



Make your space, a healthy place.

New H1 Requirements

The H1/AS1 Clause has been updated with new minimum R values and takes effect from the 1st May 2023.

TABLE 2.1.2.2B: Minimum construction R-values for building elements that do not contain embedded heating systems

Paragraph 2.1.2.2 b)

Building element	Construction R-values (m ² ·K/W) ⁽¹⁾					
	Climate zone 1	Climate zone 2	Climate zone 3	Climate zone 4	Climate zone 5	Climate zone 6
Roof ⁽²⁾	R6.6	R6.6	R6.6	R6.6	R6.6	R6.6
Wall	R2.0	R2.0	R2.0	R2.0	R2.0	R2.0
Floor						
Slab-on-ground floors	R1.5	R1.5	R1.5	R1.5	R1.6	R1.7
Floors other than slab-on-ground	R2.5	R2.5	R2.5	R2.8	R3.0	R3.0
Windows and doors ⁽³⁾	R0.46 ⁽³⁾	R0.46 ⁽³⁾	R0.46	R0.46	R0.50	R0.50
Skylights	R0.46	R0.46	R0.54	R0.54	R0.62	R0.62

Figure 1 - taken from H1/AS1

The set R values differ, depending on the location of your site and what climate zone it's located in.

FIGURE C.1.1.2: Map of New Zealand climate zones

Paragraph C.1.1.2

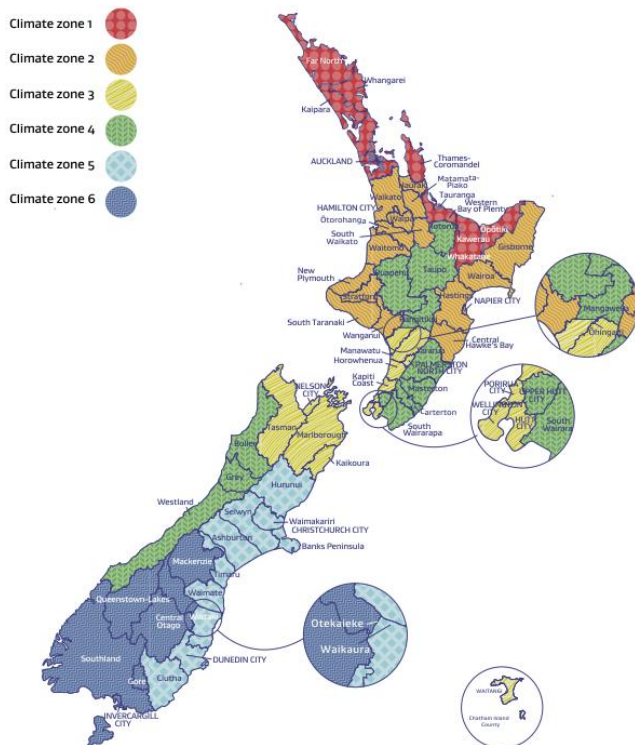


Figure 2 - taken from H1/AS1

Meeting H1 with Health Based Building – Subfloor

Below are examples of how Health Based Building’s Terra Lana insulation products meet and surpass the minimum R values for a typical building’s subfloor (sheltered).

The example below uses Terra Lana’s R2.6 / 140mm underfloor blanket and results in a construction value of R2.79 which meets the Subfloor R values of climate zones 1 to 3.

The screenshot shows the 'Timber Subfloor - R2.6 Terra Lana' configuration in Design Navigator. The total R-value is calculated as 2.79 m²C/W. The configuration includes:

- Type: Floor: Suspended Floor (no Lining)
- Internal surface: 0.09
- Flooring: generic - Particle Board 20mm (R-value: 0.17)
- Timber Frame & Cavity: 140mm joists @ 400mm (Floor Frame Area: 11.3%, Cavity Area: 88.7%)
- Framing: R-value: 1.16
- Insulation: Terra Lana Underfloor Blanket 2.6 (R-value: 2.6)
- Insulation value of the subfloor space: Suspended floor area [m²]: 100, Perimeter length [m]: 40, Perimeter height [m]: 0.45, Perimeter type: Continuous perimeter wall (sheltered)

Figure 3 - Using Design Navigator, the value is calculated from a typical 100m² subfloor with a typical clearance of 450mm from FGL and 400mm joist spacing.

The example below uses Terra Lana’s R3.2 / 140mm floor insulation and results in a construction value of R3.23 which meets the Subfloor R values of all climate zones.

The screenshot shows the 'Timber Subfloor - R3.2 Terra Lana' configuration in Design Navigator. The total R-value is calculated as 3.23 m²C/W. The configuration includes:

- Type: Floor: Suspended Floor (no Lining)
- Internal surface: 0.09
- Flooring: generic - Particle Board 20mm (R-value: 0.17)
- Timber Frame & Cavity: 140mm joists @ 450mm (Floor Frame Area: 10.0%, Cavity Area: 90.0%)
- Framing: R-value: 1.16
- Insulation: Terra Lana Underfloor Blanket 3.2 (R-value: 3.2)
- Insulation value of the subfloor space: Suspended floor area [m²]: 100, Perimeter length [m]: 40, Perimeter height [m]: 0.45, Perimeter type: Continuous perimeter wall (sheltered)

Figure 4 - Using Design Navigator, the value is calculated from a typical 100m² subfloor with a typical clearance of 450mm from FGL and 450mm joist spacing.

Meeting H1 with Health Based Building – Walls

Below is an example of how Health Based Building’s products meet and surpass the minimum R values for your building’s walls using a typical 90mm timber frame with vented cavity as the calculation example.

This example uses R2.4 / 90mm Terra Lana wall batts with Magnum board RAB (Magnesium oxide board) and Magnum board internal lining (Magnesium oxide board). The resulting construction value of 2.11 meets the Wall R values of all climate zones.

90mm External Walls - R2.4 Terra Lana 2.11 m²C/W

Type: Wall: Timber Frame with vented Cavity

Timber Frame with vented Cavity [view detail](#)

external surface 0.03	
Cladding : generic - Weatherboard Rusticated or Shiplap	R-value: 0.16
Air Barrier : MGO board 8mm	R-value: 0.05
Timber Frame & Cavity : 90mm, studs @ 600mm, dwangs @ 480mm	
Wall Frame Area: 17.9%	Cavity Area: 82.1%
15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08
Framing : R-value: 0.75	Terra Lana Wall 2.4 2.4
	still Airgap: none R-value: 0.00
Wall Lining : MGO board 8mm	R-value: 0.05
internal surface 0.09	

Figure 5 - Using Design Navigator, the value is calculated from a typical 90mm stud wall with spacing of 600mm and dwangs at 480mm with a rigid underlay and shiplap cladding over a vented cavity.

Meeting H1 with Health Based Building – Skillion Roof

Below is an example of how Health Based Building’s Terra Lana insulation products meet and surpass the minimum R values for your building’s Skillion Roof using typical 290mm rafters at a spacing of 900mm.

This example uses R0.9 / 35mm Terra Lana service cavity insulation between ceiling battens and R6.4 / 240mm Terra Lana Skillion insulation between rafters with typical corrugate roofing and building paper. The resulting construction value of 7.04 meets the R values of all climate zones.

Skillion Roof - Terra Lana R6.4 + R0.9 7.04 m²C/W

Type: **Roof: Timber framed skillion or flat Roof with additional Strapping**

Timber framed skillion or flat Roof with additional Strapping [view detail](#)

external surface 0.03

Roofing : generic - Metal corrugate Iron with building paper
R-value: 0.01

Timber Frame & Cavity :

290mm rafters or joists @ 900mm, battens covered with insulation

Roof Frame Area: 5.0% Cavity Area: 95.0%

Framing : R-value: 2.40 still Airgap : 40-90mm airgap (non-reflective)
R-value: 0.14

Thermal Break : generic - none R-value: 0.00 Terra Lana Skillion Roof 6.4 6.4

Strapping : Timber batten, 35mm deep, 70mm wide @ 600mm centers

Strapping Area: 16.8% Cavity Area: 83.2%

Strapping : R-value: 0.29 Terra Lana Skillion Roof 0.9 - Service Cavity 0.9

Roof Lining : MGO board 8mm
R-value: 0.05

internal surface 0.09

Non-IC-rated recessed downlights

Ceiling Area [m²]: Number of downlights: Clearance from lamp holder side [m]: [i](#)

Figure 6 – Using Design Navigator, the value is calculated from a typical 290mm skillion roof with rafter spacing of 900mm and cladding as corrugate roofing on building paper.

Meeting H1 with Health Based Building – Truss Roof

Below is an example of how Health Based Building’s Terra Lana insulation products meet and surpass the minimum R values for your building’s Truss Roof using 90mm trusses at a typical spacing of 900mm.

This example uses a double layer of R3.6 / 180mm Terra Lana truss roof blanket insulation. The resulting construction value of 7.26 meets the R values of all climate zones.

Truss Roof - Double layer R3.6 Terra Lana 7.26 m²C/W

Type: **Roof: Timber framed truss Roof, direct fixed or battened flat Ceiling**

Timber framed truss Roof, direct fixed or battened flat Ceiling [view detail](#)

external surface 0.03

Roofing : generic - Metal corrugate Iron with building paper
R-value: 0.01

Terra Lana Truss Roof 3.6 3.6

Timber Frame & Cavity :

90mm rafters or joists @ 900mm, battens covered with insulation

Roof Frame Area: 5.0% Cavity Area: 95.0%

Roof space (still air) 0.11 Roof space (still air) 0.11

Framing : R-value: 0.75 Terra Lana Truss Roof 3.6 3.6

Roof Lining : MGO board 8mm
R-value: 0.05

internal surface 0.09

Non-IC-rated recessed downlights

Ceiling Area [m²]: Number of downlights: Clearance from lamp holder side [m]: [i](#)

Figure 7 – Using Design Navigator, the value is calculated from a typical 90mm truss roof with spacings of 900mm and cladding as corrugate roofing on building paper.

To view Health Based Building’s supply of Terra Lana products, please visit:
<https://www.healthbasedbuilding.com/shop/shop/insulation>

