STUDY REPORT

SR 309 (2014)

Physical characteristics of new houses 2013

MD Curtis

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Preface

This is the third of a series of reports providing the results of the BRANZ New Dwellings survey. BRANZ surveys builders of new detached houses on the physical characteristics of the house. The purpose is to obtain data on new housing which is not available from official sources. This includes generic types of materials used by building component, and design information such as number of floors, wind zones, envelope risk matrix scores, prefabrication, and efficiency measures. The data is useful for studies in the fields of sustainability, energy efficiency, durability and engineering.

Acknowledgments

This work was funded by the Building Research Levy.

Note

This report is intended for building material manufacturers, retailers/wholesalers, builders, designers, researchers and Government officials.

Physical characteristics of new houses 2013

BRANZ Study Report SR 309

MD Curtis

Abstract

The amount of 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.

BRANZ began a survey in 1998 to obtain data on materials used in new housing (and other buildings). 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 generic materials used in new housing and some of the other physical characteristics of the houses.

The aim is to provide information useful to researchers, manufacturers and officials.

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1. INTRODUCTION

BRANZ surveys over 4,000 new residential units per year in the BRANZ New Dwellings survey. This survey series collects a variety of data on materials used in new housing dating back to 1998.

It is a postal survey to the builder or designer identified on the building consent application form and the questions relate to that particular consent. Generally over 300 returns are received each quarter. The response rate is about 30% and an incentive is offered (a lotto ticket, book voucher, or a reduced price on BRANZ publications) for the return of each survey form.

Whats-On[1] building consent data is used to obtain a sample of new housing for each period. From this sample, builders or designers of new houses from 31 selected territorial authorities are sent our New Dwelling survey form..

The 31 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, Waimakariri, Western Bay of Plenty, Whangarei and Waitakere.

It was originally developed to obtain data not otherwise available from official or other sources. The results enable companies to monitor their market share (e.g. claddings, insulation, etc.). Some questions relate to the layout and design features of new dwellings which are relevant to building officials and researchers (e.g. ground and upper floors, wind zones, envelope risk matrix scores, efficiency measures, etc.).

The main issue with the survey form is to keep it as simple, concise and clear as possible. Therefore, we want to keep the survey form as a single page. The survey form is constantly evolving to include new questions whenever required.

The responses are weighted by the share of building activity in each territorial authority (as indicated by building consents) in the calculation of the national market share. The results presented are only for new houses (i.e. single detached units).

Using the data collected, representative estimates of on the incidence and proportions of many different materials can be made. The components and design features analysed are:

- Claddings
- Framing
- House storeys
- Flooring
- Floor joists
- Insulation
- Downlights
- Window frames
- Double glazing

Where applicable, results have been weighted using consent values to allow for regional building activity. This prevents some territorial authorities from having a disproportionate

[1] *Whats-On Report* (Monthly). TF Stevens & Co Ltd, Auckland, New Zealand

share of the total market share should we receive a larger number of survey returns from one particular area, although this does assume that there are regional preferences in the use of the materials we survey.

The average floor areas since 2004 are presented in the following figure to illustrate any bias that may be present in the results. Between 2004 and 2008 there might have been a slight bias towards larger houses. However, since then there appears to have been a slight bias towards smaller houses (i.e. our sample average floor area is smaller than the Statistics New Zealand average floor area).

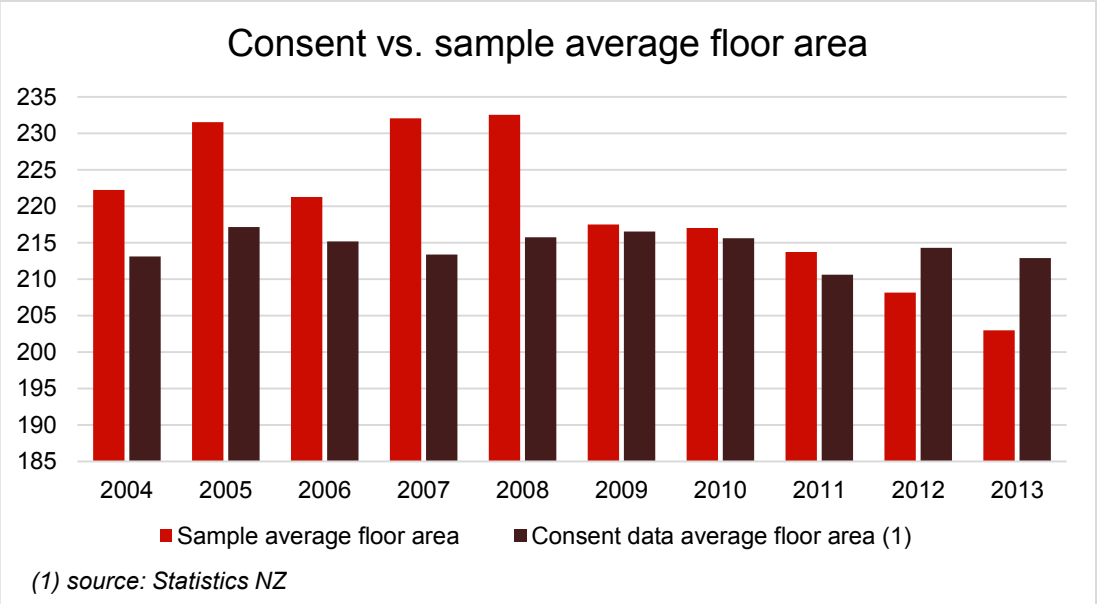

Figure 1. Consent vs. sample average floor area

Samples of forms are shown in the appendix. Some questions change from survey to survey but most have remained the same since the start to ensure consistency.

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:

- In the wall claddings market, the use of monolithic type claddings is declining. Timber and fibre cement weatherboards are benefitting from this.
- Over the last 3 years, the use of non-timber wall framing has decreased, largely due to a reduction in the use of steel framing and concrete block framing.
- Engineered wood floor joists increased in share quite dramatically in 2013.
- The use of fibreglass insulation in both walls and ceilings has been trending upwards.

3. MAIN RESULTS

Key results are shown in the following charts. The data for these charts are in the tables in the appendix.

Where LHS has been used, this refers to the item using the left hand axis, and RHS refers to the item using the right hand axis.

3.1 Roof Claddings

Sheet metal is the dominant roof cladding. The overall trend for sheet metal has been slightly upwards between 2004 and 2013. Tiles (both metal and concrete) declined in share between 2012 and 2013. Other roof claddings (e.g. membranes, shakes, etc.) have been trending upwards since 2011.

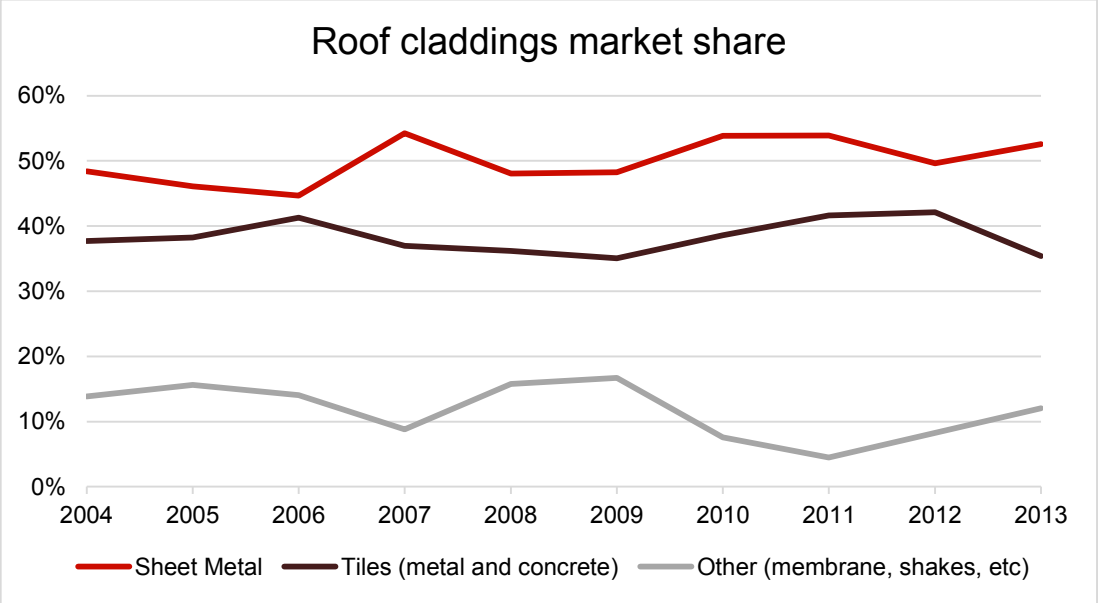

Figure 2. Roof Claddings Market Share

3.2 Wall Claddings

Finish bricks (clay and concrete) are the dominant wall cladding. Its share has been relatively steady since 2007. Weatherboards (timber, fibre cement, unplasticised polyvinyl chloride (uPVC), etc.) has been trending upwards between 2004 and 2013, largely at the expense of other (mainly monolithic type claddings such as fibre cement sheet, exterior insulation and finish systems (EIFS), stucco, etc.).

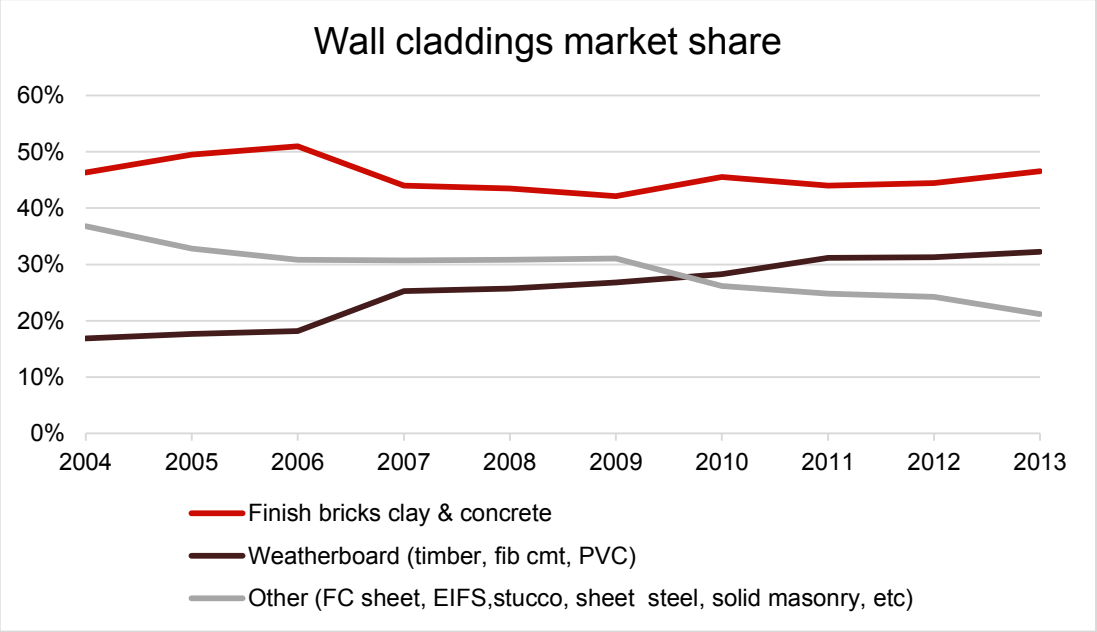

Figure 3. Wall Claddings Market Share

3.3 Wall Frames

Timber wall framing is the predominant structural material. The share of timber wall framing declined between 2004 and 2009, but has since picked up to sit at about 95% in 2013. Concrete masonry was growing in share up until 2007 which was the main cause of the fall in timber share between 2004 and 2007. The fall between 2010 and 2011 was due to an increase in the use of steel.

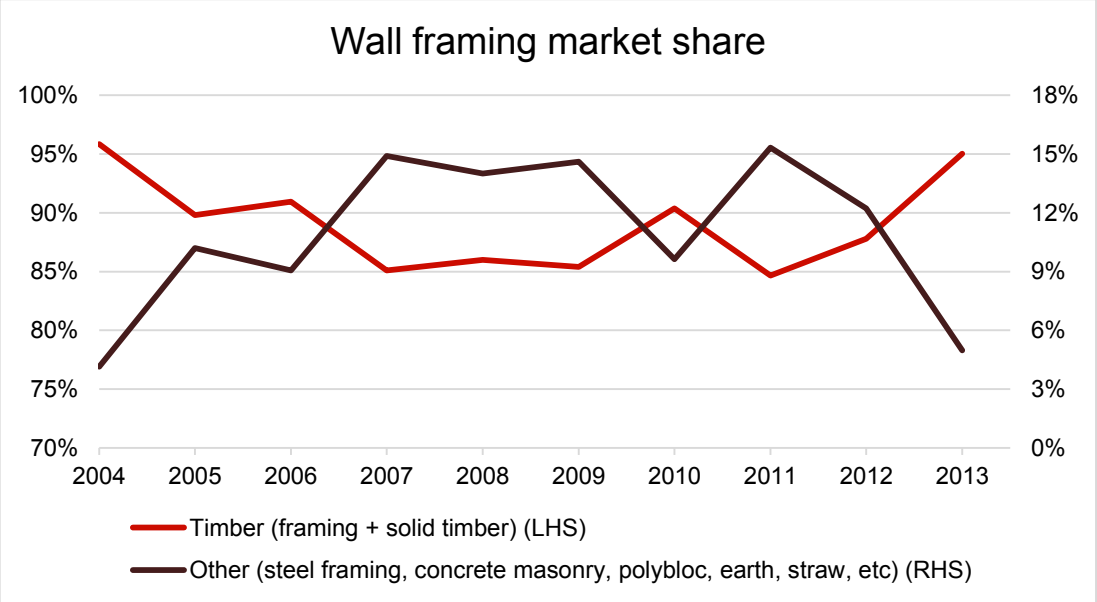

Figure 4. Wall Framing Market Share

96% of respondents reported having either precut or prenailed framing last year. This percentage is high due to the vast majority of timber framed houses having precut and/or prenailed framing. This is the same for steel framed houses.

3.4 Number of Storeys

Figure 5 shows the proportion of houses which were single storey, two storey or three or more storeys for the 31 territorial authorities surveyed. The number in brackets beside the name of the territorial authority is the number of responses received for that territorial authority.

The Auckland region, particularly Central Auckland, Manukau and the North Shore had the highest proportion of multi-storey houses. This is likely due to site restrictions and the perceived need for 200-plus square metre houses to maintain resale value.

Christchurch had few multi-storey houses. In 2010, 30% of new houses in Christchurch were multi-storey. The reason for the decline is believed to be related to the earthquake reconstruction, where the first replacements are simple, quick to construction low-rise houses.

New Zealand wide, the proportion of houses that are multi-storey has been consistent at about 65% for the past 5 years.

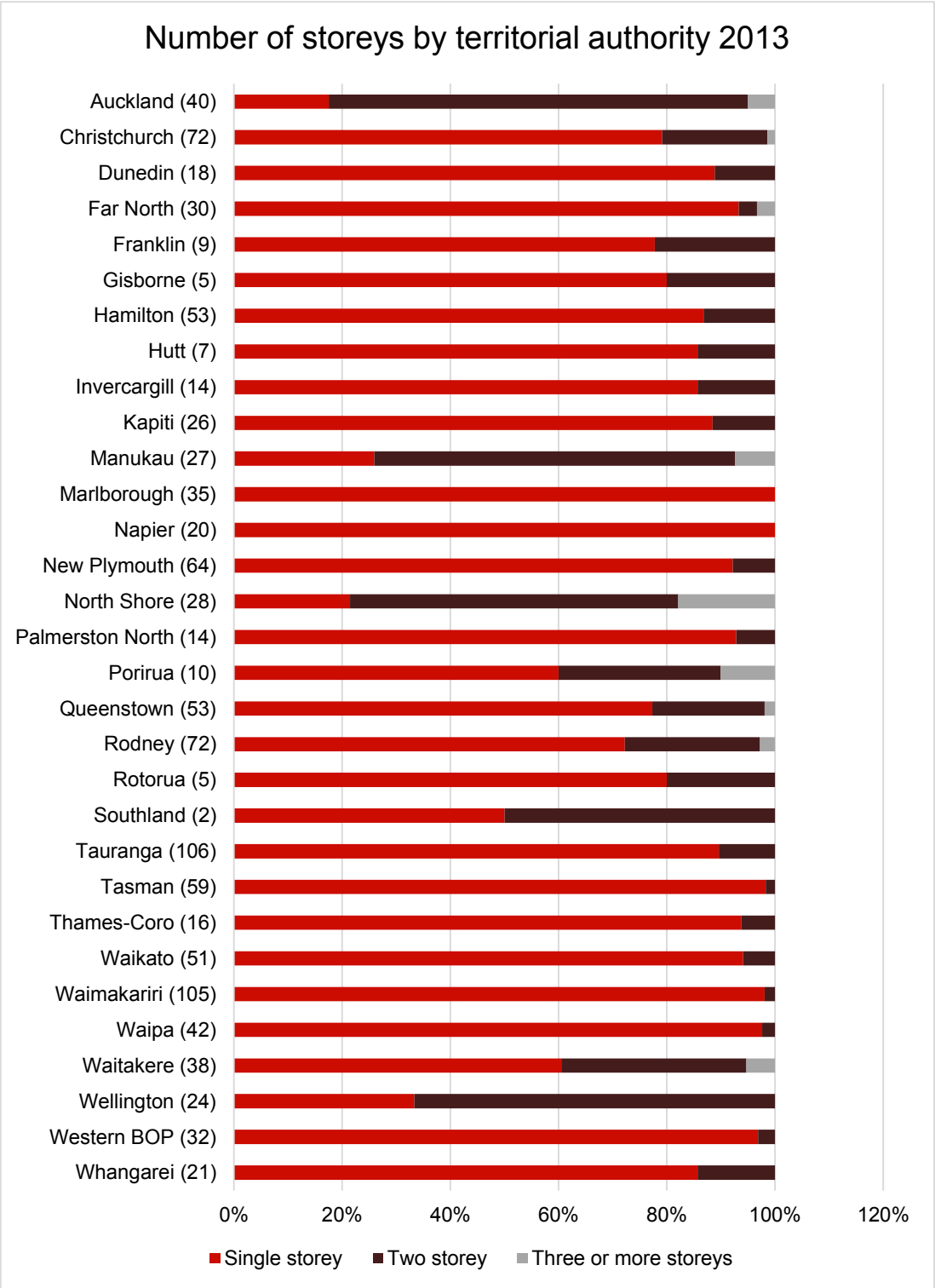

Figure 5. Number of Storeys

3.5 Flooring

Concrete flooring is the most common flooring type in new residential construction. This includes both concrete slab and suspended concrete floors. The share has remained relatively steady after the blip around 2008. This blip is likely explained by an increase in the use of timber ground floors due to the remaining sites (towards the end of the building boom) being difficult to build on. The “other” category is mainly particleboard and strandboard.

Concrete slabs have been the most common foundation type since the 1970s/80s where they overtook concrete piles in prominence.

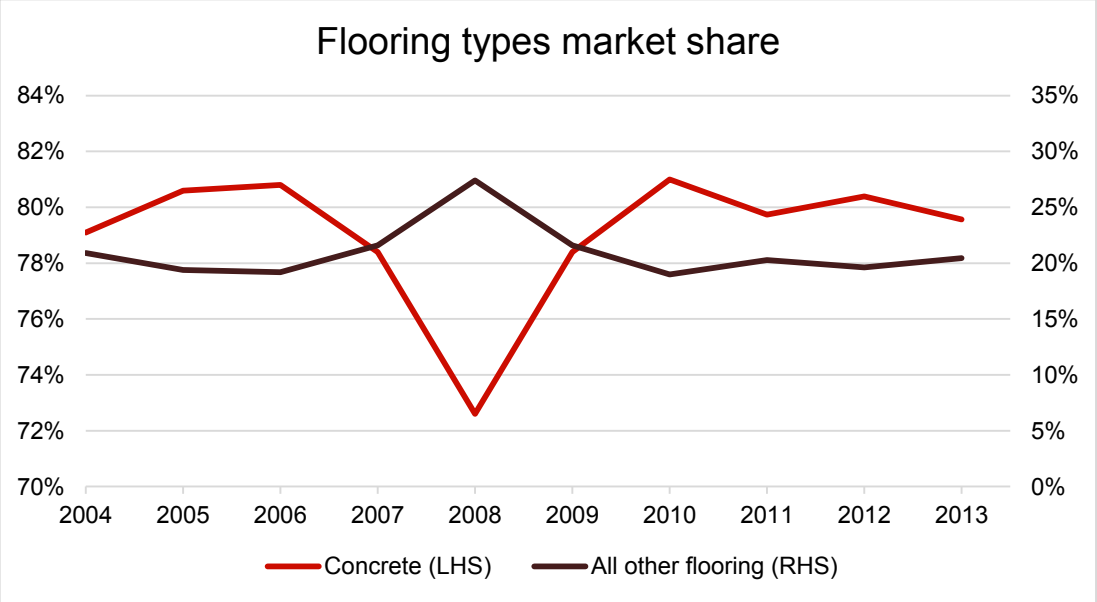

Figure 6. Flooring Types Market Share

3.6 Floor Joists

Solid timber dominates the floor joists market. Between 2004 and 2012, solid timber's market share was trending upwards. However, in 2013 its market share declined sharply toward 60%.

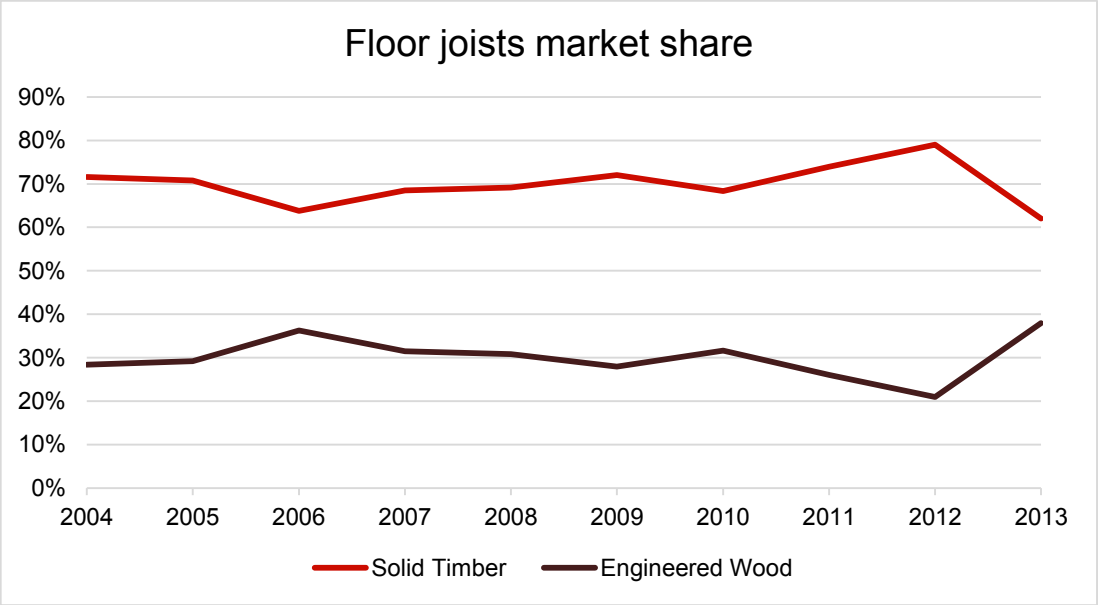

Figure 7. Floor Joists Market Share

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 with well over 95% market share. The share appears to be increasing, despite a slight dip in 2013. The "other" category is mainly polystyrene and natural wool.

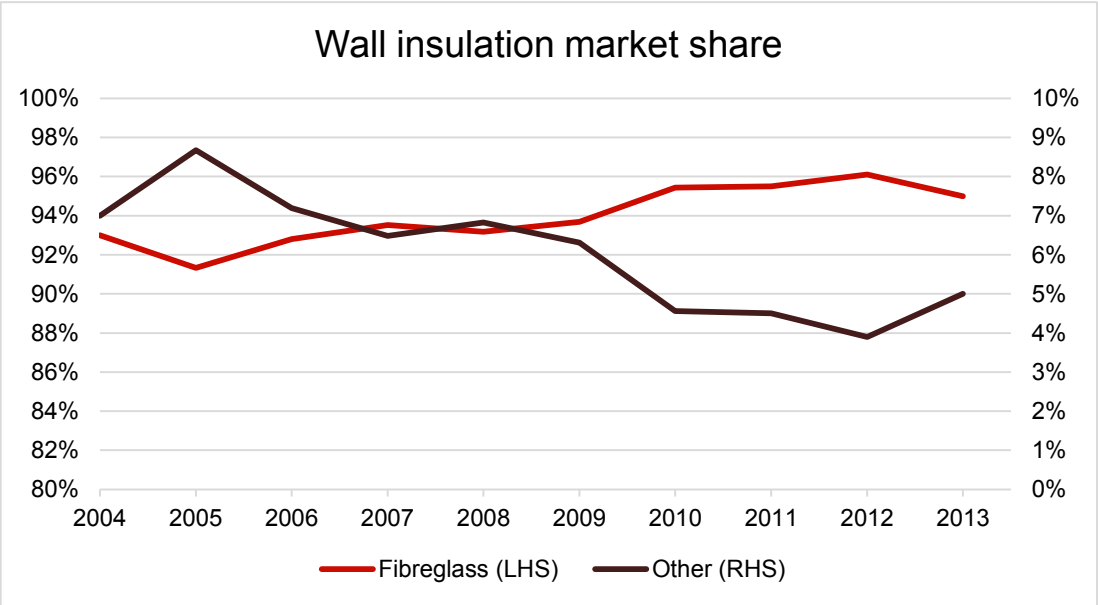

Figure 8. Wall Insulation Market Share

3.7.2 Ceiling Insulation

The ceiling insulation market is very similar to the wall insulation market. It is often the case that builders use the same brand of material for both the wall and ceiling.

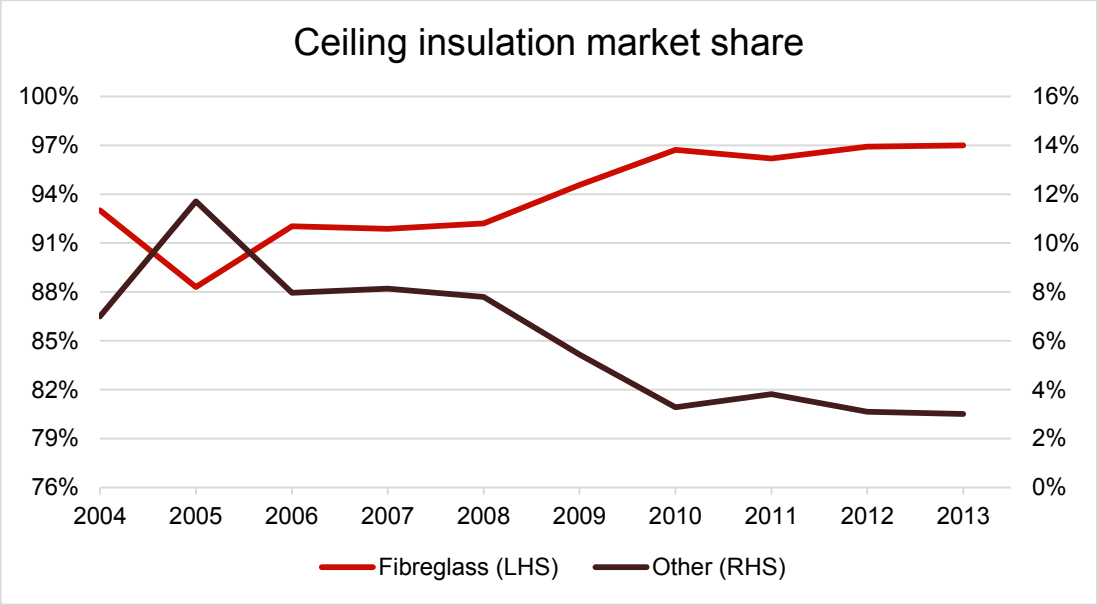

Figure 9. Ceiling Insulation Market Share

3.7.3 Floor Insulation

About 30% of new houses with a concrete slab used sheet polystyrene to insulate their concrete slab. This has been trending down slightly since 2011 after a big jump in use between 2010 and 2011. The use of waffle pods peaked in 2010 with just over 20% of houses with a concrete slab using them.

There appears to be a sharp jump in sheet polystyrene use between 2010 and 2011. Whether this is because of an increased use of sheet polystyrene or just an improved response to the floor insulation section of the survey form (which has generally been left blank in a number of returns) is unclear.

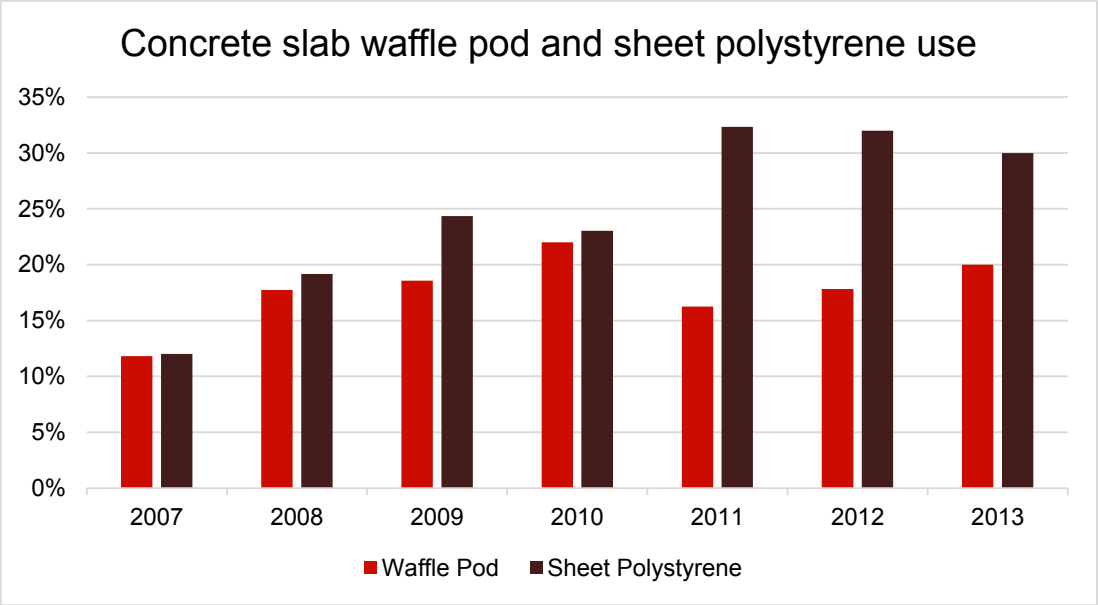

Figure 10. Concrete Slab Insulation

In timber floors, between 2007 and 2011 polystyrene insulation increased in share quite dramatically, largely at the expense of foil. Fibreglass and polyester use increased in 2012 and 2013.

Few houses have timber floors on ground level so the use of timber floor insulation in new houses is limited.

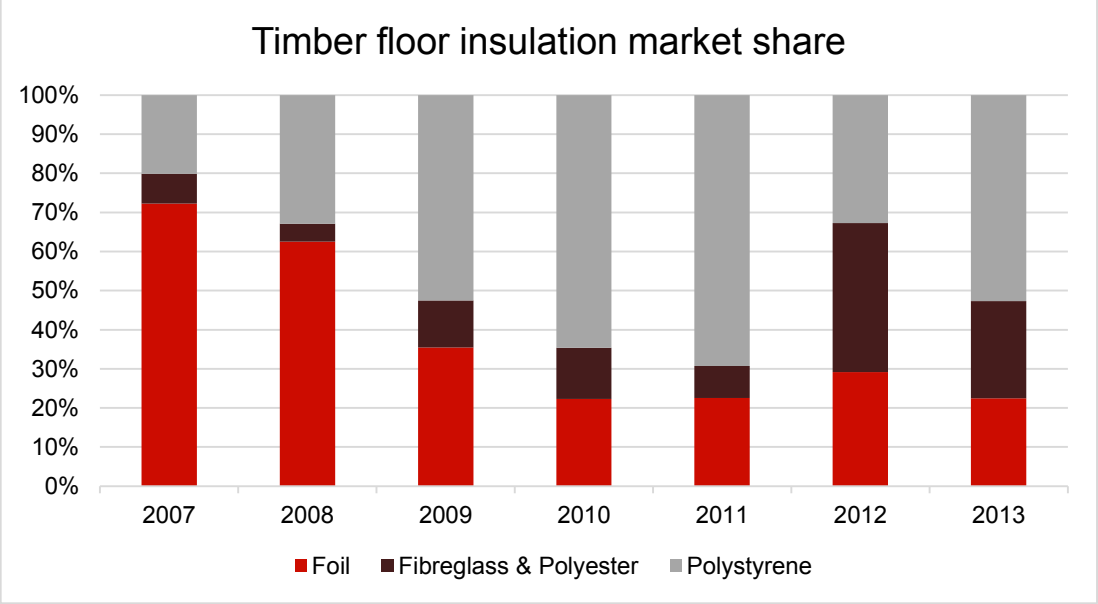

Figure 11. Timber Floor Insulation Market Share

3.8 Downlights

The majority of new houses have downlights installed. The proportion of houses installing more than 30 downlights appears to be declining. The 21-30 category has increased most between 2012 and 2013.

These changes, particularly in the number of downlights being installed per house, is largely due to the reduction in size of the houses. Other possible reasons include a change in preferences (i.e. owners that may have previously used downlights for the majority of lights are now using less downlights and more surface mounted lights and/or hanging lights). Another reason may be that there is concern over ceiling insulation around downlights, and therefore owners are having less downlights or are only using downlights on the ground floor of multi-storey houses.

A third option may be that some builders understand the intention of the question in the survey which is to understand how many houses may have issues with heat loss around downlights, and therefore are only including downlights where this may be an issue.

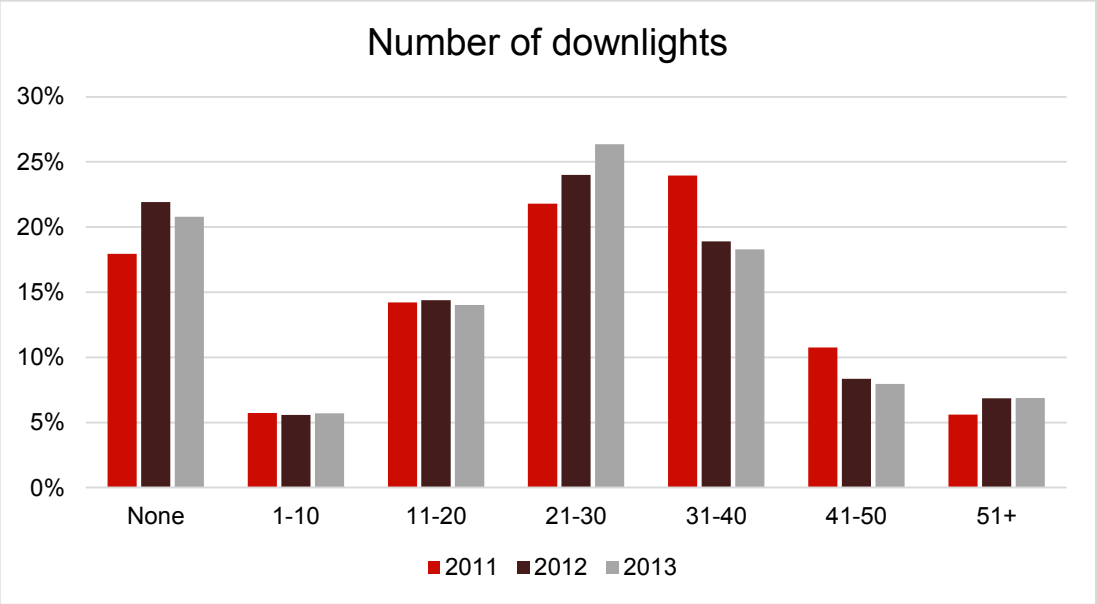

Figure 12. Number of Downlights

3.9 Window Frames

Aluminium is the dominant framing type (this includes standard aluminium and thermally broken aluminium). “Other” is mainly timber and PVC frames and its use is very limited.

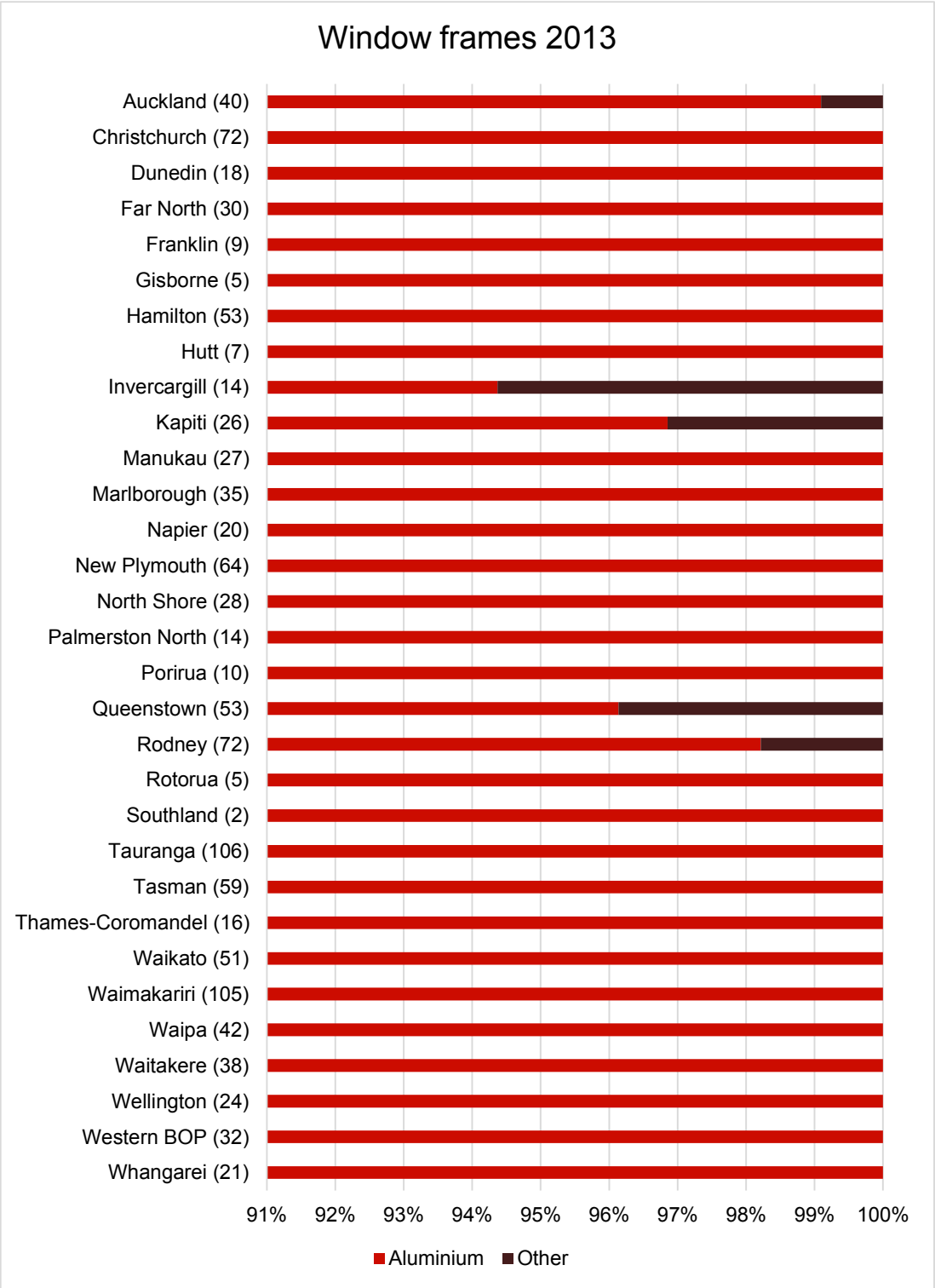

Figure 13. Window Frames

3.10 Double Glazing

The following figure shows the percentage of windows that are double glazed by territorial authority. In April 2013, we changed the question on double glazing to instead indicate what percentage of windows are **at least** double glazed. The figure displays the results between April and December 2013 as this is the period where we have data.

Many of the territorial authorities do not have all windows in new houses being double glazed. The proportion of single glazed windows is highest in the Far North and Whangarei.

Where percentages are about 98%, it is likely that the glazing in the garage is single glazed. It is unlikely that this is within the thermal envelope of the house.

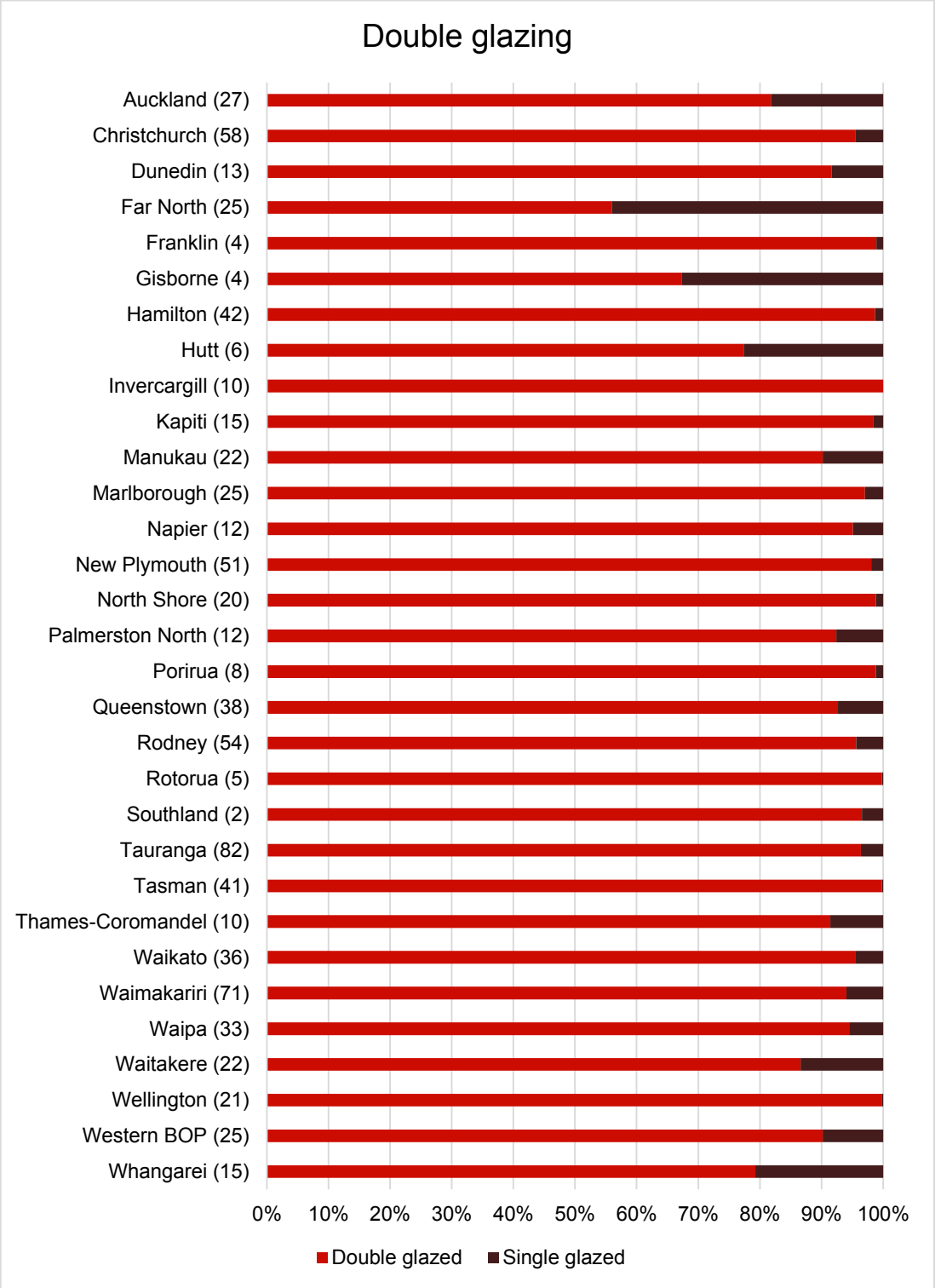

Figure 14. Double Glazing

8.4% of windows in new houses had low-e panes and/or argon gas fill in 2013.

3.11 Wind Zones

Figure 15 shows the breakdown of wind zones by territorial authority. The line that has been superimposed shows the average wind zone for each territorial authority where 1 is low, 2 is medium, 3 is high, 4 is very high and 5 is extra high.

There appears to be quite a lot of variation in many of the territorial authorities with the majority ranging over three or four different wind zones.

The number in brackets after the name of each territorial authority is the number of responses.

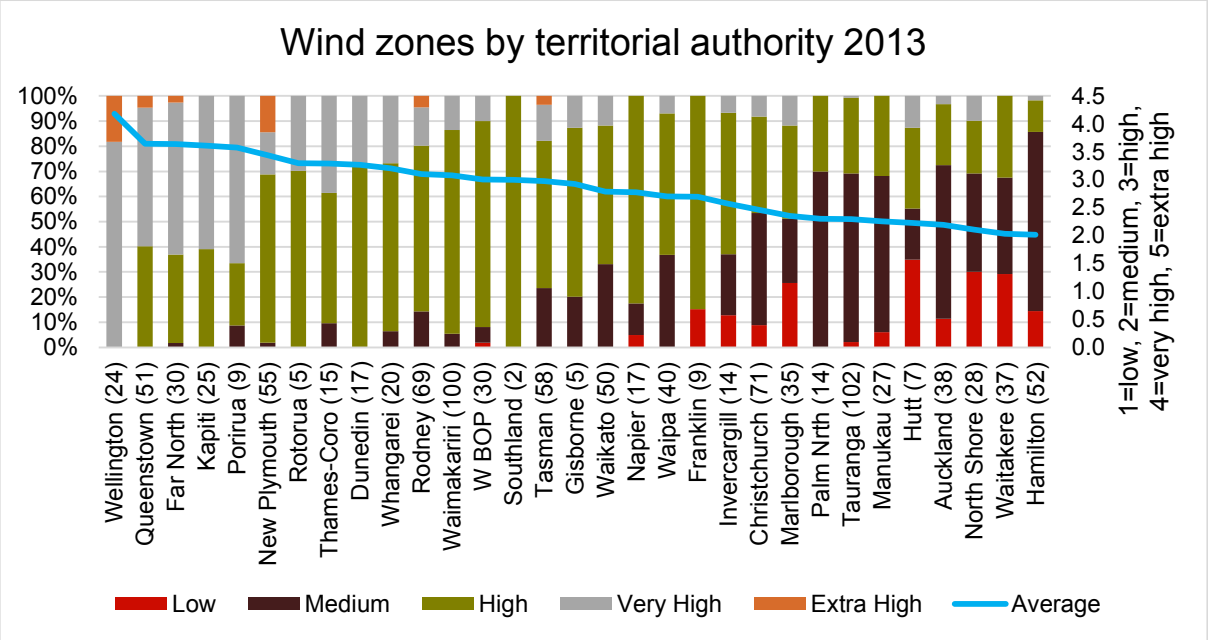

Figure 15. Wind zones by territorial authority

3.12 E2 Risk Scores

The E2 risk matrix is used to assess the weathertightness risk of low rise, timber-framed buildings. The average E2 risk scores by territorial authority are shown in the following figure, as well as the breakdown of risk score by range (0-6 is low, 7-12 is medium, 13-20 is high and over 20 is very high).

Very few houses have high or very high E2 risk scores. The majority of houses have low risk scores. However, Manukau seems to be an outlier with higher risk. We are not able to tell why this is the case from the survey.

The number in brackets after the name of each territorial authority is the number of responses.

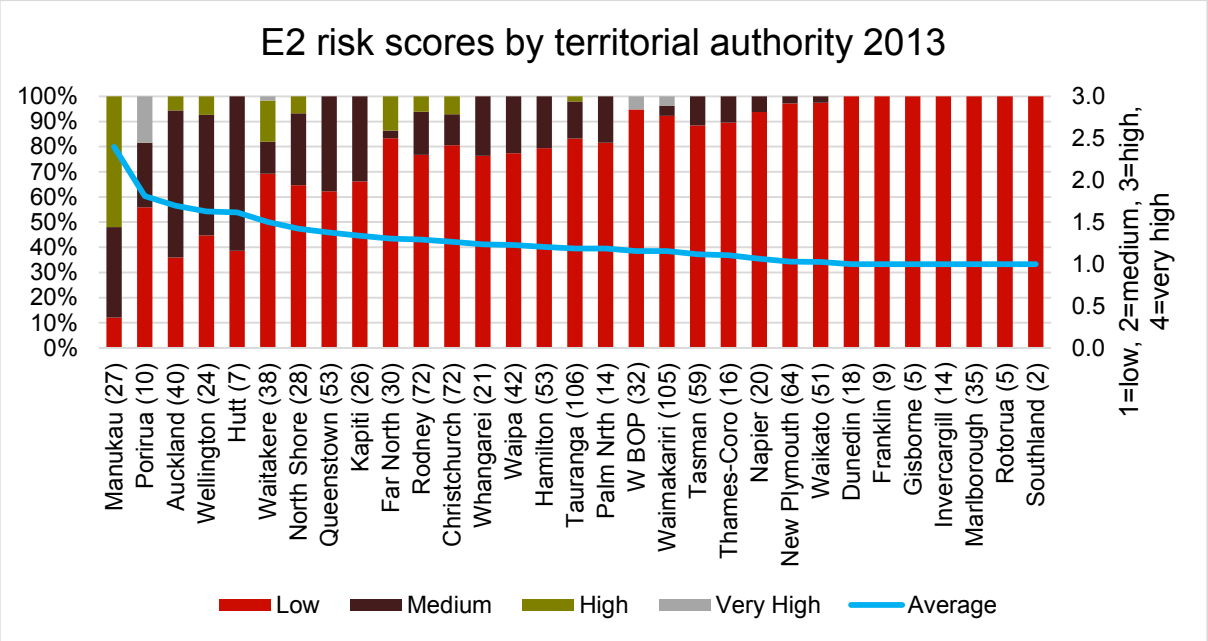

Figure 16. E2 risk scores by territorial authority

4. APPENDIX

This appendix contains:

- Tables of data for the charts
- BRANZ New Dwellings survey forms

4.1 Results Tables

Average floor area (square metres) Yearly Data 2004-2013	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sample average floor area	222.2	231.6	221.3	232.1	232.6	217.5	217.0	213.7	208.2	203.0
Consent data average floor area (1)	213.1	217.1	215.2	213.4	215.8	216.5	215.6	210.6	214.3	212.9
Note: survey average floor area weighted to allow for regional building activity										
(1) Source: Statistics New Zealand										

Table 1. Average floor area

Roof claddings market share Yearly Data 2004-2013	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sheet Metal	48.4%	46.1%	44.7%	54.2%	48.0%	48.3%	53.8%	53.9%	49.6%	52.6%
Tiles (metal and concrete)	37.7%	38.3%	41.3%	36.9%	36.2%	35.0%	38.6%	41.6%	42.1%	35.4%
Other (membrane, shakes, etc)	13.9%	15.6%	14.0%	8.8%	15.8%	16.7%	7.6%	4.5%	8.3%	12.0%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Note: percentage weighted to allow for the regional building activity.										

Table 2. Roof claddings market share

Wall claddings market share Yearly Data 2004-2013										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Finish bricks clay & concrete	46.3%	49.5%	51.0%	44.0%	43.5%	42.1%	45.5%	44.0%	44.5%	46.6%
Weatherboard (timber, fib cmt, PVC)	16.9%	17.7%	18.2%	25.3%	25.7%	26.8%	28.3%	31.2%	31.3%	32.2%
Other (FC sheet, EIFS,stucco, sheet steel, solid masonry, etc)	36.8%	32.8%	30.8%	30.7%	30.8%	31.1%	26.2%	24.8%	24.2%	21.2%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Note: percentage weighted to allow for the regional building activity.										

Table 3. Wall claddings market share

Wall framing market share Yearly Data 2004-2013										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Timber (framing + solid timber)	95.9%	89.8%	90.9%	85.1%	86.0%	85.4%	90.4%	84.7%	87.8%	95.0%
Other (steel framing, concrete masonry, polybloc, earth, straw, etc)	4.1%	10.2%	9.1%	14.9%	14.0%	14.6%	9.6%	15.3%	12.2%	5.0%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100.0%
Note: percentage weighted to allow for the regional building activity.										

Table 4. Wall framing market share

Flooring types market share Yearly Data 2004-2013										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Concrete	79.1%	80.6%	80.8%	78.4%	72.6%	78.4%	81.0%	79.7%	80.4%	79.6%
All other flooring	20.9%	19.4%	19.2%	21.6%	27.4%	21.6%	19.0%	20.3%	19.6%	20.4%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Note: percentage weighted to allow for the regional building activity.										

Table 5. Flooring types market share

Floor joists market share Yearly Data 2004-2013										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Solid Timber	71.6%	70.8%	63.8%	68.5%	69.2%	72.0%	68.4%	74.0%	79.0%	62.0%
Engineered Wood	28.4%	29.2%	36.2%	31.5%	30.8%	28.0%	31.6%	26.0%	21.0%	38.0%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Note: percentage weighted to allow for the regional building activity.										

Table 6. Floor joists market share

Wall insulation market share Yearly Data 2004-2013										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Fibreglass	93.0%	91.3%	92.8%	93.5%	93.2%	93.7%	95.4%	95.5%	96.1%	95.0%
Other	7.0%	8.7%	7.2%	6.5%	6.8%	6.3%	4.6%	4.5%	3.9%	5.0%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Note: percentage weighted to allow for the regional building activity.										

Table 7. Wall insulation market share

Ceiling insulation market share Yearly Data 2004-2013										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Fibreglass	93.0%	88.3%	92.0%	91.9%	92.2%	94.6%	96.7%	96.2%	96.9%	97.0%
Other	7.0%	11.7%	8.0%	8.1%	7.8%	5.4%	3.3%	3.8%	3.1%	3.0%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Note: percentage weighted to allow for the regional building activity.										

Table 8. Ceiling insulation market share

Concrete slab waffle pod and sheet polystyrene use Yearly Data 2007-2013							
	2007	2008	2009	2010	2011	2012	2013
Waffle Pod	11.8%	17.7%	18.6%	22.0%	16.3%	17.8%	20.0%
Sheet Polystyrene	12.0%	19.2%	24.3%	23.0%	32.3%	32.0%	30.0%
Note: percentage weighted to allow for the regional building activity.							

Table 9. Concrete slab waffle pod and sheet polystyrene use

Timber floor insulation market share Yearly Data 2007-2013							
	2007	2008	2009	2010	2011	2012	2013
Foil	72.3%	62.5%	35.5%	22.3%	22.6%	29.2%	22.5%
Fibreglass & Polyester	7.6%	4.6%	12.1%	13.1%	8.1%	38.1%	24.9%
Polystyrene	20.2%	32.9%	52.5%	64.6%	69.3%	32.7%	52.7%
TOTAL	100%	100%	100%	100%	100%	100%	100%
Note: percentage weighted to allow for the regional building activity.							

Table 10. Timber floor insulation market share

Number of downlights Yearly Data 2011-2013			
	2011	2012	2013
None	17.9%	21.9%	20.8%
1-10	5.7%	5.6%	5.7%
11-20	14.2%	14.4%	14.0%
21-30	21.8%	24.0%	26.4%
31-40	24.0%	18.9%	18.3%
41-50	10.8%	8.4%	8.0%
51+	5.6%	6.8%	6.9%

Table 11. Number of downlights

4.2 Survey Forms

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. Contract value of work (incl sub-trades) $ ……………. incl GST.

Floor areas Total floor area ________ Sq metres (include attached garage, exclude decks).

	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

Decks (above ground, not concrete patios) (circle one)

Includes a deck ? Yes / No (circle one or more)

Deck area______Sq metres 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 [ ] Steel [ ] Douglas fir [ ] Concrete block [ ] Other [ ] (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	[ ]	[ ]	[ ]	[ ]	[ ]
State where used (eg outer walls, subfloor, etc)	…………	…………	…………	…………	…………

Floor joists

	None	Solid timber	Posistrut	Hybeam (I beam)	Steel	Twinaplate	Origin (I beam)	Other (state)
Tick one or more	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Joist depth mm		………mm	………mm	………mm	………mm	………mm	………mm	………mm

Insulation (tick one or more)

	R value of insulation	Pink Batts	Bradford Gold	Premier Fibreglass	Blown FG Rocwool	Greenstuf (polyester)	Other polyester	Treated paper	Wool	Other (state)
Wall insulation	R-	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Ceiling insulation	R-	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

	R value	Expol Warmfeet	Polystyrene panel	Cosy Floor	Sisalation Foil	Other (state)
Floor Insulation	R-	[ ]	[ ]	[ ]	[ ]	[ ] ………………………………………

Installer (name) ……………………………………………………………………………

Noise Control (circle one)

Have you installed noise control products? Yes / No What type? ……………………………….

Building wraps (tick one or more)

Roof wrap: Flamestop [ ] Thermakraft [ ] Bitumac [ ] GIB underlay [ ] Greencap [ ] Pauloid [ ] Black Paper [ ] Other (state) [ ]

Wall wrap: Flamestop [ ] Tyvek [ ] Thermakraft coverup [ ] Framegard II [ ] Greenwrap [ ] Fastwrap [ ] Black Paper [ ] Other (state) [ ]

Wall cladding State type (and approx % wall coverage)

Type ………………………. % area……………. eg fibre cement sheet, 75% also plywood, solid plaster(min 18mm),

Type ………………………. % area……………. clay brick, 15% plaster on polystyrene, concrete

Type ………………………. % area……………. cedar 10% block, PVC weatherboard, etc.

If yes to Fibre Cement cladding what is the Manufacturer? (tick one or more) Hardies [ ] BGC [ ] CSR [ ] PRIMA [ ] Other [ ]

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, prepainted corrugated, other steel profiles, concrete tiles, butyl, asphalt shingles, fibreglass shingles, etc.

Wet wall linings (Tick one or more in each row)

	Formica Aquapanel	Seratone	Hardies Villaboard	Hardiglaze	Standard GIB	GIB Aqualine	Other	(state)
Bathroom	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	……..
Laundry	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	……..

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 [ ] Solar water heaters [ ] Dual flush toilets [ ] efficient lights [ ] Energy Heat pump [ ] Low flow showers [ ] Built-in window vents [ ]

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

Thank You. Please fold this form, and freepost it in the return envelope Oct-06

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. Contract value of work (incl sub-trades) $ …….…… incl GST.

Floor areas Total floor area _____ Sq metres (include attached garage, exclude decks).

	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

If the floor is concrete is it Ribraft or similar (ie polystyrene formers) ? Yes / No (circle one)

If the floor is concrete does it have concrete masonry perimeter foundations for the slab ? Yes / No (circle one)

Wall Framing (tick appropriate box)

Radiata ☐ Steel ☐ Douglas fir ☐ Concrete block ☐ Other ☐ (state) ……

Was the wall framing precut or prenailed ? Yes / No (circle one)

Heating Systems Tick one or more

Heat pump ☐ Wood/Pellet burner ☐ Ducted central heating (Not including DVS or HRV) ☐ Underfloor heating (waterpipe) ☐ Underfloor heating (electric) ☐ DVS/HRV ☐ Gas ☐

Floor joists Tick one or more

	None	Solid timber	Posistrut	Hyjoist	Steel	Twinaplate	Origin (I beam)	Laminated veneer lumber	Other (state)	Hyne (I beam)
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Joist depth		……..mm	……..mm	……..mm	……..mm	……..mm	……..mm	……..mm	……..mm	……..mm

Insulation (tick one or more)

	R value of insulation	Pink Batts	Bradford Gold	Premier Fibreglass	Blown FG Rocwool	Greenstuf (polyester)	Other polyester	Wool	Other (state)	
Wall insulation	R -	☐	☐	☐	☐	☐	☐	☐	☐	……
Ceiling insulation	R -	☐	☐	☐	☐	☐	☐	☐	☐	……

		Expol Warmfeet	Polystyrene Under slab	Cosy Floor	Sisalation Foil	Ribraft Floor	Cupolex	Other (state)	
Floor Insulation	R -	☐	☐	☐	☐	☐	☐	☐	……

Insulation Installer (name) *Please tick*…….. Builder ☐ Other, please specify ☐ ……

Noise Control

Have you installed noise control products? **(circle one) Yes / No**

If so then what type? (Tick one or more boxes) Pink Batts Silencer ☐ Gib Noiseline ☐ Other Gib Products ☐ Bradford Gold ☐ Pink Batts ☐ Other Specify ☐

Building wraps

	Flamestop	Thermakraft	Bitumac	Greencap	Pauloid	Black Paper	Other (state)	Diflex 130	Tekton	Home RAB
Roof wrap	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	Flamestop	Tyvek	Thermakraft	Framegard	Greenwrap	Fastwrap	Black Paper	Other (state)	Diflex 130	Tekton	Home RAB
(tick one or more) Wall wrap	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

DPC What DPC products have you installed?

Damp-a-thene ☐ Mathiod ☐ Supercourse ☐ Other, specify ☐

Flashing Tapes What flashing tapes are installed?

Weatherseal ☐ Aluband ☐ Tyvek Flexwrap ☐ Protectowrap ☐ Other, specify ☐

Wall cladding State type (and approx % wall coverage)

Type ..... % area..... eg fibre cement sheet, 75% also plywood, solid plaster(min 18mm),

Type ..... % area..... clay brick, 15% plaster on polystyrene, concrete

Type ..... % area..... cedar 10% block, PVC weatherboard, etc.

If Fibre Cement cladding is used, who is the Manufacturer? (tick one or more) Hardies ☐ BGC ☐ CSR ☐ PRIMA ☐ Other ☐ Eterpan ☐

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, prepainted corrugated, other steel profiles, concrete tiles, butyl, asphalt shingles, fibreglass shingles, etc.

Windows Please tick what windows are used

Timber ☐ Aluminium ☐ PVC plastic ☐ Steel ☐ Other (state)…….

Exterior doors Please tick what exterior doors are used (include entry/exit, french and sliding doors)

Timber ☐ Aluminium ☐ Composite (timber and aluminium together) ☐

Fascia What type of material was used? (tick one)

Timber Board ☐ Metal ☐ Other, State ……

Wet wall linings (Tick one or more in each row)

	Formica	Aquapanel	Seratone	Villaboard	Hardies Hardiglaze	Standard GIB	GIB Aqualine	Other, *specify*	Timber
Bathroom	☐		☐	☐	☐	☐	☐	☐	☐
Laundry	☐		☐	☐	☐	☐	☐	☐	☐

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:

None ☐ Solar water heaters ☐ Dual flush toilets ☐ Efficient lights ☐ Energy Heat pump ☐ Low flow showers ☐ Sliding air vents built into window frame ☐

Thank You. Please fold this form, and freepost it in the return envelope Oct-08

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 ☐ 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 _____ Sq metres (include attached garage, exclude decks).

	Particleboard	Plywood	Strip timber (not overlay exclude decks)	Strandboard	Concrete	Height of level to ceiling
Ground level	_____ Sq m	_____ Sq m	_____ Sq m	_____ Sq m	_____ Sq m	_____ metres
First level	_____ Sq m	_____ Sq m	_____ Sq m	_____ Sq m	_____ Sq m	_____ metres
2nd or more levels	_____ Sq m	_____ Sq m	_____ Sq m	_____ Sq m	_____ Sq m	_____ metres

Building Envelope Risk Score and Wind Zone

What is the risk score (enter score for EACH elevation) North ☐ West ☐ South ☐ East ☐

What is the wind zone (tick one box) Low ☐ Medium ☐ High ☐ Very High ☐ Extra High ☐

Wall Framing (tick appropriate box)

Radiata ☐ Steel ☐ Douglas Fir ☐ Concrete Block ☐ Solid Wood ☐ Other ☐ (state).....

Was the wall framing precut or prenailed? Yes / No (circle one)

Floor Joists (tick one or more)

	None	Solid Timber	Posistrut	Hyjoist	Steel	Twinaplate	Hyne (I beam)	lumberworX	Other state
	☐	☐	☐	☐	☐	☐	☐	☐	☐
Joist depth:		..... mm	..... mm	..... mm	..... mm	..... mm	..... mm	..... mm	..... mm

Insulation (tick one or more)

	Insulation R Value	Pink Batts	Bradford Gold	Bradford Premier	Knauf Earthwool	Autex Greenstuf	Other Polyester	Other Wool	Other Polystyrene	Other (state)
Wall insulation	R-	☐	☐	☐	☐	☐	☐	☐	☐	.....
Ceiling insulation	R-	☐	☐	☐	☐	☐	☐	☐	☐	.....

Is the floor insulated? (circle one) Yes / No If yes, what floor insulation was used?

	Insulation R Value	Polystyrene (not Polythene) Expol	Polystyrene (not Polythene) Under Slab	Pink Batts Snug Floor	Sisalation Foil	Waffle Pod Floor	Waffle Pod Cupolex	Other (state)
Floor insulation	R-	☐	☐	☐	☐	☐	☐	.....

Insulation Installer (name) Builder ☐ **Other (please specify)** ☐ .....

Window Frames

	Thermally broken aluminium	Aluminium	PVC	Timber	Other	(state)
What are the window frames made of?	☐	☐	☐	☐	☐	.....

What percentage of windows are double/triple glazed? ..... % area

Do the windows have low-e panes and/or Argon gas fill? (Circle one) Yes / No / Unsure

Noise Control

Have you installed noise control products? **(cicle one) Yes / No** If so, then what type? (tick all that apply)

Pink Batts Silencer	GIB Noiseline	Other GIB Products	Bradford Gold	Pink Batts	Polyester
☐	☐	☐	☐	☐	☐

Other (please specify) .....

Building Wraps

	Flamestop	Thermakraft	Bitumac	CoverTek	Pauloid	Tyvek Supro	Other (state)	Watergate plus	Tekton
Roof Wrap	☐	☐	☐	☐	☐	☐	☐	☐	☐

(tick one or more)	Flamestop	Tyvek	Thermakraft	Coverup	Home RAB	Fastwrap	Other	Watergate	Tekton	Ecoply Barrier	Bitumac	Pauloid
Wall Wrap	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

DPC

	Damp-a-thene	Mathoid	Supercourse	Other, Specify:
What DPC products have you installed?	☐	☐	☐	☐

Flashing Tapes

	Weatherseal	Aluband	Tyvek Flexwrap	Protectowrap	Flameflash	Other, Specify:
What flashing tapes are installed?	☐	☐	☐	☐	☐	☐

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, prepainted corrugated, trough zincalum, corrugated zincalum, other steel profiles, concrete tiles, asphalt shingles, butyl, other (state) .....

If roof is metal tiles, specify manufacturer name: .....

	3-7.9°	8-9.9°	10-11.9°	12°+	Don't Know
Is the majority of the roof slope:	☐	☐	☐	☐	☐

Wet Wall Linings (tick one or more in each row)

	Formica Aquapanel	Seratone	Villaboard	Hardies Hardiglaze	Standard GIB	GIB Aqualine	Water Shield	Other specify	Timber	Horizon
Bathroom	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Laundry	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Has the shower been: Pre-Formed ☐ Built insitu ☐ Ceramic Tiled ☐

Ceiling Linings and Battens

	10mm plasterboard	13mm plasterboard	Ultraline	Tiles	Other
Ceiling Linings (tick one or more)	☐	☐	☐	☐	☐

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-13