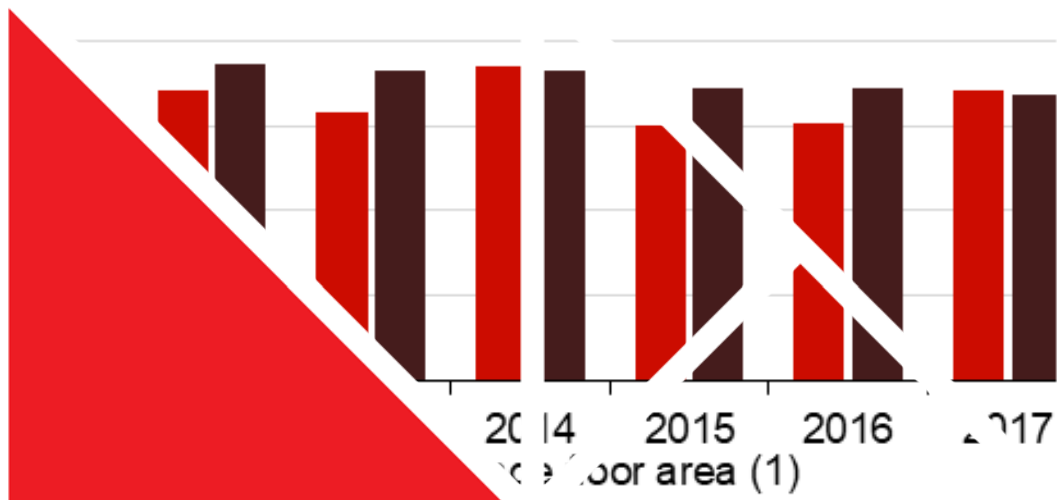


Physical characteristics of new houses 2017

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The work reported here was funded by BRANZ from the
Building Research Levy.

Preface

This is the seventh annual report providing the results of the BRANZ New Dwellings Survey. BRANZ surveys builders of new dwellings on the physical characteristics of their buildings. The purpose is to obtain data on new housing that is not available from official sources. This data includes generic types of materials used by building component as well as design information such as number of floors, prefabrication and efficiency measures. The data is useful for studies in the fields of sustainability, energy efficiency, durability and engineering.

Acknowledgements

We would like to thank all of the builders and designers who filled in the survey form and returned it to BRANZ.

Physical characteristics of new houses 2017

BRANZ Study Report SR396

Authors

Nick Brunsdon and Caleb Magan

Reference

Brunsdon, N. & Magan, C. (2018). *Physical characteristics of new houses 2017*. BRANZ Study Report SR396 Judgeford, New Zealand: BRANZ Ltd.

Abstract

Official data on the characteristics of new housing is very limited. Building consents data held by Statistics New Zealand gives numbers by building type, value and floor area, aggregated into territorial authorities. However, there is no data on materials used or housing characteristics beyond the floor area.

The BRANZ New Dwellings Survey dates back to 1998 and collects data on materials used in new housing. We have since compiled a database of approximately 1,200 new houses per year containing information on the materials used by building component and design arrangements.

This report contains the results of those surveys on the materials used in new housing. It updates previous data with the inclusion of the 2017 data set. The aim is to provide information useful to building material manufacturers, retailers/wholesalers, builders, designers, researchers and government officials.

Keywords

Materials, building envelope, claddings, floors, framing, insulation.

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1. Introduction

BRANZ surveys 5,000 new residential buildings per year in 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 to the builder or designer identified on the building consent application form, and the questions relate to each individual consent. Generally, over 1,200 returns are received each year. An incentive is offered (a Lotto ticket, book voucher or reduced price on BRANZ publications) for the return of each survey form.

The consent information is obtained from the Whats On¹ building consent data. BRANZ uses this to determine a sample of new dwellings for each period from 31 territorial authorities. The territorial authorities surveyed are:

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
Waitakere			

The survey form is constantly evolving to include new questions as required. However, it is important for BRANZ to keep the survey form as simple, concise and clear as possible. Therefore, BRANZ keeps the survey form to a single page.

BRANZ weights the responses by the share of building activity in each territorial authority (as indicated by building consents) in the calculation of the national market share. This prevents some territorial authorities from having a disproportionate share of the total market share should BRANZ receive a larger number of survey returns from one particular area. The results presented are only for new houses (i.e. single detached units). Using the data collected, representative estimates of the incidence and proportions of many different materials can be made. The components analysed are:

- roof claddings
- wall claddings
- wall framing
- number of storeys
- flooring
- floor joists
- insulation.

¹ *Whats On report (Monthly)*. TF Stevens & Co Ltd, Auckland, New Zealand.

A limitation of the survey is that it does not ask why certain materials are selected. This means that the report contains no commentary on why material trends might be changing. It is also subject to sampling noise, which can cause short-term fluctuations that are at variance to long-term trends.

The average floor areas since 2006 are presented in Figure 1 to illustrate any bias that may be present in the results. The sample average floor area for 2017 is slightly above the consent average floor area. This indicates that, for the 2017 year, there may be a slight bias towards larger houses.

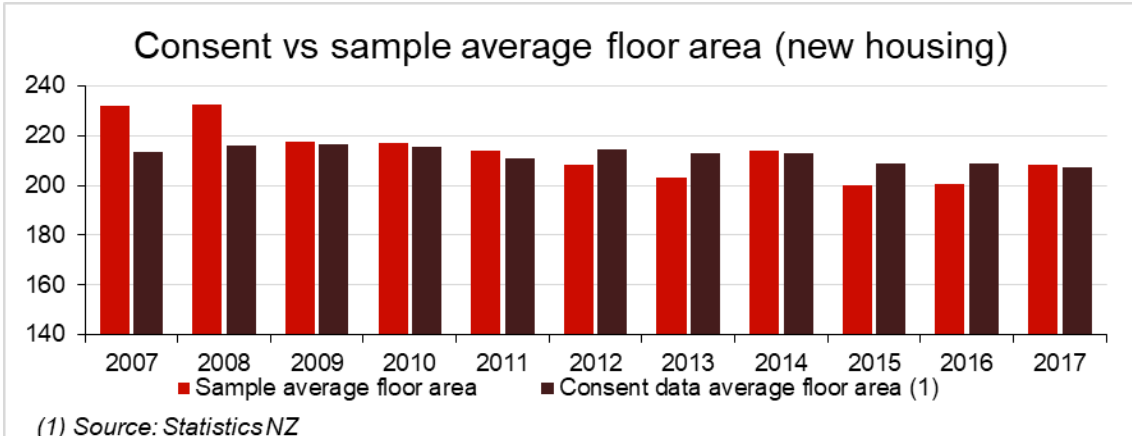


Figure 1. Consent versus sample average floor area.

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.

2. Summary

In general, many of the market shares of materials have been relatively steady over the years surveyed. There are a few exceptions to this though:

- Weatherboard wall cladding continued to increase its share and has overtaken finish bricks as the dominant cladding material.
- A growing trend has seen the emergence of LVL as a substitute for radiata timber framing.
- The use of fibreglass insulation in walls and floors has eased slightly in favour of polyester and polystyrene respectively.

3. Main results

Key results are shown in the following charts. The data for these charts is in the tables in Appendix B.

3.1 Roof claddings

Sheet metal is the dominant roof cladding material. Its share was trending upwards from 2012 (Figure 2). However, this past year has seen a slight reduction. The share of tiles (both metal and concrete) continued to ease during 2017 as 'Other' category gained market share. 'Other' mostly consists of various membrane roofing products.

Nevertheless, these shares have been reasonably consistent over time.

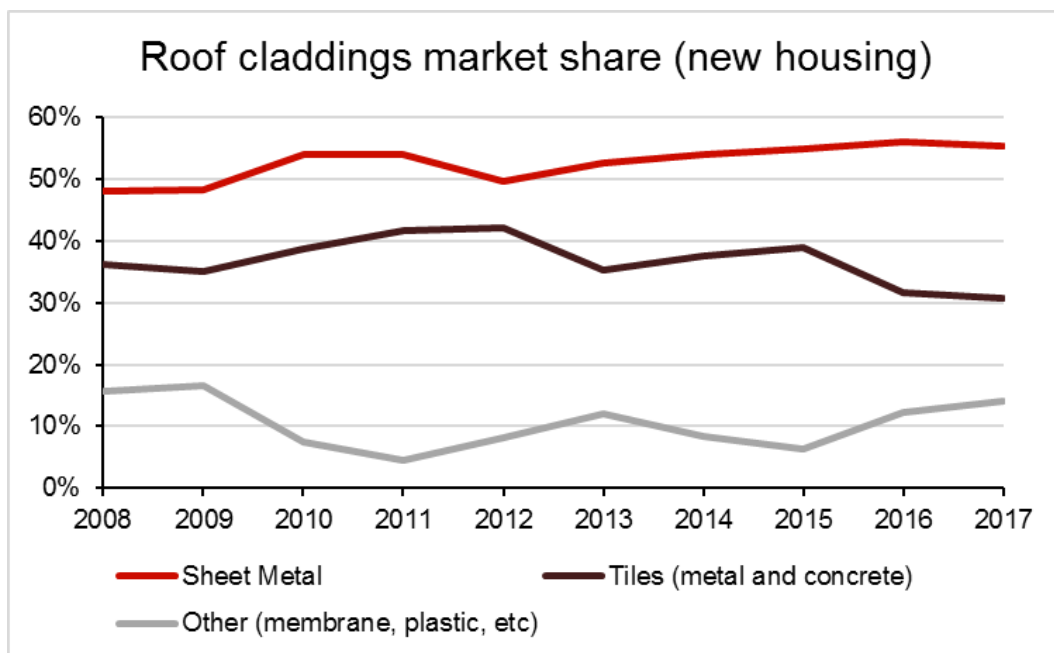


Figure 2. Roof claddings market share.

3.2 Wall claddings

Finish bricks (both clay and concrete) continued their decline in share (Figure 3).

This trend was initiated in 2014 due to the preference towards light claddings in the Canterbury rebuild.

Timber weatherboards continued to take market share from finish bricks after overtaking in 2016. Timber comprises 72% of weatherboards, with the remainder consisting of fibre-cement and uPVC.

Overall, the market share for the 'Other' cladding category has remained steady. The most significant constituent is aerated autoclaved concrete (AAC), which has held steady market share over the past year. The remainder of 'Other' is widely dispersed across a range of products.

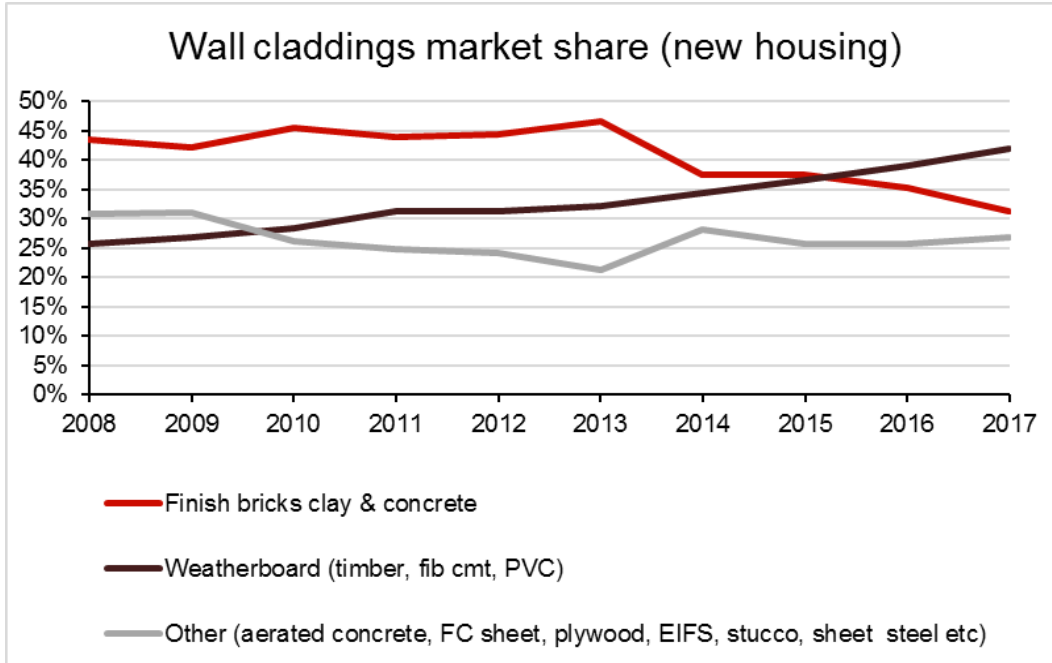


Figure 3. Wall claddings market share.

3.3 Wall framing

Timber framing remains the predominant structural material in new housing, with a historical share close to 90% of the market (Figure 4). This has eased slightly downwards over the past 4 years due to a slight increase in the use of concrete masonry, particularly for ground floors.

Within timber framing, LVL has been rapidly taking share from radiata timber, driven by growing popularity of LVL for framing and an improvement in recording LVL usage in the survey. 92% of respondents reported having precut or prenailed framing in 2017, which is relatively unchanged from the past 4 years.

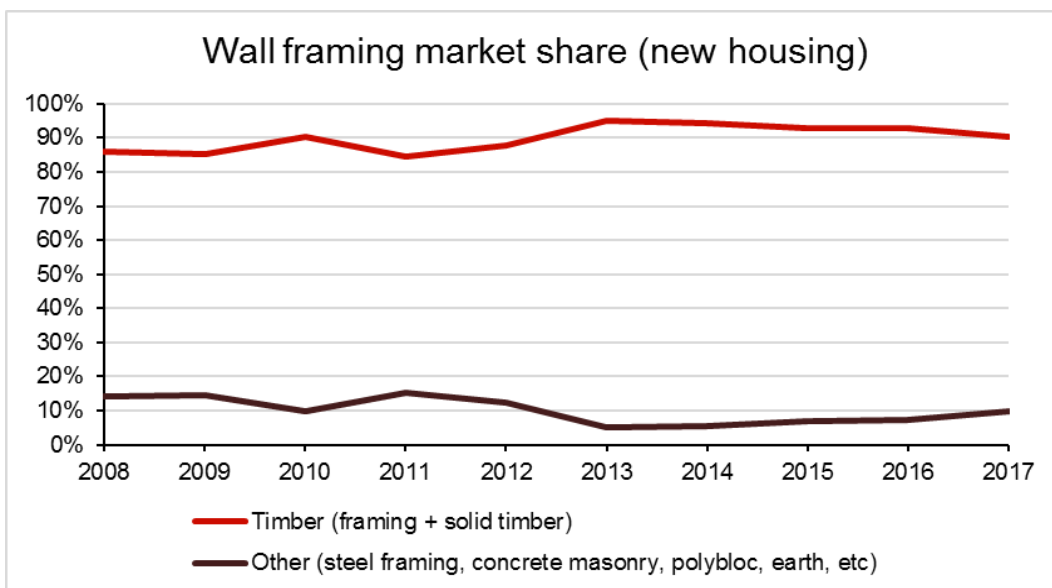


Figure 4. Wall framing market share.

3.4 Number of storeys

Figure 5 shows the proportion of new houses that were single storey, 2 storey or 3 or more storeys. Analysis was restricted to the 26 territorial authorities where we received four or more responses. The number in brackets beside the name of the territorial authority is the number of responses received. Notably, the greatest proportion of new houses built with 2 or more storeys was reported in areas with the higher land prices, such as Central Auckland, North Shore 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.

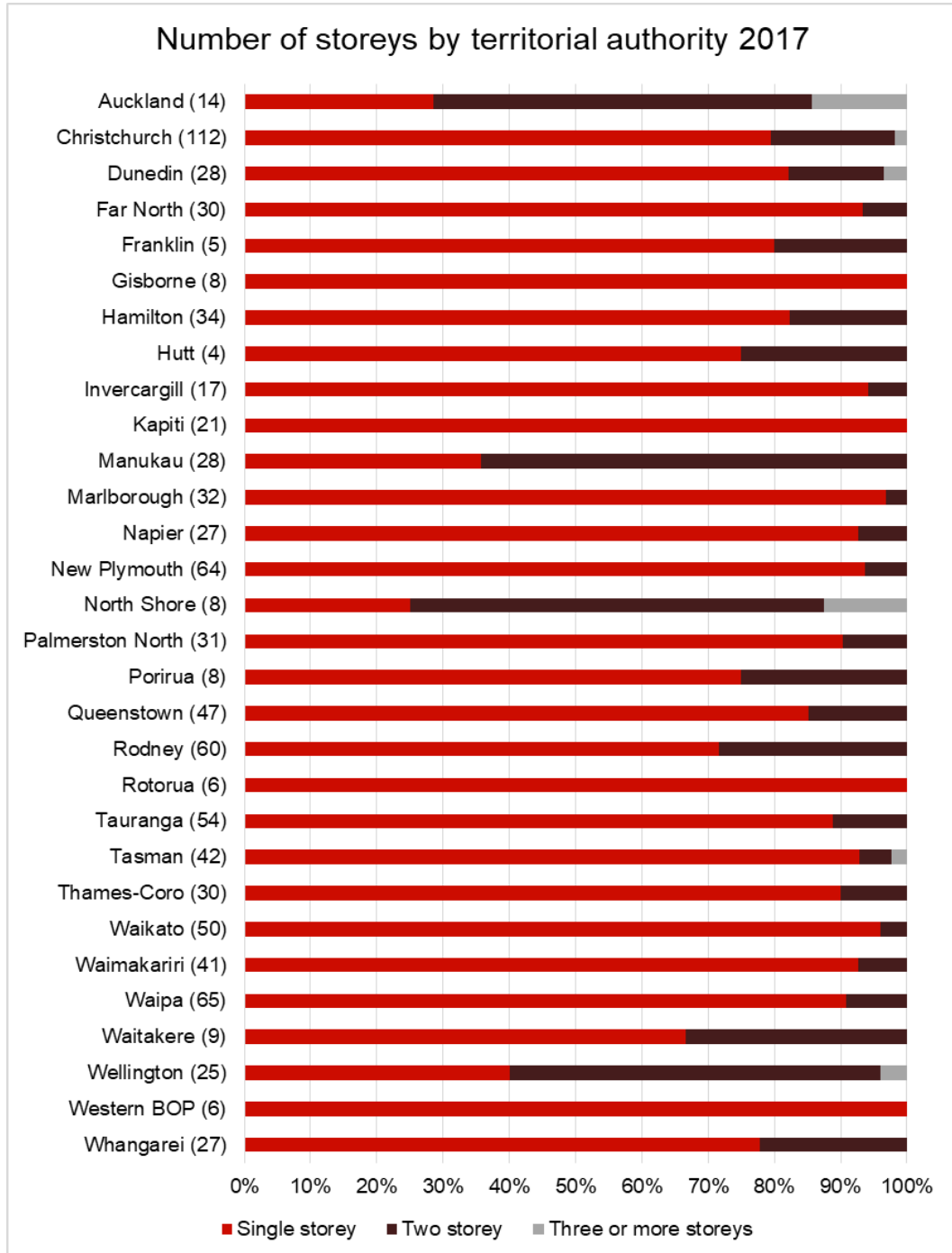


Figure 5. Number of storeys by territorial authority.

3.5 Flooring

Concrete flooring continued to trend downwards this year after a slight uptick in 2016 (Figure 6). 'All other flooring' is mostly particleboard and strand board. The percentages include upper floors (which are usually wood based) so is impacted by the trend towards multi-storey buildings.

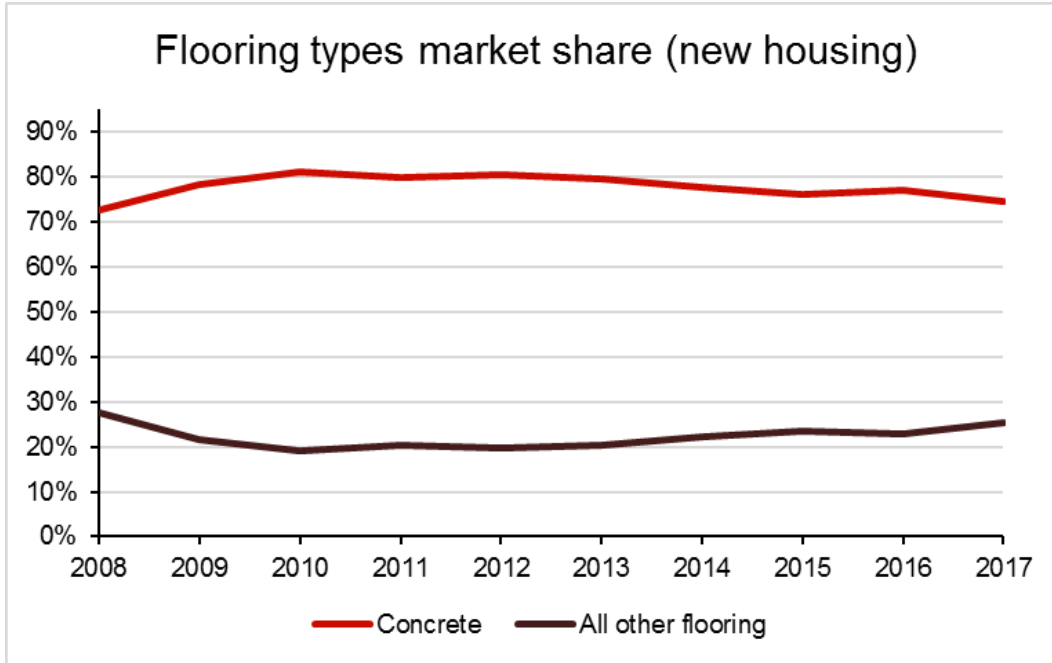


Figure 6. Flooring types market share.

3.6 Floor joists

Solid timber dominates the floor joists market and has gained market share from the 'Other' category since 2014 (Figure 7). 'Other' primarily consists of various proprietary wood and steel composite joists and traditional heavy gauge steel joists.

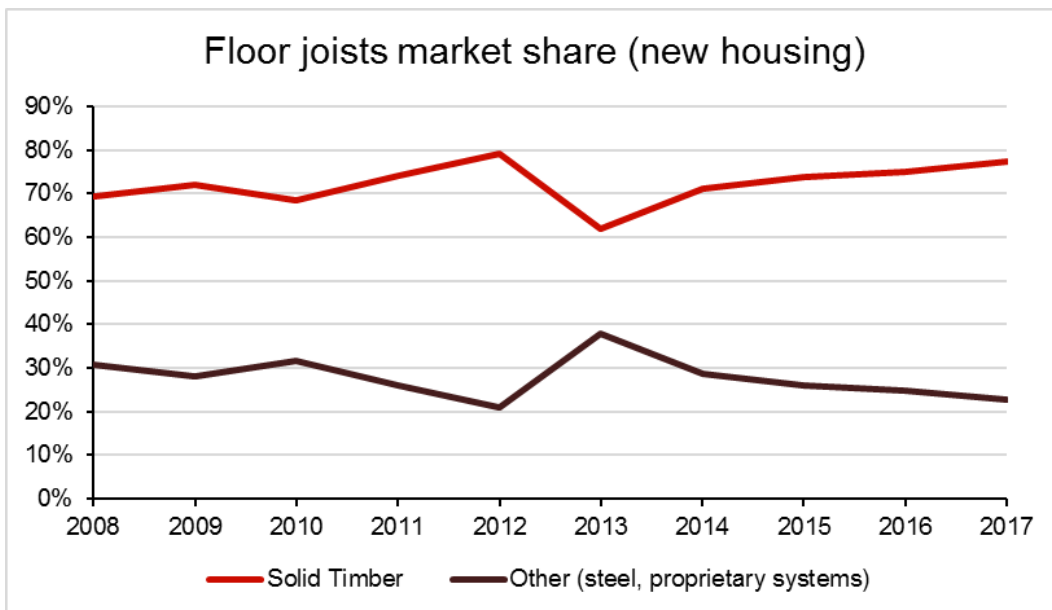


Figure 7. Floor joists market share.

3.7 Insulation

Wall insulation, ceiling insulation and floor insulation for both concrete slabs and timber floors are dealt with separately in this section.

3.7.1 Wall insulation

Fibreglass is the dominant wall insulation material (Figure 8). Its share is generally stable but has eased slightly over the past 3 years. The 'Other' category is mainly polyester insulation.

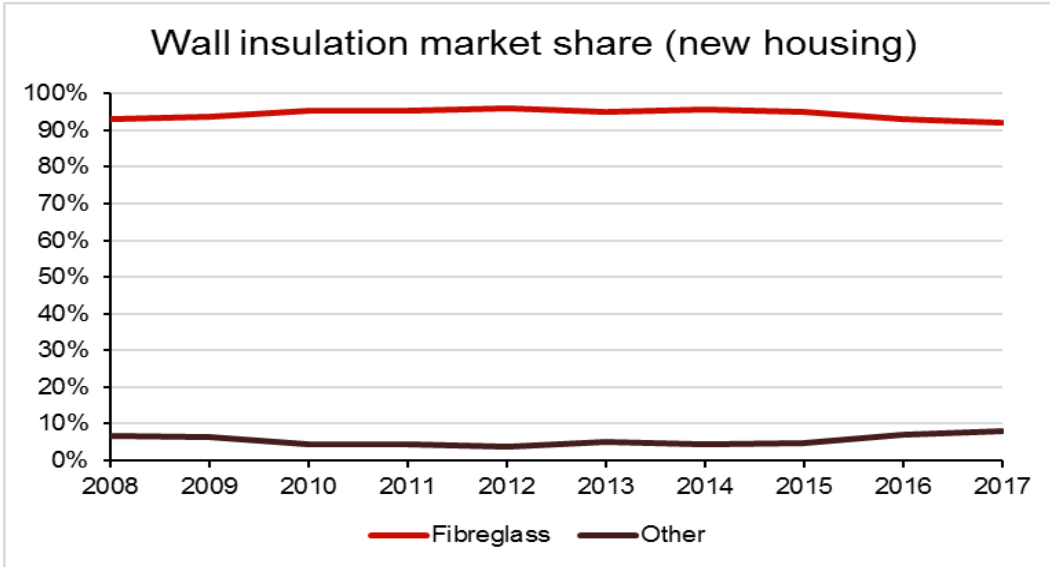


Figure 8. Wall insulation market share.

3.7.2 Ceiling insulation

Fibreglass is also the dominant ceiling insulation material (Figure 9). It is common for builders to use the same type of material (and often the same brand) for the wall and ceiling. Therefore, market shares for wall and ceiling insulation tend to move together.

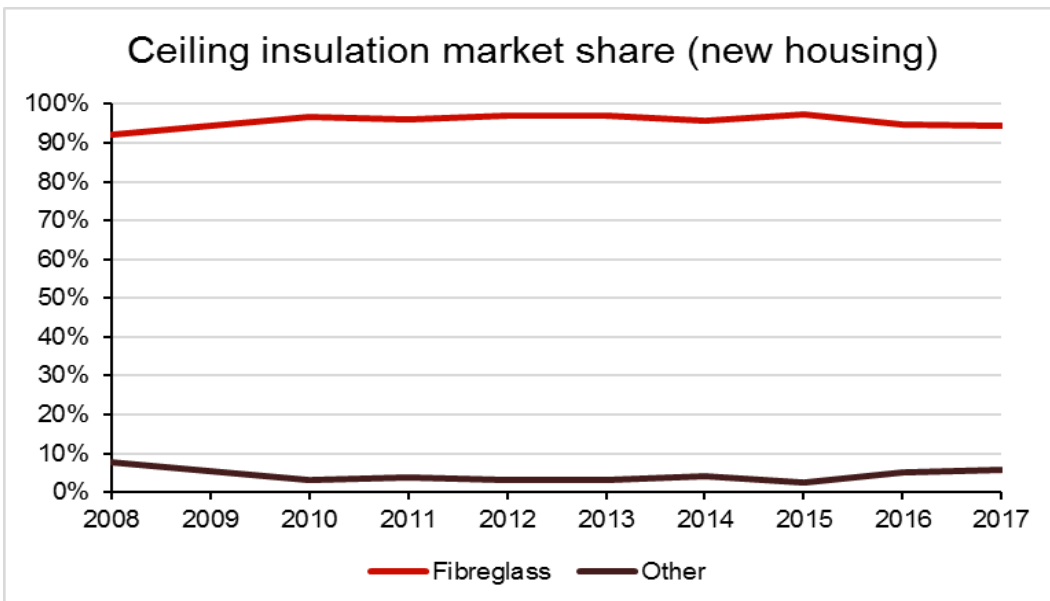


Figure 9. Ceiling insulation market share.

3.7.3 Floor insulation

In 2015, the question on insulation of concrete slabs was changed. We present the mix of insulation types used in 2015 against total insulation for the historical series in Figure 10. 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.

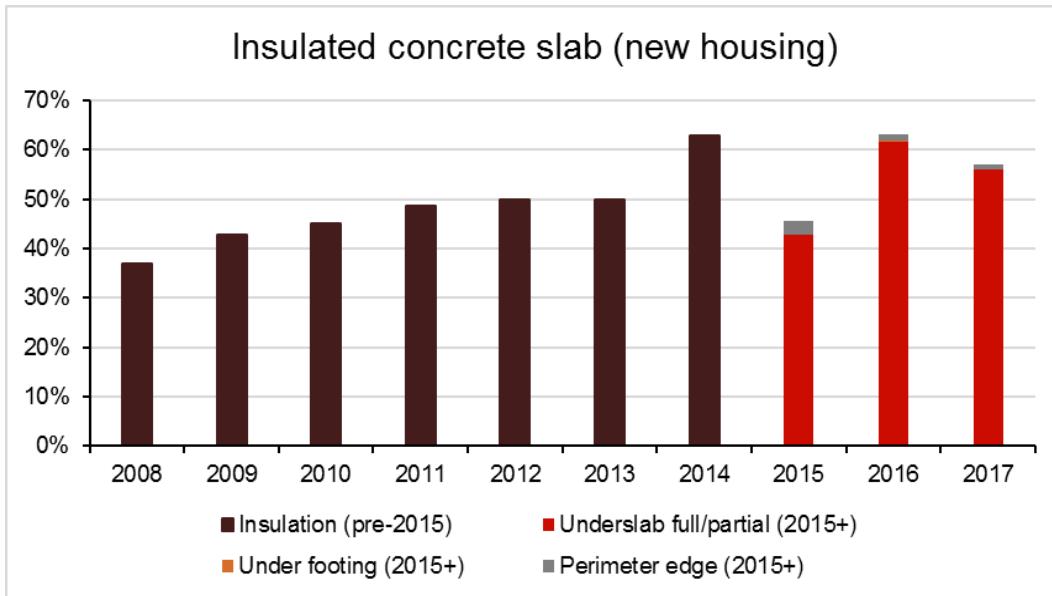


Figure 10. Concrete slab insulation.

Timber subfloors are much less common than concrete slabs in new housing. Therefore, the shares presented in Figure 11 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.

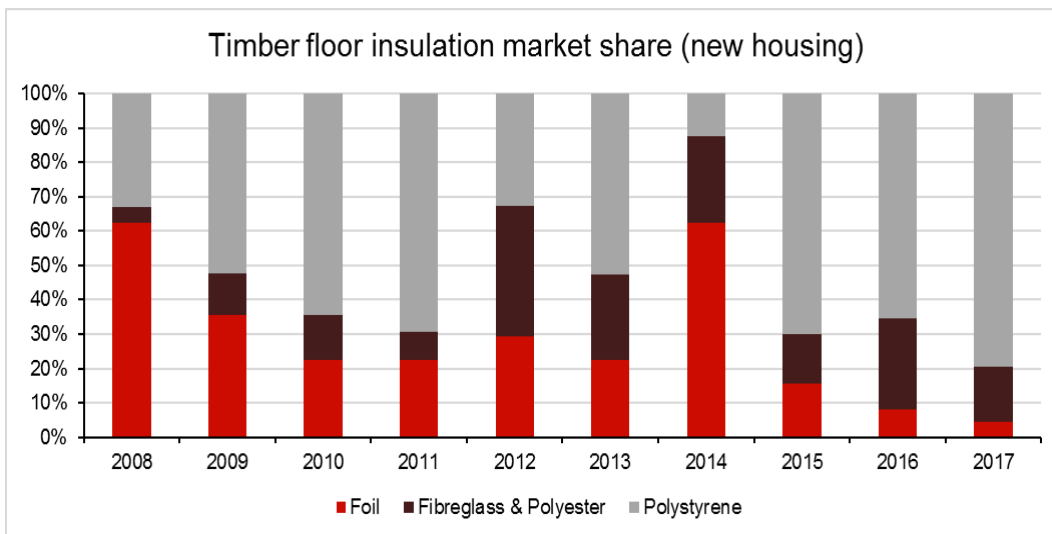


Figure 11. Timber floor insulation market share

Appendix A: Survey forms

A.1 Survey form October 2006

NEW DWELLING									
Please give this form to the builder or designer to fill out for the building consent listed over the page.									
Number of dwelling units <input type="text"/> in this consent.					Contract value of work (incl sub-trades) \$ ind GST.				
Floor areas Total floor area _____ Sq metres (include attached garage, exclude decks).									
Strip timber (not overlay, exclude decks).									
	Particleboard		Plywood		Strip timber		Concrete		
Ground level	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres
First level	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres
2nd or more levels	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres
Decks (above ground, not concrete patios) (circle one)									
Deck area _____ Sq metres					Includes a deck? Yes / No (circle one or more)				
Deck surface material = radiata/hardwood/butyl/tiles/other/ pour-on. Deck substrate = plywood sht/ fibre cement sht/ concrete/ timber joists.									
Wall Framing (tick appropriate box)									
Radiata <input type="checkbox"/>		Steel <input type="checkbox"/>		Douglas fir <input type="checkbox"/>		Concrete block <input type="checkbox"/>		Other <input type="checkbox"/> (state)	
Was the wall framing precut or prenailed? Yes / No (circle one)									
Framing timber treatment Untreated kiln dry Untreated wet H1.2 T1.2 (orange) H3.1									
Tick one or more <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>									
State where used (eg outer walls, sub floor, etc)									
Floor joists									
None <input type="checkbox"/>		Solid timber <input type="checkbox"/>		Posistrut <input type="checkbox"/>		Hybeam (I beam) <input type="checkbox"/>		Steel <input type="checkbox"/>	
Twinplate <input type="checkbox"/>		Origin (I beam) <input type="checkbox"/>		Other (state) <input type="checkbox"/>					
Joist depth mmmmmmmmmmmmmmmm									
Insulation (tick one or more)									
R value of insulation		Pink Batts <input type="checkbox"/>		Bradford Gold <input type="checkbox"/>		Premier Fibreglass <input type="checkbox"/>		Blown FG Roofwool <input type="checkbox"/>	
Wall insulation		Expol Warmflex <input type="checkbox"/>		Polystyrene panel <input type="checkbox"/>		Cosy Floor <input type="checkbox"/>		Sisalation Foil <input type="checkbox"/>	
Ceiling insulation		Other (state) <input type="checkbox"/>		Treated paper <input type="checkbox"/>		Wool <input type="checkbox"/>		Other (state) <input type="checkbox"/>	
Floor insulation		Other (state) <input type="checkbox"/>		Other (state) <input type="checkbox"/>		Other (state) <input type="checkbox"/>		Other (state) <input type="checkbox"/>	
Installer (name)									
Noise Control (circle one)									
Have you installed noise control products? Yes / No What type?									
Building wraps									
Roof wrap		Flamestop <input type="checkbox"/>		Thermakraft <input type="checkbox"/>		Bitumac <input type="checkbox"/>		GIB underlay <input type="checkbox"/>	
Wall wrap		Flamestop <input type="checkbox"/>		Tyvek <input type="checkbox"/>		Thermakraft coverup <input type="checkbox"/>		Framegard II <input type="checkbox"/>	
		Greenwrap <input type="checkbox"/>		Fastwrap <input type="checkbox"/>		Black Paper <input type="checkbox"/>		Other (state) <input type="checkbox"/>	
Wall cladding State type (and approx % wall coverage)									
Type		% area		Type		% area		Type	
eg fibre cement sheet, 75% also plywood, solid plaster (min 18mm), daybrick, 15% plaster on polystyrene, concrete block, PVC weatherboard, etc. cedar 10%									
If yes to Fibre Cement cladding what is the Manufacturer? (tick one or more) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>									
Fibre Cement Product used as (Circle one or more) Applied texture finish sheet Flat sheet FC plank FC weatherboard/Linea									
If solid plaster, what backing? (circle one if solid plaster) fibre cement, plywood, paper, Triple S, block/brick, metal lathe									
Roof cladding Type (or circle one)									
eg metal tiles, pre-painted corrugated, other steel profiles, concrete tiles, butyl asphalt shingles, fibreglass shingles, etc.									
Wet wall linings (Tick one or more in each row)									
Bathroom		Fornica Aquapanel <input type="checkbox"/>		Seratone <input type="checkbox"/>		Villa board <input type="checkbox"/>		Hardiglaze <input type="checkbox"/>	
Laundry		Standard GB <input type="checkbox"/>		GIB Aqualine <input type="checkbox"/>		Other (state) <input type="checkbox"/>			
Is fibre cement sheet flooring underlay used in the bathroom or laundry? Yes/ No (circle one).									
Energy efficiency Tick if any of the following are being installed:									
Double glazing <input type="checkbox"/>		Solar water heaters <input type="checkbox"/>		Dual flush toilets <input type="checkbox"/>		efficient lights <input type="checkbox"/>		Energy Heat pump <input type="checkbox"/>	
		Low flow showers <input type="checkbox"/>		Built-in window vents <input type="checkbox"/>					
Type of Builder How many houses or dwelling units does your company build per year (approx)									
Construction Delays If you signed a contract with the owner now, how many weeks before on-site work would start? wks									

A.2 Survey form October 2010

NEW DWELLING																																																																
Please give this form to the builder or designer to fill out for the building consent listed over the page. Number of dwelling units <input type="checkbox"/> in this consent. Contract value of work (incl sub-trades) \$ incl GST.																																																																
Floor areas Total floor area _____ Sq metres (include attached garage, exclude decks). <table style="width: 100%; border: none;"> <tr> <td style="width: 25%;"></td> <td style="width: 25%; text-align: center;">Particleboard</td> <td style="width: 25%; text-align: center;">Plywood</td> <td style="width: 25%; text-align: center;">Strip timber (not overlay, exclude decks).</td> <td style="width: 25%; text-align: center;">Concrete</td> </tr> <tr> <td>Ground level</td> <td>_____ Sq metres</td> <td>_____ Sq metres</td> <td>_____ Sq metres</td> <td>_____ Sq metres</td> </tr> <tr> <td>First level</td> <td>_____ Sq metres</td> <td>_____ Sq metres</td> <td>_____ Sq metres</td> <td>_____ Sq metres</td> </tr> <tr> <td>2nd or more levels</td> <td>_____ Sq metres</td> <td>_____ Sq metres</td> <td>_____ Sq metres</td> <td>_____ Sq metres</td> </tr> </table>											Particleboard	Plywood	Strip timber (not overlay, exclude decks).	Concrete	Ground level	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	First level	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres	2nd or more levels	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres																																			
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First level	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres																																																												
2nd or more levels	_____ Sq metres	_____ Sq metres	_____ Sq metres	_____ Sq metres																																																												
Building Envelope Risk Score and Wind Zone What is the risk score (enter score for EACH elevation) North <input type="checkbox"/> West <input type="checkbox"/> South <input type="checkbox"/> East <input type="checkbox"/> What is the wind zone (tick one box) Low <input type="checkbox"/> Medium <input type="checkbox"/> High <input type="checkbox"/> Very High <input type="checkbox"/>																																																																
Wall Framing (tick appropriate box) Radiata <input type="checkbox"/> Steel <input type="checkbox"/> Douglas fir <input type="checkbox"/> Concrete block <input type="checkbox"/> Solid wood <input type="checkbox"/> Other <input type="checkbox"/> (state) Was the wall framing precut or prenailed? Yes / No (circle one)																																																																
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																									
Heating Systems Tick one or more Heat pump <input type="checkbox"/> Wood/Pellet burner <input type="checkbox"/> Ducted central heating (Not including DVS or HRV) <input type="checkbox"/> Underfloor heating (waterpipe) <input type="checkbox"/> Underfloor heating (electric) <input type="checkbox"/> DVS/HRV <input type="checkbox"/> Gas <input type="checkbox"/>																																																																
Floor Joists Tick one or more <table style="width: 100%; border: none;"> <tr> <td style="width: 12.5%;"></td> <td style="width: 12.5%; text-align: center;">None</td> <td style="width: 12.5%; text-align: center;">Solid timber</td> <td style="width: 12.5%; text-align: center;">Posistrut</td> <td style="width: 12.5%; text-align: center;">Hyoist</td> <td style="width: 12.5%; text-align: center;">Steel</td> <td style="width: 12.5%; text-align: center;">Twinaplate</td> <td style="width: 12.5%; text-align: center;">Hyne (I beam)</td> <td style="width: 12.5%; text-align: center;">lumberworX</td> <td style="width: 12.5%; text-align: center;">Other (state)</td> </tr> <tr> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>Joist depth</td> <td>.....mm</td> <td>.....mm</td> <td>.....mm</td> <td>.....mm</td> <td>.....mm</td> <td>.....mm</td> <td>.....mm</td> <td>.....mm</td> </tr> </table>											None	Solid timber	Posistrut	Hyoist	Steel	Twinaplate	Hyne (I beam)	lumberworX	Other (state)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Joist depthmmmmmmmmmmmmmmmm																									
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Wall cladding State type (and approx % wall coverage) <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Type _____</td> <td style="width: 10%;">% area _____</td> <td style="width: 30%;">eg fibre cement sheet, 75%</td> <td style="width: 30%;">also plywood, solid plaster(min 18mm), plaster on polystyrene, concrete block, PVC weatherboard, etc.</td> </tr> <tr> <td>Type _____</td> <td>% area _____</td> <td>clay brick, 15%</td> <td></td> </tr> <tr> <td>Type _____</td> <td>% area _____</td> <td>cedar 10%</td> <td></td> </tr> </table> If Fibre Cement cladding is used, who is the Manufacturer? (tick one or more) <table style="width: 100%; border: none;"> <tr> <td style="width: 12.5%;"></td> <td style="width: 12.5%; text-align: center;">Hardies</td> <td style="width: 12.5%; text-align: center;">BGC</td> <td style="width: 12.5%; text-align: center;">CSR</td> <td style="width: 12.5%; text-align: center;">PRIMA</td> <td style="width: 12.5%; text-align: center;">Other</td> <td style="width: 12.5%; text-align: center;">Eterpan</td> </tr> <tr> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> Fibre Cement Product used as (Circle one or more) Applied texture finish sheet, Flat sheet, Linea (16mm), FC plank (7.5mm) If solid plaster, what backing? (circle one if solid plaster) fibre cement, plywood, paper, Triple S, block/brick, metal lathe										Type _____	% area _____	eg fibre cement sheet, 75%	also plywood, solid plaster(min 18mm), plaster on polystyrene, concrete block, PVC weatherboard, etc.	Type _____	% area _____	clay brick, 15%		Type _____	% area _____	cedar 10%			Hardies	BGC	CSR	PRIMA	Other	Eterpan		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																													
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																										
Roof cladding Type _____ (or circle one) eg metal tiles, pre-painted corrugated, other steel profiles, concrete tiles, butyl, asphalt shingles, fibreglass shingles, etc. If roof is metal tiles, specify Manufacturer name _____ Is the Majority of the roof slope: (tick one) <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"></td> <td style="width: 33%; text-align: center;">Greater/equal than 12 degrees</td> <td style="width: 33%; text-align: center;">less than 12 degrees</td> <td style="width: 33%; text-align: center;">Don't know</td> </tr> <tr> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>											Greater/equal than 12 degrees	less than 12 degrees	Don't know		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																															
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Thank You. Please fold this form, and freepost it in the return envelope Oct-10																																																																

A.3 Survey form October 2015

NEW DWELLING																					
Please give this form to the builder or designer to fill out for the building consent listed over the page.																					
Number of dwelling units in this consent <input type="text"/>					Contract value of work (incl sub-trades) \$..... Incl GST.																
Was this dwelling designed by a registered architect? Yes / No (circle one)																					
Floor Areas and Ceiling Height Total Floor Area <input type="text"/> Sq metres (include attached garage, exclude decks).																					
		Particleboard			Plywood		Strip timber (not overlay exclude decks)		Strandboard		Concrete		Height of level to ceiling								
Ground level		<input type="text"/> Sq m			<input type="text"/> Sq m		<input type="text"/> Sq m		<input type="text"/> Sq m		<input type="text"/> Sq m		<input type="text"/> metres								
First level		<input type="text"/> Sq m			<input type="text"/> Sq m		<input type="text"/> Sq m		<input type="text"/> Sq m		<input type="text"/> Sq m		<input type="text"/> metres								
2nd or more levels		<input type="text"/> Sq m			<input type="text"/> Sq m		<input type="text"/> Sq m		<input type="text"/> Sq m		<input type="text"/> Sq m		<input type="text"/> metres								
Wall Framing (tick appropriate box)																					
Radiata <input type="checkbox"/>		Steel <input type="checkbox"/>		Douglas Fir <input type="checkbox"/>		Concrete Block <input type="checkbox"/>		Solid Wood <input type="checkbox"/>		Other <input type="checkbox"/> (state).....											
Was the wall framing precut or prenailed? Yes / No (circle one)																					
How soon after being issued the consent will you have stood the house framing?																					
0-3 months <input type="checkbox"/>		4-6 months <input type="checkbox"/>		7-9 months <input type="checkbox"/>		10-12 months <input type="checkbox"/>		Over 12 months <input type="checkbox"/>													
Floor Joists (tick one or more)																					
None <input type="checkbox"/>		Timber <input type="checkbox"/>		Posistrut <input type="checkbox"/>		Hyjoist <input type="checkbox"/>		Steel <input type="checkbox"/>		Twinaplate <input type="checkbox"/>		Hyne (I beam) <input type="checkbox"/>		LumberwoX <input type="checkbox"/>		Other state <input type="checkbox"/>					
Joist depth:		<input type="text"/> mm		<input type="text"/> mm		<input type="text"/> mm		<input type="text"/> mm		<input type="text"/> mm		<input type="text"/> mm		<input type="text"/> mm		<input type="text"/> mm					
Insulation (tick one or more)																					
Insulation R Value		Pink Batts <input type="checkbox"/>		Bradford Gold <input type="checkbox"/>		Premier <input type="checkbox"/>		Knauf Earthwool <input type="checkbox"/>		Autex Greenstuf <input type="checkbox"/>		Other Polyester <input type="checkbox"/>		Wool <input type="checkbox"/>		Polystyrene <input type="checkbox"/>		Other (state).....			
Wall insulation R- <input type="text"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>			
Ceiling insulation R- <input type="text"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>			
Is the floor insulated? (circle one) Yes / No																					
If yes, what floor insulation was used?																					
Concrete slab insulation		Timber sub-floor insulation																			
Floor insulation R- <input type="text"/>		Underslab full/partial <input type="checkbox"/>		Perimeter edge <input type="checkbox"/>		Under footing <input type="checkbox"/>		Polystyrene <input type="checkbox"/>		Polyester <input type="checkbox"/>		Glasswool <input type="checkbox"/>		Foil <input type="checkbox"/>							
Insulation Installer (name)		Builder <input type="checkbox"/>		Other (please specify) <input type="text"/>																	
Noise Control																					
Have you installed noise control products? (circle one) Yes / No		(circle one) Yes / No		If so, then what type? (tick all that apply)		Pink Batts Silencer <input type="checkbox"/>		GIB Noiseline <input type="checkbox"/>		Other GIB Products <input type="checkbox"/>		Bradford Gold <input type="checkbox"/>		Pink Batts <input type="checkbox"/>		Polyester <input type="checkbox"/>		Other (please specify) <input type="text"/>			
Building Wraps																					
Roof Wrap		Flamestop <input type="checkbox"/>		Bitumac <input type="checkbox"/>		Tyvek Supro <input type="checkbox"/>		CoverTek <input type="checkbox"/>		Thermakraft <input type="checkbox"/>		Fastwrap <input type="checkbox"/>		Pauloid <input type="checkbox"/>		Other (state).....					
Wall Wrap		Bitumac <input type="checkbox"/>		Tyvek Homevra <input type="checkbox"/>		Watergate <input type="checkbox"/>		Covertek <input type="checkbox"/>		Thermakraft <input type="checkbox"/>		Tekton <input type="checkbox"/>		Fastwrap <input type="checkbox"/>		Pauloid <input type="checkbox"/>		Ecoply Barrier Other (state).....			
DPC																					
What DPC products have you installed?		Damp-a-thene <input type="checkbox"/>		Malthoid <input type="checkbox"/>		Supercourse <input type="checkbox"/>		Other, Specify: <input type="text"/>													
Flashing Tapes																					
What flashing tapes are installed?		Bulldog <input type="checkbox"/>		Aluband <input type="checkbox"/>		Tyvek Flexwrap <input type="checkbox"/>		Protectowrap <input type="checkbox"/>		Frameflash <input type="checkbox"/>		Other, Specify: <input type="text"/>									
Wall Cladding																					
State type and approximate % wall coverage																					
e.g. Fibre cement sheet, 75%		Clay Brick, 15%		Cedar WB, 10%		Other examples include: plywood sheet, plaster on claybrick, steel zincalum, fibre cement plank, glazing, EIFS, aerote concrete panel, radiata WB, linea WB etc.															
Type		% area		Type		% area		Type		% area											
If Fibre Cement product, what is it used as? (circle one)																					
Applied texture finish sheet		Flat sheet		Linea (16mm)		FC plank (7.5mm)															
Roof Cladding																					
What roof cladding was used? (circle one or state below)																					
metal tiles, corona shake, pre-painted corrugated, trough zincalum, corrugated zincalum, other steel profiles, concrete tiles, asphalt shingles, butyl, other (state)																					
Spouting																					
What profile is the SPOUTING?																					
¼ round/quad <input type="checkbox"/>		¾ round <input type="checkbox"/>		Old gothic <input type="checkbox"/>		Box <input type="checkbox"/>		Other (state).....													
What material is the SPOUTING?																					
PVC (White) <input type="checkbox"/>		PVC (Colour) <input type="checkbox"/>		Steel <input type="checkbox"/>		Aluminium <input type="checkbox"/>		Copper <input type="checkbox"/>		Other (state).....											
Who installed the SPOUTING?																					
Roofer <input type="checkbox"/>		Spouting installer <input type="checkbox"/>		Builder <input type="checkbox"/>		Plumber <input type="checkbox"/>		Other (state).....													
Downpipes																					
What profile are the DOWNPIPES?																					
65mm round <input type="checkbox"/>		80mm round <input type="checkbox"/>		100mm round <input type="checkbox"/>		65x50mm rectangular <input type="checkbox"/>		100x50mm rectangular <input type="checkbox"/>		Other (state).....											
What material are the DOWNPIPES?																					
PVC (White) <input type="checkbox"/>		PVC (Colour) <input type="checkbox"/>		Steel <input type="checkbox"/>		Aluminium <input type="checkbox"/>		Copper <input type="checkbox"/>		Other (state).....											
Who installed the DOWNPIPES?																					
Roofer <input type="checkbox"/>		Spouting installer <input type="checkbox"/>		Builder <input type="checkbox"/>		Plumber <input type="checkbox"/>		Other (state).....													
Wet Wall Linings																					
(tick one or more in each row)																					
Bathroom		Formica Aquapanel <input type="checkbox"/>		Seratone <input type="checkbox"/>		Villaboard <input type="checkbox"/>		Hardies <input type="checkbox"/>		Standard <input type="checkbox"/>		GIB Aqualine <input type="checkbox"/>		WaterShield <input type="checkbox"/>		Other specify <input type="text"/>		Timber <input type="checkbox"/>		Horizon <input type="checkbox"/>	
Laundry		Formica Aquapanel <input type="checkbox"/>		Seratone <input type="checkbox"/>		Villaboard <input type="checkbox"/>		Hardies <input type="checkbox"/>		Standard <input type="checkbox"/>		GIB Aqualine <input type="checkbox"/>		WaterShield <input type="checkbox"/>		Other specify <input type="text"/>		Timber <input type="checkbox"/>		Horizon <input type="checkbox"/>	
Wall Linings (excluding wet walls)																					
Elephant Plasterboard <input type="checkbox"/>		GIB Plasterboard <input type="checkbox"/>		Knauf Plasterboard <input type="checkbox"/>		Other (state).....															
Ceiling Linings and Battens																					
Ceiling Linings (tick one or more)		10mm plasterboard <input type="checkbox"/>		13mm plasterboard <input type="checkbox"/>		Ultraline <input type="checkbox"/>		Tiles <input type="checkbox"/>		Other <input type="checkbox"/>											
Ceiling Battens (circle one): timber or metal																					
Are there any downlights recessed in to ceiling? Yes / No (circle one) IF YES, how many?																					
Thank You. Please fold this form, and freepost it in the return envelope																					
Oct-15																					

Appendix B: Tables of data for the charts

Table 1. Roof claddings market share.

Roof claddings market share in new housing										
Yearly Data 2008-2017										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Sheet Metal	48.0%	48.3%	53.8%	53.9%	49.6%	52.6%	54.0%	54.9%	56.1%	55.2%
Tiles (metal and concrete)	36.2%	35.0%	38.6%	41.6%	42.1%	35.4%	37.6%	38.8%	31.7%	30.6%
Other (membrane, plastic, etc)	15.8%	16.7%	7.6%	4.5%	8.3%	12.0%	8.4%	6.2%	12.2%	14.1%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note: percentage weighted to allow for the regional building activity.

Table 2. Wall claddings market share.

Wall claddings market share in new housing										
Yearly Data 2008-2017										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Finish bricks clay & concrete	43.5%	42.1%	45.5%	44.0%	44.5%	46.6%	37.6%	37.6%	35.2%	31.2%
Weatherboard (timber, fib cmt, PVC)	25.7%	26.8%	28.3%	31.2%	31.3%	32.2%	34.3%	36.6%	39.1%	42.0%
Other (aerated concrete, FC sheet, plywood, EIFS, stucco, sheet steel etc)	30.8%	31.1%	26.2%	24.8%	24.2%	21.2%	28.1%	25.8%	25.7%	26.8%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note: percentage weighted to allow for the regional building activity.

Table 3. Wall framing market share.

Wall framing market share in new housing										
Yearly Data 2008-2017										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Timber (framing + solid timber)	86.0%	85.4%	90.4%	84.7%	87.8%	95.0%	94.4%	93.1%	92.7%	90.2%
Other (steel framing, concrete masonry, polybloc, earth, etc)	14.0%	14.6%	9.6%	15.3%	12.2%	5.0%	5.6%	6.9%	7.3%	9.8%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note: percentage weighted to allow for the regional building activity.

Table 4. Flooring types market share.

Flooring types market share in new housing										
Yearly Data 2008-2017										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Concrete	72.6%	78.4%	81.0%	79.7%	80.4%	79.6%	77.6%	76.0%	77.1%	74.4%
All other flooring	27.4%	21.6%	19.0%	20.3%	19.6%	20.4%	22.4%	23.5%	22.9%	25.3%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note: percentage weighted to allow for the regional building activity.

Table 5. Floor joists market share.

Floor joists market share in new housing										
Yearly Data 2008-2017										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Solid Timber	69.2%	72.0%	68.4%	74.0%	79.0%	62.0%	71.2%	73.9%	75.1%	77.3%
Other (steel, proprietary systems)	30.8%	28.0%	31.6%	26.0%	21.0%	38.0%	28.8%	26.1%	24.9%	22.7%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note: percentage weighted to allow for the regional building activity.

Table 6. Wall insulation market share.

Wall insulation market share in new housing										
Yearly Data 2008-2017										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fibreglass	93.2%	93.7%	95.4%	95.5%	96.1%	95.0%	95.7%	95.1%	93.1%	92.1%
Other	6.8%	6.3%	4.6%	4.5%	3.9%	5.0%	4.3%	4.9%	6.9%	7.9%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note: percentage weighted to allow for the regional building activity.

Table 7. Ceiling insulation market share.

Ceiling insulation market share in new housing										
Yearly Data 2008-2017										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fibreglass	92.2%	94.6%	96.7%	96.2%	96.9%	97.0%	95.7%	97.5%	94.8%	94.4%
Other	7.8%	5.4%	3.3%	3.8%	3.1%	3.0%	4.3%	2.5%	5.2%	5.6%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note: percentage weighted to allow for the regional building activity.

Table 8. Concrete slab waffle pod and sheet polystyrene use.

Concrete slab waffle pod and sheet polystyrene use in new housing										
Yearly Data 2008-2017										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Insulation (pre-2015)	36.9%	42.9%	45.0%	48.6%	49.8%	50.0%	62.8%			
Underslab full/partial (2015+)								42.7%	61.5%	55.9%
Under footing (2015+)								0.3%	0.0%	0.0%
Perimeter edge (2015+)								2.7%	1.4%	1.2%
TOTAL	36.9%	42.9%	45.0%	48.6%	49.8%	50.0%	62.8%	45.7%	62.9%	57.1%

Note: percentage weighted to allow for the regional building activity.

Table 9. Timber floor insulation market share.

Timber floor insulation market share in new housing										
Yearly Data 2008-2017										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Foil	62.5%	35.5%	22.3%	22.6%	29.2%	22.5%	62.4%	15.7%	8.1%	4.4%
Fibreglas:	4.6%	12.1%	13.1%	8.1%	38.1%	24.9%	25.1%	14.3%	26.3%	16.0%
Polystyrene	32.9%	52.5%	64.6%	69.3%	32.7%	52.7%	12.4%	70.0%	65.6%	79.5%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	80%

Note: percentage weighted to allow for the regional building activity.