

Auckland's Construction Sector: Industry Snapshot and Trends to 2019

Ting Huang and Ross Wilson

March 2020

Technical Report 2020/002



Research and
Evaluation Unit

RIMU

**Auckland
Council**
Te Kaunihera o Tāmaki Makaurau



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Executive summary

The construction sector is a vital component of Auckland's economy. In 2019 it employed over 86,000 people, accounting for 10 per cent of total employment in Auckland, and accounted for almost 7 per cent of Auckland's Gross Domestic Product (GDP).

The Auckland Plan 2050, Auckland's long-term spatial plan (Auckland Council, 2018) recognises that the construction sector is important for achieving better access to affordable homes and greater prosperity in Auckland (see also Auckland Tourism, Events and Economic Development, 2018). Understanding trends in the construction sector can assist Auckland Council and other agencies and industry partners to better identify the challenges and opportunities that the sector faces.

This report provides an overview of Auckland's construction sector in 2019 and traces longer-term trends to the year-end 2019. Using available data, it highlights the sector's strong growth in employment, GDP, and the significant contribution of the Residential Building Construction sector. It also points out the issues of labour shortage, low productivity and predominance of small businesses which may have hindered sector performance.

Findings

In the year ended March 2019, Auckland's construction sector represented about a third of the New Zealand construction sector, with 86,647 employees, 24,192 businesses and a gross domestic product (GDP) of \$6.73 billion (in 2019 dollar terms). It was also the second largest sector in Auckland as measured by employment (10% of the Auckland total) and the third largest in terms of number of businesses (12%). More than one in five (22%) of the sector's employees and one in three (34%) businesses were in Residential Building Construction.

Between 2000 and 2019, the sector's employment and GDP doubled, and its number of businesses increased by 47 per cent. The strong overall increase in employment and GDP was made up of the sharp fall during the Global Financial Crisis (GFC) and fast growth since 2011/12 (when the Auckland housing boom began). Residential Building Construction accounted for a quarter of the sector's employment growth (11,597 more employees) and almost half of the increase in Auckland's construction businesses (3783 more units). The fluctuations in employment and GDP trends for Residential Building Construction were similar to those experienced by the overall Auckland construction sector.

Despite the strong employment growth, online job vacancies data from Ministry of Business, Innovation and Employment (MBIE) indicates an ongoing shortage of labour in Auckland's construction sector. Between 2010 and 2019, the number of construction job vacancies in Auckland tripled, with the rate of increase markedly higher than other sectors.

The construction sector is characterised by a predominance of small businesses, self-employment and working proprietorship. The average size of an Auckland construction business (2.5 employees per business unit in 2000 and 3.6 in 2019) has been consistently smaller than the average size of businesses overall in Auckland (4.7 in 2000 and 4.5 in 2019). Less than 5 per cent of businesses in Auckland that employ 100 or more employees are in the construction sector – about half of these are in Heavy and Civil Engineering Construction. The sector also has the largest number of self-employed people across all sectors in Auckland, with a self-employment rate of 35 per cent. In comparison, this was only 16 per cent for Auckland's total economy.

Data on GDP per worker (a measure for productivity, in 2019 dollar terms) shows that productivity of Auckland's construction sector is markedly lower than the Auckland average (\$77,679 vs. \$125,491 in 2019). Residential Building Construction and Non-Residential Building Construction have lower productivity compared to other construction subsectors (below \$60,000 per worker). One possible explanation for the low sector productivity could be the combined effect of the sector's cyclical nature and its predominance of small firms. The reduced average tenure of workers further disincentivise many firms, which are already small and have limited resources, to invest in business growth and capacity building (PwC New Zealand, 2016).

Stats NZ's data on building work in Auckland shows the significance of Residential Building Construction in terms of the sector's building output. In 2019, over half of the total value of building work in Auckland was new residential buildings (\$5.7 billion in 2019 dollars), and the rest was new non-residential buildings (\$3.3 billion) and alterations (\$1.8 billion). Although trends from building consents data show that the value and number of consents for new residential buildings were vulnerable to the GFC, they started to surge as the economy recovered and the housing boom commenced. A main driver of this is the exponential growth in the number of attached dwellings (such as townhouses and apartments). The growing number of attached dwellings is also coupled with a downward trend in their average floor area, suggesting a shift towards intensified housing in Auckland.

Conclusion

As Auckland continues to grow and change, ensuring that the construction sector can meet demand is an ongoing challenge. Helping the construction sector build capacity and capability continues to be an important policy area for meeting demand for housing and infrastructure in Auckland. It would also contribute to uplifting productivity for a more prosperous economy.

As this report shows, the construction sector is prone to the effects of broader economic recession and resurgence. At the time of writing the effects of the covid-19 virus on Auckland's economy and on the sector are yet to be ascertained.

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1.0 Introduction

The construction sector represents an important component of Auckland's economy. It is the second largest sector in Auckland by employment during the 2019 March year, and contributed 7 per cent of growth in Auckland's gross domestic product (GDP) between 2000 and 2019 (\$3.60 billion in 2019 dollar terms).¹ The sector provides the buildings and infrastructure that businesses and people rely on. It is also crucial for the provision of new housing and maintenance of current housing. Over the next few years, several major construction projects are taking place across Auckland – City Rail Link, Commercial Bay Redevelopment, KiwiBuild, residential developments by Kāinga Ora, to name a few. In addition, more construction activities in Auckland are anticipated as the Government recently announced a \$3.3 billion investment in Auckland's transport infrastructure projects (e.g. Penlink, Mill Road Connection, Northern Pathway, Drury railway stations etc.).² Thus, the construction sector will continue to play a key role in enabling Auckland to grow and thrive.

The Auckland Plan 2050, Auckland's long-term spatial plan (Auckland Council, 2018) recognises the importance of the construction sector in delivering better access to affordable homes and greater prosperity in Auckland. The Plan notes that construction of new homes needs to accelerate to meet the shortfall in housing.³ It also specifies the need for filling skill gaps and raising productivity in the construction sector to keep up with the strong demand for housing and infrastructure. Auckland's economic development agency, Auckland Tourism, Events and Economic Development (ATEED), also identifies the construction sector as a focus sector for growing quality jobs and economic prosperity in Auckland (Auckland Tourism, Events and Economic Development, 2018).

The purpose of this report is to provide a snapshot of Auckland's construction sector and profile of its long-term trends, using data up to the year 2019. It is an update of the report, *Industry snapshot for Auckland: construction and engineering*, published in 2014 (Wilson, 2014).⁴ Since a number of major changes have occurred over recent

¹ Infometrics 2019 Regional Economic Profile for Auckland, published on 31 January 2020.

² A recent news article on Stuff by Coughlan (2020) provides more details. This can be read at <https://www.stuff.co.nz/national/119121503/projectbyproject-where-the-infra-package-will-be-spent-around-nz?rm=m>.

³ At the time of developing the Auckland Plan 2050, Auckland Council's modelling results showed that Auckland will likely require another 320,000 dwellings to be built by 2048 to keep up with the population growth (Auckland Council, 2018).

⁴ Wilson, R. (2014). *Industry snapshot for Auckland: construction and engineering*. Auckland Council technical report, TR2014/016.

years, (e.g. the housing boom, completion of the Auckland Unitary Plan⁵), it is important to have a more up to date understanding of the trends and performance of the sector. The information can assist Auckland Council and other agencies to better identify the challenges and opportunities the sector faces. This is useful for working with key stakeholders such as industry partners and central government in uplifting sector performance,⁶ thus contributing to achieving the strategic outcomes as outlined above.

1.1 Sector definition and structure

The construction sector comprises the section of the economy that is engaged in the preparation, clearing (including demolition) and development of land, and the construction, installation, alteration and repair of buildings, structures and infrastructure. In terms of Stats NZ's⁷ Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 classification system, the construction sector comprises all enterprises in Division E Construction. The sub-sectors at the ANZSIC 2-digit level include E30 Building Construction, E31 Heavy and Civil Engineering Construction and E32 Construction Services.

Firms in the construction sector are often specialised, and sub-contracting and multiple contractors are common in projects. The resulting connections between the activities of the sub-sectors (at the ANZSIC 3-digit level) often include the following.

- Building Construction (E30) is typically divided into Residential Building Construction (E301) and Non-Residential Building Construction (E302), although the two can overlap⁸

⁵ The Auckland Unitary Plan is the planning rulebook for all of Auckland. Its purpose is to help Auckland meet its economic and housing needs by determining what can be built and where, how to create a quality compact urban form for Auckland, how to provide for rural activities, and how to maintain Auckland's marine environment. The Unitary Plan has become operative in part since 15 November 2016. Refer to Auckland Council's website at <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/unitary-plan/Pages/default.aspx> for more details.

⁶ The Government is working with the construction industry in delivering improved productivity, capability and resilience as set out in the Construction Sector Accord. To achieve these outcomes, the Construction Sector Transformation Plan (Construction Accord, 2020), has been launched recently, which sets out an action plan for six major areas of focus. Details on the Transformation Plan and the Construction Sector Accord can be read at <https://www.constructionaccord.nz/>.

⁷ Statistics New Zealand is now called Stats NZ.

⁸ For example, some firms might build both residential and non-residential buildings; or a single building might be 'mixed use' with, for example, retail on the ground floor and residences on the floors above.

- Activities in the Construction Services (E32) sub-sector that directly support the residential and non-residential activities, consisting of Building Structure Services (E322) (e.g. roofing), Building Installation Services (E323) (e.g. plumbing) and Building Completion Services (E324) (e.g. plastering)
- Heavy and Civil Engineering Construction (E310) (e.g. building of transport infrastructure) tends to be separated from the preceding building-related sub-sectors, although it can act indirectly as an enabler
- The land-related components of the Construction Services (E32) sub-sector that underpin across all of the sub-described above, which include Land Development and Site Preparation (E321) and Other Construction Services (E329).

See Table 1 for further detailed information on the sub-sectors and examples of the activities they undertake.

Table 1: Construction sub-sectors by ANZSIC code

2-digit sub-sector	3-digit	Sub-sector	Examples
E30 Building Construction	E301	Residential Building Construction	Building houses and flats
	E302	Non-Residential Building Construction	Building shops and offices
E31 Heavy and Civil Engineering Construction	E310	Heavy and Civil Engineering Construction	Building infrastructure e.g. roads, bridges, tunnels, pipes
E32 Construction Services	E321	Land Development and Site Preparation Services	Subdividing, clearance, earthworks
	E322	Building Structure Services	Concreting, bricklaying, roofing
	E323	Building Installation Services	Plumbing, electrical, HVAC
	E324	Building Completion Services	Plaster, paint, tiles, carpentry
	E329	Other Construction Services	Landscaping, cranes, recladding

1.2 Data sources

This report uses a range of data sources. The following gives an overview of the data included in the analyses.

Analyses of employment and number of businesses in the sector are based on the employment and business data series for March years between 2000 and 2019 provided to Auckland Council by Infometrics. Infometrics' employment data estimates the number of filled jobs for each March year based on Stats NZ's quarterly and annual series of Linked Employer-Employee Data (LEED). The data includes both employees and self-employed (and working proprietors). This tends to be higher than Stats NZ's Business Demographics⁹ data series of employee counts, which only includes wage and salary earners. The original source of Infometrics' data on the number of businesses comes from the Business Demographics data series of geographic units, which provides an annual snapshot as at February of each year. Each geographic unit represents a business operating unit engaged in one, or predominantly one, kind of economic activity at a single physical location or base.

Trends in the sector's Gross Domestic Product (GDP) contribution and productivity (GDP per worker) are taken from Infometrics' Auckland regional and national GDP and productivity series estimated for the period between March 2000 to March 2019, which are published in 2019 New Zealand dollar values. The GDP and productivity estimates are based on Infometrics' data series of employment (as measured by the number of filled jobs¹⁰).

This report also uses data series from Stats NZ's Quarterly Building Activity Survey and Monthly Building Consents database to look at trends in the sector's output. The Building Activity Survey provides data on the value of building work, based on building consents issued in the previous few months and years, adjusted for estimated delays and cancellations. Data series of annual total value of building work in Auckland (in December 2019 dollar terms) is available for the period between December 1992 and December 2019. The number of building consents in the Building Consents database provides a measure for the level of building activities, and annual data is available for December 1992 to December 2019.

⁹ The Business Demographics data series covers economically significant individual, private sector and public sector enterprises that are engaged in the production of goods and services in New Zealand. The enterprises include all employing units and those enterprises with GST turnover greater than \$30,000 per year and are grouped into industry sectors under the ANZSIC 2006 classification.

¹⁰ Note that because Infometrics' employment data is based on filled jobs, it includes part-time as well as full-time employment. Hence, a person with two jobs would be counted twice, and a 1-day-a-week job would be counted the same as a 40-hour job. This is due to the lack of data availability on hours worked at the sector and regional level.

1.3 This report

This report provides a detailed profile for Auckland's construction sector. The report begins with a high-level overview of the sector's relative size, structure and spatial distribution across Auckland's local board areas in 2019. It then undertakes detailed analyses of the trends in various aspects of the sector, namely, employment, number of businesses, GDP contribution, productivity and the sector's output in terms of building work put in place and residential building consents.

The report is structured as follows:

- Section 2 gives a snapshot of the relative size of Auckland's construction sector, the composition of the sub-sectors, and distribution across Auckland's local board areas, for the year ended March 2019.
- Section 3 analyses the employment trends in Auckland's construction sector for the period between March 2000 and March 2019. The section starts with describing trends for the sector as a whole. This is followed by detailed analysis of employment trends by sub-sector, by full-time and part-time, by occupation, and trends in the sector's demand for labour as measured by online vacancies.
- Section 4 examines trends in the number of businesses in the overall sector and by sub-sector from March 2000 and March 2019, and how business size in the sector, as measured by number of employees per business, has changed over time.
- Section 5 firstly looks at trends in the sector's GDP and contribution of each construction sub-sector for the period between March 2000 and March 2019. This is followed by a description of trends in the sector's productivity (as measured by GDP per worker) over the same period.
- Section 6 looks at building work in Auckland as the main output of Auckland's construction sector. Trends in the value of building work in Auckland by category are analysed for the December years between 1992 and December 2019, using data from Stats NZ's Building Activity Survey and Building Consents database. This is followed by an analysis of the number and average size of residential building consents for the same 27-year period.
- Section 7 highlights the main findings and concludes the report.

The report includes partial, rather than full, commentary on some of the possible or related factors behind the trends in Auckland's construction sector.

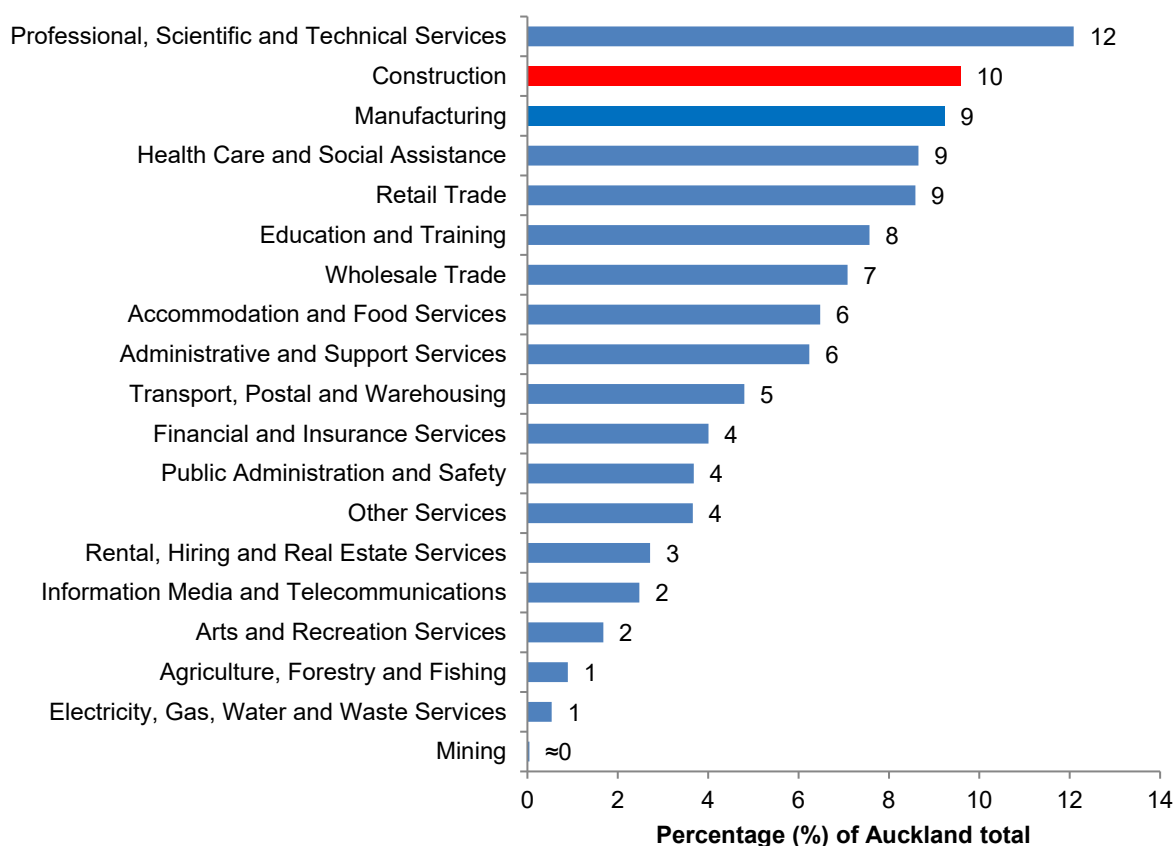
2.0 Auckland's construction sector in 2019

This section provides an overview of Auckland's construction sector for the year ended March 2019. It compares the relative size of the sector with other sectors in Auckland, as well as the construction sector for New Zealand as a whole. The sector's employment and number of businesses are also disaggregated into the sub-sectors and by Auckland's 21 local board areas to present a snapshot of the structural and spatial distribution of the sector.

2.1 Relative size of Auckland's construction sector

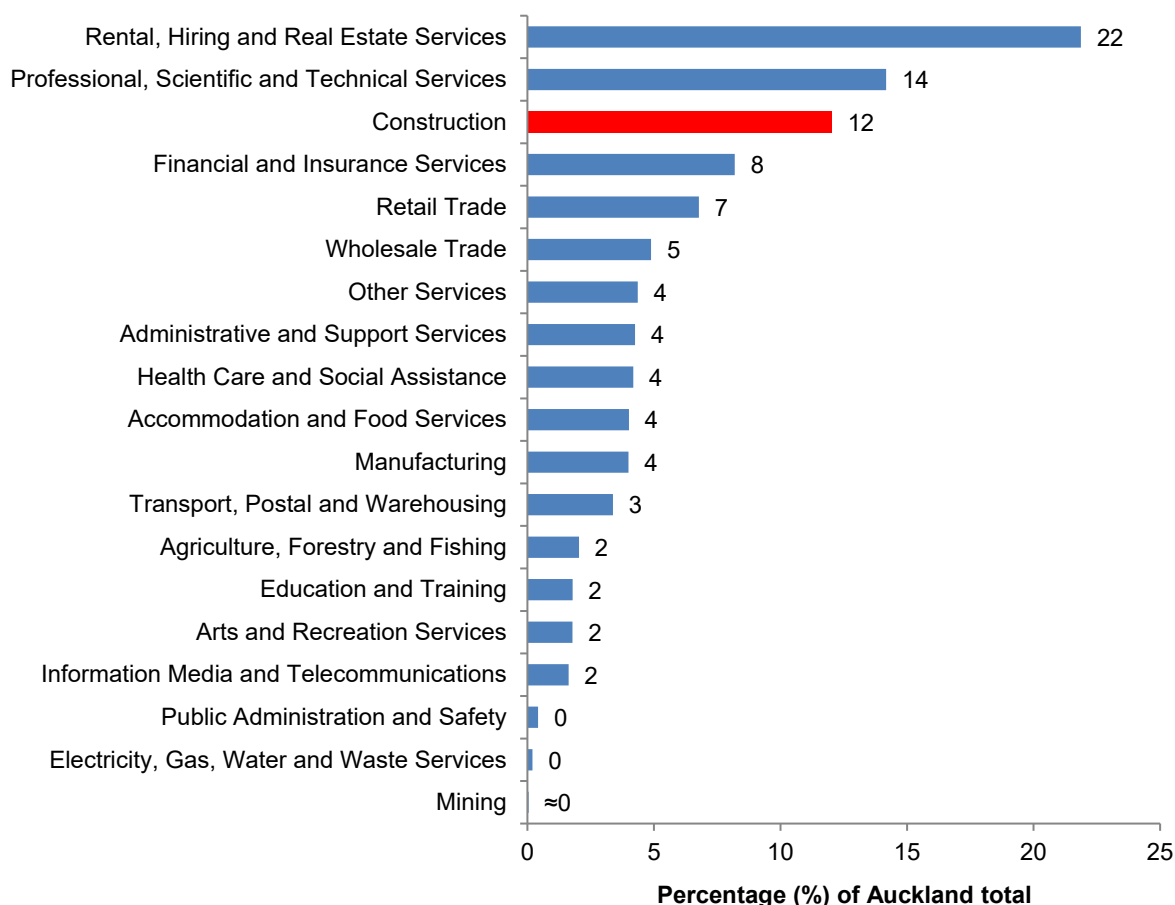
In 2019, the Auckland construction sector employed 86,647 people and had 24,192 businesses, accounting for 10 per cent of total employment (Figure 1) and 12 per cent of total number of businesses (Figure 2) in Auckland. This made construction the second largest sector in terms of employment and third largest sector in terms of number of businesses in Auckland.

Figure 1: Employment by broad industry sector as a percentage of Auckland total, 2019



Source: Infometrics 2019 Regional Economic Profile for Auckland

Figure 2: Number of businesses by broad industry sector as a percentage of Auckland total, 2019



Source: Infometrics 2019 Regional Economic Profile for Auckland

In 2019, more than a third of New Zealand's construction businesses (37%) and employment (35%) were in Auckland. This was similar to Auckland's share of New Zealand's total employment and number of businesses for all sectors (36% and 35% respectively).

2.2 Distribution by sub-sector

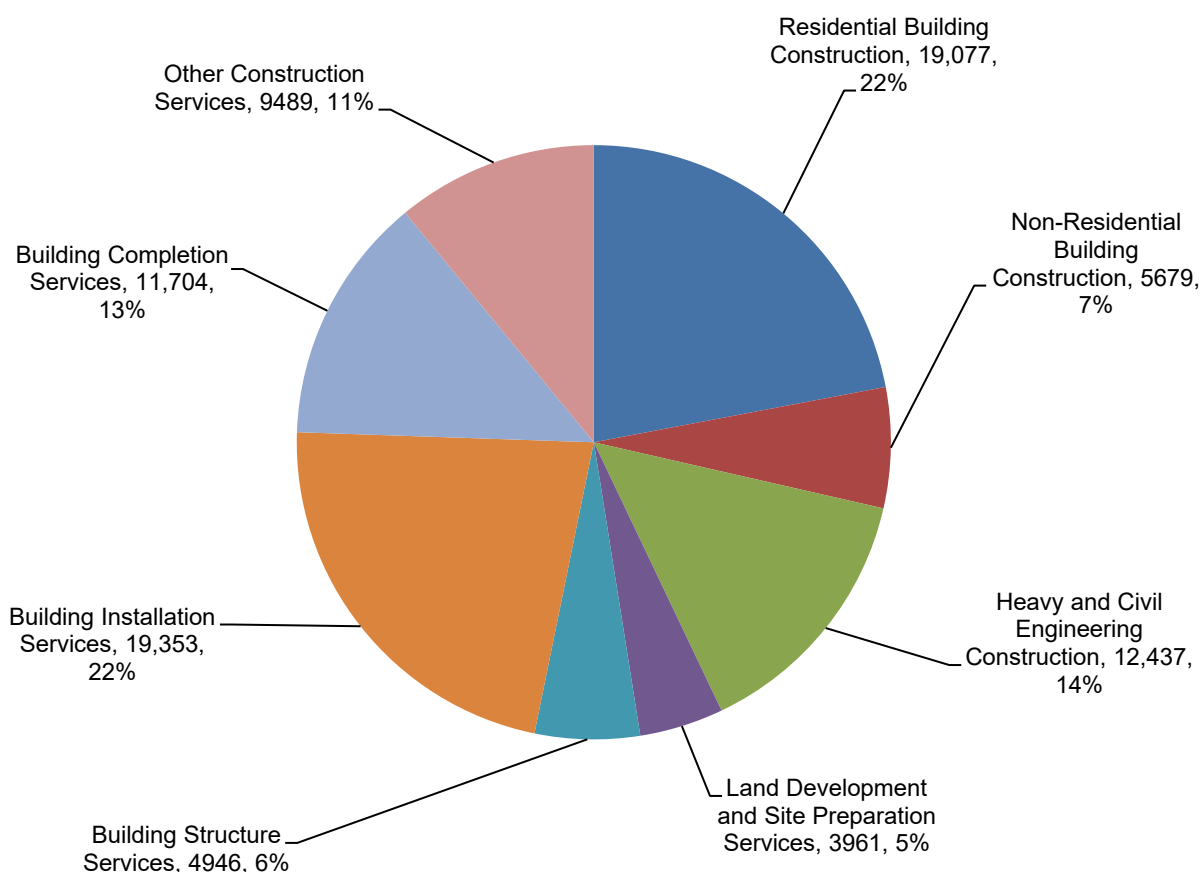
Figure 3 shows that Residential Building Construction was the second largest employer within Auckland's construction sector (19,077 jobs, or 22% of sector employment). Residential Building Construction was also the largest construction sub-sector in terms of number of businesses, accounting for more than a third (34%) of the sector total (see Figure 4).

The building-related construction services, namely Building Structure Services, Building Installation Services and Building Completion Services, together contributed over 40 per cent to the sector employment (42%) and businesses (45%) in 2019. Note

that Building Installation Services was in fact the sub-sector with the largest number of jobs (19,353 jobs, or 22% of sector total) and accounted for more than a fifth of construction businesses in Auckland (21%, 5064 businesses).

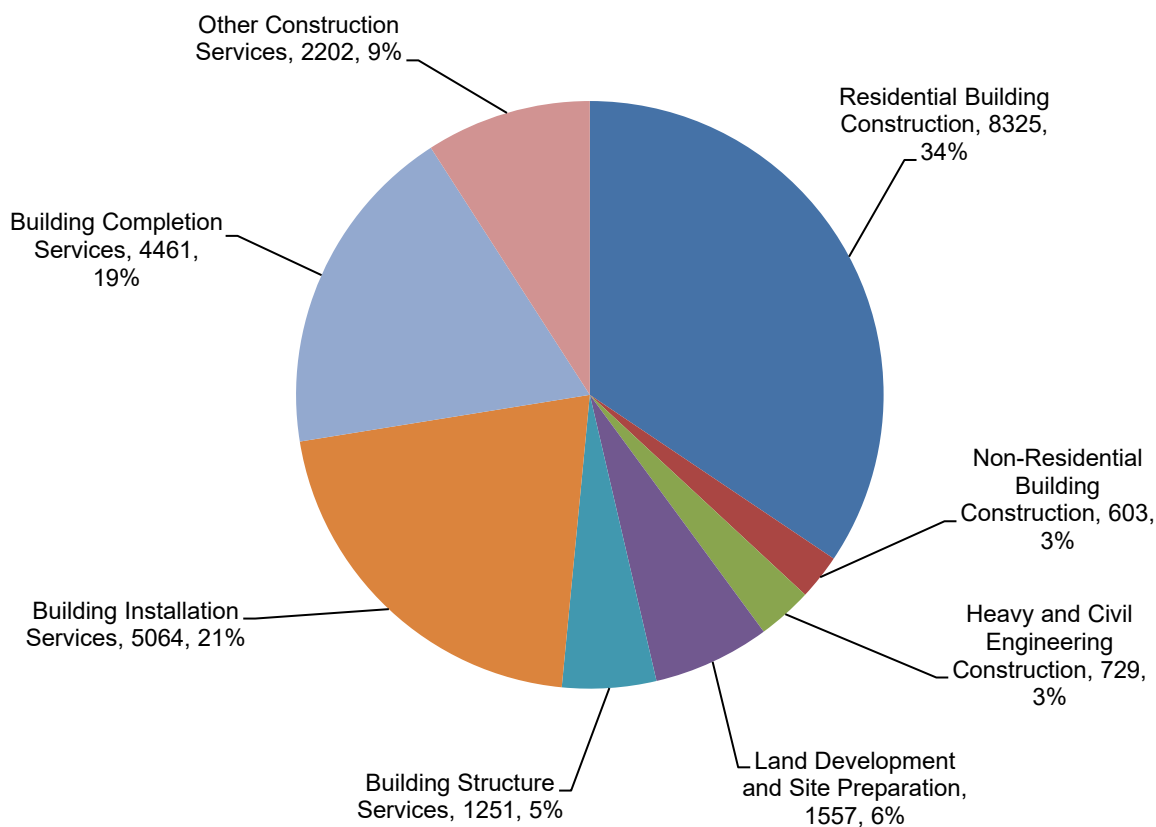
There were only 729 businesses (3% of construction sector businesses) engaged in Heavy and Civil Engineering Construction, yet this sub-sector was the third largest employer in Auckland's construction sector in 2019 (14% of sector employment, 12,437 employees), with 17 employees per business on average. Compared to Heavy and Civil Engineering Construction, businesses in other sub-sectors were significantly smaller, with the average business size ranging from two to nine employees per business.

Figure 3: Auckland construction sector employment by sub-sector, 2019



Source: Infometrics 2019 Regional Economic Profile for Auckland

Figure 4: Number of Auckland construction sector businesses by sub-sector, 2019



Source: Infometrics 2019 Regional Economic Profile for Auckland

2.3 Distribution by Auckland local board area

Table 2 shows the distribution of employment and businesses in Auckland’s construction sector across Auckland’s 21 local board areas.¹¹

In 2019, employment in Auckland’s construction sector was most concentrated in the central local board area of Maungakiekie-Tāmaki, with a share of 16 per cent. However, only 5 per cent of the sector businesses were located in this local board area. This was largely due to the high concentration of employees in Heavy and Civil Engineering Construction. Almost a third (31%, or 3,872 employees) of Auckland’s employment in this sub-sector was in Maungakiekie-Tāmaki, with an average business size of 65 employees per business.

¹¹ Data used here indicates the locations of the head offices of Auckland’s construction businesses rather than construction work sites. Due to the nature of the sector, the location of construction work is often not in the same location as the head office.

For the (March) year 2019, Auckland's construction businesses were more concentrated in Hibiscus and Bays in north Auckland and Howick in east Auckland compared to other local board areas. Together they accounted for a fifth of the sector businesses. For these two local board areas, breakdown of the data on business unit counts by sub-sector also shows the following:

- Hibiscus and Bays and Howick had higher concentration of Residential Building Construction businesses (both 11%) in 2019 relative to other local board areas
- Hibiscus and Bays had the largest share of Auckland businesses in Building Structure Services (11%, or 138 businesses)
- Building Installation Services businesses (11%, or 573 businesses) and Building Completion Services businesses (11%, or 486 businesses) were most concentrated in the Howick local board area.

Table 2: Auckland construction employment and businesses by local board area, 2019

Local board area	Number of employees	As a percentage (%) of construction employment in Auckland	Number of businesses	As a percentage (%) of construction businesses in Auckland
Rodney	4180	5	1821	8
Upper Harbour	7133	8	1461	6
Hibiscus and Bays	4874	6	2226	9
Kaipātiki	4958	6	1434	6
Devonport-Takapuna	2504	3	927	4
Henderson-Massey	5291	6	1740	7
Waitākere Ranges	1498	2	1020	4
Whau	3550	4	1116	5
Waiheke	366	≈0	210	1
Great Barrier	7	≈0	27	≈0
Waitematā	7036	8	1272	5
Ōrākei	2284	3	861	4
Albert-Eden	4370	5	1209	5
Puketāpapa	1269	1	666	3
Maungakiekie-Tāmaki	14,244	16	1191	5
Māngere-Ōtāhuhu	1939	2	513	2
Ōtara-Papatoetoe	4184	5	822	3
Manurewa	2300	3	852	4
Papakura	3055	4	750	3
Howick	7001	8	2505	10
Franklin	4603	5	1560	6
Auckland Total	86,647	100	24,192	100

Source: Infometrics 2019 Regional Economic Profile for Auckland

3.0 Trends in sector employment

This section presents a detailed analysis of trends in employment in Auckland's construction sector between 2000 and 2019. The analysis firstly looks at employment trends in the overall sector and the different construction sub-sectors, with comparisons with the rest of New Zealand and/or New Zealand.

To further understand employment in Auckland's construction sector, the section also examines trends in full-time and part-time employment; by occupation category; as well as trends in the sector's demand for labour.

3.1 Sector employment trends relative to the rest of New Zealand

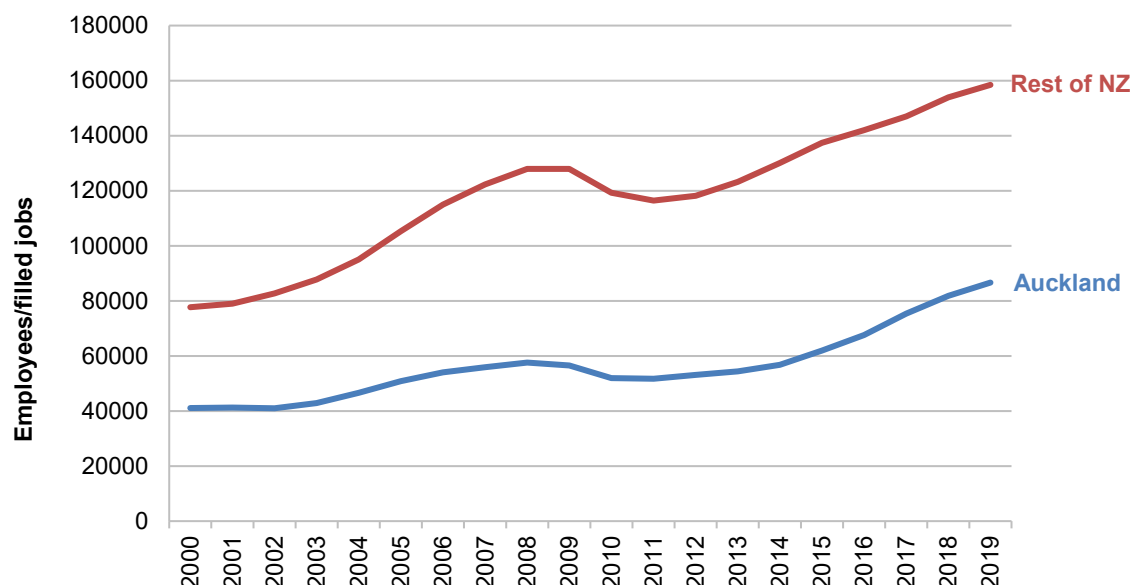
Between 2000 and 2019, employment in Auckland's construction sector more-than doubled from 41,068 to 86,647 jobs. This corresponds to an annual growth rate of 4 per cent, which was above the average growth rate for Auckland's total economy (2% per annum). As a result, the sector's share in Auckland's total employment increased from 7 per cent to 10 per cent over this 19-year period.

As Figure 5 shows, the overall increase in the sector employment in Auckland was marked with periods of growth and decline. Between 2000 and 2008, the sector employment rose by 40 per cent (averaging 4% growth per year). As Auckland's economy went into recession because of the Global Financial Crisis (GFC), the sector employment fell sharply, by 10 per cent from the level in 2008 for the years between 2009 and 2010 (from 57,596 to 51,928 jobs). Since 2012, the sector employment has returned to strong growth, with employment growing at an average rate of 7 per cent per year, reaching a record-high of 86,647 by 2019. This was mainly driven by the gradual upturn of the economy since 2011 and the Auckland housing boom that started to take place in 2012.

The construction sector in the rest of New Zealand has also experienced a doubling of employment between 2000 and 2019 (104% increase from 77,698 jobs), however, with slightly different fluctuations. While construction employment in the rest of New Zealand was declining at a similar rate during the GFC (i.e. from 2009 to 2010), the growth rate observed for the pre-GFC period (i.e. between 2000 and 2008) was stronger compared to that between 2012 and 2019 (a 65% increase averaging 6% per annum vs. a 34% increase averaging 4% per annum).

The less rapid employment growth in the Auckland construction sector between 2000 and 2008 corresponded with a noticeable decline in Auckland's share of New Zealand's construction employment, which fell from 35 per cent to 31 per cent. This relatively low share then persisted until 2015, but recovered to 35 per cent by 2018.

Figure 5: Construction sector employment in Auckland and the rest of New Zealand, 2000 to 2019



Source: Infometrics Regional Economic Profile 2000-2019

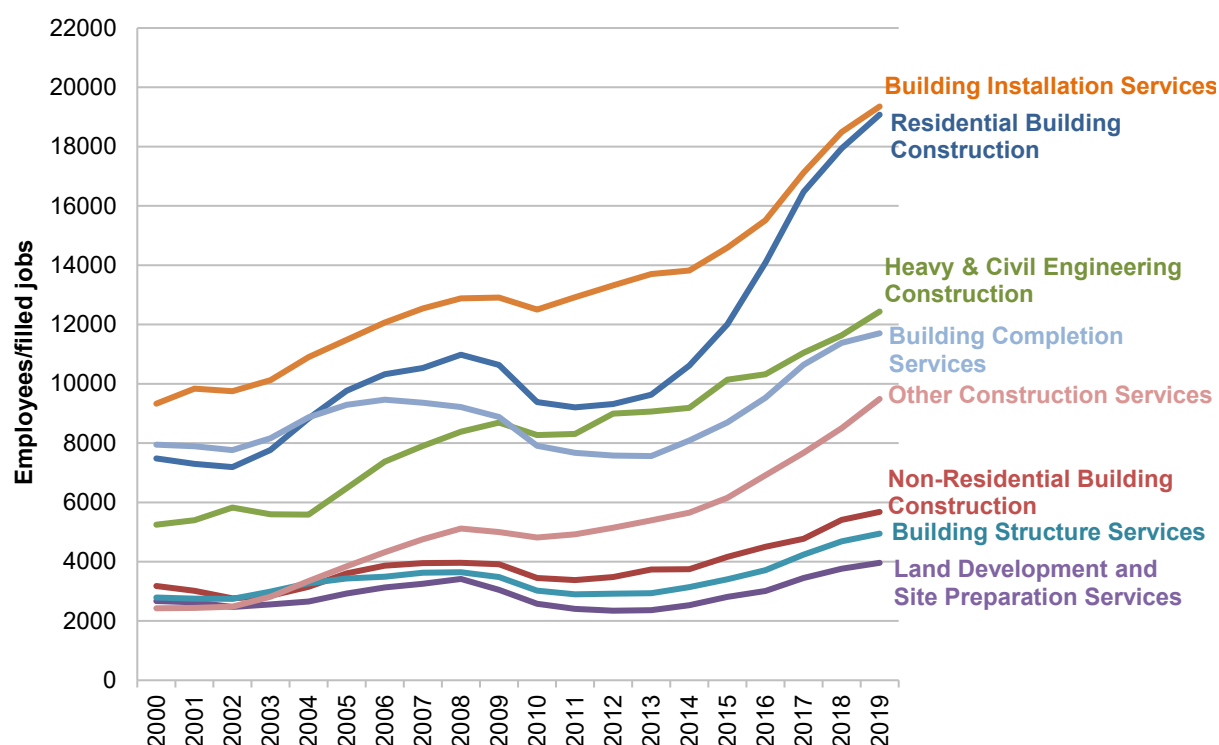
3.2 Employment trends by sub-sector

Residential Building Construction experienced the strongest employment growth between 2000 and 2019, with an overall increase of 11,597 employees during this 19-year period (a 155% increase, averaging 5% per annum). This was followed by Building Installation Services and Heavy and Civil Engineering Construction, which experienced a doubling in their employment (an increase of 10,024 employees and 7190 employees respectively).

Figure 6 shows the periods of significant rises and falls in the employment trends for several construction sub-sectors. One example is Residential Building Construction. While this sub-sector's employment increased by 47 per cent by 2008 (from 7480 jobs, at an average annual rate of 5%), it fell noticeably during the GFC, at an average rate of 6 per cent per annum. As the economy gradually recovered from the GFC and housing boom started, the sub-sector grew exponentially, and the number of jobs doubled between 2011 and 2019 (9205 more jobs).

In contrast, employment trends in sub-sectors such as Building Installation Services, Other Construction Services and Heavy and Civil Engineering Construction have been less volatile. While these sub-sectors grew strongly both before and after the GFC, they experienced modest declines during the GFC.

Figure 6: Auckland construction employment by 3-digit sub-sector, 2000 to 2019



Source: Infometrics Regional Economic Profile 2000-2019

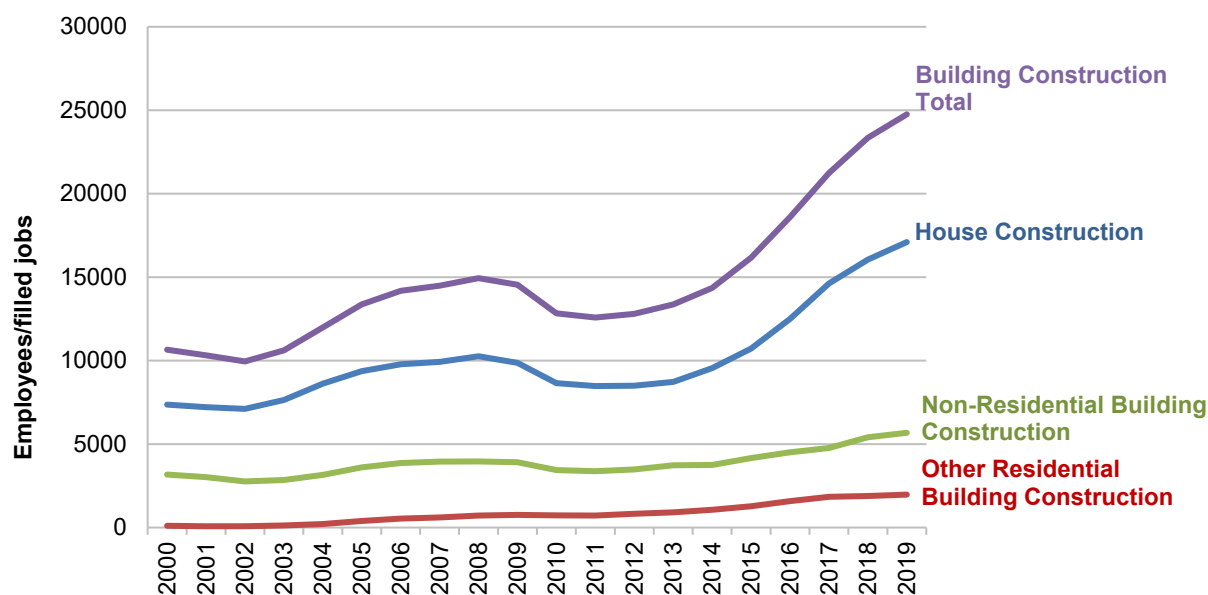
3.2.1 Residential and non-residential building construction employment

This sub-section focuses on the employment trends in Building Construction, which comprises of Residential and Non-Residential Building Construction.

Throughout the years from 2000 to 2019, Residential Building Construction accounted for about two thirds of Auckland's employment in Building Construction (Figure 7). House Construction drove most of the employment growth in Residential Building Construction, with 9734 more jobs in 2019 compared to 2000. Similar to the employment trend observed for Residential Building Construction as a whole (refer to Figure 6), House Construction employment experienced a significant fall during the GFC (17% decrease, averaging 6% per annum) and rapid growth between 2012 and 2019 (averaging 11% per annum).

In comparison, employment trends in Non-Residential Building Construction between 2000 and 2019 were less volatile. Employment in this sub-sector declined at a slower pace during the GFC, at an average rate of 5 per cent per year. As Non-Residential Building Construction is less responsive to housing booms, the number of jobs in this sub-sector grew by 63 per cent (2195 more jobs) between 2012 and 2019.

Figure 7: Employment in Building Construction in Auckland, 2000 to 2019



Note: Larger buildings, which are more likely to be non-residential, and some attached residential in the “other residential” category, also tend to require more input from other construction sub-sectors such as engineering, building and other construction services. Therefore, “building construction” employment is only part of that picture.

Source: Infometrics Regional Economic Profile 2000-2019

3.2.2 Auckland’s share of New Zealand employment by sub-sector

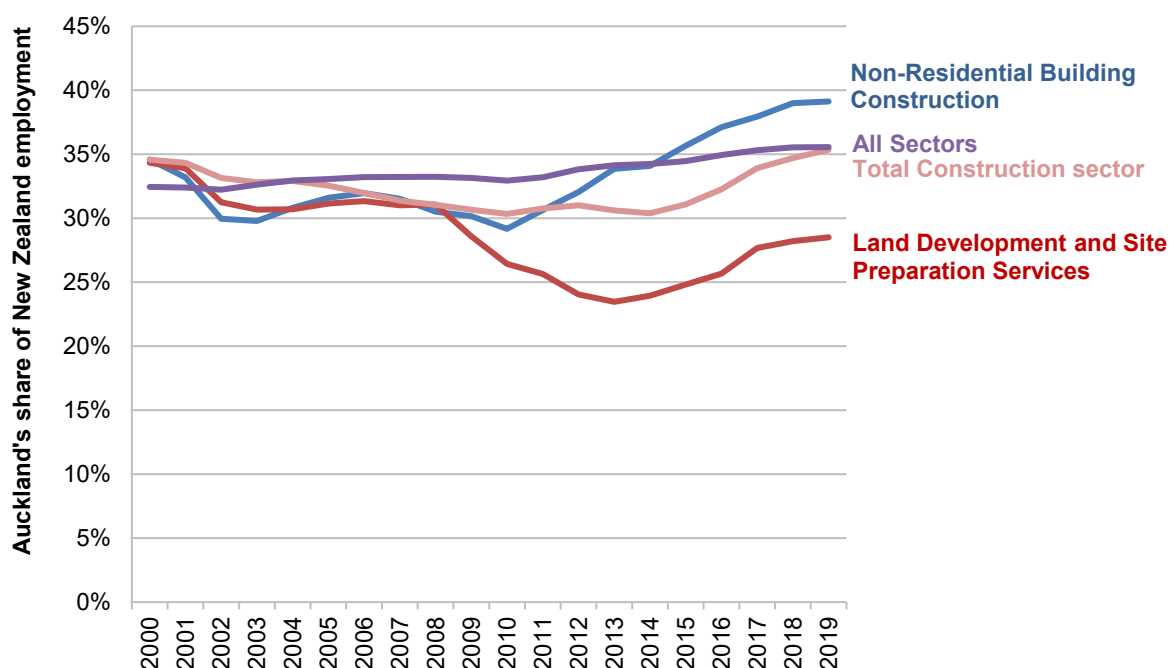
As shown in Figure 5, Auckland accounted for about a third of the total construction employment in New Zealand, with declines in its share between 2000 and 2008 and between 2011 and 2014. While trends for the majority of sub-sectors broadly followed a similar movement pattern as the overall sector, Figure 8 shows that a number of sub-sectors differed from this trend.

Auckland’s share of national employment in Non-Residential Building Construction decreased moderately between 2000 and 2010 (from 35% to 29%). However, from 2010 to 2019, Auckland’s share of the sub-sector employment in New Zealand increased by 10 per cent. This was driven by the markedly stronger growth in the number of jobs in Non-Residential Building Construction in Auckland (65% increase, averaging 6% per annum) compared to the rest of New Zealand (6% increase, averaging 1% per annum).

Auckland’s share of employment in the Land Development and Site Preparation Services sub-sector has been below its share in the total New Zealand construction employment. The gap widened over the period between 2008 and 2014 as Auckland’s

share of the sub-sector employment dropped from 31 per cent to 24 per cent. This corresponds to a 26 per cent fall in the number of jobs in this sub-sector in Auckland (886 fewer jobs) and a 6 per cent increase (458 more jobs) in the sub-sector employment in the rest of New Zealand. By 2019, Auckland's share in the sub-sector's total employment in New Zealand rose by five percentage points (to 29%) as Auckland saw 1432 more people working in this sub-sector between 2014 and 2019.

Figure 8: Auckland's share of New Zealand employment by selected sub-sectors, 2000 to 2019



Source: Infometrics Regional Economic Profile 2000-2019

3.3 Full-time and part-time employment

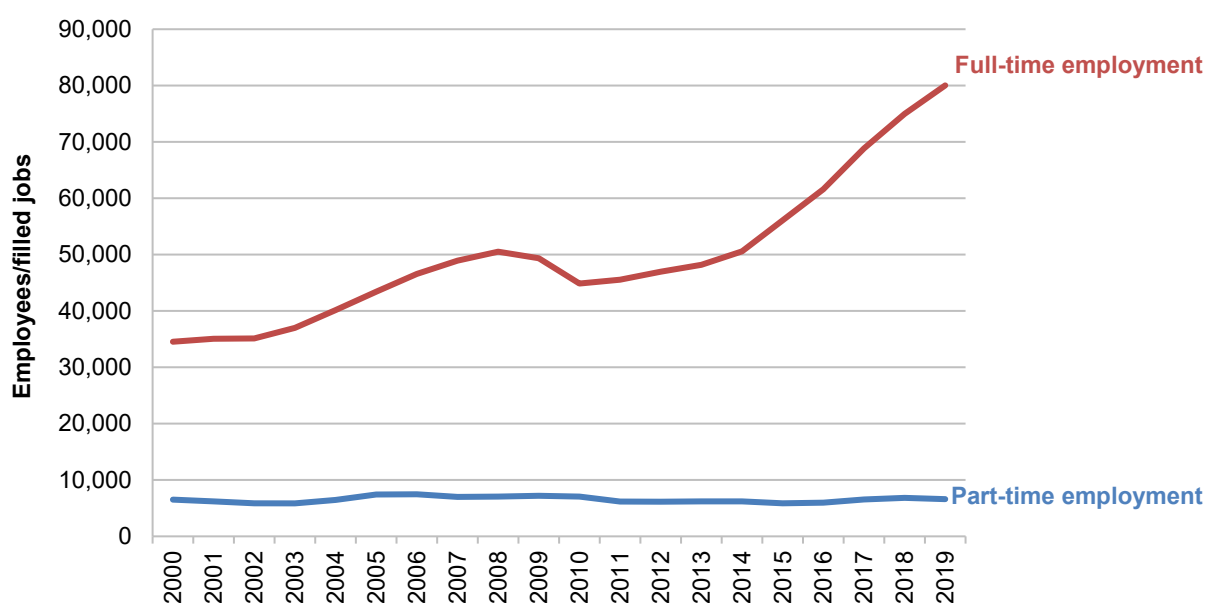
Based on Infometrics' data, it is estimated that there were 80,030 full-time employees in Auckland's construction sector in 2019. This was more than twice the number in 2000 (a 132% overall increase, averaging 5% growth per annum).¹² By 2019, about

¹² This section uses full-time equivalents (FTEs) employment data sourced from Infometrics' sector profile generator to estimate part-time employment. Note that FTEs employment takes into account the workload of people into employment. It measures the number of people in employment for 40 hours or more per week. Two people who are employed part-time are measured as one FTE. Therefore, the estimation of part-time employment multiplies the difference between total employment

nine in ten (92%) employees in the sector were full-time. This was an eight percentage-point increase from the share of full-time employment in 2000.

In contrast, the number of part-time workers in the sector remained relatively flat over this 19-year period, with only 88 more part-timers in 2019 compared to the number in 2000 (6528 part-timers). As a result, the percentage of part-time employment in the sector halved to 8 per cent by 2018 (and same share continued in 2019), which was markedly below the Auckland average of part-time employment (19%).

Figure 9: Full-time and part-time employment in Auckland's construction sector, 2000 to 2019



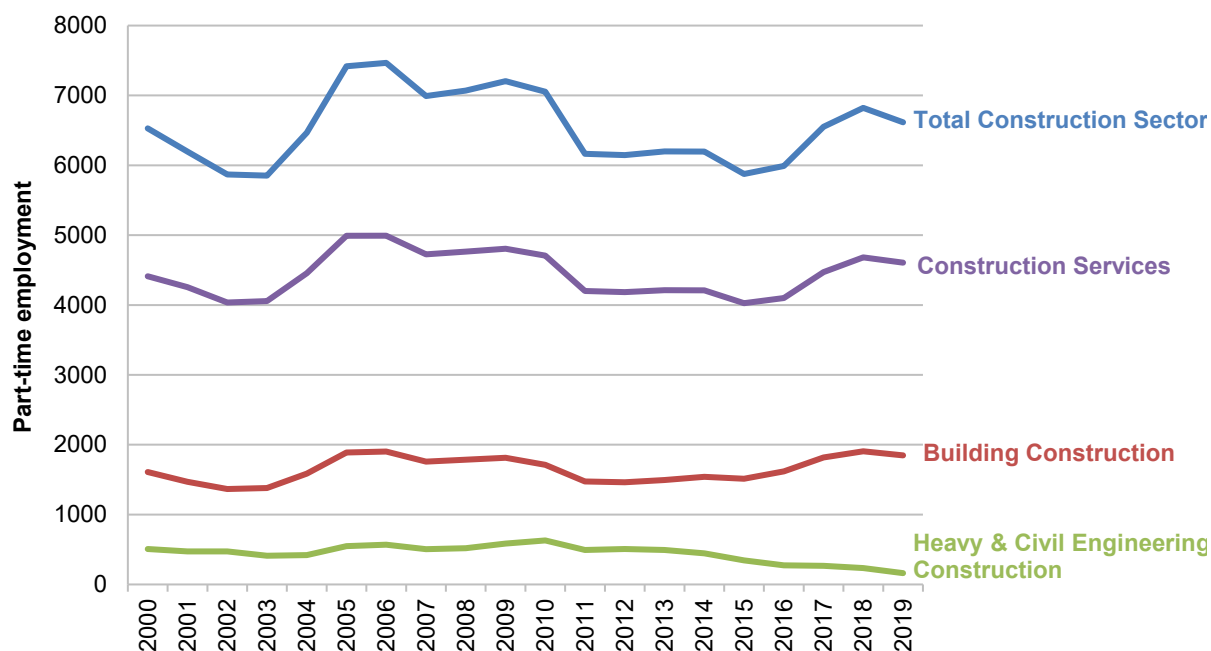
Source: Authors' estimates based on data sourced from Infometrics sector profile generator for Auckland 2000-2019

About two thirds of Auckland construction sector's full-time employment and over half of the part-time employment were in Construction Services. Between 2000 and 2019, all three sub-sectors experienced at least a doubling in their full-time employment.

Heavy and Civil Engineering Construction has less than a tenth of the part-time employment in Auckland's construction sector. Unlike Building Construction and Construction Services, it experienced an overall reduction in part-time employment between 2000 and 2019. More specifically, the number of part-time workers this sub-sector started to fall since 2013 and fell by two thirds to just 162 in 2019 (Figure 10).

and FTE by a factor of 2. The number of full-time workers is then estimated as the difference between total employment and part-time.

Figure 10: Part-time employment by 2-digit construction sub-sector in Auckland, 2000 to 2019



Source: Authors' estimates based on data sourced from Infometrics sector profile generator for Auckland 2000-2019

3.4 Employment trends by occupation

This section looks at trends in the structural make-up of Auckland construction employment in terms of job occupation and compares it with Auckland as a whole. The data used in this analysis is sourced from Infometrics' sector profile generator, which provides a breakdown of the number of filled jobs in each sector by 1-digit ANZSCO (the Australian New Zealand Standard Classification of Occupations) occupation category.

Compared to the total Auckland economy, the construction sector has a relatively higher proportion of jobs in categories such as Technicians and Trades Workers, Managers and Labourers (Figure 11). In 2019, they made up over a third (31,812 jobs or 37%), a quarter (21,422 jobs) and 14 per cent (11,766 jobs) of the sector employment respectively. This compared to 12 per cent employed as Technicians and Trades Workers, 17 per cent as Managers and 9 per cent as Labourers for Auckland as a whole. However, Professionals comprised a much lower proportion of

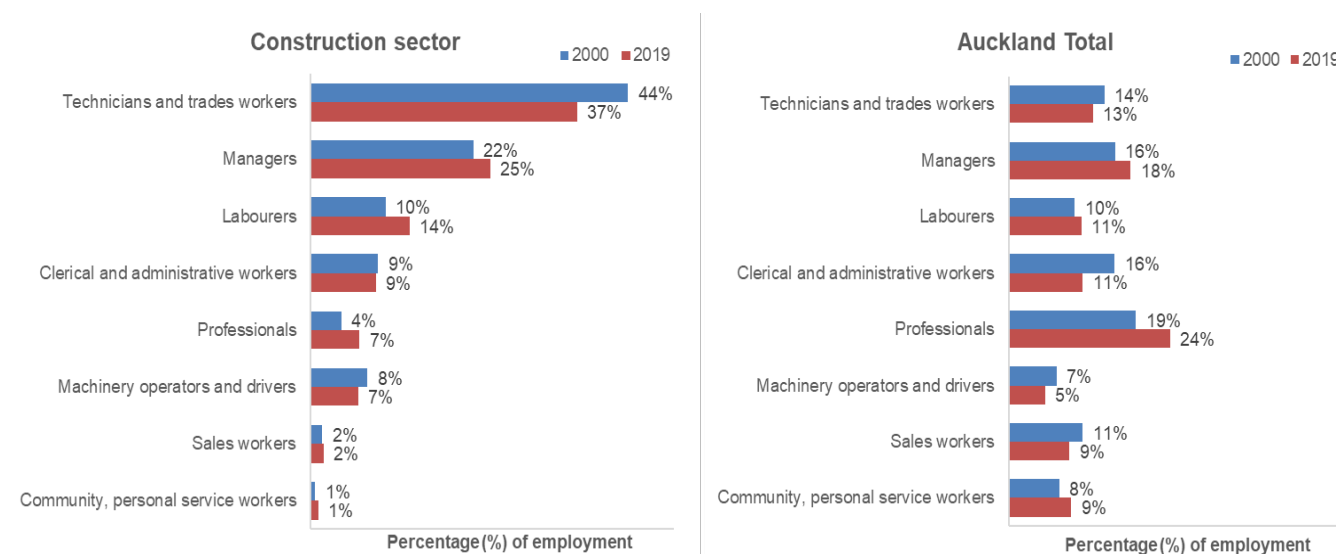
employment for the construction sector (5829 jobs or 7%) than for Auckland as a whole (25%).

While the number of jobs in Auckland's construction sector doubled between 2000 and 2019, this increase was not uniformly distributed across the occupation categories. The following summarises the notable changes observed in Figure 11:

- The Technicians and Trades Workers category experienced the largest absolute increase (13,852 more jobs) while its percentage increase (77%) was below the sector average. As a result, the share of this occupation category fell by seven percentage points (from 44% to 37%).
- The number of jobs in the Managers category increased by 12,210 (a 132% increase) between 2000 and 2019, resulting in a moderate increase in their share from 22 to 25 per cent.
- The Labourers category experienced one of the highest percentage increases in the number of jobs (a 178% increase from 4238 jobs), which resulted in a four percentage-point increase in its share of sector employment (from 10% in 2000).
- While still below the average proportion of Professionals in Auckland as a whole, the number of jobs in this occupation category in the construction sector more-than tripled between 2000 and 2019 (increase from 1724 to 5829 jobs). This corresponds to an increase in this occupation's share of sector employment by three percentage points (from 4% to 7%).

The construction sector has a higher proportion of jobs in the low-skilled occupation categories compared to Auckland as a whole. However, the displayed trends also suggest an increasing role for higher skilled occupations such as managers and professionals in the sector. This is also consistent with the general trend forecasted in Workforce Skills Roadmap (Construction and Infrastructure Sponsor Group, 2014) and in a 2017 report by Ministry of Business, Innovation and Employment (2017). As construction practices evolve with technology, a higher skilled workforce in the sector is necessary (PwC New Zealand, 2016; Construction Sector Accord, 2020).

Figure 11: Percentage (%) of Auckland's construction sector and total employment by 1-digit ANZSCO occupation category, 2019 compared to 2000



Source: Infometrics sector profile generator for Auckland 2000-2019

3.5 Labour demand in Auckland's construction sector

As the construction sector is relatively labour-intensive, the availability of labour is a key factor affecting sector performance (PwC New Zealand, 2016). Although Section 3.2 has highlighted the rapid growth in sector employment across New Zealand, the sector has also been facing difficulties in finding labour (PwC New Zealand, 2016; Gibson, 2019; Edmunds, 2018). A report by Rider Levett Bucknall (2019) forecasts that New Zealand's construction sector would require 57,600 more skilled workers by 2026. The labour shortage issue is expected to continue with an ageing workforce and ongoing strong growth in construction activities, especially in Auckland.¹³

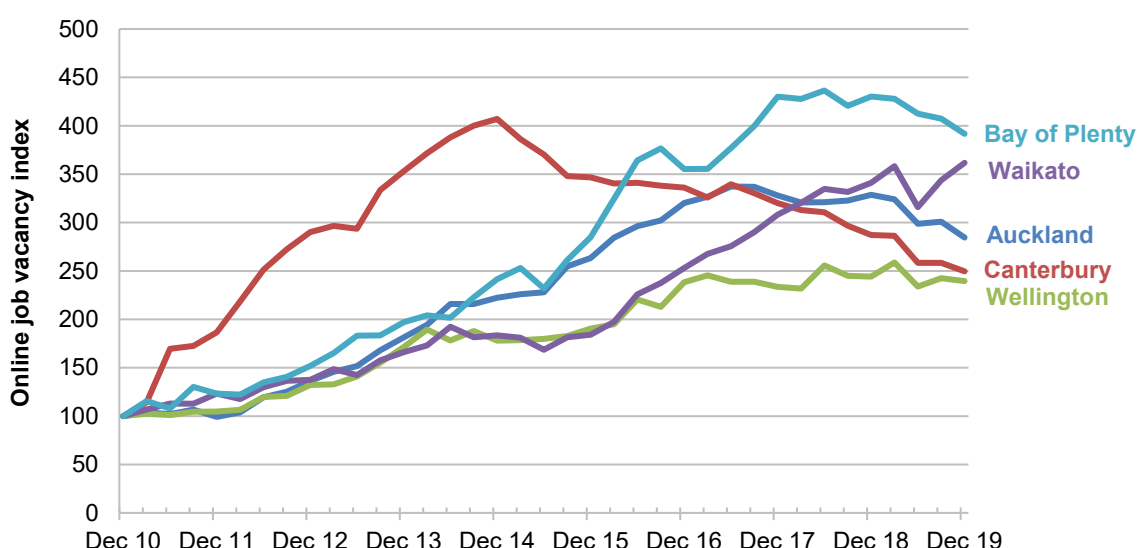
This section uses job vacancies as an indicator for labour demand in Auckland's construction sector. The analysis uses the Ministry of Business, Innovation and Employment's (MBIE) Jobs Online data series as a proxy for job vacancies. The data measures changes in online job advertisements from four internet job boards – SEEK, Trade Me Jobs, Education Gazette and Kiwi Health jobs, and indexed against a base

¹³ According to the report "Future demand for construction workers 2017" by Ministry of Business, Innovation and Employment (MBIE) (2017), demand for construction-related occupations is projected to increase by 56,000 between 2016 and 2022 across New Zealand. Of those, over half (i.e. over 28,000 employees) of this workforce requirement is projected for Auckland.

period (Ministry of Business, Innovation and Employment, 2018a). Quarterly data for Auckland by industry sector is available for the period from December 2010 onwards.¹⁴

As shown in Figure 12, online job vacancies advertised by the construction sector in Auckland almost tripled over the nine years between December 2010 and December 2019 (vacancies index increased to 285). Meanwhile, Wellington's overall rate of increase in online construction vacancies was notably below other regions (from 100 to 240), suggesting a slower increase in the region's demand for construction labour compared to other regions. Waikato and Bay of Plenty experienced stronger increase in construction labour demand in as their number of online construction vacancies increased by almost four-fold between 2010 and 2019.

Figure 12: Online construction vacancies index by region, December 2010 to December 2019



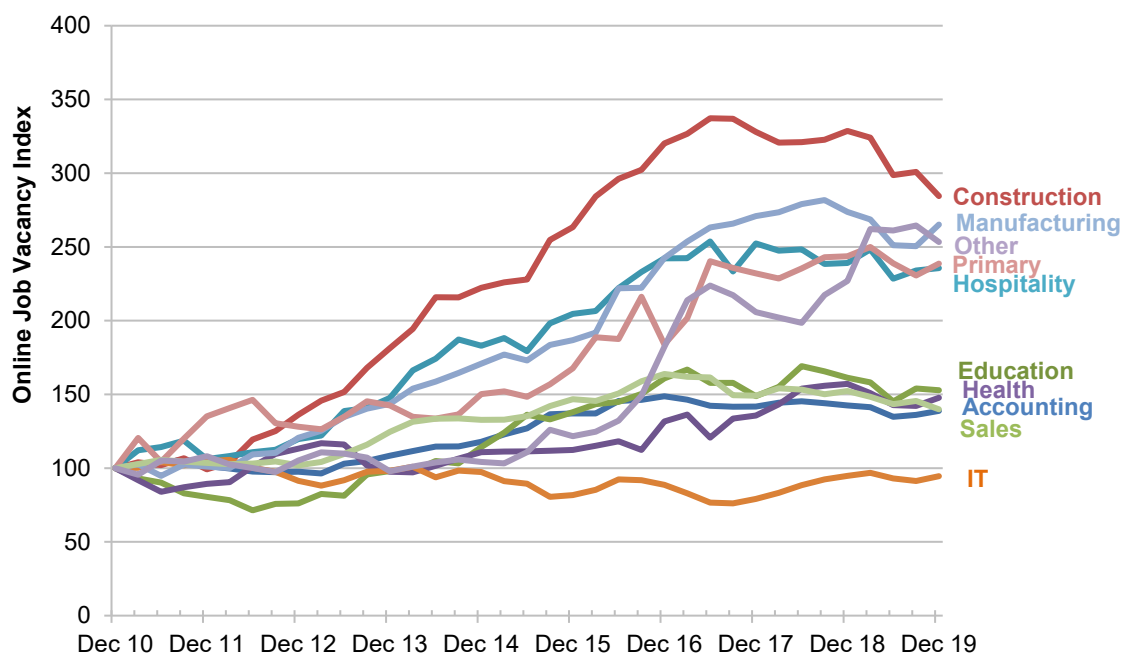
Note: Values are indexed against Dec 2010 = 100; Data is quarterly; all data seasonally adjusted
Source: MBIE, Jobs Online, December quarter 2010 to December quarter 2019

¹⁴ Since 2018, the main reporting output from Jobs Online is the All Vacancies Index (AVI). MBIE used to report Jobs Online based on the Skilled Vacancy Index (SVI), which captures job vacancies that require a level 4 qualification or above and area classified as professional, manager, or technicians and trades workers. This was due to the consideration that vacancies advertised online signify demand for skilled labour. However, more recently, due to changes in the nature of the labour market, the share of skilled and unskilled vacancies advertised online is converging over time. This has allowed the consideration to use AVI instead, to cover both skilled and unskilled vacancies. Refer to the Background and Methodology report of Jobs Online (Ministry of Business, Innovation and Employment, 2018a) for more details.

Most sectors in Auckland followed a general upward trend in the number of job vacancies advertised online between December 2010 and December 2019 (Figure 13). Of those, the rate of increase observed for construction vacancies online was notably higher than for other sectors, with the gap widening over time. Information Technology (IT) was the only sector in Auckland that experienced a decline in online job vacancies during the same nine-year period. In December 2019, Auckland's IT sector had 6 per cent fewer job vacancies advertised online than its number nine years prior.

Trends observed in MBIE's vacancies index data for Auckland could suggest rising demand for construction workers and that Auckland's construction sector may face a greater labour shortage relative to other sectors. However, it is important to note that while job vacancies advertised is a widely used indicator for labour demand, the relationship between the two is complex. For example, an increase in job vacancies advertised in a particular industry may reflect the expansion of the sector as it is looking for new workers, or the movement of workers between businesses within the sector with little change in the sector employment overall. Therefore, the data presented here should be interpreted with this caveat in mind.

Figure 13: Job online vacancies index by industry in Auckland, December 2010 to December 2019



Note: Values are index Dec 2010 = 100; Data is quarterly; all data seasonally adjusted
Source: MBIE, Jobs Online, December quarter 2010 to December quarter 2019

4.0 Trends in sector businesses

This section describes trends in the number of businesses in Auckland's construction sector and across the sub-sectors between 2000 and 2019. The analysis also looks at how the business size, as measured by number of employees per business, has changed over time, and identifies trends in businesses with zero employees and self-employment in the sector.

4.1 Trends in business numbers

While construction has been one of the three largest sectors in Auckland in terms of business units, there was only a moderate growth in its business count between 2000 and 2019. Over this period, the sector experienced an overall increase of 6390 business units (a 47% increase from 16,461 units, at 2% per annum on average). As the total number of businesses in Auckland grew slightly faster (63% increase overall) than in the construction sector, the sector's share of Auckland businesses in 2019 was one percentage point lower (12%) than its share in 2000.

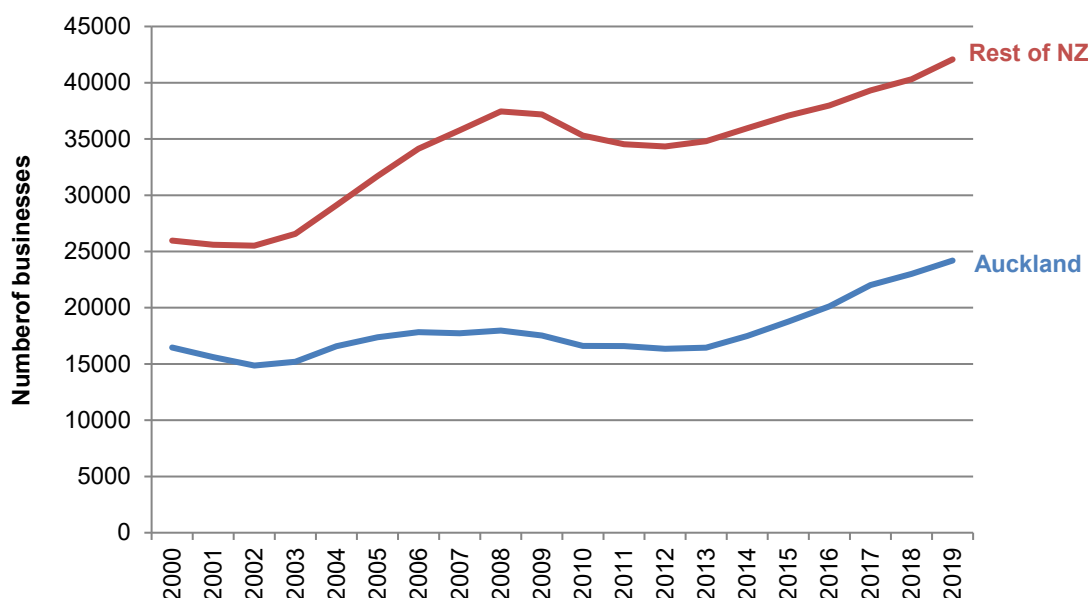
Trends displayed in Figure 14 show that the number of construction business units in Auckland only had a small increase before the GFC (9% increase, averaging 1% per annum) and a small decline between 2009 and 2012 (9% decline from the level in 2008). This is unlike the trends observed for the sector employment, which displayed strong growth and sharp fall during those periods (refer to Figure 5). As the economy recovered and the construction sector started to grow again, the number of construction business units in Auckland reached 24,192 units by 2019 (48% growth from its level in 2012). The Residential Building Construction sub-sector contributed 41 per cent of this growth (an increase of 3212 units).

Compared to Auckland, the rest of New Zealand experienced faster growth in the number of construction business units between 2000 and 2019 – a 55 per cent increase from 25,968 units in 2000 (16,107 more units). Most of this increase was due to the strong growth occurred before the GFC rather than post GFC – an increase of 11,487 units was observed over the years between 2000 and 2008. The rate of decline during the GFC in the rest of New Zealand was similar to the rate observed in Auckland (8% from the level in 2008).

Due to the slower rate of increase in Auckland construction businesses, its share in the New Zealand construction sector dropped by two percentage points between 2000 and 2019 (from 39% to 37%). The noticeable decline between 2000 and 2008 (from 39% to 32%) in Auckland's share was associated with its slow growth in construction business numbers during this period. After 2012, Auckland's share started to pick up

again as the number of construction businesses in Auckland grew more strongly relative to the growth observed in the rest of New Zealand.

Figure 14: Construction sector businesses in Auckland and the rest of New Zealand, 2000 to 2019



Source: Infometrics Regional Economic Profile 2000-2019

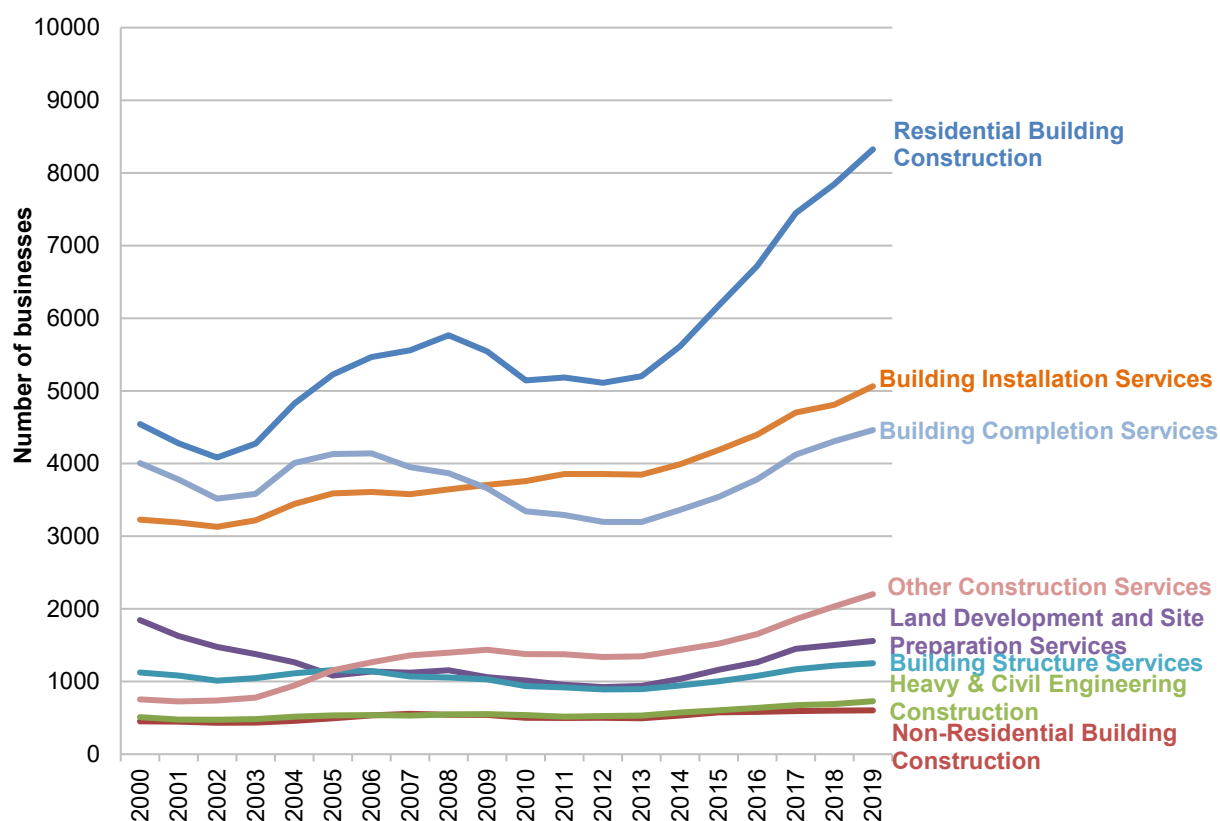
Trends in business unit numbers by sub-sector show that the largest number of businesses in Auckland's construction sector are in Residential Building Construction, Building Installation Services and Building Completion Services. Throughout the years between 2000 and 2019, they accounted for over 70 per cent of the total construction businesses in Auckland (Figure 15). In contrast, although Non-Residential Building and Heavy and Civil Engineering Construction are significant contributors to construction employment, they account for about only 6 per cent of the sector businesses.

Residential Building Construction experienced strong overall growth in business numbers between 2000 and 2019 (3783 more units, or an 83% increase), however, with a number of volatile fluctuations. Before the GFC (i.e. from 2000 to 2008), the number of the sub-sector's businesses increased by 27 per cent (from 4542 units in 2000). In 2012, the number of businesses in Residential Building Construction reached its lowest point of 5112 units, which was an 11 per cent decline compared to the level in 2008. As the Auckland housing boom eventuated, the sub-sector's business number was growing at an average pace of 8 per cent per annum since 2013, reaching 8325 units in 2019. This matched with the strong growth in the sub-sector's employment during a similar period (refer to Figure 6 in Section 3.2).

In contrast, there is little volatility in the number of businesses in Building Installation Services. The sub-sector followed a steady upward trend, even during the GFC. From 2000 to 2019, the number of businesses in the sub-sector increased by 1836 units (a 57% overall increase from 3228 units in 2000, averaging 2% per annum)

Land Development and Site Preparation Services was the only construction sub-sector in Auckland with the number of businesses reduced between 2000 and 2019. During the first 12 years of this period, the count of business units in the sub-sector approximately halved from its level in 2000 (a decrease from 1845 to 924 units). Although the sub-sector started to recover from 2013 onwards, it still had 288 fewer business units in 2019 than in 2000 (a 16% decrease).

Figure 15: Auckland construction businesses by 3-digit sub-sector, 2000 to 2019



Source: Infometrics Regional Economic Profile 2000-2019

4.2 Trends in business size

This section looks at trends in business size for the Auckland construction sector and across its sub-sectors, as measured by employees per business unit), and distribution by size category. Analysis in this section is based on Infometrics' employment data for years ending March, which includes those in self-employment.

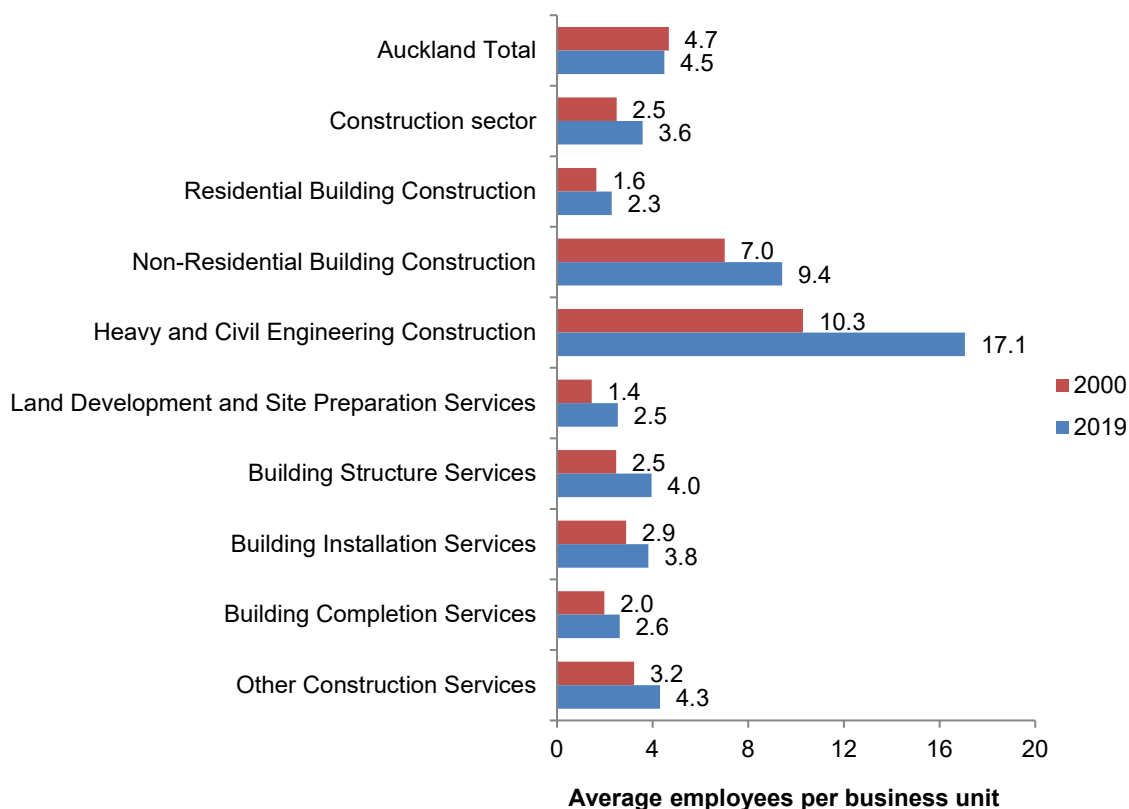
While Auckland's construction sector generally has smaller businesses (fewer employees per business unit) than most other sectors in Auckland,¹⁵ Figure 16 indicates that this gap in average business size has reduced over time. The increase in the average business size in Auckland's construction sector between 2000 and 2019 was associated with the doubling of the sector employment but a much slower rate of growth in its business numbers. For Auckland as a whole, the average business size stayed roughly the same as both total employment and number of business units in Auckland were growing at a roughly similar rate (57% and 63% overall increase respectively).

Comparisons across the sub-sectors show that, throughout the years from 2000 to 2019, businesses in Residential Building Construction and Land Development and Site Preparation Services had smaller number of employees on average. This could indicate a higher tendency of self-employment or working proprietors in these two sub-sectors.

In contrast, Heavy and Civil Engineering Construction and Non-Residential Building Construction employ a larger number of people per business unit compared to the other sub-sectors. The average business size for Non-Residential Building Construction stayed around seven employees per unit for the period between 2000 and 2015, and reached more than nine employees by 2019. Heavy and Civil Engineering Construction was the sub-sector that experienced the largest increase in its business size between 2000 and 2019 – from 10.3 to 17.1 employees per business unit. This was driven by the combination of a doubling in the sub-sector employment while a relatively slow growth in its business number. It could also reflect the greater size and scope of projects that the sub-sector often undertakes – large-scale transport infrastructure projects for example.

¹⁵Exceptions are Rental, Hiring and Real Estate Services, Agricultural, Forestry and Fishing, and Financial and Insurance Services.

Figure 16: Average business size in Auckland construction sector, 2019 compared to 2000



Source: Infometrics Regional Economic Profile 2000-2019

Trends in the average size of construction businesses were similar for the rest of New Zealand.

4.3 Trends in distribution by business size category

This section looks at trends in the distribution of construction businesses and employment by business size category. The categories are defined based on the Stats NZ's Business Demographics employee count data, which excludes those who are self-employed or working proprietors.

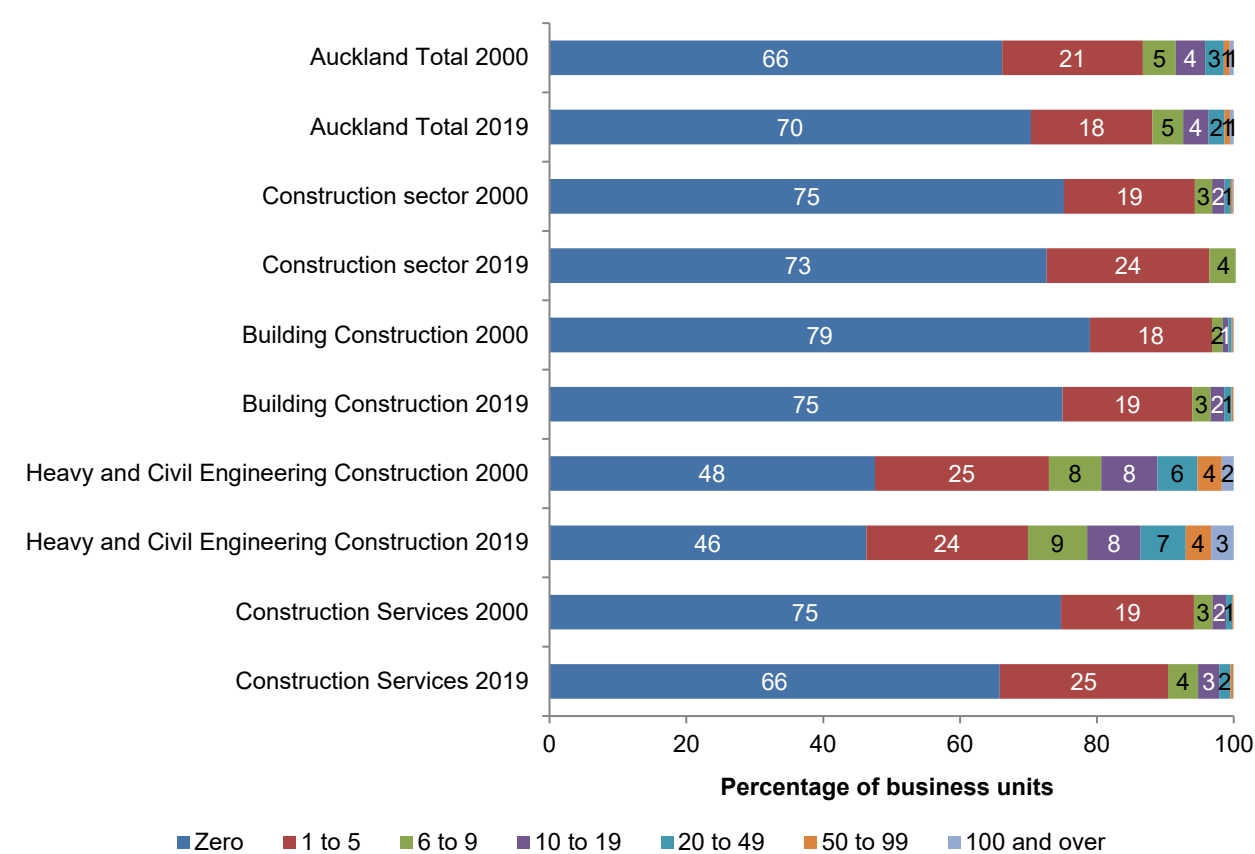
4.3.1 Distribution of business units by business size category

Figure 17 shows that most business units in Auckland, including those in the construction sector, have no employees. These can include those who are self-employed or working proprietors without employees, either as a sole trader or in partnership. In 2019, seven in ten (70%) construction businesses in Auckland had no employee. In contrast, there were only 48 business units in Auckland's construction

sector that employ 100 or more people, which was only 4 per cent of the total number of business units in this size category in Auckland.

Across the sub-sectors, the distribution of businesses by size category was notably different for Heavy and Civil Engineering Construction. Between 2000 and 2019, the sub-sector accounted for about only 3 per cent of the total business units in Auckland’s construction sector. However, it had the largest share of the sector’s businesses that employ 100 or more employees, with the share increasing over time from 43 per cent in 2000 to 50 per cent in 2019. About a half of the businesses in this sub-sector had no employee (either self-employed or as working proprietors, without employees). This was unlike Building Construction and Construction Services, with two thirds or more of their business units being small with no employee. In addition, Construction Services comprised over 60 per cent of those businesses with zero to five employees – 10,317 units in 2000 and 13,137 units in 2019.

Figure 17: Business units by business size category (%), Auckland, 2019 compared to 2000



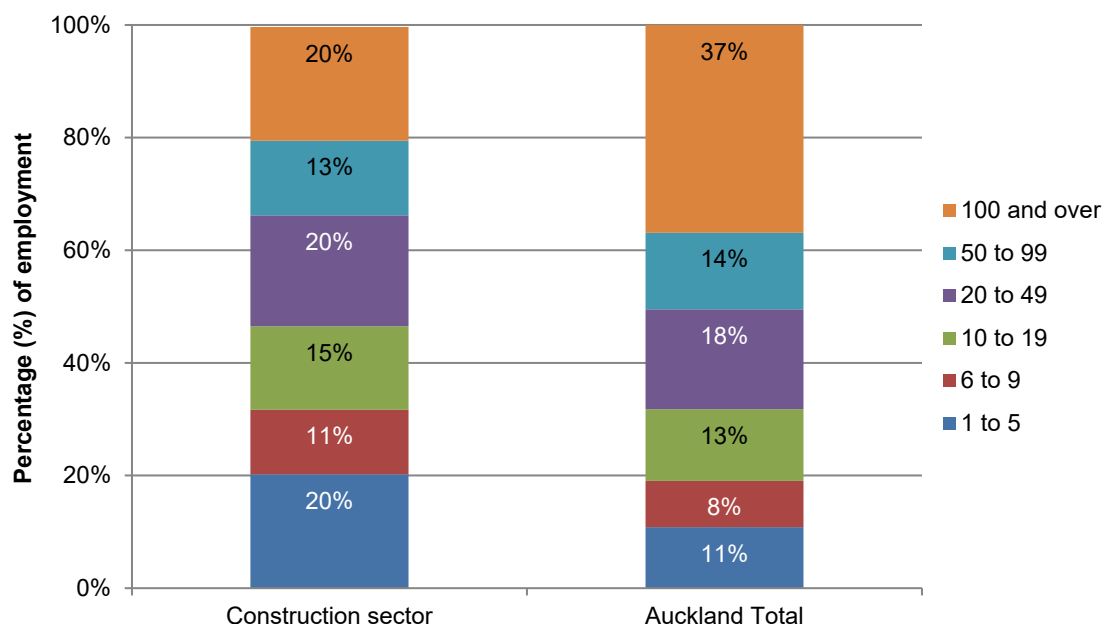
Source: Infometrics Regional Economic Profile 2000-2019

4.3.2 Employment by business size category

Figure 18 shows the employment distribution by business size category in Auckland's construction sector compared to Auckland as a whole. This information presented here is from Stats NZ's Business Demographics data for 2018,¹⁶ which excludes those who are in self-employment or working proprietors. Note that this information for Auckland is only available for 2018, not for other years.

Business Demographics data indicates that, in 2018, almost a third of the employment in the construction sector was provided by smaller firms with size less than 10 employees – 20 per cent by those in the 1-to-5 category and 11 per cent by those in the 6-to-9 category. Larger sized firms (with 50 employees or more) provided another third of the employment in the sector. In comparison, only 11 per cent of employment in Auckland as a whole was found in businesses with size less than 10 employees. Larger businesses (i.e. those with 50 employees or more) provided a half of Auckland's total employment in 2018.

Figure 18: Employment distribution by business size, the construction sector compared to Auckland as a whole, 2018



Source: Business Demographics 2018, Stats NZ

Note: Data excludes those who are self-employed or working proprietors.

¹⁶ A snapshot as at February 2018

It is likely that with inclusion of those in self-employment or working proprietors, most of who are presumably in small businesses or no employees, would further magnify the difference in the proportion of employment in small businesses in construction compared to Auckland as a whole.

Although Auckland data for 2019 is not available, it is expected to follow a similar pattern to that observed in 2018.

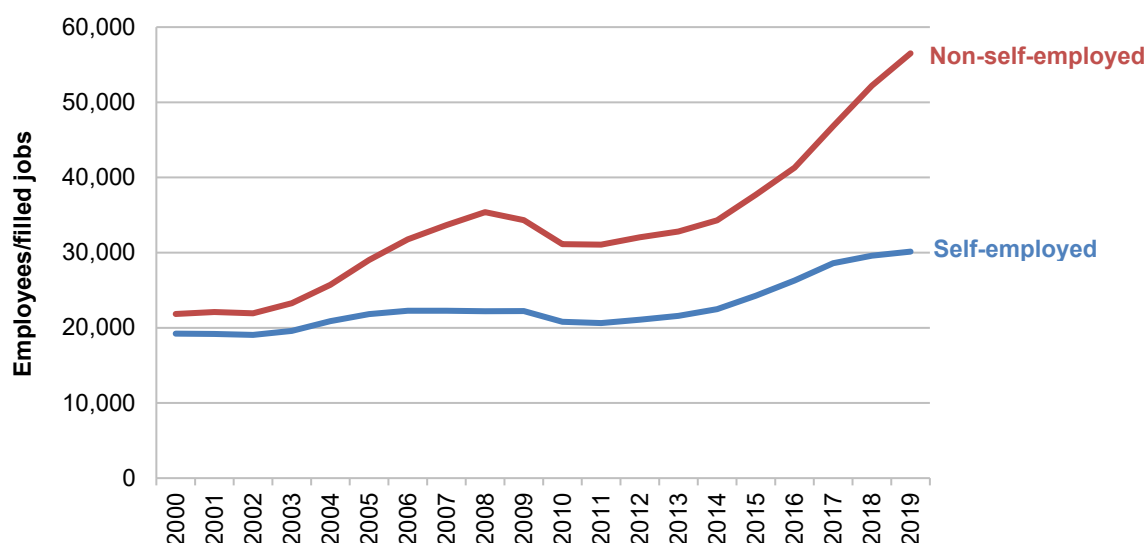
4.4 Self-employment

Figure 17 shown earlier indicates the significance of self-employment in Auckland's construction sector. Self-employed people include those who are sole proprietors, partnerships and working proprietors with employees. Self-employment can be linked to entrepreneurship or a gateway into the regular workforce, but it also carries disadvantages and risks such as precarious hours and unreliable income. This section looks at trends in self-employment in Auckland's construction sector and its sub-sectors. Note that Infometrics' employment data does not identify the extent to which self-employed workers are full or part time.

People in the construction sector are more likely to be in self-employment compared to other sectors. For the year ended March 2019, self-employment made up about a sixth (146,064) of the total employment in Auckland, with the greatest number of self-employed found in the construction sector (30,134). The rate of self-employment in the sector (35%) was more than twice as the rate in the total Auckland economy (16%).

Trends in Figure 19 show strong increase in the number of self-employed people in the construction sector between 2000 and 2019 (a 57% overall growth, at 2% per annum). However, this was outpaced by the growth in non-self-employment in the sector, with an increase by about 35,000 from its level in 2000 (from 21,838 to 56,513 employees, averaging 5% growth per annum). As a result, the share of self-employment fell by 12 percentage points, from almost half (47%) in 2000, to 35 per cent in 2019. The declining share of self-employment in the construction sector suggests that the increase in the sector's average business size (including self-employed) between 2000 and 2019 was largely driven by the stronger growth in non-self-employment during this period (refer to Section 4.2).

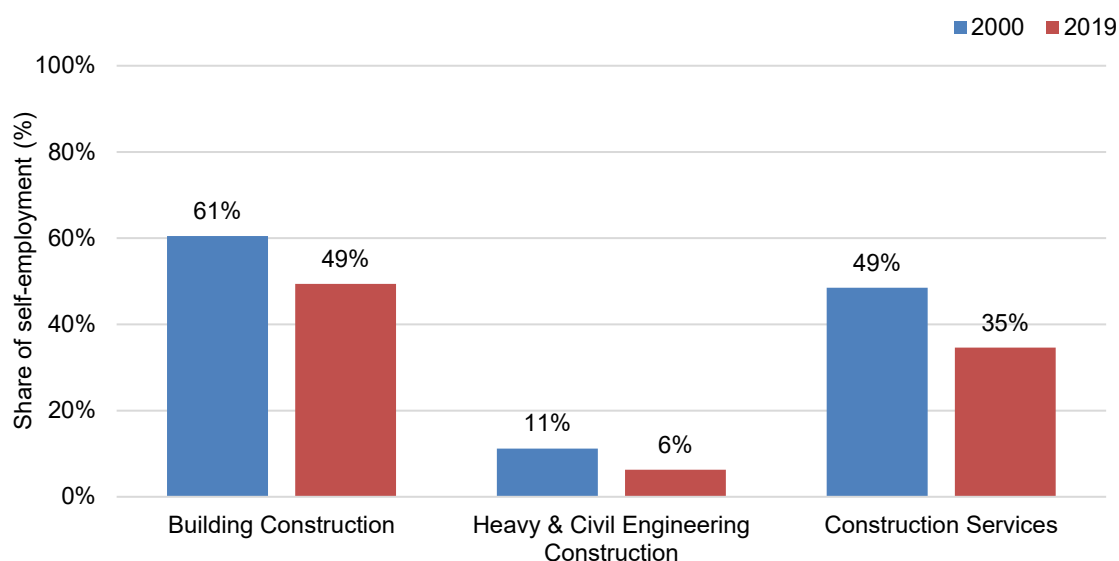
Figure 19: Number of self-employed and non-self-employed in Auckland's construction sector, 2000 to 2019



Source: Authors' estimates based on data sourced from Infometrics sector profile generator for Auckland 2000-2019

The sub-sectors also displayed similar trends in self-employment. In particular, the rate of self-employment in Building Construction and Construction Services fell by more than 10 percentage points between 2000 and 2019 (Figure 20). This fall was associated with the decreased proportions of businesses with zero employees observed in Figure 17.

Figure 20: Percentage (%) of self-employment by 2-digit construction sub-sector, 2019 compared to 2000



Source: Authors' estimates based on data sourced from Infometrics' sector profile generator for Auckland 2000-2019

5.0 Sector Gross Domestic Product (GDP) and productivity

This section firstly describes trends in the value added (GDP¹⁷) directly generated in Auckland by the construction sector and by each construction sub-sector. This is followed by an analysis on the sector's productivity, as measured by GDP per worker, to look at how it has changed over the period between 2000 and 2019. Note that analysis in this section is based on GDP and productivity data sourced from Infometrics, published in 2019 New Zealand dollar values.

5.1 Sector GDP and growth trends

Auckland's construction sector generated \$6.73 billion of real GDP in 2019 (measured in 2019 dollar terms), accounting for almost 7 per cent of Auckland's GDP.¹⁸ This made construction Auckland's sixth largest sector in terms of its value added in Auckland's economy.¹⁹ A similar figure was observed for construction's share of the national GDP. In addition, Auckland's construction sector accounted for over a third (35%) of the total sector GDP generated across the country.

Between 2000 and 2019, construction's economic contribution in Auckland more-than doubled (an overall increase of 115% from \$3.13 billion, averaging 4% growth per annum). This was a higher rate of growth compared to the overall growth experienced by the total Auckland economy (an 87% growth, averaging 3% per annum).

However, trends in the sector GDP show greater volatility compared to the total economy (Figure 21). On a (March) year-by-year basis, the sector grew at a stronger rate compared to the total economy from 2002 to 2005 and between 2007 and 2008. The GFC also had a greater adverse impact on the construction sector in terms of GDP compared to Auckland as a whole. The sector's GDP fell sharply by 8 per cent between 2008 and 2009 (from \$4.26 billion to \$3.92 billion). This compared to a modest fall of 2 per cent in Auckland's total economy. As the economy gradually recovered from the GFC and the Auckland housing boom began, the sector started to grow at a faster rate

¹⁷ GDP (Gross Domestic Product) is the value added to the economy by all the goods and services provided in one year and is a standard measure of the economic contribution of an industry sector.

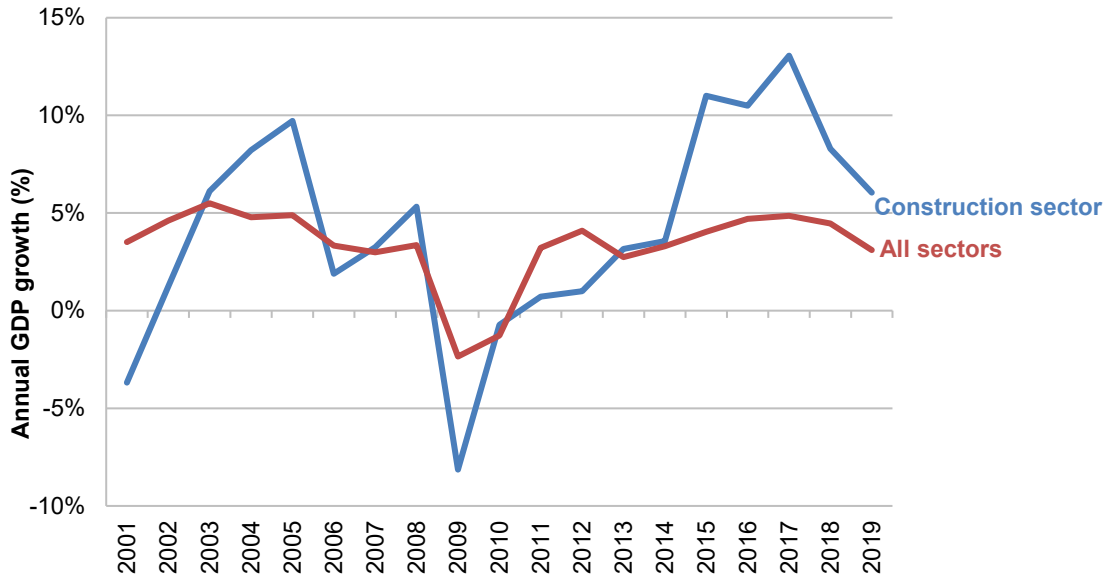
¹⁸ In Infometrics' economic data, total GDP includes not only industry sectors, but also Owner-Occupied Property Operation and Unallocated (e.g. taxes levied on the purchaser such as GST, import duties; items that cannot be easily allocated to a specific industry such as the seasonal adjustment balancing item).

¹⁹ The five largest industry sectors in Auckland in 2019 in terms of their GDP contribution were – Professional, Scientific and Technical Services (10%), Manufacturing (9%), Financial and Insurance Services (9%), Rental, Hiring and Real Estate Services (8%), Wholesale Trade (7%).

again compared to the Auckland total economy after 2012. In particular, the sector’s GDP was increasing at an annual rate of above 10 per cent between 2014 and 2017, while annual growth rate was less than 5 per cent for Auckland as a whole. This period of sharp rise in construction GDP also coincides with the period, when Auckland’s median house sales price was rising exponentially (Auckland Council, 2020).

Note that Figure 21 also shows a seven percentage-point decrease in the growth rate of Auckland’s construction GDP between 2017 and 2019. Although this could be partly due to the slower growth in Auckland’s economy as shown in the graph, other possible factors may include the slowing down of housing market and net migration in Auckland (Westpac, 2018).

Figure 21: Construction sector GDP growth rate compared to the total economy, Auckland, 2001 to 2019



Source: Authors’ estimates based on data sourced from Infometrics’ Regional Economic Profile 2000-2019

5.2 Sub-sector GDP and growth trends

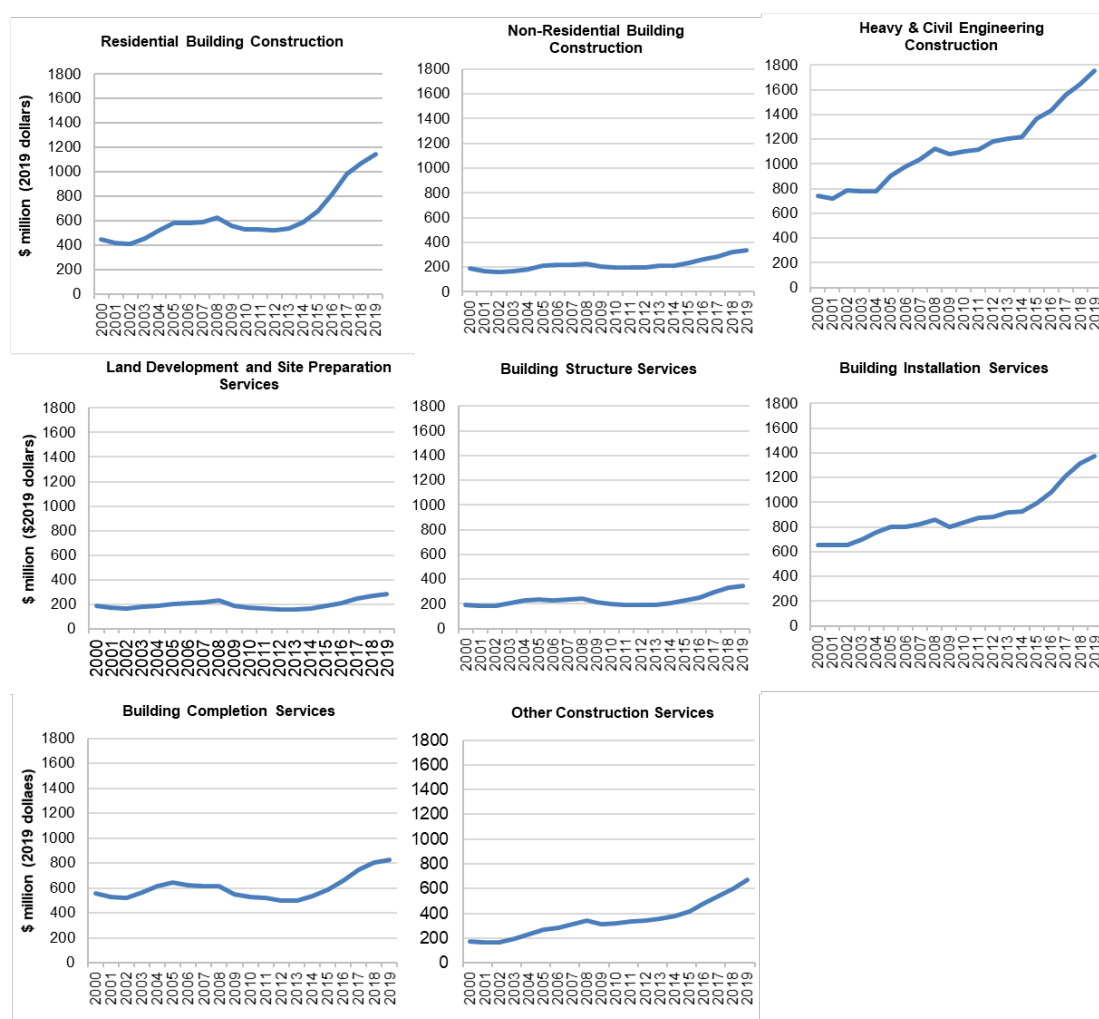
As shown in Figure 22, Residential Building Construction, Heavy and Civil Engineering Construction and Building Installation Services experienced the strongest GDP growth between 2000 and 2019. In 2019, these three sub-sectors respectively accounted for 17 per cent (\$1.14 billion), 26 per cent (\$1.64 billion) and 20 per cent (\$1.37 billion) of the sector GDP. These three sub-sectors also experienced the strongest employment growth during this period (refer to Section 3.2). The shares of GDP from Residential Building Construction and Heavy and Civil Engineering both rose by five percentage

points as their GDP in 2019 was more than twice as their GDP figures in 2000 (a 156% increase and a 137% increase respectively).

Other Construction Services was growing at the fastest rate between 2000 and 2019. By 2019, its GDP reached \$671 million, which was almost four times the level in 2000 (a 294% increase from \$170 million, averaging 7% per annum). Its share of the sector GDP also increased by five percentage points – from 5 per cent in 2000 to 10 per cent in 2019.

Building Completion Services was the only sub-sector that fell notably in its share of construction GDP – from 18 per cent to 12 per cent. This was due to its modest GDP growth compared to other sub-sectors. The sub-sector only experienced a relatively moderate growth by 49 per cent between 2000 and 2019 (from \$556 million to \$828 million, averaging 2% per annum).

Figure 22: GDP by construction sub-sector, Auckland, 2000 to 2019



Source: Infometrics Regional Economic Profile 2000-2019

5.3 Productivity

Construction is a labour-intensive industry and labour productivity is one key driver of the sector performance (PwC New Zealand, 2016). At the national level, labour productivity in the construction sector is significantly below the average across all sectors, largely due to the cyclical nature of the sector and the predominance of small firms. The low productivity of the sector limits the sector's ability to pay higher wages and incomes to the workers (Wilson, 2014).

Using output value added (GDP) per worker²⁰ as a measure for labour productivity, in the year ended March 2019, Auckland's construction sector generated \$77,679 of GDP per worker (in 2019 dollars). This was 38 per cent below the Auckland average (\$125,491).

Trends show that, between 2000 and 2019, labour productivity in Auckland's construction sector only improved by 2 per cent (from \$76,281, in 2019 dollars; see the second graph in Figure 23). As the average productivity in Auckland experienced an overall increase of 19 per cent between 2000 and 2019 (from \$105,434 per worker), the productivity gap between the construction and Auckland's total economy widened. Although due to a proportional expansion in the construction GDP (by 70%) and employment (63%), the sector's productivity improved slightly (by 4%). This was still outpaced by the increase in productivity for the total economy since 2012 (6%).

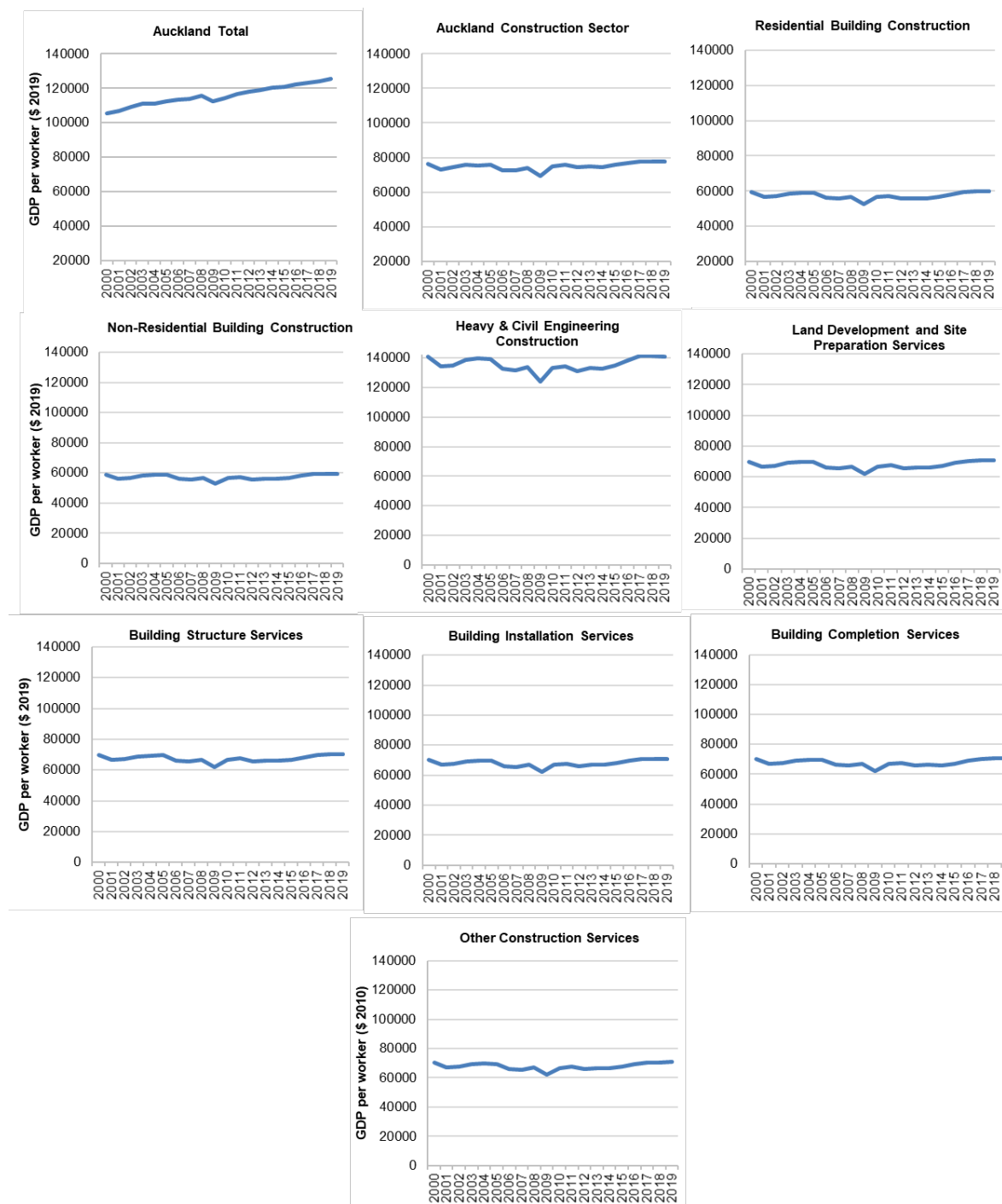
Labour productivity figures of most construction sub-sectors in Auckland are below the sector average. Of those, Residential Building Construction and Non-Residential Building Construction were the two sub-sectors that generated the lowest GDP per worker throughout the years between 2000 and 2019 – below \$60,000 (over 20% below the average productivity for Auckland's construction sector as a whole).

Residential Building Construction has been one key sub-sector in terms of employment and GDP, and it experienced significant growth over the last 19 years. However, the sub-sector is also characterised by numerous small businesses and self-employed people, whose income and expenses are problematic to measure, so its GDP may also be underestimated (Wilson, 2014). While businesses in Non-Residential Building Construction are larger on average (refer to Figure 16), its low productivity is due to its lower share of the sector GDP (about 5 to 6%) relative to its share of the sector employment (about 7%).

²⁰ More complex measures are also often used such as output per hour worked, output per unit of capital and multi-factor productivity (which considers both labour and capital productivity altogether (Wilson, 2014).

Heavy and Civil Engineering Construction is the sub-sector with the highest labour productivity and significantly above the averages for Auckland's construction sector and the total economy. This could be explained by the fact that the nature of the work undertaken by this sub-sector often requires more specialised labour and large-scale capital investment.

Figure 23: GDP per worker by sub-sector, Auckland, 2000 to 2019



Source: Infometrics Regional Economic Profile 2000-2019

6.0 Sector output – Building work and building consents

While GDP provides insights into the industry from the viewpoint of value added by firms in the construction sector, it is also useful to look at the actual output of the sector. This section looks at building work in Auckland as the main output of Auckland's construction sector. The section firstly analyses trends in the value of building work in Auckland for the period between December 1992 and December 2019. This is followed by an analysis of the number and floor area of buildings consented, with a focus on the number of new residential building consented.

Analyses presented in this section use data sourced from Stats NZ's Building Activity Survey, which provides data on the value of building work.²¹ Annual totals are available for December years. The values presented in this report are converted to December 2019 dollars.²² Stats NZ's monthly Building Consents database provides data on the value, number and size of buildings consented, and annual totals are available for December years between 1992 and 2019.

6.1 Value of building work

In the year ended December 2019, the value of building work in Auckland was \$10.9 billion. As Figure 24 shows, new building work contributed most of this value (83% or \$9.1 billion), of which over half (53% or \$5.7 billion) was new residential buildings and nearly a third (30% or \$3.3 billion) was new non-residential buildings. The rest of the value of building work in 2019 came from residential alterations (9% or \$1.0 billion) and non-residential alterations (7% or \$811 million).

More than two fifths (42%) of the total value of building work in New Zealand in 2019 was in Auckland, which was notably higher than Auckland's share of construction employment (35%) and total employment (36%) in the country. Similar shares were observed for the value of new residential and non-residential buildings.

In 2019, over four fifths (85%) of the residential building work in Auckland was new work. This was slightly higher than the proportion of non-residential work in Auckland that was new work (80%). Conversely, the proportion of non-residential work that were

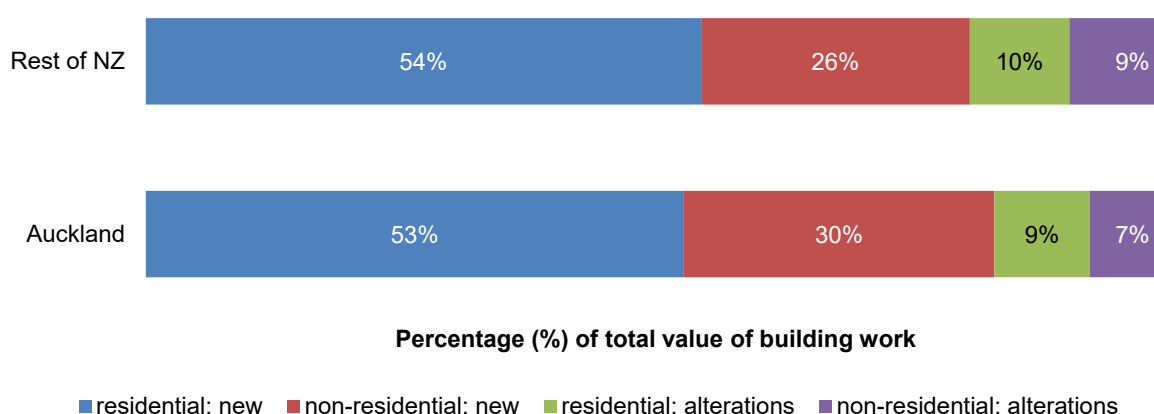
²¹ The Building Activity Survey is based on building consents issued in the previous few months and years, adjusted for estimated delays and cancellations, and supplemented by a stratified survey of builders.

²² Values are converted to December 2019 dollars by deflating using the Statistics New Zealand's quarterly CGPI (Capital Goods Price Index) for residential and non-residential buildings. CGPI is an index that estimates the overall price change in physical assets that the productive sector acquires or builds. The major asset groups are buildings, both residential and non-residential; civil construction; land developments; and plant, machinery and equipment.

alterations was higher by five percentage points than the proportion of residential work that were alterations (20% vs. 15%).

In 2019, the share of building work by type in Auckland was broadly similar to that observed in the rest of New Zealand (Figure 24).

Figure 24: Value of building work by type (%), Auckland and the rest of New Zealand, year ending December 2019



Source: Stats NZ, Building Activity Survey

6.1.1 Trends in total value of building work in Auckland

The total value of building work in Auckland in the year ended December 2019 was an all-time high and was more than three times the level in the year ended December 1992 (from \$3.0 billion). While there was a strong and prolonged uptrend from March 2012 (\$4.7 billion), prior to that, several major fluctuations were observed:

- a sharp rise from December 1992 to September 1997 (a 122% increase to \$6.6 billion)
- fluctuations until the pre-GFC peak in March 2005 (\$7.3 billion), then fell by 15 per cent (to \$6.2 billion) in June 2007 before the GFC
- during and after the GFC, the value of building work in Auckland fell sharply to a trough of \$4.5 billion for the year ended March 2010.

With the value of building work in the rest of New Zealand increased by \$9.2 billion from December 1992 to December 2019, the value of building work in the country almost tripled during this 27-year period (from \$8.7 billion to \$25.8 billion). Trends in

Auckland and the rest of New Zealand moved in broadly similar ways (Figure 25 below).

Figure 25: Total value of building work in Auckland and the rest of New Zealand, December years 1992 to 2019 (\$million in December 2019 dollars)



Source: Stats NZ, Building Activity Survey

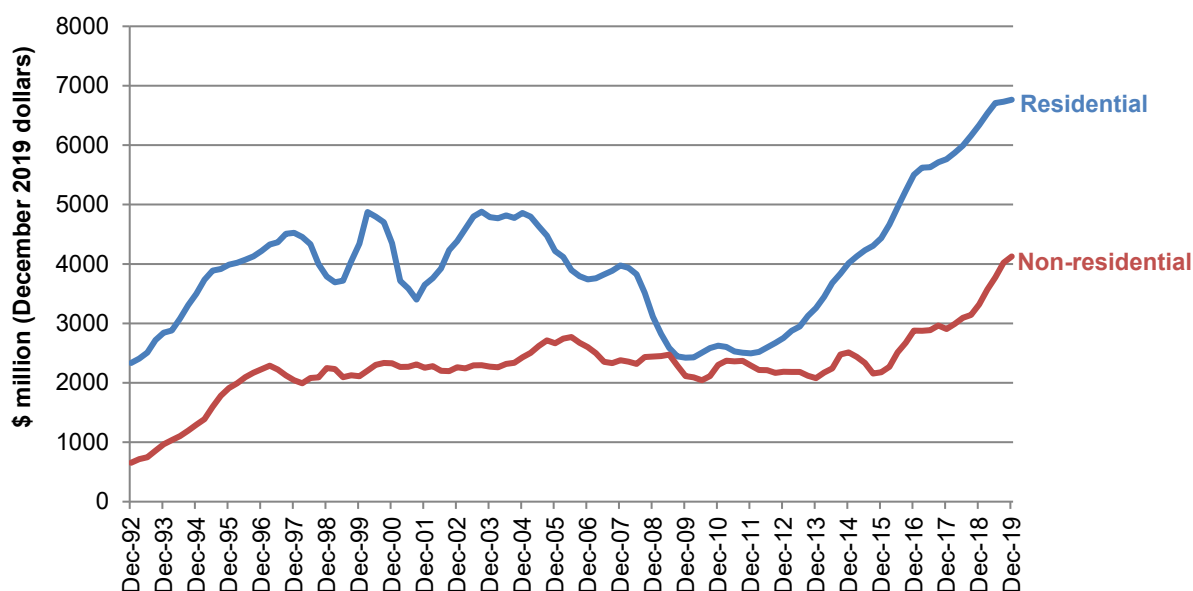
6.1.2 Trends in value of residential and non-residential building work

As displayed in Figure 26, there has been a strong growth in the value of both residential and non-residential building works in the long-term. Over the 27 years from 1992 to 2019, the value of residential work almost tripled, from \$2.3 billion to \$6.8 billion (average growth 4% per annum). The value of non-residential work in 2019 was more than five times its level in 1992 (from \$655 million to \$4.1 billion, average growth 7% per annum).

The overall trends for the value of residential and non-residential building work were accompanied by periods of fluctuations. For the recent years, both residential and non-residential building work in Auckland grew sharply. Between September 2015 and December 2019, the value of non-residential building almost doubled from \$2.2 billion to \$4.1 billion. The value of residential work also grew strongly by 57 per cent during the same period (from \$4.3 billion). In fact, the value of residential building work has risen sharply since December 2011 (from \$2.5 billion), at an average growth rate of 13 per cent per annum.

Non-residential building work was relatively stable between March 1997 and September 2015. While there was no overall change in the value of residential work during same period, it experienced larger fluctuations compared to non-residential work. Due to the several fluctuations occurred between March 1997 and December 2007, the value of residential work in Auckland had an overall decrease by 8 per cent (from \$4.5 billion to \$4.0 billion). This fell further by another 39 per cent (a \$1.5 billion decrease) between December years 2007 and 2009, largely driven by the effect of the GFC.

Figure 26: Value of residential and non-residential building work in Auckland, December years 1992 to 2019 (\$million in December 2019 dollars)



Source: Stats NZ, Building Activity Survey

Note that data for the value of building work in Auckland, split by new building and alterations, is not available prior to 2014. To analyse trends in the value of new buildings and alterations, for both residential and non-residential buildings for period from 1992 to 2019 requires the use of Building Consents data. This is covered in the next section.

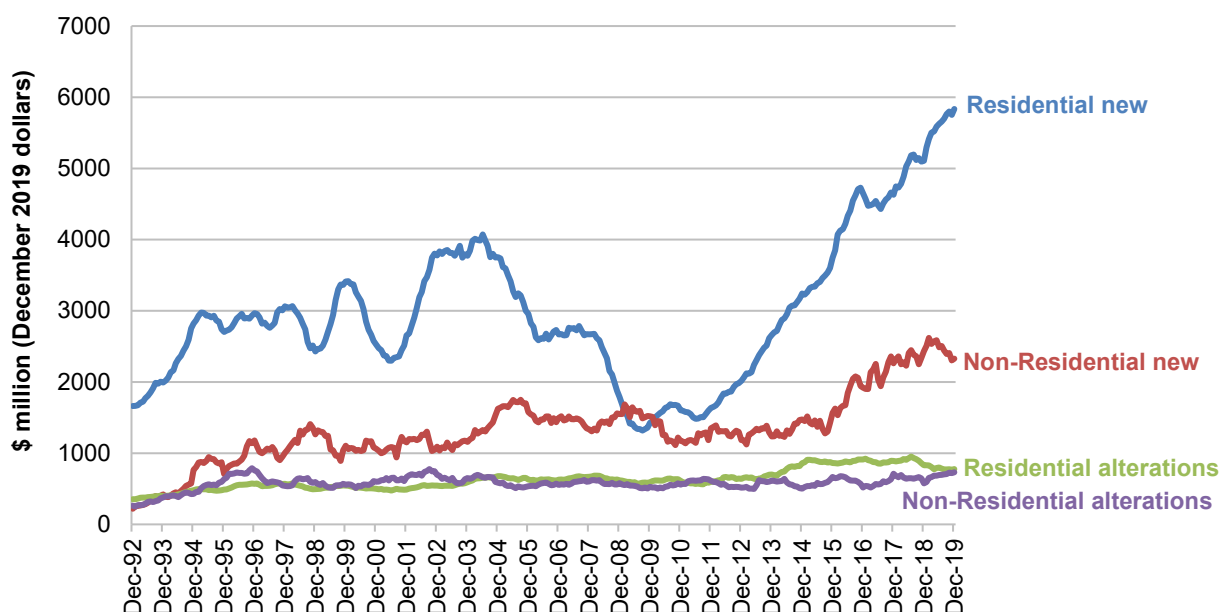
6.2 Value of new buildings and alterations by category

As with building work put in place, the value of building consents (converted to December 2019 dollars using CGPI (Capita Goods Price Index), an index that

estimates the overall price change in physical assets) has always been dominated by new buildings rather than alterations. Figure 27 shows the following trend for each category:

- New residential building consents, on average, represent over half of the total value of building consents. Although the value of this consent category more-than tripled over the last 27 years (from \$1.6 billion to \$5.8 billion), these were made up of periods of volatile fluctuations. A significant downward trend was observed between 2004 and 2009, where the value of new residential building consents fell from its pre-GFC peak (\$4.1 billion) to its record low (\$1.3 billion). This was followed by strong recovery since late 2011, with the value of this consent category exceeding \$5.0 billion in mid-2018.
- Although starting at a relatively low base (\$220 million), new non-residential building consents experienced the fastest rate of growth, with its value in 2019 (\$2.3 billion) being more than 10 times its value in 1992. As a result, this consent category made up almost a quarter (24%) of the total building consent value by the end of 2019, which was 15 percentage points higher than its share in 2000. Compared to new residential building consents, fluctuations in the value of this consent category were less volatile, even during the GFC. As with the value of non-residential building work data, growth in the value of new non-residential buildings consented was the strongest between 2015 and 2019 (a \$1.0 billion increase from \$1.3 billion).
- The value of alterations consented, either residential or non-residential, has been reasonably stable relative to consents of new buildings. Both residential and non-residential alterations were relatively flat for 16 years from 1997 to 2013. For residential alterations, an increase of \$255 million (a 43% increase from \$634 million) was observed between mid-2013 and early 2015, although fell to just under \$800 million by mid-2019. This trend was not matched by non-residential alterations, which continued remained relatively flat until December 2018 (\$576 million) and steadily increase by 27 per cent by the end of 2019 (\$732 million).

Figure 27: Building consents values by category, Auckland, December years 1992 to 2019 (\$million in December 2019 dollars)



Source: Stats NZ, Building Consents

6.3 Residential building consents

Construction of new residential buildings is an important output of the construction sector. Growth pressures and desires for intensification and affordable housing require identifying the number and floor area (in m²) of new dwellings built that are potentially of medium or high density. Stats NZ's building consents data on new dwellings consented can serve as an indicator of net growth in housing capacity.²³ This section looks at trends in number and floor area of new dwellings consented in Auckland (so excludes alterations), in total and split between attached and detached of various types.

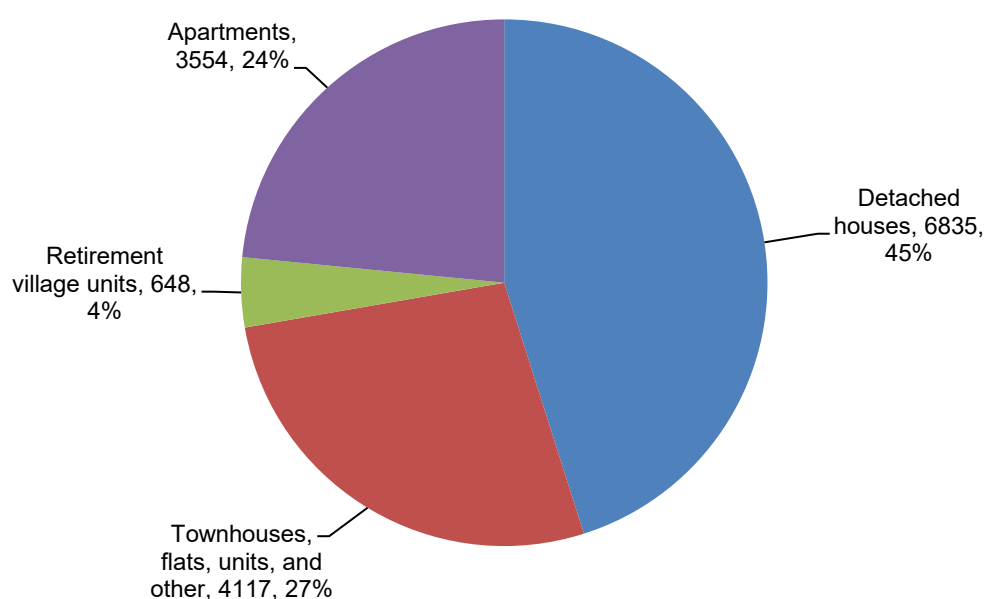
²³ Note that the data should be viewed with the following caveats:

- it ignores demolitions – which are not tracked
- it includes some consents that are never implemented
- it excludes extensions – but if they were included (via alterations data) then this would also include renovations, which add little or no new residential capacity
- it takes no account of varying sizes of dwellings (e.g. bedrooms).

6.3.1 Trends in number of new dwellings consented by type

In the year ending December 2019, there were 15,154 new dwellings consented in Auckland. Under half (45%) of those were detached houses (6835 dwellings) and 55 per cent were attached (8319 dwellings). Of the attached dwellings, almost half were categorised as townhouses, flats, units and other dwellings (27% of total new consented dwellings). Apartments and retirement village units made up the remaining 28 per cent of the total new consented dwellings.

Figure 28: Number of new dwellings consented by type in Auckland, year ending December 2019



Source: Stats NZ, Building Consents

The annual number of new dwellings consented in Auckland for the 2019 December year was at a record high. This was triple the level seen in the year ended December 1992 (4961) and nearly five times the “all-time” (since December 1992) low of annual total 3143 observed in August 2009.

For the 27-year period between 1992 and 2019, fluctuations in the number of new attached dwellings consented were more volatile than detached houses (Figure 29). The following trends were observed for the number of attached compared to detached new dwellings for which building consents were issued in the preceding 12 months:

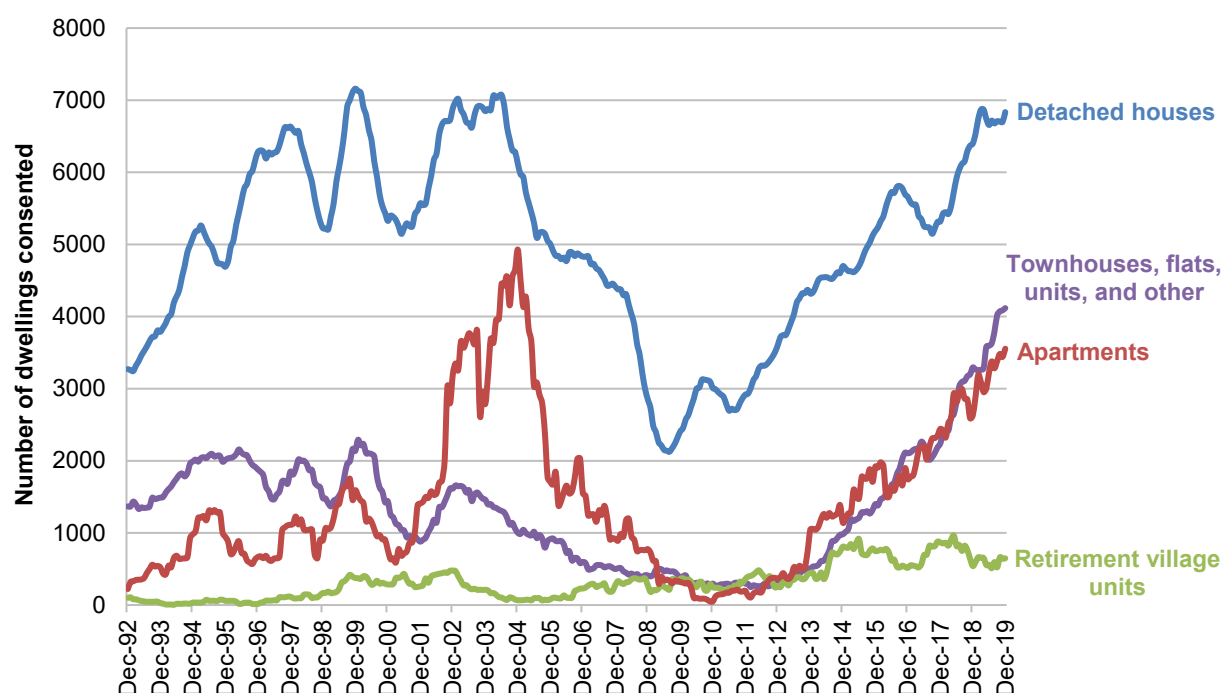
- The number of detached houses consented reached its highest point of 7160 by December 1999 (a 119% increase from 3272, averaging 12% per annum).

Attached dwellings rose at a similar rate from 1689 to 4103 over the same period (14% average growth per annum).

- During the December years between 1992 and 2004, on average, half of the new dwellings consented were detached houses. While attached dwellings accounted for the other half of the new dwellings consented during this period, the share of apartments consented rose by 37 percentage points (from 4% to 41%) as they reached to their all-time high by December 2004 (from 222 to 4968). However, this was at the expense of townhouses (including flats, units and “other dwellings”) – their share fell by 20 percentage points (from 29%).
- After December 2004, the number of apartments consented began to fall and dropped by more than 80 per cent by January 2008 (892), just before the impact of the GFC. In comparison, the fall in detached houses consented was less extreme – decreased by 1744 (a 28% decrease from 6120).
- The GFC and its aftermath resulted in further major drops for detached houses, townhouses (including flats, units, and “other dwellings”) and apartments. By November 2010, there were only 49 new apartments consented in the 12 months preceding, which was the record low point for this dwelling type. The number of detached dwellings and townhouses consented also fell by 29 and 44 per cent respectively compared to their level in January 2008.
- Both detached and attached consent numbers showed a strengthening recovery since the year ended December 2010. The number of detached dwellings consented more-than doubled between December 2010 and December 2019 (from 3009 to 6835, 10% average growth per annum). During the same period, the number of attached dwellings increased by almost 13-fold (from 594 to 8319, 35% average growth per annum). This was largely driven by the sharp rise in the number of apartments and townhouses consented (including flats, units, and “other dwellings”). They experienced a 70-fold increase (from 50 to 3554) and a 13-fold increase (from 297 to 4117) respectively.

The prolonged strong growth of attached dwellings consented over the recent years, such as apartments and townhouses, could also suggest a shift towards the preference for intensified housing in Auckland. This is similar to what Rider Levett Bucknall (2020) in their recent report on trends in New Zealand’s construction and property market have found.

Figure 29: Dwellings consented in Auckland by type, December years 1992 to 2019



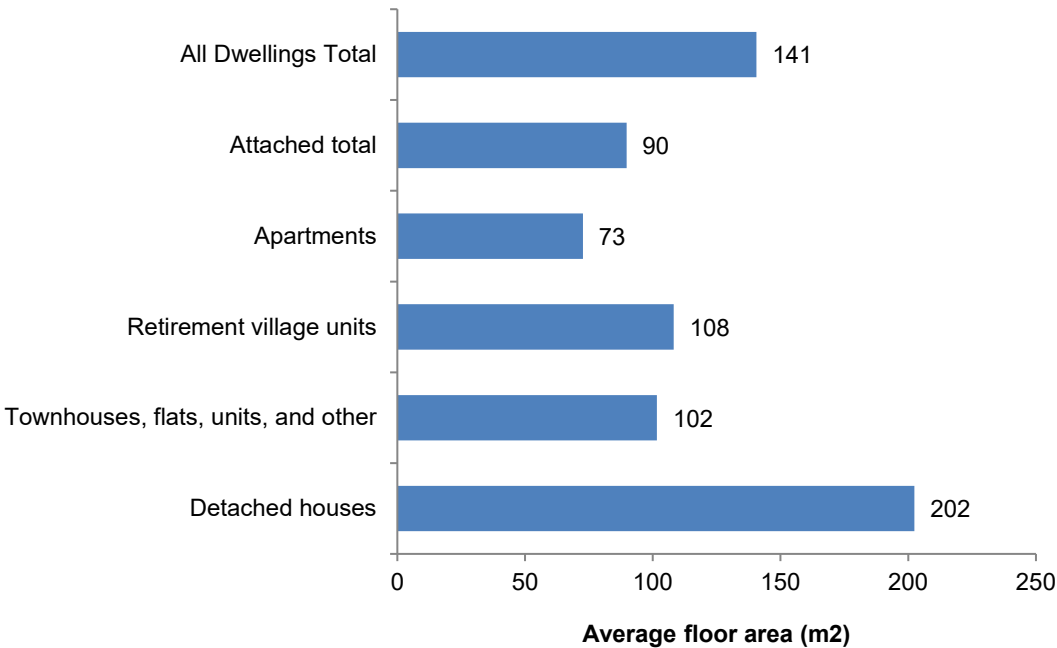
Source: Stats NZ, Building Consents

6.3.2 Trends in average floor area of dwellings consented by type

The average floor area (in m²) of dwellings consented varies by type and changes over time. This is because attached dwellings tend to be smaller than detached houses, and/or because the average size of dwellings in each category is not static. This subsection compares trends in the size of attached and detached dwellings, and splits attached dwellings into apartments and townhouses.

In 2019, the average floor area of new dwellings consented in Auckland was 141m² (Figure 30). As expected, the size of detached dwellings was significantly larger than attached dwellings on average (202m² compared to 90m²). Of attached dwellings, apartments (73m² on average) were notably smaller compared to townhouses, flats, units and other (102m² on average) and retirement village units (108m² on average).

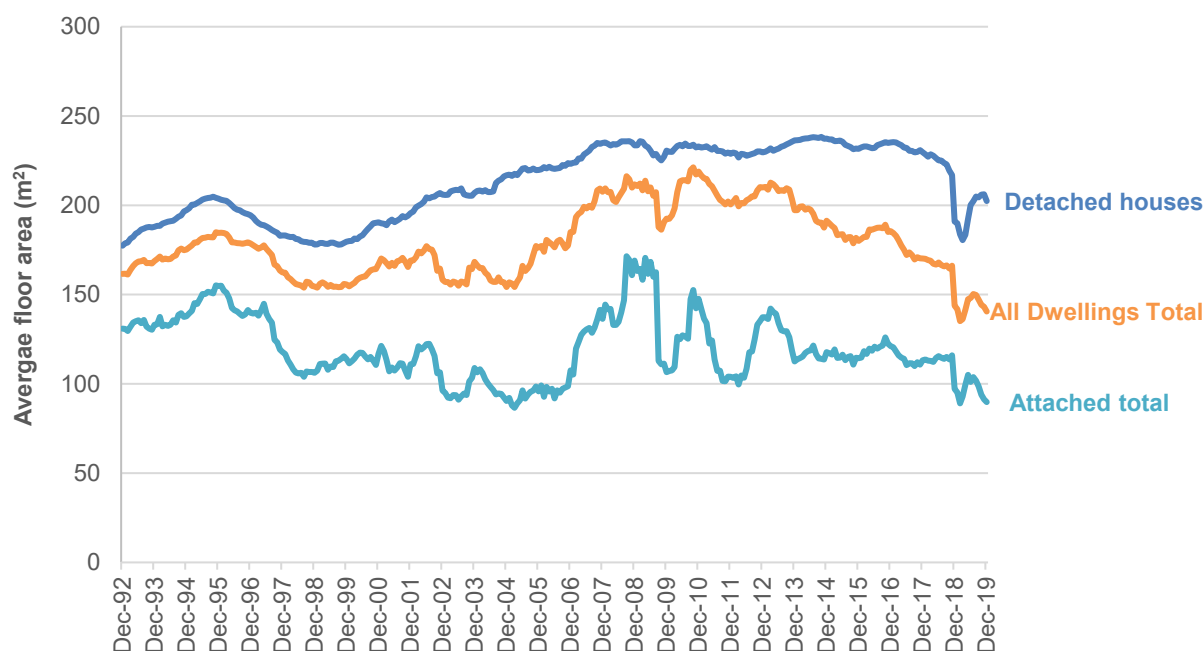
Figure 30: Average floor area of new dwellings consented in Auckland by type, year ending December 2019



Source: Authors' estimates based on data sourced from Stats NZ's Building Consents database

Building Consents data on the floor area of new dwellings consents indicates that the average floor area of consented new dwellings has been generally following a downward trend since 2010 (Figure 31). Although it reached to an all-time high (since year ended December 1992) of 221m² in October 2010, this reduced by a more than a third (36%) by December 2019. This fall was partly driven by the reduction in the average size of both detached (an 13% reduction from 234m²) and attached dwellings (a 41% reduction from 153m²). The main driver of this fall in average size was the sharp increase in the numbers of attached dwellings consented, which generally have significantly smaller floor area than detached houses. This again may correspond to the shift towards intensified housing in the recent years as a way to increase housing capacity in Auckland.

Figure 31: Average floor area of detached houses and attached dwellings consented in Auckland, December years 1992 to 2019

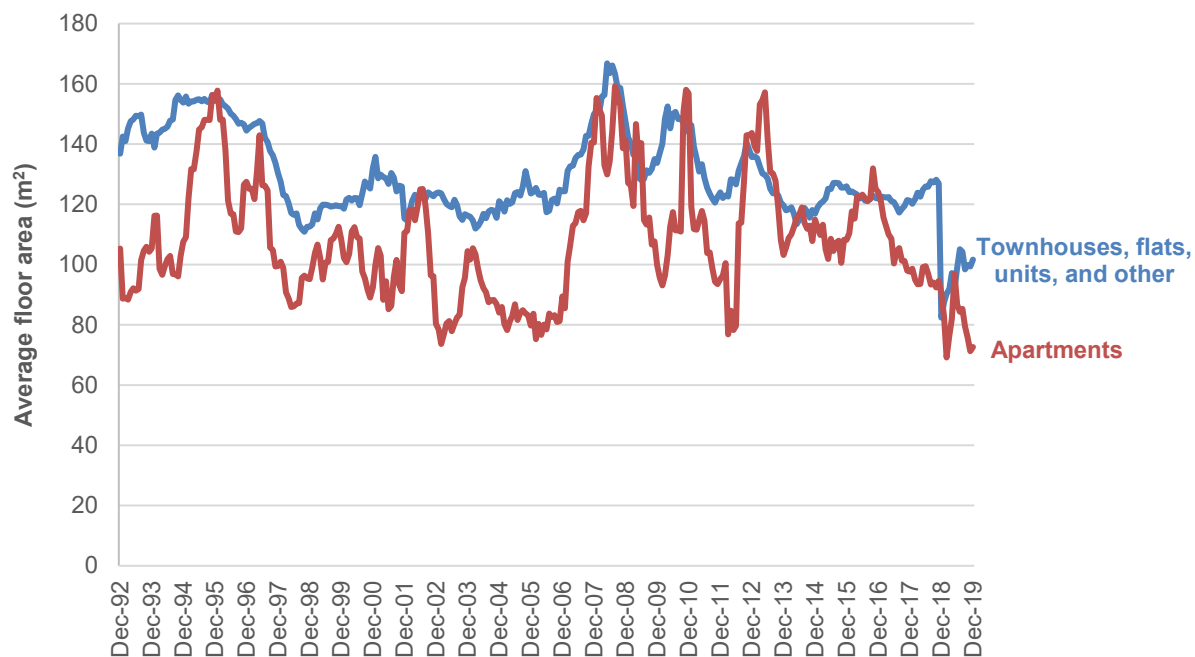


Source: Authors' estimates based on data sourced from Stats NZ's Building Consents database

Looking closer at different types of attached dwellings consented, the average floor area of new apartments consented are in general notably smaller than townhouses (Figure 32). While consented apartments showed no overall trend in their average size over between December 1992 and December 2019, they fluctuated greatly from time to time. The record low of 74m² was observed in February 2003, and the all-time high in August 2008 (159m²) was more-than double this size. Also note that, the average size of apartments consented started to follow a downward trend since early 2019. By December 2019, the average floor area of apartments reduced by 20 per cent compared to the size in December 2018 (91m²).

For consented townhouses (including flats, units, and "other dwellings"), while the average floor area of this category reached to its record high of 167m² by May 2008, a downward trend in its average size was observed since then, with fluctuations occurred in between. By December 2019, the average floor area of consented townhouses reduced by about almost 40 per cent compared to their average size in May 2008.

Figure 32: Average floor area of apartments and townhouses consented in Auckland, December years 1992 to 2019



Source: Authors' estimates based on data sourced from Stats NZ's Building Consents database

7.0 Conclusion

As this report shows, construction is one of the largest and fastest growing sectors in Auckland. Between 2000 and 2019, both employment and GDP for Auckland's construction sector more-than doubled. Despite this strong growth, the sector has been facing ongoing labour shortage. The sector is characterised by a predominance of small businesses, self-employment and working proprietorship. As the cyclical nature of the sector reduces the average tenure of workers, many small construction firms have little incentive or resources to invest in business growth and capacity building (PwC New Zealand, 2016). This could be a possible explanation for the sector's productivity being significantly below the Auckland average as shown in the data.

This report also highlights the significance of the Residential Building Construction sub-sector. It has the largest share of employment and number of businesses in Auckland's construction sector, and has experienced the strongest GDP growth (alongside Heavy and Civil Engineering Construction and Building Installation Services). The volatilities in its employment and GDP trends almost mirror those observed in the trends for the overall construction sector – the sharp fall during the GFC and the exponential growth since the housing boom.

The significance of Residential Building Construction is also reflected in the sector's building output. In 2019, over half of the value of building work in Auckland is new residential buildings. The value and number of consents for new residential buildings have been surging as the economy recovered from the GFC and the housing boom commenced. A main driver of this is the exponential growth in the number of attached dwellings (such as townhouses and apartments). The growing number of attached dwellings is also coupled with a downward trend in their average floor area, suggesting a shift towards intensified housing in Auckland. As the Auckland Unitary Plan (Auckland Council, 2016) enables further intensification and compact urban form, the rising trend of attached dwellings is expected to continue.

This report presents an updated picture of Auckland's construction sector. It highlights the sector's strong growth in employment, GDP, and the significant contribution of Residential Building Construction. The report also points out the issues of labour shortage, low productivity and predominance of small businesses which may have hindered sector performance. Helping the sector build capacity and capability continues to be an important policy area for meeting demand for housing and infrastructure. It would also contribute to uplifting productivity for a more prosperous economy in Auckland.

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9.0 Appendix: Construction sector by ANZSIC 3- and 5-digit sub-sectors

Code	ANZSIC 2006 sub-sector	ANZSIC code includes	ANZSIC code excludes
E301	Residential Building Construction		
E30110	House Construction	Garages, prefab assembly, alterations	Semi-detached, offsite prefabricating
E30190	Other Residential Building Construction	Flats, apartments, semis, retirement village units	Hotels, nurse-homes
E302	Non-Residential Building Construction		
E30200	Non-Residential Building Construction	Alterations, prefab assembly	offsite prefabricating
E310	Heavy and Civil Engineering Construction		
E31010	Road and Bridge Construction	At grade parking	Tunnels (E31090), specialists e.g. E322
E31090	Other Heavy and Civil Engineering Construction	Tunnels, cables, pipes	Specialists (E321, E322, E323, E324, E329)
E321	Land Development and Site Preparation Services		
E32110	Land Development and Subdivision	Excavation for servicing	Road sub-contractor
E32120	Site Preparation Services	Trenches, clearance, earthmove	Quarrying
E322	Building Structure Services		
E32210	Concreting Services	Foundations, footpaths, kerbs	Terrazzo, brick paving
E32220	Bricklaying Services	Stonework, concrete block	Brick paving (E32910)
E32230	Roofing Services	Painting, coating	Gutter, truss, insulation
E32240	Structural Steel Erection Services	Components for buildings, Bridges, towers, cranes	Construction of complete structures
E323	Building Installation Services		
E32310	Plumbing Services	Gas, drains, guttering	Drainage systems
E32320	Electrical Services	TV antenna, telecom cable	Transmission lines
E32330	Air Conditioning and Heating Services	Refrigeration, coolroom	Industrial furnaces
E32340	Fire and Security Alarm Installation Services	CCTV, sprinklers	monitoring
E32390	Other Building Installation Services	Insulation, lifts, curtains	n/a
E324	Building Completion Services		
E32410	Plastering and Ceiling Services	Cement rendering	n/a
E32420	Carpentry Services	Floors, trusses, cabinets	Offsite prefab
E32430	Tiling and Carpeting Services	Floor prep & coverings	Roof tiles, wood flooring
E32440	Painting and Decorating Services	Paint and wallpaper only	Roof painting or coating
E32450	Glazing Services	Window frames	Offsite prefab
E329	Other Construction Services		
E32910	Landscape Construction Services	Pave, fence, lawn, retaining wall, streetscape planting	Maintain garden or lawn, landscape design
E32920	Hire of Construction Machinery with Operator	Cranes	Earthmoving equipment
E32990	Other Construction Services n.e.c.	Scaffold, Metal wall cladding or waterproofing of buildings	n/a

Find out more: phone 09 301 0101, email
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aucklandcouncil.govt.nz and knowledgeauckland.org.nz