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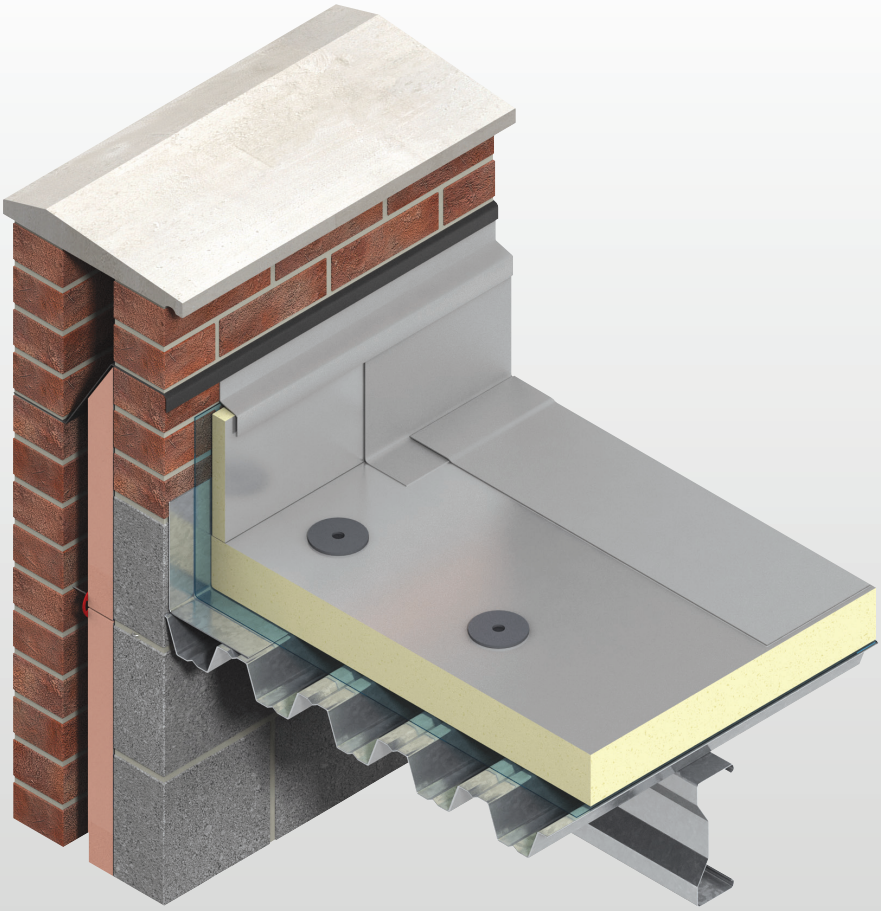
Therma™ TR26

INSULATION FOR FLAT ROOFS WATERPROOFED WITH MECHANICALLY FIXED SINGLE-PLY WATERPROOFING



- Super high performance rigid thermoset insulation
- FM approved for Class 1 steel deck roof assemblies
- Compatible with most green roof systems
- Resistant to the passage of water vapour
- Ideal for new build and refurbishment
- CFC/HCFC-free with zero Ozone Depletion Potential (ODP)
- Fully compatible with most mechanically fixed single–ply waterproofing systems
- Installation technique is ideal for fast track building programmes
- NCC and AS/NZS 4859.1:2018 compliant

Fibre-free Core

FM APPROVED
Class 1 Roof Construction

Kingspan™
Low Energy – Low Carbon Buildings

Welcome to Kingspan Insulation

About us

Kingspan Insulation is a market leading manufacturer of innovative ultra-thin flexible insulation products and super high performance rigid insulation products for building fabric and building services applications. Kingspan Insulation is committed to providing the world market with high quality, innovative products supported by technical expertise and customer service which is unsurpassed in the industry.

Kingspan Insulation has a vast product range including super high performance rigid **Kool**therm™ insulation; flexible fibre-free reflective insulation **AIR-CELL**™; high performance rigid **Therma**™ insulation; and high performance rigid extruded polystyrene insulation.

The extensive range of products is suitable for a variety of applications including:

- pitched roofs;
- flat roofs;
- tapered roofing systems;
- cavity walls;
- solid walls;
- insulated dry lining;
- timber and steel framing;
- externally insulated cladding systems;
- externally insulated render systems;
- floors;
- soffits; and ductwork in building services applications.

Manufacturing excellence, first class customer service and unrivalled expertise in meeting the needs of the market are just some of the many strengths that Kingspan Insulation offers to designers, engineers and contractors.

Typical Constructions and Total R-values

Concrete Deck

Kingspan **Therma**™ TR26 **in a Dense Concrete Deck with Suspended Ceiling**

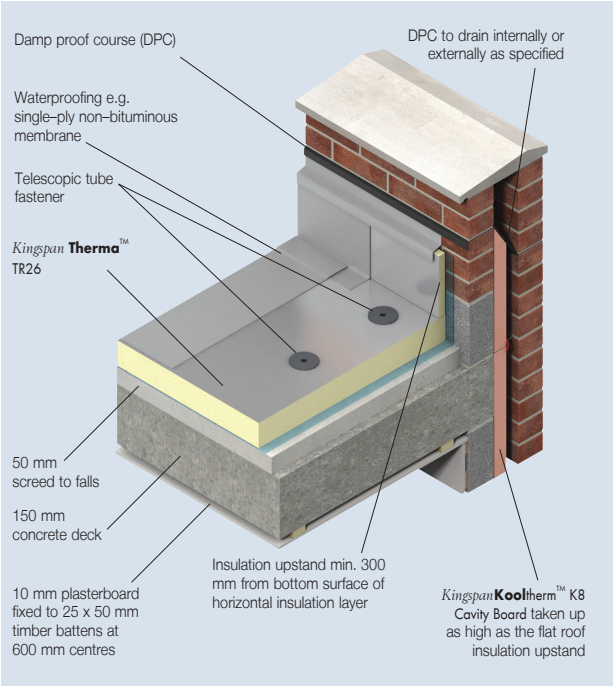


Figure 1

Total R-values for various thicknesses of *Kingspan* **Therma**™ TR26		
Product Thickness	Heat flow in	Heat flow out
30mm	R_T1.9	R_T2.0
50mm	R_T2.7	R_T2.9
60mm	R_T3.2	R_T3.4
75mm	R_T3.8	R_T4.1
50mm + 50mm	R_T4.9	R_T5.3
60mm + 60mm	R_T5.8	R_T6.2
75mm + 50mm	R_T6.0	R_T6.5
75mm + 75mm	R_T7.1	R_T7.6

Metal Deck

Kingspan **Therma**™ TR26 **in a Metal Deck with No Ceiling**

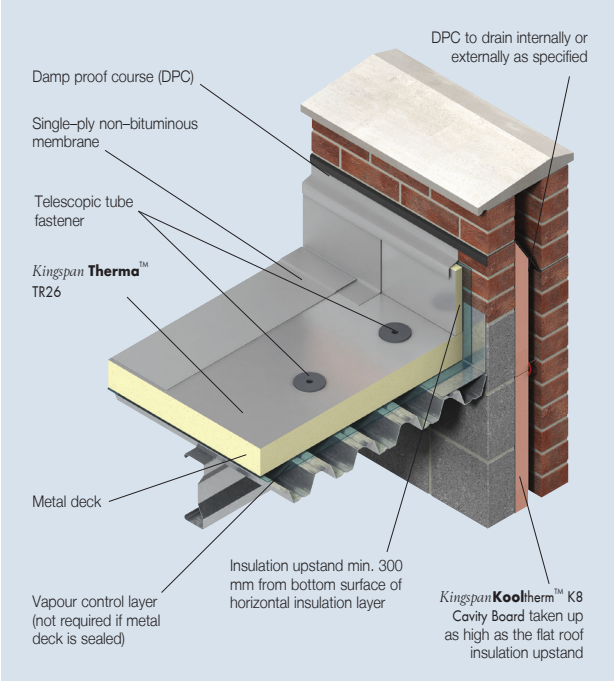


Figure 2

Total R-values for various thicknesses of *Kingspan* **Therma**™ TR26		
Product Thickness	Heat flow in	Heat flow out
30mm	R_T1.5	R_T1.6
50mm	R_T2.4	R_T2.5
60mm	R_T2.8	R_T3.0
75mm	R_T3.4	R_T3.7
50mm + 50mm	R_T4.6	R_T4.9
60mm + 60mm	R_T5.4	R_T5.8
75mm + 50mm	R_T5.6	R_T6.1
75mm + 75mm	R_T6.7	R_T7.2

Typical Constructions and Total R-values (continued)

Green Roof Systems

Kingspan **Therma**™ TR26 in an Extensive Green Roof Covering – Metal Deck with No Ceiling

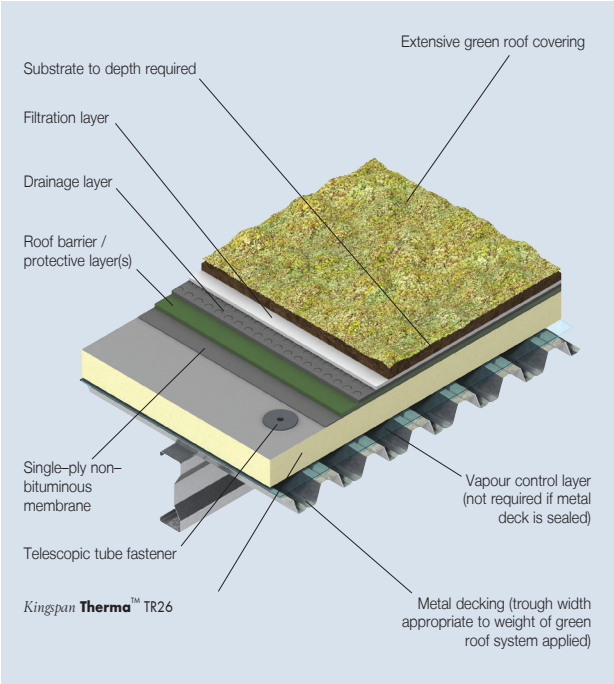


Figure 3

Total R-values for various thicknesses of *Kingspan* **Therma**™		
Product Thickness	Heat flow in	Heat flow out
30mm	R_T1.5	R_T1.6
50mm	R_T2.4	R_T2.5
60mm	R_T2.8	R_T3.0
75mm	R_T3.4	R_T3.7
50mm + 50mm	R_T4.6	R_T4.9
60mm + 60mm	R_T5.4	R_T5.8
75mm + 50mm	R_T5.6	R_T6.1
75mm + 75mm	R_T6.7	R_T7.2

Kingspan **Therma**™ TR26 in a Semi–Intensive Green Roof Covering – Dense Concrete Deck with Suspended Ceiling

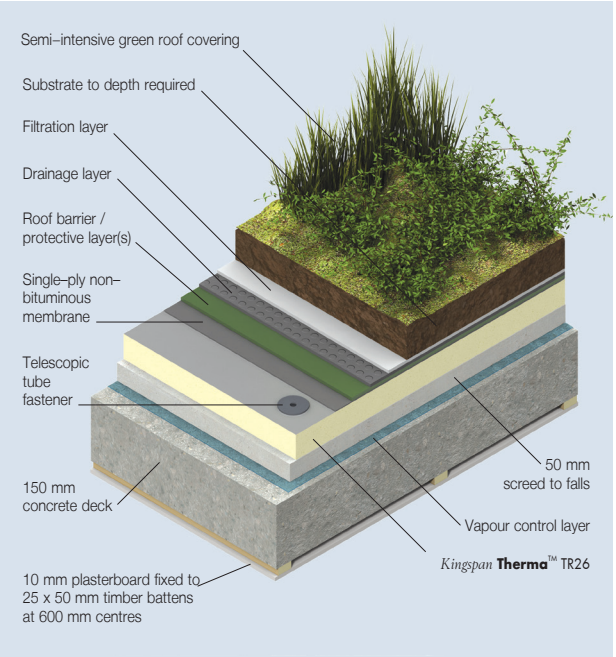


Figure 4

Total R-values for various thicknesses of *Kingspan* **Therma**™		
Product Thickness	Heat flow in	Heat flow out
30mm	R_T1.9	R_T2.0
50mm	R_T2.7	R_T2.9
60mm	R_T3.2	R_T3.4
75mm	R_T3.8	R_T4.1
50mm + 50mm	R_T4.9	R_T5.3
60mm + 60mm	R_T5.8	R_T6.2
75mm + 50mm	R_T6.0	R_T6.5
75mm + 75mm	R_T7.1	R_T7.6

Product Details

Product Description

Kingspan **Therma**™ TR26 s a super high performance, fibre-free rigid thermoset insulation, faced on both sides with a low emissivity composite foil autohesively bonded to the insulation core during manufacture.

Kingspan **Therma**™ products are manufactured without the use of CFCs/HCFCs and have zero Ozone Depletion Potential (ODP).

Product Data	
Thermal Conductivity at 23°C (λ-value)	0.022 W/mK
Product Dimensions	2400 mm x 1200 mm (2.88 m^2)
Product Thickness	30, 50, 60, 75 mm Other thickness options available on request

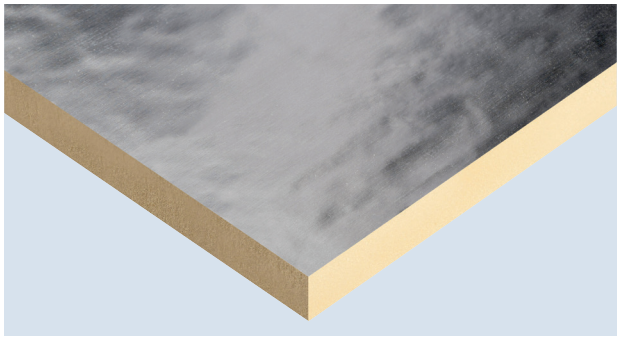


Figure 5 Super high performance foil faced *Kingspan* **Therma**™ TR26

Product R-value

Product Thickness	Product R-value
30mm	R1.35
50 mm	R2.30
60 mm	R2.75
75mm	R3.45
80 mm	R3.65
90 mm	R4.10
100 mm	R4.60
110 mm	R5.05
120 mm	R5.50

The λ–values and R–values detailed on this page are quoted in accordance with AS/NZS 4859.1:2018. Product R-values are calculated using the calculated $\lambda_{50/90}$, not the declared value.

Specification Guide

The roof insulation shall be *Kingspan* **Therma**™ TR26 ____ mm thick, comprising a CFC/HCFC-free and zero Ozone Depletion Potential (ODP) rigid thermoset insulation core with composite foil facings on both sides, manufactured under a management system certified to ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007 by Kingspan Insulation Limited and shall be installed in accordance with the instructions issued by them.

A Project Specific Warranty provided by Kingspan Insulation must be submitted.

Tapered Roofing

Kingspan **Therma**™ TR26 is also available in a tapered version (*Kingspan* **Therma**™ TT46) that comes with a supporting design service. This ensures that the most cost-effective solution for a roof is identified and that the end result is a tapered system design which meets a roof's rainwater run-off and insulation requirements.

Roof Loading/Traffic

Kingspan **Therma**™ TR26 is suitable for use on access decks subject to limited foot traffic.

Where frequent foot traffic is liable to occur, it is recommended that the roof surface is protected by specially designed walkways, or a trafficable material.

Spanning on Metal Decks

The designer's attention is drawn to the requirement that insulation boards are of the minimum thicknesses shown in the table below, when used over metal decks with trough openings as shown.

Trough Opening (mm)	Minimum Insulant Thickness (mm)
≤75	25
76 – 100	30
101 – 125	35
126 – 150	40
151 – 175	45
176 – 200	50
201 – 225	55
226 – 250	60

Standards and Approvals

Kingspan **Therma**™ TR26 is compliant with AS/NZS 4859.1 as required by the NCC BCA.

Kingspan **Therma**™ TR26 is manufactured to the highest standards and certified under the following management systems:

Standard	Management System
ISO 9001:2015	Quality Management
ISO 14001:2015	Environmental Management
OHSAS 18001:2007	Health and Safety Management

Kingspan **Therma**™ TR26 is also manufactured to the highest standards in accordance with the requirements of:

Requirement	Rigid polyisocyanurate (PIR) and polyurethane (PUR) products for building end–use applications
BS 4841-4	Specification for laminated boards (roofboards) with auto–adhesively or separately bonded facings for use as roofboard thermal insulation under single–ply roofing membranes

Product Testing

Characteristic	Standard	Result
Compressive Strength	AS 2498.3	Typically exceeds 150 kPa at 10% compression
Water Vapour Resistance	AS 2498.5	> 100 MN·s/g (*Kingspan* **Therma**™ TR26)

Fire Performance

Kingspan **Therma**™ TR26, when subjected to the British and Australian Standard fire test specified in the table below, will achieve the result shown, when waterproofed with a single–ply waterproofing membrane.

Test	Result
BS 476–3: 2004 (External fire exposure roof test)	Dependent on single–ply membrane adopted
AS 1530.3 (Ignitability, Flame Spread, Heat Release, Smoke Release)	Spread of Flame Index: 0 Smoke Development Index: 1
AS 2122.1 (Flame Propagation AS 1366)	Complies

Further details on the fire performance of Kingspan Insulation products may be obtained from the Kingspan Insulation Technical Service (see back cover for contact details).

Certification

FM Certification

Kingspan **Therma**™ TR26 is certified as achieving Class 1 Insulated Steel Deck Pass to Factory Mutual Research Standard 4470: 2016 (Approval Standard for Single–Ply, Polymer–Modified Bitumen Sheet, Built–Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Non– combustible Roof Deck Construction), subject to the conditions of approval as a roof insulation product for use in Class 1 roof constructions as described in the current edition of the Factory Mutual Research Approval Guide.

FM APPROVED

Class 1 Roof Construction

Durability

If correctly applied, *Kingspan* **Therma**™ products can be expected to have a long life of service.

Their durability depends on the supporting structure and the conditions of its use.

Kingspan **Therma**™ products are warranted for a period of 10 years for both residential and commercial installations.*

** Subject to the terms of the complete Kingspan* **Therma**™ *warranty document which is available upon request or downloadable from our website (see back cover).*

Environmental Data

Aspect	Characteristic
Recyclability	Non-contaminated insulation site waste is recyclable, but there are currently no facilities in Australia to process returned material
Re-usability	Re-usable if removed with care (long term of service expected)
Water Use	No water used in Kingspan Insulation's manufacturing process
Blowing Agent Global Warming Potential (GWP)	Manufactured with a blowing agent that has low GWP
Blowing Agent Ozone Depletion Potential (ODP)	Manufactured with a CFC/HCFC-free blowing agent that has zero ODP
Packaging	Contains 0% recycled product Polythene wrap and EPS skids 100% recyclable

Installation Intructions

Installing over Concrete Decks

- Concrete decks should be clean, dry, without large projections, steps or gaps, and should be graded to allow correct falls to all rainwater outlets.
- The vapour control layer should be loose–laid over the deck.
- Where one run of the specified vapour control layer laps another, there should be minimum 150 mm side and end overlaps, which should be adequately sealed.
- Turn up the vapour control layer at the edge of the roof to a height appropriate to the specified waterproofing membrane.
- Boards of *Kingspan* **Therma**™ should be secured to the deck using mechanical fixings e.g. telescopic tube fasteners (see 'Mechanical Fixings').
- Insulation boards should always be laid break–bonded, either with their long edges at right angles to the edge of, or diagonally across the roof, and with joints lightly butted. There should be no gaps at abutments.
- Roof–light or ventilator kerbs etc. should always insulated with the same thickness of *Kingspan* **Therma**™ TR26 as the general roof area.
- A 25 mm thick *Kingspan* **Therma**™ TR26 upstand should be used around the perimeter of the roof on the internal façade of parapets to limit thermal bridging.
- A minimum distance of 300 mm should be maintained between the top of the insulation upstand and the bottom of the horizontal roof insulation.
- The waterproofing membrane is also mechanically fixed in accordance with the membrane manufacturer's instructions, over the whole insulated area including any insulation upstands, as soon as possible after laying the insulation boards.

Installing over Metal Decks

- Where an FM approved construction is required, please refer to 'FM Certification' on page 7.
- Metal decks should be clean, dry, without large projections, steps or gaps, and should be graded to allow correct falls to all rainwater outlets.
- If using a sealed metal deck there is no requirement for a separate vapour control layer.
- If the metal deck is not sealed the vapour control layer should be loose–laid.
- Where one run of the specified vapour control layer laps another, there should be minimum 150 mm side and end overlaps, which should be adequately sealed.
- Turn up the vapour control layer at the edge of the roof to a height appropriate to the specified waterproofing membrane.
- Boards of *Kingspan* **Therma**™ TR26 should be secured to the deck using mechanical fixings e.g. telescopic tube fasteners (see 'Mechanical Fixings').
- Insulation boards should always be laid break–bonded, either with their long edges at right angles to the trough openings, or diagonally across the corrugation line, and with joints lightly butted. There should be no gaps at abutments.
- Roof–light or ventilator kerbs etc. should always insulated with the same thickness of *Kingspan* **Therma**™ TR26 as the general roof area.
- A 25 mm thick *Kingspan* **Therma**™ TR26 upstand should be used around the perimeter of the roof on the internal façade of parapets to limit thermal bridging.
- A minimum distance of 300 mm should be maintained between the top of the insulation upstand and the bottom of the horizontal roof insulation.
- The waterproofing membrane is also mechanically fixed in accordance with the membrane manufacturer's instructions, over the whole insulated area including any insulation upstands, as soon as possible after laying the insulation boards.

Installing over Existing Flat Roofs

- The existing waterproofing membrane surface should be clean, dry, without large projections, steps or gaps, and should be graded to allow correct falls to all rainwater outlets.
- Where the existing waterproofing membrane is not fit for purpose as a vapour control layer, a separate vapour control layer should be loose–laid over it.
- Where one run of the specified vapour control layer laps another, there should be minimum 150 mm side and end overlaps, which should be adequately sealed.
- Turn up the vapour control layer at the edge of the roof to a height appropriate to the specified new waterproofing membrane.
- Boards of *Kingspan* **Therma**™ TR26 should be secured to the deck using mechanical fixings e.g. telescopic tube fasteners (see `Mechanical Fixings').
- Insulation boards should always be laid break–bonded, either with their long edges at right angles to the edge of, or diagonally across the roof, and with joints lightly butted. There should be no gaps at abutments.
- Roof–light or ventilator kerbs etc. should always insulated with the same thickness of *Kingspan* **Therma**™ TR26 as the general roof area.

Installation Intructions (continued)

- A 25 mm thick *Kingspan* **Therma**™ TR26 upstand should be used around the perimeter of the roof on the internal façade of parapets to limit thermal bridging.
- A minimum distance of 300 mm should be maintained between the top of the insulation upstand and the bottom of the horizontal roof insulation.
- The waterproofing membrane is installed in accordance with the membrane manufacturer's instructions, over the whole insulated area including any insulation upstands, as soon as possible after laying the insulation boards.

Mechanical Fixings

- The number of mechanical fixings required to fix *Kingspan* **Therma**™ TR26 will vary with the geographical location of the building, the local topography, and the height and width of the roof concerned along with the deck type.
- A minimum of 6 fixings are required to secure boards of *Kingspan* **Therma**™ TR26 to the deck (see Figure 6).
- The requirement for additional fixings should be assessed in accordance with appropriate Australian wind load standards.
- Fasteners at insulation board edges must be located > 50 mm and < 150 mm from edges and corners of the board and not overlap board joints.
- Each fixing should incorporate a square or circular plate washer (50 x 50 mm or 50 mm diameter).
- If two layers of insulation are to be installed, the base layer should be mechanically fixed with minimum 1 No. fixing in the centre of the board before fixing the top layer as described above.
- Where alternative mechanical fixing systems are specified, such as bar fixing systems, the specified system must give similar restraint to the insulation board as would be attained by the use of conventional telescopic tube fasteners.

Figure 6 Fastener pattern (6 No. per board) 2270 x 1200 mm board - 2.2 fixings / m^2

Installing in Two Layers

- In situations where two layers of insulation are required, both layers should be installed in the same manner, as detailed in the preceding sections. However, refer to 'Mechanical Fixings' for guidance on the number of fixings to be used in each layer.
- In all cases, the layers should be horizontally offset relative to each other so that, as far as possible, the board joints in the two adjacent layers do not coincide with each other (see Figure 7).

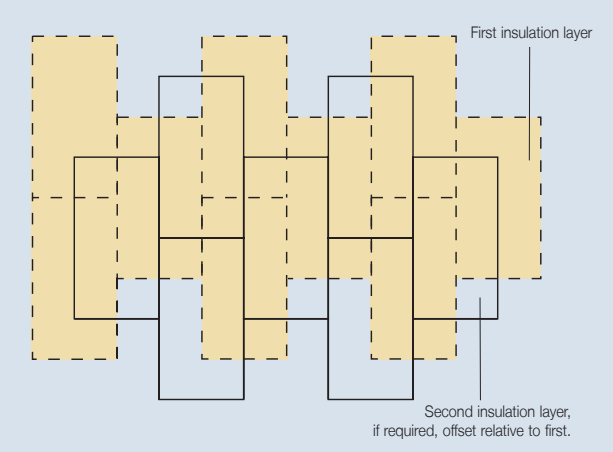


Figure 7 Offsetting of Multiple Insulation Layers

General Requirements

Following Trades

The roof must be adequately protected when building works are being carried out on or over the roof surface. This is best achieved by close boarding. The completed roof must not be used for storage of heavy building components such as bricks or air conditioning equipment.

Daily Working Practice

At the completion of each day's work, or whenever work is interrupted for extended periods of time, a night joint must be made in order to prevent water penetration into the roof construction.

Cutting

Cutting should be carried out either by using a fine toothed saw, or by scoring with a sharp knife, snapping the board over a straight edge and then cutting the facing on the other side. Ensure accurate trimming to achieve close-butting joints and continuity of insulation.

Packaging

According to quantity, the boards are supplied in packs, labelled and shrink-wrapped in polythene.

Handling and Storage

Storage

The packaging of *Kingspan* **Therma**™ TR26 should not be considered adequate for long term outdoor protection. Ideally boards should be stored inside a building. If, however, outdoor storage cannot be avoided then the boards should be stacked clear of the ground and covered with an opaque polythene sheet or weatherproof tarpaulin.

Boards that have been allowed to get wet should not be used.

Resistance to Solvents

The insulation core is resistant to short–term contact with petrol and with most dilute acids, alkalis and mineral oils. However, it is recommended that any spills be cleaned off fully before the boards

are installed. Ensure that safe methods of cleaning are used, as recommended by suppliers of the spilt liquid. The insulation core is not resistant to some solvent-based adhesive systems, particularly those containing methyl ethyl ketone. Adhesives containing such solvents should not be used in association with this product. Damaged boards or boards that have been in contact with harsh solvents or acids should not be used.

OH & S

Kingspan Insulation products are chemically inert and safe to use. A Product Safety Information sheet is available from Kingspan Insulation Pty Ltd.

Please note that the reflective surfaces on this product are designed to enhance their thermal performance. As such, they will reflect light as well as heat, including ultraviolet light. Therefore, if these boards are being installed during bright or sunny weather, it is advisable to wear UV protective sunglasses or goggles and if the skin is exposed for a significant period of time, to protect bare skin with a UV block sun cream.

Foil facings are conductive to electricity - avoid contact with un-insulated electrical cables and fittings.

Installation should be in accordance with AS 3999:2015, Section 4 - Safety Requirements for Insulation Installation.

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