness remedial work. Industry identified concerns both over its capacity to meet the demand and maintain quality during the peak, and the risk to the viability of firms once the peak has passed.

**Scale**

- The Canterbury rebuild, the weather-tightness issue and the Government's commitment to investing in infrastructure may provide scale opportunities which would assist in driving improved productivity. However the small size of many firms in the residential building and construction services sub-sectors may limit their ability to take advantage of these opportunities.

**Innovation**

- In theory, the sector should have a strong platform for innovation, for example around the use of New Zealand's abundant supply of wood as a building material. In practice, lack of scale and the cost of implementing innovative solutions, which may involve significant training and changes in practices, may act as barriers to investment in innovation.

**Skills**

- Low skill levels have been identified as a constraint on productivity. The cyclical nature of the sector may discourage firms from taking on permanent employees and investing in their development.
- Industry interviewees noted issues around basic numeracy and literacy. Some larger firms have invested significantly in improving the numeracy and literacy of their workforce.

- Interviewees also had concerns regarding the management capability of smaller firms, particularly in terms of their capacity to manage the expected high workloads in Canterbury and Auckland.

- There has been an increase of 8000 apprentices in the trades area. This has been supported by the Government's Apprenticeship Re-Boot for new apprentices.

- Through Skills for Canterbury, an initiative that supports expanded trades training at institutions across the country, the Government has significantly increased funding for priority trades to ensure we have the necessary skills coming into the workforce. This includes many trades in the construction sector (e.g. carpentry, painting, brick and block laying, plumbing etc.).

# DEFINITION

# Definition

## This report uses the ANZSIC* definition of construction for its analysis

### Construction

- **ANZSIC Code E**

  The construction industry includes firms engaged in the construction of buildings and other structures, additions, alterations, reconstruction, installation, maintenance and repairs.

- Firms engaged in demolition or wrecking of buildings and other structures, and clearing of building sites are included. It also includes firms engaged in blasting, test drilling, landfill, levelling, earthmoving, excavating, land drainage and other land preparation.

- The sub-sectors within this division have been defined on the basis of their unique production processes. As with all industries, the production processes are distinguished by their use of specialised human resources and specialised physical capital.

- Construction activities are generally administered or managed at a relatively fixed place of business, but the actual construction work is performed at one or more different project sites.

### Exclusions

- The ANZSIC definition of construction excludes the manufacture, wholesaling and retailing of construction materials. The mining of raw materials (such as aggregate for road building) is also not included. These activities are all inputs into the construction sector.

- The definition also excludes engineers and architects. These professions are covered in the Knowledge Intensive Services Sector Report available from www.mbie.govt.nz

**Australian and New Zealand Standard Industrial Classifications (ANZSIC)*

# Sub-sectors

Construction is divided into a number of sub-sectors covering a wide range of activities

| Sub-sector | Activity | Example firms |
|---|---|---|
| **Building construction** | | |
| **Residential building** ANZSIC E301 | Building houses and apartments; carrying out alterations, additions or renovations to houses, or in organising or managing these activities. | Signature Homes; David Reid Homes; Stonewood Homes; many small building firms |
| **Non-residential building** ANZSIC E302 | Building structures such as motels, hospitals, office buildings, industrial buildings and other such commercial buildings. | Fletcher Construction; Ebert Construction |
| **Heavy & civil engineering** | | |
| **Heavy & civil engineering** ANZSIC E310 | Construction of roads, tunnels and bridges, dams, harbours, oil refineries and sports fields; includes cable laying and on-site installation and assembly of heavy electrical machinery. | Fulton Hogan; Downer; HEB Construction |
| **Construction services** | | |
| **Land development & site preparation** ANZSIC E321 | Subdividing land into lots and servicing land for subsequent sale; includes land-clearing, excavation, ground de-watering and trench digging. | Higgins Group; Ward Demolition |
| **Building structure services** ANZSIC E322 | Concreting for footpaths, foundations, kerbs and gutters; bricklaying; roofing; and erecting steel structures such as silos and tanks. | Allied Concrete; Forman Group |
| **Building installation services** ANZSIC E323 | Includes plumbers and electricians; installers of air-conditioning, heating, fire and security devices as well as elevators, curtains, awnings and blinds. | Downer; Orion; Laser Electrical, many small operators |
| **Building completion services** ANZSIC E324 | Includes plastering and ceiling services; carpentry; tiling; carpeting; wallpapering, painting and decorating; and window installation services. | Spencer Henshaw; Surfaceworks Specialist Coatings and many small operators |
| **Other construction services** ANZSIC E329 | Landscaping and construction of paths, decks and retaining walls, fences, or lawns; hiring of construction machinery with operators (such as cranes); scaffolding construction; blasting, cleaning and waterproofing of buildings. | Nelmac; Pyradeck |

*Source: example firms drawn from Kompass database*

# Comment on the definition and the structure of this report

**The construction sector is part of a complex ecosystem**

- The construction of houses, public and commercial buildings (e.g. factories, office blocks, hospitals, schools, stadiums) and basic infrastructure (e.g. roads, sewage systems, dams and electricity and telecommunications networks) is central to economic development and the welfare of a country's citizens. It is also a significant driver of economic activity.
- **This report focuses only on the those firms which *directly* carry out construction activities.** However, the actual work of constructing a building is just one part of a highly complex 'construction ecosystem' that includes many different players and a wide variety of skills and expertise.
- This system includes the legislative and regulatory framework set by central government and territorial authorities, including planning and environmental issues and the safety of the built environment. It includes a wide range of professional services including lawyers, accountants, architects, engineers, surveyors and bankers. Inputs into the sector include a wide variety of manufactured materials and fittings. Mining is important as a source of iron ore for steel and aggregate.
- At every point in the project there are legal (e.g. compliance with codes), technical and practical issues that need to be managed. In addition, many projects, particularly if they are very large, may involve resolving competing community interests. This can be a drawn out process involving public debate, consultation and legal challenges.

**Structure of this report**

- The first part of this report provides a range of data on the structure and dynamics of the construction sector as a whole.
- Also covered are a number of challenges facing the sector, including a lack of building skills and training, low productivity, the volatility of demand ('boom and bust' cycles), the challenges inherent in both the Canterbury rebuild and the demand for housing and infrastructure in Auckland.
- The second part provides data on the three major subsectors:
    - building construction
    - construction services
    - heavy and civil engineering.
- Building construction includes both residential and non-residential (commercial) building. Data is provided on the residential and non-residential building sub-sectors separately where it is available.
- A number of reports on the performance of the construction sector have been published in recent times, including work undertaken under the auspices of the *Building and Construction Productivity Partnership*, the *Construction Strategy Group,* in the context of the Canterbury rebuild, and the inquiry into housing affordability carried out by the *Productivity Commission*.
- **This report seeks to complement rather than replicate the reports undertaken by the above organisations. These reports are listed in the further reading section in the Appendix.**

# SNAPSHOT, KEY EVENTS AND THEMES

# Construction
## ANZSIC Code E

*Situation*

Construction includes firms mainly engaged in the construction of buildings and other structures, for example additions, alterations, reconstruction, installation, maintenance and repairs, demolition of buildings, and clearing of building sites. Blasting, test drilling, landfill, levelling, earthmoving, excavating, land drainage and other land preparation are also included.

**Scorecard**

| Measure | Total | % of NZ* | Growth (1 year) | Growth (5 yr CAGR) | Growth (10 yr CAGR) |
|---|---|---|---|---|---|
| GDP 2010 (nominal) | $10,381m | 6.3% | -0.2% | 5.3% | 7.2% |
| GDP 2012 (real) | n/a | n/a | -8.0% | -3.4% | 2.2% |
| Goods exports 2012 | $0m | 0.0% | n/a | n/a | n/a |
| Employment 2011 | 170,640 | 7.5% | -1.4% | -0.8% | 3.1% |
| Productivity 2010 | $34 | 70.8%** | -0.8% | -0.2% | -0.3% |
| Fixed capital investment 2010 | $882m | 2.9% | -34.3% | -8.3% | 2.9% |
| No. of firms 2012 | 49,099 | 10.5% | -1.6% | -1.3% | 2.2% |

* NZ is total employing firms, except total measured sector for productivity.
** NZ average = 100%

**Industry level financial performance**

| | Total | | Growth (1yr) | |
|---|---|---|---|---|
| | This sector | All sectors | This sector | All sectors |
| Total income per firm 2011# | $32,302 | $575,386 | 1.2% | 4.7% |
| Total income per employee 2011# | $283,100 | $311,600 | 5.5% | 4.0% |
| Surplus per employee 2011# | $15,200 | $24,000 | -9.5% | -12.7% |
| Return on equity 2011# | 24.5% | 6.6% | down | down |
| Debt ratio (liabilities/assets) 2011# | 65.2% | 64.1% | up | down |
| Capital stock per worker 2010 | $56,957 | $169,364 | 7.0% | 5.2% |

* Equals % of total employing firms, except productivity, which is total measured sectors.
**NZ average = 100%
#All sector total excludes some industries. Refer Appendix, terms and definitions.

**Example firms**

| Firm | Turnover ($m) | Employees | Ownership |
|---|---|---|---|
| Fletcher Residential | $1b | 4,300 | Fletcher Building (Listed NZX; ASX) |
| HEB Construction | $166m (est) | 500 | Private |
| Naylor Love Construction | $86m (est) | 265 | Private |
| Medium-sized Christchurch firm | $9m (est) | 35 | Owner-operated |
| Small Auckland builder | $0.65m (est) | 3 | Owner-operated |

**All exports by destination**

| Service | Exports ($m; 12) |
|---|---|
| Construction services | $24m |

**All exports by destination**

| Country | Exports ($m: 12) |
|---|---|
| Australia | $6m |

Construction does not generate goods exports. Materials manufacturers export, but this is classed as manufacturing exports. Some of the largest firms in construction have built significant international businesses focused in particular in Australia. Examples include:

- Fletcher Building; and
- Fulton Hogan.

Typically these firms have built integrated businesses that may include manufacturing of building materials, quarrying, design, distribution, wholesaling and retailing as well as core construction activities.

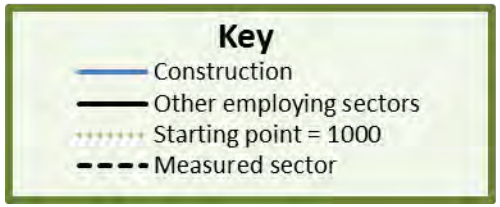
# Construction
ANZSIC Code E



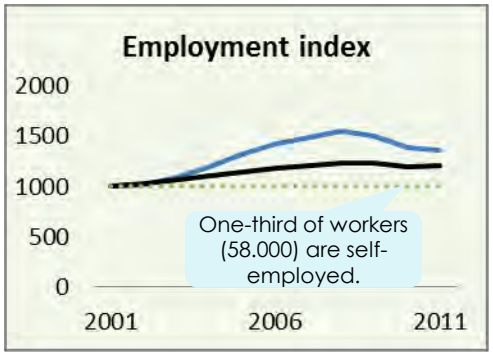
**Key trends, various timeframes: 10 year index (base =1000) except productivity is $ values – this sector vs all other sectors**

### Comment

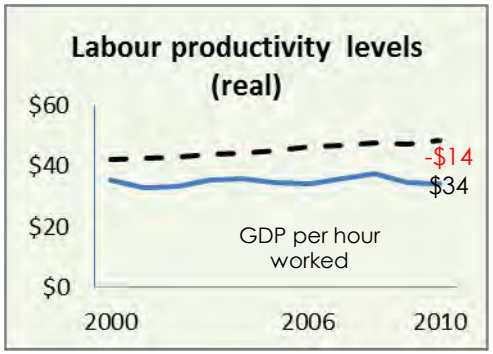
- Grew 2002 –2008
- Large employer: 170,640
- Created jobs overall +45,210 (2001–11)
- Created jobs +68,130 (2001–07)
- Lost jobs -22,920 (2007–11)
- Productivity declining
- Number of firms increasing
- Fixed capital investment increasing e.g. in plant, machinery & equipment & transport equipment
- Low R&D and innovation rates – R&D funded collectively through the Building Research Levy ($8.7m in 2012)
- Many inputs to this sector are outputs from manufacturing and mining

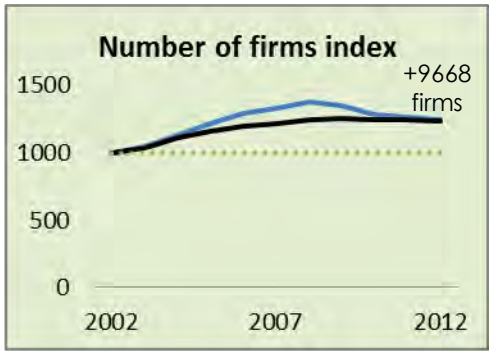









| R&D & Innovation rates (2011) | | Export barriers: Current exporters | Degree | Export barriers: Future exporters | Degree | Internationalisation | % |
|---|---|---|---|---|---|---|---|
| R&D rate | ○ | 1. Exchange rate volatility | ◐ | 1. Limited experience in expanding beyond NZ | ● | % of construction firms exporting | 3% |
| Innovation rate | ○ | 2. Limited experience in expanding beyond NZ | ◐ | 2. Other | ◐ | % of construction firms with off-shore direct investment | 3% |
| | | 3. Limited access to distribution networks | ◐ | 3. Limited access to distribution networks | ◐ | % of construction firms <50% foreign owned | 3% |

● High
◐ Medium
○ Low

# Key events

A number of key events have had an impact on the sector

| Date | Event | Impact (where identifiable) |
|---|---|---|
| **1991** | Building Act 1991 enacted performance-based regulation of building work introduced in the new national Building Code.<br><br>Transit New Zealand (now the New Zealand Transport Authority) outsources state highway maintenance, worth about $1.2 billion in 2013 dollars. | • World first. Other countries (e.g. UK, Australia, Japan, Sweden) followed suit as did other legislation (e.g. Health & Safety in Employment Act, Resource Management Act).<br>• Greater dependence on NZ Standards to provide detailed requirements to meet performance criteria in the Building Code.<br>• Expectation of greater innovation, including more research and development.<br>• Outsourcing state highway maintenance provides heavy and civil engineering construction firms with opportunities to develop in scale and sophistication. |
| **Late 1990s to early 2000s** | Weather-tightness issue emerges. From early 2000, growing evidence pointed to common problems associated with design features. These included flat roofs, complex building shapes and junctions, parapets, narrow or no eaves, monolithic claddings, untreated framing, sealed decks, built-in balconies and inadequate flashings around windows and doors. Problems were often present in high-density, multi-unit developments. | • Litigation influenced behaviour in the sector. The sector became more risk-averse and developed a heavy reliance on territorial authorities consenting functions to check Building Code compliance.<br>• Reality of joint and several liability hits 'deep pocket' defendants, territorial authorities in particular.<br>• Private certifiers (who provided consenting functions in competition to territorial authorities) begin to exit the sector because of an inability to obtain required insurance for their functions. |
| **1999** | Law Commission report on '*Protecting Construction Contractors*'. | |
| **2001** | Hartner Construction collapse. | • Government decides to implement Law Commission recommendations from report on '*Protecting Construction Contractors*' to ensure sub-contractors are paid for their work in a timely manner. |

*Source: Ministry of Business, Innovation and Employment, 2013*

# Key events *continued*

| Date | Event | Impact (where identifiable) |
|---|---|---|
| **2002** | The Building Industry Authority (which became part of the new Department of Building and Housing in November 2004) commissioned the Weathertightness Overview Group to enquire into the weather-tightness of New Zealand buildings and concerns about leaking and rotting houses. This group produced the report of the *Overview Group on the Weathertightness of Buildings* (commonly known as the Hunn Report). This outlined systemic failures in the building industry that led to inadequate building practices causing leaking, and called for far-reaching changes across the construction industry.<br><br>Construction Contracts Act enacted to provide for quicker payments in the construction sector and a quick dispute resolution process for payment claims.<br><br>Weather-tight Homes Resolution Services Act establishes alternative dispute resolution process for obtaining compensation for leaky homes. | • Government begins review of the regulatory regime for the building and construction sector. Review begun by Department of Internal Affairs but transferred to Ministry of Economic Development in 2003.<br><br>• John Scarry publishes an open letter to IPENZ entitled: *Regarding the Parlous State of the Structural Engineering Profession and the Construction Industry in New Zealand*. At the same time others begin to warn about the extent of the leaky buildings problem. |
| **2004** | Building Act 2004 enacted, stricter controls on 'inputs' into building work: practitioners, consent authorities and building products, but underlying approach of performance-based regulation remains. | • Department of Building and Housing established to provide a stronger central regulator and implement the new Building Act.<br>• Private certifiers exit the consenting market completely.<br>• Amount of information required by building consent authorities (territorial authorities) to accompany building consent applications increases and risk-averse behaviour by all parties increases. This leads eventually to a further regulatory review in 2009/10.<br>• Government decision to amend the Building Act 2004 to provide clearer roles, responsibilities and accountability for building owners, building practitioners and building consent authorities as well as enhanced consumer protection measures. |
| **2007** | Licensed building practitioners scheme came into force, voluntary licensing became compulsory for certain building work in March 2012. | |

*Source: Ministry of Business, Innovation and Employment, 2013*

# Key events *continued*

| Date | Event | Impact (where identifiable) |
|---|---|---|
| **2008** | Global financial crisis impacts on residential construction sector. | • Number of consented new dwellings drops to historical lows (13,662 in 2011). Investment by Government in large infrastructure projects sustains some momentum in heavy and civil engineering. |
| **2009** | Building and Construction Sector Productivity Taskforce. | • The taskforce resulted in the establishment of the Building and Construction Sector Productivity Partnership. This is a partnership of industry and Government, established in 2010 to address low productivity in the industry, with the aim of improving productivity by 20% by 2020. |
| **2009/10** | Review of Building Act 2004 found system is working but not creating the right incentives to improve productivity and is more costly than necessary. | |
| **2010/11** | Canterbury earthquakes. | • Earthquakes cause devastating damage to commercial buildings, houses and infrastructure. Re-build expected to cost close to $30 billion. |
| **2011** | Weather-tight Homes Resolution Services (Financial Assistance Package) Bill passed into law by Parliament. | • Under the $1 billion package, qualifying home owners will receive a 25 per cent contribution from the Government and may receive 25 per cent from their local council. The contributions will be based on actual repair costs |
| **2012** | Restricted building work regime came into force, certain residential building work only allowed to be carried out or supervised by licensed building practitioners.<br><br>Building Amendment Act 2012 enacted including a new risk-based consenting system (not yet in force).<br><br>Productivity Commission releases report on housing affordability (http://www.productivity.govt.nz). | • Government establishes a comprehensive work programme to respond to the Productivity Commission report on housing affordability.<br><br>• Establishment of the Ministry of Business, Innovation & Employment, including the functions of the Department of Building and Housing. This recognises that the policy and regulatory environment facing this sector plays an important role in shaping a productive and competitive economy. |
| **2013** | Mainzeal collapse.<br><br>Government and Auckland City Council announce the housing accord. | • Many sub-contractors left out of pocket.<br><br>• The Government and Auckland City Council agree plans to fast-track developments in Auckland that could accommodate over 5000 houses, identifying 10 'special housing areas'. |

*Source: Ministry of Business, Innovation and Employment, 2013*

# Key themes

## A number of key themes have emerged in the construction sector

| Theme | Details | Examples |
|---|---|---|
| **Highly complex ecosystem** | The construction industry is part of a highly complex ecosystem that includes regulators, planning authorities, materials manufacturers and suppliers, property developers and a range of professional service providers. | • The process of building a house may involve up to thirty different players and contractors.<br>• The process of building a commercial building is by orders of magnitude more complex than building a house (i.e. involving many more steps and players). |
| **Contribution to the economy** | Measured by annual revenues, the construction industry is a $30 billion plus industry. | • Production from the construction sector dominates New Zealand investment, contributing on average around 50% annually of all gross fixed capital formation in the period 1992–2012.<br>• Construction stimulates significant and varied activity in the economy through its supply chain, e.g. manufactured materials, and including a range of professional services, e.g. engineers, architects, lawyers. |
| **Fragmentation** | The residential building and construction services sub-sectors are dominated by many small firms and self-employed contractors. | • High proportions of self-employed in residential building (45%) and construction services (37%).<br>• The sector contributes 6.3% of GDP, employs 7.5% of the workforce, but accounts for 10.5% of all businesses.<br>• Few large firms affects ability to develop economies of scale and improve productivity. |
| **Productivity** | The generally low productivity performance by the sector has been identified as a key issue by the Government, the Productivity Commission and the industry itself. A range of initiatives are in place to address this issue, notably the Building & Construction Productivity Partnership. | • Labour productivity for the construction sector as a whole is $34 per hour worked (2010), 29% below the NZ average.<br>• *Sector productivity has been declining for the last two decades and is low compared with most other sectors of the economy and with other countries. For instance, New Zealand's labour productivity rate is about 30% below Australia's.* - Productivity Partnership website |
| **Cyclical nature of industry/volatility** | The business cycle is experienced more acutely in the construction sector compared to the economy as a whole, with impacts on firms and employment. | • In boom times the construction sector suffers from capacity constraints. In lean times many firms and workers exit the industry.<br>• The rate of births and deaths of firms is much higher in the construction sector than it is for the population of all New Zealand firms.<br>• In bust times there is a tendency to price at or below cost to win work, with consequences for quality of work and the viability of businesses. |

**Source: Resourcing of the Canterbury rebuild: Case studies of construction organisations January 2013, available from www.resorgs.org.nz*

# Key themes *continued*

| Theme | Details | Examples |
|---|---|---|
| **Skills and training** | Construction is a labour intensive activity. Firms report difficulty recruiting skilled and experienced labour. | • The boom and bust cycle is a disincentive for firms to invest in training.<br>• In boom times skill gaps tend to be met through immigration.<br>• Upskilling to utilise new technologies/techniques is costly and may require a higher standard of literacy and numeracy.<br>• Bigger firms are more likely to invest in training and use external training providers .*<br>• Insufficient work experience of new employees is commonly cited by organisations as being a root cause of resourcing problems.* |
| **Canterbury rebuild, opportunities** | Assurance of the work pipeline over the medium term may allow firms to improve economies of scale, invest in fixed capital and workforce training or create opportunities for increased competition. | • *Government splits $40m procurement deal to supply wallboard for the Christchurch rebuild between New Zealand's only wallboard manufacturer, Winstone Wallboards, and multi-national German manufacturer Knauf* – Ministerial press release, 23 January 2013<br>• *Collaborate Canterbury established to facilitate companies to work together and combine resources – thorough supply agreements, joint ventures, secondments, partnerships, outsourcing, acquisitions or sub-contracts* – Collaborate Canterbury website, collaboratecanterbury.org.nz |
| **Canterbury rebuild, risks** | Workloads in the construction industry are entering a period of unprecedented highs, driven by the Canterbury rebuild, along with the demand for housing and infrastructure in Auckland and remedial work related to the weather-tightness issue. | • Workloads will test the capacity of the industry to meet demand and maintain quality.<br>• Firms, particularly small firms, may struggle to manage more and larger projects including costs – risk of firm failures.<br>• Industry concerned that the unprecedented 'boom' will be followed by an equally unprecedented 'bust'. |
| **Margins** | Margins are generally tight, leaving little room for error. | • Surplus per employee is generally significantly below the New Zealand average, and has declined in recent years with firms competing for work in a tight market. |

**Source: Resourcing of the Canterbury rebuild: Case studies of construction organisations January 2013, available from www.resorgs.org.nz*

# THE GOVERNMENT'S BUSINESS GROWTH AGENDA

# The Government's Business Growth Agenda

## Actions to support the housing and construction sector including availability of skills

### Boosting housing and construction

- Implement a $1 billion financial package for leaky homes.
- Ensure by 2013 every state house built before 1978 that can be insulated is insulated.
- Reduce the cost of do-it-yourself building work by removing regulatory hurdles.
- Fast track building consents for standard, multiple-use building designs.
- Respond to the New Zealand Productivity Commission enquiry on affordable housing.
- Deliver on the Tamaki Transformation Programme.
- Update building standards to reflect earthquake lessons.
- Develop New Zealand International Convention Centre to establish and support international connections.

### Skills

- Review the Essential Skills in Demand lists, to examine effectiveness in addressing skills shortages in the short and long-term.
- Develop an immigration/labour market package targeted to support the rebuild of Christchurch, including the establishment of a Skills and Employment Hub.
- Provide additional places for construction-related trades training for the Canterbury rebuild, and trial new flexible study/work options.

### Skills *continued*

- Develop dedicated Māori and Pasifika trades training initiatives to increase their participation and improve their progression and earnings potential.
- Encourage Industry Training Organisation mergers to lift scale, improve performance and reduce complexity.
- Keep investing to improve levels of literacy, language and numeracy skills training for workers.
- Expand trades and service academies to increase the supply of flexible school-based provision available to young learners.
- Increase investment in engineering students at tertiary institutions and lift graduate numbers by 500 per annum by 2017.
- Investigate highlighting innovation careers in science, design, engineering and maths to school students and their families.
- Complete the Industry Training Review to create a durable system that lifts performance and qualification levels for all trainees.
- Introduce clear vocational pathways for senior secondary students and foundation learners, to provide clear options for those seeking vocational careers.

*For more information see the Government's Business Growth Agenda publications; MBIE = Ministry of Business, Innovation & Employment; TEC = Tertiary Education Commission; MoE = Ministry of Education; NZQA = New Zealand Qualifications Authority*

# The Government's Business Growth Agenda

## Actions to support the Christchurch rebuild, streamline planning processes and resource consents, improve workplace safety and encourage innovation

### Making work places safer

- Increase the capability and number of front-line health and safety inspectors.
- Work with industry to implement sector and occupational health action plans which address specific workplace harms of significance.
- Work with the independent taskforce conducting an in-depth review of New Zealand's workplace health and safety regime.

### Rebuilding Christchurch

- Establish and manage a Canterbury Earthquake Recovery Fund of $5.5bn – for the Government's share of rebuilding infrastructure and Crown owned assets.
- Facilitate the development of a new Christchurch convention centre.
- Establish Invest Christchurch to facilitate investment.
- Develop and release the Christchurch Central Recovery Plan.
- Redevelop Christchurch Hospital to enable it to meet current and future needs.
- Development of a justice and emergency services precinct.
- Christchurch Temporary Stadium: underwrite 17,000 capacity stadium in Christchurch.

### Building growth from more efficient land and resource use

- Set time limits and speed up consent processes under the Resource Management Act.
- Enable regionally important decisions to go direct to the Environment Court where appropriate.
- Streamline the regional planning process.
- Streamline the delivery of a high quality unitary plan for Auckland.
- Set a nine-month time limit for consenting projects of national significance.
- Require councils to provide a discount for late processing of resource consents.
- Improve the quality of analysis which councils use to make decisions.

### Encouraging business innovation

- Simplify and modernise government procurement policy to encourage innovation and firm participation.
- Improve the standards infrastructure to support productivity and innovation.

*For more information see the Government's Business Growth Agenda publications; MBIE = Ministry of Business, Innovation & Employment; TEC = Tertiary Education Commission; MoE = Ministry of Education; NZQA = New Zealand Qualifications Authority*

# The Government's Business Growth Agenda

## The Government is making significant investments in a range of infrastructure

### Infrastructure

- Establish the Future Investment Fund for investing in public infrastructure assets.
- Regional road projects to enhance productivity and economic growth; five projects:
    - The Rotorua Eastern Arterial
    - The Waiwakahio Bridge in New Plymouth
    - Hairini Link stage 4
    - Pakowhai Road in Hawkes Bay
    - Hamilton City Ring.
- Improve the resilience of key inter-regional routes (summary of five projects).
    - NZTA is working with local authorities to improve alternative routes to the Manawatu Gorge.
    - Procurement process for Transmission Gully construction underway and final approval obtained for the Mackays to Peka Peka project.
    - Improvements to the Mt Messenger on State Highway 3.
    - Napier-Gisborne highway – several projects underway to improve resilience of route following rail closure.
    - Expressway to the Port through Napier, linking the Hastings industrial area and the port – HPVM route agreed to give continuous high-level route.

### Infrastructure *continued*

- Complete the Victoria Park Tunnel to remove the last major bottleneck on the Auckland motorway system.
- Construct the Waterview Connection to complete the motorway ring route around Auckland.
- Fast track the Waikato Expressway Road of National Significance to improve safety reliability and journey time.
- Fast track work on the four other Roads of National Significance.
- Evaluate four new Roads of National Significance for development.
- AMETI and East-West link improvements.
- Route protection for additional Waitemata Harbour crossing
- Invest $1.6b to upgrade Auckland commuter rail and $485m for Wellington.
- Invest $5b through Transpower to update the National Grid and increase capacity, performance and reliability.
- Invest up to $400m to encourage irrigation and water storage development.
- Establish a new Irrigation Acceleration Fund to support the development of irrigation schemes.
- Encourage debate on the use of demand management and pricing in infrastructure sectors.
- Strengthen the infrastructure network information base, especially relating to future demand and asset condition and performance information.

*For more information see the Government's Business Growth Agenda publications; MBIE = Ministry of Business, Innovation & Employment; TEC = Tertiary Education Commission; MoE = Ministry of Education; NZQA = New Zealand Qualifications Authority*

## The sector and Government are working to improve the sector's performance

In recent years a number of sector and Government groups have sought to address the issues facing the sector, as these examples show

| Group | Purpose | |
|---|---|---|
| **Productivity Commission on Housing Affordability** | Evaluate the factors influencing the affordability of rental and owner-occupied housing, and to examine potential opportunities to increase housing affordability. | **Recommendations**<br>• Freeing up land for development will reduce pressures on land prices.<br>• Reduce the time required for planning processes.<br>• The sector and government should work together to raise productivity.<br>• Better coordination and provision of infrastructure. |
| **Productivity Partnership** | A partnership between the construction sector and Government to address low productivity in the sector. | **Activities**<br>• Providing research to help the sector grow.<br>• Helping ensure access to people with the right type and level of skills.<br>• Exploring opportunities for more efficient procurement.<br>• Identifying key decision points in the construction process where improvements can be made to increase overall project value. |
| **Construction Strategy Group** | To provide leadership and strategic direction to grow the construction sector. | **Priorities**<br>• Weather-tight homes.<br>• Building Act review.<br>• Construction Contracts Act review.<br>• Productivity Joint Venture with the Ministry of Business, Innovation and Employment.<br>• Review of health and safety institutional arrangements and regulations. |
| **Building Research Association of New Zealand** | An independent and impartial research, testing, consulting and information company providing services and resources for the building industry. | **Activities**<br>• Research and investigate the construction and design of buildings that impact the built environment in New Zealand.<br>• Enable the transfer of knowledge from the research community into the commercial building and construction industry. |

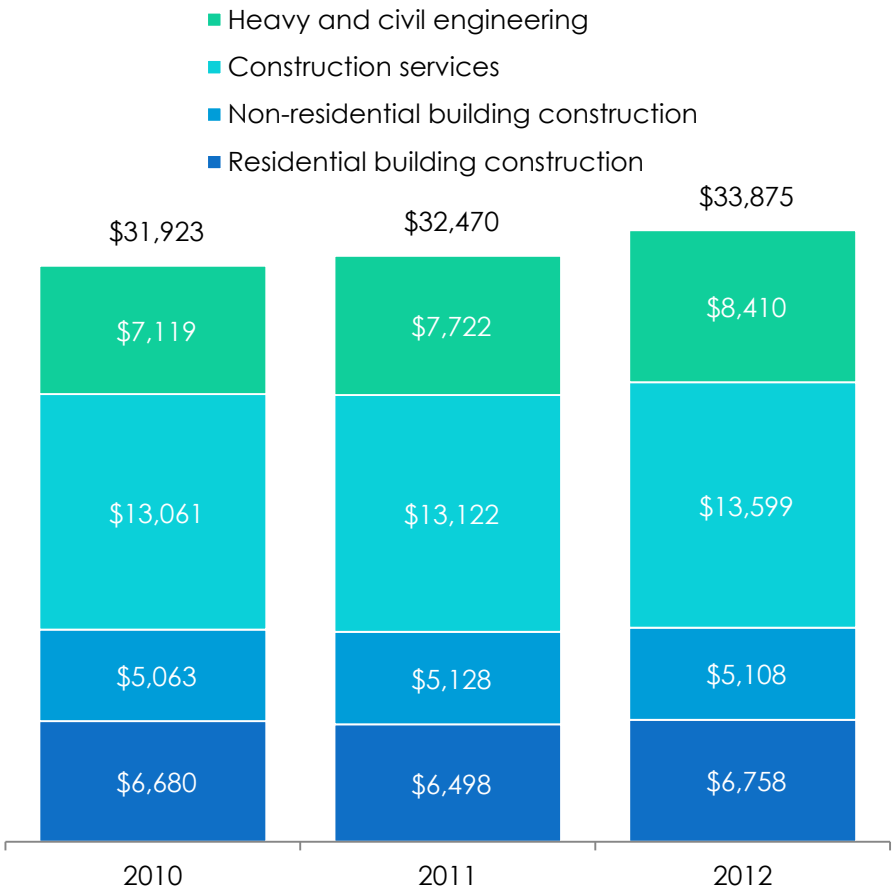
# Contribution to the economy

# Relative size of construction subsectors by revenue

Construction is a $30 billion plus industry; the construction services sub-sector generated 40% of total revenues in the three years to 2012

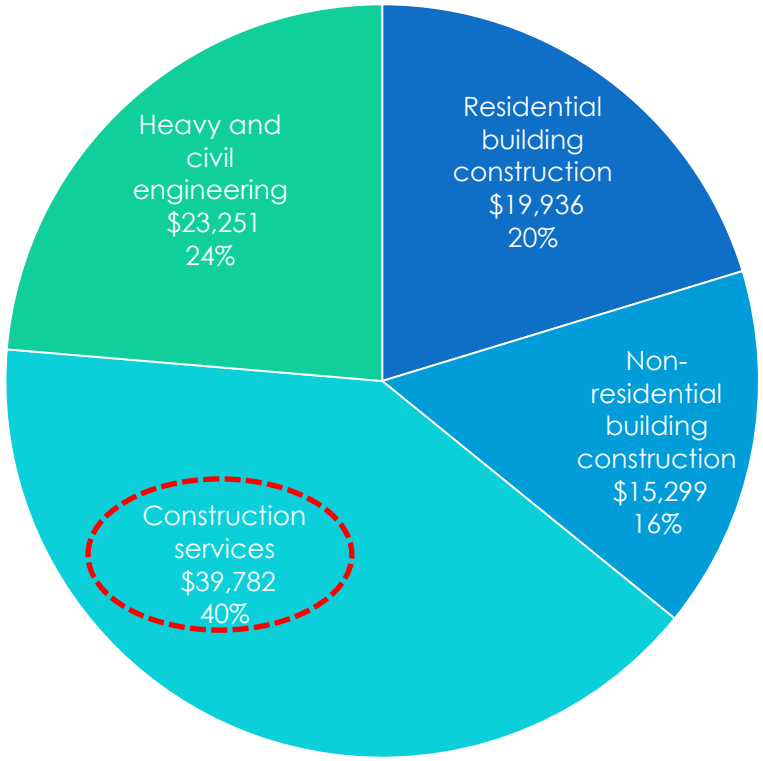
**Total revenues by construction sub–sector**

NZ$m; nominal; 2010–2012




**Percentage of total revenues by construction sub–sector**

% revenue; 2010–2012 combined



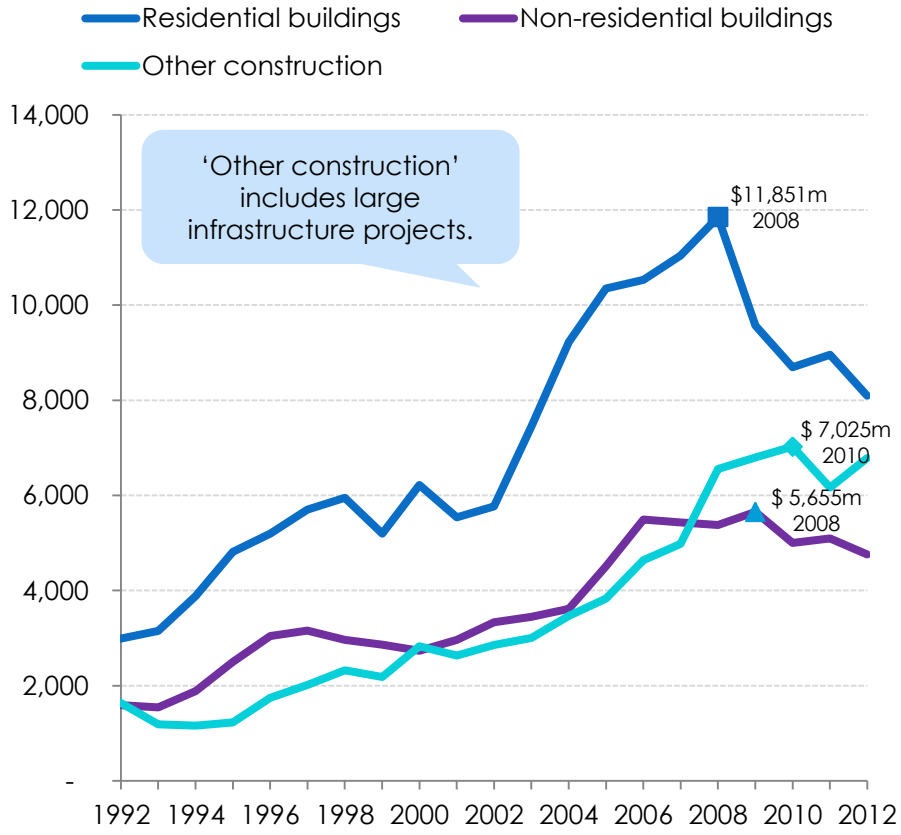

*Source: Statistics New Zealand, Annual Enterprise Survey, 2012*

# Gross fixed capital formation by asset type

Production from the construction sector dominates New Zealand investment, contributing up to 52% of all gross fixed capital formation in the period 1992–2012

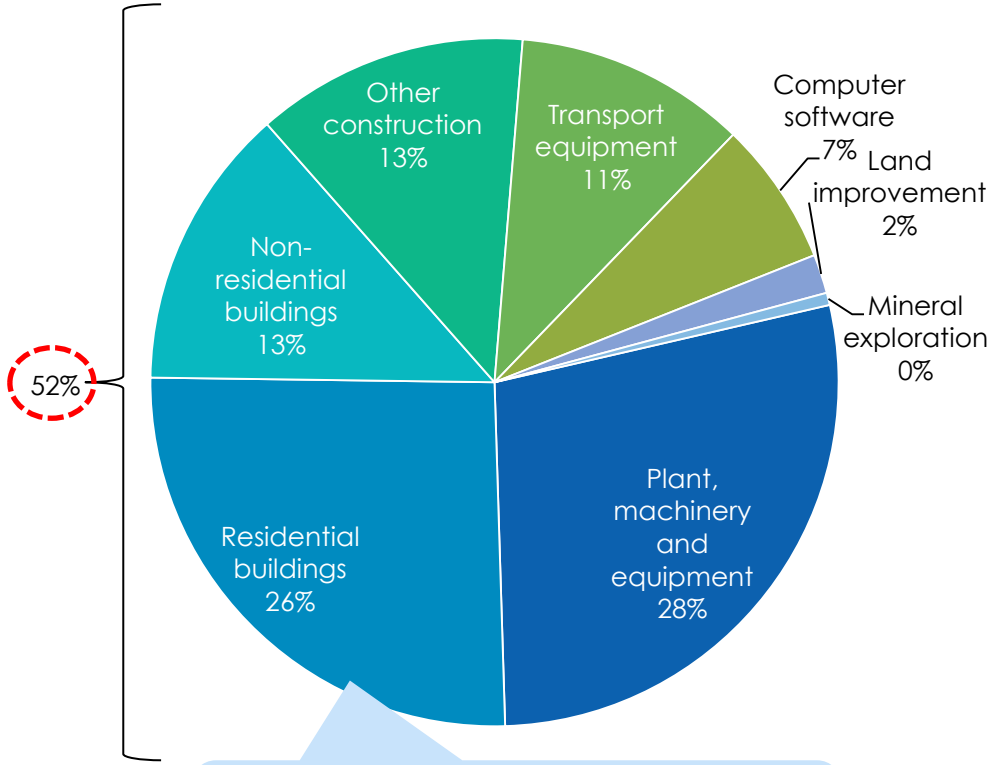
**Gross fixed capital formation (construction production)**

NZ$m; 1992–2012




**Gross fixed capital formation (all asset classes)**

% total; 1992–2012



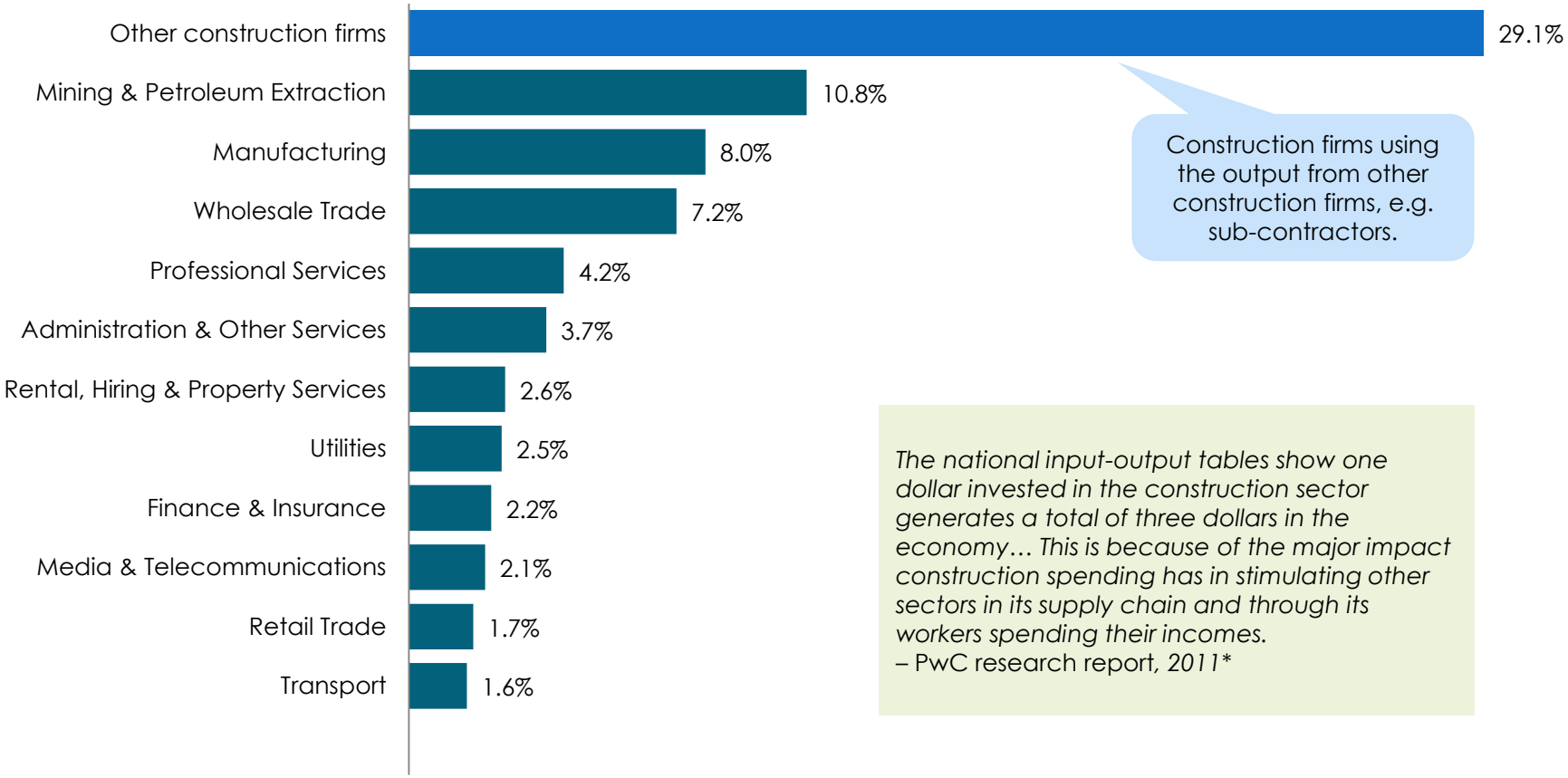

*Source: Statistics New Zealand National Accounts*

# Output from other sectors: use by construction

The construction sector consumes a significant percentage of production from a wide range of other sectors

**Sector output use by construction**

% of output use by construction; 2007 (latest available)




*The national input-output tables show one dollar invested in the construction sector generates a total of three dollars in the economy… This is because of the major impact construction spending has in stimulating other sectors in its supply chain and through its workers spending their incomes.*
– PwC research report, *2011**

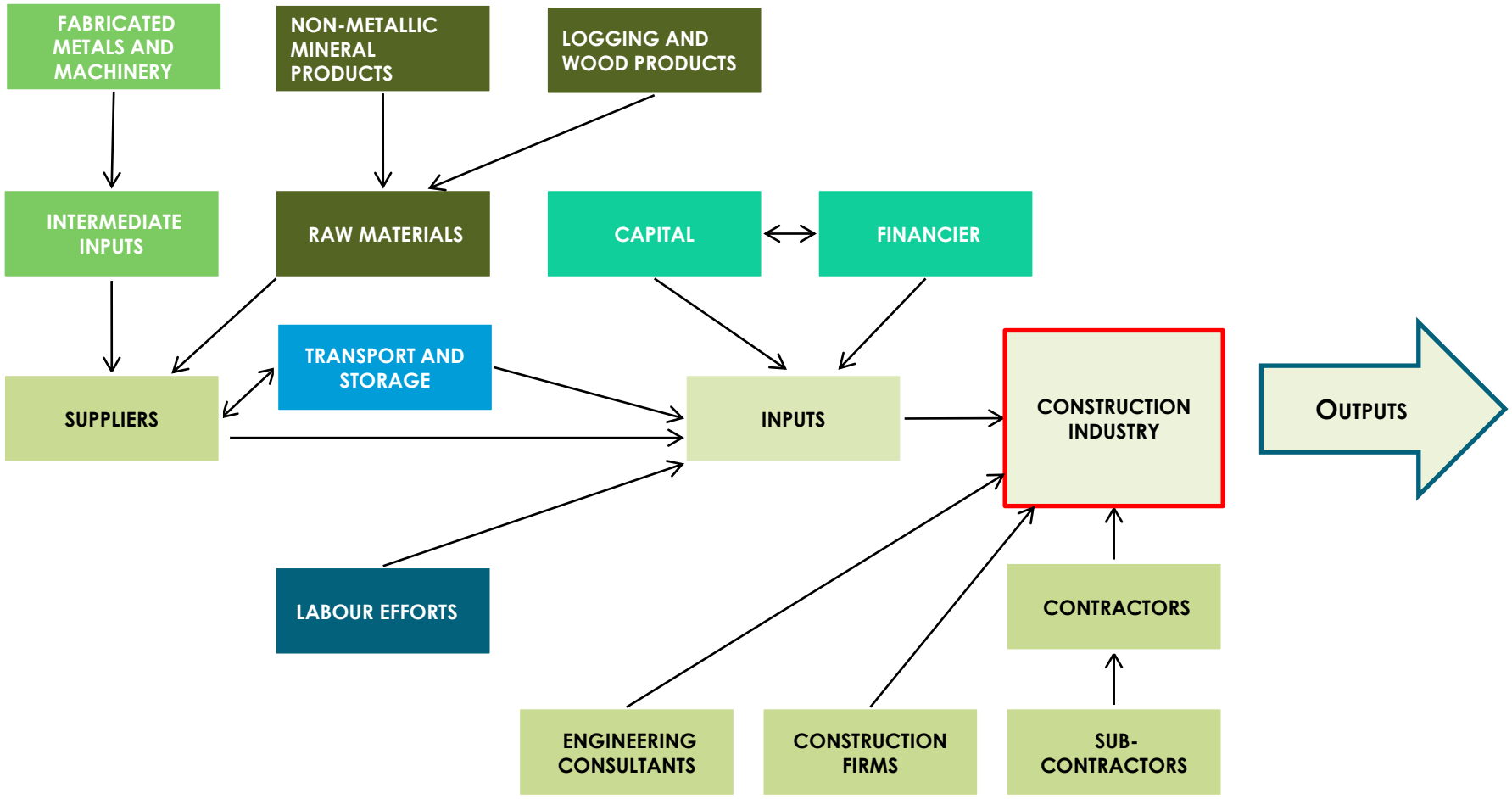
*Source: Statistics New Zealand, Input Output Tables, 2007*

**Valuing the role of Construction in the New Zealand economy: a report to the Construction Strategy Group; PricewaterhouseCoopers, 2011. available from www.constructionstrategygroup.org.n*

# Construction industry inflows

Inflows into the construction industry form a complex ecosystem

## Simplified model of construction industry inflows

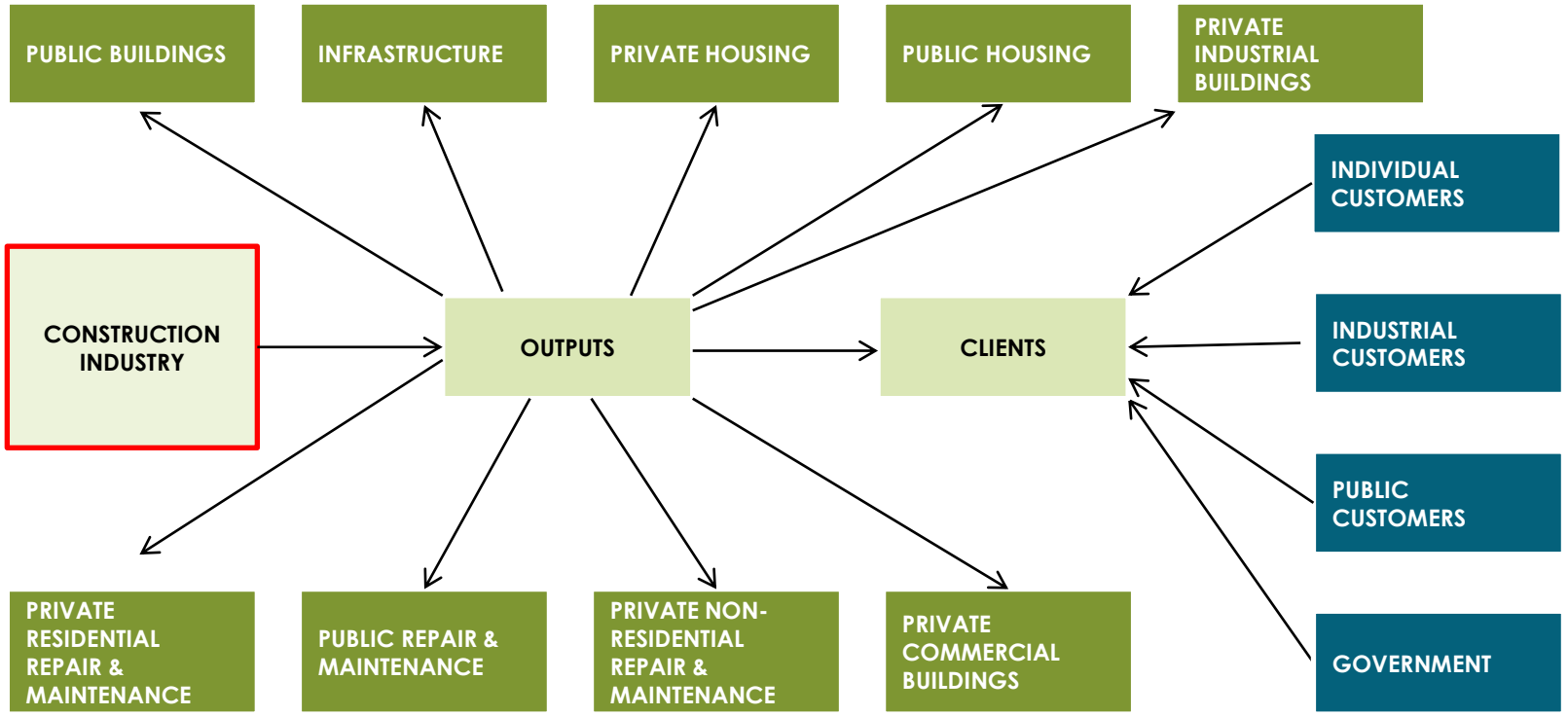



*Source: A Study into the Cyclical Performance of the New Zealand Construction Industry by Neil Allan, assisted by Yun Yin and Eric Scheepbouwer*
*Available from: http://caenz.squarespace.com*

# Construction industry outflows

Outflows from construction provide the infrastructure, and the private, commercial and industrial accommodation that underpins communities and economic activities

**Simplified model of construction industry outflows**




*Source: A Study into the Cyclical Performance of the New Zealand Construction Industry by Neil Allan, assisted by Yun Yin and Eric Scheepbouwer*
*Available from: http://caenz.squarespace.com*

## BUSINESS AND EMPLOYMENT

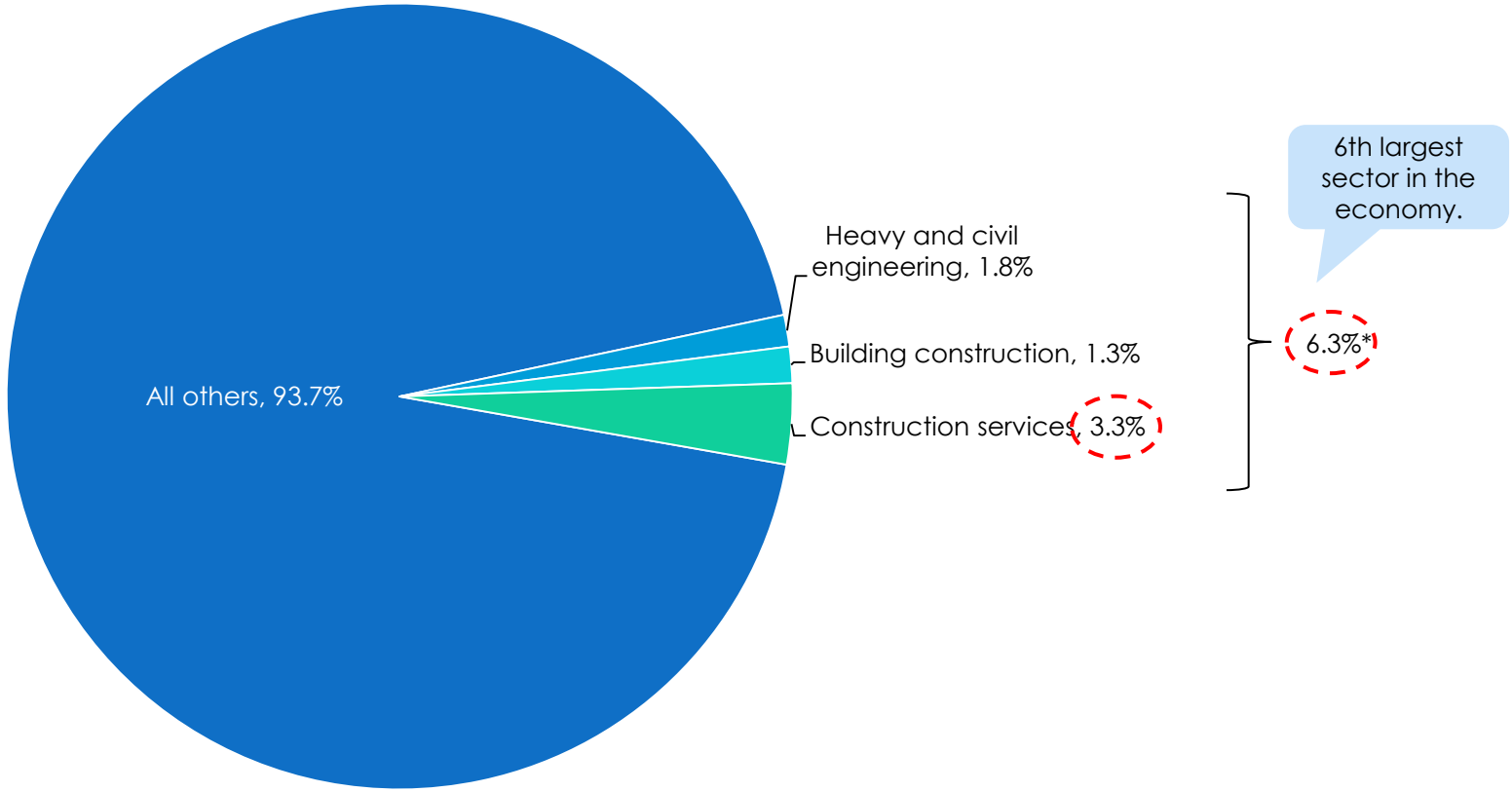
All construction sub-sectors

## Share of GDP

The construction sector contributed 6.3% of GDP in 2010; construction services accounted for over half the contribution

**Share of GDP by major construction sub-sector**

% GDP; 2012



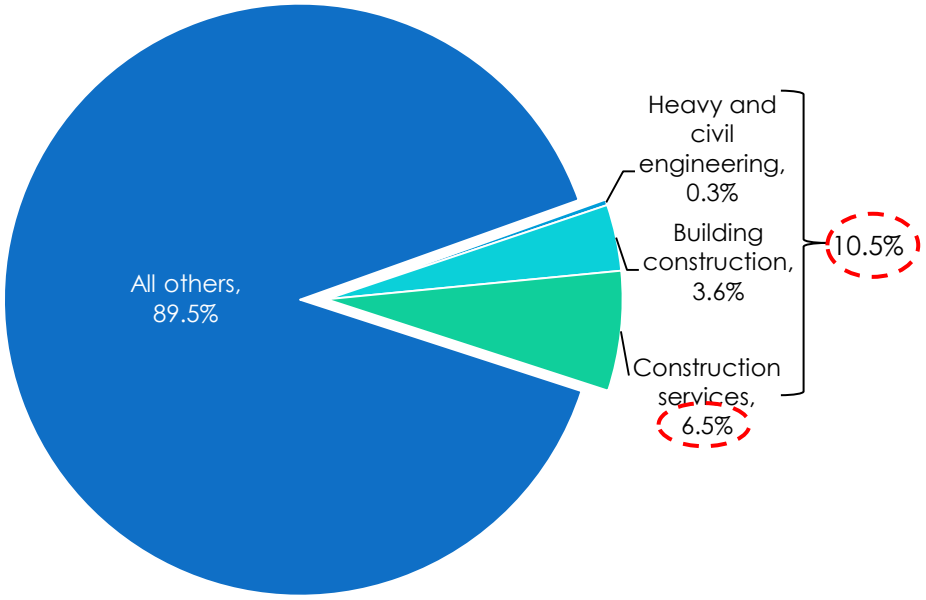

*Source: Statistic New Zealand, National Accounts (2012) *Percentages rounded.*

## Share of firms and employment

Construction accounts for 10.5% of all firms and 7% of employment; over half of construction workers and firms are in the construction services sub-sector

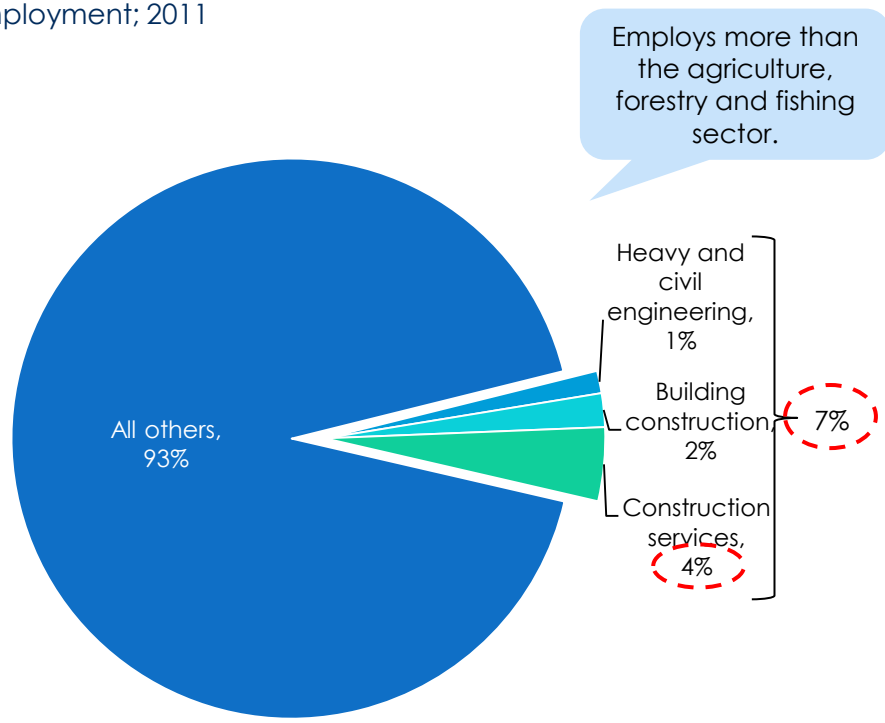
**Share of firms**

% firms; 2012




**Share of employment (including self-employed)**

% employment; 2011



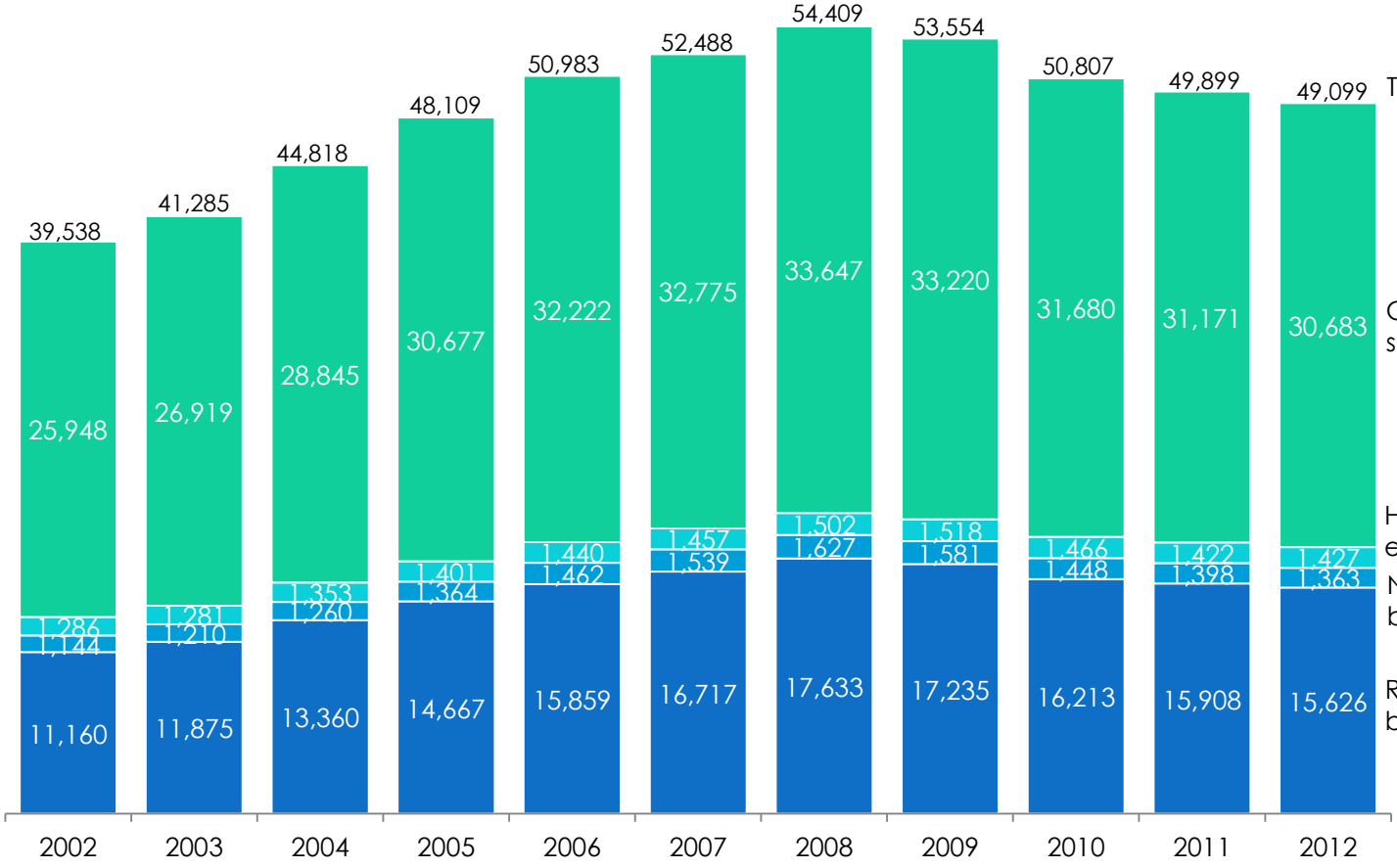

*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Number of firms by sub-sector

Despite the GFC, there are 9,561 more construction firms in 2012 than in 2002, driven by construction services and residential building

**Number of firms by sub-sector**

Firms; 2002–2012




| | CAGR 02–12 | CAGR 11–12 | Absolute change 02–12 |
|---|---|---|---|
| Total | 2% | -2% | +9,561 |
| Construction services | 2% | -2% | +4,735 |
| Heavy & civil engineering | 1% | 0% | +141 |
| Non-residential building | 2% | -3% | +219 |
| Residential building | 3% | -2% | +4,466 |

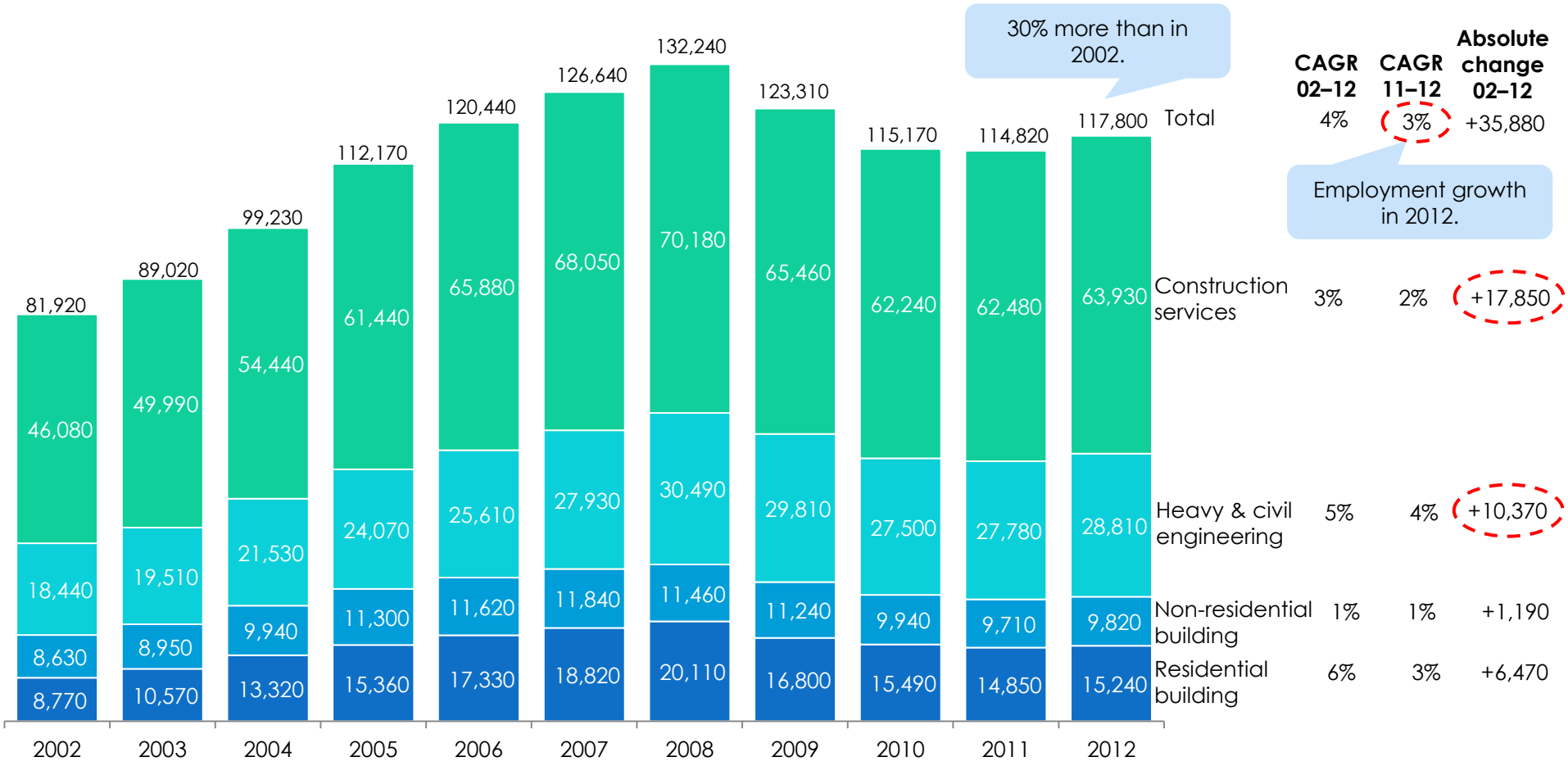
*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Number of employees by sub-sector

## Despite the GFC, the employed workforce is 30% larger in 2012 compared to 2002; employment growth driven by construction services and heavy and civil engineering

**Number of employees by sub-sector**

Employees; 2002–2012 (excludes self-employed)




*Note: totals may not match other pages due to rounding;*

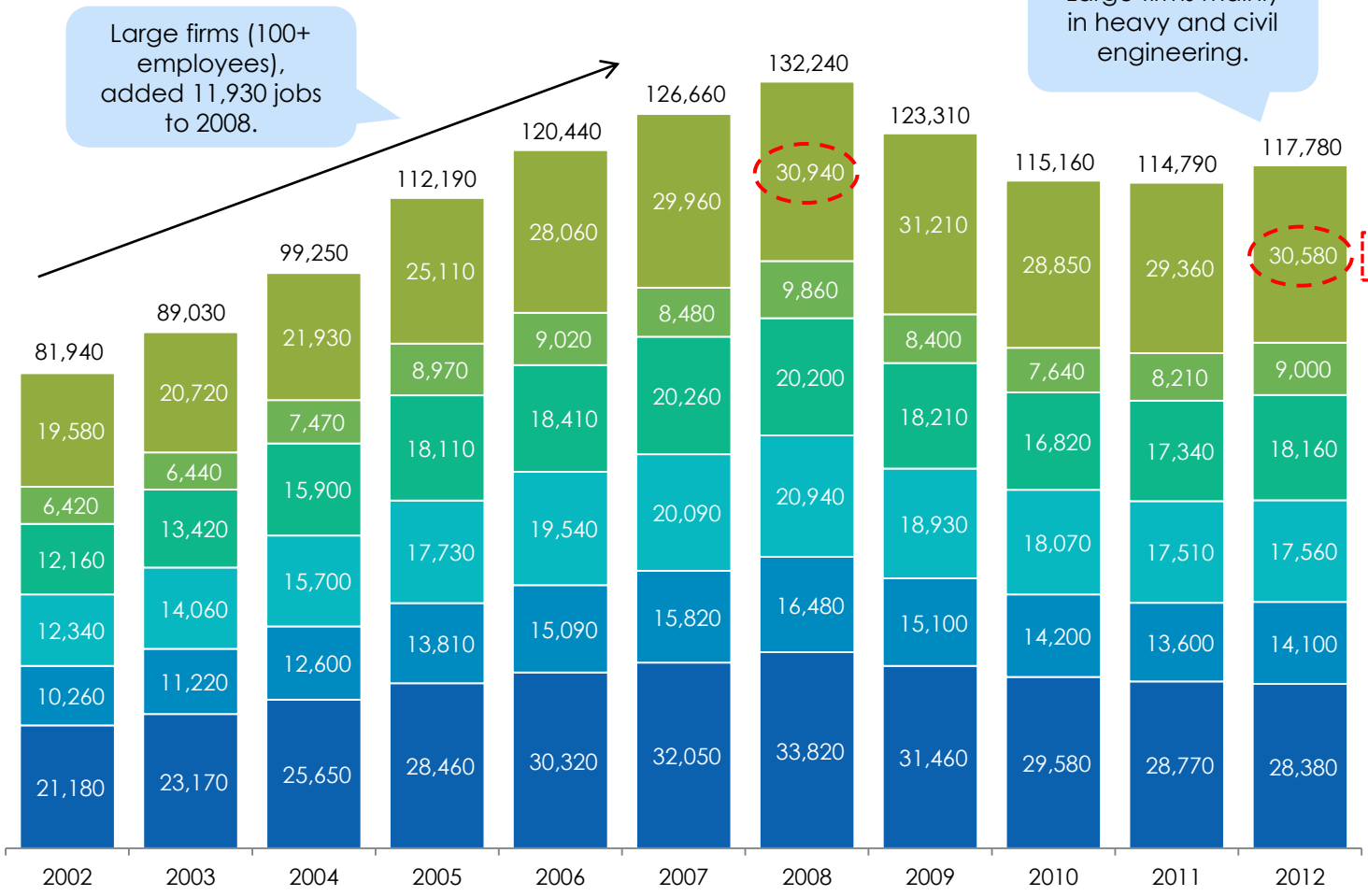
*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Employees by firm size

## Large firms added 11,390 jobs to 2008 and have largely maintained employment levels during the GFC

### Construction sector employees by firm size

Employees; 2002–2012 (excludes self-employed)




| Firm size | CAGR 02–12 | CAGR 11–12 | Absolute change 02–12 |
|---|---|---|---|
| Total | 4% | 3% | +35,840 |
| 100+ | 5% | 4% | +11,000 |
| 50-99 | 3% | 10% | +2,580 |
| 20-49 | 4% | 5% | 6,000 |
| 10-19 | 4% | 0% | +5,220 |
| 6-9 | 3% | 4% | 3,840 |
| 1-5 | 3% | -1% | +7,200 |

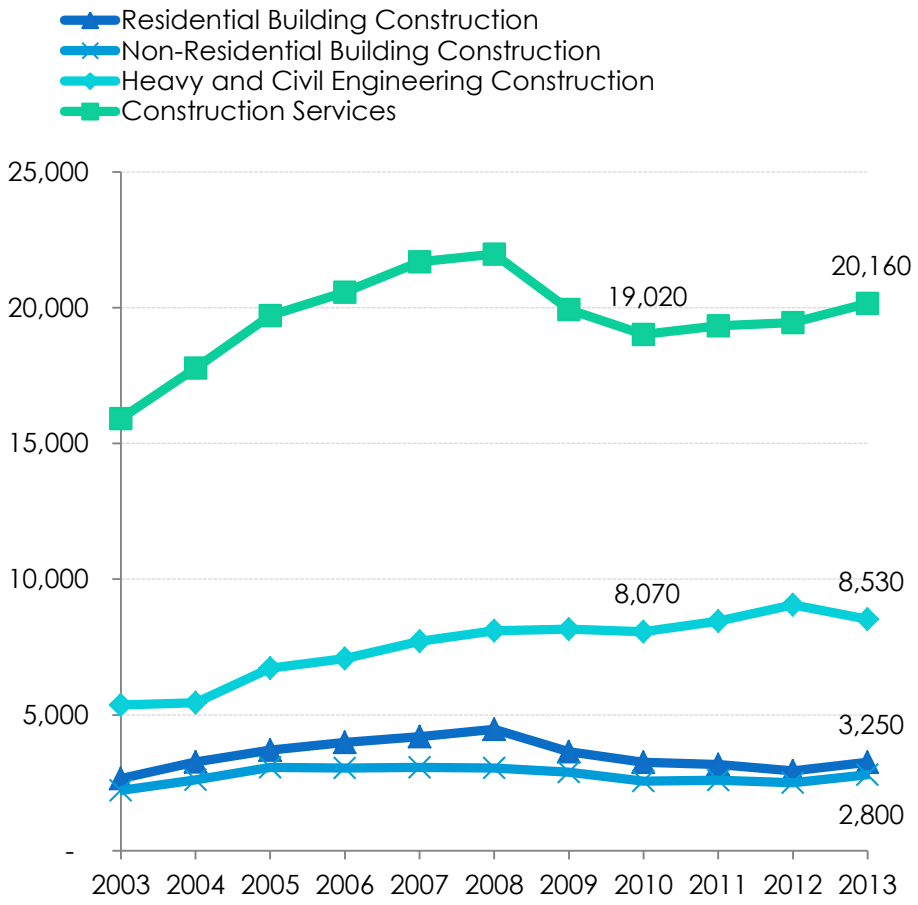
*Note: totals may not match other pages due to rounding;*
*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Employment count by sub-sector, Auckland and Canterbury regions

Canterbury is seeing strong employment growth driven by the rebuild; employment in Auckland is still relatively flat

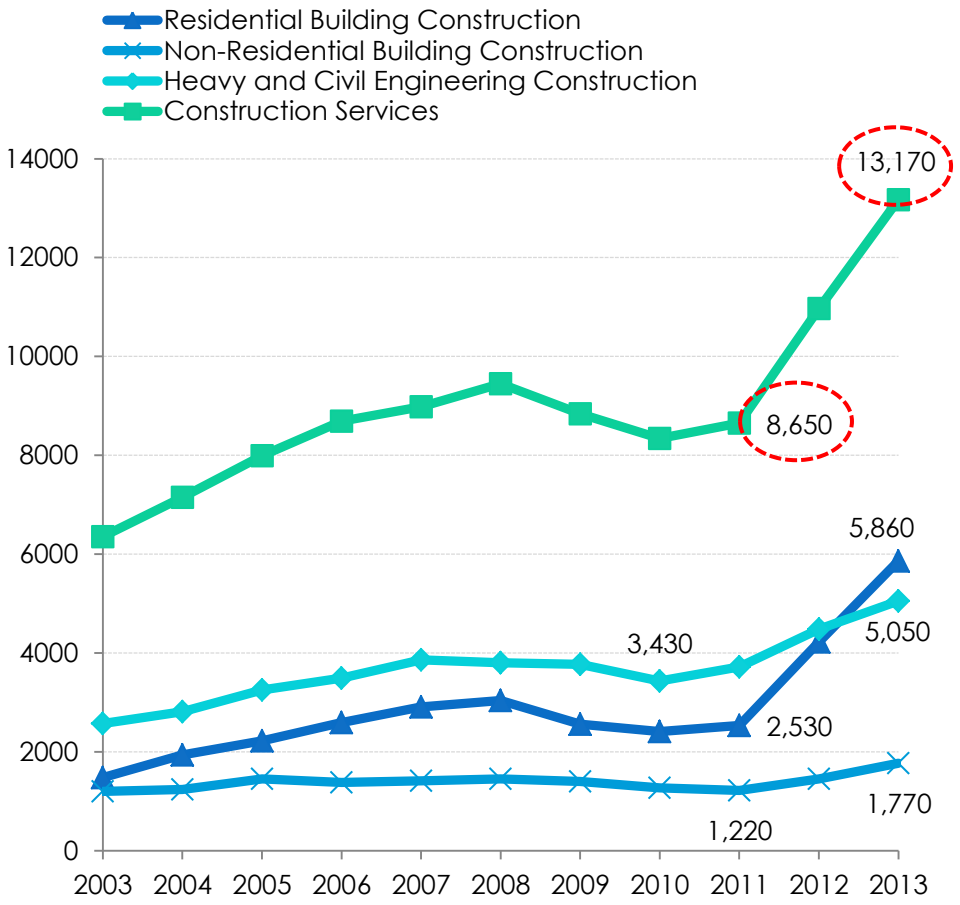
**Employment count by sub-sector, Auckland region**

Employees; 2003–2013




**Employment count by sub-sector, Canterbury region**

Employees; 2003–2013




*Source: Statistic New Zealand: Business Demography Tables, 2103*

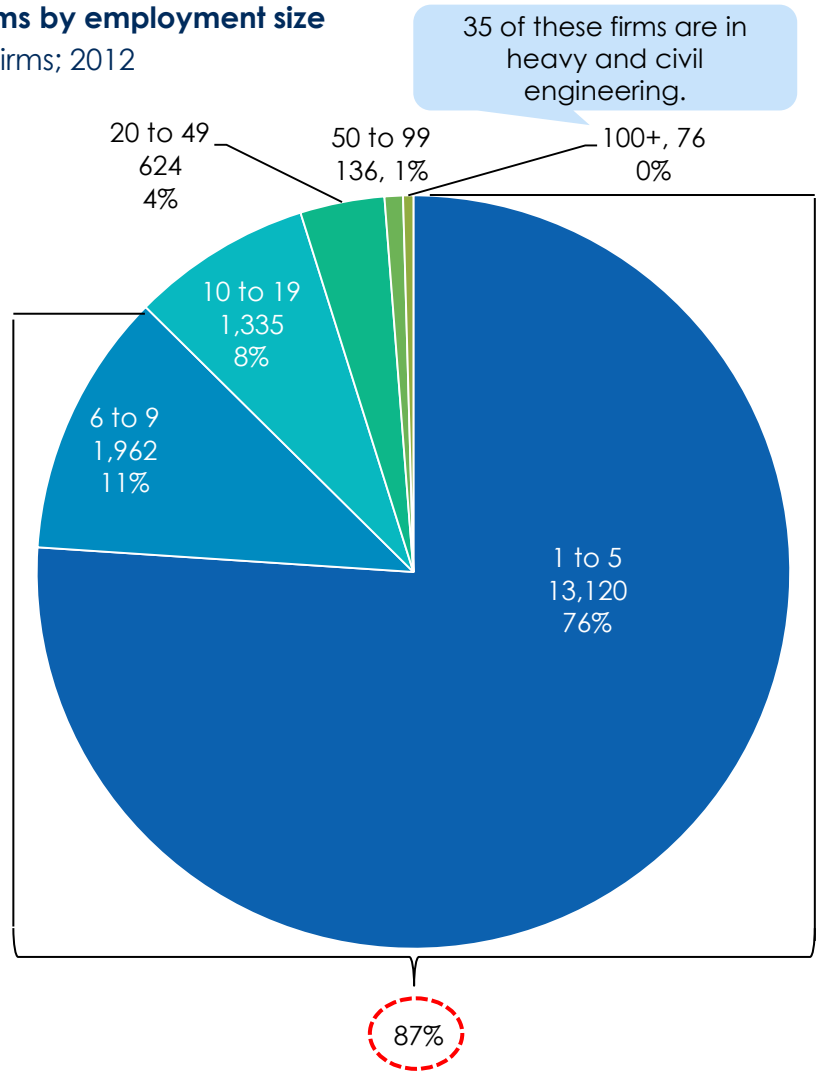
# COMPOSITION OF WORKFORCE AND SKILLS

## Firm size versus employees

The sector is characterised by the very large number of small firms; 87% of all firms employ nine or less workers

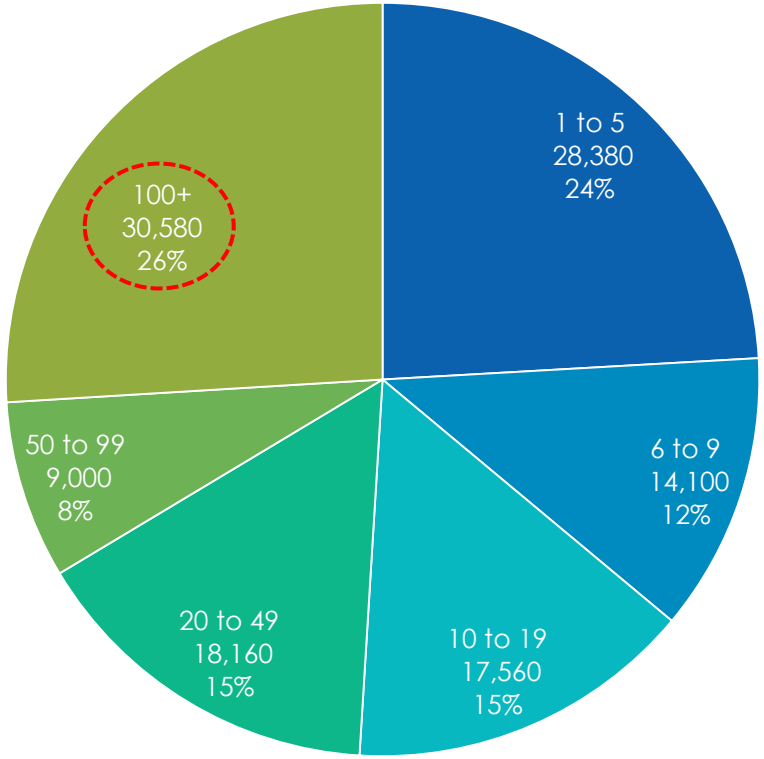
**Firms by employment size**

% firms; 2012




**Employment by firm size**

% employees; 2012



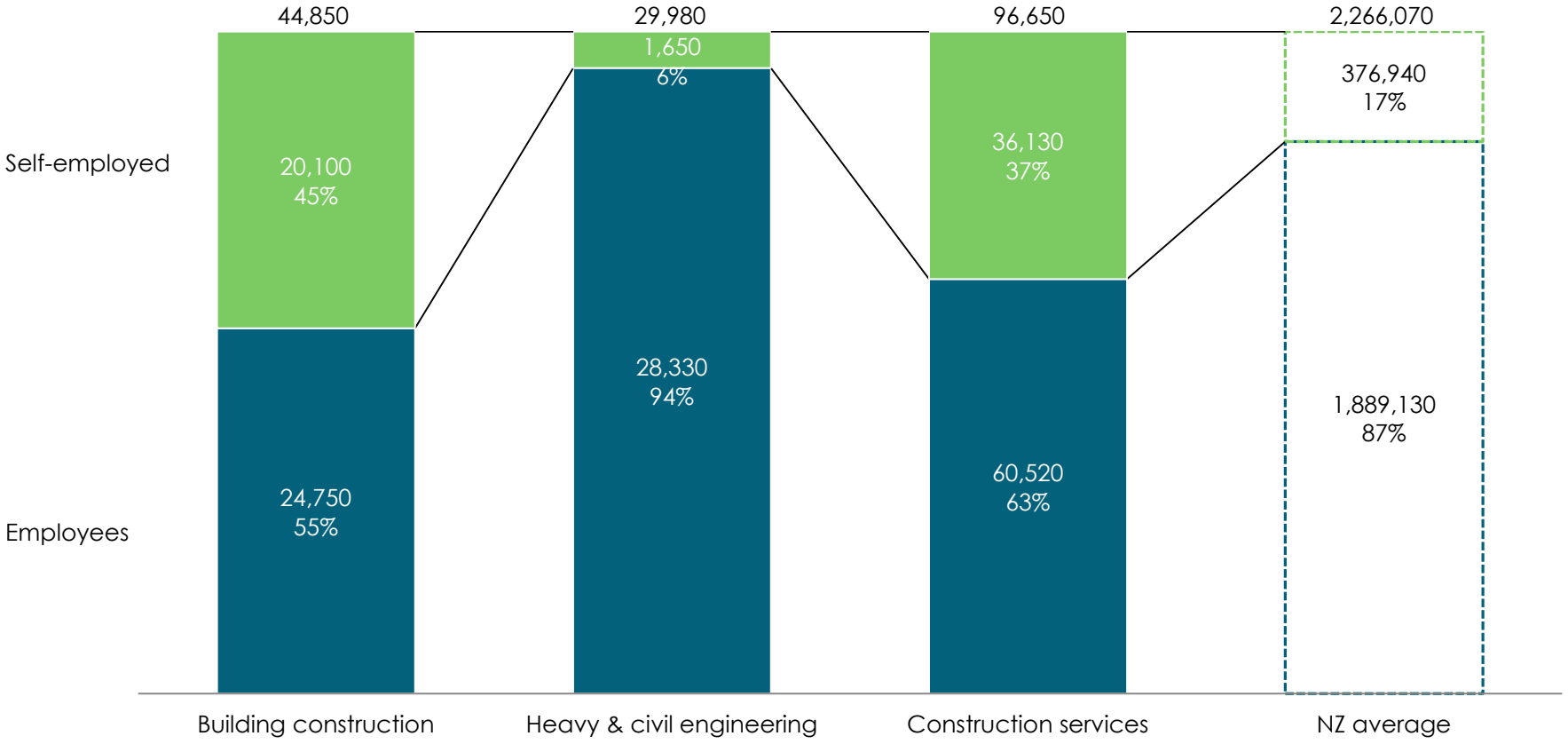

*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Composition of workforce: employees versus self-employed

## Self-employed workers are a significant percentage of the workforce in the building construction and construction services sub-sectors

**Employees & self-employed, share of overall workforce**

% employees and self-employed; 2010




*Note: The Linked-Employee-Employer Database does not split the residential and non-residential subsectors*

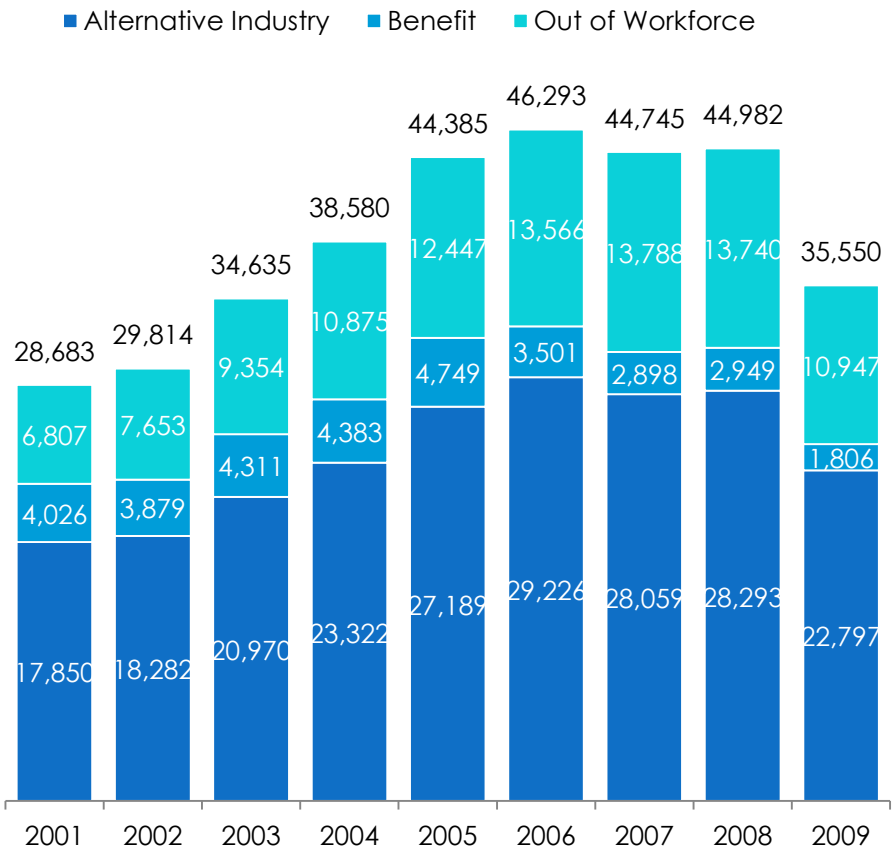
*Source: Statistics New Zealand; Linked Employee-Employer Database (2011)*

# Labour inflows to construction

From 2001 to 2009 between 62-64% of workers entering the construction industry came from other industries; an increasing percentage were coming from 'out of workforce'*

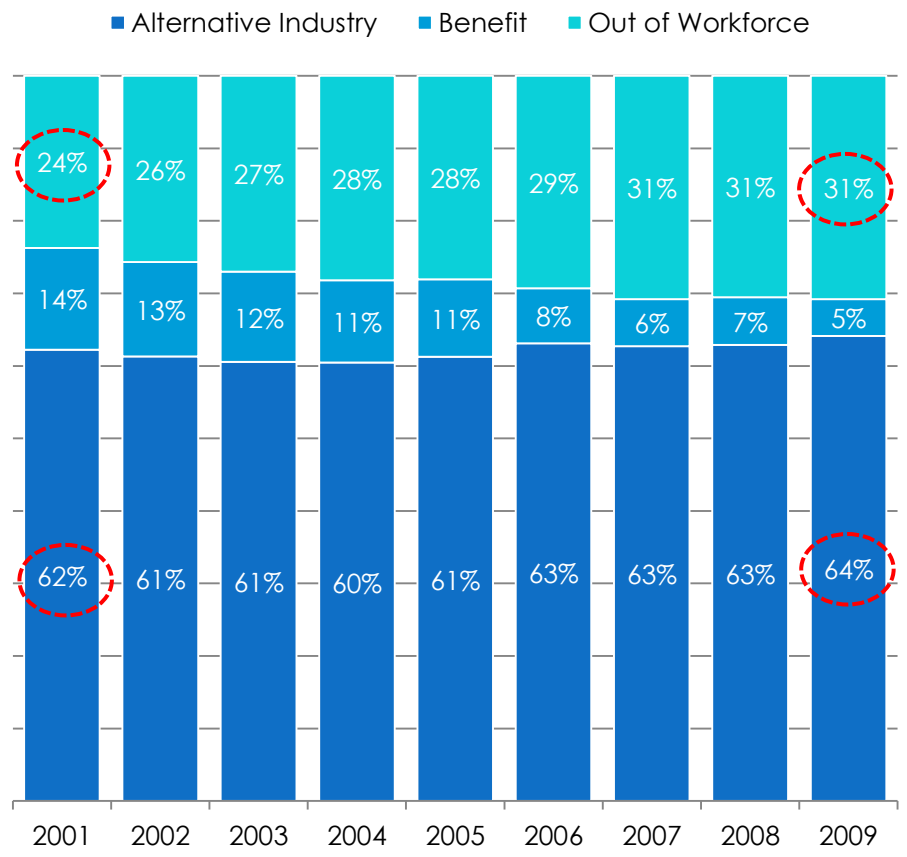
**Gross labour inflows to the construction industry, by source**

# of workers; 2001–2009 (latest available)




**Gross labour inflows to the construction industry, by source**

% source; 2001–2009 (latest available)




*'Out of workforce' includes students, migrants, those undertaking caring responsibilities, those receiving ACC, government superannuation, paid parental leave, or a student allowance.

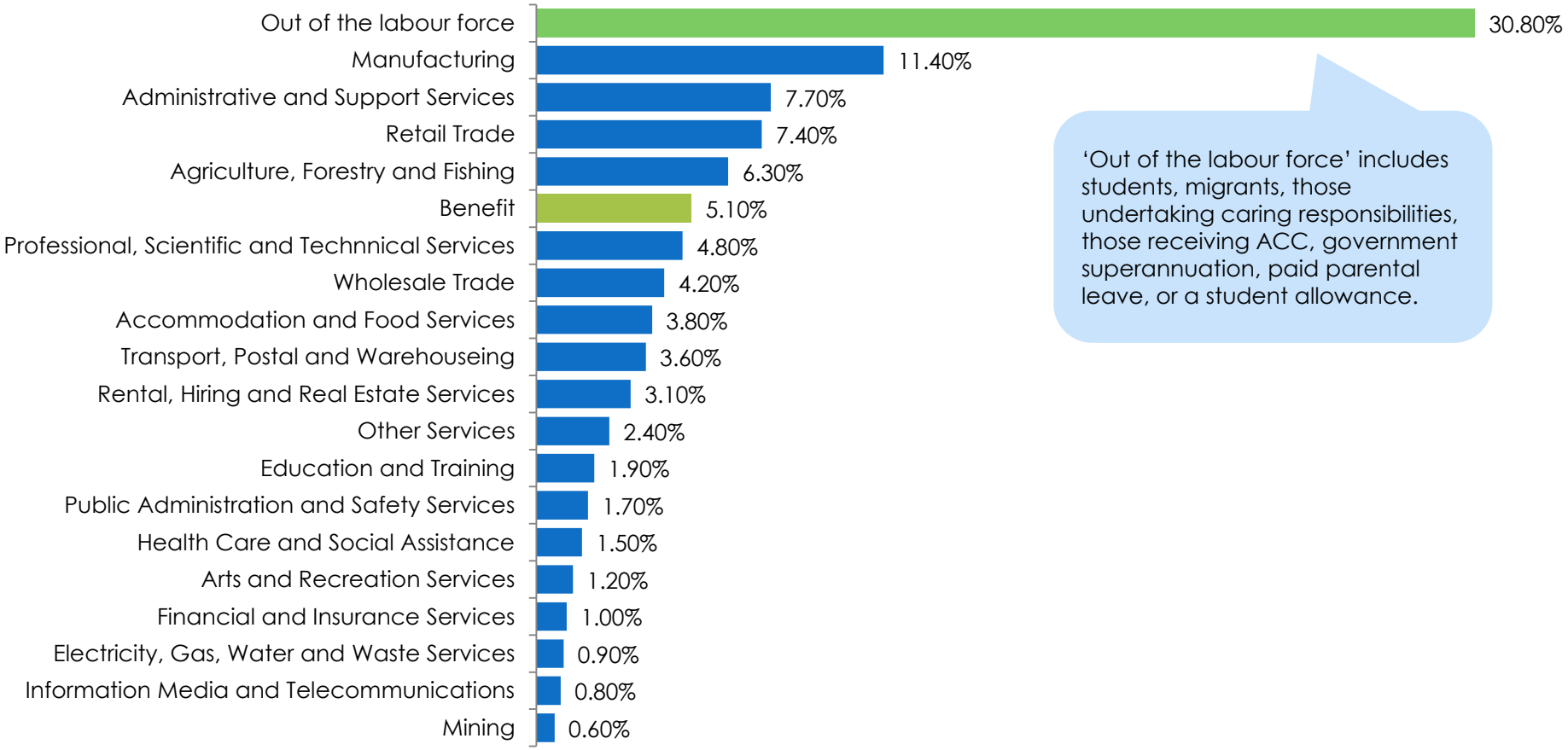
*Source: Ministry of Business, Innovation and Employment: latest data available*

# Labour inflows into construction by detailed source

Workers entering the construction industry come from across the whole economy; the largest share are new to the New Zealand labour force*

**Labour inflows into construction by detailed source**

% of inflows by source; 2009 (latest available)



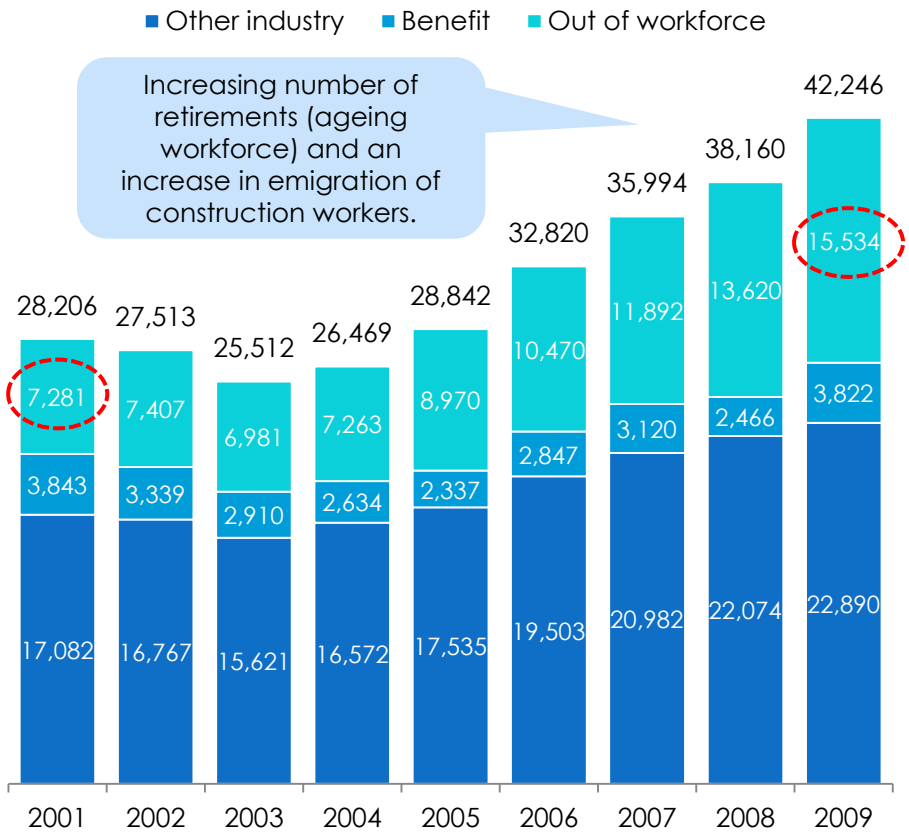

*Source: Ministry of Business, Innovation and Employment: latest data available*

# Labour outflows from construction

From 2004 an increasing percentage of workers leaving construction were also leaving the New Zealand workforce

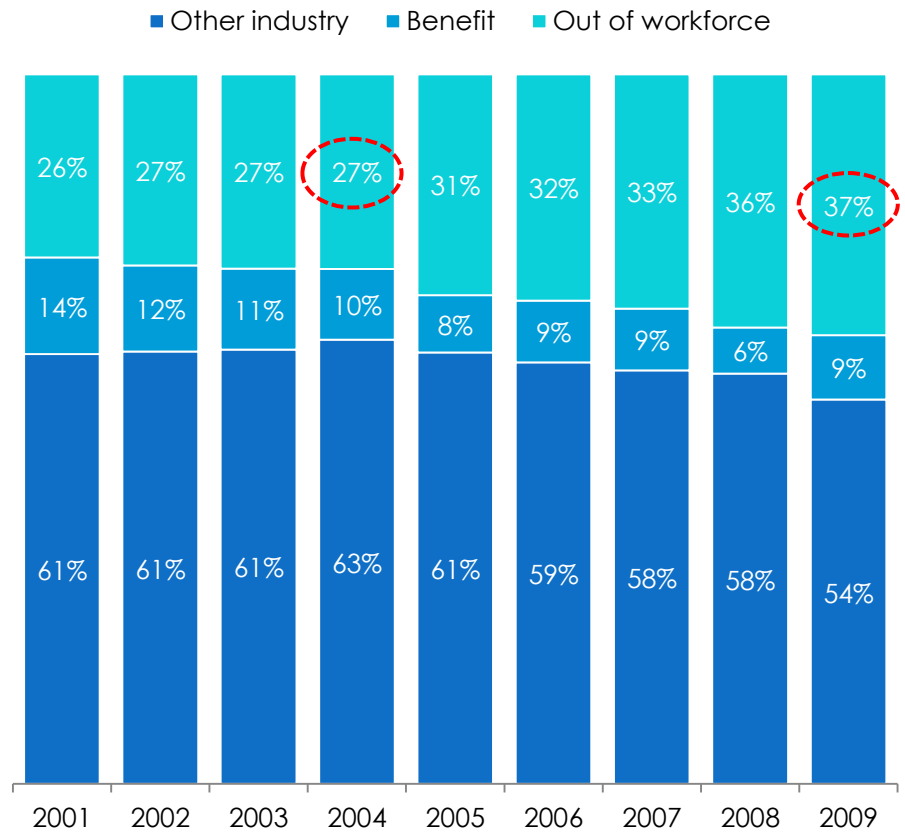
**Gross labour outflows from the construction industry, by destination**

# of workers; 2001–2009




**Gross labour outflows from the construction industry, by destination**

% destination; 2001–2009




'Out of the labour force' includes students, migrants, those undertaking caring responsibilities, those receiving ACC, government superannuation, paid parental leave, or a student allowance.

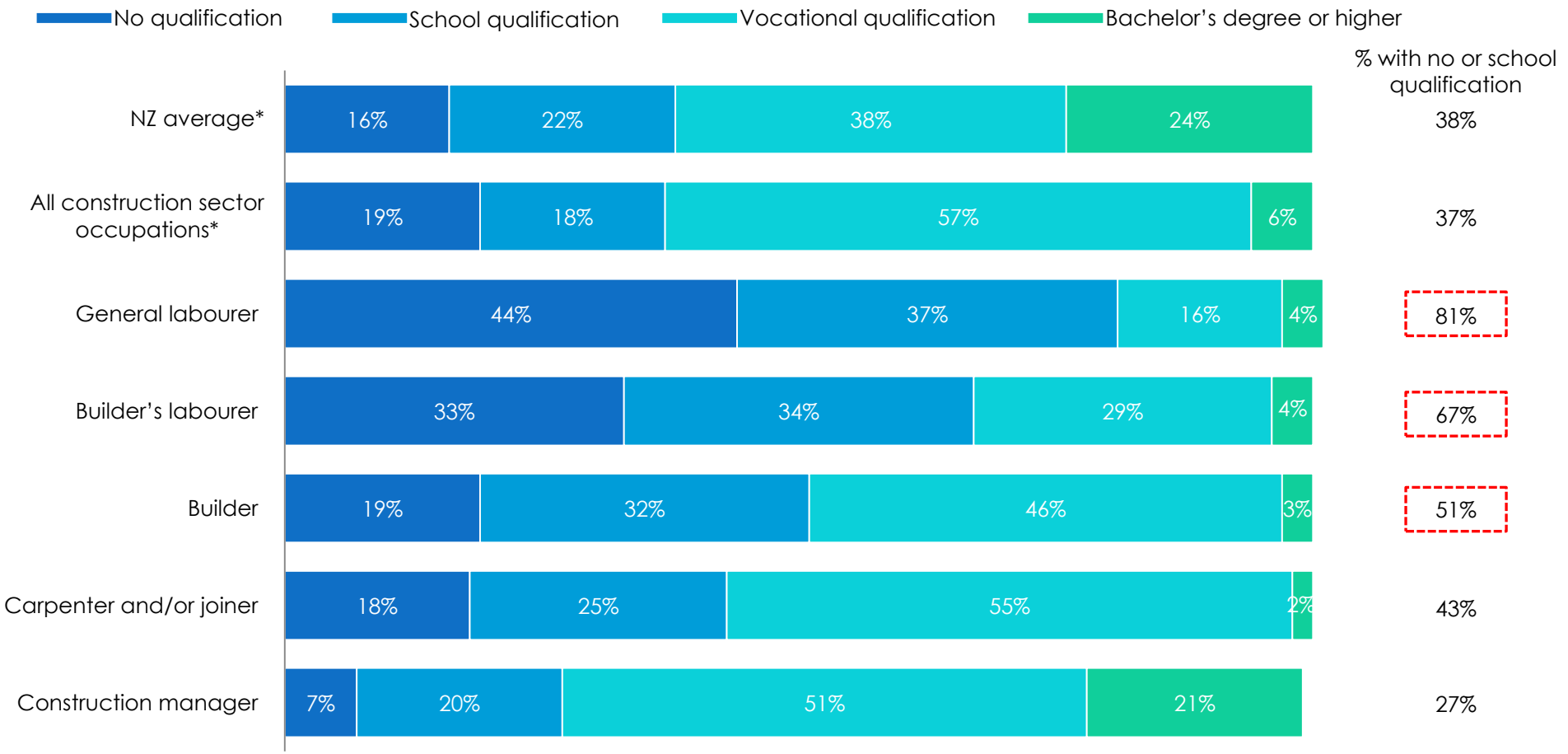
*Source: Ministry of Business, Innovation and Employment: (2009, latest data available)*

# Qualifications by occupation type

## A higher proportion of those employed in the construction sector have lower or no qualifications compared to the New Zealand average

**Highest qualifications held by individuals in construction sector occupations**

Qualifications; 2006 and 2012(*) (may not sum to 100%)




*Source: New Zealand Productivity Commission, Housing Affordability Report (2012); used with permission*

## Skills: industry comment

Industry commented on the need for basic training in numeracy and literacy as well as in business management

- *You've also picked up correctly there are some low skills level issues in our industry and I think the unwritten issue, challenge that we have got in our industry is low levels of literacy, language and numeracy. I guess that's just a function of some of the types of people who are attracted to the industry.*
  - CE, heavy and civil engineering construction firm

- *We did a huge programme in language and literacy training with MBIE's help. We put over 1,200 people through it. First of all its just acknowledging that people don't have the reading ability that they should or the ability to do some basic level maths. When you've got a guy who is a member of a crew and all of a sudden he gets a position of responsibility and he's expected to fill out timesheets for the crew and then do a daily job sheet and some basic measure ups – in the past some of our people went home and got their wives to fill out the paperwork. We've identified that now and we've given them some training, so they now have those basic skills.*
  - CE, heavy and civil engineering construction firm

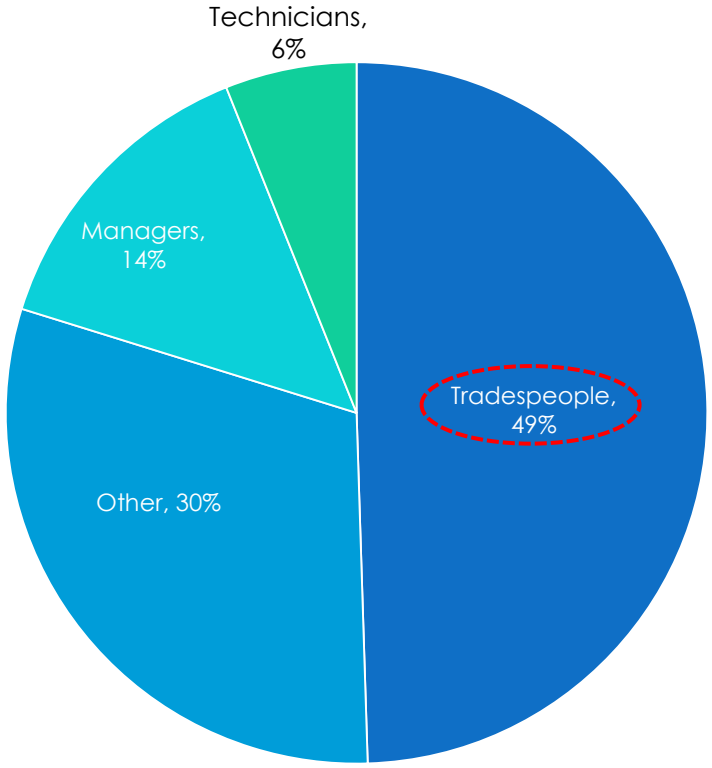
- *If we trained these people how to run a business properly and they understood the nature of the market they are working in, they'd be able to cope better during boom and bust times. So we are about to launch a training programme….Some have very high levels of poor literacy and numeracy and they end up running quite complicated businesses. No knowledge at all and they learn by the school of hard knocks and what their boss did.*
  - CE, industry body

# Recruitment

## The construction sector has difficulty recruiting tradespersons and related workers

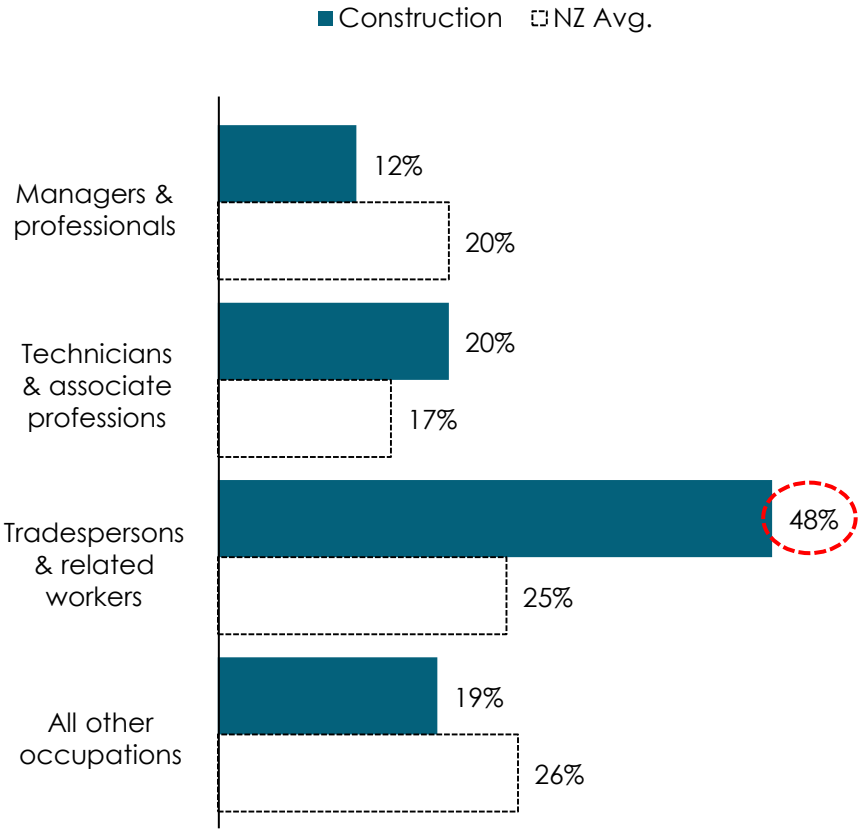
**Composition of workforce by high level occupational group**

% occupation; 2012 (excludes firms with less than 6 employees)




**% of respondents reporting 'severe' or 'moderate difficulty' hiring the following occupations**

% 2012 (excludes firms with less than 6 employees)




*Source: Statistics NZ, Business Operations Survey, 2012.*

## Recruitment: industry comment

Industry leaders commented on the need to attract younger people to the industry and the use of temporary labour

- *We've also lost a large number of apprentices. Apprenticeship numbers are down by about a half of what they were, and that's a problem because the lag in training to make them productive and the lag in getting them on stream causes a bow wave after the collapse.*
  - CE, industry body

- *I'd like to see a move back to making trade qualifications a bit more honourable…The issue I've been trying to push in our industry is, let's have fewer qualifications but let's make sure that they really mean something and they've got mana to the people who go get them. Registered electricians have got some mana, a registered plumber has got mana. We need to have our civil engineering equivalent of those qualifications, something that is recognised and means something …(Currently) you get a level 2, level 3, level 4 qualification. People get a whole lot of unit standards but what do the combination of those unit standards mean? It's quite confusing and it's very hard, even for me as CEO of my business, to be able to sell that to a school leaver.*
  - CE, heavy and civil engineering construction firm

- *The average age of our workers in the Telco industry is just below 50 and the average age in our roading part of the business is 47 and those demographics are not uncommon with the rest of the industry. So there is an issue perhaps 10 years out from now when they (baby boomers) really do start to retire, then we will have to backfill those (jobs) with the younger generation.*
  - CE, heavy and civil engineering construction firm

- *The younger people, first of all you've got to attract them to the industry and that's been a challenge…We have to do a lot more at school to attract school leavers to our industry. The way it's been sold is 'look Johnny, if you don't succeed and you don't do this then you'll end up being a road worker'. That's not the sort of message we want to send to our potential employees who might enter the road or heavy civil construction industry. That's a really negative message.*
  - CE, heavy and civil engineering construction firm

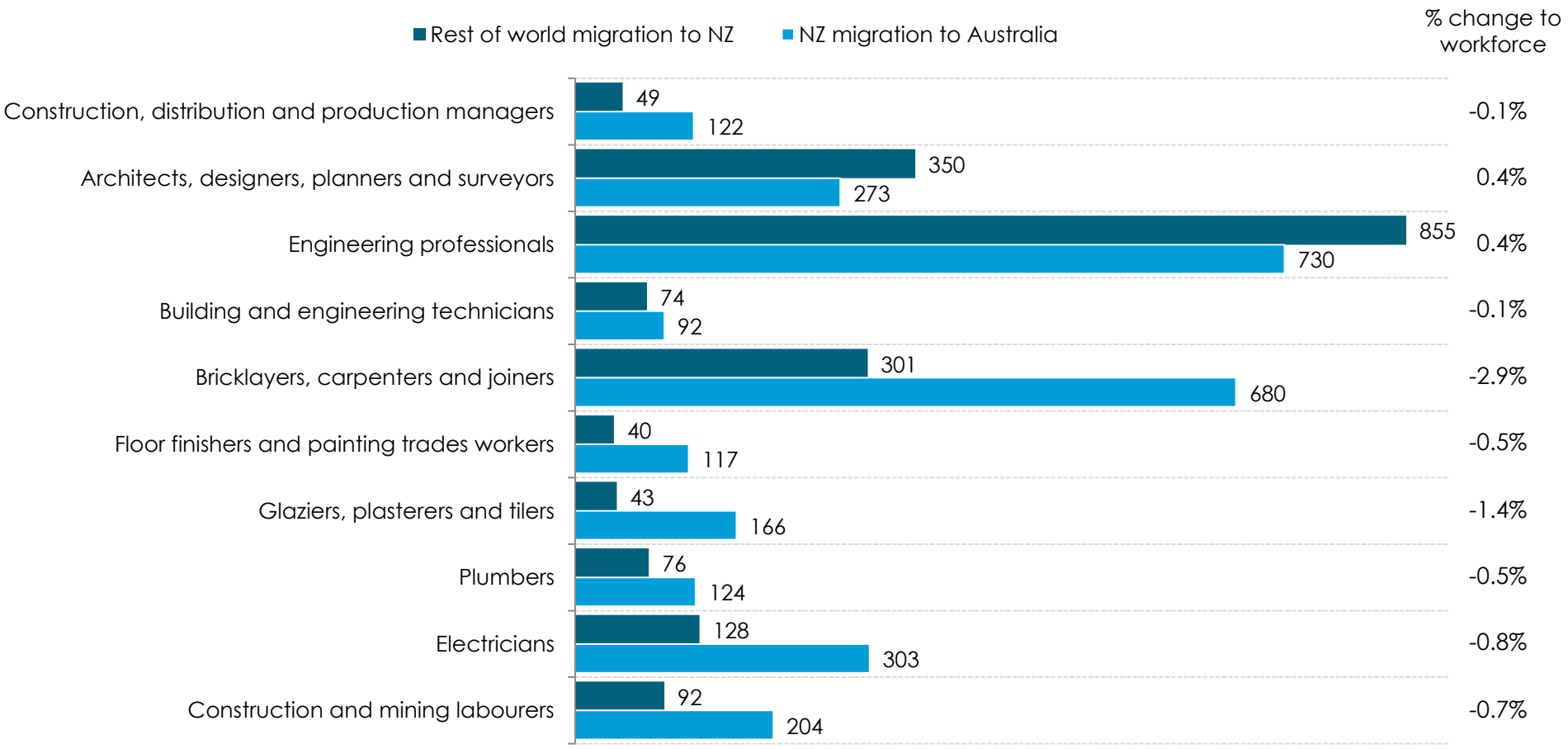
- *Our permanent staff we try and keep busy all year round and when the summer season peaks we tend to take on a lot more temps and labour hire…There's just not the margin to have people sitting on their chuffs all day or for part of a week.*
  - CE, heavy and civil engineering construction firm

# Skills loss and gain

## Although many workers in construction and related sectors have been drawn to Australia, net migration has had little impact on workforce size

### Net permanent long-term migration figures

Migrants with construction sector skills; year ended March 2012




*Note: treat as directional; data may be of variable quality owing to migrants providing uncodeable occupations .*
*Source: Statistics New Zealand, Permanent and Long-term Migration and Household Labour Force Survey (2012)*

# SECTOR CHALLENGES

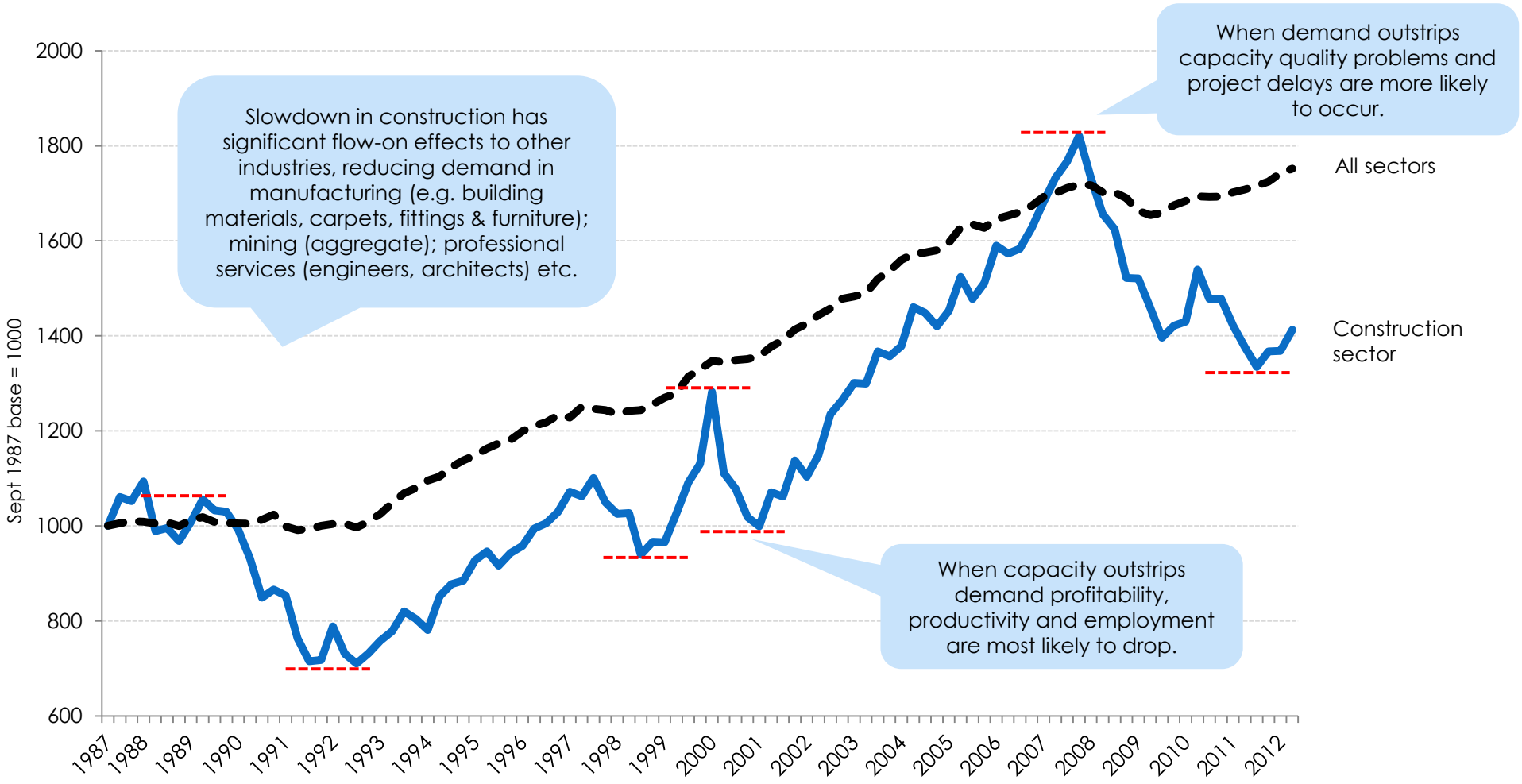
## The business cycle, Canterbury rebuild and construction demand in Auckland

# The business cycle

## The business cycle is experienced more acutely in the construction sector compared to the economy as a whole

**GDP volume index, seasonally adjusted**

GDP;1987–2012




*Source: Statistics New Zealand,; Gross Domestic Product: (June 2012 quarter)*

# Cyclical nature of industry: industry comment (heavy and civil engineering)

## Industry commented on the impacts of volatility for heavy and civil engineering firms

- *Our sector is labour intensive and highly cyclical. That's a thing that most of us large businesses just hate. The highs and lows. We are forever in peaks and troughs, whenever you get those highs and lows there is inefficiency. If you've got highs you are screaming round finding labour and the labour costs go up. You've got a lot of retraining costs. If you are in a low you are shedding labour and there's the cost of redundancies. We prefer a smooth work programme.*
  - CE, heavy and civil engineering construction firm

- *If we have work surety then that gives us the confidence to invest in our people and invest in equipment, take a longer view of the investment profile. If you don't have that you tend to hire more equipment, you might not invest in the right equipment, you might look for more equipment than you can use…you are just looking for surety on investment. For the large companies, I think scale and the term of the contract is quite important because that gives you that confidence.*
  - CE, heavy and civil engineering construction firm

- *There have been at least three major quiet times and every time you are quiet you gear down. People, you lose staff, some go to Australia and never come back, some people retire, so we are really relying heavily on the old baby boomer population…We've put a lot of effort into training at all levels, but I think across the sector there has been a lack of investment and I think the major players are doing their bit, but I think the medium to small players are doing minimal now.*
  - CE, heavy and civil engineering construction firm

# Cyclical nature of industry: industry comment *continued*

- *There are two parts to construction. There's the maintenance and operations aspect of it and then there's heavy construction. So heavy construction, there can be a lot of work and then all of a sudden there's not work, it's quite peaky. But in road maintenance the volumes generally tend to keep up, so large contractors like ourselves have got the option to push some people out of construction and into maintenance activities.*
  - CE, heavy and civil engineering construction firm

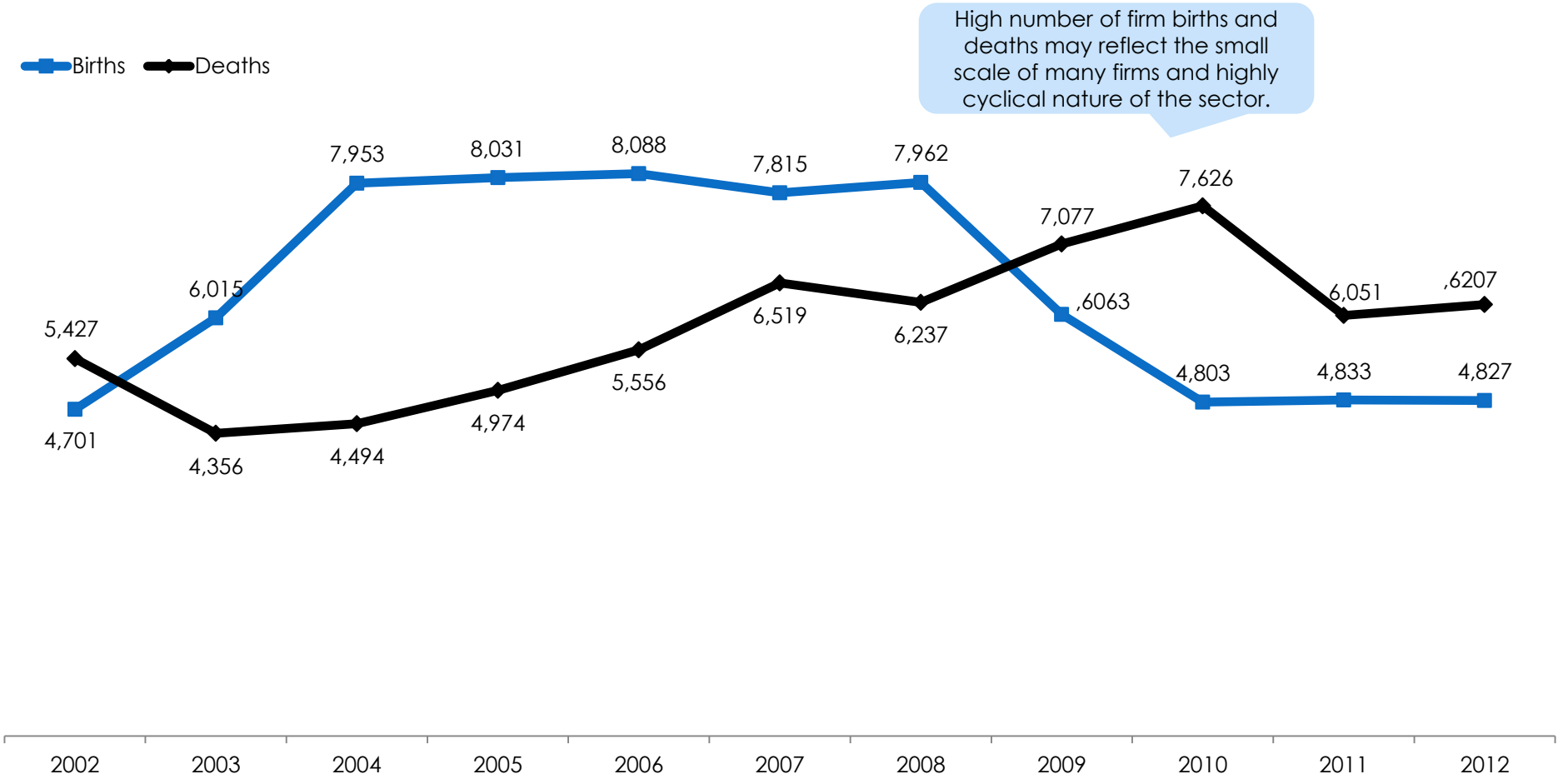
- *The challenge is, given the sort of capital that's invested in our sector, all we request from the Government is continuity of workflow and certainty of pipeline…The reality is if there is continuity of pipeline we will reinvest, we will give our people in the field the best plant and equipment…It's where we cascade into that cyclic nature of workflows where the confidence level of the sector is eroded for reinvestment and investment in some of those longer term initiatives, such as our people.*
  - CE, heavy and civil engineering construction firm

# Construction (all subsectors): firm births and deaths

From the onset of the GFC firm deaths have outstripped firm births

**Number of births and deaths of construction firms**

# of firms; 2002–2012



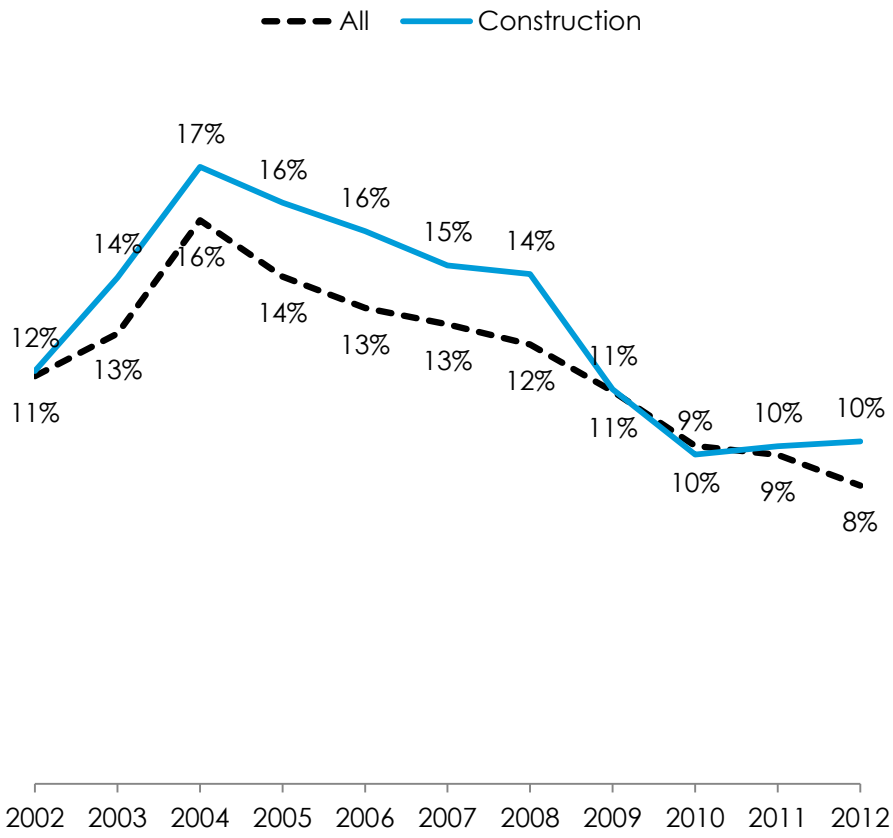

*Source: Statistics New Zealand; Business Demography Tables, 2012*

# Firm births and deaths as a percentage of the population of active firms

The construction sector has a higher rate of firm births and deaths than is the case for the population of all New Zealand firms

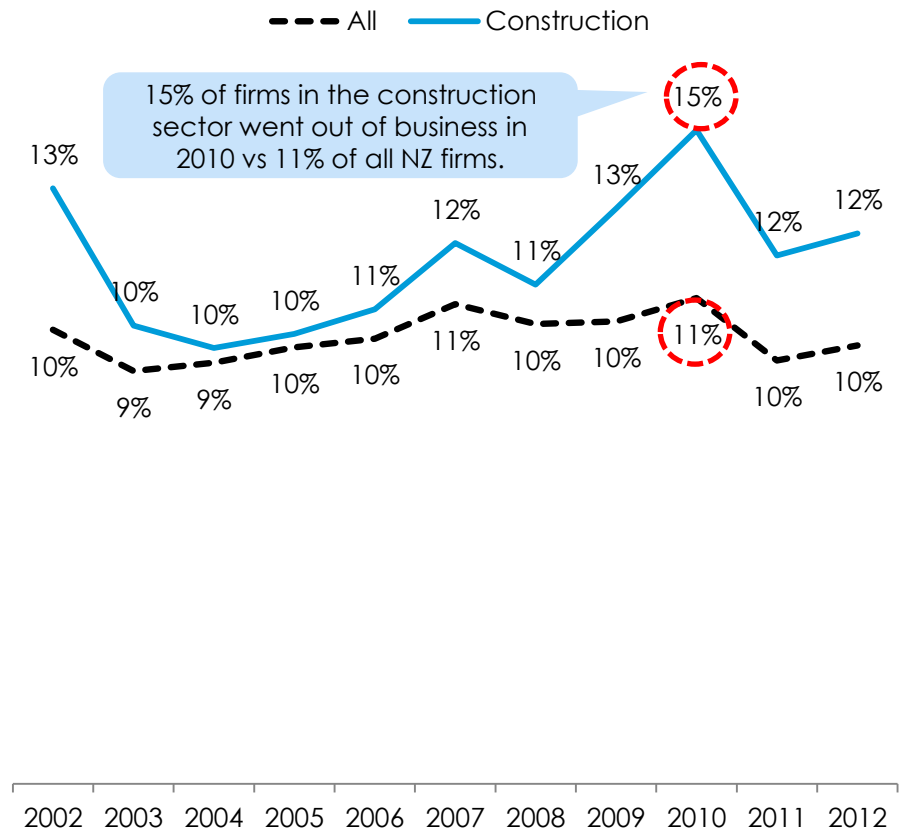
**Firm births as a % of active firms (all firms vs. construction)**

% births; 2002–2012




**Firm deaths as a % of active firms (all firms vs. construction)**

% deaths; 2002–2012




*Source: Statistics New Zealand; Business Demography Tables, 2012*

# The recent tight market: industry comment

## Industry commented on the fragility of many construction businesses

- *We tend to see collapses in March/April and October/November. In March/April it's because of the Christmas period, no sales, come back to GST, provisional tax, holiday pay and they haven't got jobs coming in to provide cash flow. They go over. All it takes is a homeowner not paying them and they are gone because there's no capital in these businesses…In October we think it's because they've struggled through winter when they can't build, if it's wet they are delayed. Their cash flow gets under pressure, they've got to keep resources. How do they do that? They get to October and they fold. It's come to an end, there's a series of cards that have fallen over and they (firm) go over. We haven't seen that for a couple of years but we have a fear that the tank is empty, there's no more cookies in the jar for them to sell their boat or bach or whatever…If the sector doesn't recover we might see some of those next year, just because there's nothing left.*
  - CE industry body

- *The consequence of this short term cycle is that the industry gears itself up with a short term focus. It cannot justify investment in training or build a skills pipeline. It is encouraged to buy in contractors as needed rather than develop its own capacity.*
  - PwC report*

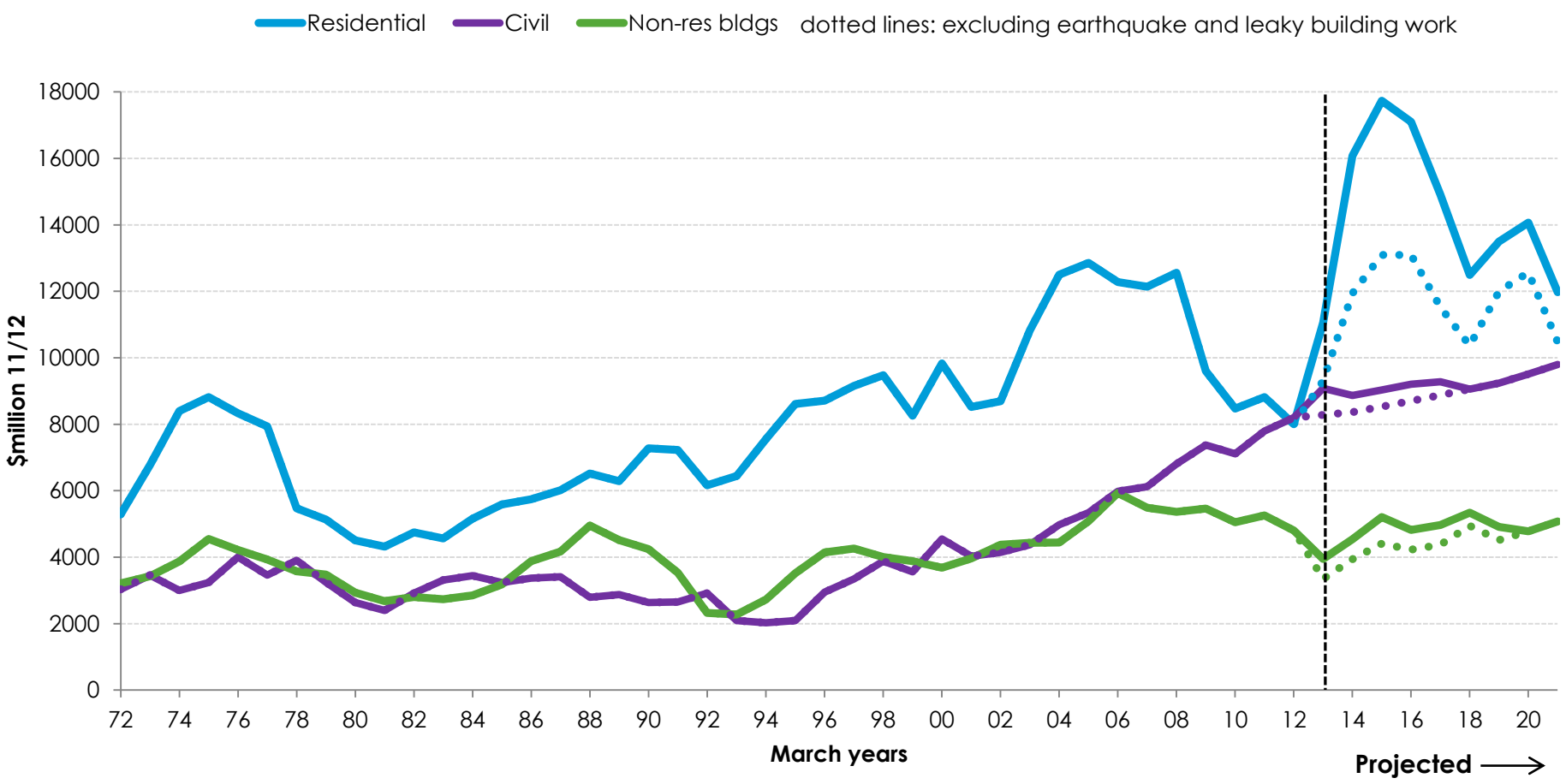
**Valuing the role of Construction in the New Zealand economy: a report to the Construction Strategy Group; PricewaterhouseCoopers, 2011. Full report available from www.constructionstrategygroup.org.nz*

# Construction industry workloads: historical and projected

Construction is heading for an unprecedented boom, driven by the Canterbury rebuild, Auckland housing, infrastructure demand and remedial weather-tightness work

**Construction industry workloads, historical and projected**

NZ$, millions (nominal); 1972–2020




*Source: Ministry of Business, Innovation and Employment, 2013.*

# Impact of the coming construction boom: industry comment

## Industry commented on the potential risks when the historically high workload tapers off

- *The boom comes, the bust follows. Trained and experienced people have to leave the construction work they were doing, and go into another work environment and then the industry is short of people. However, the industry will only want to build up again in another boom - then comes the bust… Very quickly the boom bust cycle has big consequences on the industry and it stops people wanting to go into it (construction). Instead of seeing a future they think 'crikey this is pretty tough, why don't I go and do something else'.*
  - Industry leader

- *There is a wall of work coming which brings to mind the old adage, 'one man for 100 days versus 100 men for one day'. Never staff a peak….even the peak out and plan the work better, because when you staff the peak you exacerbate the boom bust cycle. If you plan the work better you can train a number of trades people to increase the pool of construction resource and take advantage of the wall of work… the people get some excellent experience and become good trades people and in turn they will find it easier to maintain their employment because of the experience they've gained.*
  - Industry leader

# Christchurch rebuild: industry comment (residential builders)

## Industry commented on the risks associated with the Canterbury rebuild

- *In a falling market you bid and you build, prices fall in the meantime…In a rising market, which is where we are going next year in Christchurch, you bid and build based on a fixed price, but in the meantime prices go up. You can say to the subbie 'You told me $20 an hour'. And he goes 'I don't care, I'm $30 and if you don't pay it I'll go down the road to the other guy'. So they are forced to pay higher (labour costs) and they run at a loss. If it's for two to three weeks, not a problem. But if it's months then we've got real issues.*
  - CE, industry body

- *[Re Christchurch rebuild]. If they (residential builders) take on more work than they can cope with, they haven't got systems in place, management capability and organisational capacity to cope. I've got three builds a year, now suddenly I've got 10-20. That's what will happen in Christchurch, they will be flat out. There's already poaching going on for good staff, foremen and project managers – they will be the ones managing these jobs but instead of managing three they will be doing 10. We are quite worried how that will play out over the next couple of years.*
  - CE, industry body

- *The demand for (skilled) people is rising so we are planning to bring in skills from offshore as the need arises. In some specialised areas we've already bought quite a number of people in, quantity surveyors, structural engineers, those sorts of high skilled areas…The last time that occurred was in the 2005–2008 period. We were travelling to the UK two or three times a year and recruiting a large number of engineers, quantity surveyors and project managers.*
  - CE, residential building firm

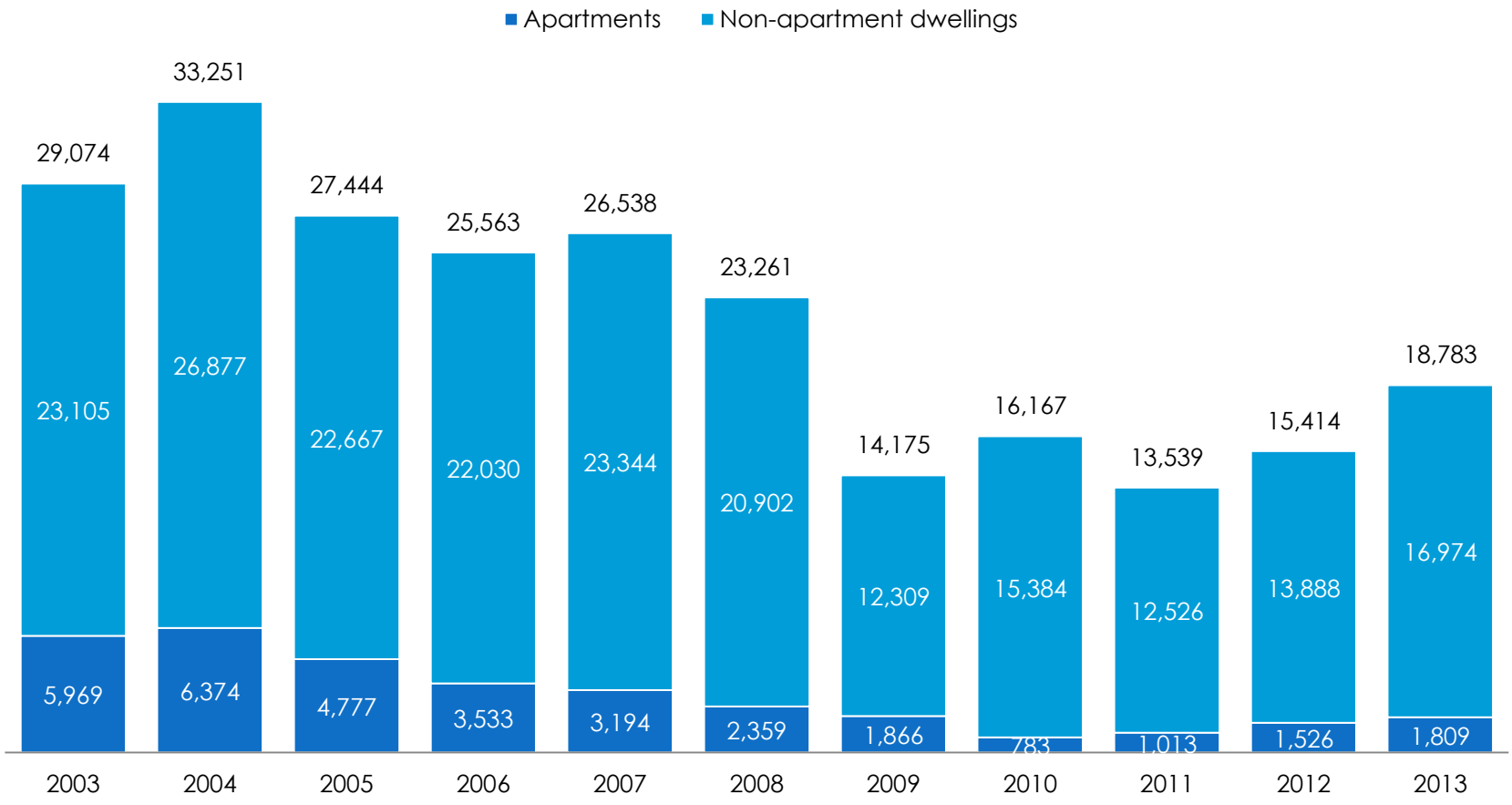
- *A lot of sub contractors have become disillusioned with the Christchurch scenario. Everybody thought it was going to be a pot of gold and they took off to Christchurch. There wasn't enough accommodation for them. It was like a gold rush, but it hasn't eventuated as yet. A lot got disillusioned and left and are now back in their own home towns…Because the Auckland market is so big it will far outweigh anything that Christchurch has got so once it starts to come on stream, and it is coming on stream now, then anybody who is anybody will head back to Auckland because that's where the work will be. So add that to the fact that we have skill shortages and you can see why companies are going offshore [to get staff].*
  - CE, industry body

# Building consents

## The number of new dwellings consented is recovering after a period of historical lows

**Number of new dwellings consented**

# of dwellings consented; 2003–2013 (June years)




*Source: Statistics New Zealand; Building Consents Issued.*

# The recent tight market: industry comment

## Industry commented on the impacts of the tighter market in recent years

- *There was quite a bit of activity in the under $25 million category for quite an extended period of time…We found that the larger guys who would not normally look at that work started to slide down and the smaller guys who would not normally look at that work slide up. Competition was fierce, there were all sorts of problems with under pricing and loss leadership.*
  - CE, industry body

- *Across the board the market is a lot weaker…To put it in perspective we were doing 30 odd thousand new homes and apartments in 2004, we were hovering around 25,000 in 2007 and last year (2012) we did 13 thousand, a huge drop. Commercially it doesn't fall as quickly because of the tail, but it takes longer to recover.*
  - CE, industry body

- *Residential could turn on a dime. You get half a drop in the interest rate and the phone starts ringing, you get half a point increase and they stop. It's (new residential builds) that are sensitive to interest rates.*
  - CE, industry body

- *We think that businesses have shrunk. The business is still there but the number of employees and the work they've got has reduced. We think they eek out an existence and they go from job to job at the moment…It's really interesting how the psychology of builders work. Four years ago if they didn't have a year's worth of work ahead of them it was dour. Now if they've got three months work they are rapt. It's been basically week-to-week for some of them. Even some of the more established guys.*
  - CE, industry body

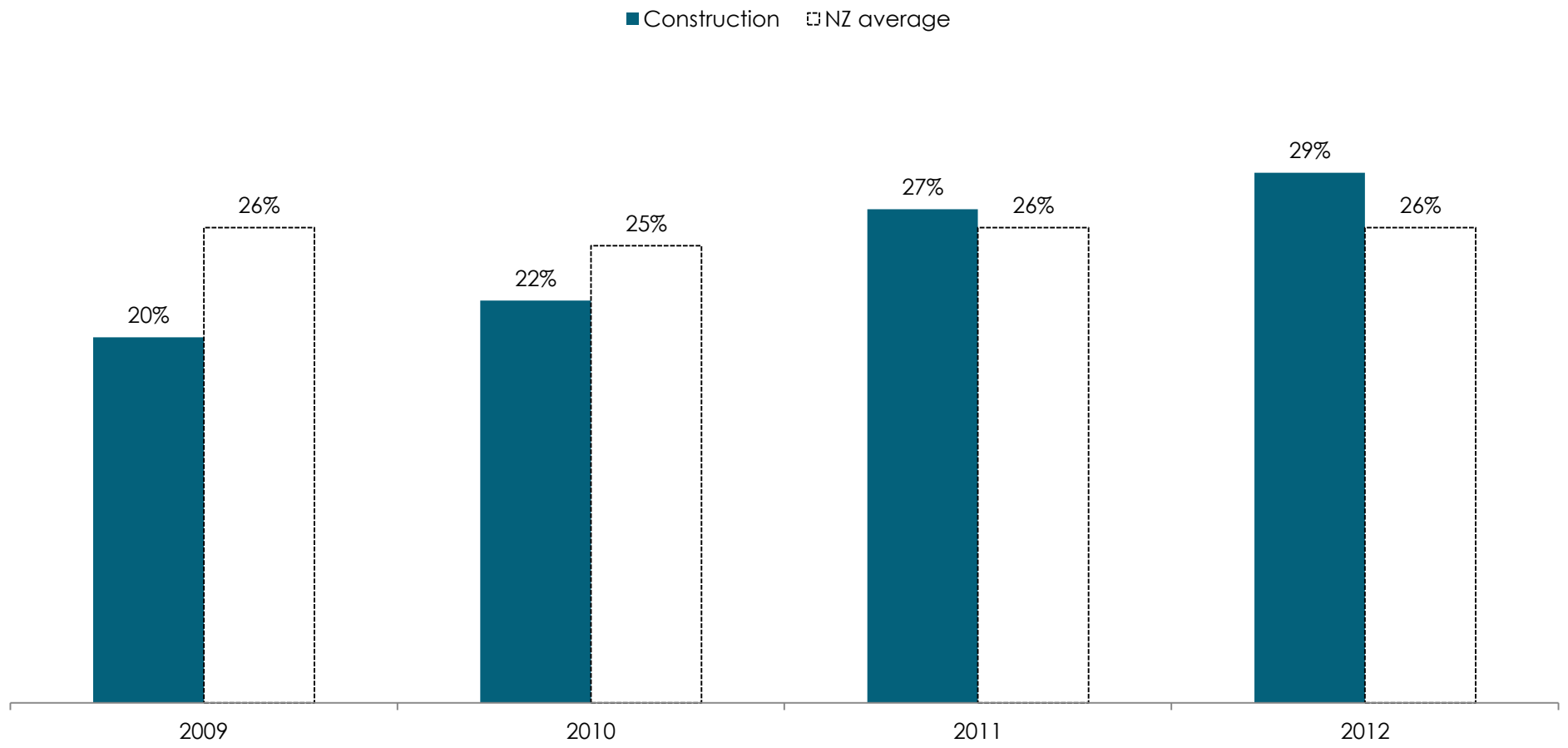
- *The bigger projects are often in the infrastructure space and that is attracting contractors to start an infrastructure side to their business, or a joint venture with others, so they have the option to credibly bid infrastructure work… some contractors have been forced to change in this way, as it was the only work available.*
  - Industry leader

# Investment in expansion

The percentage of construction firms investing in expansion is showing improvement

**Investment in expansion**

% of firms; 2009–2012 (excludes firms with fewer than 6 employees)




*Source: Statistics New Zealand, customised data drawn from the Business Operations Survey (2012)*

# SECTOR CHALLENGE

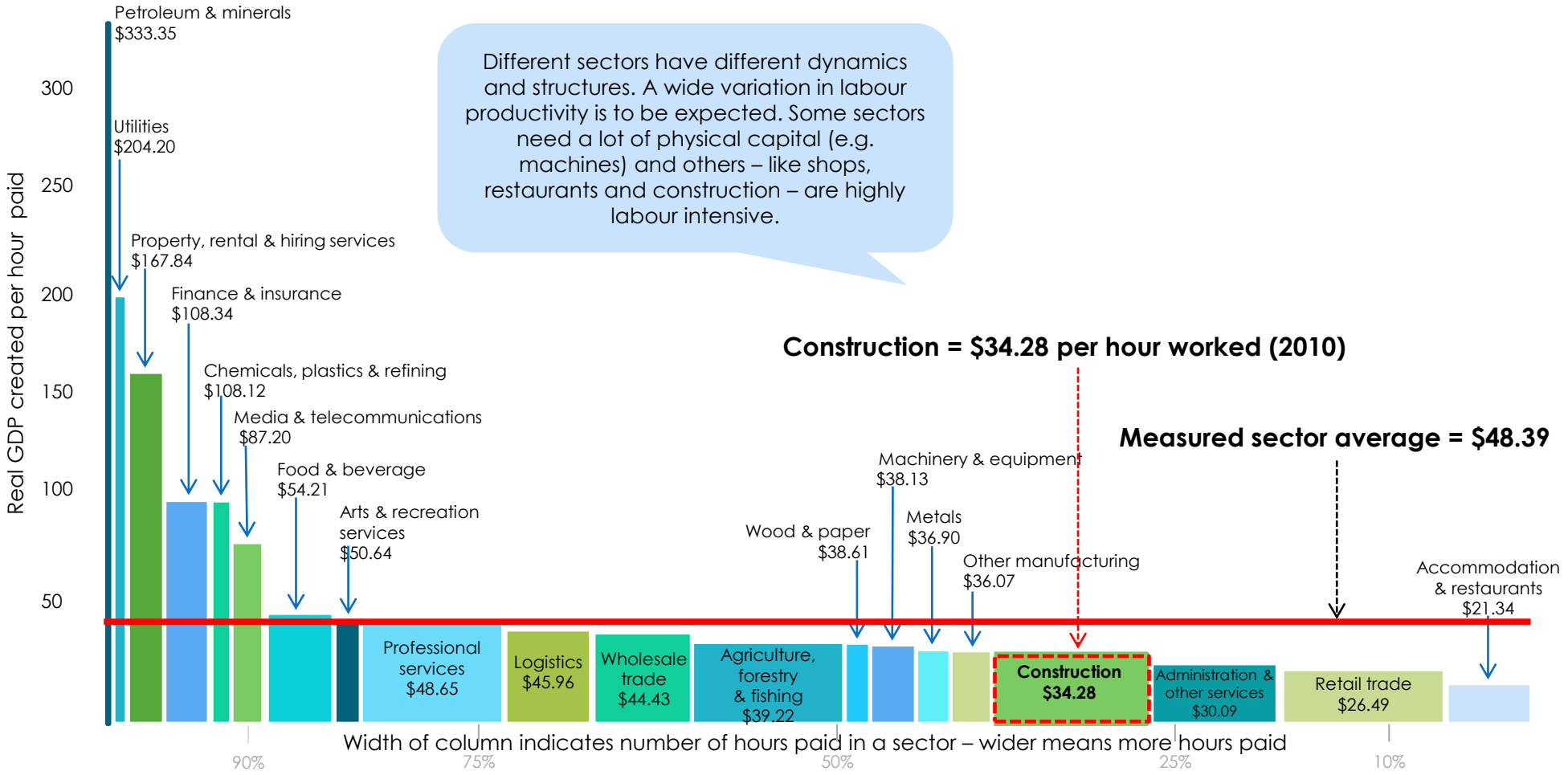
## Improving productivity

# Labour productivity by sector

## Construction generated $34.28 per hour worked in 2010, $14 less than the New Zealand average

**Sector employment (total hours paid) vs sector GDP (real) per hour paid**

NZ$; 2010



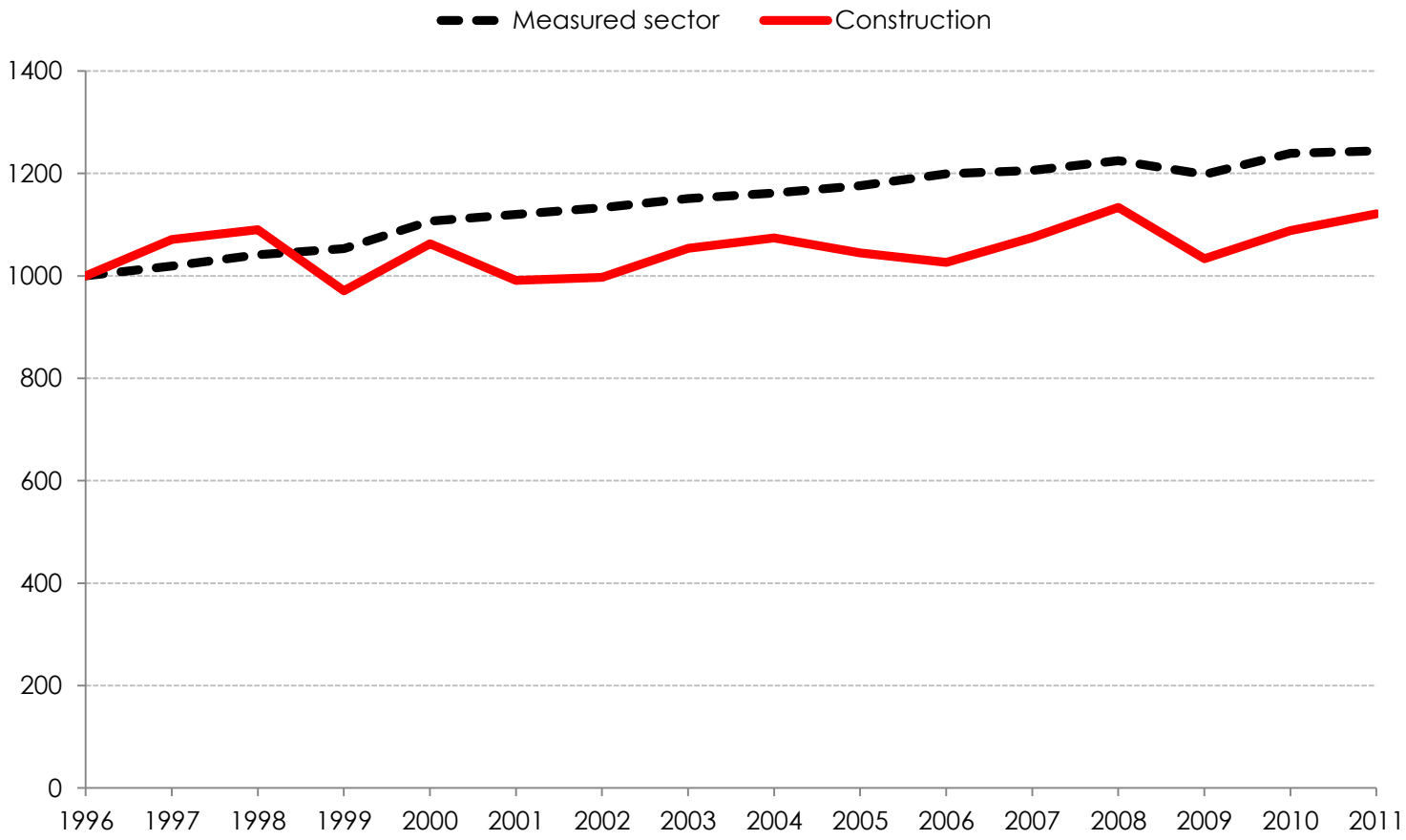

*Note: data for government administration, education, health, ICT, high technology manufacturing and knowledge intensive services is not measured.*

*Source: Statistics New Zealand, National Accounts – Productivity Input Series year ended March 2012 (2012)*

# Productivity

## Growth in labour productivity has generally been below the measured sector average

**Labour productivity**
GDP per hour paid; 1996–2011 (Index: 1996=1000)




*Source: Statistics New Zealand; National Accounts.*

# Research into productivity

## The Productivity Commission's inquiry into housing affordability found the following in respect of productivity in the construction sector

**Productivity Commission findings**

- The performance of the building and construction industry plays an important role in the supply, quality and cost of new housing, along with the upkeep of existing rental, social and owner–occupied housing.
- The industry is a significant contributor to the wider economy and poor productivity can act as a drag on overall economic growth.
- Industry productivity is flat-lining, and this is reflected in growing building costs and evidence of poor building quality. During the recent housing boom building costs increased above the general rate of inflation, and residential building costs are higher than in Australia.
- **Building materials are more expensive in New Zealand than they are in Australia [but see NZIER findings next page].** In part, this can be explained by the small size of the New Zealand market and the small scale of major material manufacturers. It is unclear whether additional competition in the materials industry would reduce the costs.
- The Commerce Commission has investigated concerns about the behaviour of material suppliers and has found no breaches of the Commerce Act.
- The trend in New Zealand toward larger and higher-specification housing increases building costs.
- The small scale and fragmented nature of the New Zealand building industry contributes to high costs.
- The industry is dominated by small firms which build one house at a time, are unable to generate economies of scale, and often lack management capability.
- The industry is fragmented vertically which presents difficulties in the management of the supply chain.
- New houses tend to be bespoke one-off designs. Building costs can be reduced through greater uptake of standardised designs and building techniques.
- In part, the small and fragmented nature of the industry is a reflection of the small and expensive areas of land that are available for development.
- The industry is subject to significant demand cycles, making investment in firm expansion and the recruitment and retention of skilled staff difficult.
- The industry suffers from a number of skill issues, particularly at the management level. The misalignment between industry business cycles and industry training can result in skill shortages during booms and excess staff during periods of downturn.
- The construction industry and Government have identified productivity growth as a priority and have established the Building and Construction Sector Productivity Partnership to develop practical proposals to address productivity issues.

**Full report is available from www.productivity.govt.nz**

*Source: New Zealand Productivity Commission*

# Research into productivity *continued*

## Research by the New Zealand Institute of Economic Research (NZIER) and PricewaterhouseCoopers into construction sector productivity found the following

### NZIER findings

- There are large variations in productivity within the construction sector. The construction services and heavy & civil areas show the lowest levels of productivity across a number of measures. House construction-related productivity is middling and productivity for non-residential building is more favourable.
- Competition and market conduct may be issues, especially at a regional level.
- There is no obvious difference between business size and productivity, but there are large differences in practices.
- Our construction sector is structured differently from Australia's. This could mean opportunities to change the building process and industry practices to mimic those in more productive countries, or that policies and processes need to be customised to local conditions.
- **There is little difference in construction costs between New Zealand and Australia**. **This contrasts with findings by the Productivity Commission and requires further careful analysis**.
- Construction sector workers typically earn higher wages than workers in other sectors with similar skills. This may be a barrier to acquiring skills that could enhance productivity.
- Technology apathy – there is resistance to using new technology.

***Source: Construction productivity: an evidence base for research and policy issues.*** *NZIER report to the Building & Construction Sector Productivity Partnership 5 July 2013*.
Full report available from buildingvalue.co.nz/productivity-measures

### PwC findings

- The sector has low productivity, and has seen a decline in labour productivity over the last ten years, compared to growth in most other sectors. Low labour productivity is fairly typical of labour intensive industries such as construction. Added to that, the small business size of the sector makes it hard to invest in people and capital to boost productivity. Unquestionably the volatile nature of the sector compounds these issues.
- An increase is labour productivity within a sector that plays such a major role in the economy would be huge. PwC estimates that a 1% increase in labour productivity in the construction sector would add $300 million to the New Zealand economy.
- Low productivity is reflected in remuneration in the sector. The construction sector is the fourth worst paid across New Zealand. This implies the sector's employees are relatively more vulnerable, with less stored wealth and consequently a greater reliance on social services if they lose their jobs.

***Source: Valuing the role of Construction in the New Zealand economy: a report to the Construction Strategy Group;*** *PricewaterhouseCoopers, 2011*.
Full report available from www.constructionstrategygroup.org.nz

## Residential building market study

As part of the Government's response to the Productivity Commission's report on housing affordability, MBIE is undertaking a study of the residential construction sector

- The study focuses on competition within the sector, and its productivity.
- An issues paper was released for public consultation in May 2013. The feedback to that consultation highlighted a range of barriers to greater competition and productivity in the sector.
- An options paper was released in November 2013 seeking comment and feedback on a range of policy options to reduce or remove barriers to greater competition and productivity in the residential construction sector. Topics covered are:
    - The regulatory framework
    - Competition impact of strategic conduct in construction markets
    - Import barriers
    - Industry fragmentation, innovation and productivity.
- Through this consultation, MBIE is seeking further evidence of the barriers as well as feedback on the benefits and costs of the options identified. This feedback will inform decisions on which options to implement.
- The options paper is available from:
  www.mbie.govt.nz/about-us/consultation/consultation-on-residential-construction-sector-market-study

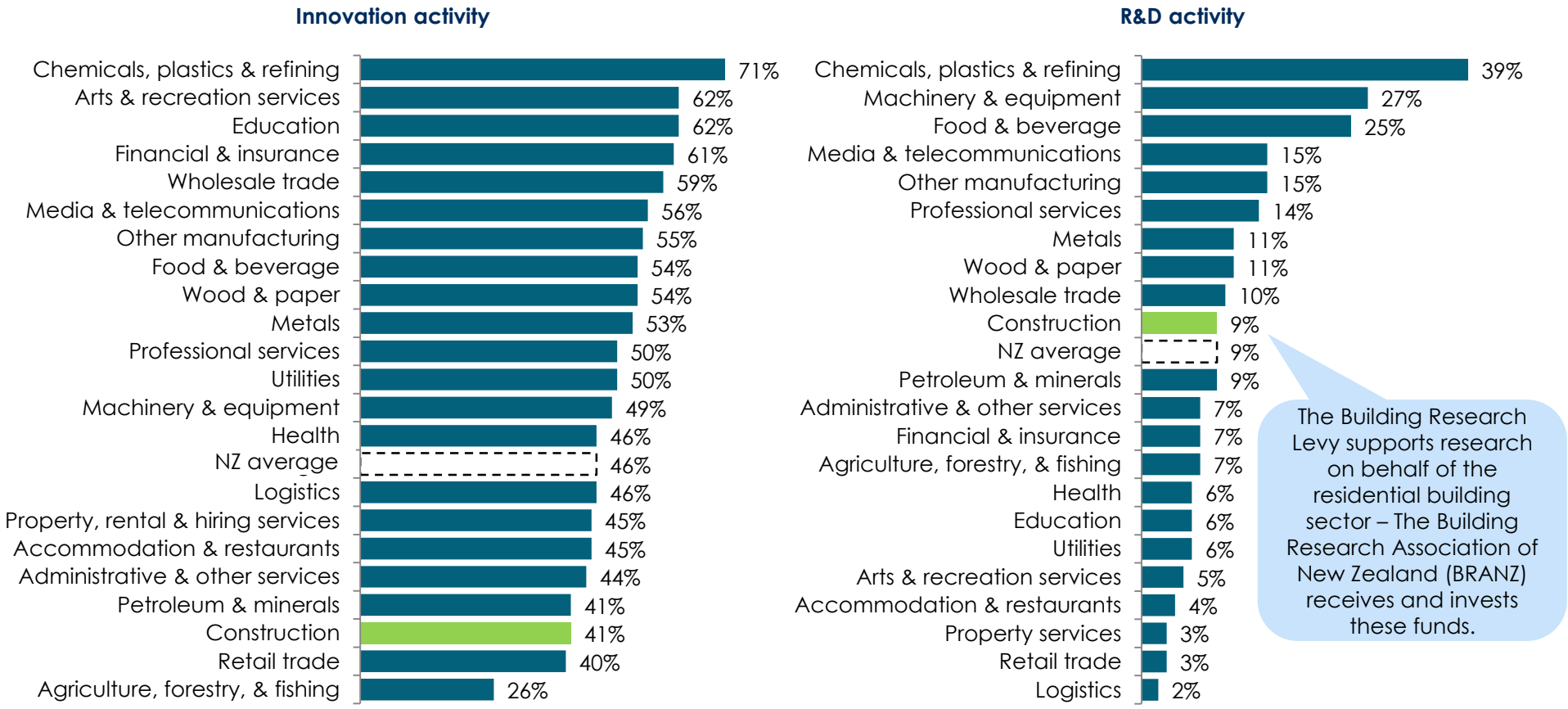
# INNOVATION

# Innovation and R&D rates

## The construction sector has the third lowest rate of innovation of all sectors of the economy, but is average in terms of R&D activity

### Sector innovation rates

Innovation activity and R&D activity; 2011 (excludes firms with fewer than 6 employees)



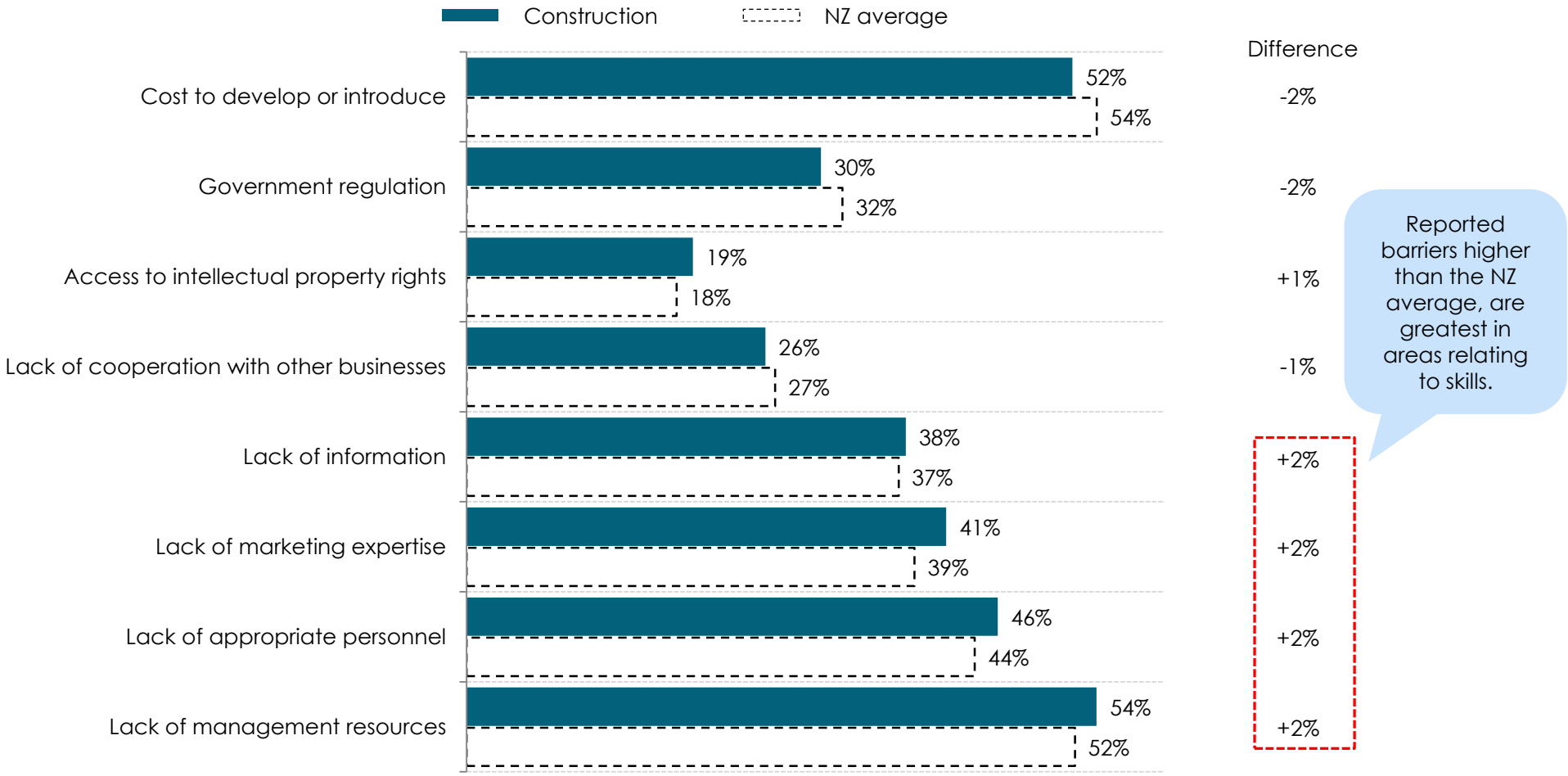

*Source: Statistics New Zealand, Business Operations Survey (2011)*

# Barriers to innovation

## Barriers hampering innovation are similar to the New Zealand average

### Most significant barriers hampering innovation

% of firms reporting; 2011



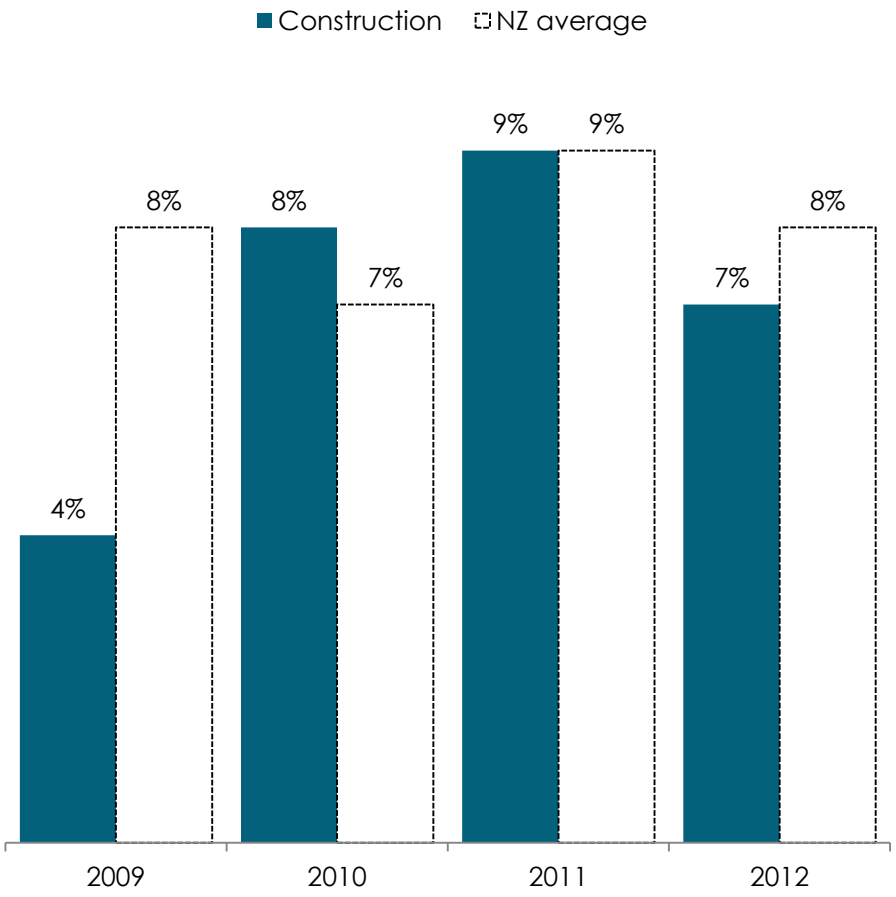

*Source: Statistics New Zealand, customised data drawn from the Business Operations Survey (2011)*

# Investment in R&D

## The R&D rate in the construction sector has been around the New Zealand average since 2010; expenditure per investing firm is significantly below the average

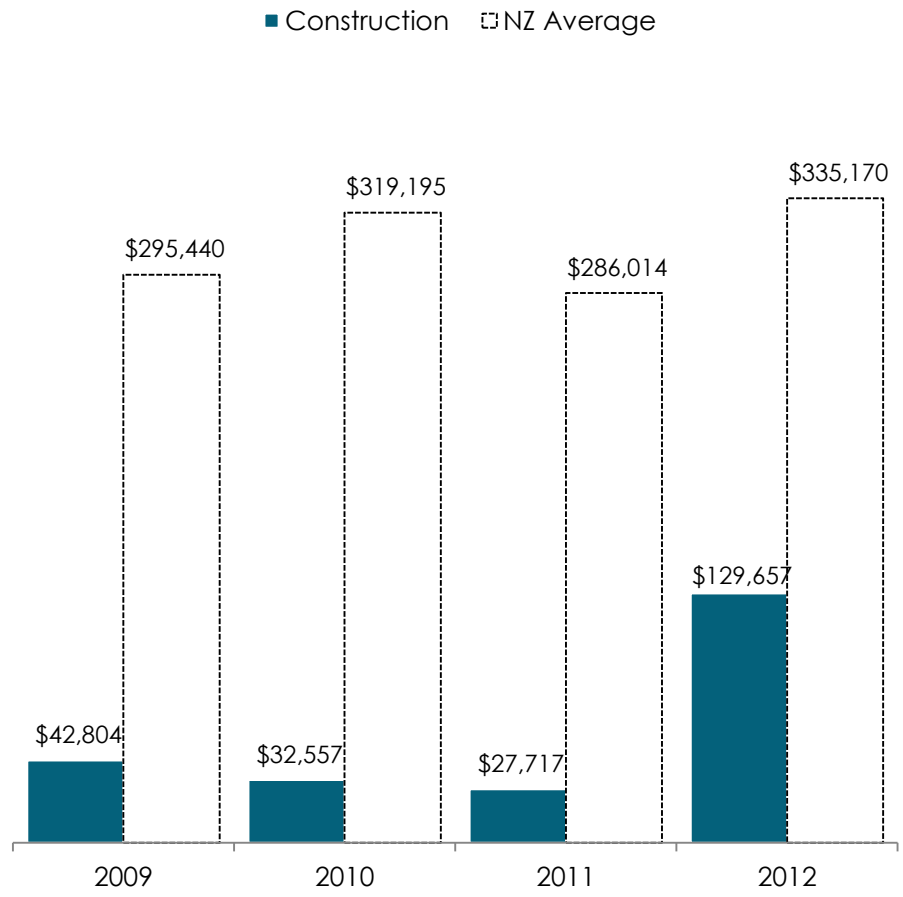
**R&D rate**

% of firms (6 or more employees); 2009–2012




**R&D expenditure per firm (6 or more employees)**

NZ$; nominal; 2009–2012




*Source: Statistics New Zealand, customised data drawn from the Business Operations Survey (2012)*

# Scope for innovation

## The construction industry has identified some opportunities to improve performance, as this example shows

### Traditional versus integrated project delivery

2007

| | Historical Model<br>Traditional Project Delivery | Future Model<br>Integrated Project Delivery |
|---|---|---|
| **Teams** | Fragmented, assembled on 'just-as-needed' or 'minimum-necessary' basis, strongly hierarchical, controlled | An integrated team entity composed of key project stakeholders, assembled early in the process, open, collaborative |
| **Process** | Linear, distinct, segregated; knowledge gathered 'just-as-needed'; information hoarded; silos of knowledge and expertise | Concurrent and multi-level; early contributions of knowledge and expertise; information openly shared; stakeholder trust and respect |
| **Risk** | Individually managed, transferred to the greatest possible extent | Collectively managed, appropriately shared |
| **Compensation and reward** | Individually pursued; minimum effort for maximum return; (usually) first-cost based | Team success tied to project success; value based |
| **Agreements** | Encourage unilateral effort; allocate and transfer risk; no sharing | Encourage, foster, promote and support multi-lateral open sharing and collaboration; risk-sharing |

*Source: AIA (2007); quoted by the New Zealand Productivity Commission, Housing Affordability Report (2012); used with permission*

# Innovation: Industry comment

## Industry leaders commented on innovation with respect to high density housing and housing affordability

- *(High density housing ) The likely change, where you will see innovation is Auckland…Auckland's plan is (to build) 400-600,000 dwelling units over the next 30 years to cope with population growth…That's likely to drive some changes, particularly when they are moving away from urban sprawl. A lot more intensification in construction, so a lot more terrace and apartment-type housing around rural/urban hubs that link with transport links. That is where you are likely to see some innovation. Lot more denser construction, lot more ability to maximise space and return, that's where I think you will get a drive and you will see the rebirth of development companies.*
  - CE, industry body

- *Affordable homes (in the future) will be much higher density. That's a big trend in Auckland, when you look around there are quite large developments of apartments or multi unit-type homes where people can buy for less than $300-500K…Affordability will drive the market back to a more standard design and higher density.*
  - CE, residential building firm

# Innovation: industry comment (heavy and civil engineering)

## Industry leaders commented on the risks of innovation and who bears them

- *Anything you do with digging up the ground there is an inherent risk. ..If you find a new way or an innovative way… if you adopt a new methodology, then generally the clients are saying: 'Well you want to do it, that's fine, but you carry the responsibility of failure'. That tends to scare people off… Quite often clients will say 'Well you prove to me it works first'. How do you prove it works in a road sense unless you try it on the road? So it's a lot of chicken or the egg sort of philosophy.*
  - CE, heavy and civil engineering construction firm

- *The process of undertaking trials and effectively the liability that we would take on through the risk process if it is not successful [is a disincentive]. So if you build a pavement with an innovative design where we are carrying the risk on that pavement for seven years and the clients aren't prepared to take on that risk, then that curbs innovation unless you are prepared to stomach that development cost. Whereas in some of the more sophisticated contracting models, that risk would be shared with the client (government or private), contractor and the designers. So there are various procurement models that have different levels of support for innovation…We see less of the alliance model in the market and more of the hard dollar contracting that drives some of those opportunities underground.*
  - CE, heavy and civil engineering construction firm

# Residential building market study: options paper

## MBIE's residential market study identified that the following issues may be hindering innovation

| Issue | Details |
|---|---|
| **Complexity and inaccessibility of alternative solutions** | The complexity of the product assurance system for demonstrating Building Code compliance may act as a barrier to new products or systems getting to market. There are also concerns that decision-making processes and risk aversion in relation to product assurance may reinforce the position of incumbents in the industry. |
| **Risk averse behaviour** | Risk averse behaviour underlies decisions about consenting. Moreover, liability risks throughout the industry incentivise conservatism and this may act as a barrier to getting products accepted for use (or selected for use in the first instance). |
| **Limited availability of acceptable solutions** | Acceptable solutions are 'deemed to comply' with the Building Code. They often rely on citation of complex technical verification methods, which are not always available in relation to innovative new materials or processes or new market entrants. This could act as a barrier to entry. |
| **Inefficient and inconsistent consenting behaviour** | Slow and unpredictable consenting procedures across BCAs introduce delays to construction and make it difficult to plan construction projects. This particularly affects larger builders looking to realise economies of scale through improved planning and management |
| **Limited introduction and diffusions of innovative products** | The residential construction sector is characterised by the limited introduction of innovative products to the market, and slow diffusion once introduced. This impedes its ability to realise continuous efficiency gains and input price reductions. |
| | **The options paper provides a range of potential options to address these issues. It is available from: www.mbie.govt.nz/about-us/consultation/consultation-on-residential-construction-sector-market-study** |

# FOCUS ON RESIDENTIAL AND NON-RESIDENTIAL BUILDING CONSTRUCTION

## Sub-sectors

Construction is divided into a number of sub-sectors; the following section provides data on the residential and non-residential building sub-sectors

| Sub-sector | Activity | Example firms |
|---|---|---|
| **Building construction** | | |
| **Residential building**<br>ANZSIC E301 | Building houses and apartments; carrying out alterations, additions or renovations to houses, or in organising or managing these activities. | Signature Homes; David Reid Homes; Stonewood Homes; many small building firms |
| **Non-residential building**<br>ANZSIC E302 | Building structures such as motels, hospitals, office buildings, industrial buildings and other commercial buildings. | Fletcher Construction; Ebert Construction |

*Source: example firms drawn from Kompass database*

# Examples of firms in the residential & non-residential building sub-sectors

## Residential building contains many small firms and a few larger parent companies; there is some crossover with non-residential firms

***Representative* examples of firms in the residential and non-residential building sub-sectors**

2012/13 or given years

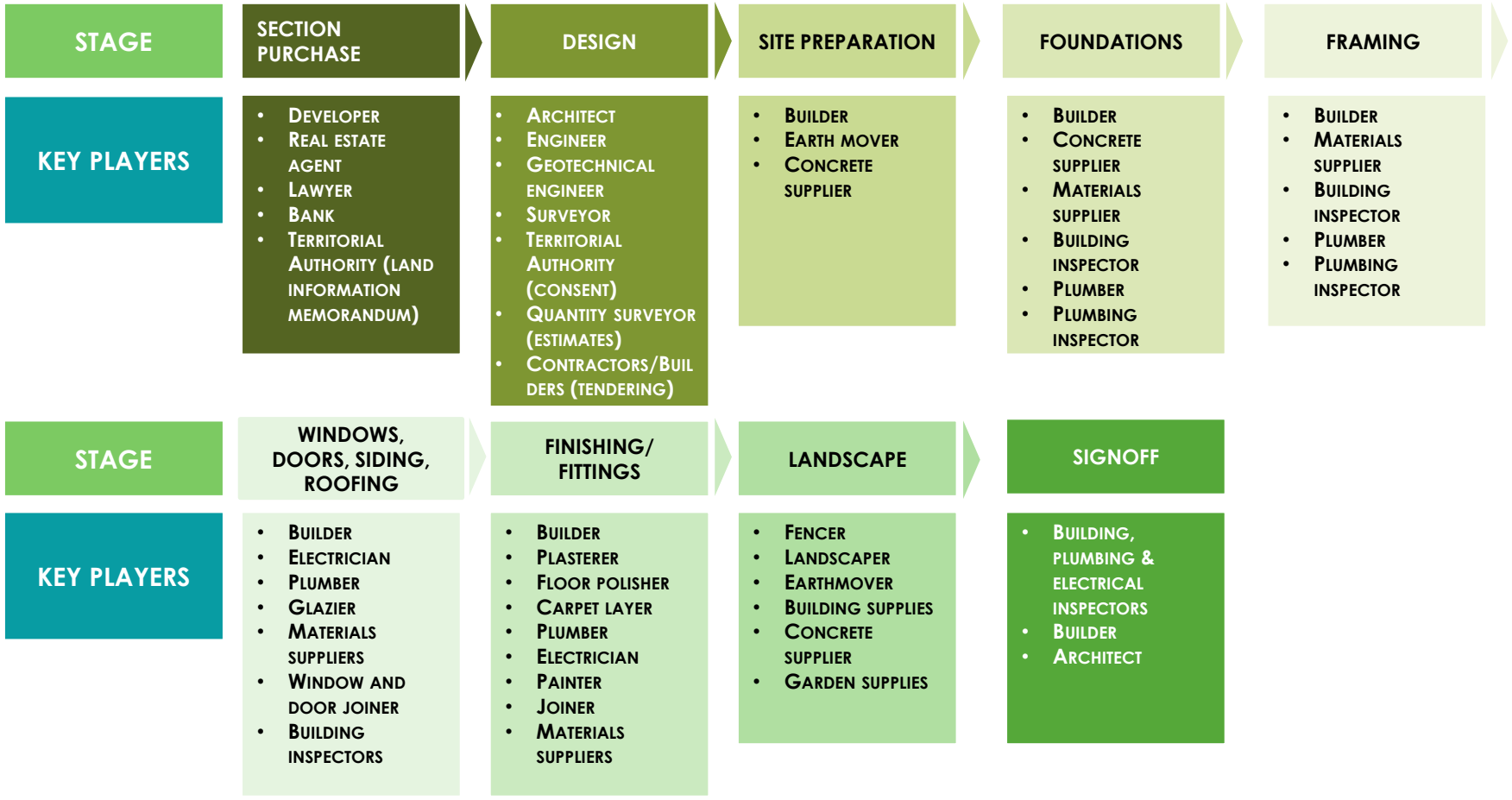
| Firm | Turnover | Employees | Ownership | Description |
|---|---|---|---|---|
| **Residential building** | | | | |
| **Fletcher Residential** | $13m (2013 est) | 50 (est) | A division of Fletcher Building Listed, NZX/ASX | Operates nine brands including building companies (i.e. Dempsey Morton, Aston Marsh) and housing development firms (i.e. Jack's Point in Queenstown, Stonefields in Auckland). |
| **David Reid Homes** | n/a Franchise | 22 franchises | Private equity | Designs and builds houses for upper end of the market; 22 franchises nationwide. |
| **Medium-sized Christchurch firm** | $9m (est) | 35 | Owner-operated | Builds 12-18 homes per year; likely to focus on higher priced homes or also do commercial projects; employs or has relationships with specialists; works mostly in a regional area. |
| **Small Auckland builder** | $0.65m (est) | 3 | Owner-operated | Builds 1-2 homes in Auckland per year; partner does accounts; specialises in residential, but likely does odd commercial jobs. |
| **Non-residential building** | | | | |
| **Hawkins Construction** | $150m (est) | 600 | Private (McConnell Group) | Builds airports, civic and community icons, correctional facilities, educational and healthcare facilities, industrial complexes, hotels and apartments, heritage and restoration projects, offices and retail centres, tourism attractions, sport - event and recreation facilities. |
| **Naylor Love Construction** | $86m (est) | 265 | Private | Project management and construction services; six offices nationwide. |
| **Dominion Constructors** | $65m (est) | 200 | Private | Specialises in project management; acts as main or sub-contractor or partner; some infrastructure and apartment blocks. |
| **Small rural firm** | $3m | 14 | Family-owned | Managed by two brothers, each with 30 years in the industry, and one of their wives; employs foreman to oversee builds; operates in local region only. |

*Source: Kompass database and firm websites.*

# Residential construction: building a house

Building a house is a complex business involving a wide range of professions, trades and service providers

**Simplified model of the stages required to build a residential house, 2013**



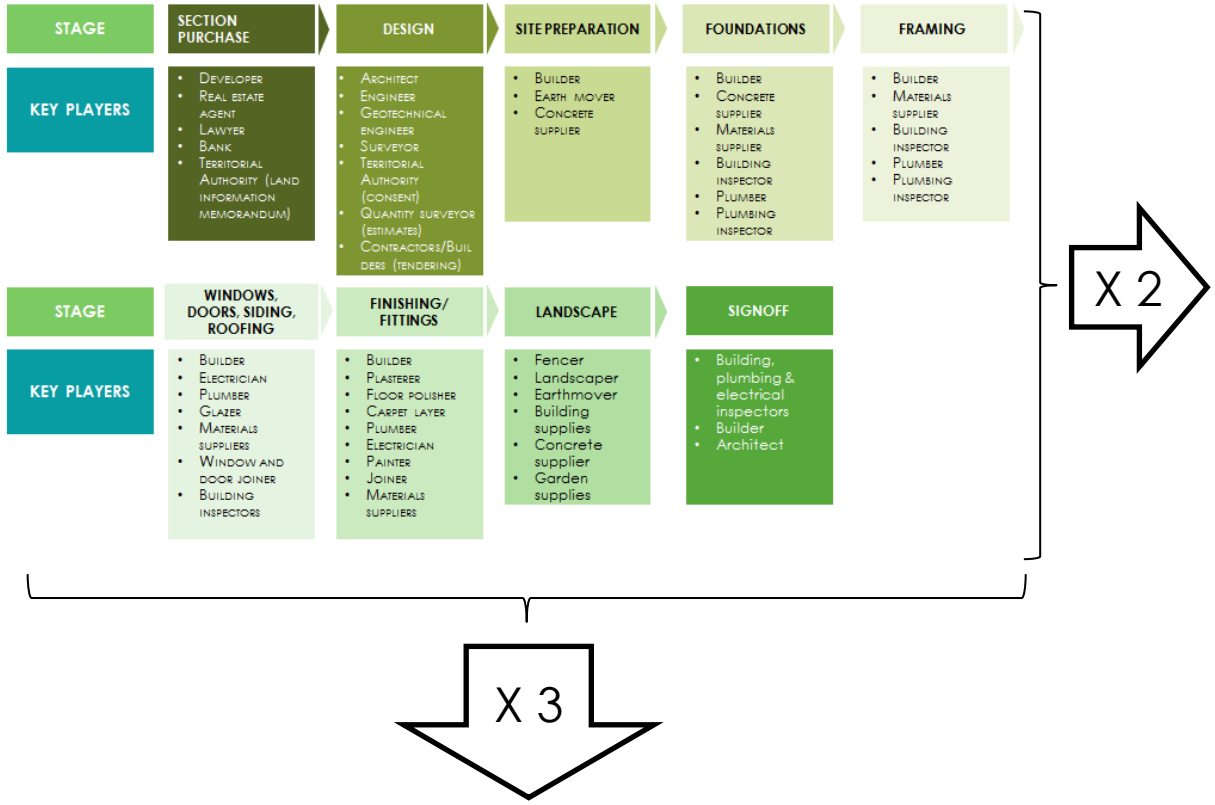

*Source: MBIE analysis in consultation with Tennent-Brown Architects*

## Non-residential building

A commercial building project is an even more complex business by several orders of magnitude…

*Compared to the diagram for building a residential house, for a large commercial project there would be twice as many squares across and three times as many players per stage.*

– Wellington architect

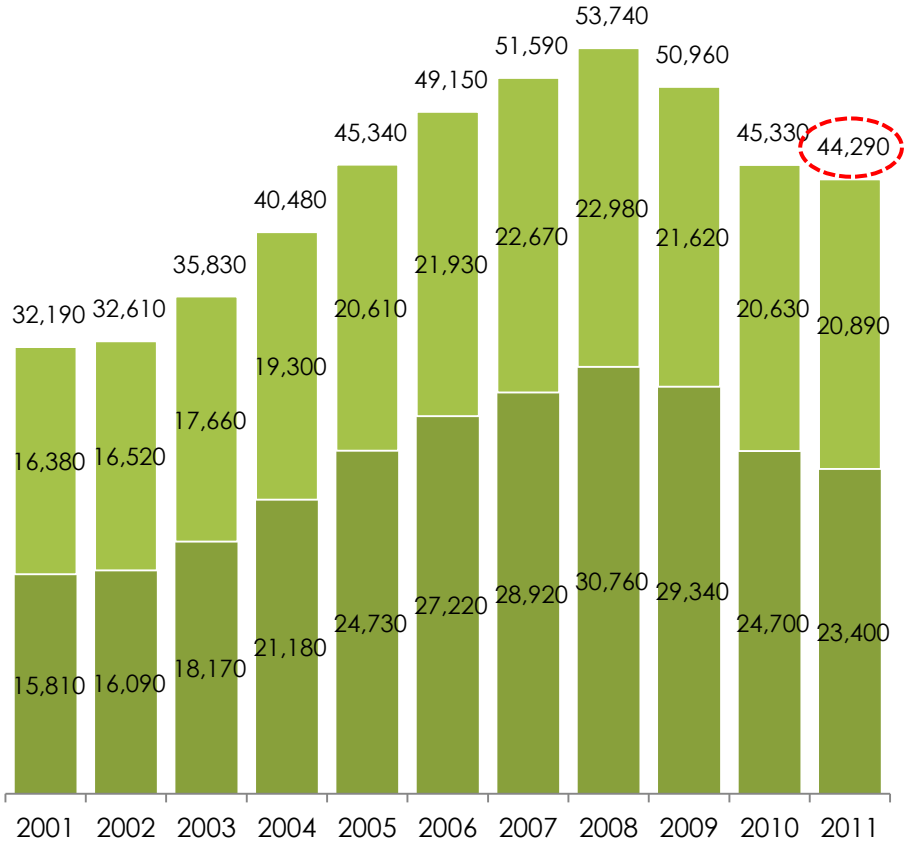


# Residential and non-residential building: employed versus self employed

In 2011, workers in residential and non-residential building construction totalled 44,290, close to half of whom were self-employed

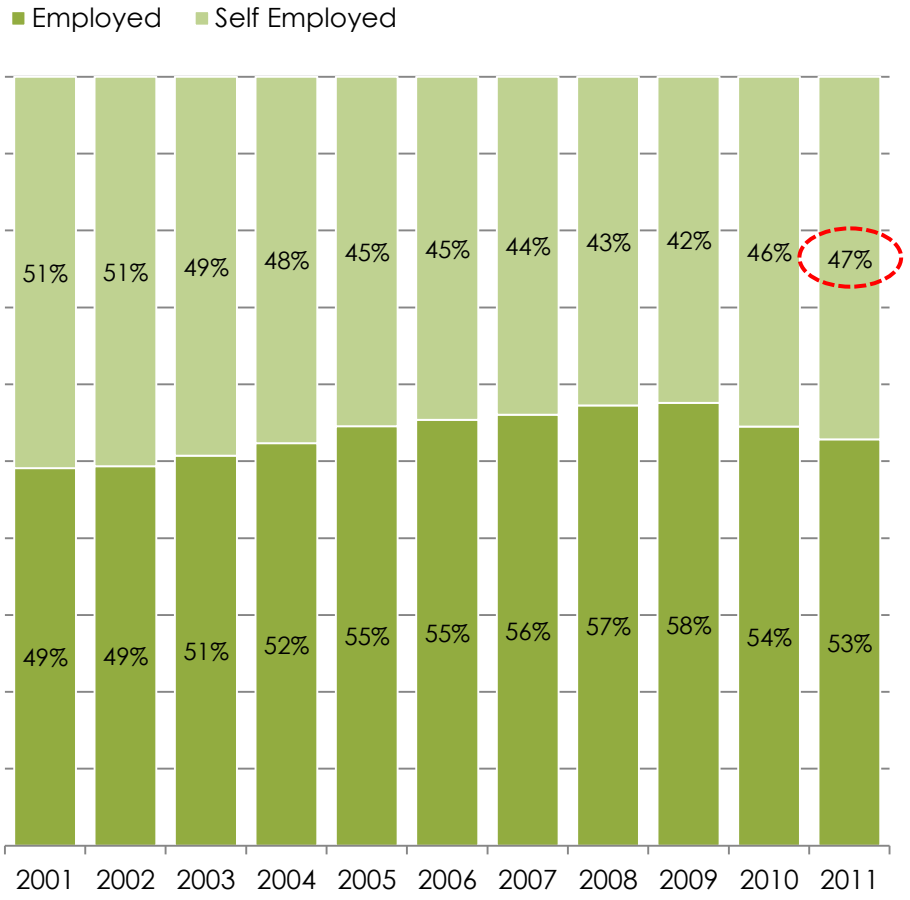
**Building construction employed vs self-employed**

# of workers; 2002–2012




**Building construction employed vs self-employed**

% of workers; 2012–2012



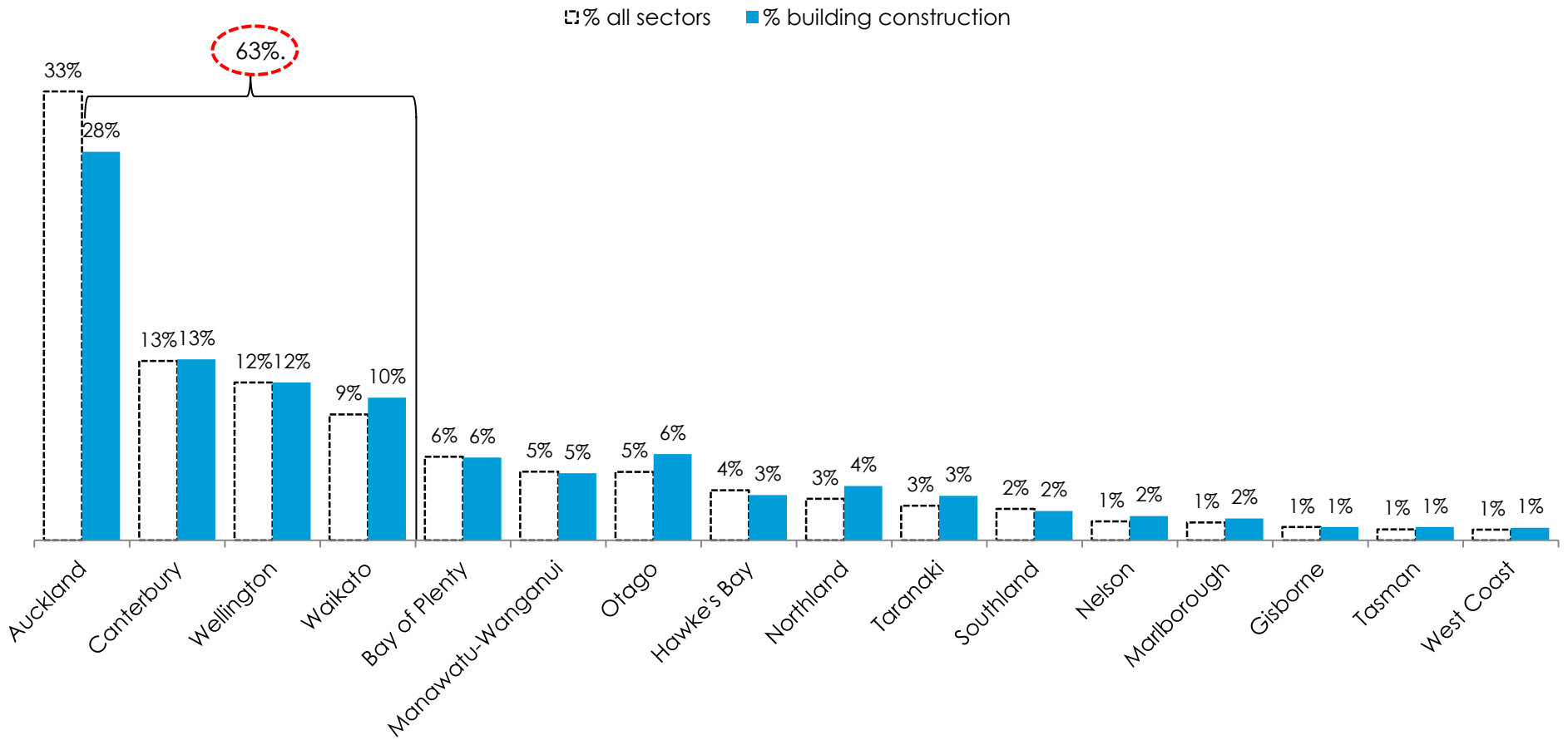

*Statistics New Zealand; Linked Employee-Employer Database (2011)*

# Location: residential and non-residential building workers

Auckland, Canterbury, Wellington and the Waikato account for 63% of workers; the percentage of construction workers is similar to that for all workers in most regions

**Share of residential and non-residential building construction workers vs share of all workers**

% of workers (employed and self-employed), 2011



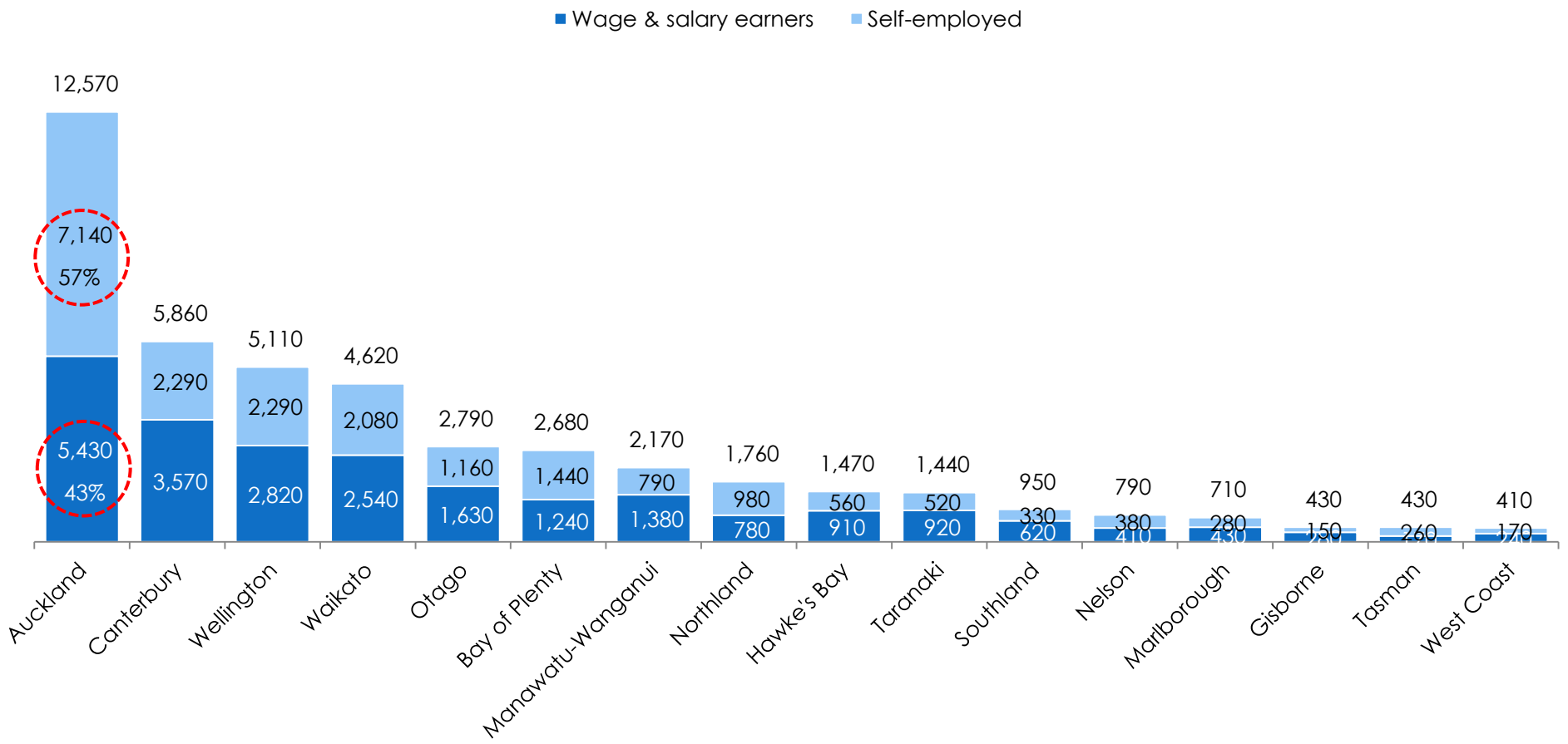

*Statistics New Zealand; Linked Employee-Employer Database (2011)*

# Location: employed versus self-employed

57% of workers in Auckland are self-employed: in most other regions salary and wage earners outnumber self-employed workers

**Residential and non-residential building construction workers, salary and wage earners vs self-employed**

% of workers (employed vs self-employed); 2011



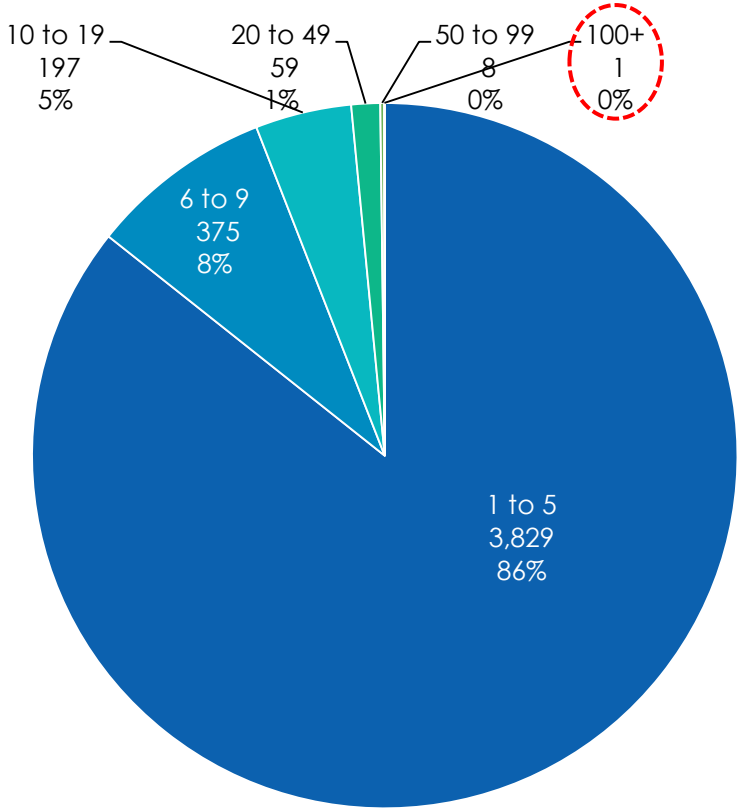

*Statistics New Zealand; Linked Employee-Employer Database (2011)*

# Residential building construction: firm size versus employment

Small firms (9 or less employees) account for 70% of employment in residential building construction; only one firm employs more than 100 workers

**Firms by employment size**

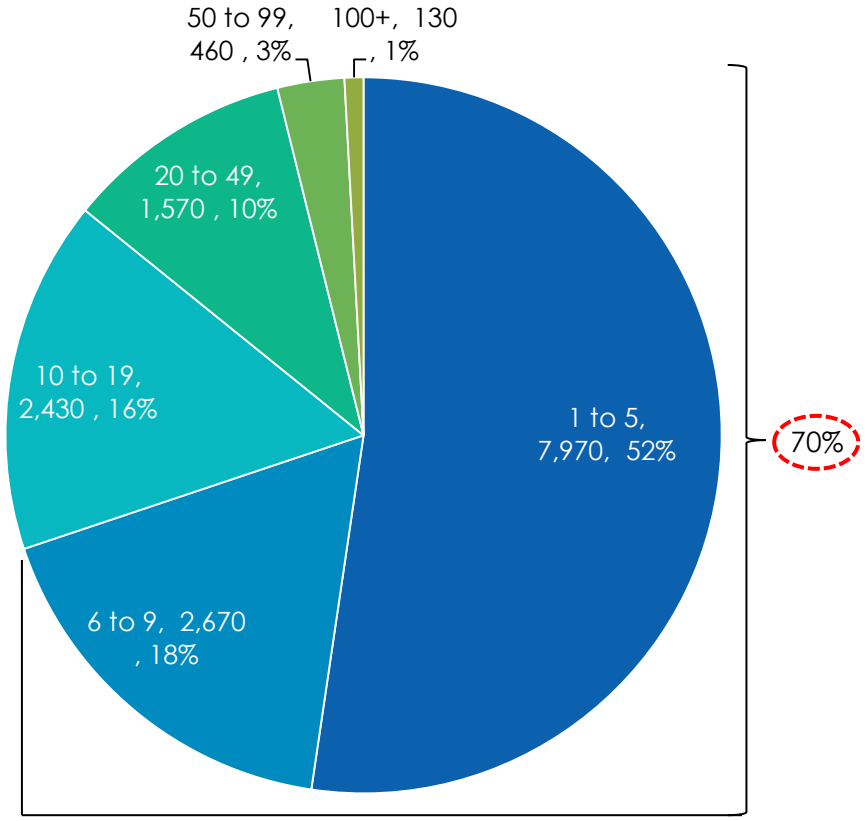
% firms; 2012 (excludes self-employed)




Total = 4,469 firms

**Employment by firm size**

% employees; 2012 (excludes self-employed)




Total = 15,230 employees
Excludes self-employed

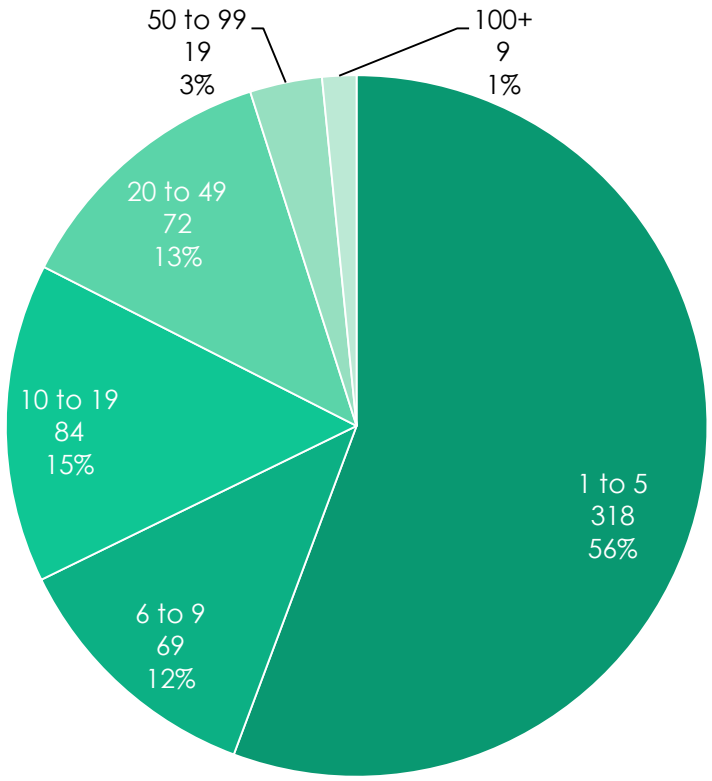
*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Non-residential building: firm size versus employment

Larger firms (50 plus employees) are more prominent in non-residential building, employing 53% of workers

**Firms by employment size**

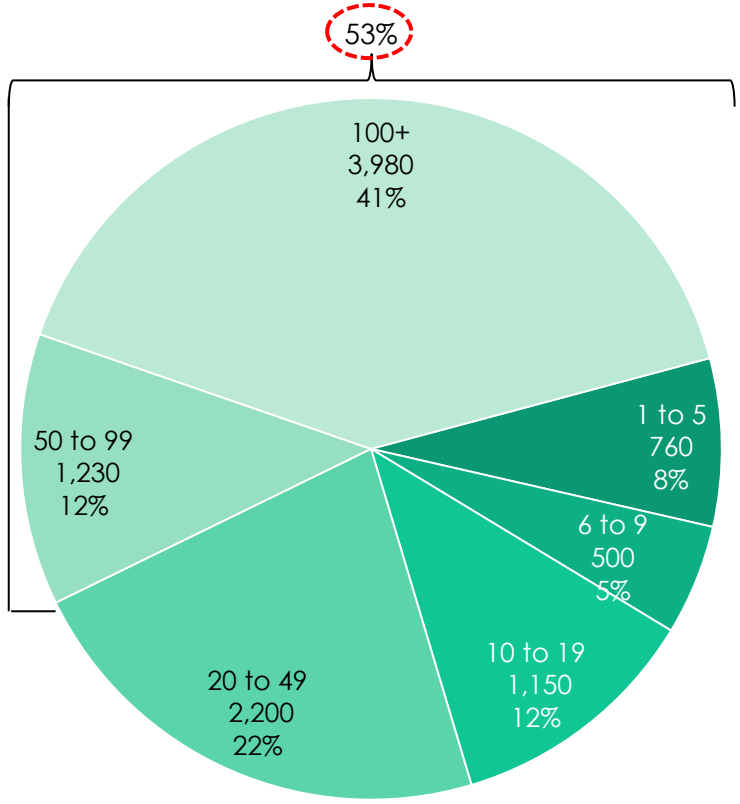
% firms; 2012 (excludes self-employed)




Total = 571 firms

**Employment by firm size**

% employees; 2012 (excludes self-employed)




Total = 9,820 employees

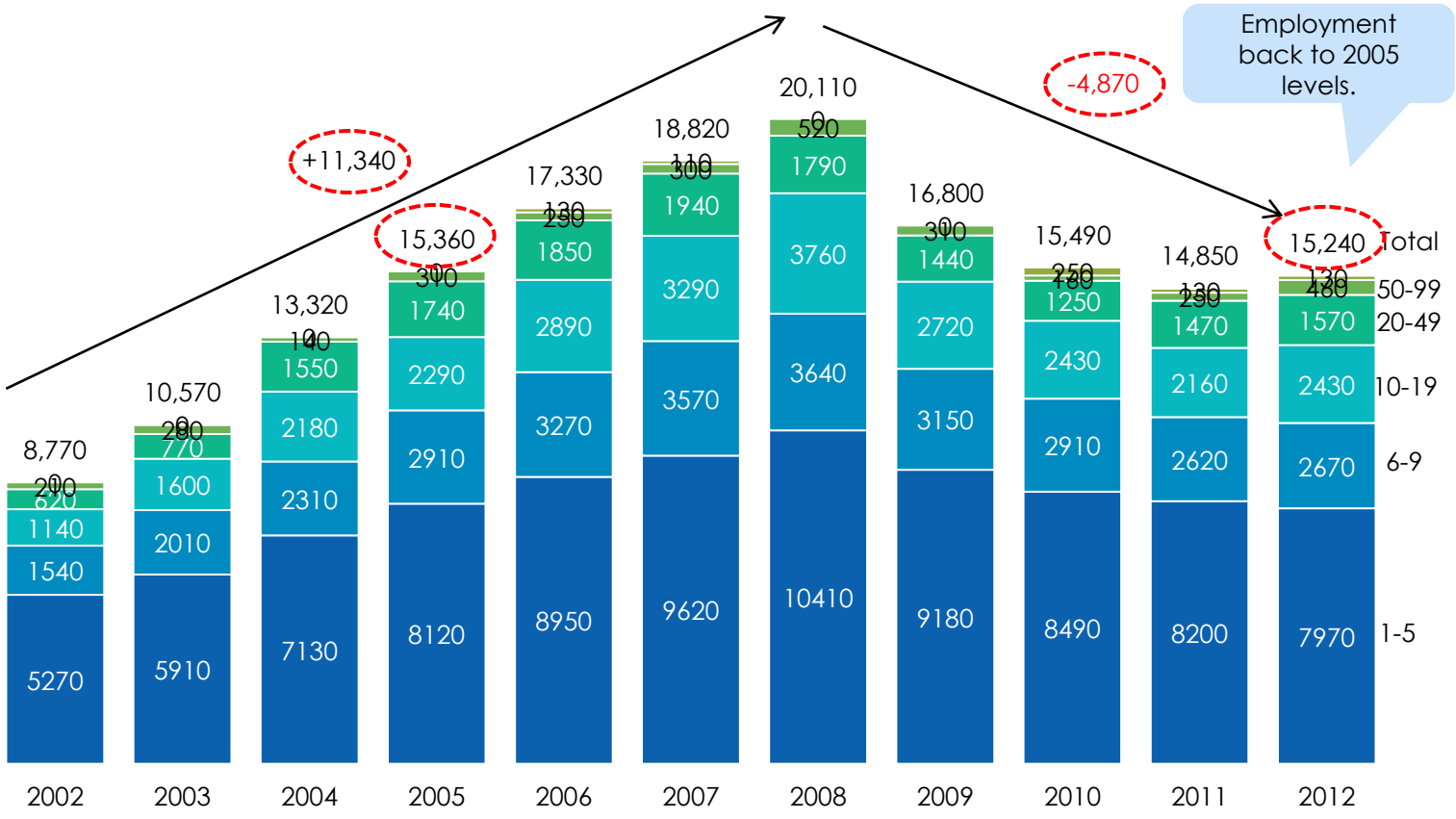
*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Residential building construction: employment by firm size

Employment in residential building construction almost doubled to 2008; 42% of the gain (4,870 jobs) was lost during the GFC

**Residential building construction; employees by firm size**

Employees; 2002–2012 (excludes self-employed)




| | CAGR 02–12 | CAGR 11–12 | Absolute change 02–12 |
|---|---|---|---|
| Total | 6% | 3% | +6,470 |
| 50-99 | 8% | 84% | +250 |
| 20-49 | 10% | 7% | +950 |
| 10-19 | 8% | 13% | +1,290 |
| 6-9 | 6% | 2% | +1,130 |
| 1-5 | 4% | -3% | +2,700 |

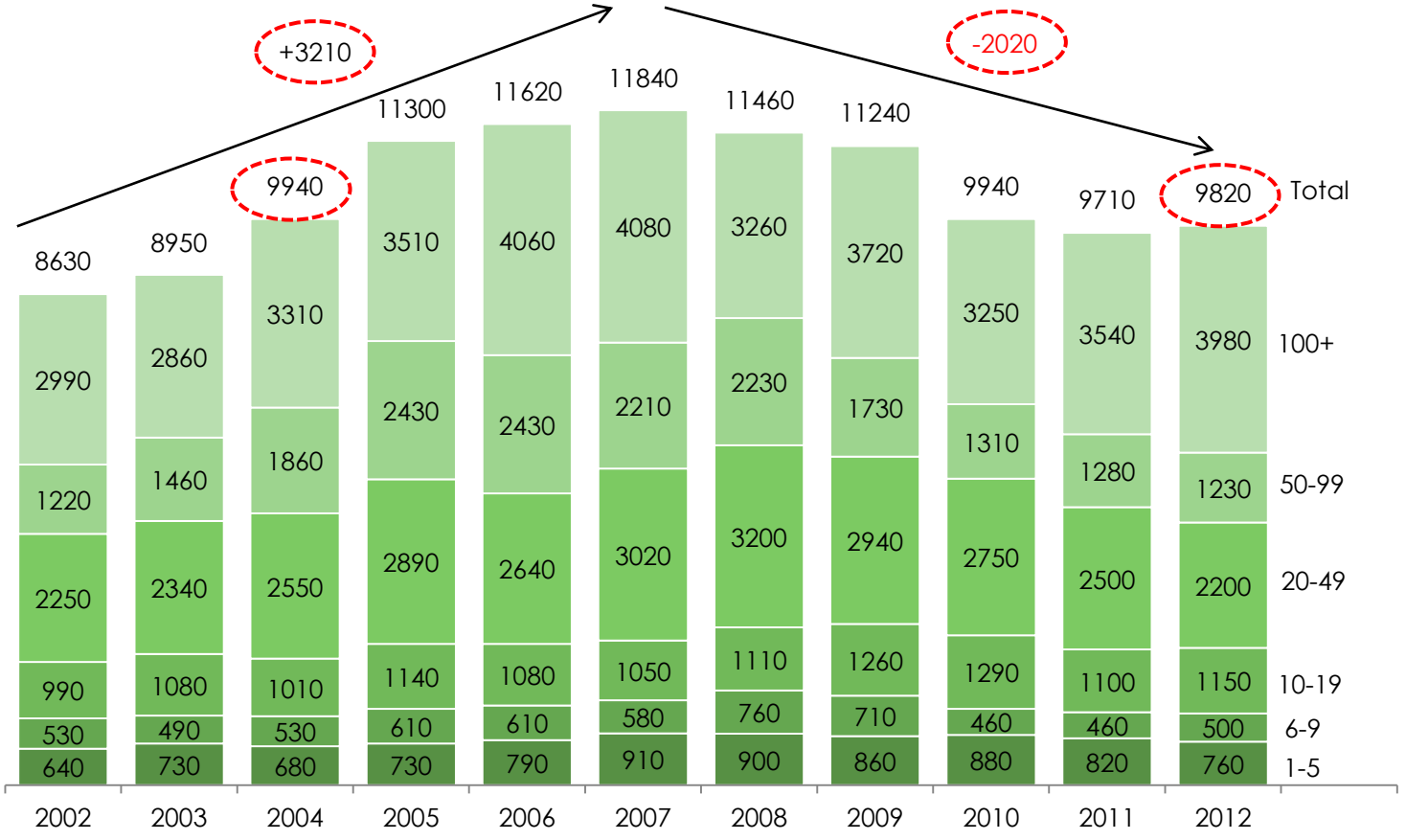
*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Non-residential building construction: employment by firm size

Non-residential building construction added 3,210 jobs to 2007; 62% of the gain (2,020 jobs) was lost during the GFC

**Non-residential building construction; employees by firm size**

Employees; 2002–2012 (excludes self-employed)




| | CAGR 02–12 | CAGR 11–12 | Absolute change 02–12 |
|---|---|---|---|
| Total | 1% | 1% | +1,190 |
| 100+ | 3% | 12% | +990 |
| 50-99 | 0% | -4% | +10 |
| 20-49 | 0% | -12% | -50 |
| 10-19 | 2% | 5% | +160 |
| 6-9 | -1% | 9% | -30 |
| 1-5 | 2% | -7% | +120 |

*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Residential housing: industry comment

## Industry leaders commented on the fragmented nature of the industry

- *New Zealand is made up of thousands of small businesses, contracting entities. So the majority of homes built are built by individuals who have a very small company that only builds 2-5 homes a year. People that service those very small building firms are self employed plumbers, electricians, carpet layers…A plumber can be servicing 5 or 6 of these small building firms rather than just work exclusively for one. That gives that plumber continuity of work.*
  - CE, building firm, large

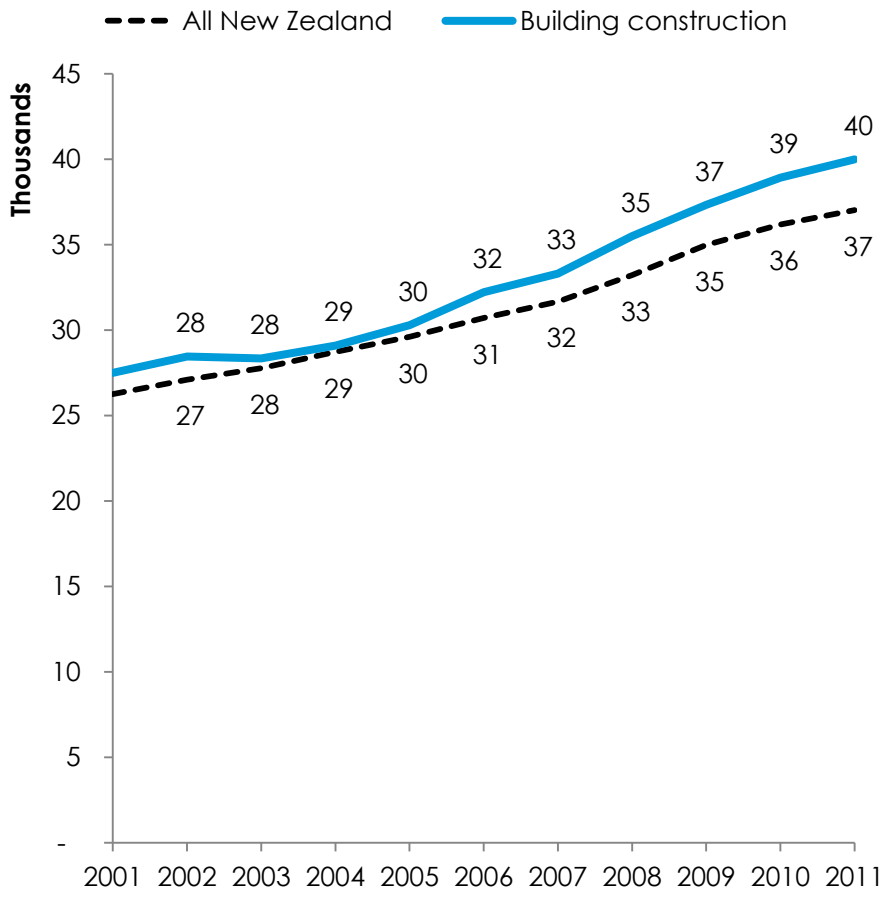
- *We don't employ any wage earning people…(re contract to rebuild Christchurch homes). There are 1,100 firms that are now qualified to work on that programme and the majority of them employ less than 5 people.*
  - CE, building firm, large

# Earnings: building construction (residential and non-residential building)

The median for wages and salaries has grown marginally faster than the New Zealand median; self-employed earn marginally less than salary and wage earners

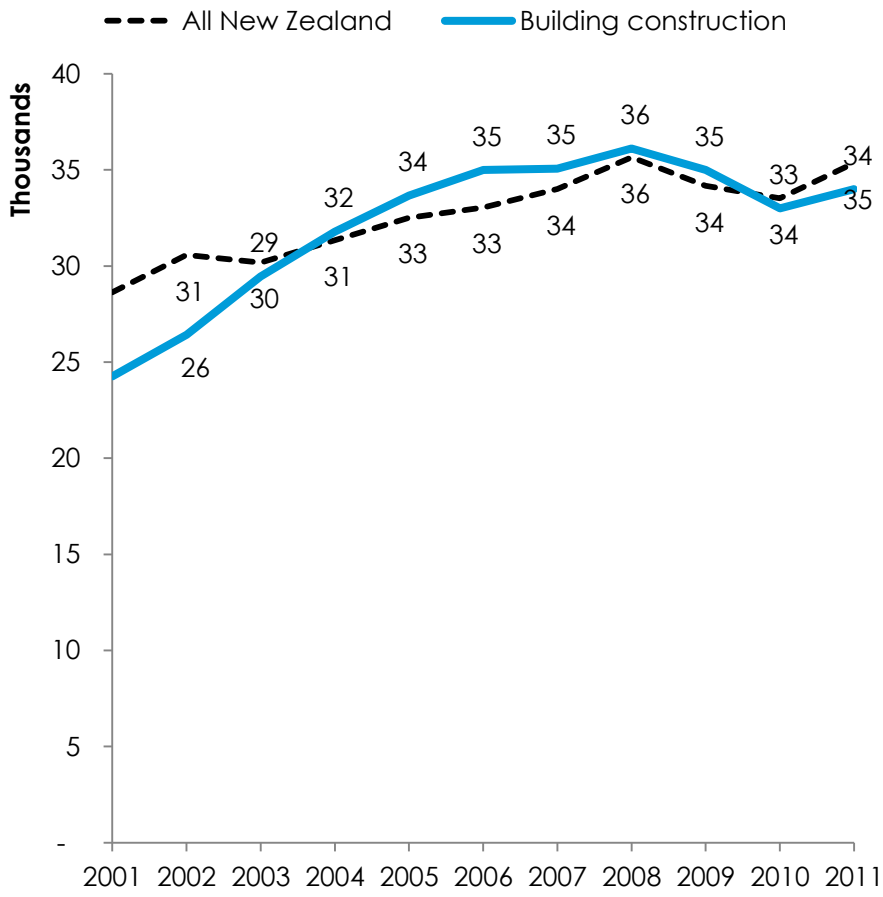
**Building construction median annual *wages and salaries***

NZ$000; 2001–2011




**Building construction median annual earnings *self-employed***

NZ$000; 2001–2011



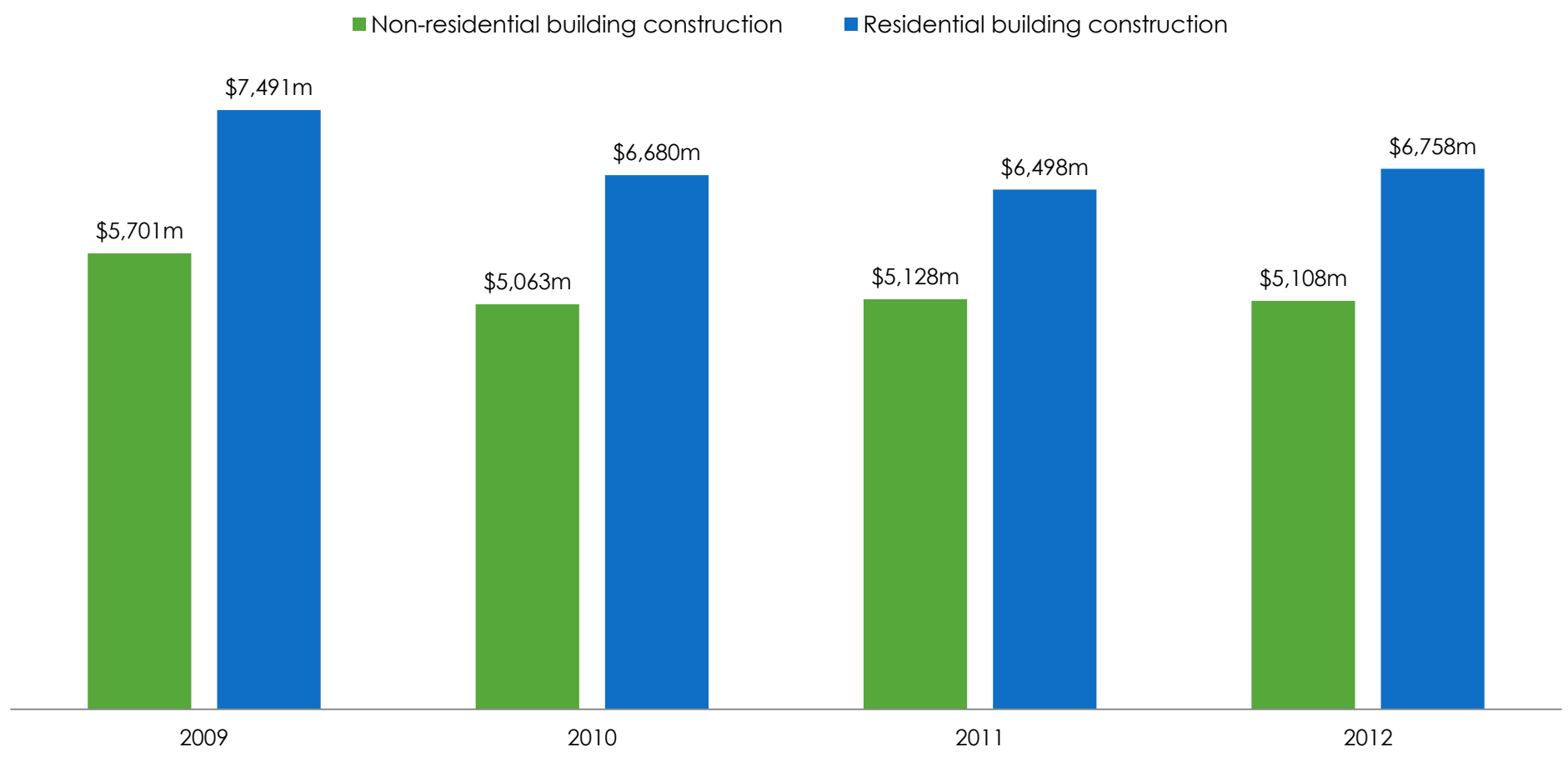

*Statistics New Zealand; Linked Employee-Employer Database (2012)*

## Revenue: non-residential versus residential building construction

Combined annual revenue for residential building construction has been around $6.5 billion annually since 2010, and $5.1 billion annually for non-residential building

**Total revenues**

NZ$m; nominal; 2009–2012



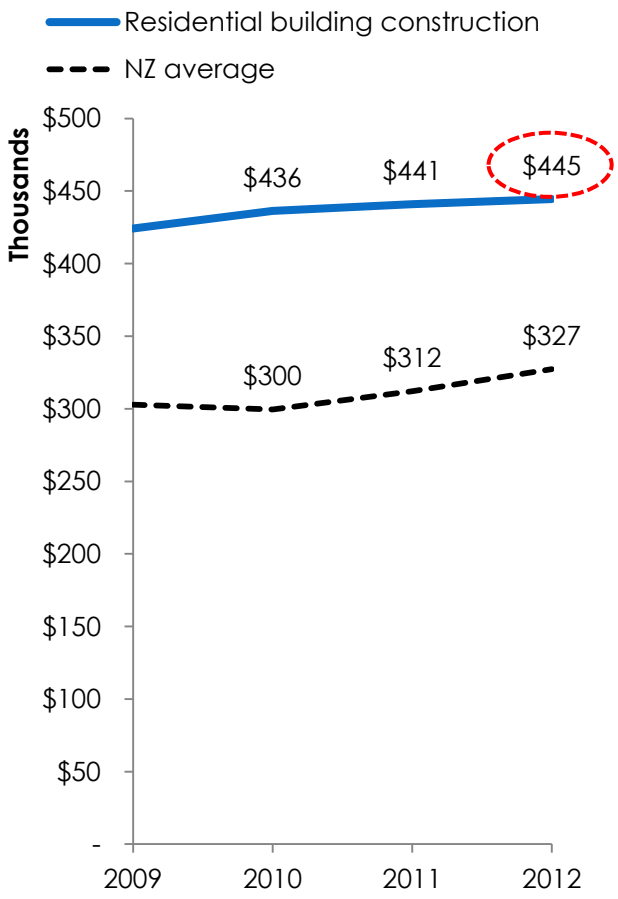

*Source: Statistics New Zealand, Annual Enterprise Survey, 2012*

# Financial performance: residential building construction

Residential building firms generate lower profits per worker than the NZ average, but more revenue per worker and a higher return on equity than the NZ average

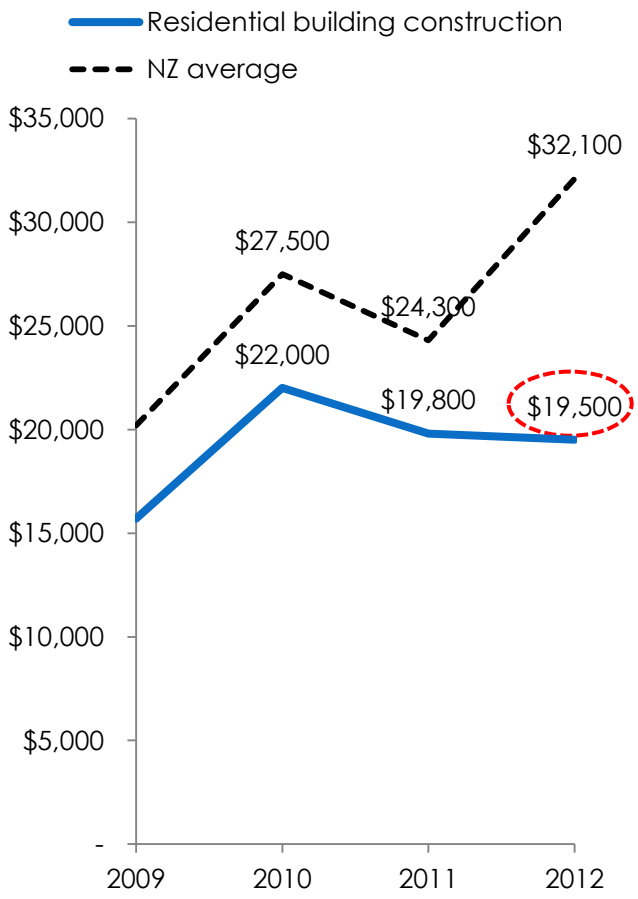
**Total income per employee**

NZ$000; nominal; 2009–2012



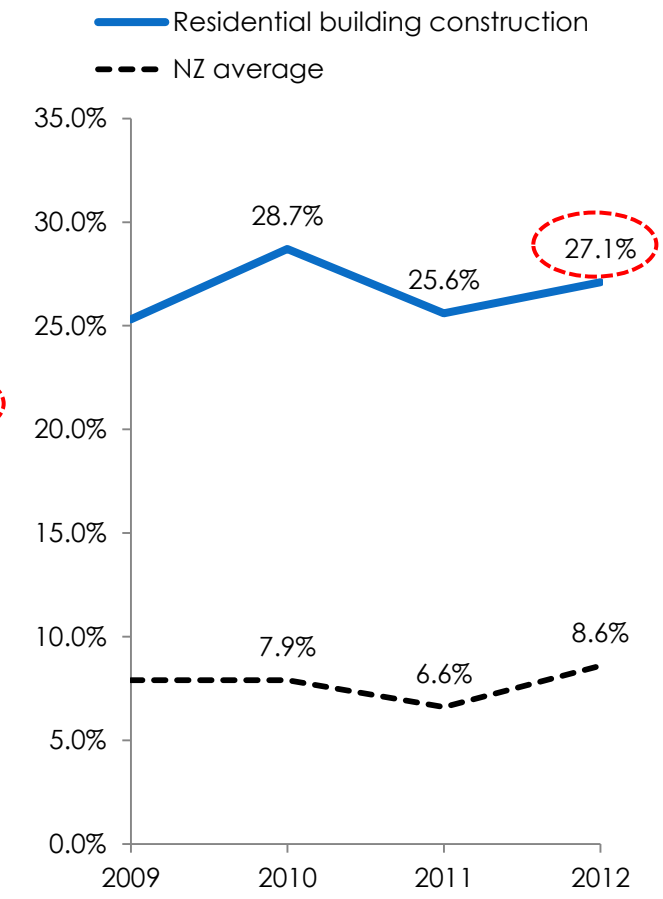

**Surplus per employee**

NZ$; nominal 2009–2012




**Return on equity**

%: 2009–2012



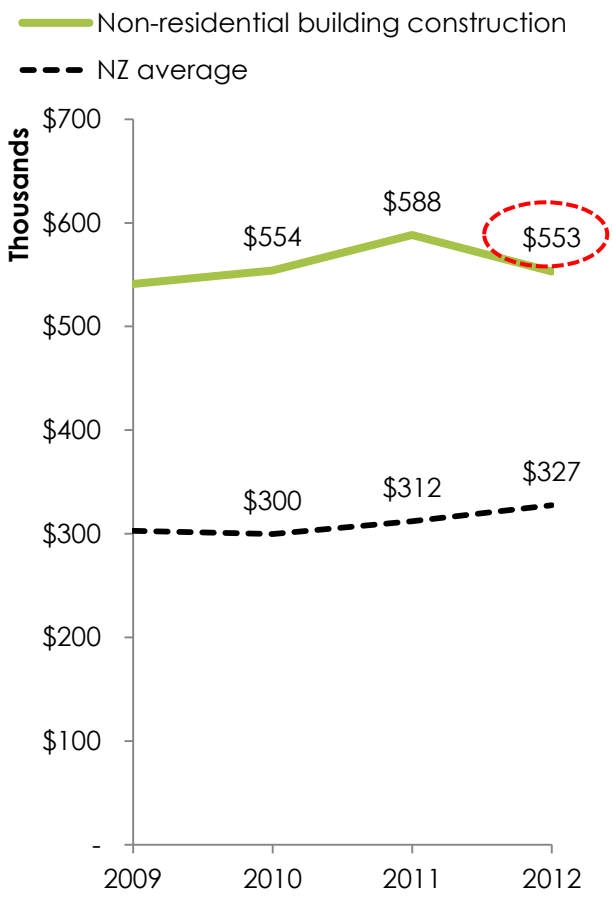

*Source: Statistics New Zealand; Annual Enterprise Survey, 2012.*

# Financial performance: non-residential building construction

Non-residential building firms generate lower profits per worker than the NZ average, but more revenue per worker and a higher return on equity than the NZ average

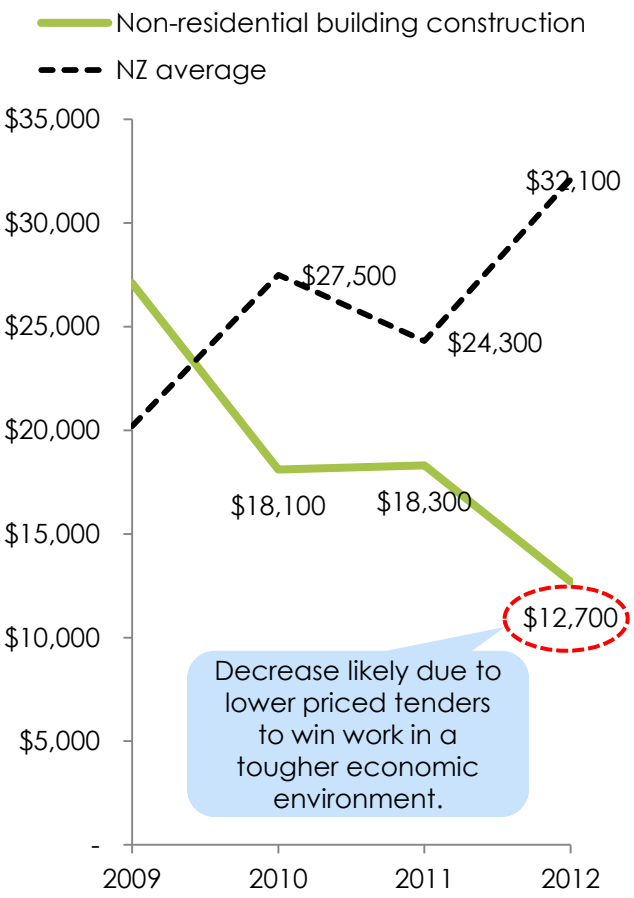
**Total income per employee**

NZ$000; nominal; 2009–2012



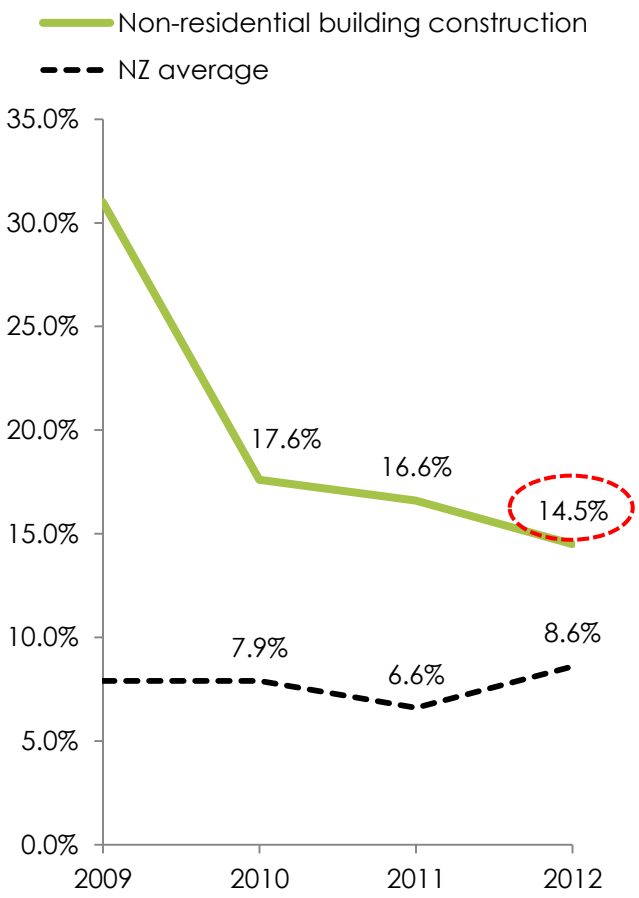

**Surplus per employee**

NZ$; nominal 2009–2012




**Return on equity**

%: 2009–2012




*Source: Statistics New Zealand, Annual Enterprise Survey, 2012*

## Residential housing: industry comment

Industry leaders commented on the disincentives to building low cost homes and low margins in the industry

- *I don't know of any architects who are seriously involved in low cost housing and the reason is simply economics. There was a road show on housing affordability about 2 years ago…It was unmistakable that there was not just a lack of interest but a rudely sort of negative vibe in the whole place...First of all they denied there was a problem…and the second main thing was 'You academics don't understand. We run a business and I employ 5 people and I've got to keep them busy and I've got to pay their wages and if I do an affordable house it will take me the exact amount of time and effort on a low cost house and since we get paid by a percentage, if the house is $300K we get the same percentage if (it is) $600K. Twice as much income for the same amount of work'. In fact one said 'I never accept any commission for a house under a million dollars.*
  - Architect

- *We are a business and our main driver is providing return for shareholders and we don't build low cost, affordable homes because they are unprofitable.*
  - CE, building firm

- *Why would a builder who does three houses a year build a couple of low cost houses? Spend equal amount of time at it...There could be a profit, a modest profit. But it's too modest and too risky.*
  - Architect

- *The thing that constantly surprises me is the small margins that builders work on. If you take the residential sector…the small builder sometimes takes no margin on his sub-trades and in addition can grossly underestimate the time required…they don't add a lot of risk margin, so if anything goes wrong the profit they've got on the job is gone almost in an instant.*
  - Industry leader

# FOCUS ON CONSTRUCTION SERVICES

## Sub-sectors

Construction is divided into a number of sub-sectors; the following section provides data on the construction services sub-sector

| Sub-sector | Activity | Example firms |
|---|---|---|
| **Construction services** | | |
| **Land development & site preparation** ANZSIC E321 | Subdividing land into lots and servicing land for subsequent sale; includes land-clearing, excavation, ground de-watering and trench digging. | Higgins Group; Ward Demolition |
| **Building structure services** ANZSIC E322 | Concreting for footpaths, foundations, kerbs and gutters; bricklaying; roofing; and erecting steel structures such as silos and tanks. | Allied Concrete; Forman Group |
| **Building installation services** ANZSIC E323 | Includes plumbers and electricians; installers of air-conditioning, heating, fire and security devices as well as elevators, curtains, awnings and blinds. | Downer; Orion; Laser Electrical, many small operators |
| **Building completion services** ANZSIC E324 | Includes plastering and ceiling services; carpentry; tiling; carpeting; wallpapering, painting and decorating; and window installation services. | Spencer Henshaw; Surface works Specialist Coatings and many small operators |
| **Other construction services** ANZSIC E329 | Landscaping and construction of paths, decks and retaining walls, fences, or lawns; hiring of construction machinery with operators (such as cranes); scaffolding construction; blasting, cleaning and waterproofing of buildings. | Nelmac; Pyradeck |

*Source: example firms drawn from Kompass database*

# Construction services: example firms

## Construction services firms encompass a wide variety of skills and trades

### Representative examples of firms in the construction services sub-sectors

2012/13 or given years

| Firm | Turnover | Employees | Ownership | Description |
|---|---|---|---|---|
| **Forman Group** | $68m (est) | 210 | Private: Richina Global Real Estate Ltd | Marketer and distributor of ceilings and interior wall systems; thermal and acoustic insulation; and passive fire protection products; six branches nationwide; mainly does commercial builds, but also some industrial and apartment work. |
| **Secom Guardall** | $38m (2012) | 65 (plus sub-contractors) | Foreign (Secom Australia) | Installation, servicing and monitoring of security systems for banks, retail chains, and storage firms. |
| **Knight Plumbers Ltd** | $1.5m (est) | 8 | Private | Specialist in 24 hour servicing in commercial maintenance and all plumbing and metal roofing repairs. |
| **Otago Glass Co. Limited** | $2.4m (est) | 12 | Private | Wide range of glazier services. |
| **Small Wellington insulation firm** | $3m (est) | 15 | Owner-operated | Does residential and commercial work; Local focus but does some jobs in lower North Island; approved installer of insulation for government-subsidised Warm-Up New Zealand programme. |
| **Tirau Earthmovers Limited** | $6.5m (est) | 25 | Private | Land preparation, earthmoving, drainage and excavation. |
| **Nelson Electrical (2012) Ltd** | $3.2m (est) | 16 | Private | General electrical contractors specialising in industrial and commercial work. |
| **Bryan Park** | n/a | 6 | Private | Furniture supply, installation and office maintenance services. |

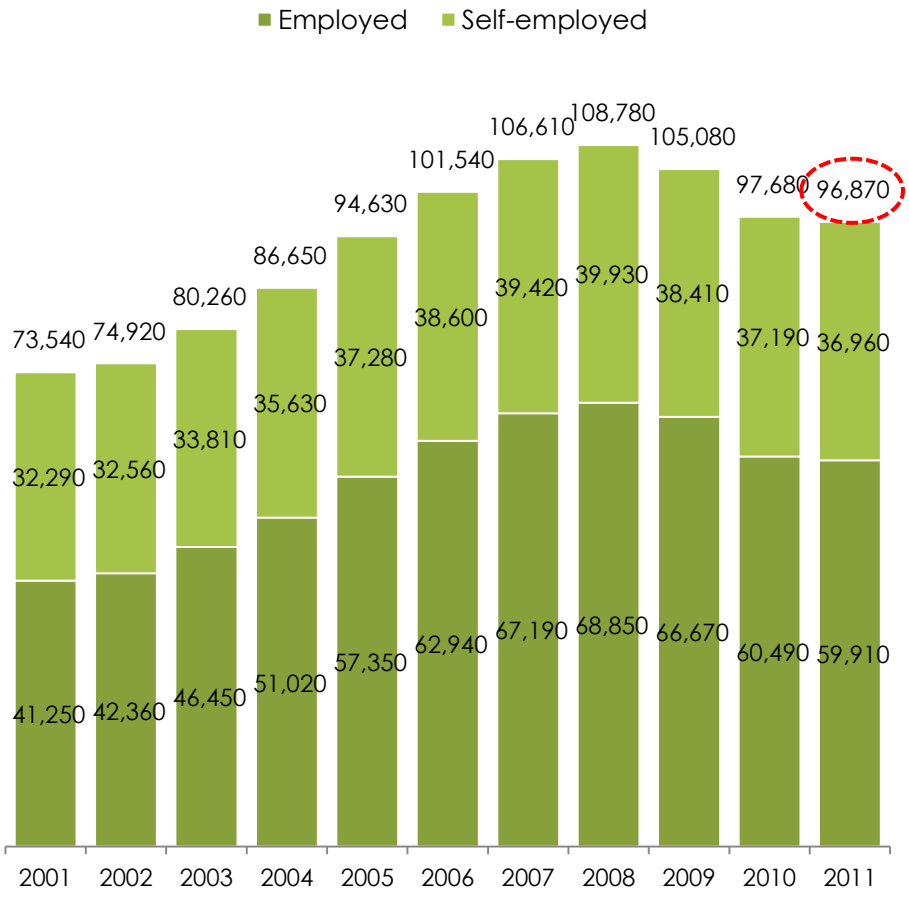
*Source: Statistics New Zealand, Annual Enterprise Survey (2012); Kompass database and firm websites.*

# Construction services: employees versus self-employed

In 2011 there were 96,870 workers in the construction services sub-sector, 38 per cent of whom were self-employed

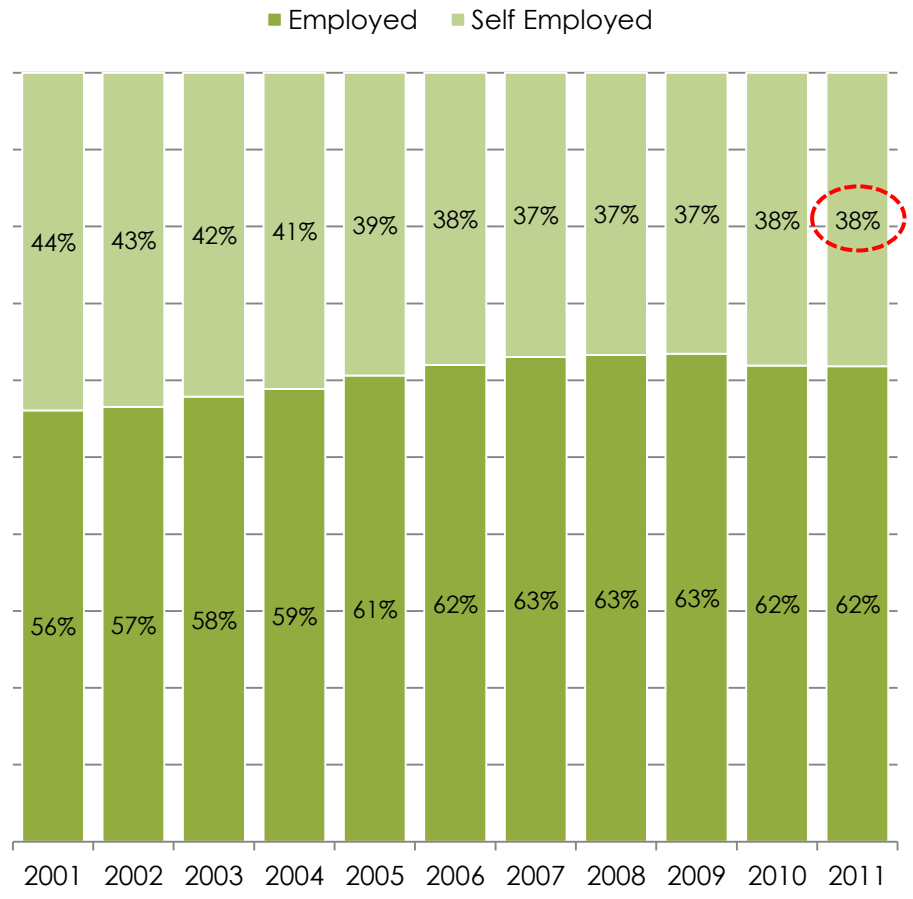
**Construction services: employed vs self-employed**

# of workers; 2002–2012




**Construction services: employed vs self-employed**

% of workers; 2002–2012



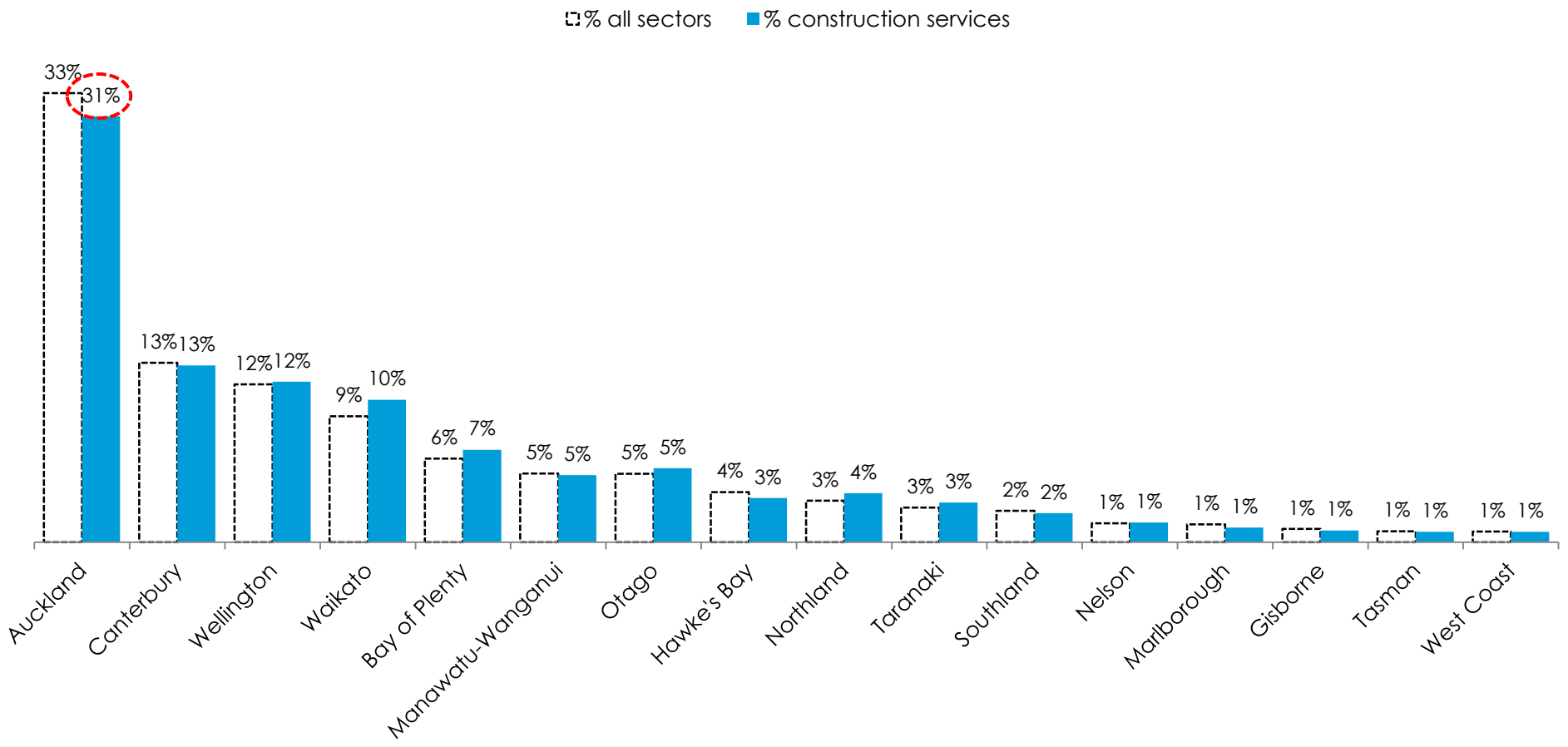

*Statistics New Zealand; Linked Employee-Employer Database (2011)*

# Location: construction services workers

31% of construction services workers are in Auckland; the share of construction services workers in all regions is at or around the share for all workers

**Share of construction services workers vs share of all workers**

% of workers, 2011 (employed and self-employed)



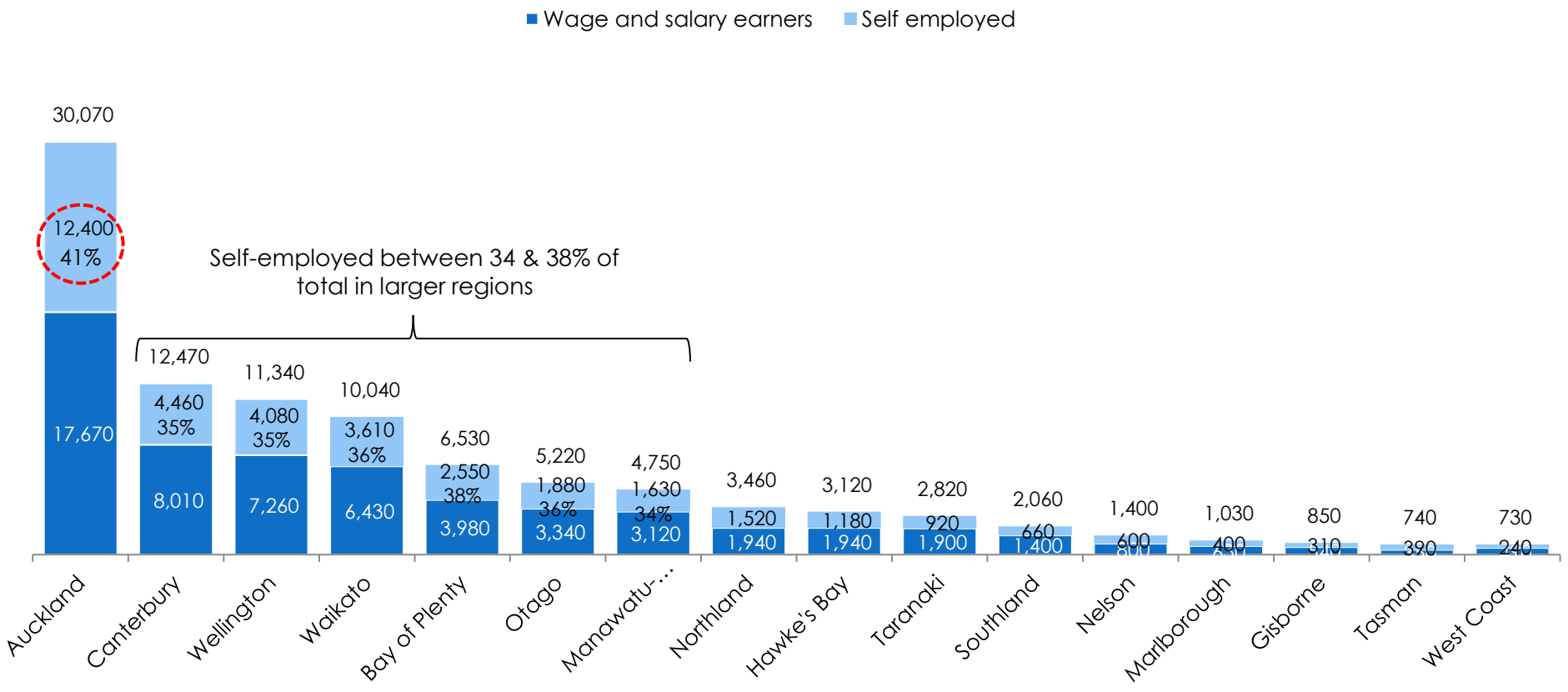

*Statistics New Zealand; Linked Employee-Employer Database (2011)*

# Location: construction services; employed versus self-employed

Auckland stands out for having a higher percentage of self-employed construction services workers than is the case in the next six largest regions

**Share of construction services workers vs share of all workers**

% of workers (employed and self-employed)



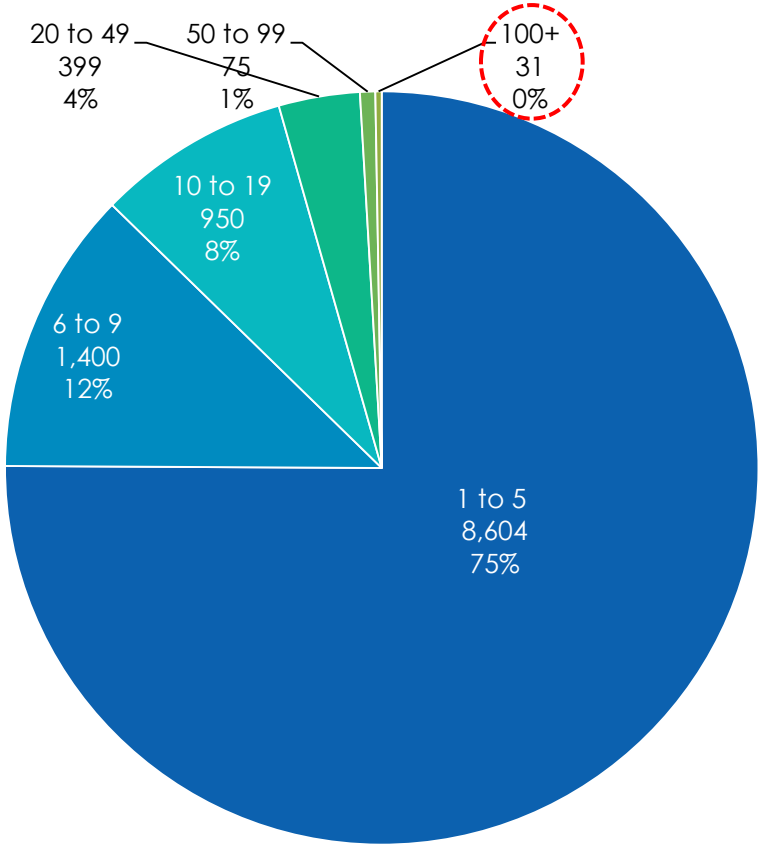

*Statistics New Zealand; Linked Employee-Employer Database (2011)*

## Construction services: firm size versus employment

Construction services has 31 large firms (9% of employees); employment spread more evenly across firm sizes

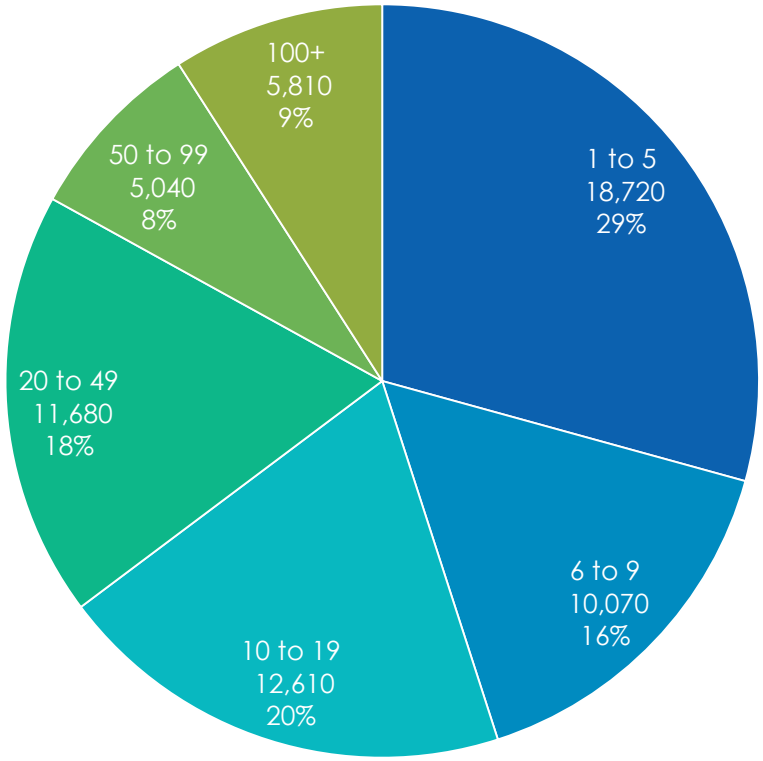
**Number of firms by employment size**

% firms; 2012 (excludes self-employed)




**Number of employees by firm size**

% employees; 2012 (excludes self-employed)



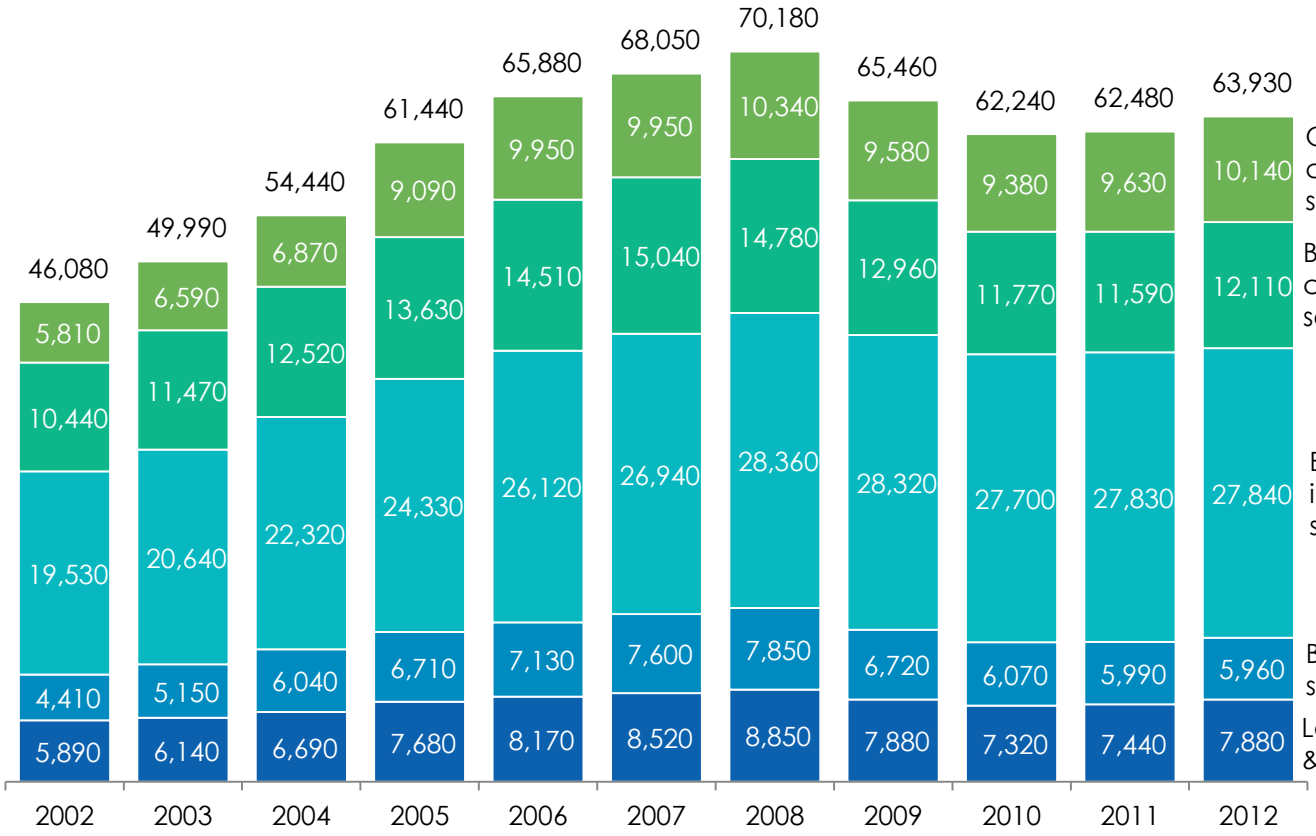

*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Construction services: employment by subsector

Employment performance is fairly consistent across all five construction services sub-sectors

**Number of employees by construction services sub-sector**

Employees; 2002–2012 (excludes self-employed)




| | CAGR 02–12 | CAGR 11–12 | Absolute change 02–12 |
|---|---|---|---|
| Total | 3% | 2% | +17,850 |
| Other construction services | 6% | 5% | +4,330 |
| Building completion services | 1% | 4% | +1,670 |
| Building installation services | 4% | 0% | +8,310 |
| Building structure services | 3% | -1% | +1,550 |
| Land development & site preparation | 3% | 6% | +1,990 |

*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Construction services: employment by firm size

Employment in construction services added 24,100 jobs to 2008; only a quarter of the gain was lost during the GFC (6,250 jobs)

**Construction services; employees by firm size**

Employees; 2002–2012 (excludes self-employed)


| | CAGR 02–12 | CAGR 11–12 | Absolute change 02–12 |
|---|---|---|---|
| Total | 3% | 2% | +17,850 |
| 100+ | 1% | 2% | +500 |
| 50-99 | 6% | 7% | +2,210 |
| 20-49 | 5% | 8% | +4,230 |
| 10-19 | 4% | -1% | +3,800 |
| 6-9 | 3% | 4% | +2,690 |
| 1-5 | 3% | 0% | +4,390 |

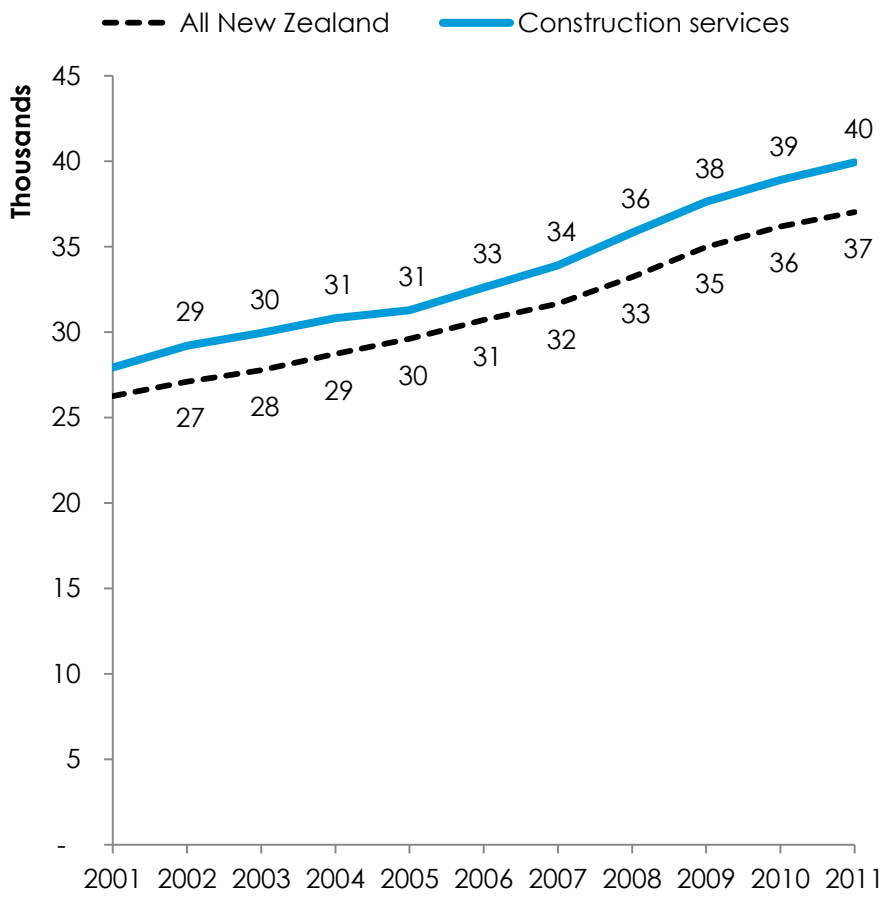
*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Earnings: salaries and wages vs self-employed

Earnings in construction services are marginally above the New Zealand median

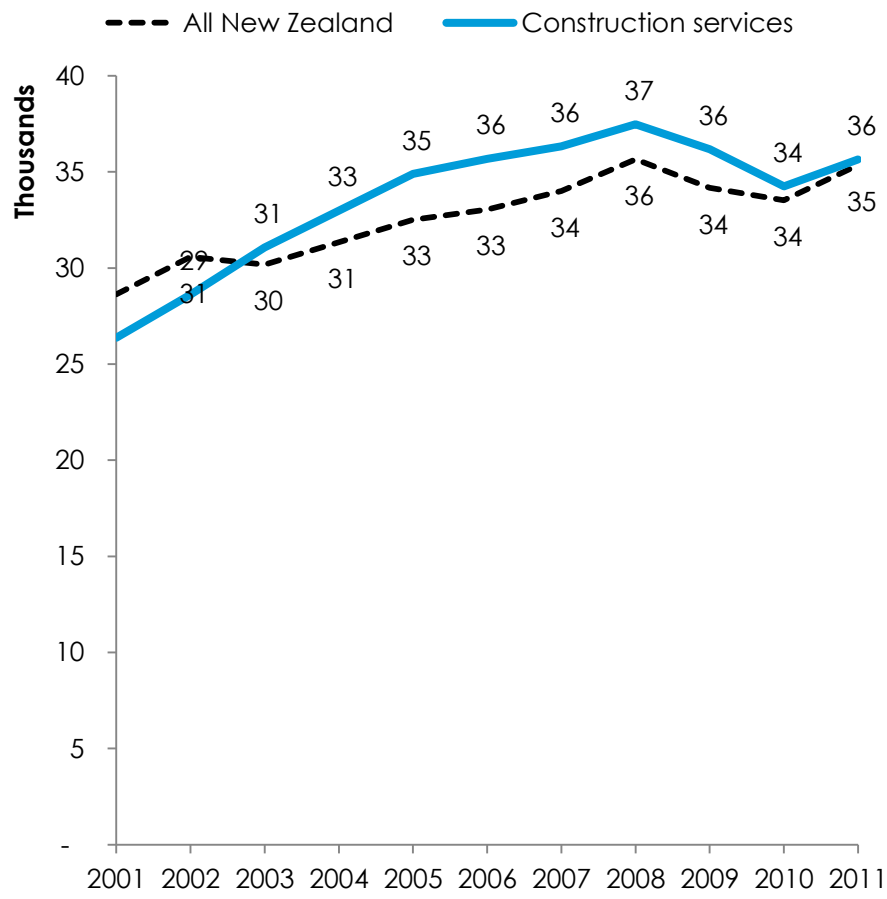
**Construction services median annual wages and salaries**

NZ$; 2001–2011




**Construction services median annual earnings self-employed**

NZ$; 2001–2011



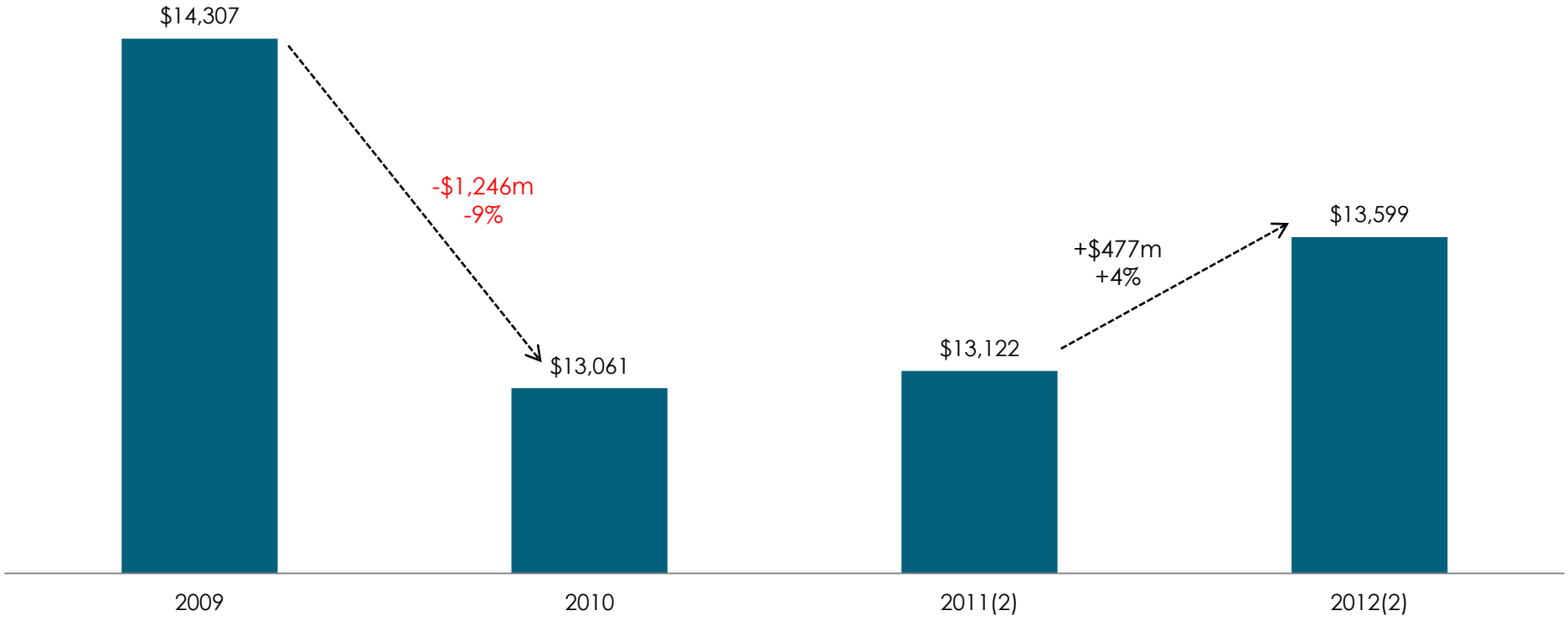

*Statistics New Zealand; Linked Employee-Employer Database (2012)*

## Revenue: construction services

Combined annual revenue for construction services dropped by $1.2 billion in 2010, compared to 2009; revenues showing some recovery in 2012

**Total revenues**

NZ$m; nominal; 2009–2012

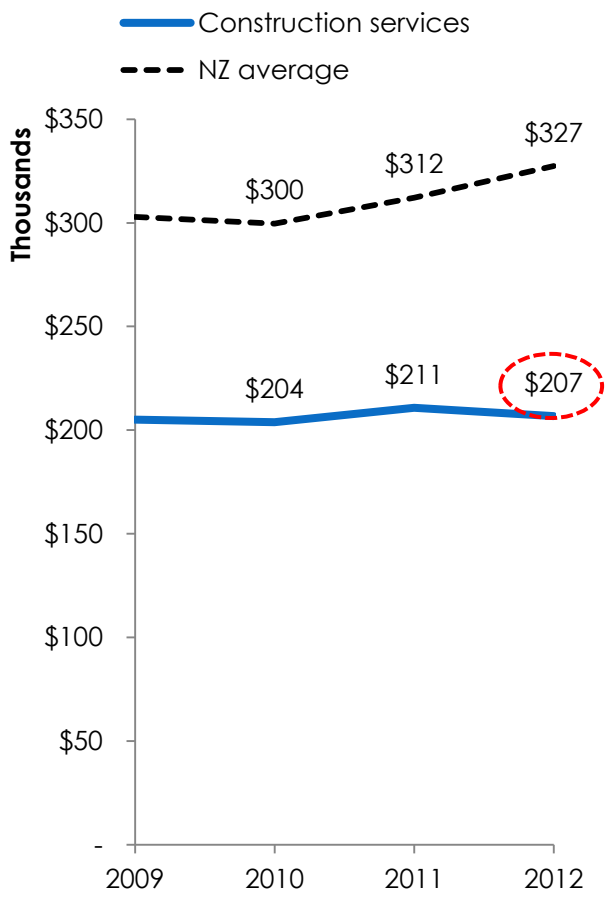



*Source: Statistics New Zealand, Annual Enterprise Survey, 2012*

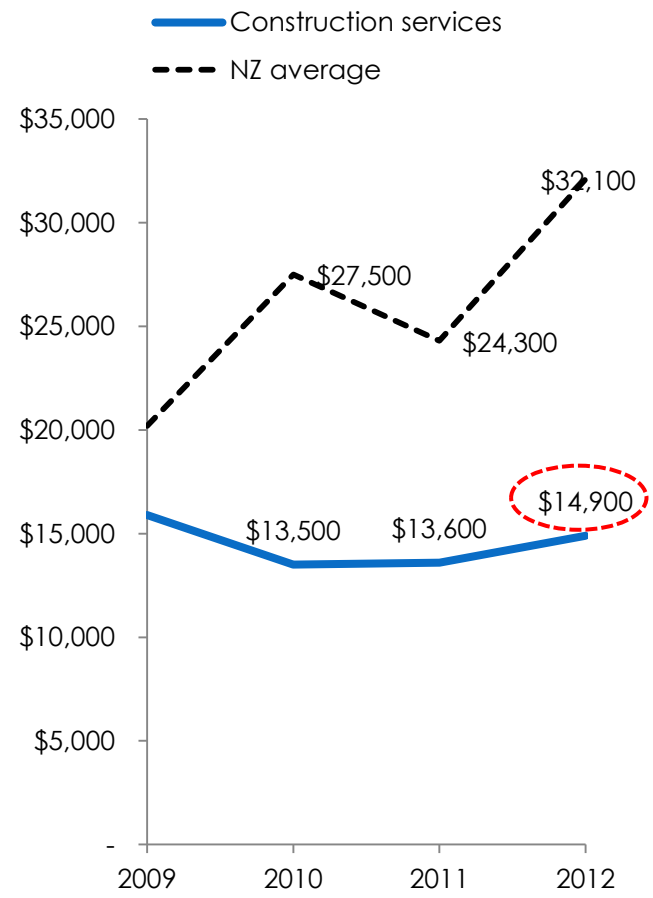
# Financial performance: construction services

Construction services firms generate less revenue and lower profits per worker than the New Zealand average, but a significantly higher return on equity

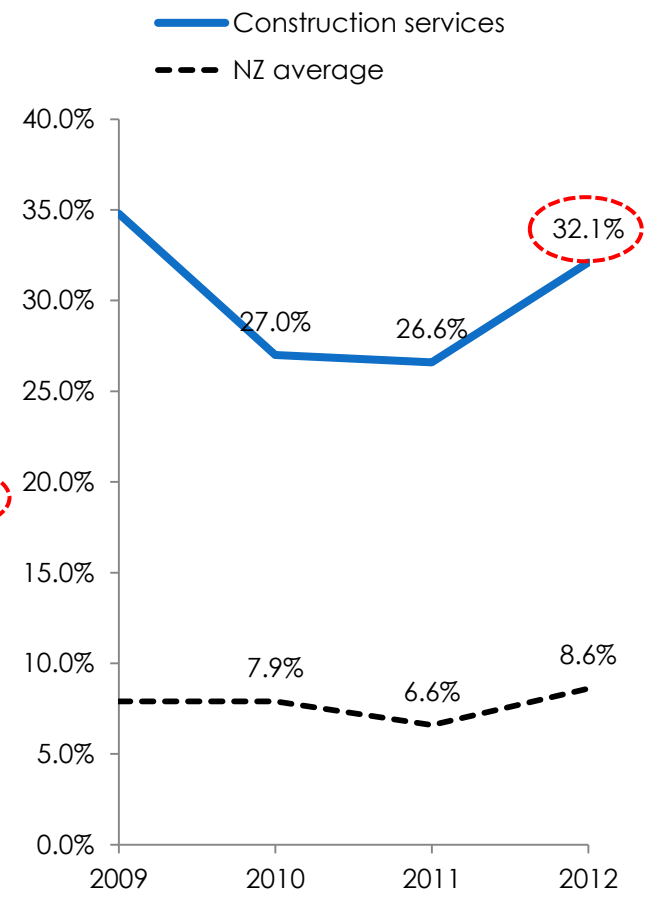
**Total income per employee**
NZ$000; nominal; 2009–2012




**Surplus per employee**
NZ$; nominal 2009–2012




**Return on equity**
%: 2009–2012




*Source: Statistics New Zealand, Annual Enterprise Survey, 2012*

# Construction services: industry comment

## Industry commented on tight margins and remuneration

- *They (electrical trades) are undercutting their competitors with overseas products…they'll under quote on the basis that they hope to make up their profit with variations. People say 'I wouldn't mind an extra one of those' or 'I want this there'. Often that adds up to quite a considerable amount of money…that's usually the profit. It's a very tight market.*
  - CE, industry body

- *Margins are tight…One thing that attracts people to the industry is wages and it is fair to say that the wage rates aren't that good (electrical)…They just haven't risen. No one has really got any increases. People just can't afford them. If we want to attract people of the right calibre we have to pay more which means we probably have to charge more…The struggle there of course is that will mean that labour rates are going to have to go up.*
  - CE, industry body

- *In order to pay people more you've got to charge more and unfortunately New Zealand's mentality is that they are willing to pay $250-350 for a consultant or lawyer, but if an electrician came along and charged $70 or $75 an hour they would be screaming…If we want to attract good people to the industry we've got to pay more. But in order to do that we've got to run smarter businesses and charge more…demonstrate that there are career paths, there are successes.*
  - CE, industry body

# FOCUS ON HEAVY AND CIVIL ENGINEERING

## Sub-sectors

Construction is divided into a number of sub-sectors; the following section provides data on the heavy and civil engineering sub-sector

| Sub-sector | Activity | Example firms |
|---|---|---|
| **Heavy & civil engineering** | | |
| **Heavy & civil engineering**<br>ANSZIC E310 | Construction of roads, tunnels and bridges, dams, harbours, oil refineries and sports fields; includes cable laying and on-site installation and assembly of heavy electrical machinery. | Fulton Hogan; Downer; HEB Construction |

*Source: example firms drawn from Kompass database*

# Heavy and civil engineering: example firms

## The heavy and civil engineering sector includes some of New Zealand's largest firms

### Representative examples of firms in the heavy and civil engineering sub-sector

2012/13 or given years

| Firm | Turnover | Employees | Ownership | Description |
|---|---|---|---|---|
| **Fulton Hogan** | $1.85b (2009) | 5,500 | Private | Roading/construction contractors; consulting engineers; civil engineering. |
| **Downer EDI Works** | $849m (2009) | 4,000 | Listed (ASX) | Provides services in the infrastructure maintenance, engineering, construction, telecommunications, mining and resource sectors. |
| **HEB Construction** | $166m (2013) | 500 | Private | Seven offices nationwide and offering a wide range of services such as civil contracting, roading, and bridge construction. |
| **McConnell Dowell** | $220m (2012 est) | 600 | Leighton Holdings Limited (ASX: LEI). | Civil engineering, pipeline, mechanical and building contractors. |
| **Hawkins Infrastructure** | $150m (2013 est) | 550 (est) | Private (McConnell Group) | Hawkins Infrastructure was formed in 2007 to target infrastructure projects throughout New Zealand and overseas. |
| **Harker Underground Construction** | $10m (2013 est) | 40 (est) | Private (McConnell Group) | Provides a range of services for sewerage, stormwater, power and electricity and infrastructure. Specialises in technically difficult projects through trenchless construction using tunnel boring, pipejacking, micro-tunnelling and conventional methods. |
| **Fletcher Construction** | $500m (2013) | 2000 | Fletcher Building Listed ASX/NZX) | The infrastructure division operates across all sectors of the civil and engineering markets, with a focus on complex projects typically involving design and construction. |
| **Leighton's Contractors** | n/a | n/a | Leighton Holdings Limited (ASX: LEI) | Leighton Contractors are currently involved within New Zealand include: Ultra Fast Broadband (UFB) Rollout; SH16 Causeway Upgrade; Chorus Field Services; Newmarket Viaduct Replacement; Wellington Tunnels Maintenance Contract, Wellington Road Maintenance Contract and the Favona Gold mine. |

*Source: Statistics New Zealand, Annual Enterprise Survey (2012); Kompass database and firm websites*

## Designing and building infrastructure

Designing and building large infrastructure projects is a highly complex process with a number of major stages before actual construction, as this example shows:

**Simplified model of the stages required to design and build a wind farm, 2013**

| Stage | SITE SELECTION | PROJECT FEASBILITY | RESOURCE CONSENT | DESIGN | PROCUREMENT | BUILD |
|---|---|---|---|---|---|---|
| Key processes | • Proximity of resource<br>• Development review<br>• Preliminary design<br>• Regulatory process review<br>• Land owner consultation | • Access to site<br>• Transmission connection<br>• Discuss with lines/transmission companies<br>• On-site monitoring of resource<br>• Estimate development costs<br>• Scope AEE[1]<br>• Consultation with stakeholders | • AEE[1] development<br>• Optimise site design<br>• Community development<br>• Consent preparation<br>• Consent submission | • Wind turbine generators<br>• Grid connection<br>• Access tracks<br>• Electrical balance of plant | • Finalise project design<br>• Finalise power equipment<br>• Finalise construction contracts<br>• Finalise business case<br>• Confirm design meets consent | • Prepare construction drawings<br>• Construct project<br>• Grid connection of plan to network<br>• Commissioning and testing<br>• Monitor environmental requirements<br>• On-going stakeholder & community engagement |

[1] Assessment of Environmental Effects

*Source: BECA Engineering*

# Heavy and civil engineering: industry comment

## Industry leaders commented on the impact of government outsourcing and project lead times

- *In 1991 Transit NZ, which is now the Transport Agency, completely outsourced State Highway maintenance. That opened up a completely new market for civil contractors. Previously that was the domain of government contractors… They had exclusive rights to that market… That same market in terms of maintenance and renewals is worth about $1.2 billion in today's dollars. Since that time the road maintenance market of the Central and Local Government is completely outsourced… That was a real pivotal moment for the industry. Prior to that in the maintenance market we weren't very sophisticated. A client would issue a tender. We would price it up and carry out the work. Nowadays we have our own limited design and build capability…we do our own pavement designs, our own surfacing designs. So the capability of the industry was developed as a consequence of that (change).*
  - CE, heavy and civil engineering construction firm

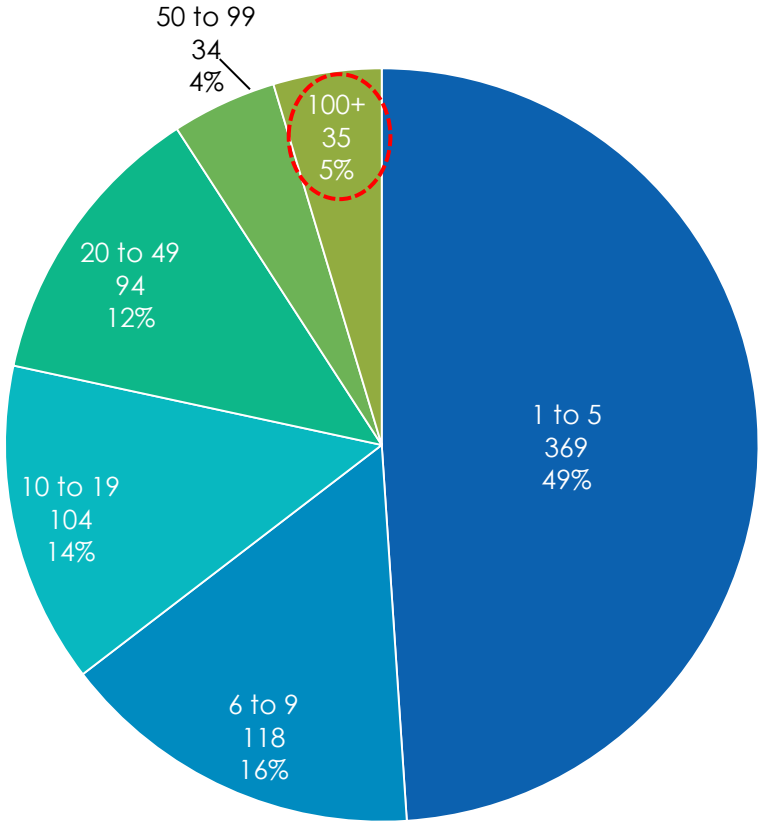
- *A real issue for the industry is the pressure once they've tendered the job to start the job. There's never really a proper lead in time where you can apply some good planning and look to importing some materials from outside New Zealand… We do work in the Pacific. On one job we priced some steel.. we got some supply pricing directly from a series of companies in Asia and those prices delivered to site were 30% cheaper than what we could source out of New Zealand. Quite often we don't get the luxury to do that (in New Zealand), as the time pressure forces you down through the New Zealand supply chain.*
  - CE, heavy and civil engineering construction firm

# Heavy and civil engineering : firm size versus employment

Heavy and civil engineering is a large firm activity; 72% of workers are employed by 35 large firms (100 plus employees)

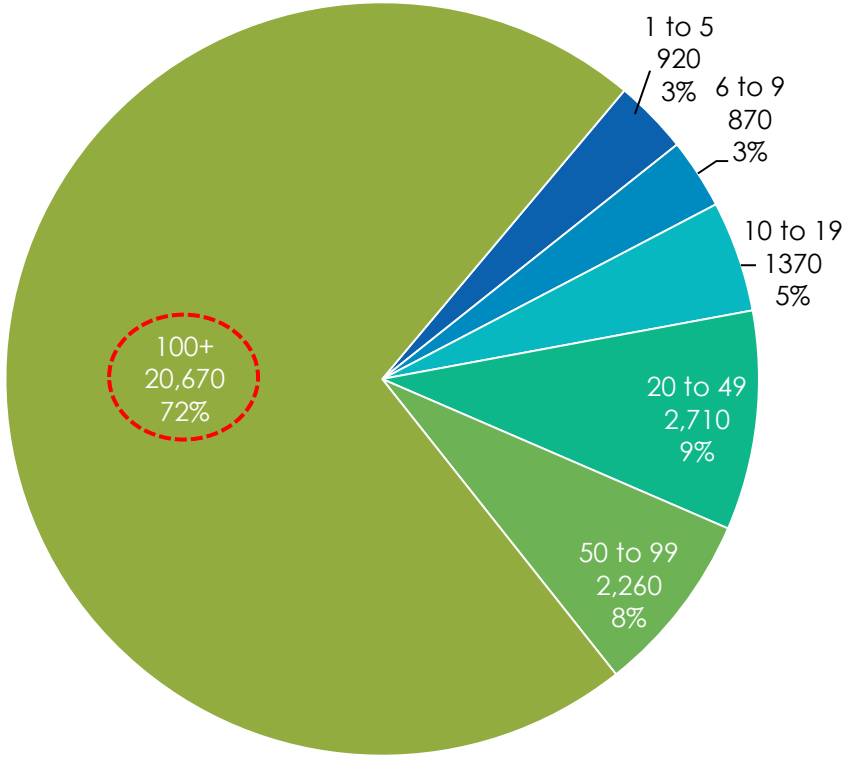
**Number of firms by employment size**

% firms; 2012 (excludes self-employed)




**Number of employees by firm size**

% employees; 2012 (excludes self-employed)



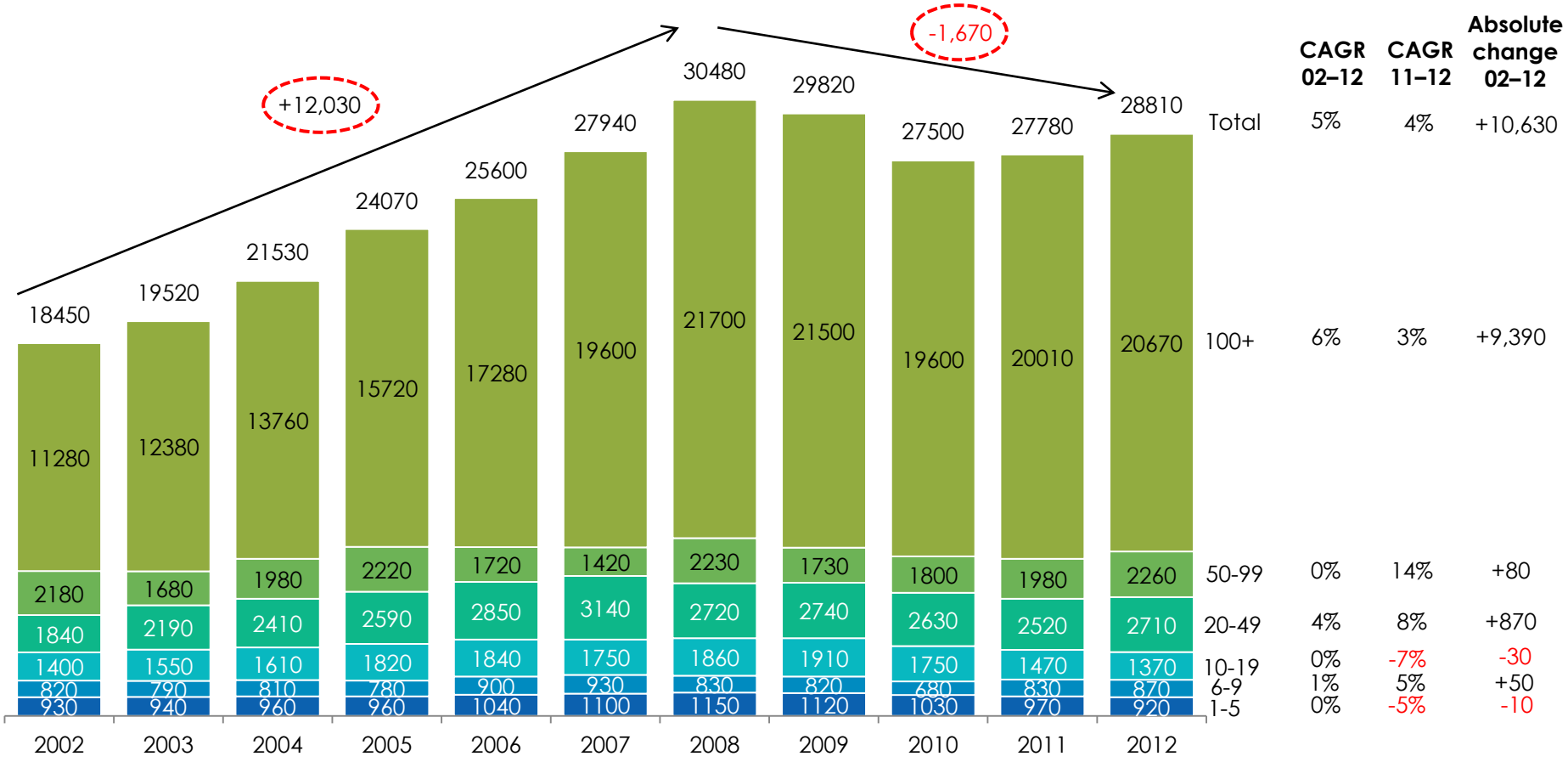

*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Heavy and civil engineering: employment by firm size

Heavy and civil engineering added 12,030 jobs to 2008; only 14% of the gain was lost during the GFC (1,670 jobs)

**Heavy and civil engineering; employees by firm size**

Employees; 2002–2012




| | CAGR 02–12 | CAGR 11–12 | Absolute change 02–12 |
|---|---|---|---|
| Total | 5% | 4% | +10,630 |
| 100+ | 6% | 3% | +9,390 |
| 50-99 | 0% | 14% | +80 |
| 20-49 | 4% | 8% | +870 |
| 10-19 | 0% | -7% | -30 |
| 6-9 | 1% | 5% | +50 |
| 1-5 | 0% | -5% | -10 |

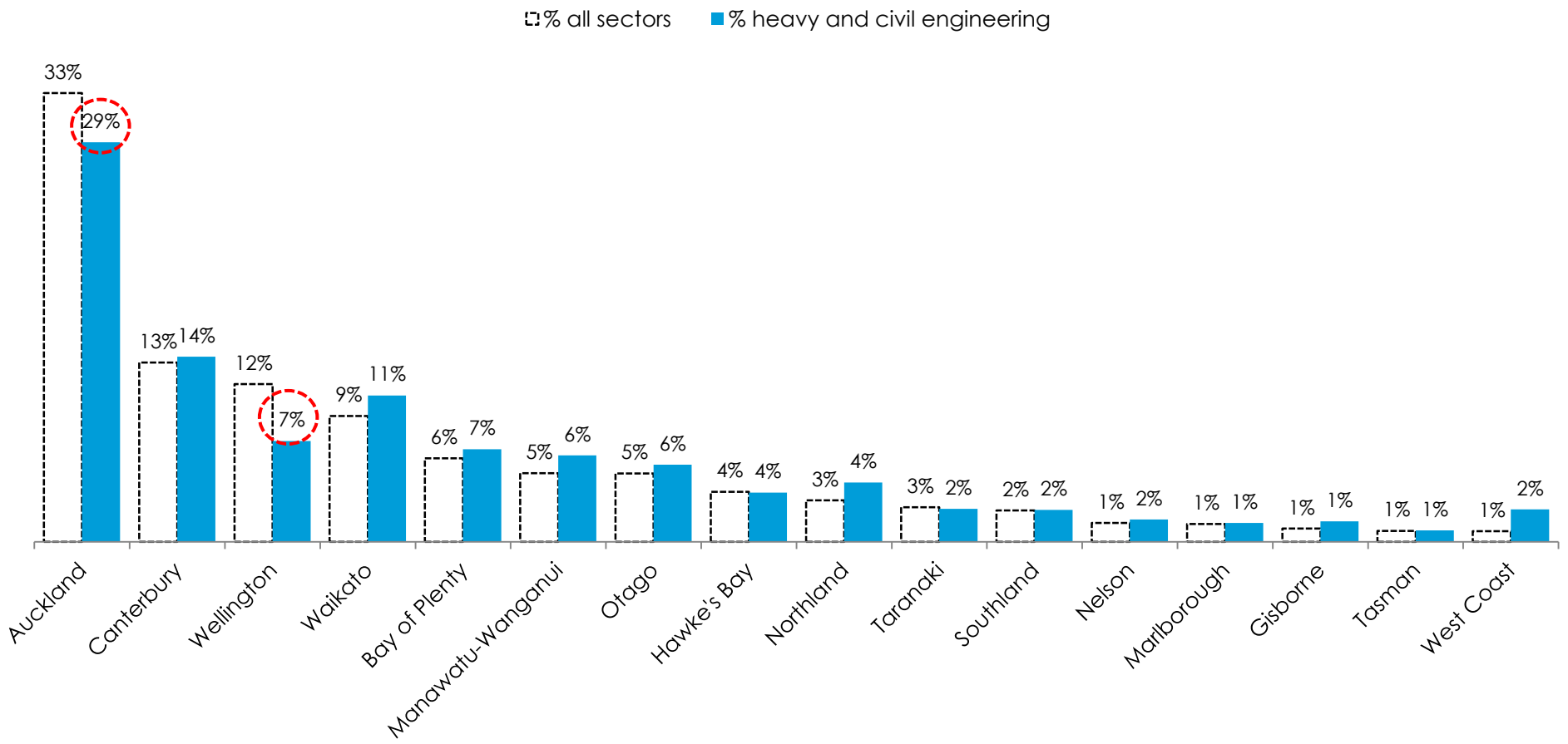
*Source: Statistics New Zealand, New Zealand Business Demography Statistics (2012)*

# Location: heavy and civil engineering workers

In all regions (except Wellington and Auckland) the share of heavy & civil engineering workers is at or slightly above the share for all workers

**Share of heavy and civil engineering workers vs share of all workers**

% of workers (employed and self-employed)



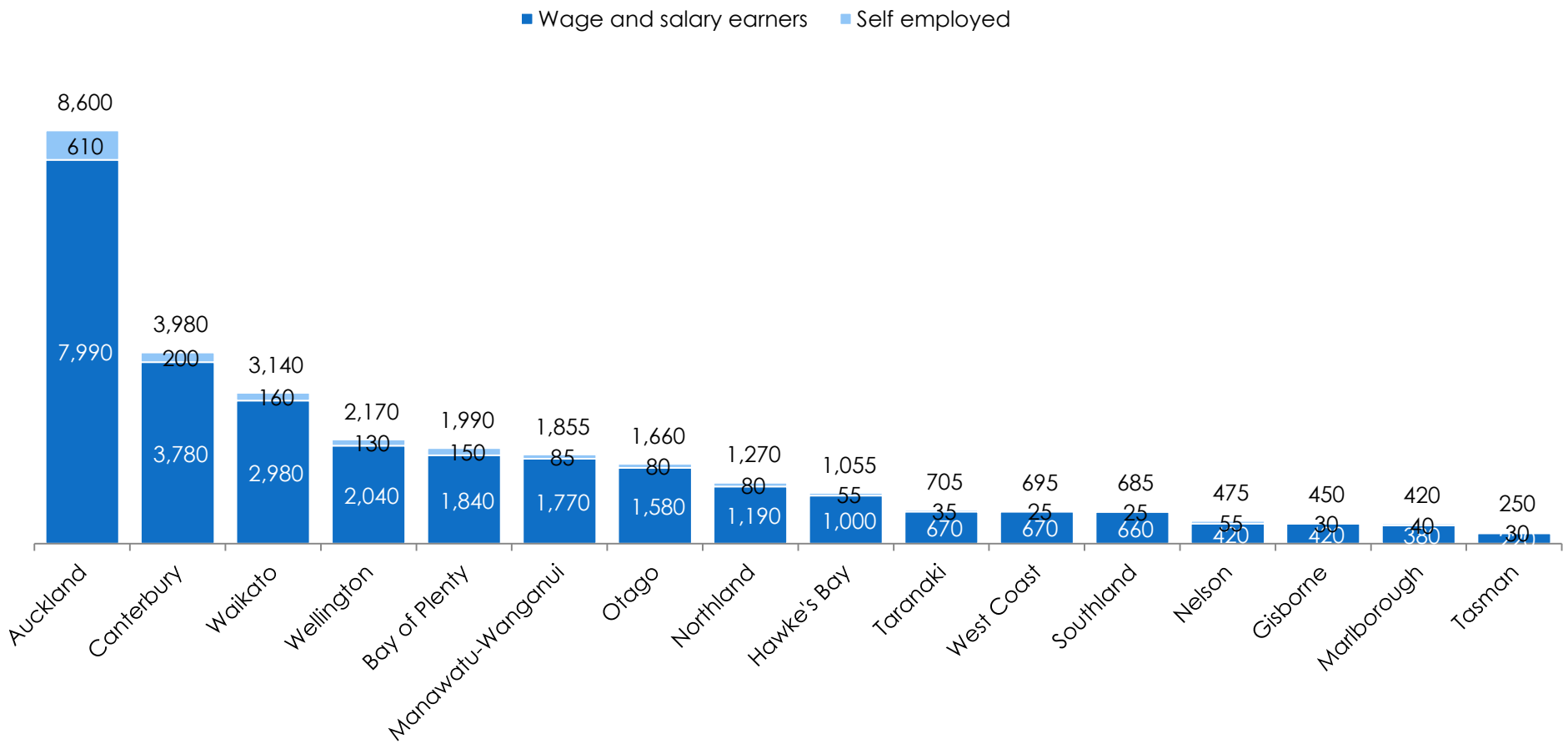

*Statistics New Zealand; Linked Employee-Employer Database (2012)*

# Location: employed versus self-employed

## Most workers in heavy and civil engineering are wage and salary earners

**Share of heavy and civil engineering workers vs share of all workers**

% of workers (employed and self-employed)

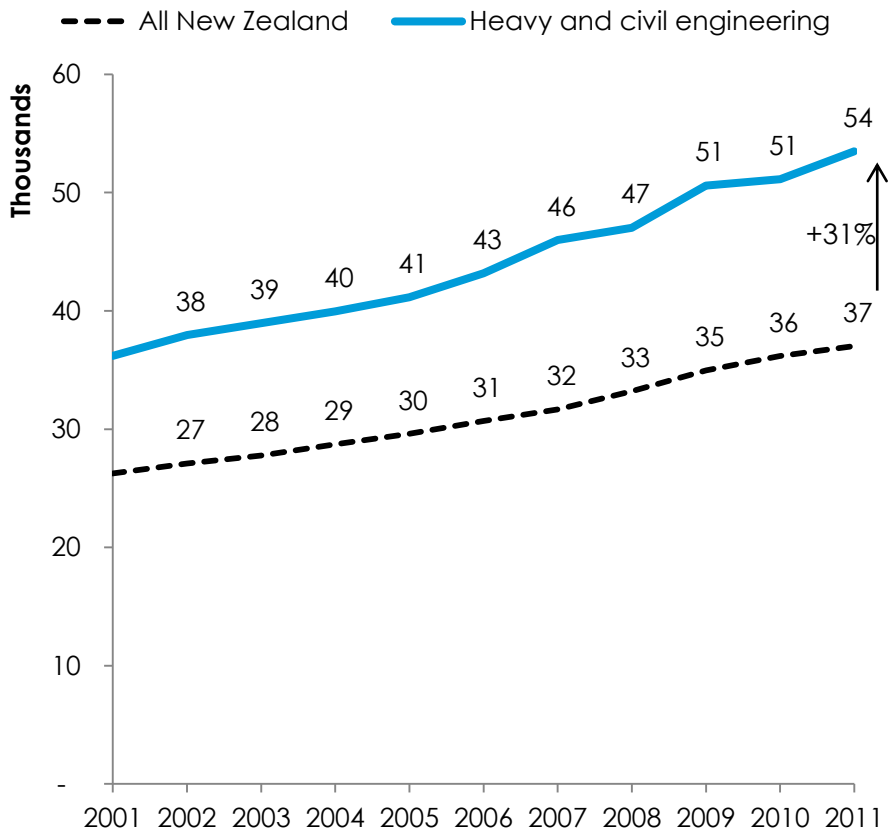



*Statistics New Zealand; Linked Employee-Employer Database (2012)*

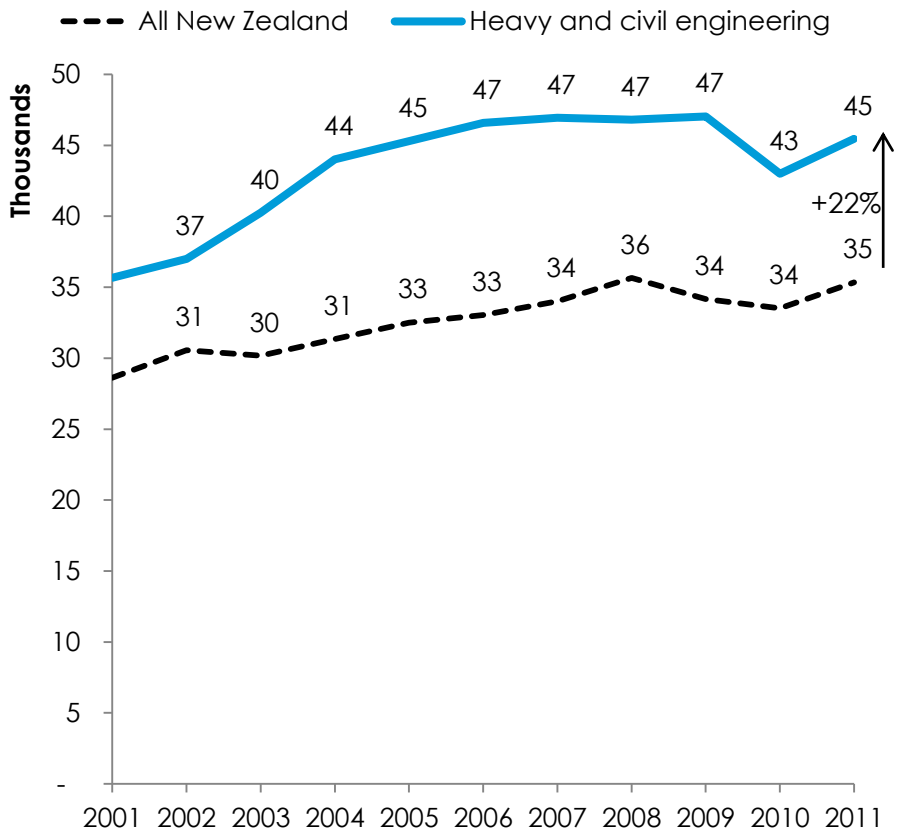
# Earnings: salaries and wages vs self-employed

## Earnings in heavy and civil engineering are 20-30% above the New Zealand median

**Heavy and civil engineering median annual wages and salaries**
NZ$000; 2001–2011




**Heavy and civil engineering median annual earnings self-employed**
NZ$000; 2001–2011



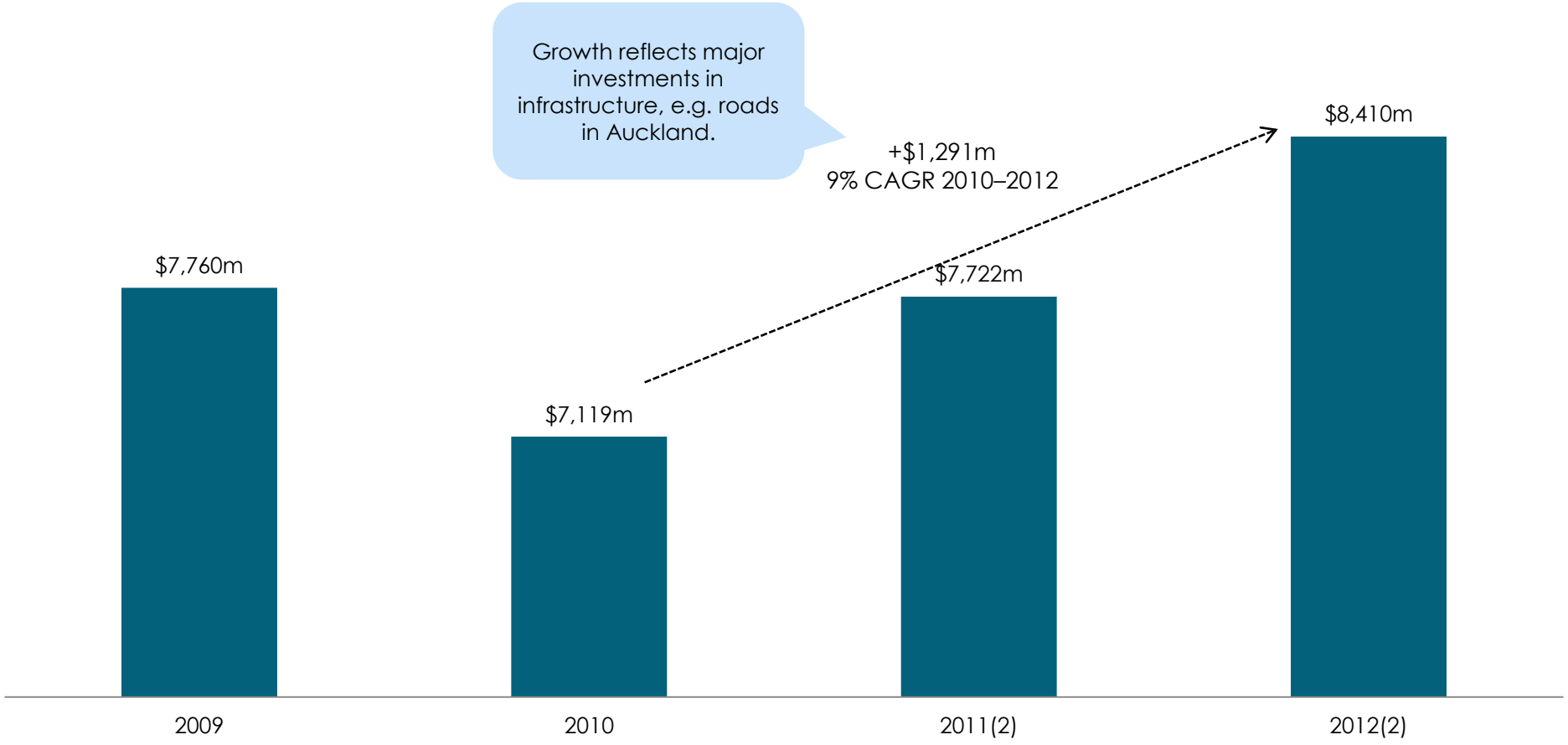

*Statistics New Zealand; Linked Employee-Employer Database (2012)*

# Revenue: heavy and civil engineering

Combined annual revenue for heavy and civil engineering has grown at 9% per annum since 2010

**Total revenues; heavy and civil engineering**

NZ$m; nominal; 2009–2012

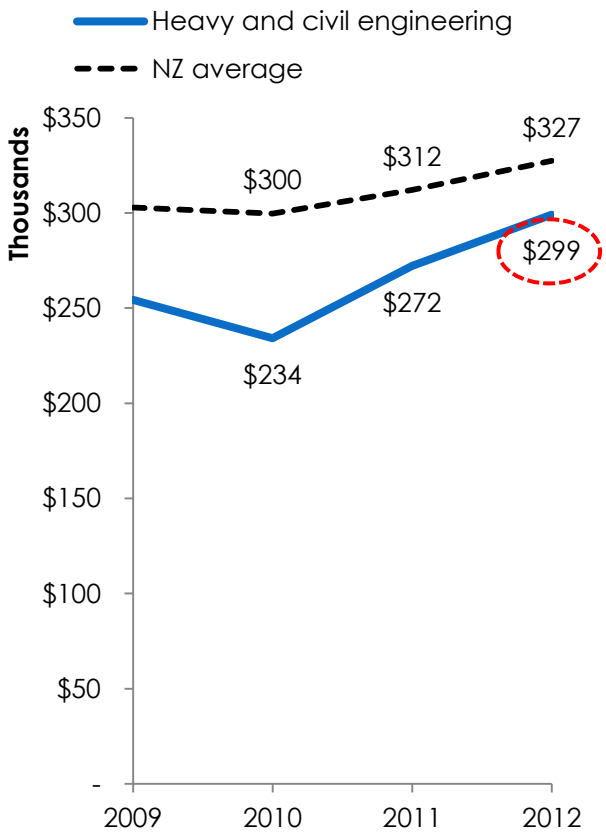



*Source: Statistics New Zealand, Annual Enterprise Survey, 2012*

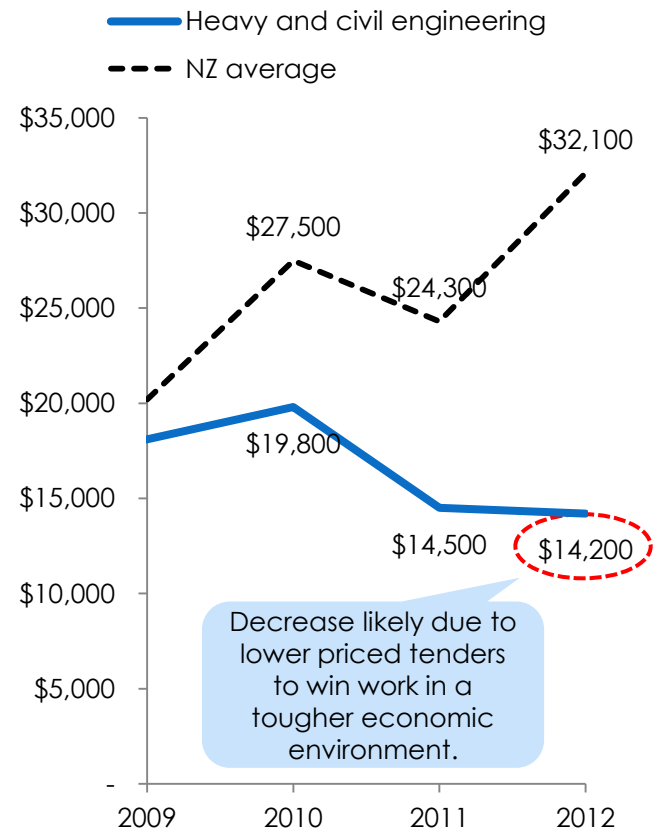
# Financial performance: heavy and civil engineering

Heavy and civil engineering firms generate less revenue and lower profits per worker than the New Zealand average, but a higher return on equity

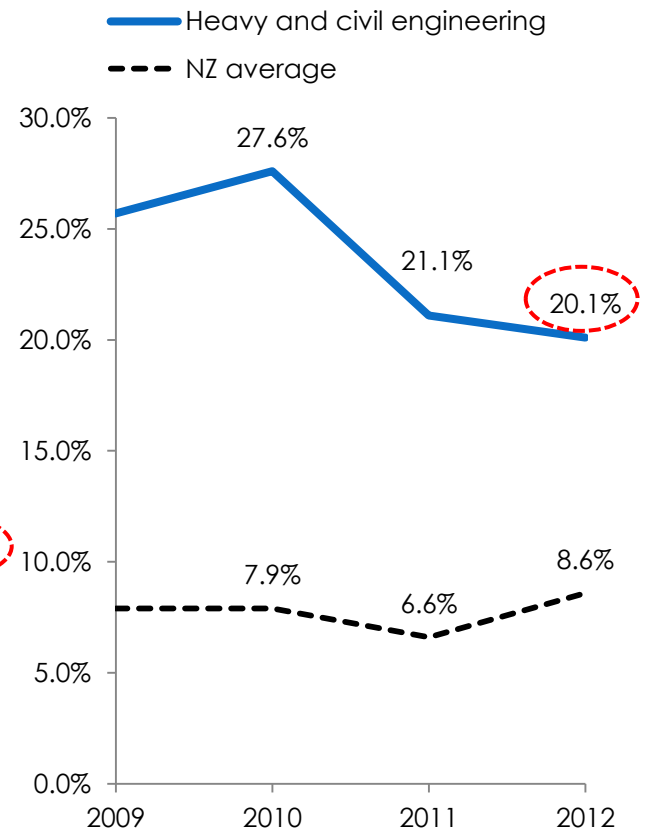
**Total income per employee**
NZ$000; nominal; 2009–2012




**Surplus per employee**
NZ$000; nominal 2009–2012




**Return on equity**
%: 2009–2012




*Source: Statistics New Zealand, Annual Enterprise Survey, 2012*

# Heavy and civil engineering: industry comment

## Industry leaders commented on the tight market, risks in costing and expenditure on capital equipment

- *The margins at the moment are very tight in the industry. We are not working for very high margins at all, so essentially you don't have the luxury of carrying surplus people in the organisation.*
  - CE, heavy and civil engineering construction firm

- *The number of people you need to manage a job in today's environment is substantially more than what you required 15 or more years ago. You need safety plans, quality and environmental plans etc. There is more focus on health and safety, more focus on quality and so there's a lot more checks and balances. A lot more people pushing paper around then there used to be 15 years ago. Some of that is because of assurances the regulatory bodies want, some of it is because that's what the client wants, and some of it is because 'hey, we had a mishap on our job and now we have to check to make sure we don't repeat that same mistake'. So there are a lot more checks and balances that are applied today.*
  - CE, heavy and civil engineering construction firm

- *There have been many cases of contractors who have lost millions of dollars on a job, so you simply don't make money out of every job you do. But you've got to make sure that the majority of jobs you undertake you make money from, and cover the odd one you lose money on. It's a tough industry. Clearly there's always elements of risk you've got to manage, whether it's weather, whether it's ground conditions, or we've made certain assumptions and those assumptions haven't panned out.*
  - CE, heavy and civil engineering construction firm

- *Cranes we own. We tend to own anything that you can't go down the road and get. The gear that we keep busy for 12 months of the year, we own. We don't really want to invest valuable CAPEX in cars because they don't make you money, at best a necessary evil. So you invest in equipment that makes you money…Our company's philosophy is, buy the big yellow stuff and try and lease the rest. For peaks you can resort to short term hires through the likes of Hirepool or equivalent.*
  - CE, heavy and civil engineering construction firm

# APPENDIX

# Glossary of terms

## This report uses the following acronyms and abbreviations

| | |
|---|---|
| A$/AUD | Australian dollar |
| ABS | Absolute |
| ANZSIC | Australia and New Zealand Standard Industry Classification |
| AR | Annual report |
| ASEAN | Association of Southeast Asian Nations |
| AU | Australia |
| Australasia | Australia and New Zealand |
| b | Billion |
| CAGR | Compound annual growth rate |
| C/S America | Central and South America (Latin America) |
| CRI | Crown Research Institute |
| CY | Calendar years |
| E. Asia | East Asia |
| EBITDA | Earnings before interest, tax, depreciation and amortisation |
| EC | Employee count, headcount of salary and wage earners sourced from taxation data |
| FTE | Full-time equivalent |
| FY | Financial year |
| GFC | Global financial crisis |
| JV | Joint venture |
| m | Million |
| NZ | New Zealand |
| n/a | Not available/not applicable/no data |
| NZ$/NZD | New Zealand dollar |
| Oceania | NZ, Australia & Pacific Islands |
| RoE | Return on equity |
| R&D | Research & Development |
| S Asia | South Asia (Indian sub-continent) |
| SE Asia | South East Asia |
| SOE | State Owned Enterprise |
| T/O | Turnover |
| US/USA | United States of America |
| US$/USD | United States Dollar |
| UK | United Kingdom |
| YE | Year ending |
| YTD | Year to date |

# Terms and definitions

## The report uses the following economic metrics

| Term | Definition | Comment |
|---|---|---|
| **Nominal GDP (gross domestic product)** | The value of goods and services produced in New Zealand, after deducting the cost of goods and services used in the production process. 'Nominal' means not adjusted for inflation. | **Cross-cutting sectors (excluding tourism)** Value added has been used to provide indicative estimates. These have not been verified through the System of National Accounts. |
| **Real GDP (gross domestic product)** | GDP adjusted to remove the effect of price changes/inflation to show the change in the volume of goods and services produced in New Zealand. In this report, it is expressed in constant 2010 prices. | **Cross-cutting sectors (excluding tourism)** Data not available. |
| **Goods exports** | The value of goods of domestic origin (excluding re-exports) exported from New Zealand to another country. Note: sector exports values will exclude items suppressed in accordance with Statistics NZ's confidentiality policy. Exclusions are noted where applicable. | **All sectors:** Merchandise (goods) exports have been obtained by matching commodities to the ANZSIC06 industry that characteristically produces them (Statistics NZ custom job). |
| **Employment** | The number of people who earned money from employment (wages and salary earners) and/or self-employment. For tourism it is full-time equivalent (FTE) employees producing goods and services sold directly to tourists. | **Cross-cutting sectors (excluding tourism)** Statistics NZ, Linked Employee Employer Database (LEED), ( custom job). **Tourism** Direct employment in tourism (FTEs) and employment (FTEs) in tourism as a % of total. |
| **Productivity** | A measure of how efficiently inputs are used within the economy to produce outputs. Productivity is calculated by dividing the sector's real GDP by the number of hours paid. Real GDP per hour paid is used. For the cross-cutting sectors nominal GDP per employee is substituted. | **Cross-cutting sectors (excluding tourism)** For cross-cutting sectors real GDP is replaced by nominal GDP, and hours paid is replaced by number of employees; hence calculation is nominal GDP by number of employees. |
| **Investment in fixed assets (gross fixed capital formation)** | A measure of the outlays of producers on durable fixed assets (e.g. buildings, vehicles, plant and machinery, hydro-electric construction, roading and improvements to land). 'Gross' indicates that consumption of fixed capital is not deducted from the value of the outlays. | **Cross-cutting sectors (excluding tourism)** Uses additions less disposals of fixed assets, (custom job). Note: this data has not been through the System of National Accounts, so is indicative only. |
| **Number of firms (number of enterprises)** | The number of businesses or service entities operating in the sector in New Zealand. It covers all types of business or service entities, including companies, self-employed individuals, voluntary organisations and government departments. | **Cross-cutting sectors (excluding tourism)** Uses customised Business Demography Statistics, number of enterprises. |

# Terms and definitions

## The report uses the following financial metrics

| Term | Definition | Comment |
|---|---|---|
| **Total income per firm** | Total income of all firms in sector divided by the number of firms in the sector. Income includes sales, interest, dividends, donations, government funding, grants and subsidies, and non-operating income. | **Cross-cutting sectors (excluding tourism)**<br>Statistics NZ, Annual Enterprise Survey statistics, custom job. |
| **Total income per employee:** | Total income of all firms in sector divided by rolling mean employment. Total income includes sales, interest, dividends, donations, government funding, grants and subsidies, and non-operating income. | **Cross-cutting sectors (excluding tourism)**<br>Statistics NZ, Annual Enterprise Survey statistics, custom job. |
| **Surplus per employee:** | Surplus before income tax of all firms in sector divided by rolling mean employment. | **Cross-cutting sectors (excluding tourism)**<br>Statistics NZ, Annual Enterprise Survey statistics, custom job. |
| **Return on equity** | Surplus before income tax divided by shareholders' funds. | **Cross-cutting sectors (excluding tourism)**<br>Statistics NZ, Annual Enterprise Survey statistics, custom job. |
| **Capital stock per worker** | Indicates capital intensity. The capital stock includes fixed assets such as buildings, roads and machinery, and intangible items such as software and exploration expenditure, less accumulated depreciation. | **Cross-cutting sectors (excluding tourism)**<br>Statistics NZ, Annual Enterprise Survey statistics, custom job.<br>**Tourism:**<br>Capital stock, divided by employment. |
| **Debt ratio** | Debt ratio equals total liabilities of all firms in sector divided by total assets of all firms in sector. | **Cross-cutting sectors (excluding tourism)**<br>Statistics NZ, Annual Enterprise Survey statistics, custom job. |

# Sources: economic data

## The following sources were used for economic data

| Metric | Source<br>Standard ANZSIC sectors | Source<br>Tourism | Source<br>ICT |
|---|---|---|---|
| **Nominal GDP** | Statistics New Zealand, Infoshare Database, System of National Accounts 1993, SND, GDP(P), Nominal, Actual, ANZSIC06 industry groups (Annual–Mar). | Statistics NZ, Tourism Satellite Account: 2012, Table 1 Tourism expenditure by component, Direct tourism value added. | Statistics NZ, Value added estimates from customised Annual Enterprise Survey tables. Note: this data has not been through the System of National Accounts, so is indicative only. |
| **Real GDP** | Statistics New Zealand, Infoshare Database, National Accounts, System of National Accounts 1993, SND, GDP(P), Chain-volume, Actual, ANZSIC06 industry groups (Annual– k Mar). Adjusted so that 2010 real GDP = 2010 Nominal GDP. Does not incorporate revisions published by Statistics NZ in December 2012. | n/a | |
| **Goods exports** | Statistics NZ, merchandise exports, obtained by matching commodities to the ANZSIC06 industry that characteristically produces them. Note: sector exports values will exclude items suppressed in accordance with Statistics NZ's confidentiality policy. For more information, see http://www.stats.govt.nz/about_us/policies-and-protocols/trade-confidentiality.aspx | | Statistics NZ, merchandise exports, obtained by matching commodities to the ANZSIC06 industry that characteristically produces them. |

# Sources: economic data *continued*

| Metric | Source<br>standard ANZSIC sectors | Source<br>Tourism | Source<br>ICT |
|---|---|---|---|
| **Employment** | Statistics New Zealand, Table Builder, Linked Employer-Employee Data (LEED) Tables (annual), Table 1.6: Main Earnings Source by Industry (NZSIOC). | Statistics NZ, Tourism Satellite Account: 2012, Table 4, Direct employment in tourism (FTEs) and Employment (FTEs) in tourism as a percentage of total. See http://www.stats.govt.nz/browse_for_stats/industry_sectors/Tourism/tourism-satellite-account-2012/tourism-employment.aspx for more information on the tourism FTE measure. | Statistics NZ, LEED custom job. |
| **Productivity** | Real GDP divided by hours paid. Hours paid data from Statistics NZ, Infoshare Database, Productivity Input Series –- Industry Level (ANZSIC06) (Annual–Mar), Hours, Gross. Manufacturing hours paid for 2010 split into manufacturing sub-sectors using QES hours paid and rated back using productivity indexes from Statistics NZ. | Substituted nominal GDP per employee. | Substituted nominal value added/employment. |
| **Investment in fixed assets** | Statistics New Zealand, Infoshare database, System of National Accounts 1993 - SND, Series, GDP(E), Nominal, Actual, Asset type (Annual–Mar), Gross Fixed Capital Formation. | Statistics NZ, Tourism Satellite Account - TSA, Table: Gross Fixed Capital Formation by Asset Type and by Industry (ANZSIC06) (Annual-Mar). NB data only available for certain years up to 2009. | Statistics NZ, Additions less disposals of fixed assets from customised Annual Enterprise Survey tables. Note: this data has not been through the System of National Accounts, so is indicative only. The all sector total excludes some industries – see note page following. |
| **Number of firms** | Statistics New Zealand. Business Demography Statistics, Detailed Industry for Enterprises, number of enterprises. | n/a | Customised Business Demography Statistics, number of enterprises. |

# Sources: financial data

## The following sources were used for financial data

| Metric | Source<br>standard ANZSIC sectors | Source<br>Tourism | Source<br>ICT |
|---|---|---|---|
| **Surplus per employee** | Statistics NZ, Annual Enterprise Survey release, surplus per employee count. The all sector total excludes some industries. See note below. | n/a | Statistics NZ, Customised Annual Enterprise Survey data, surplus per employee count. |
| **Return on equity** | Statistics NZ, Annual Enterprise Survey release, return on equity. Total excludes some industries – see note below. | n/a | Statistics NZ, Customised Annual Enterprise Survey data, return on equity. |
| **Debt ratio** | Statistics NZ, Annual Enterprise Survey release, total liabilities (current and other) divided by total assets. The all sector total excludes some industries. See note below. | n/a | Statistics NZ, customised Annual Enterprise Survey data, total liabilities (current and other) divided by total assets. |
| **Capital stock per worker** | Statistics NZ, National Accounts (Industry Benchmarks): Year ended March 2010, Table 14 net capital stock by industry, current prices (replacement cost), 1987–2010, divided by employment. | Statistics NZ, Tourism Satellite Account, capital stock, divided by employment. Note: capital stock data is only available for some years up to 2009 and does not incorporate the National Accounts revisions published in November 2012. | Substituted with fixed assets per worker from Statistics NZ, Customised Annual Enterprise Survey data, fixed tangible assets divided by employment. Note: the fixed assets data has not been through the system of National Accounts, so is indicative only. The all sector total excludes some industries - see note below. |

**Note: AES data excludes residential property operators, foreign government representation, religious services, private households employing staff and superannuation funds.**

# Business Operations Survey, 'example' firms and other sources

### Business Operations Survey

The Business Operations Survey collects information on the operations of New Zealand businesses. This information is used to quantify business behaviour, capacity, and performance. The survey gives insights into business activities, barriers and motivations behind New Zealand business operations.

Data from the Business Operations Survey was used to calculate:

- barriers to innovation and exporting
- rates of innovation and R&D by sector
- the rate of outward direct investment and foreign direct investment by sector
- percentage of firms in a sector reporting overseas income

### Size of business operations survey

The survey is run annually and typically information is collected from approximately 36,000 firms operating in New Zealand with six employees or more.

### Customised data for the Sectors Report

Data for the cross-cutting sectors, information and communications technology, high technology manufacturing, tourism, knowledge intensive services and some of the manufacturing sectors was provided by Statistics NZ as a custom job. This data may be below the level the survey is designed for and so should be treated with caution.

Detailed information on the Business Operations Survey is available from the www.stats.govt.nz

### Example firms: sources and limitations

The example firms are sourced form the Kompass database (quoted with permission), Management Magazine's top 200 firms (2012) plus various websites, annual reports and the TIN 100 publication (2012).

Firms allocated to sectors in this report may not match firms included in official statistics. Statistics NZ does not release firm level data. In most cases numbers employed and turnover quoted for example firms are estimates.

**MBIE welcomes corrections to the example firms' data.**

### Other sources

Other data sources, such as the Comtrade database, are noted on the page on which they occur.

# FURTHER READING

# Further reading: information on the New Zealand economy

| Publication | Available from |
|---|---|
| **New Zealand economy** | |
| **The Regional Economic Activity Report, 2013**<br>The Regional Economic Activity Report presents available official economic data on New Zealand's 16 regions. The report, which will be annual, provides regional economic information sourced from a number of government agencies. | www.mbie.govt.nz |
| **Regional Government Expenditure Report**<br>The Regional Government Expenditure Report provides the first ever snapshot and analysis of estimated central government spending for each region in New Zealand. | www.mbie.govt.nz |
| **Situation and Outlook for Primary Industries (SOPI) 2012**<br>Published annually, this report provides up-to-date information about the performance of New Zealand's primary sectors – dairy, meat and wool, forestry, horticulture, arable and, for the first time, seafood – and gives independent forecasts of future prospects. | www.mpi.govt.nz |
| **The Food and Beverage Information Project reports**<br>The project pulls together all the available information on the food and beverage industry into one place, in a form which is familiar and useful to business. Over 20 reports are available on every aspect of New Zealand's food industry, including information on export market and investment opportunities. New and updated reports are released annually. | www.foodandbeverage.govt.nz |

# Further reading: information on the construction sector and construction related issues

| Publication | Available from |
|---|---|
| **Reports referred to in this report** | |
| **Valuing the role of construction in the New Zealand economy: a report to the Construction Strategy Group**<br>PricewaterhouseCoopers, 2011. | www.constructionstrategygroup.org.nz |
| **Housing Affordability Inquiry**<br>New Zealand Productivity Commission, 2012. | www.productivity.govt.nz/inquiry-report/housing-affordability-final-report |
| **Construction productivity: an evidence base for research and policy issues**<br>NZIER report to the Building & Construction Sector Productivity Partnership<br>5 July 2013. | www.buildingvalue.co.nz |
| **A Study into the Cyclical Performance of the New Zealand Construction Industry**<br>by Neil Allan, assisted by Yun Yin and Eric Scheepbouwer, 2008. | Centre for Advanced Engineering<br>caenz.squarespace.com |
| **Sources for further reading** | |
| **The Building and Construction Sector Productivity Partnership**<br>Provides growing body of research on the construction industry under four work-streams: skills; evidence; procurement and construction systems. | www.buildingvalue.co.nz |
| **The Construction Strategy Group**<br>The purpose of the Construction Strategy Group is to provide leadership and strategic direction to grow a productive, value driven professional construction industry. Website provides links to research and position statements from the group. | www.constructionstrategygroup.org.nz |
| **Building Research Association of New Zealand (BRANZ)**<br>BRANZ is an independent and impartial research, testing, consulting and information company providing resources for the building industry. | www.branz.co.nz |
| **Ministry of Business, Innovation and Employment**<br>Provides a range of building and housing-related information, trends and statistics collected. | www.mbie.govt.nz<br>www.dbh.govt.nz |

# Further reading: the Government's Business Growth Agenda reports

| Publication | Available from: |
|---|---|
| **Building innovation**<br>The building innovation work stream of the Business Growth Agenda aims to grow New Zealand's economy by encouraging and enabling investment in research and development, and lifting the value of public investments in science and research. | www.mbie.govt.nz |
| **Export markets**<br>The export markets work stream of the Business Growth Agenda aims to increase exports by New Zealand businesses, which is necessary to lift New Zealand's economic growth and living standards. | www.mbie.govt.nz |
| **Building infrastructure**<br>The building infrastructure work stream of the Business Growth Agenda aims to provide the physical platform that will support sustained economic growth. | www.mbie.govt.nz |
| **Natural resources**<br>The Building Natural Resources work stream of the Business Growth Agenda aims to make better use of New Zealand's abundant natural resources, so we can continue to grow our economy and look after our environment. | www.mbie.govt.nz |
| **Skilled and safe workplaces**<br>The skilled and safe workplaces work stream of the Business Growth Agenda aims to improve the safety of the workforce and build sustained economic growth through a skilled and responsive labour market. | www.mbie.govt.nz |
| **Building capital markets**<br>The building capital markets work stream of the Business Growth Agenda aims to ensure New Zealand has high performing capital markets that support investment, growth and jobs. | www.mbie.govt.nz |

The Ministry of Business, Innovation & Employment (MBIE) welcomes comment and feedback on this report, and on the measures the Government is taking to facilitate the development of a competitive and successful construction sector. Email sectors.reports@mbie.govt.nz