



**ALL IN ONE**  
**WARM ROOF GUIDE**  
FOR EASY COMPLIANCE WITH  
H1 -ENERGY EFFICIENCY  
SCHEDULE METHOD

# INSULATED PANELS OFFER AN **ALL IN ONE** WARM ROOF SOLUTION THAT SATISFIES THE NEW H<sub>1</sub>- ENERGY EFFICIENCY REQUIREMENTS.

Our Thermospan, Thermopanel, Aspirespan and Aspirepanel insulated panels are locally manufactured in New Zealand for longer lengths, quicker supply and easy install.

Insulated panels comprise of two pre-painted steel skins continuously laminated over an insulating core.

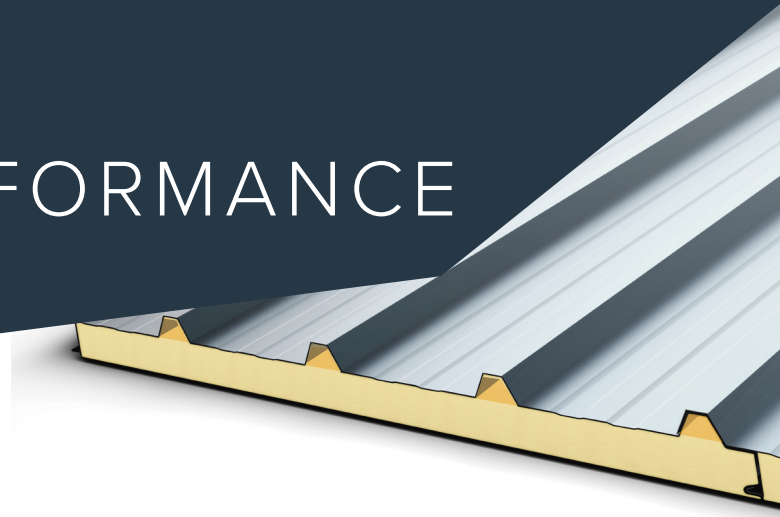
- Thermospan and Thermopanel - (EPS Core)
- Aspirespan and Aspirepanel - (PIR Core)

Available in a range of colours with a variety of profile finishes, providing greater strength in walls and a clean, smooth aesthetic look.

- NZ Made for longer sheet lengths and shorter lead times
- Fire retardant core
- Longer sheet lengths reducing the need for end laps
- Shorter lead times
- NZ Steel - COLORSTEEL® colours providing perfect colour match with flashings
- Thermally efficient
- All in one warm roofing for easier installation
- Ease of cutting and trimming on site
- Minimal mess on site
- Compatibility with openings and design elements of the building

Lengths from 2m-24m. Please note lengths are restricted by transportation to site. If sheet lengths longer than 15m are required, please check with Metalcraft Insulated Panels.

# THERMAL PERFORMANCE



## WHAT PANEL THICKNESS DO YOU NEED TO ACHIEVE R6.6?

PIR and EPS have different thermal properties so different thicknesses are required to comply with the new and updated H1 requirements.

**Aspirespan with 150mm\*\* thick PIR insulation core can achieve a thermal resistance rating of \*R7.01.**

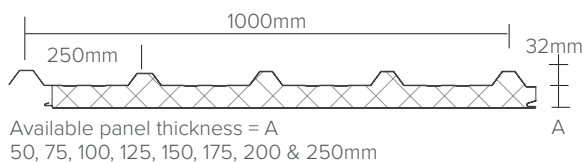
**Thermospan with 250mm\*\* thick EPS insulation core can achieve a thermal resistance rating of \*R6.6.**

\*Thermal Resistance R-value (m<sup>2</sup>K/W) @15 degreeC.

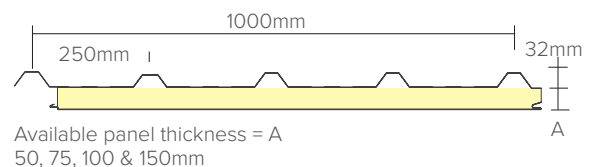
### PLEASE NOTE:

- Total thickness of insulation should not be confused with total thickness of product - for roofing products; Aspirespan and Thermospan the total roof dimension is 150mm thick insulation + 32mm crest height = 182mm. (Refer cross section below).
- The R-value of our product is not necessarily the achieved R-value of the roof. The architect and or consultant needs to consider the thermal performance of the installation details to determine the total construction R-value of the roof and or wall.

THERMOSPAN®



ASPIRESPAN®



Dimensions, cover and sheet widths are all nominal and may vary with manufacturing and installation tolerances. Line drawings are indicative only and should not be scaled, if other dimensions are required please ask for them from Metalcraft Insulated Panels. Cross section indicative showing PIR flat core.

# H1-UPDATES

## H1 UPDATE -BACKGROUND

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The Ministry of Business, Innovation and Employment (MBIE) have updated requirements for H1 - Energy Efficiency, this is MBIE's biggest energy efficiency update in over a decade which includes significant changes to the performance requirements of the building envelope. The purpose of these changes is to improve the efficiency of buildings in New Zealand.

## EFFECTIVE AND TRANSITIONAL DATES

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The updates became effective from November 2021. However a transitional period has been granted for the building industry to prepare themselves. Roofing and wall cladding must comply with new requirements for all consents after 1st May 2023.

## PURPOSE OF GUIDE

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The content within this indicative guide is concerned only with the changes in relation to H1/AS1 and H1/AS2 -Schedule Methods.

## DISCLAIMER:

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This guide should be only be used for indicative purposes only and provides an overview of the major updates within the H1- Energy Efficiency. The project designer / engineer is responsible for building compliance to the updated H1-Energy Efficiency and should consult the official documentation from MBIE.

For MBIE's official H1-Energy Efficiency information, visit: [www.building.govt.nz](http://www.building.govt.nz).

\*Housing includes detached dwellings, multi unit dwellings such as buildings that may contain more than one household. For other dwelling types please refer to MBIE's documentation: [www.building.govt.nz](http://www.building.govt.nz).

## WHAT ARE THE CHANGES?

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The major changes include:

For full scope and changes refer to the official documentation from MBIE.

- The previous R-values in NZS 4218 have been updated. These R-values are now included in H1/AS1, Part 2 - Building Thermal Envelope.
- Three additional climate zones have been added. So there are now 6 climate zones. The revised climate zone map is included in H1/AS1 -Appendix C.
- H1/AS1 scope covers housing\* and other buildings with an area of occupied space no greater than 300 m<sup>2</sup>.
- A schedule method tabulates the construction R-values for the thermal performance requirements for residential dwellings and small buildings other than housing to less than 300m<sup>2</sup>. Appendix E of H1/AS1.
- H1/AS2 is a new document and has been created to cover buildings greater than 300m<sup>2</sup>.

**FOR FULL SCOPE AND LIMITATIONS, INCLUSIONS AND EXCLUSIONS. PLEASE REFER TO MBIE'S OFFICIAL DOCUMENTATION: [WWW.BUILDING.GOVT.NZ](http://WWW.BUILDING.GOVT.NZ).**

## R-VALUE

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The thermal performance of building elements need to satisfy the minimum R-value requirements. The higher the R-value the better the thermal performance.

# H1/AS1 SCHEDULE METHOD

## HOUSING\* AND OTHER BUILDINGS WITH AN AREA OF OCCUPIED SPACE NO GREATER THAN 300 M2

MINIMUM CONSTRUCTION R-VALUES FOR BUILDING ELEMENTS THAT DO NOT CONTAIN EMBEDDED HEATING SYSTEMS. EFFECTIVE 1ST MAY 2023.

<b>H1/AS1</b> (H1/VM1 - HAS SAME CONSTRUCTION R-VALUES AS H1/AS1)						
<b>BUILDING ELEMENTS</b>	<b>CLIMATE ZONES</b>					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>ROOF (1))</b>	<b>R6.6</b>	<b>R6.6</b>	<b>R6.6</b>	<b>R6.6</b>	<b>R6.6</b>	<b>R6.6</b>
<b>WALL</b>	<b>R2.0</b>	<b>R2.0</b>	<b>R2.0</b>	<b>R2.0</b>	<b>R2.0</b>	<b>R2.0</b>
ASPIRESPAN / ASPIREPANEL	ASPIRESPAN & ASPIREPANEL 150MM = R.7.01 50MM = R2.34					
THERMOSPAN / THERMOPANEL	THERMOSPAN & THERMOPANEL 250MM = R6.6 100MM = R2.63					

(1) Roofs that have a roof space where the insulation is installed over the horizontal ceiling have a height space restriction, it is acceptable for R-value to be reduced to R3.3 for upto 500mm from the outer edge of the ceiling perimeter.

\*Housing includes detached dwellings, multi unit dwellings such as buildings that may contain more than one household. For other dwelling types please refer to MBIE's documentation: [www.building.govt.nz](http://www.building.govt.nz).

For commercial buildings, H1/AS1 Schedule Method does not include compliance with H1.3.6 of the Building Code for the energy efficiency of HVAC systems. H1/VM3 must be used to comply, or an alternative means of demonstrating compliance. The project designer / engineer is responsible for building compliance to the updated H1-Energy Efficiency and should consult the official documentation from MBIE.

### PLEASE NOTE:

Thermal Resistance R-value (m2K/W) @15 degree C

Total thickness of insulation should not be confused with total thickness of product - for roofing products, please consult Metalcraft Insulated Panels. The R-value of our product is not necessarily the achieved R-value of the roof. The architect and or consultant needs to consider the thermal performance of the installation details to determine the total construction R-value of the roof and or wall.

# H1/AS2 SCHEDULE METHOD

## FOR BUILDINGS GREATER THAN 300M<sup>2</sup>.

MINIMUM CONSTRUCTION R-VALUES FOR BUILDING ELEMENTS THAT DO NOT CONTAIN EMBEDDED HEATING SYSTEMS

<b>H1/AS2</b> (H1/VM2-HAS SAME CONSTRUCTION R-VALUES AS H1/AS2)						
<b>BUILDING ELEMENTS</b>	<b>CLIMATE ZONES</b>					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>ROOF (1)</b>	<b>R3.5</b>	<b>R4.0</b>	<b>R5.0</b>	<b>R5.4</b>	<b>R6.0</b>	<b>R7.0</b>
<b>WALL</b>	<b>R2.2</b>	<b>R2.4</b>	<b>R2.7</b>	<b>R3.0</b>	<b>R3.0</b>	<b>R3.2</b>
ASPIRESPAN / ASPIREPANEL PIR CORE (NZ MADE)	<b>ASPIRESPAN &amp; ASPIREPANEL</b> 150MM = R.7.01 100MM = 4.67 75MM = R3.50 50MM = R2.34					
THERMOSPAN/ THERMOPANEL EPS CORE (NZ MADE)	<b>THERMOSPAN &amp; THERMOPANEL</b> 250MM = R6.6 200MM = R5.26 150MM =R3.95 125MM = R3.29 100MM = R2.63 75MM = R1.97					
METECNOSPAN METECNOPANEL PIR CORE FM APPROVED (MADE IN BRISBANE)  METECNOPANEL® IS MANUFACTURED BY OUR SISTER COMPANY: METECNO IN BRISBANE WHO IS THE FM APPROVED PRODUCT OWNER. FM 4880 APPROVED CLASS 1 - UNLIMITED HEIGHT. FM 4881 APPROVED CLASS 1 - UNLIMITED HEIGHT.	<b>METECNOSPAN</b> 100MM = R5.5 80MM = R4.4 60MM = R3.3 40MM= R2.3  <b>METECNOPANEL</b> 200MM = R9.49 150MM = R7.16 100MM = R4.83 75MM = R3.66 50MM = R2.49					

(1) Roofs that have a roof space where the insulation is installed over the horizontal ceiling have a height space restriction, it is acceptable for R-value to be reduced to R3.3 for upto 500mm from the outer edge of the ceiling perimeter.

H1/AS2 Schedule Method does not include compliance with H1.3.6 of the Building Code for the energy efficiency of HVAC systems. H1/VM3 must be used to comply, or an alternative means of demonstrating compliance. The project designer / engineer is responsible for building compliance to the updated H1-Energy Efficiency and should consult the official documentation from MBIE.

**PLEASE NOTE:**

Thermal Resistance R-value (m<sup>2</sup>K/W) @15 degree C







Total thickness of insulation should not be confused with total thickness of product - for roofing products, please consult Metalcraft Insulated Panels. The R-value of our product is not necessarily the achieved R-value of the roof. The architect and or consultant needs to consider the thermal performance of the installation details to determine the total construction R-value of the roof and or wall.

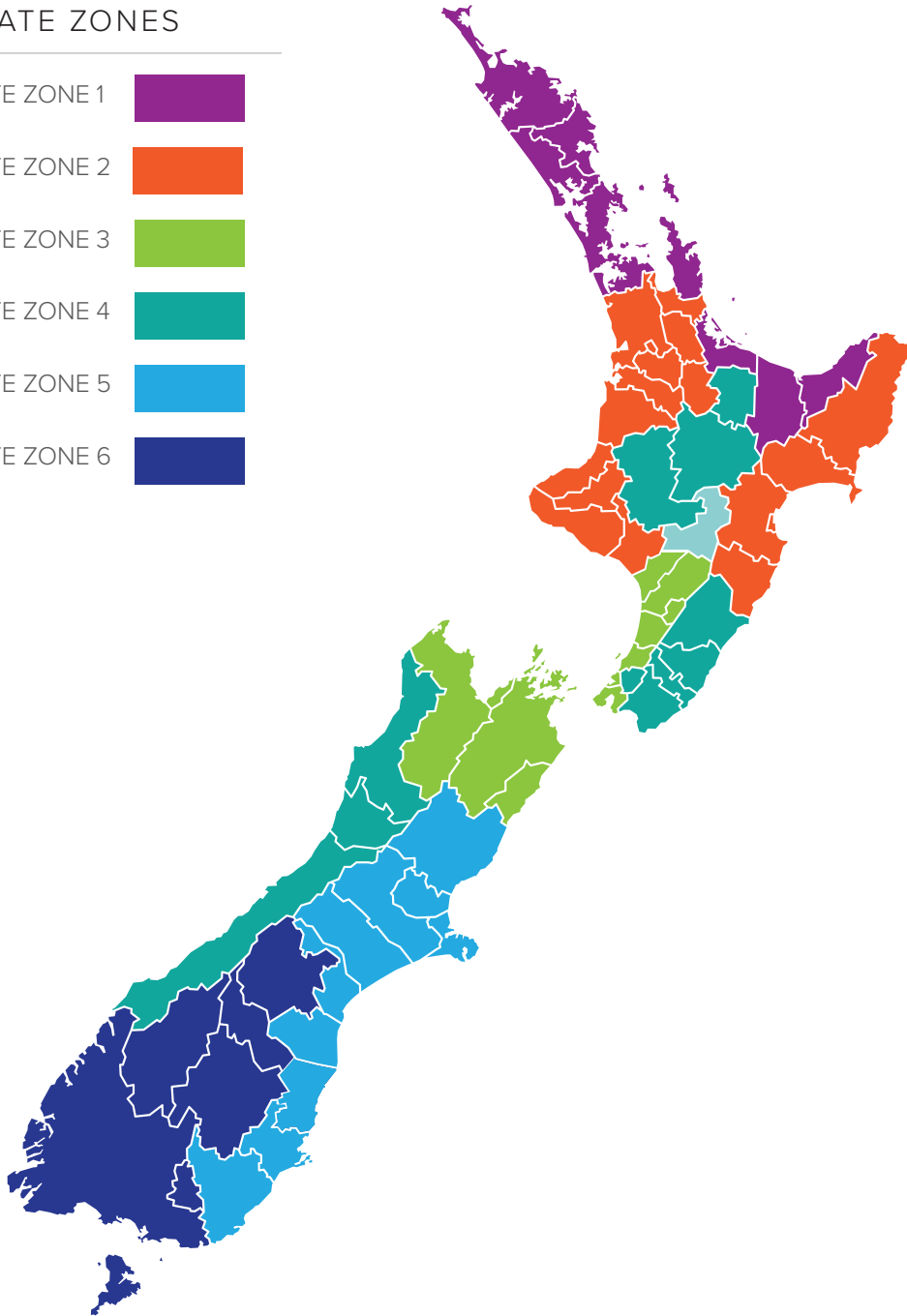
# MAP OF NEW ZEALAND

## CLIMATE ZONES

INDICATIVE CLIMATE ZONE MAP BELOW  
FOR ACTUAL MAP REFER TO FIGURE C.11.2 MAP OF NEW ZEALAND CLIMATE ZONES IN H1/AS1

### CLIMATE ZONES

- CLIMATE ZONE 1 
- CLIMATE ZONE 2 
- CLIMATE ZONE 3 
- CLIMATE ZONE 4 
- CLIMATE ZONE 5 
- CLIMATE ZONE 6 



# CLIMATE ZONES

## PER TERRITORIAL AUTHORITY

NORTH ISLAND - TERRITORIAL AUTHORITY			
CLIMATE ZONES			
1	2	3	4
Far North District	Hauraki District	Rangitikei District (south of 39°50'S (-39.83))	Taupo District
Whangarei District	Waikato District	Manawatu District	Rotorua District
Kaipara District	Matamata-Piako District	Palmerston North City	Rangitikei District (north of 39°50'S (-39.83))
Auckland	Hamilton City	Horowhenua District	Tararua District
Thames-Coromandel district	Waipa District	Kapiti Coast District	Upper Hutt City
Western Bay of Plenty District	Ōtorohanga District	Porirua City	Masterton District
Tauranga City	South Waikato District	Lower Hutt City	Carterton District
Whakatane District	Waitomo District	Wellington City	South Wairarapa District
Kawerau District	Gisborne District		
Ōpōtiki District	Wairoa District		
	Hastings District		
	Napier City		
	Central Hawke's Bay District		
	New Plymouth District		
	Stratford District		
	South Taranaki District		
	Whanganui District		

NORTH ISLAND - TERRITORIAL AUTHORITY			
CLIMATE ZONES			
3	4	5	6
Tasman District	Buller District	Hurunui District	Mackenzie District
Nelson City	Grey District	Waimakariri District	Waitaki District (true left of the Otekaieke river)
Marlborough District	Westland District	Christchurch City	Central Otago District
Kaikoura District		Selwyn District	Queenstown-Lakes District
Chatham Islands		Ashburton District	Southland District
		Timaru District	Gore District
		Waimate District	Invercargill City
		Waitaki District (true right of the Otekaieke river)	
		Dunedin City	
		Clutha District	



# COMPLIANCE PATHWAYS

## NEW ZEALAND BUILDING CODE (NZBC)

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MBIE's requirements as documented in the New Zealand Building Code clauses are the minimum requirements that must be met in order to comply with the Building Code.

The minimum thermal performance requirements for windows and doors are outlined in the building code as an R-value requirement.

A building must consider all parts of the Building Code. The Building Code is located in the Building Regulations 1992 and listed under Schedule 1. [www.legislation.govt.nz](http://www.legislation.govt.nz).

## PATHWAYS TO COMPLIANCE

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Building Consent Authorities must accept as evidence of compliance with the New Zealand Building Code both the Acceptable Solution and Verification Method pathways if they are followed correctly.

For residential dwellings the easiest compliance pathway is to use H1/AS1 and follow the schedule method -Table E.1.1.1. The construction R-values as depicted in the schedule -Appendix E will need to be met or exceeded to comply.

### ACCEPTABLE SOLUTION

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H1/AS1 -All housing and buildings up to 300m<sup>2</sup>

H1/AS2 -Buildings greater than 300m<sup>2</sup>

### VERIFICATION METHOD:

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H1/VM1 - All housing and buildings up to 300m<sup>2</sup>

H1/VM2 - Buildings greater than 300m<sup>2</sup>

### ALTERNATIVE SOLUTION:

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An alternative solution can be used to demonstrate compliance, however does not have to be accepted by the Building Consent Authority.

# BRANCHES

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## DISCLAIMER

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For more information on Metalcraft Insulated Panels visit:  
[www.metalcraftgroup.co.nz](http://www.metalcraftgroup.co.nz).  
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For more information on IPCA visit:  
[www.insulatedpanelcouncil.org](http://www.insulatedpanelcouncil.org)



Image front cover used Thermospan, this profile is the same as AspireSpan™.  
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