

FIFTH EDITION HOUSE INSULATION GUIDE SUPPLEMENT – OCTOBER 2018

This update incorporates relevant changes in the legislation and standards since the BRANZ *House Insulation Guide* (fifth edition) was published.

PAGE CHANGES, ADDITIONS, DELETIONS

6 INTRODUCTION

In the final paragraph:

- Delete “and the EECA/MBIE publication *Guide for retrofitting wall insulation* (www.eeca.govt.nz/resource/guide-retrofitting-wall-insulation)”.

7 STATUTORY REQUIREMENTS

In paragraph 4:

- Remove the date (2011) after “Acceptable Solution H1/AS1”.
- Change the rest of the sentence to “refers to NZS 4218:2009 *Thermal insulation – Housing and small buildings* (sections 3, 4.1 and 4.2) but modifies them in paragraphs 2.1.3 to 2.1.7”.
- Delete the final sentence.

In paragraph 5:

- Change the words “NZS 4218:2004 section 3.3” to “NZS 4218:2009 section 4.3”.
- Delete the final sentence.

In paragraph 7:

- Change the words “BRANZ Bulletin 522” to “BRANZ Bulletin 614”.

After section Insulation requirements, insert a new section as follows:

RESIDENTIAL RENTAL PROPERTIES

The Residential Tenancies (Smoke Alarms and Insulation) Regulations 2016 require minimum levels of ceiling and underfloor insulation to be installed in all residential rental properties (where reasonably practicable) from 1 July 2019.

Minimum R-values specified are:

- timber construction – ceiling R1.9, underfloor R0.9
- masonry construction – ceiling R1.5, underfloor R0.9.

PAGE CHANGES, ADDITIONS, DELETIONS**8**

Delete paragraph 1.

In paragraph 2:

- Delete the final sentence.

Replace paragraph 6 with:

NZS 4246:2016 *Energy efficiency – Installing bulk thermal insulation in residential buildings* provides guidance for the correct installation of insulation to achieve the required thermal performance for the building without compromising the durability of the insulation or building elements or the health and safety of installers or building occupants.

10 HOW INSULATION WORKS

Under the heading *Air entrapment*, amend the bullet points as follows:

Bullet point 1:

- Replace “glass” with “mineral”.
- Replace “wool, polyester” with “wool or polyester”
- Delete “or blends of these materials”.

Bullet point 2:

- Replace “polyurethane foam” with “PIR (polyisocyanurate), a modified rigid sheet product”.

Bullet point 4:

- Delete “mineral fibre,”.
- Replace “glass” with “mineral”.

Bullet point 5:

- Delete bullet point 5.

The bullet points should now read:

- segments or blankets of glass wool, sheep’s wool or polyester
- rigid sheets of polystyrene or PIR (polyisocyanurate), a modified rigid sheet product
- semi-rigid sheet insulation
- loose fill such as macerated paper, cellulose fibre, sheep’s wool or mineral wool.

Delete the heading *Reducing radiated heat loss* and all the text up to and including “There are no calculations for the use of foil in this guide.”

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In Table 1, column 1, row 1:

- Replace “Glass” with “Mineral”.

In Table 1, column 1, row 2:

- Delete “and blends of the two”.

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In Table 1, column 2, row 3:

- Insert a new bullet point before the existing first bullet point as follows:
 - Defined in NZS 4246:2016 as “Insulation in the form of a rigid board that cannot be folded or bent but shall be cut to fit into place.”

In Table 1, column 2, row 3, bullet point 2:

- Replace “ISO 9705:1993” with “ISO 9705-1:2016”.

In Table 1, column 2, row 4:

- Insert a new bullet point before the existing first bullet point as follows:
 - Defined in NZS 4246:2016 as “Insulation that is self-supporting on a vertical or horizontal plane, but can be folded when required. It is a firm but flexible insulation product of a medium to high density.”

In Table 1, column 2, row 5:

- Insert a new bullet point before the existing first bullet point as follows:
 - Defined in NZS 4246:2016 as “Insulation that is in the form of small particles or fibres that are blown into place.”

In Table 1, column 2, row 5, existing bullet point 1:

- Delete “, glass wool”.
- Delete “(rock wool)”.
- Delete “, with new or recycled wool also used”.

12 SELECTION OF INSULATION

In paragraph 4, sentence 2:

- Replace “thicker or more insulation” with “insulation with a higher R-value”.

13 INSTALLATION

In paragraph 4, sentence 1:

- Replace “on the outside” with “flush with the interior face of the framing”.

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In paragraph 3:

- Replace “NZS 4246:2006 *Energy efficiency – Installing insulation in residential buildings*” with “NZS 4246:2016 *Energy efficiency – Installing bulk thermal insulation in residential buildings*”.

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In Table 3, column 2, row 2, bullet point 3:

- Replace “IC-F” with “IC-4”.

In Table 3, column 1, row 3:

- Replace “Walls” with “External walls”.

In Table 3, column 2, row 3, bullet point 2:

- Delete the final sentence: “Refer to EECA/MBIE’s Guide ...”.

PAGE CHANGES, ADDITIONS, DELETIONS**17 CALCULATING R-VALUES**

Change the heading *Schedule method of NZS 4218:(2004 and 2009)* to *Schedule method of NZS 4218:2009* and replace the text under the heading with:

This method for construction may only be used where the glazing area is 30% or less of the total wall area and:

- the combined glazing on the east, south and west is 30% or less of the combined total area of these walls
- skylights are no more than the greater of 1.5 m² or 1.5% of the total roof area
- the total area of decorative glazing and louvres is no more than 3 m².

The R-values required for each building element are listed in Tables 2, 3 and 4 of NZS 4218:2009.

Under the heading *Calculation method of NZS 4218*:

- Delete bullet point 1.

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Under the heading *Modelling method of NZS 4218*, paragraph 2:

- Delete “NZS 4218:2004 Appendix A and”.
- Replace “give” with “gives”.

Under the heading *Verification method*:

- Delete paragraph 4 “A method to calculate the BPI ...”.

19 INDICATIVE R-VALUES OF SELECTED CONSTRUCTION COMPONENTS

Under the heading *Window frames*, paragraph 7:

- Replace “uPVC” with “uPVC, fibreglass”.

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After the heading *uPVC (unplasticised polyvinyl chloride) frames* and the following table, add a new heading and table as follows:

Firbreglass frames

Advantages	Disadvantages
<ul style="list-style-type: none"> • low maintenance – do not need painting • high energy efficiency • have the same coefficient of thermal expansion as the glass so there is less stress on the joint between frame and panes 	<ul style="list-style-type: none"> • more expensive than standard aluminium • limited colour range

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To Table 6, add one more column on the right:

Generic glazing	SHGC of glazing	Generic R-value of 1.8 x 1.5 m window with frame			
		Standard aluminium frame	Thermally broken aluminium frame	Timber or PVC frame	Fibreglass frame
Single clear	0.84	0.15	0.17	0.19	0.19
Single advanced tint	0.30–0.80	0.15	0.17	0.19	0.19
IGU clear	0.74	0.26	0.31	0.36	0.36
IGU with advanced tint	0.20–0.70	0.26	0.31	0.36	0.36
IGU with low-E	0.70	0.31	0.39	0.47	0.47
IGU with advanced tint/low-E	0.20–0.65	0.31	0.39	0.47	0.47
IGU with low-E and argon	0.70	0.32	0.41	0.51	0.51
Triple-glazed IGU with low-E panes and argon	0.15–0.60	0.53	0.77	1.00	1.00

Under the heading *Recessed light fittings*, amend the paragraphs as follows:

In paragraph 2:

- Replace “150 mm” with “100 mm”.

In paragraph 3:

- Replace bullet point 2 with:
 2. IC type (where IC stands for ‘insulation contact’), which consists of types IC and IC-4. These luminaires may be abutted against normally flammable materials including building insulation and can be covered in normal use. With IC-classified recessed light fittings, the effects of any gaps around the light fittings must be taken into account when determining construction R-values.

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Replace paragraph 4 with:

AS/NZS 3000:2018 *Electrical installations – known as the Australian/New Zealand wiring rules* and AS/NZS 60598.2.2:2016 *Luminaires – Particular requirements – Recessed luminaires* describe the installation requirements for recessed luminaires.

In paragraph 5:

- Replace “IC-F” with “IC-4”.

27 HOW TO USE THIS GUIDE

Under the heading *Useful sources of information*:

- Replace bullet point 2 with: “Ministry of Business, Innovation and Employment (MBIE) Building Performance: www.building.govt.nz”
- Replace bullet point 4 with: “Energy Safety: www.energysafety.govt.nz”
- Replace bullet point 5 with: “Standards New Zealand: www.standards.govt.nz”

Add bullet point 6:

- Download NZS 4246:2016 at [https://shop.standards.govt.nz/catalog/4246:2016\(NZS\)/scope?](https://shop.standards.govt.nz/catalog/4246:2016(NZS)/scope?)



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