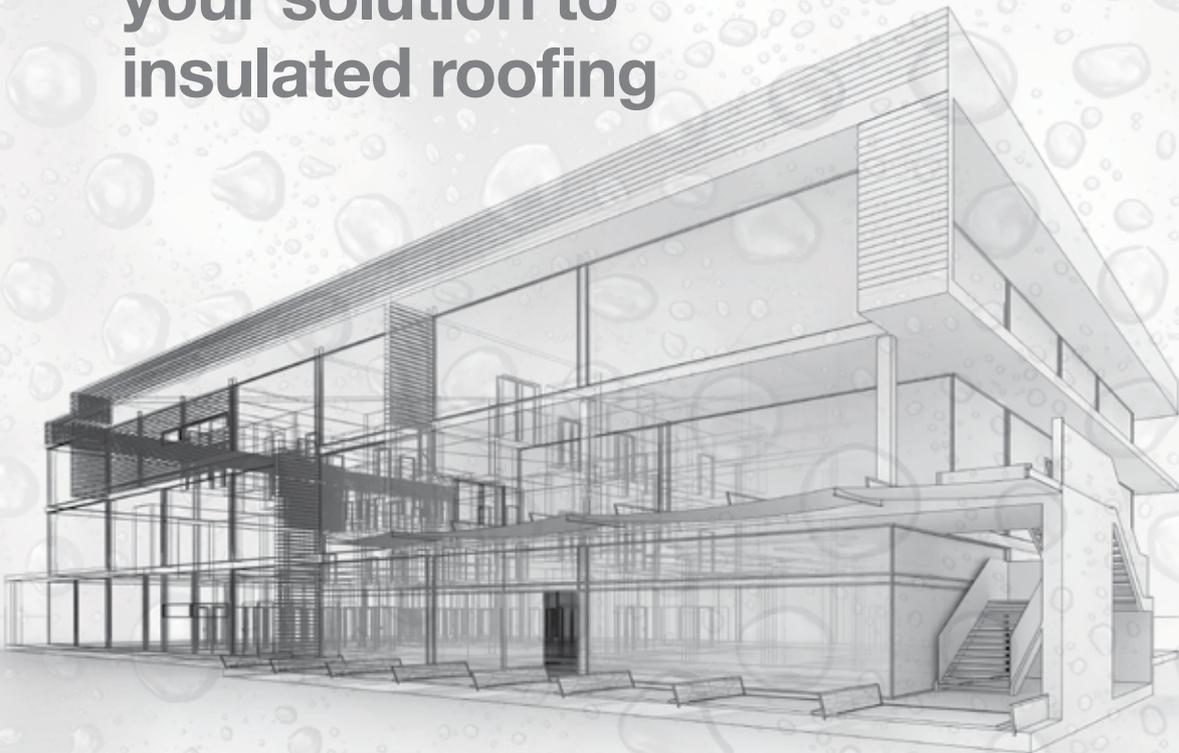
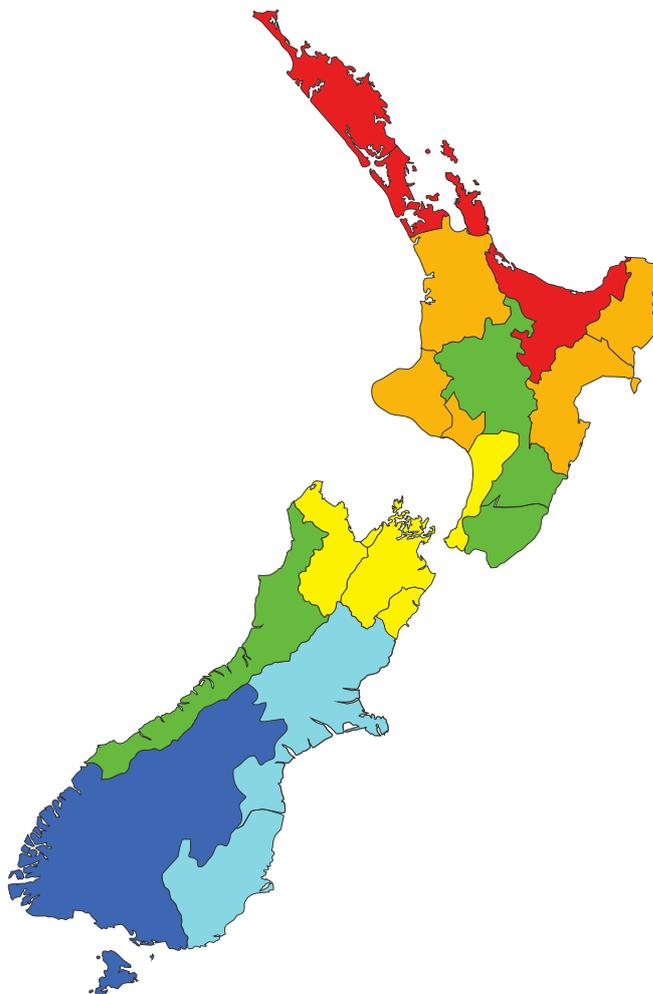


# The H1 Roof

your solution to  
insulated roofing



- Climate zone 1
- Climate zone 2
- Climate zone 3
- Climate zone 4
- Climate zone 5
- Climate zone 6



## Thermal performance

The level of thermal performance required for New Zealand buildings has always been lower than other OECD countries. With the goal to reduce the energy needed to heat and cool buildings by approximately 40%, the R-Value of the building envelope needs to increase significantly.

The previous Energy Efficiency code, H1 4th Edition, divided New Zealand into three broad climate zones. From November 2022, H1 5th Edition provides for six new climate zones. See graphics above.

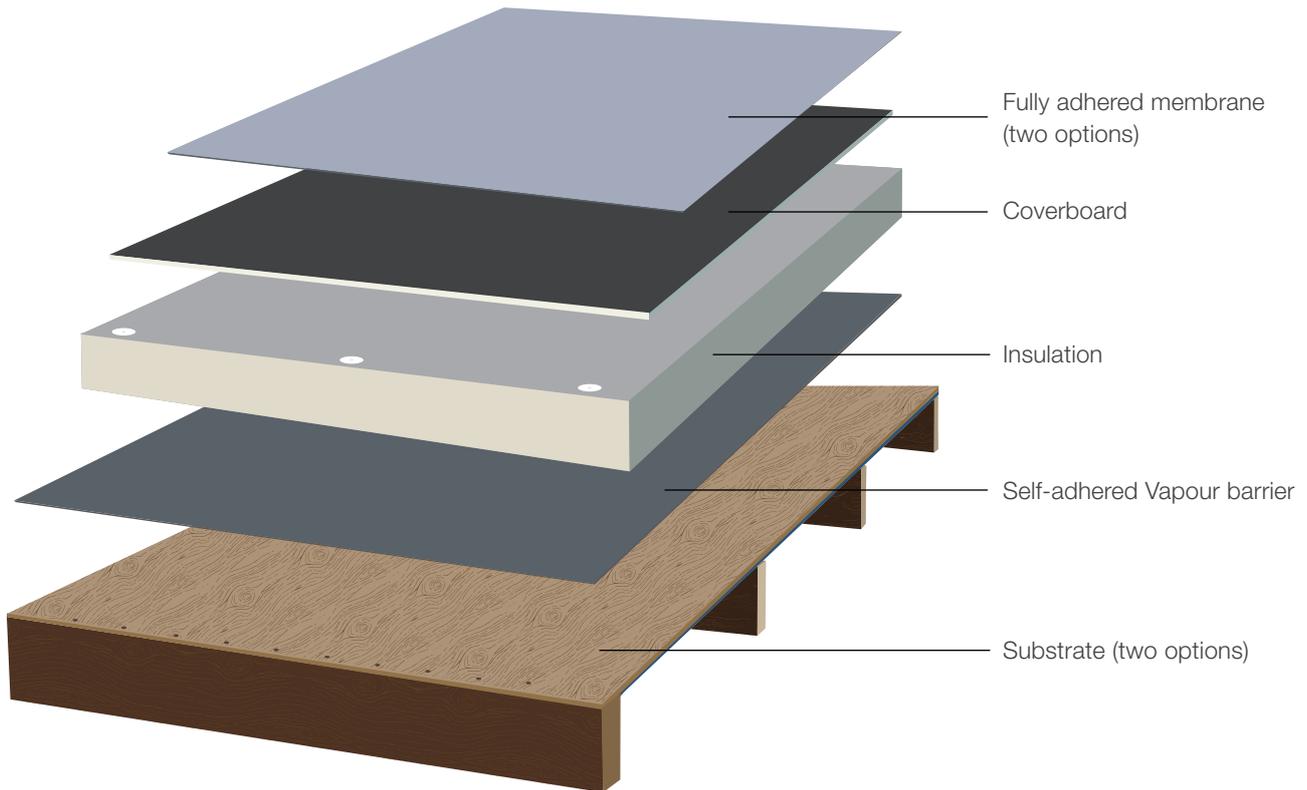
Under H1/AS1's schedule method, all residential buildings, and commercial buildings of less than 300m<sup>2</sup> will require the roof assembly to have a minimum R-value of R6.6\*; whereas under H1/AS2, a commercial building greater than 300m<sup>2</sup>, will depend on the climate zone for its minimum R-value requirement.

All residential roofs and other buildings up to 300m <sup>2</sup>					
Climate zone 1	Climate zone 2	Climate zone 3	Climate zone 4	Climate zone 5	Climate zone 6
R 6.6	R 6.6	R 6.6	R 6.6	R 6.6	R 6.6

Commercial Roofs over 300m <sup>2</sup>					
Climate zone 1	Climate zone 2	Climate zone 3	Climate zone 4	Climate zone 5	Climate zone 6
R 3.5	R 4.0	R 5.0	R 5.4	R 6.0	R 7.0

Although these new minimums will create more thermally efficient buildings, they will increase roofing costs significantly. This could restrict design with potentially deeper ceiling cavities required for cold roofs, or higher parapets to obscure thicker warm roof insulation build-ups.

*\*H1/VM1 Verification Method can allow for lower R-value roof insulation via calculation of the overall thermal performance of a building*



## The fully-compliant, engineered warm roof solution

To meet the requirements of H1 5th edition for roofs, Viking Roofspec offers the market a fully-compliant, engineered warm roof solution.

### Introducing WarmSpan<sup>2</sup>

WarmSpan<sup>2</sup> is made up of these fundamental components; listed from the bottom-up:

1. Structural Supports (max. 900mm centres for ply substrate; 1800mm centres for steel tray)
2. 17mm T & G Plywood (H1.2 minimum treatment) or Steel Tray Substrate (ST7, ST900, or Metcom 7)
3. Self-adhered Vapour Barrier (Self-sealing SBS bitumen)
4. PIR – Rigid Insulation Panels (foil-faced PIR board)
5. Viking Insulated Plugs and Fasteners
6. Coverboard
7. One of Viking's CodeMark Membrane Systems (Enviroclad or Viking Torch-on)

Viking's 'WarmSpan<sup>2</sup>' system is the result of having analysed every possible component and installation method, to arrive at the most cost-effective; design-flexible; compliant; membrane warm roof assembly.



## A complete roof

Viking WarmSpan<sup>2</sup> is a structural, engineered warm roof system, tested, and accredited by certified engineers; Holmes Solutions NZ, to comply with H1, B1, B2 and E2 requirements of the Building Code. WarmSpan<sup>2</sup> is a complete roof assembly with prescribed joist spacings, and substrate-type included in its specification.

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## Thinnest assembly

WarmSpan<sup>2</sup> is the thinnest, compliant membrane warm roof assembly by thickness on the market. For example, the R6.7 assembly is 146.4mm from the top of the vapour barrier to the underside of the membrane. This allows architects to design relatively low parapet heights – even with the extra insulation required to comply with the new code.

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## Reduced installation time

Viking WarmSpan<sup>2</sup> has been engineered to minimise the time required for installation. For WarmSpan<sup>2</sup>'s plywood substrate option, the roof build-up remains compliant with supports as wide as 900mm centres, reducing the labour and materials required, compared to E2/AS1's 400mm maximum centres. Additionally, the tongue-and-

groove ply negates the need for noggings on all sheet edges, further reducing labour and materials.

The insulation; and vapour barrier are all anchored to the substrate by the same insulation plugs and screws, removing the labour involved in applying two separate layers of adhesive and primer.

Seeing the ply is an interior structural component, it only needs to be H1.2 treated\*\*, and more importantly the construction programme won't be held up waiting for the moisture content to dip below 20%. The warm roof installation can happen as the ply continues to dry.

The high R-value of 140mm foil-faced PIR (R6.5 on its own), alleviates the need to use an extra layer of PIR for the complete roof assembly to meet the minimum R-value of R6.6; reducing handling time. The full assembly renders R6.7 (or R4.3 with 85mm PIR).

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## Cost-saving on material

900mm support centres (versus traditional 400mm centre support system), along with heavily reduced noggings due to the tongue and groove plywood edges,

results in approximately 3x less structural timber required while still exceeding the code's structural requirements including snow loading.

H1.2 treatment is the minimum requirement for an interior timber structural element. The use of DD-grade plywood; H1.2 treated, fastened with zinc versus stainless steel screws, contributes to an overall cost-saving on material\*\*.

Additionally, a single layer of PIR board has slightly less material cost than two thinner layers making up the required thermal performance.

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## Reduced Environmental Impact

WarmSpan<sup>2</sup> doesn't require H3.2 treated plywood as a minimum. The use of H1.2 reduces the treatment process, creating better environmental benefits\*\*.

We've removed the need for primers and adhesives on multiple layers, and with our PIR manufactured in New Zealand; along with Viking Roofspec having warehouses in Auckland, Wellington and Christchurch, we've reduced our carbon footprint through reduced logistics.

# Viking WarmSpan<sup>2</sup>



WarmSpan<sup>2</sup> system video



For system documentation and details

*\*\* H1.2 treated plywood is not readily available in the NZ market at time of system launch. In specifying a minimum standard Viking Roofspec is responsibly seeking all environmental and cost gains potentially available.*

## Design flexibility

Being the thinnest-compliant-membrane assembly on the market at R6.7, WarmSpan<sup>2</sup> has a thickness of only 146.4mm from the top of the vapour barrier to the underside of the membrane surface (or R4.3 at 91.4mm). This promotes tasteful design lines by keeping parapets low.

The WarmSpan<sup>2</sup> engineered specification can either include a plywood or steel tray substrate, creating more flexibility in design.

As with any Viking warm roof system, WarmSpan<sup>2</sup> can be waterproofed with either of Viking's CodeMark membrane systems, Enviroclad or Viking Torch-on.





## Important Distinction WarmSpan<sup>2</sup> vs. WarmRoof

Viking 'WarmSpan<sup>2</sup>' is a complete engineered assembly including substrate (plywood or steel tray), that has been tested and certified as an alternative solution complying with H1, E2, B1, B2. Viking 'WarmRoof', is an assembly for which the structural integrity of the substrate (plywood; steel or concrete) has been designed and certified by others and Viking is the supplier of an insulated membrane assembly from the vapour barrier up. Unlike 'WarmSpan', a Viking 'WarmRoof' can be installed on a new or existing substrate; the latter being a retrofit.

### Viking 'WarmRoof'

There are literally dozens of combinations of Viking WarmRoofs. The list below, outlines how Viking's various warm roof components interact with each other to be compliant. From the substrate up:

1. Old or new substrate (outside of Viking WarmRoof specification)
2. Vapour Barrier (either fully bonded with primer, or mechanically fastened without primer)
3. EPS fingers installed in troughs of existing standing-seam steel tray – (for retrofits)\*
4. PIR – Rigid insulation panels (either glass facer or foil facer)\*
5. Coverboard (mandatory if installing foil facer PIR board, otherwise a non-compulsory option for installing on glass facer board)\*

6. One of Viking's CodeMark Membrane Systems – Enviroclad TPO or Viking Torch-on

*\*EPS fingers; glass facer PIR board; and cover board can all be installed using Viking's single-pack or dual cartridge polyurethane adhesives; or they can be installed using mechanical fasteners and plates (or insulation plugs). Foil facer PIR board must always have a cover board and be mechanically fastened.*

### Overlay Option

Viking WarmRoof is a practical solution for overlaying low-slope roofs. Nearly any existing roofing material, including metal, can be overlaid provided it is deemed structurally sound to do so. The benefit for building owners, is the existing roof does not need to be removed, minimising the disruption for inhabitants and ensuring the building's intended purpose is maintained while the roof integrity is improved. This is especially useful for buildings where the relocation of people and/or contents is problematic such as: hospitals, aged care facilities; art galleries and museums to name a few.

A Viking WarmRoof system can also avoid: (i) the expense (in some instances) of shrink-wrapping the building and: (ii) the cost and environmental impact of disposing of uplifted roofing materials in our landfills.

For existing low-slope metal roofs, a warm roof overlay can avoid the expensive carpentry involved in re-pitching the roof plane up to the building code minimum 3° slope requirement for metal roofs.

## Viking's CodeMark Membrane Systems

Viking WarmSpan<sup>2</sup> is designed specifically to be waterproofed with either of Viking's CodeMark Certified membrane systems – Enviroclad or Torch-On.

### Viking Enviroclad

Enviroclad is a mesh-reinforced, wide sheet (up to 3.66m wide) thermoplastic (TPO) membrane with heat-welded seams that create stronger, flatter laps. This technology allows for quicker installation time while assuring long term watertight integrity.

Viking Enviroclad is both CodeMark Certified and BRANZ Appraised and is available in seven colours: White, Dove Grey, Ironsand, Medium Bronze, Rock Brown, Slate Grey and Patina Green.

### Viking Torch-On

Viking offers several climate-specific; fit-for-purpose; code-compliant modified bitumen solutions including: a plasticised bitumen (APP), rubberised bitumen (SBS), hybrid (APAO), and a fully self-adhered two layer – 'Halley-P'. Each system that can be applied directly on to Viking Coverboard. The Viking Gemini APP, Lybra SBS and Phoenix Super APAO are CodeMark Certified and BRANZ Appraised.

### Product Assurance

Viking WarmSpan<sup>2</sup> installed with one of Viking's Membrane systems is supported by a 20-year product warranty.

Projects that represent 'absolute risk minimisation' in design, may also be eligible for Viking's comprehensive Full System Warranty\*, that covers both the materials and the approved applicator's installation in one document for the building owner.

*\*Conditions Apply – for more information on Viking's Full System Warranty, visit: [www.vikingroofspec.co.nz](http://www.vikingroofspec.co.nz)*

## Proven Record

Viking Roofspec offers a combination of:

- Over 50 years' experience successfully supplying roofing, decking and below-ground waterproofing materials to New Zealand and the Pacific Islands
- Alignment to a nationwide network of Approved Applicator businesses with licensed installers
- Only world-class membrane systems that have been certified and appraised by nationally and/or internationally recognised product accreditation bodies

This combination has been instrumental in ensuring Viking Roofspec has one of, if not the lowest remedial rate in the waterproofing membrane industry.



## Quality of Installation – Viking's Licensing Programme

To ensure Viking's WarmSpan<sup>2</sup> / WarmRoof systems are installed to specification and to the highest of standards, only Viking Approved Applicator businesses are eligible to install Viking materials.

Viking Roofspec provides a professional membrane licensing programme. This three-stage course includes a full curriculum with both practical application and an all-important theoretical component on the principles of waterproofing. This licensing programme has been designed to ensure a professional standard of installation of Viking systems.

**Viking** Roofspec  
**LICENSED  
INSTALLER**

# Viking WarmSpan<sup>2</sup>

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