



Trends in materials used in new non-residential buildings 2010–2019

BRANZ regularly collects information about materials used in non-residential buildings. In general, the market share of materials types used has been relatively steady over the years surveyed. In 2019, the materials used for wall framing were evenly split. Steel remains the most commonly used material for main structural framing, and steel and other metals are the most common for roof and wall claddings. Timber is the most popular material for infill framing, closely followed by steel. For insulation, fibreglass use is decreasing and is no longer the dominant material used in wall insulation, and polystyrene is still the most common floor insulation.

BRANZ sends out surveys for around 2,000 new non-residential buildings per year for the BRANZ Non-Residential Survey. This survey began in 1998 and collects a variety of data about the materials used in new and altered buildings.

The survey is a postal survey sent out in 31 territorial authorities to the builder or designer identified on the building consent application form, and the questions relate to each individual consent. Other official statistics - beyond building type, value and floor area - about non-residential buildings in New Zealand are limited, and there is no official information collected about the building materials used, so this survey is unique.

Generally, around 400 returns are received back each year. The responses are weighted by share of building activity for each building type. This ensures the survey results are not skewed disproportionately if BRANZ receives a larger number of survey returns for one building type. New questions are occasionally

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.

added to the survey, if required, while keeping the survey form as simple, concise and clear as possible and to a single page.

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

Roof claddings

Sheet metal is the dominant roof cladding for new non-residential buildings, with an increase in 2019 to 91% (Figure 1). Metal and concrete tiles remain relatively uncommon in non-residential buildings.

The ‘other’ category consists of membrane roofing, insulated panels and plastic film used on farm shelters. Use of plastic film on farm shelters has continued to drop from a peak in 2016, falling to its lowest levels since 2010.

Wall claddings

Steel, aluminium and other metals are the dominant wall cladding material in New Zealand non-residential buildings, continuing to hold around 50% market share due to their dominance in industrial and farm buildings (Figure 2). The use of concrete (mainly precast panels) tends to be variable but remained steady in 2019.

The ‘other’ category - a range of claddings including glazing, fibre-cement and autoclaved aerated concrete (AAC) - also remained similar to 2018 and will be a trend to watch out for in future years to see if this remains steady after a consistent climb from 2015-2018.

Main structure

The use of steel in main structural frames increased again in 2019, following a dip in 2018 (Figure 3). Concrete frames increased only slightly from 12% to 14%, while timber framing decreased its market share in 2019.

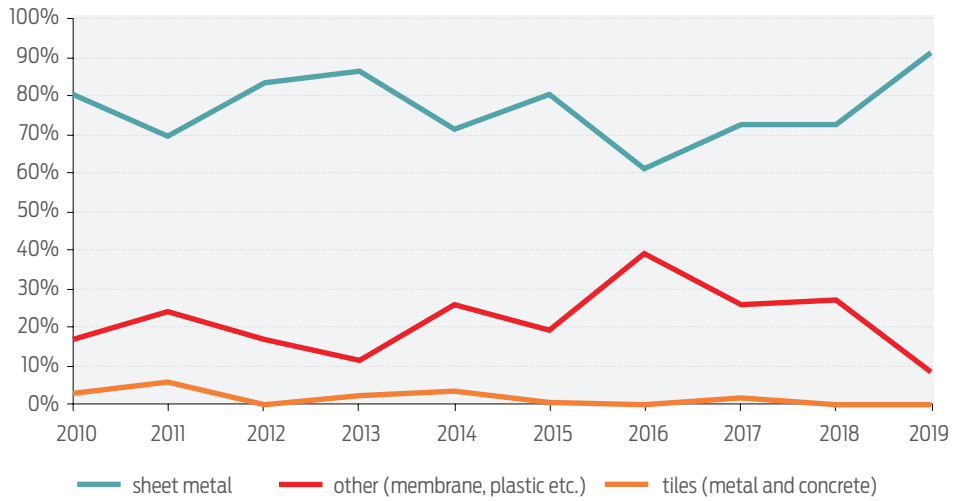


Figure 1. Market share for roof claddings in non-residential buildings.

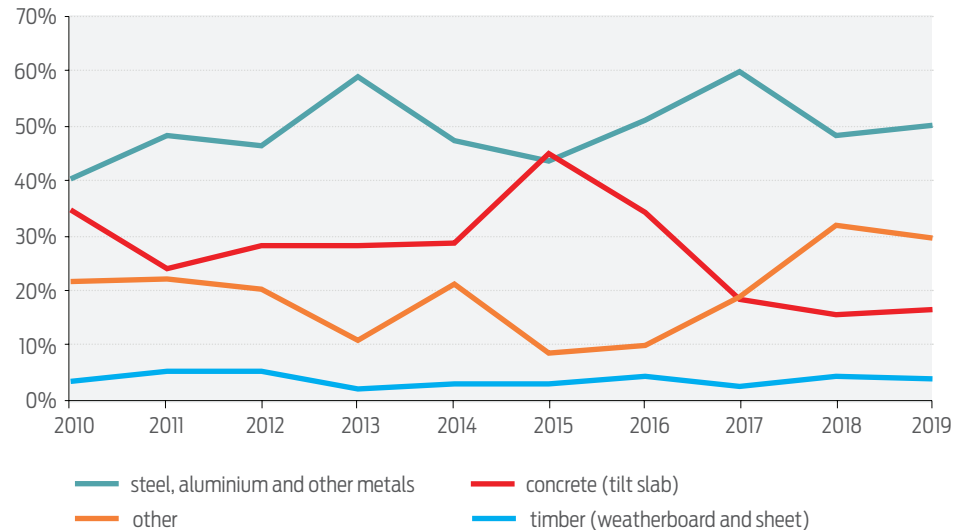


Figure 2. Market share for wall claddings in non-residential buildings.

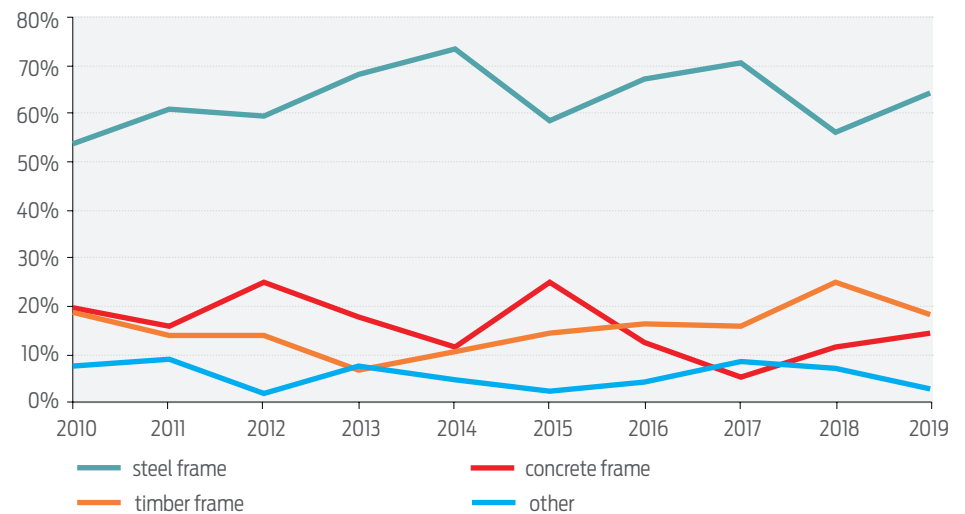


Figure 3. Main structure market share in non-residential buildings.

Wall infill framing

Wall infill framing is the framing between the main structural frames. Timber framing remains the main material type for this application, although this has dropped from a 54% share in 2018 to 37% in 2019, with concrete and ‘other’ both increasing (Figure 4). The ‘other’ category often includes glazing.

Steel is in second place and retained the same share as 2018.

Partition wall framing

In 2019, partition wall framing market shares became relatively even, with steel, timber and ‘other’ ranging from 30-39% (Figure 5). The market share of timber continues to decrease for partition wall framing, falling to 31% in 2019, sharing a similar market share to ‘other’.

The ‘other’ category includes insulated panels and glazing and has increased from a 17% market share in 2018 to 30% in 2019.

The use of steel dropped slightly but remains the most-used material at 39% of the market share.

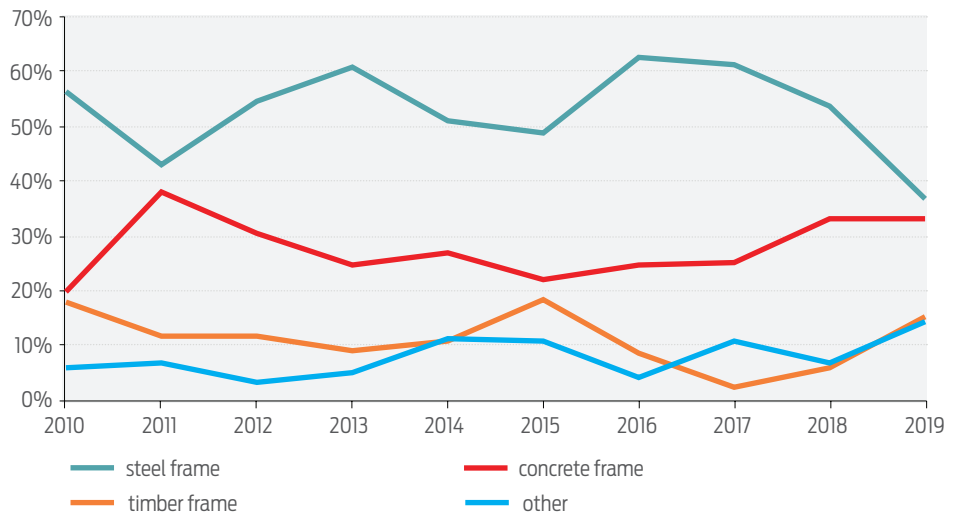


Figure 4. Market share for wall infill framing in non-residential buildings.

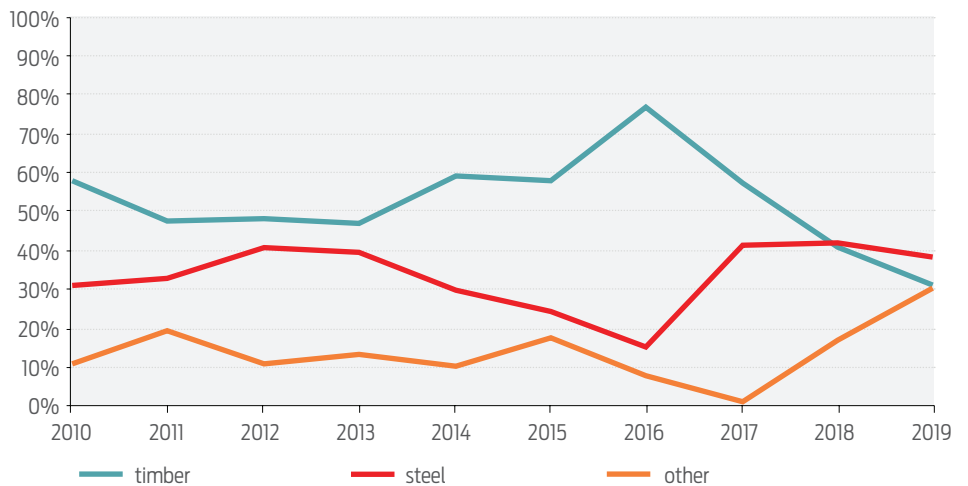


Figure 5. Market share for partition wall framing in non-residential buildings.

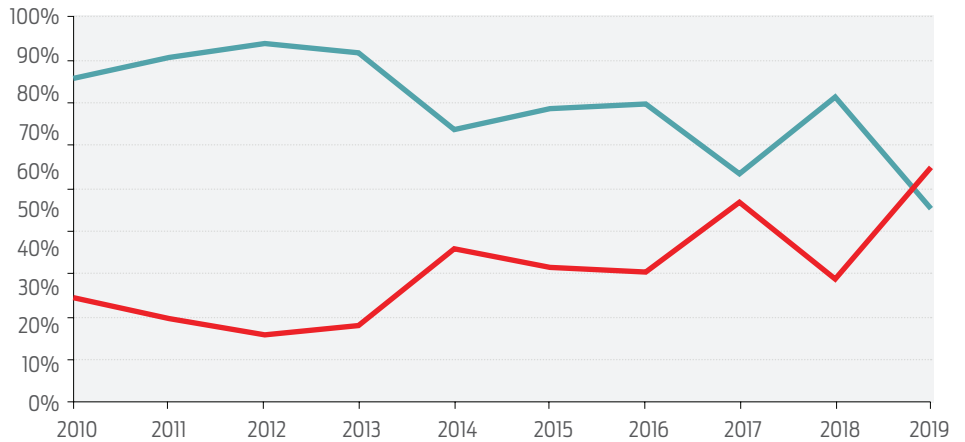
Wall, ceiling and floor insulation

Farm buildings have not been included in the analysis in this section, as it is uncommon for farm buildings to use insulation and they have a large share of the non-residential building market.

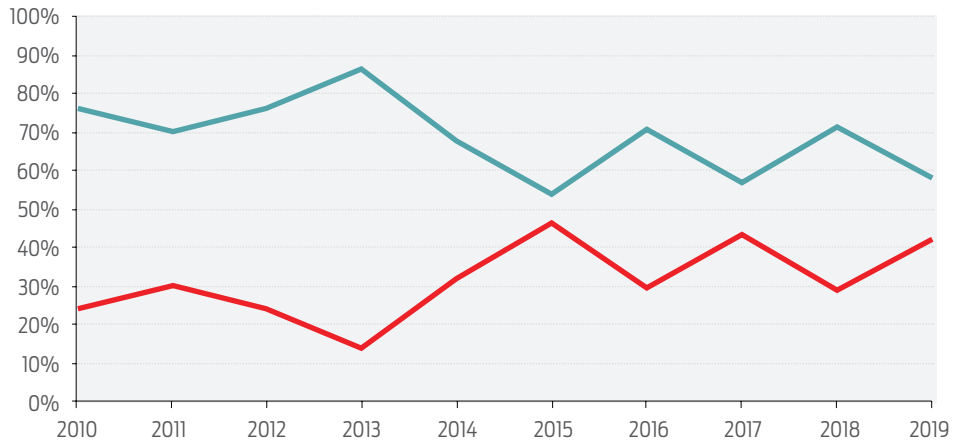
For the first time since 2010, fibreglass is no longer the dominant wall insulation material with a share of 45% (Figure 6a). The use of polyester has been slowly growing for wall insulation over the past decade, and after a brief drop in share in 2018, the ‘polyester and other’ category now has the highest market share at 55%.

Normally most buildings use the same insulation material in the wall and ceiling, which means that market share in each market tends to follow the other (Figure 6a and b). Fibreglass remains the dominant insulation material in ceilings but experienced a decrease to 58% in 2019 with the ‘polyester and other’ category increasing to a similar level to 2017. ‘Other’ primarily consists of polystyrene, which is common as part of insulated panels in industrial buildings.

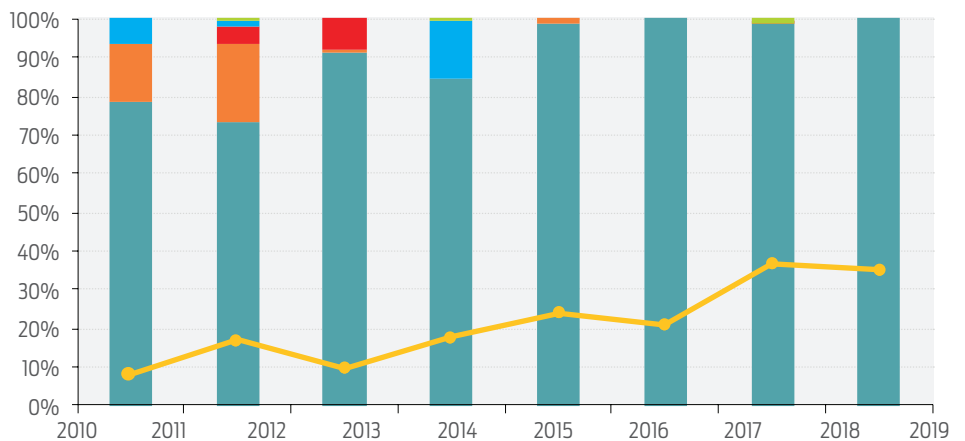
For those buildings with floor insulation, sheet polystyrene is still the most common floor insulation material (Figure 6c). The survey question on insulation of concrete slabs was changed in 2015. This analysis assumes that all buildings with full or partial underslab insulation in the survey used sheet polystyrene, although non-polystyrene waffle pod systems have entered the market.



6 (a) fibreglass polyester and other



6 (b) fibreglass polyester and other



6 (c) sheet polystyrene foil waffle pod fibreglass or polyester other percentage with floor insulation

Figure 6. Market shares for insulation in (a) walls, (b) ceilings and (c) floors in non-residential buildings.

Value of building consents

Since 2012, the value of consents for new non-residential buildings has increased to reach a record high in 2019, with the total increasing from \$5.429 million in 2018 to \$5.571 million in 2019 (Figure 7).

Survey use and limitations

The BRANZ Non-Residential Survey provides information about new buildings 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.

Due to the mix of buildings year to year in the survey, the observed market shares of material can be highly variable, which can cause short-term fluctuations that are at variance with long-term trends. Therefore, changes in market share year to year may be due to a change in the types of building surveyed that year rather than a change in preference for any particular building material.

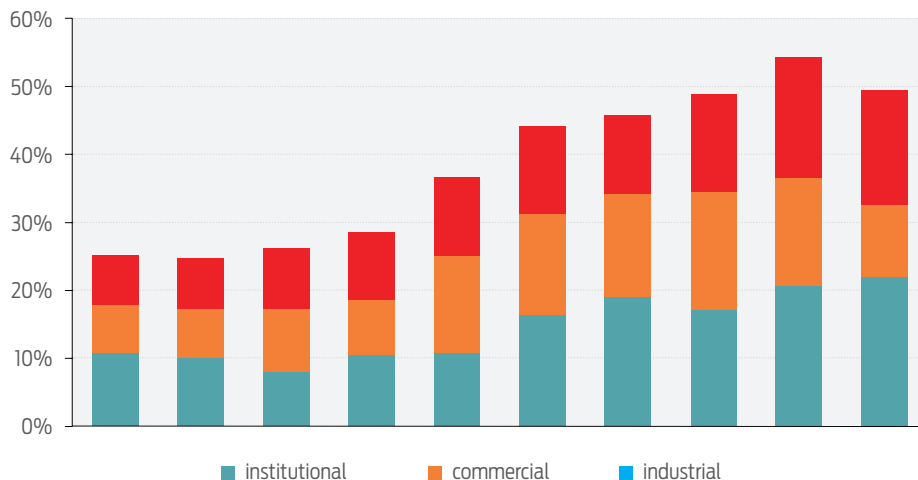


Figure 7. Value of consents for institutional, commercial and industrial buildings.

More information

SR448 *Physical characteristics of new non-residential buildings 2019*