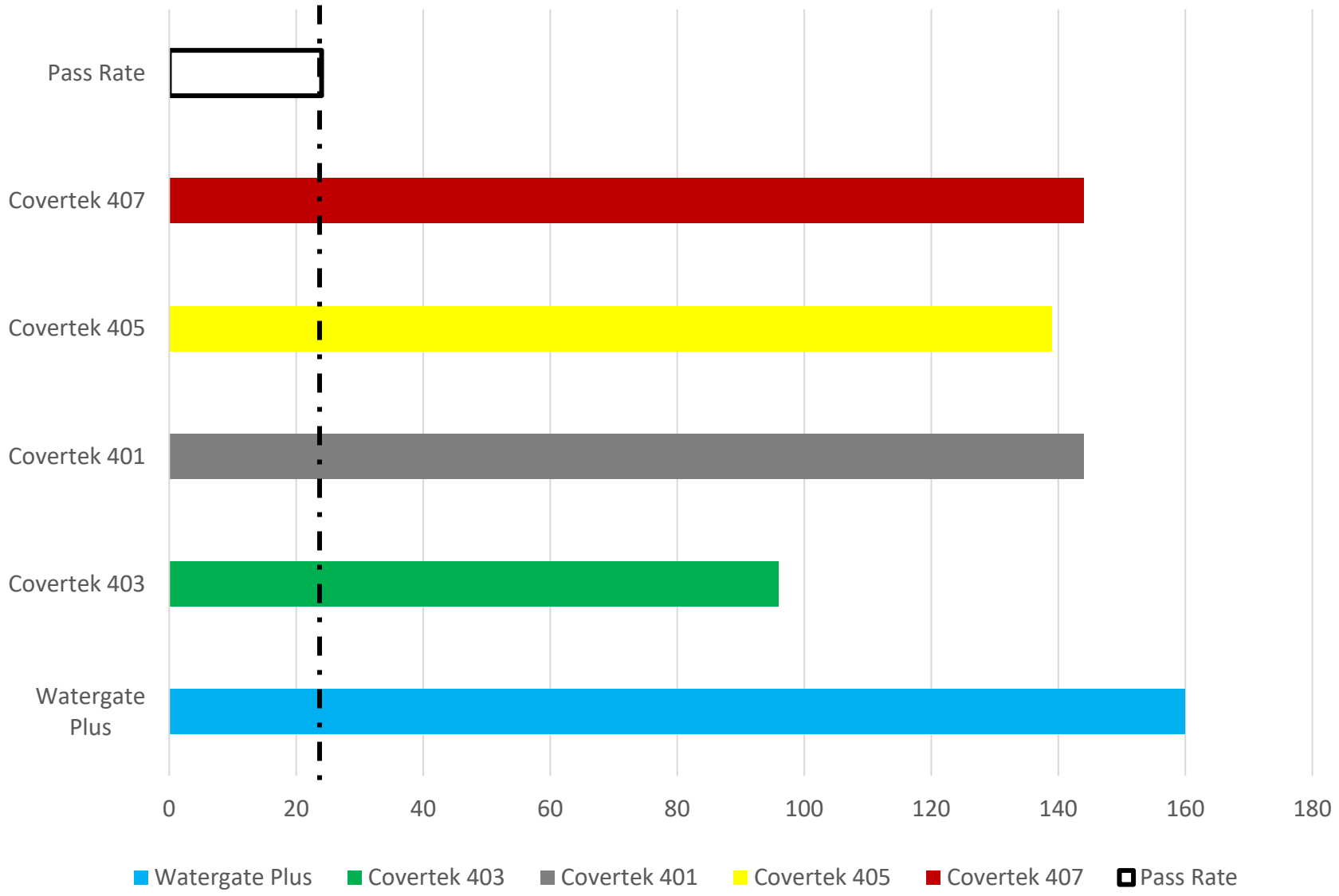
Underlays – NZBC Performance Requirements

	What does this mean?	NZBC Property Performance Requirement (Pass Rate)
Absorbency	How much moisture (condensation & vapour) can be held	Wall 100grams per sq mtr Roof 150grams per sq mtr
Water resistance	NZBC requires that moisture, at a level of 20mm for walls and 100mm for roofs, must hold out for a minimum of 24 hours	Wall 20mm Roof 100mm
pH Extract	An underlay needs to be neutral so it does not have potential for corrosion.	>6 less <9
Shrinkage	Moisture shrinkage, how much does the underlay move when moisture is absorbed.	<0.5%
Air Resistance	Resisting air flow. If above >0.1 the underlay can be used as an Air Barrier	>0.1 MN.s/m3
Vapour Resistance	The measure at which vapour passes through. This defines an underlay as being vapour permeable	<7MN.s/g (measure of resistance)

NZBC Performance – Resistance (moisture hold out for 24 hours)



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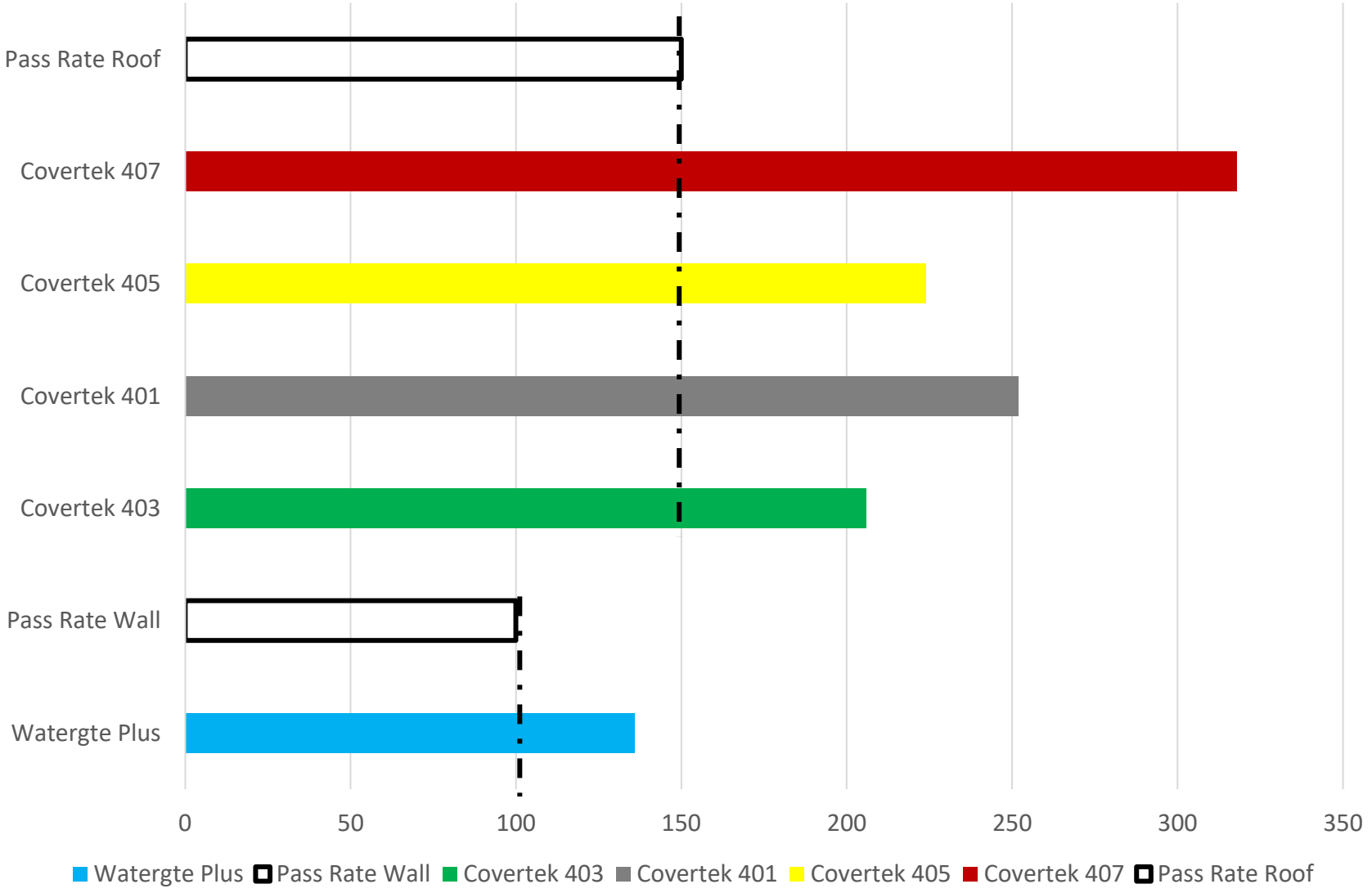
NZBC Performance – Absorbency (how much can the underlay hold)



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Benefits of an integrated solution

One warranty across the build
Compatibility of all products
Site efficiencies

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Damp Proof Membrane

Thermathene Orange (300)

Under concrete

Thermathene Black (250)

Sub-floor ground cover

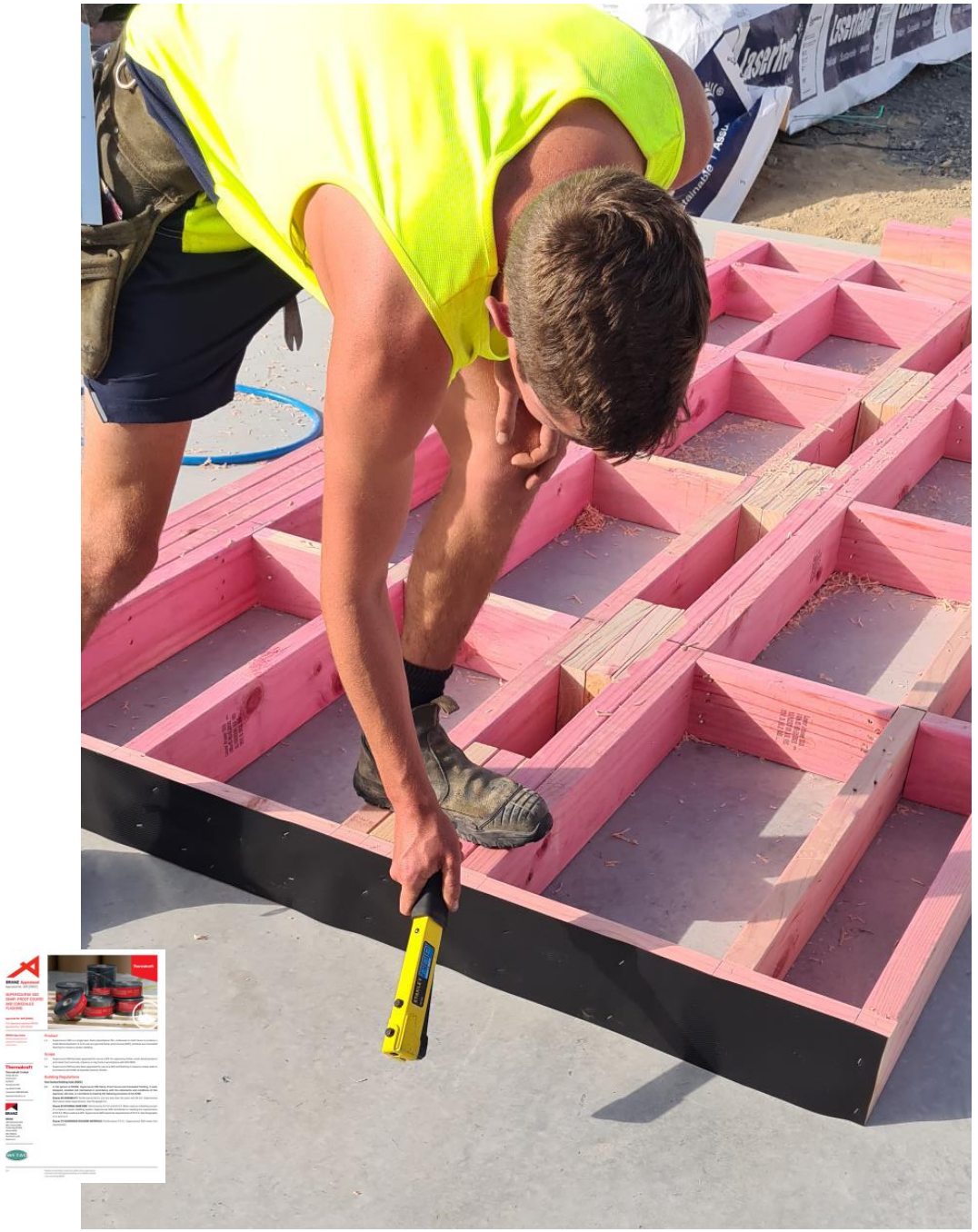
Lap joins 150mm
All joins and penetrations taped

Damp Proof Course

Supercourse 500

Polyethylene
Separating materials
Concealed flashing in masonry veneer walls

Bituminous cannot be used with LOSP treated timber. Okay with H3.2



Wall Wrap

Watergate Plus

Same product 295

Metal or timber frame. Direct or cavity fix.

Air Barrier & Fire Retardant

Over rigid underlay

Lap joins 150mm. Patch with flashing Tape. UV exposure

Pipe and Cable Penetration Seals

Oneseal

Flexible or rigid underlay

Diagonal pre notched 15mm-110mm

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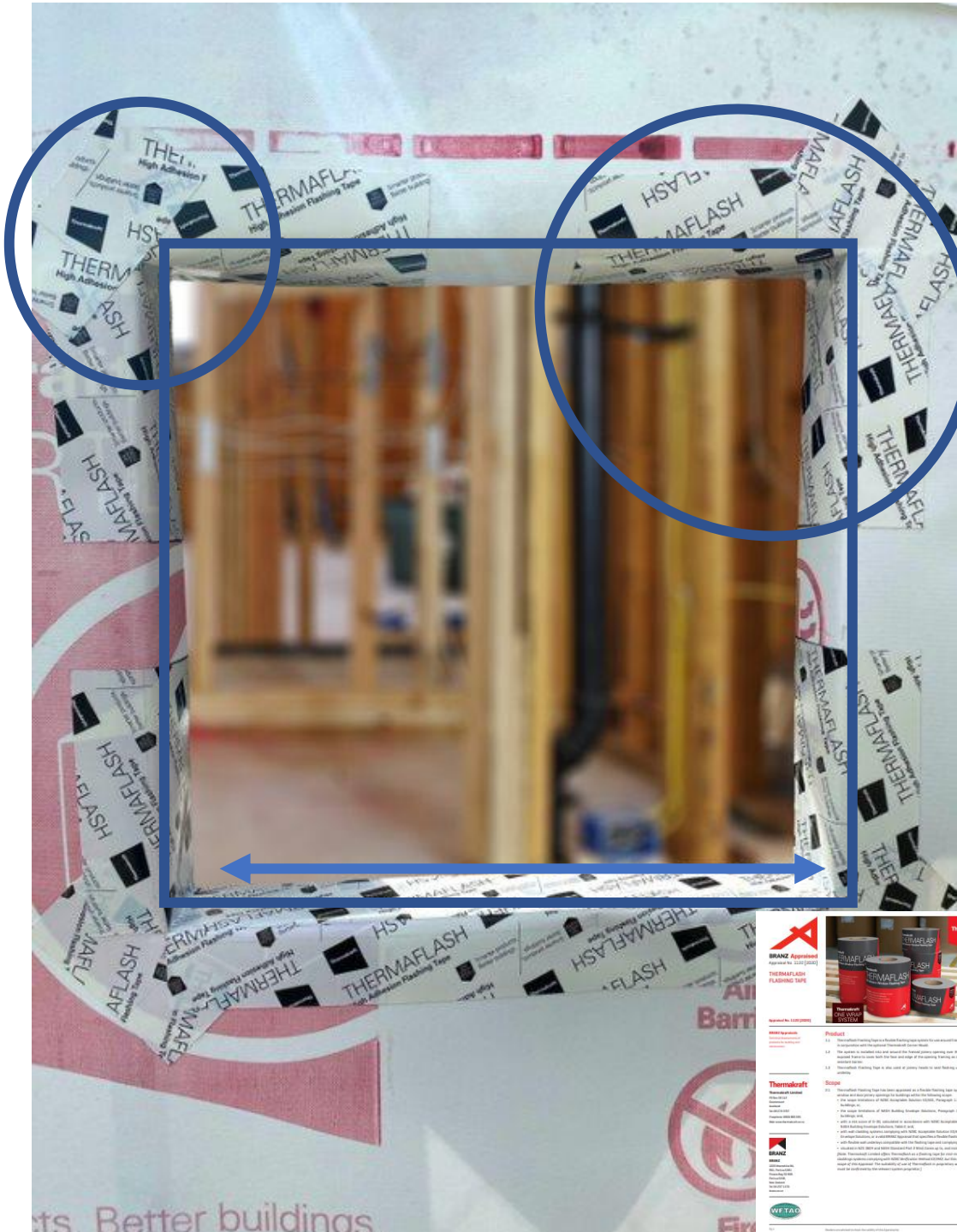
Flashing Tape

Thermaflash

Flexible or rigid underlay
Compatible wet sealants
180 days exposure
Approved for use James Hardie RAB, IBS and Magnum Board



Covertek 405 & Covertek 407

Fire retardant

Self supporting

Air Barrier

Extra High Wind Zone

Direct or Cavity Fix

150mm lap joins

Can be run horizontally or vertically
If pitch under 10 degrees can still run horizontally or vertically but use support

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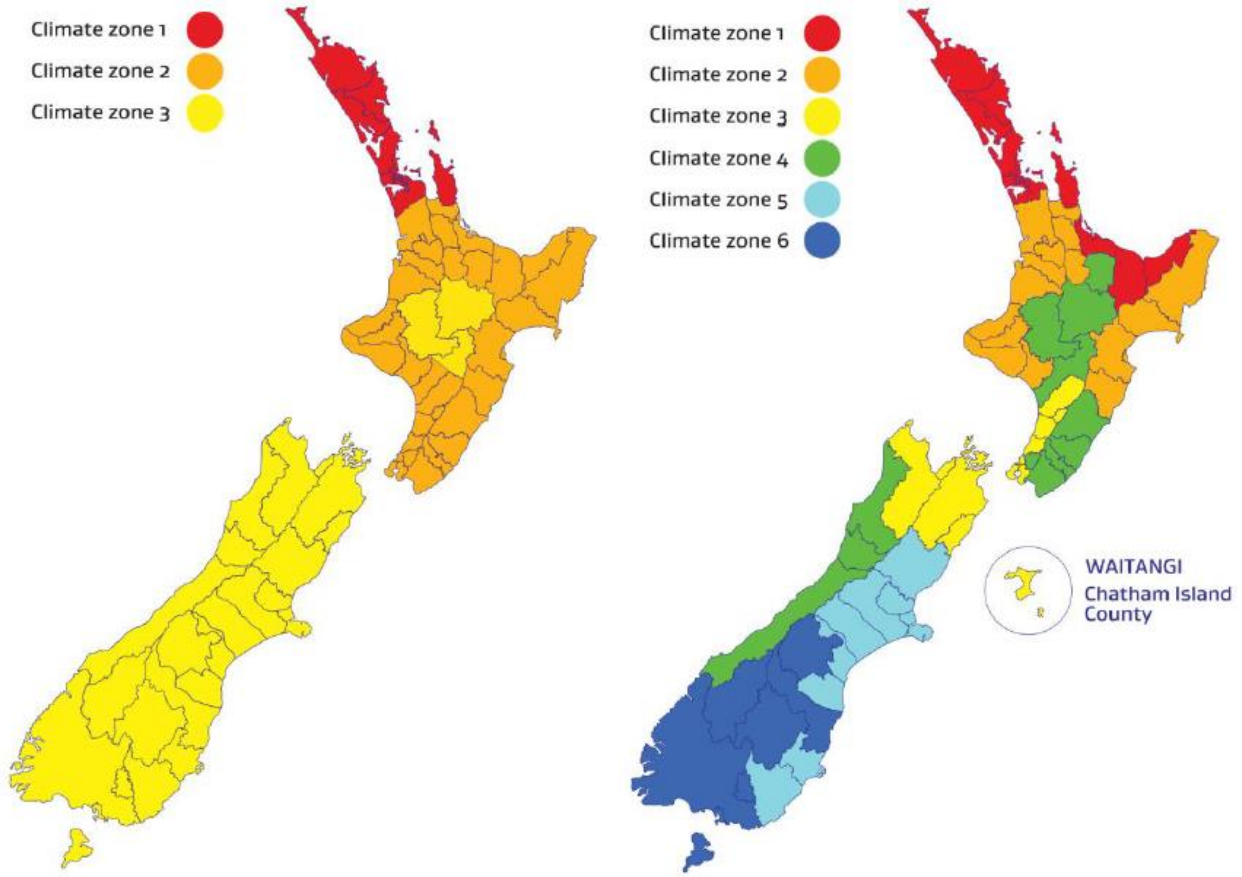
New H1



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Old vs New

	Old	New
Roof	2.9 Zone 1 & 2 3.3 Zone 3	6.6 all Zones
Wall	1.9 Zone 1 & 2 2.0 Zone 3	2.0 all Zones
Floor slab on ground	1.3 Zone 1-3	1.5 Zone 1-4 1.6 Zone 5 1.7 Zone 6
Floor other than slab on ground	1.3 Zone 1-3	2.5 Zone 1 – 3 2.8 Zone 4 3.0 Zone 5-6

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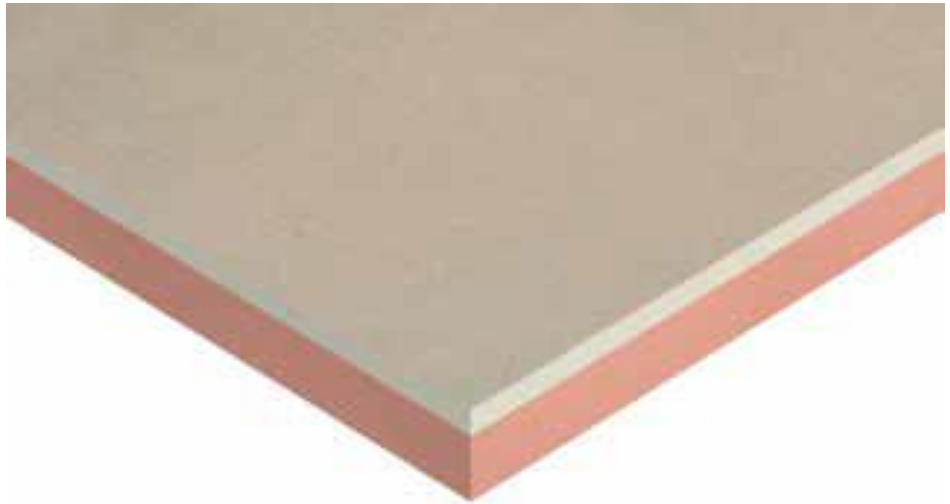
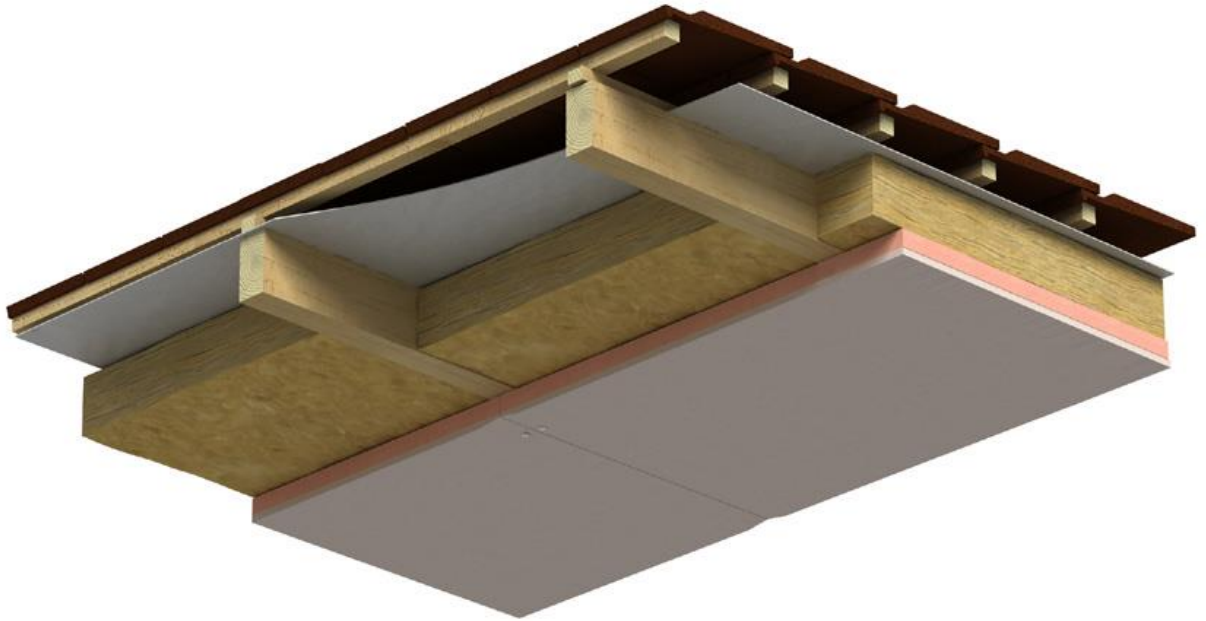
Product Rvalue vs Total RValue





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Thermal Performance Calculation

Application profile: Block Wall

Profile - Region 1	Profile - Region 2	R-value (In)	R-value (Out)
Outdoor air film	Outdoor air film	3.4	3.4
110.0mm CLAY BRICK (AS/NZS 4859-1 thermal conductivity value)	110.0mm CLAY BRICK (AS/NZS 4859-1 thermal conductivity value)		
40.0mm UNV. A/SPACE; (E1 = 0.90 E2 = 0.06)	40.0mm UNV. A/SPACE; (E1 = 0.90 E2 = 0.06)		
40.0mm KOOLTHERM® K12 (R-value = 1.90/1.90m²K/W (in/out))	40.0mm KOOLTHERM® K12 (R-value = 1.90/1.90m²K/W (in/out))		
190.0mm CONCRETE BLOCK - 1526 kg/m³ (k-value = 0.95 W/mK)	190.0mm CONCRETE BLOCK - 1526 kg/m³ (k-value = 0.95 W/mK)		
20.0mm UNV. A/SPACE; (E1 = 0.90 E2 = 0.90)	Timber 45mm @ 600mm Ctrs (7.5%)		
10.0mm GYPSUM BOARD	10.0mm GYPSUM BOARD		
Indoor air film	Indoor air film		

Overall U-value	**0.30**	**0.30**

The total R-values are calculated in accordance with AS/NZS 4859:1:2002 _NZS 4214:2006, are indicative for the conditions specified and expressed in terms of m²K/W.

Notes:					
	Indoor temperature	24.0 ºC	- Summer	18.0 ºC	- Winter
	Outdoor temperature	30.0 ºC	- Summer	6.0 ºC	- Winter
	Temperature difference	6.0 ºK		12.0 ºK	

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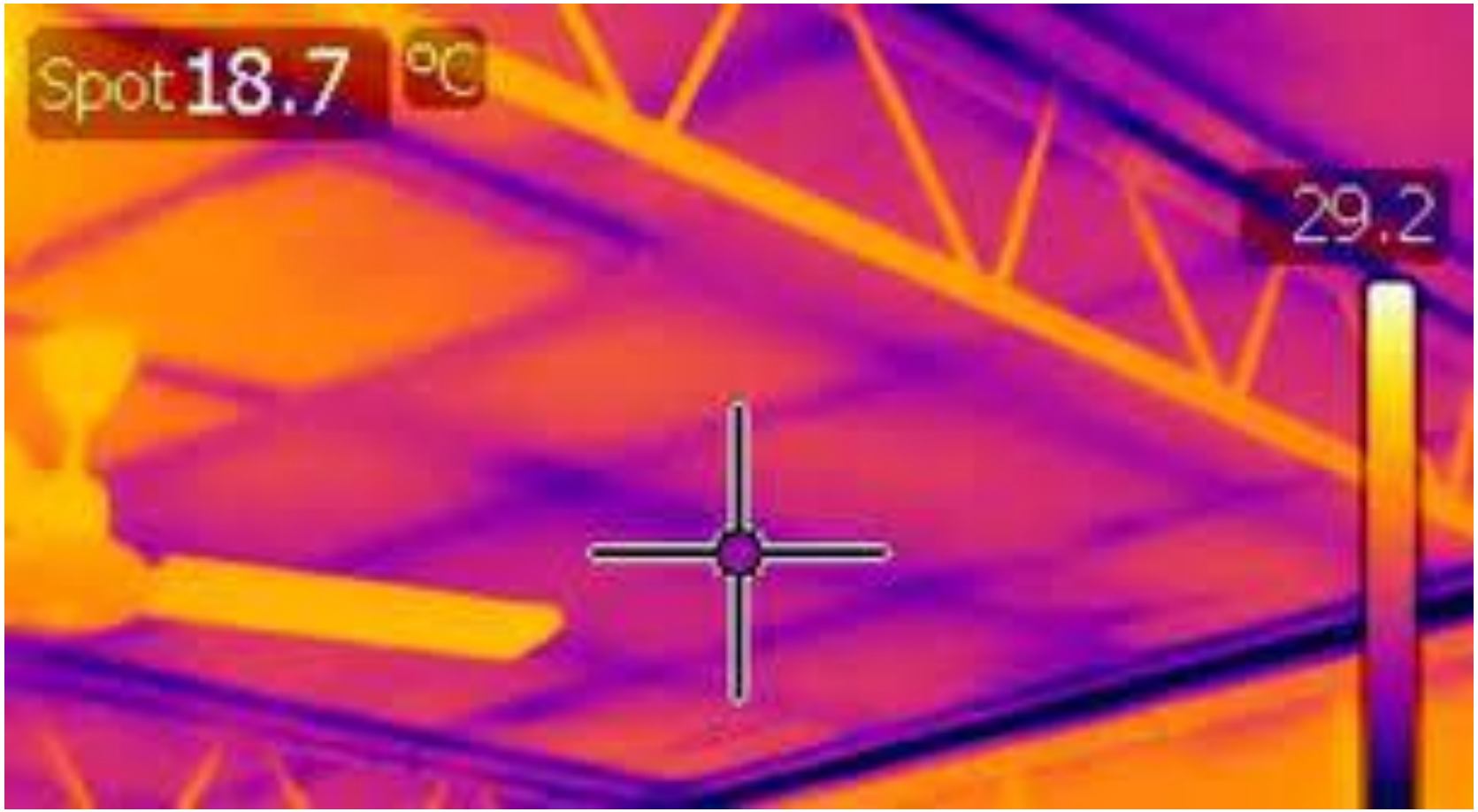
Thermal Bridging



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Kingspan Product

Kooltherm

Phenolic Foam

High thermal efficiency for thickness

Continuous Insulation; prevents thermal bridging

Low flame spread and smoke emission

(chars, doesn’t melt)

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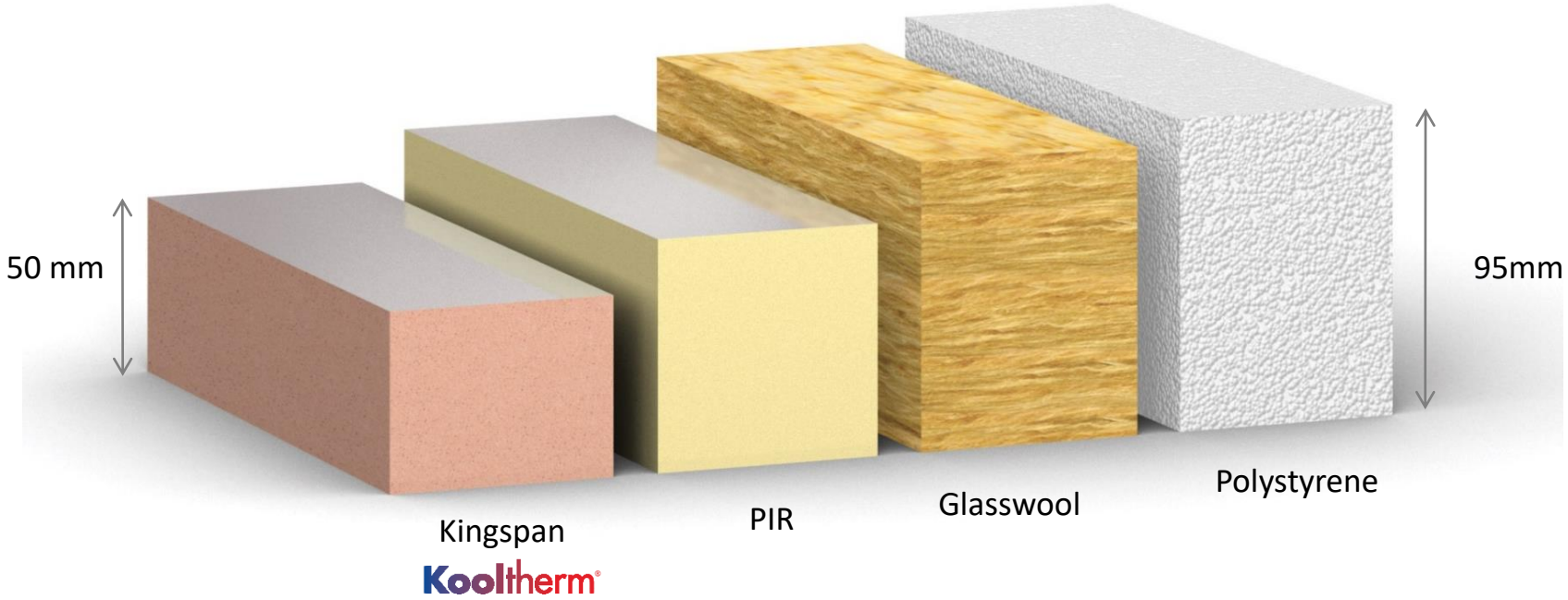
R values



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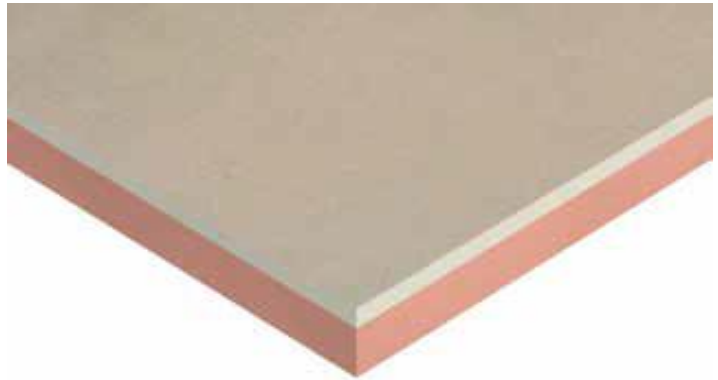
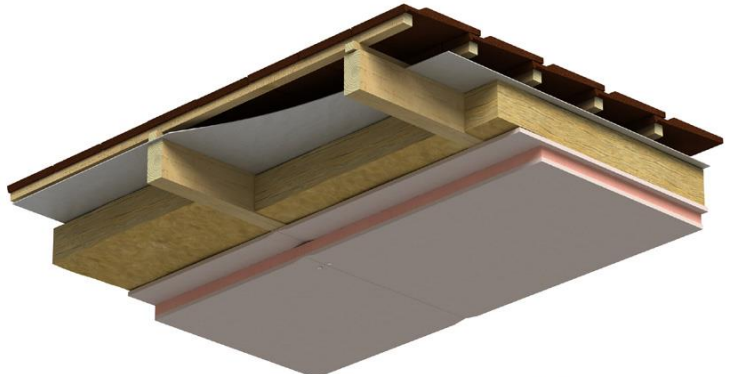
Kooltherm

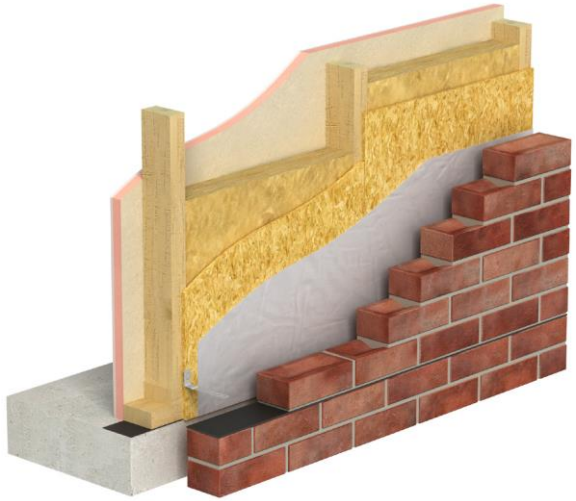
K12 Framing Board

Over concrete block and tilt slab walls, timber or steel framing
New or retro fit to increase thermal performance
Continuous insulation

Vapour Control - Taped joins
OK to cut for services.
Conduit required for electrical
Sold blocking for fixing
Battens at max 600 centre







Kooltherm

K17 Insulated Plasterboard

Over precast concrete and concrete block
Timber or steel frames
Walls and Ceiling
Retrofit to increase thermal performance

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Kooltherm

K17 Insulated Plasterboard

Plaster joins as usual
Ok to cut for services
Conduit required

Walls

Current build up

Weatherboard, Watergate Plus, 90mm frame (34%), Insulation with R-Value of 2.8, gib

Total R-value Rt1.9

H1 Solution

Weatherboard, Watergate Plus, 90mm frame (34%), Insulation with R-Value of 2.8, Kooltherm 17 50mm Total R-value Rt4.2

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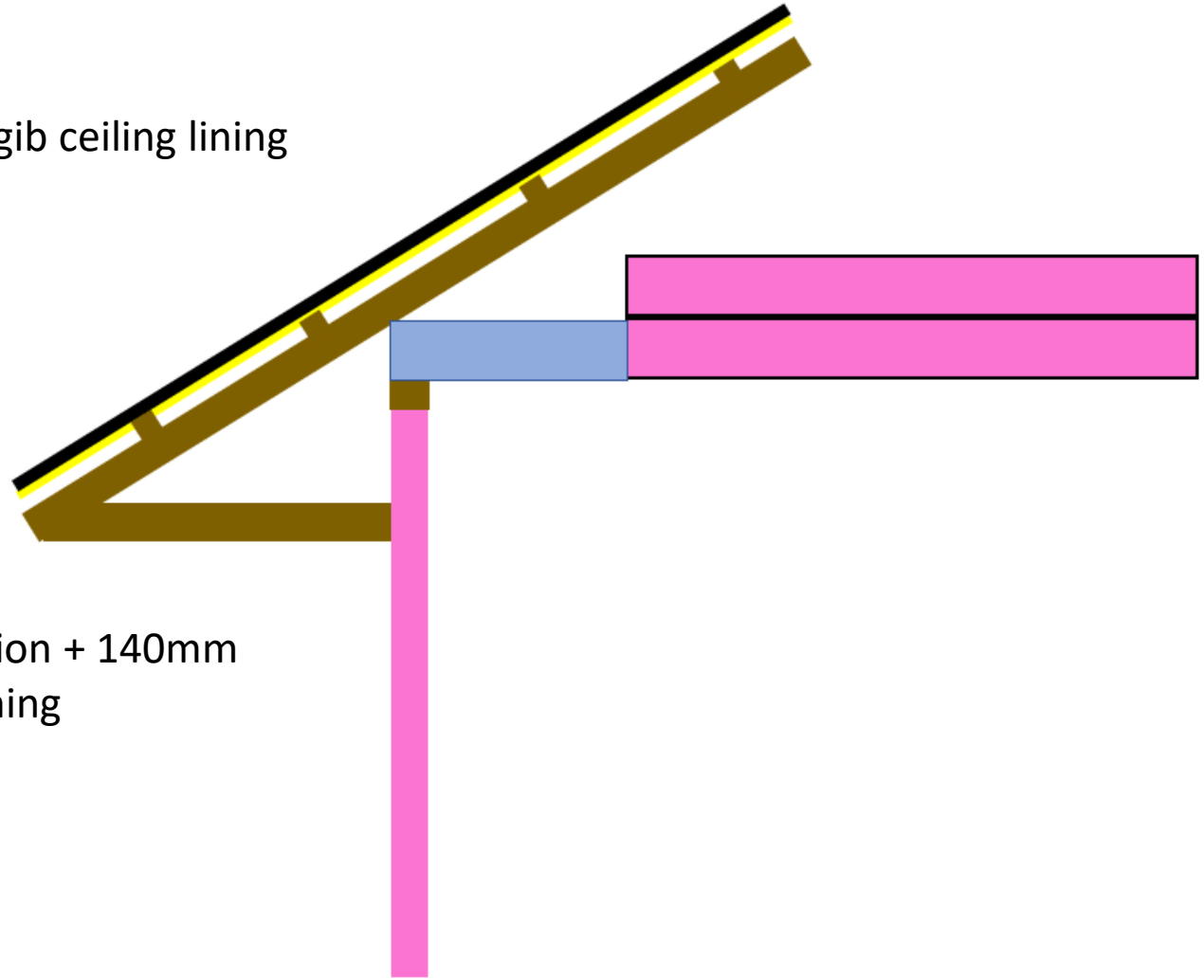
Roof

Example current build up

Metal cladding, Covertek, pink batt insulation (R3.6), gib ceiling lining

Total R-value Rt3.5



H1 solution

Metal cladding, Covertek, 2 x layers pink batt insulation + 140mm

K10 for the last 600mm of ceiling edge, gib ceiling lining

Total R-value Rt7.4

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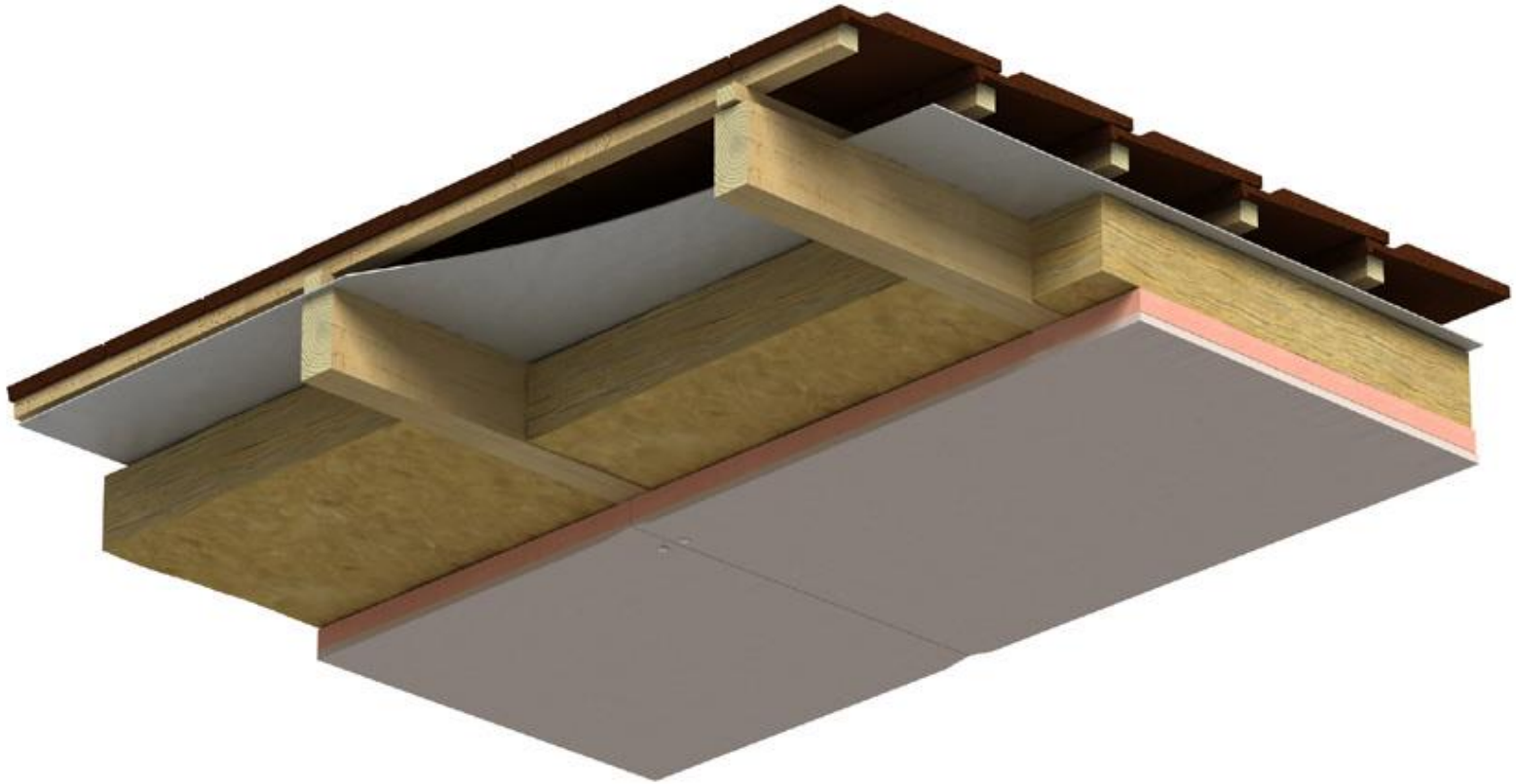
Skillion Roof

Example of current build up

metal cladding, covertek, ventilation batten, rafters at 600mm centers, R3.2 pink batt insulation (170mm) gib ceiling lining

Total R-value 3.0



New H1 solution

metal cladding, covertek, ventilation batten, rafters at 600mm centers, R3.2 pink batt insulation (170mm), 80mm K17 ceiling lining.

Total R-value 6.8

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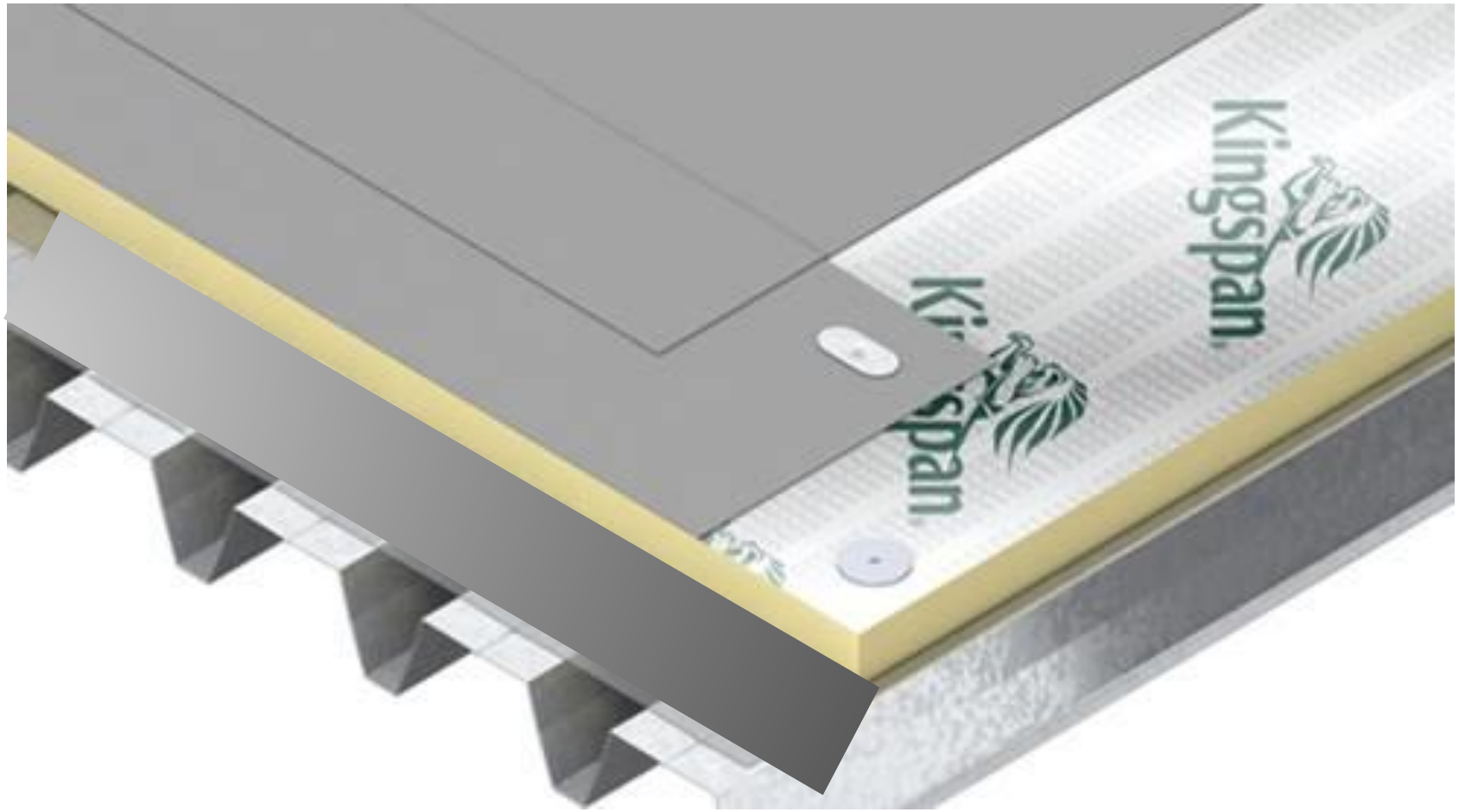
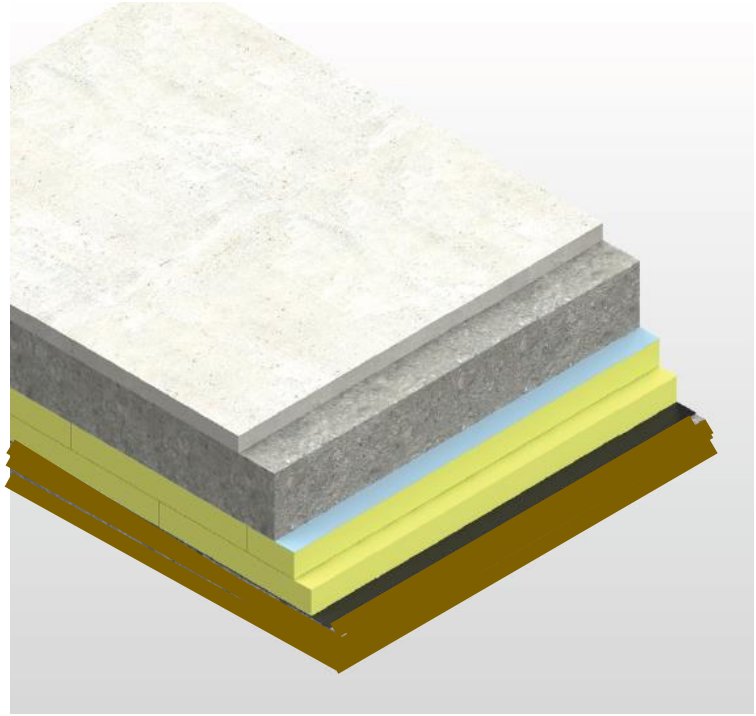
Viking Warm Roof

Tray deck roof
Vapourshield
PIR board Therma TR27 (160mm)
Waterproof Membrane
Total RValue6.6



Floors

GreenGuard



Floor slab on ground	1.3 Zone 1-3	1.5 Zone 1-4 1.6 Zone 5 1.7 Zone 6
Floor other than slab on ground	1.3 Zone 1-3	2.5 Zone 1 – 3 2.8 Zone 4 3.0 Zone 5-6
Heated Floor		2.5 Zone 1-3 2.8 Zone 4 3.0 Zone 5-6

Damp proof membrane, 50mm Green Guard Extruded Polystyrene (XPS), 150mm slab, 65mm sand cement screed

Total RValue 1.7

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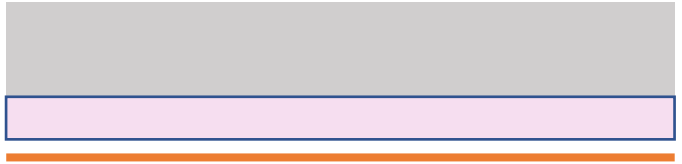
Commercial

Floor

Old 1.3 New 2.3 – 2.6

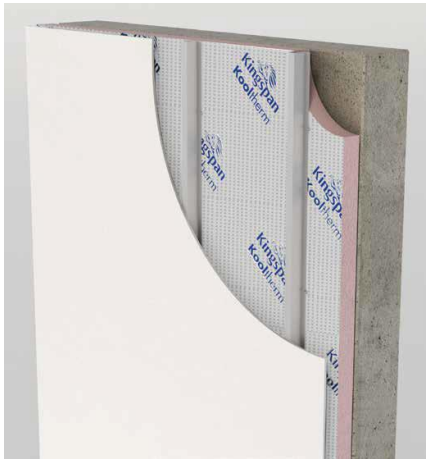


Thermathene DPM, 50mm Kooltherm K10 under a 100mm slab
Total RValue 2.6

Walls

Old 0.3 – 1.2 New 2.2 – 3.2

30mm Kooltherm K12 concrete wall and plasterboard
Total RValue 2.2
50mm thickness
Total RValue 3.2



50mmKooltherm K17 over concrete
Total RValue 2.2
70mm
Total RValue 3.2

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Four key initiatives

One Saving Energy

Two Making products from waste material

Three Saving waste from landfill

Four Working towards carbon neutral products

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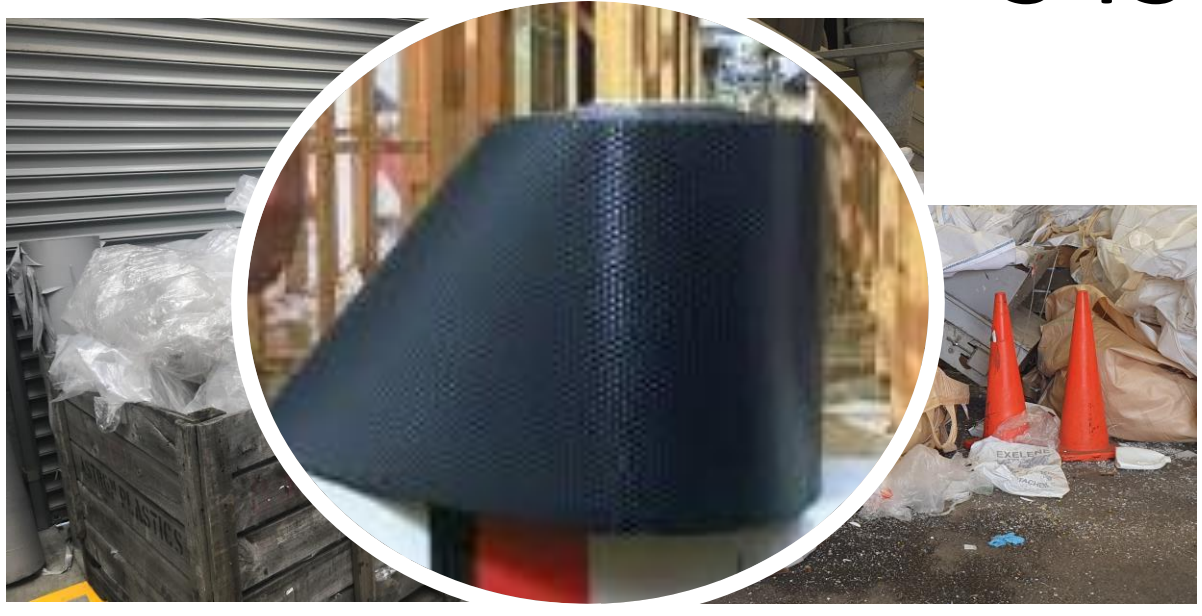

343 tons

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Thanks for having us ! ☺

Contact us for future Chapter Events

0800 806 595

www.Thermakraft.co.nz

www.Kingspan.com

See you next time

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