Trends in materials used in new houses 2010–2019

BRANZ regularly surveys builders and designers to collect information about materials used in new housing. This Research Now summarises the changing trends in building materials and other physical characteristics observed between 2010 and 2019. Steel remains the most common material for roofing, and its use is increasing. Weatherboard profiles remain common for wall cladding, overtaking bricks in 2016. Timber framing remains dominant in new housing, and a growing use of laminated veneer lumber (LVL) was observed.

BRANZ sends out surveys for 5,000 new residential buildings per year for the BRANZ New Dwellings Survey. This survey series started in 1998 and collects a variety of data on materials used in new housing.

The survey is a postal survey sent to the builder or designer identified on the building consent application form in 31 territorial authorities, and the questions relate to each individual consent. Other official statistics about new housing in New Zealand - beyond building type, value and floor area - are limited, so this survey is unique.

Generally, over 1,200 returns are received back each year. The responses are weighted by share of building activity in each territorial authority to ensure the survey results are not skewed disproportionately if BRANZ receives a larger number of survey returns from one area. Some questions change from survey to survey. However, most have remained the same since the start to ensure a consistent data set for comparative purposes.

Using the survey data, the incidence and relative frequency of many different materials used in new housing each year are estimated, and changing trends in these are documented over time.

Territorial authorities surveyed were Auckland, Christchurch, Dunedin, Franklin, Far North, Gisborne, Hutt City, Hamilton, Invercargill, Kapiti, Manukau, Marlborough, Napier, New Plymouth, North Shore, Porirua, Palmerston North, Queenstown, Rodney, Southland, Tauranga, Thames-Coromandel, Tasman, Waikato, Waipa, Wellington, Western Bay of Plenty, Whangarei and Waitakere.

Roof claddings

Sheet metal is the dominant roof cladding material with its market share trending upwards since 2012. It experienced a noticeable increase in 2018, which has been maintained in 2019 (Figure 1). The share of tiles (both metal and concrete) continued to ease during 2019 while the 'other' category increased once again. The 'other' category mostly consists of shingle and membrane roofing products.

Wall claddings

Weatherboard profiles remain the most common wall cladding with a 43% market share, 75% of which are timber, with the remainder consisting of fibre-cement and uPVC (Figure 2).

Finish bricks (both clay and concrete) continued their decline in share, slipping below the 'other' category in 2018, after falling behind timber weatherboards in 2017.

Major constituents of the 'other' category are metal, non-weatherboard fibre-cement, exterior insulation and finish systems (EIFS) and aerated autoclaved concrete (AAC).

Wall framing

Timber framing remains the predominant structural material in new housing, with a historical market share of around 90% (Figure 3). This has eased slightly downwards over the past 6 years due to an increase in the use of concrete masonry, particularly for ground floors. The use of laminated veneer lumber (LVL) is growing rapidly and now comprises around 12% of timber framing.

The majority (92%) of wall framing is precut or prenailed, which has started to dip after holding relatively steady over the past 5 years.

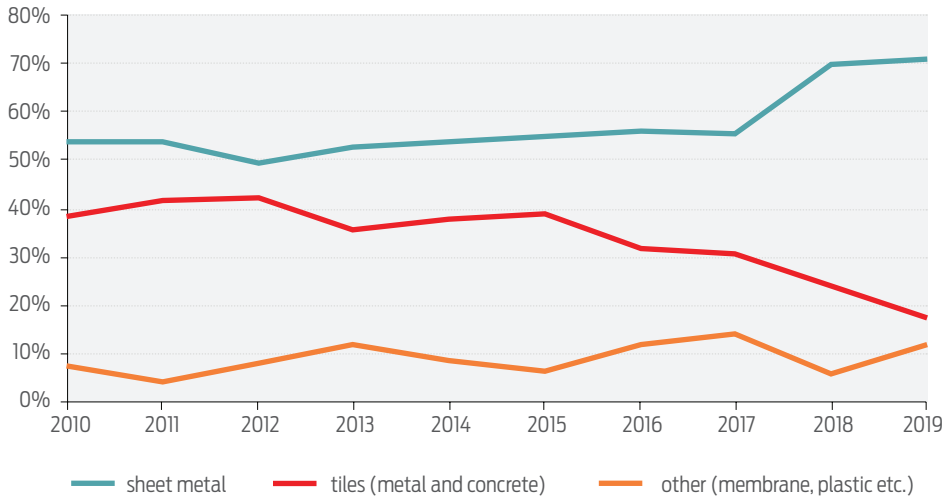

Figure 1. Market share for roof claddings.

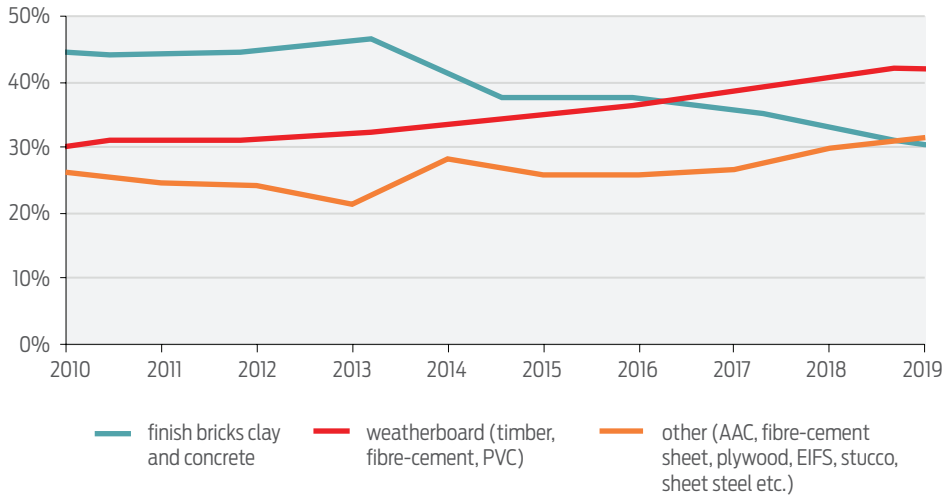

Figure 2. Market share for wall claddings.

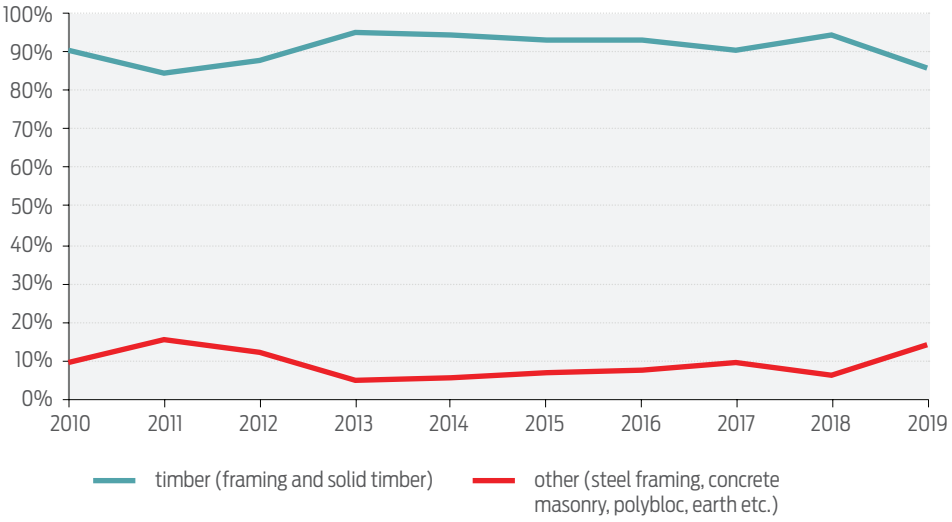

Figure 3. Market share for wall framing.

Number of storeys

Analysis of trends in the number of storeys was restricted to the 29 territorial authorities where BRANZ received four or more responses. Figure 4 shows the proportion of new houses that had one storey, two storeys or three or more storeys.

The greatest proportion of new houses built with two or more storeys was generally reported in areas with higher land prices, such as Central Auckland and Wellington. This reflects that higher land prices encourage greater intensity of development. Steeper terrain may also encourage multi-storey development - for example, in the case of Wellington.

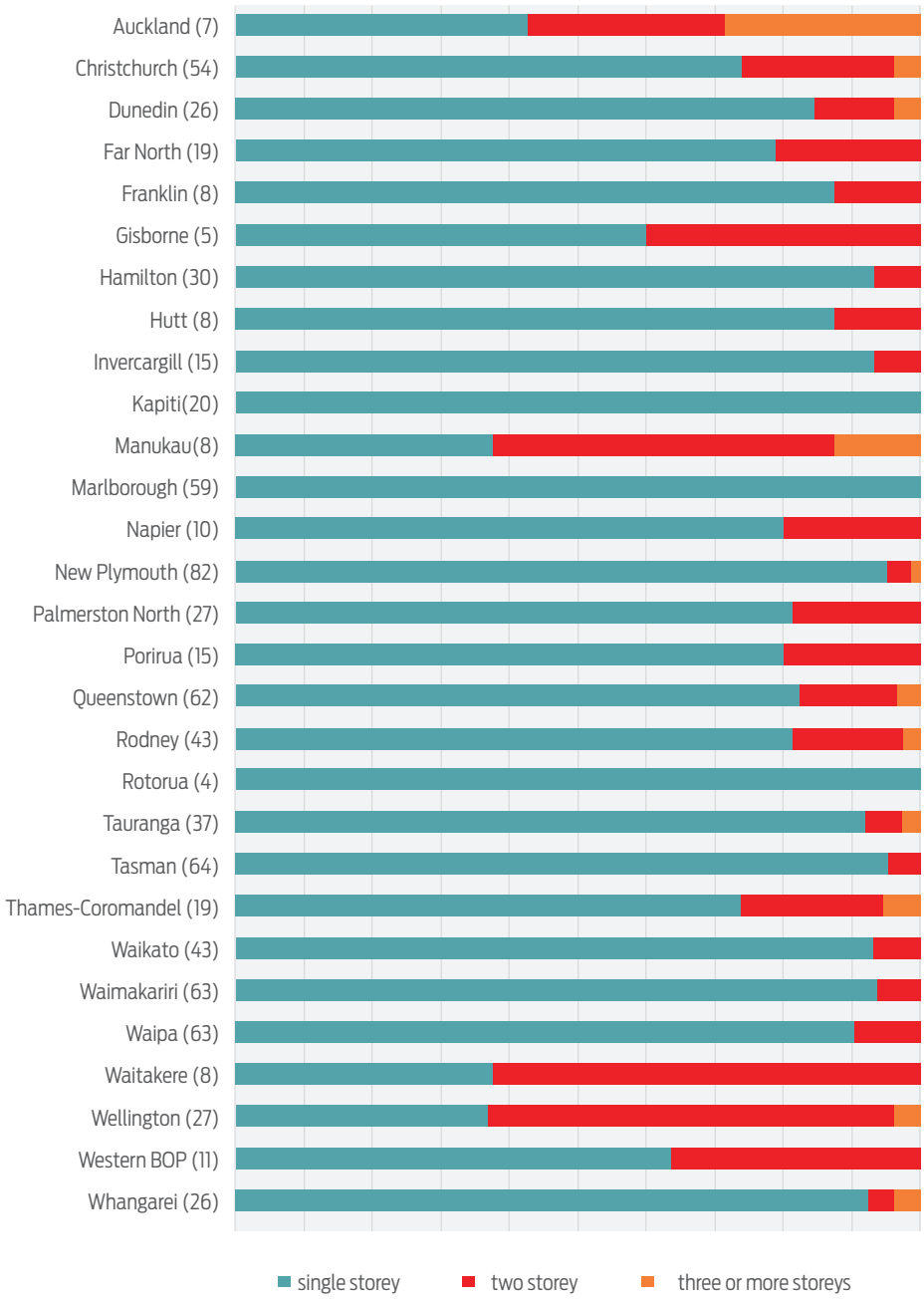

Figure 4. Number of storeys in new housing in 30 territorial authorities. The number of survey responses received is shown in brackets next to the territorial authority name.

Flooring

Use of concrete flooring continued to trend downwards this year after a slight uptick in 2016, while 'all other flooring' continued to trend upwards towards 35% of the market share in new housing (Figure 5). 'All other flooring' is mostly particleboard and strand board. The percentages include upper floors (usually wood based) so are impacted by the trend towards multi-storey buildings, which made up 14% of new dwellings in 2019.

Floor joists

While still holding the larger market share, solid timber has lost some of the market share in 2019 to the 'other' category, which has increased from 26% to 45% (Figure 6). The 'other' category primarily consists of various proprietary wood and steel composite joists and traditional heavy-gauge steel joists.

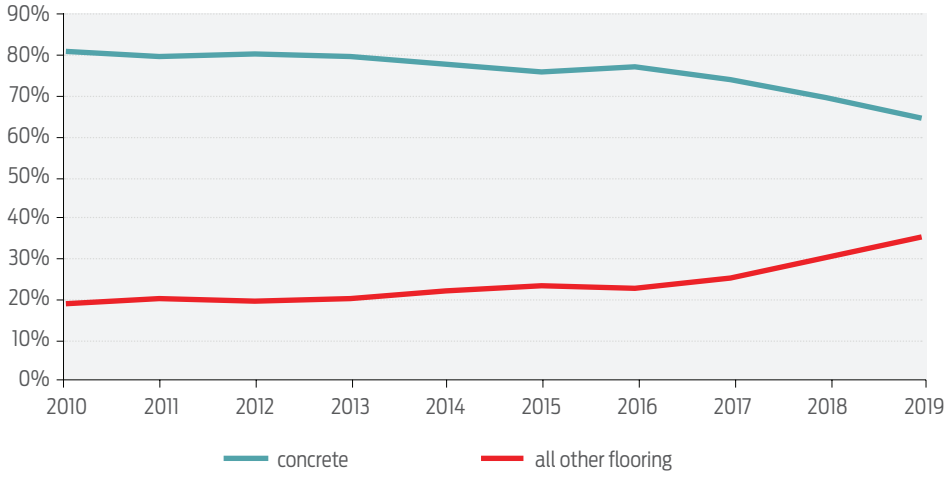

Figure 5. Market share for flooring types.

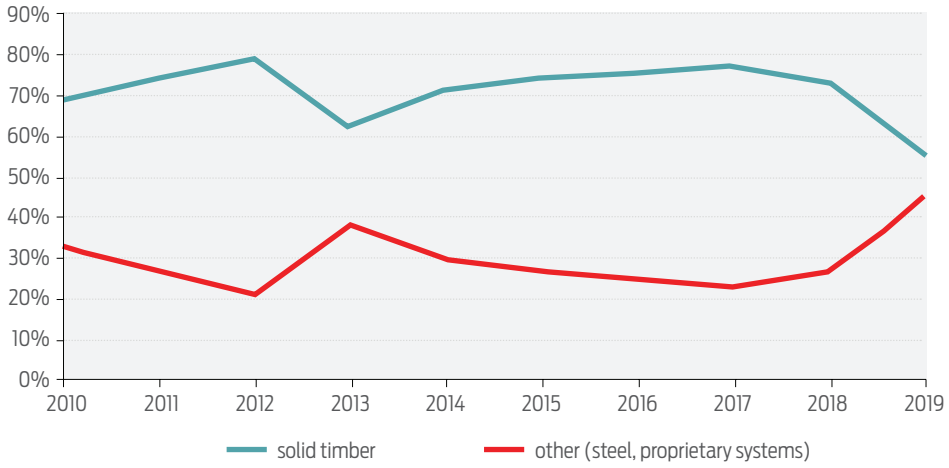

Figure 6. Market share for floor joists.

Wall, ceiling and floor insulation

Fibreglass is the dominant wall insulation material (Figure 7a). Its share has increased slightly in 2019. The 'other' category is mainly polyester insulation.

Fibreglass is also the dominant ceiling insulation material (Figure 7b). It is common for builders to use the same type of material (often the same brand) for walls and ceiling, so market shares for wall and ceiling insulation tend to move together. In 2019, there was a slight decrease in the market share for fibreglass as 'other' has increased.

In 2015, the question on insulation of concrete slabs was changed. The mix of insulation types used in 2015 against total insulation for the historical series is shown in Figure 7c. It will take further data with the new question to establish a trend for this series. Underslab full/partial insulation is the most common insulation for concrete slabs in new housing. Very few builders reported insulating the perimeter edge or under the slab footing.

Timber subfloors are much less common than concrete slabs in new housing. Therefore, the shares presented in Figure 7d are susceptible to large swings given the use of timber floor insulation in new houses being limited. Polystyrene remains the dominant timber floor insulation material, followed by fibreglass and polyester. Meanwhile, foil was non-existent as a timber floor insulator in 2018 and 2019, following a ban in 2016 and a trend of steady decline since 2014.

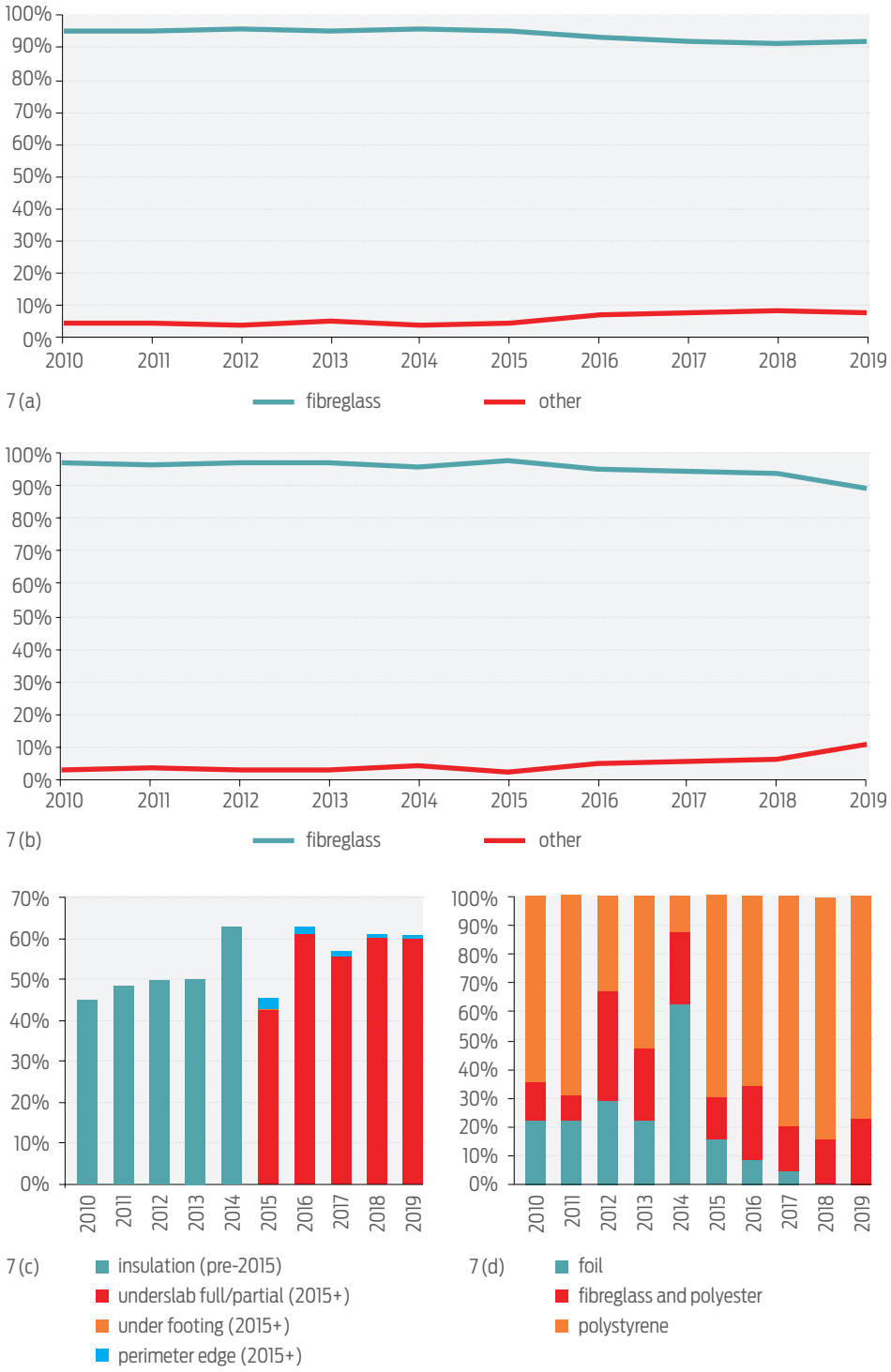

Figure 7. Market shares for insulation in (a) walls, (b) ceilings, (c) concrete floors and (d) timber floors in new housing.

Survey use and limitations

The BRANZ New Dwellings Survey provides information about new housing that is not available elsewhere and is intended to support decision making by building material manufacturers, retailers and wholesalers, builders, designers, researchers and government officials.

A limitation of the survey is that it does not ask why certain materials are selected. This means that BRANZ cannot comment on why material trends might be changing. The survey may contain sampling noise, which can cause short-term fluctuations that are at variance to long-term trends.

The average floor areas since 2006 shown in Figure 8 illustrate any bias that may be present in the results. As in preceding years, the sample average floor area for 2019 in the survey is still above the consent average floor area.

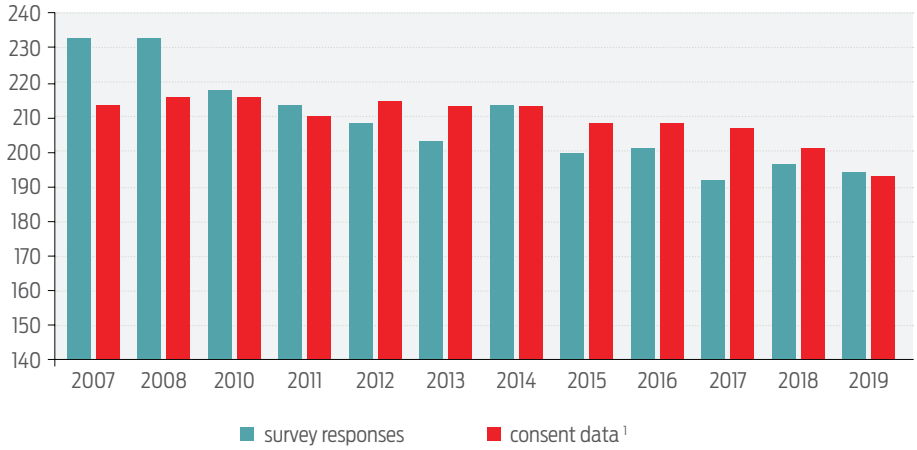

Figure 8. Average floor area – consent versus sample.

[1] *Source: Statistics NZ*

More information

SR447 *Physical characteristics of new houses 2019*