

# THERMAL INSULATION

## Changes to NZBC Clause H1: Energy Efficiency



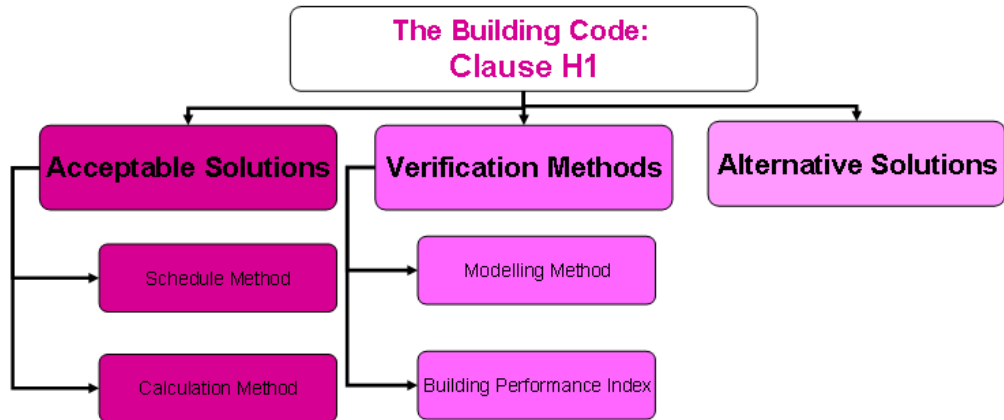
### Introduction

The main objective of clause H1 in the New Zealand building code is to facilitate efficient use of energy. It applies to all residential dwellings and all other buildings less than 300m<sup>2</sup>.

The change in the code now sees us building more sustainable homes with higher levels of insulation than we have ever had. This higher level of insulation reduces energy lost, when heating and cooling buildings.

### Compliance

There are several methods with which compliance can be met as show below:



Using an **Acceptable Solution** will automatically comply with the building code

The **Verification method** will provide a means of that a building complies with the Building Code

**Alternative solution** is just that allowing designer to come up with an alternative solution

### Acceptable solution: Schedule Method

Meet minimum construction values taking into account

- Climate zone
- Construction Method
- Insulation material R-value
- Thermal bridging



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### Acceptable solution: Schedule Method Continued...

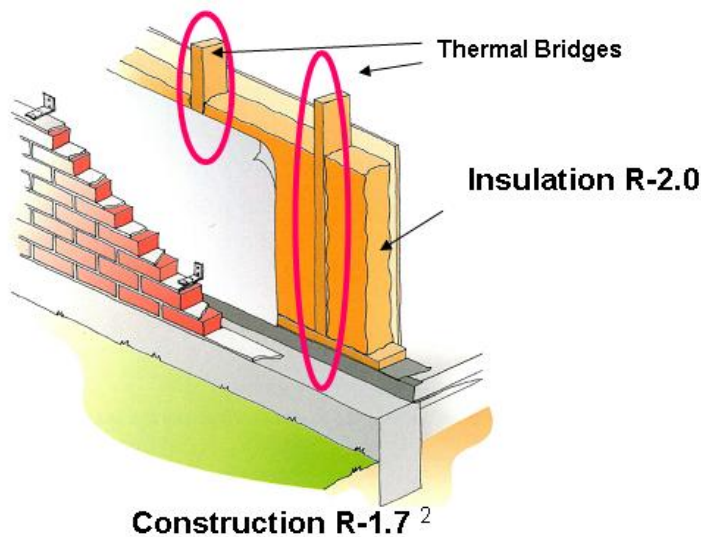
Table 1 from H1 is shown below. To download the clause including all the tables and associated notes please click on the table below. (Or visit [www.dbh.govt.nz](http://www.dbh.govt.nz))

Building thermal envelope component	Minimum R-values (m <sup>2</sup> °C/W)		
	Climate zone 1	Climate zone 2	Climate zone 3
	Roof	R 2.9	R 2.9
Wall	R 1.9	R 1.9	R 2.0
Floor	R 1.3	R 1.3	R 1.3
Glazing (vertical)	R 0.26	R 0.26	R 0.26
Glazing (skylights)	R 0.26	R 0.26	R 0.31

The table above shows construction R-values required to be achieved to meet compliance. Construction R-values takes in account thermal bridging, cladding materials and other factors, and as shown below **the R-value of the insulation itself is *not* the same as the final construction R-value.**

Thermal Bridging

Framing 90mm  
Studs 400  
Dwangs 600



<sup>2</sup> Values and image from BRANZ House Insulation Guide 3rd Ed

TECHNICAL UPDATE

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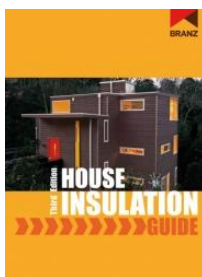
### TECHNICAL UPDATE

#### Acceptable solution: Schedule Method Continued...

The **Pink® Batts® R-value Insulation Guide** provides the **Insulation R-values** required achieving the **Construction R-values** necessary to comply with NZBC Clause H1. Download by clicking on the image below. (Or visit [www.pinkbatts.co.nz](http://www.pinkbatts.co.nz))



Alternatively **the BRANZ House Insulation Guide 3<sup>rd</sup> Edition** provides the **Insulation R-values** required achieving the **Construction R-values** in greater detail. Click on the image below to purchase from BRANZ. (Or visit [www.branz.co.nz](http://www.branz.co.nz))



#### Acceptable solution: Calculation Method

The Calculation method

- Allows for buildings with mixed construction types.
- Uses reference building to calculate minimum construction R-values

$$HL = \frac{A_{ROOF}}{R_{ROOF}} + \frac{A_{WALL}}{R_{WALL}} + \frac{A_{FLOOR}}{R_{FLOOR}} + \frac{A_{GLAZING}}{A_{GLAZING}}$$

An easy to use spreadsheet can be downloaded from BRANZ by clicking [here](#)  
(Or visit [www.branz.co.nz](http://www.branz.co.nz))

The Heat Loss (*HL*) of the proposed building must be less than the *HL* of the reference building. Where *A* is the area of the building element and *R* is the **Construction R-value**

Refer to **NZS4218:2009 Thermal Insulation- Housing and Small Buildings** for further details and worked examples



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### Verification Method: Modelling Method

- Use of software programme to model building, other factors such as environment
- Required for complicated designs and where glazing is > 50% of total wall area.

Complex Modelling Programmes such as SUNREL meet the modelling requirements as set out by NZS 4218

### Verification Method: Building Performance Index

- Use of Building Performance Index (BPI) as stated in H1
- Can use BRANZ ALF Method ( Annual Loss Factor) software programme to model the building

### *Still not sure about these changes*

Email [pinkbatts@pinkbatts.co.nz](mailto:pinkbatts@pinkbatts.co.nz) with H1 in the subject heading

or

Phone **0800 PINKBATTS** and ask for the H1 helpdesk

For further product information please visit

[www.pinkbatts.co.nz](http://www.pinkbatts.co.nz)

TECHNICAL UPDATE



Tasman Insulation New Zealand Limited  
9-15 Holloway Place, Penrose,  
Auckland,  
New Zealand

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