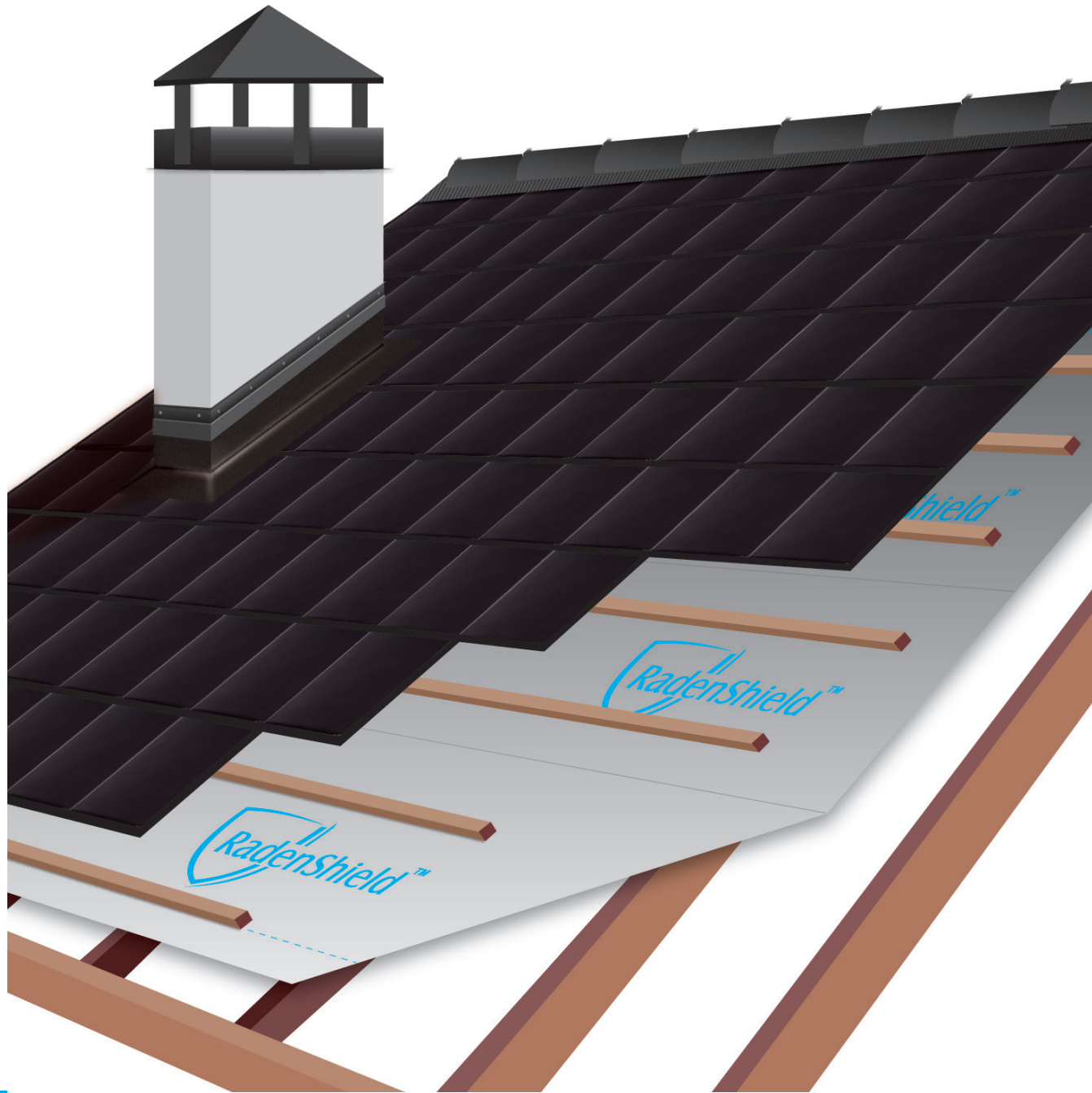


Roof Underlay Portfolio



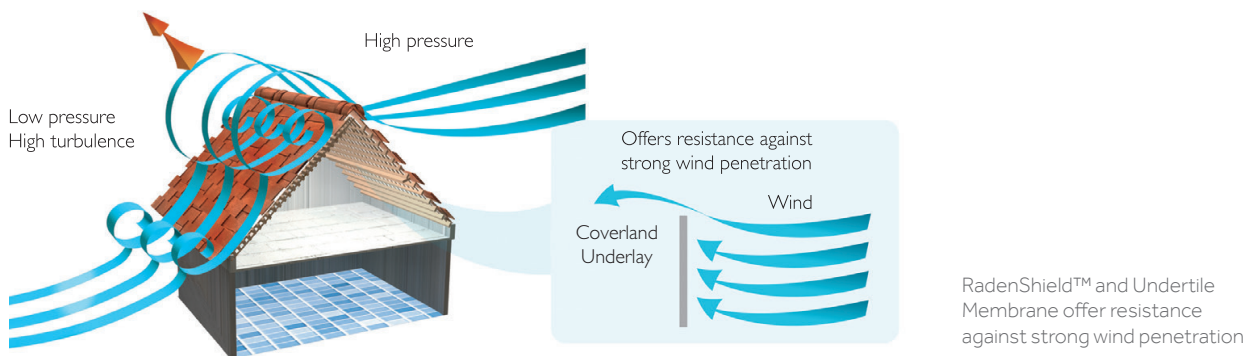
BMI

Coverland

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Integral component of roof design and durability

When a roof structure is tiled according to the required specifications and suitably fitted with a high performing underlay, it performs as a weather-tight roof.



PERFORMANCE FUNCTIONS OF THE ROOF FIXED WITH MEMBRANE

- Prevent roof structure damage by removing pressure difference between interior roof cavity and tiles
- Pressure reduction decreases suction of water into roof interior
- Waterproof & vapour impermeable
- Enhanced protection from dust and insects passing through cavity

WHICH MEMBRANE SHOULD BE INSTALLED?

Undertile membrane functions as a high-end alternative to plastic which offers superior resistance to harsh weather conditions. It is 100% UV stable for use in buildings in hot climates.

RadenShield™ aluminium membrane functions as an underlay with the added benefit of reflective insulation. It is the recommended membrane for the compliance of the SANS 204 Energy Efficiency regulation standard. The reflective properties go beyond the durability of the roof structure, by aiding indoor climate comfort and reducing energy consumption of household heating and cooling appliances. Radenshield™ can be used for residential and industrial roof applications.

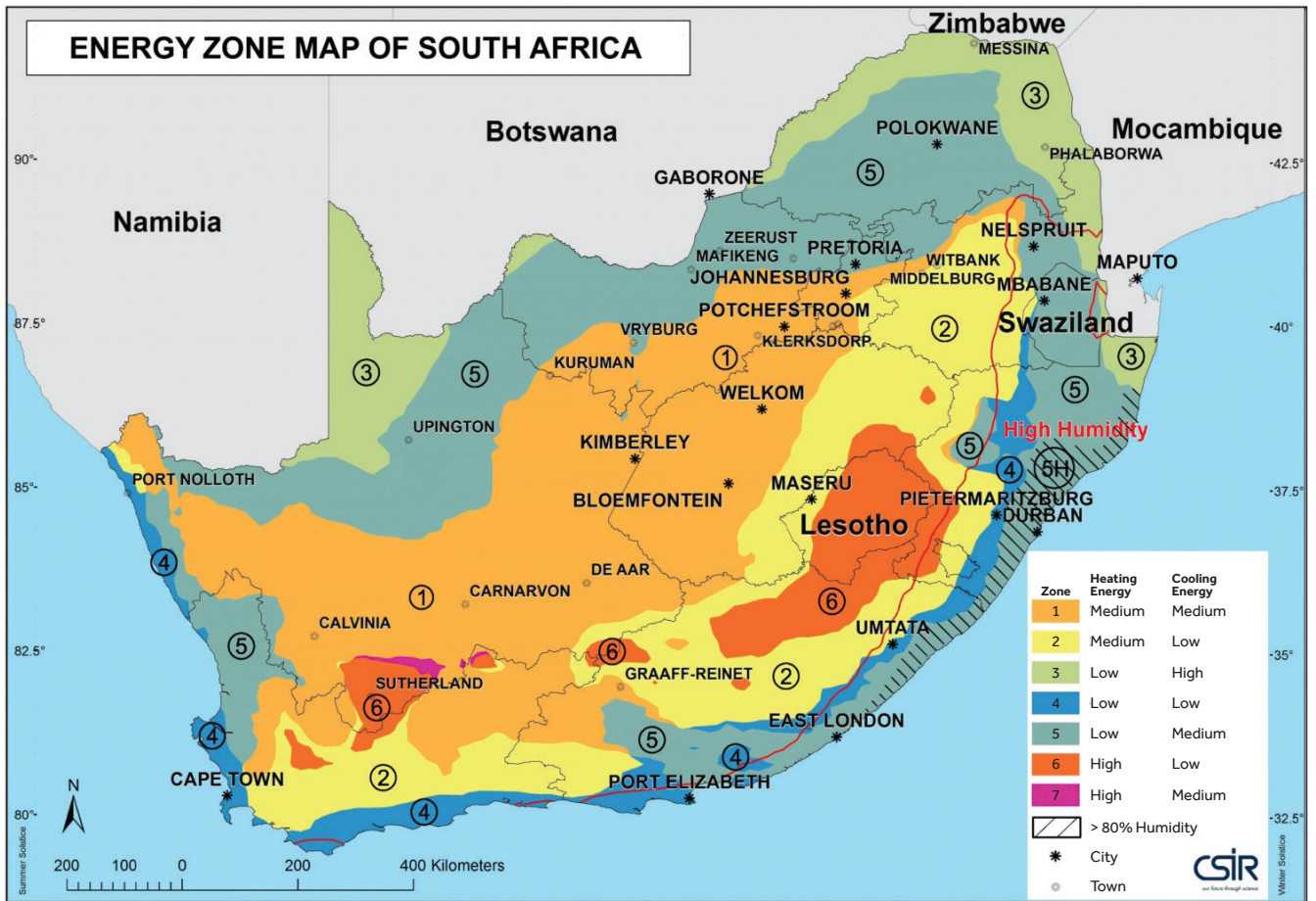


RADENSHIELD™ GUIDELINE FOR SANS 10400-XA: 2021 ENERGY EFFICIENCY

November 2021 saw the release of the updated application of the National Building Regulations SANS 10400-XA: 2021 Ed 2 Energy usage in buildings. This follows on the original regulations promulgated in November 2011. The new regulations make it mandatory to specify thermal insulation in buildings based on their occupancy class as stated in regulations XA1, XA2 and XA3.

Energy zones

The original climate zones from the original regulations have been replaced with energy zones. There are 7 energy zones across South Africa and these were determined by the heating and cooling energy required to regulate the internal comfort levels of buildings. The explanation of each energy zone can be identified using the legend on the map:



Zone 5H – >80% humidity area

R-VALUE REQUIREMENTS

Energy zones	1,2,3,4,5,6 & 7	5H
Minimum Thermal Resistance required – Total R-value m ² K/W	3.7	2.7
Total R-value of roof & ceiling materials / other materials	0.35	0.35
Minimum added R-value required m ² K/W	3.35	2.31

Below find the calculation of the R-value contribution for a roof construction using our RadenShield™ product range. This allows for less bulk insulation required resulting in a cost saving for the roof insulation required to achieve the relevant R-value.

R-VALUE (m ² K/W)	Single Sided	Ecosential	Double Sided
Concrete roof tile (any colour) & standard plasterboard	0.35	0.35	0.35
R-value of RadenShield™ with 40mm airgap to tile and 60mm below foil	1.05	1.52	1.59
Total R-value (m²K/W)	1.40	1.87	1.94

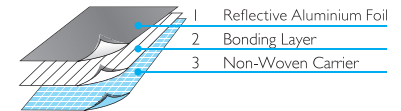
UNDERLAYS

Residential Radenshield™

High performance aluminium radiant barriers for tiled-roof buildings with timber roof construction.

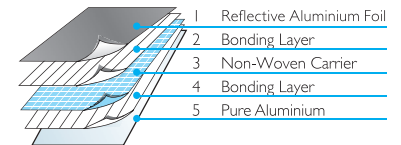
RADENSHIELD™ SINGLE-SIDED

Material	PP A1 Single aluminium side
Agrément Certification	2009/366
Size (linear metres)	30 x 1.5
Roll Coverage (m ²)	45
Effective Coverage (m ²)	40.5
Weight (g/m ²)	126
Mass (kg)	5.7
Thickness (mm)	0.31-0.35
Tensile Strength	MD 180 N/50 mm; CD 180 N/50 mm; EN12311-1
Average Nail Tear Strength	MD 120 N; CD 120 N; EN12310-1
Fire Rating	B/B3/3/H
R-values ((m ² K)/W)	Product: 1.05 System: 1.4*



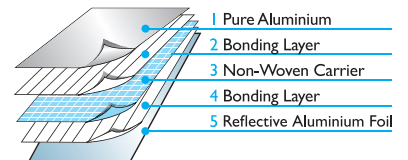
RADENSHIELD™ DOUBLE-SIDED

Material	PP A1 Double aluminium sides
Agrément Certification	2009/369
Size (linear metres)	30 x 1.5
Roll Coverage (m ²)	45
Effective Coverage (m ²)	40.5
Weight (g/m ²)	172
Mass (kg)	7.8
Thickness (mm)	0.29-0.31
Tensile Strength	MD 200 N/50 mm; CD 180 N/50 mm; EN12311-1
Average Nail Tear Strength	MD 150 N; CD 150 N; EN12310-1
Fire Rating	B/B1/2/H
R-values ((m ² K)/W)	Product: 1.59 System: 1.94*



RADENSHIELD™ ECOSENTIAL

Material	PP A1 Double aluminium sides
Agrément Certification	2020/605
Size (linear metres)	30 x 1.5
Roll Coverage (m ²)	45
Effective Coverage (m ²)	40.5
Weight (g/m ²)	134
Mass (kg)	6.3
Thickness (mm)	0.2-0.24
Tensile Strength	MD N/120 mm; CD N/120 mm; EN12311-1
Average Nail Tear Strength	MD 100 N; CD 100 N; EN12310-1
Fire Rating	SANS 428 – B/B1/2H (SP & USP)
R-values ((m ² K)/W)	Product: 1.52 System: 1.87*



PLEASE NOTE: R-Values are subject to change due to ongoing testing. *System R-value = product r-value + 0.35 where 0.35 m²K/W represents the roof tiles and standard plasterboard with 40mm gap above the foil and 60mm gap below. The system r-value is a guide and should be professionally verified based on the actual roof application process.

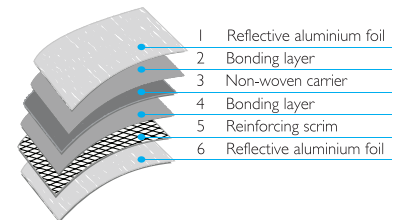
Industrial Radenshield™

High performance aluminium radiant barriers for buildings with galvanised sheet cladding or tiled-roof buildings.

RADENSHIELD™ INDUSTRIAL

Material	PP A1 Double aluminium sides
Agrément Certification	2009/367
Size (linear metres)	33.33 x 1.5
Roll Coverage (m ²)	50
Effective Coverage (m ²)	45
Weight (g/m ²)	220
Mass (kg)	11
Thickness (mm)	0.42-0.46
Tensile Strength	MD 300 N/50 mm; CD 240 N/50 mm; EN12311-1
Average Nail Tear Strength	MD 250 N; CD 270 N; EN12310-1
Fire Rating	SANS 428 – B/B1/2/H&V (SP & USP)
R-values ((m ² K)/W)	1.57**

**When installed as a system with 100mm air gaps



Undertile Membrane

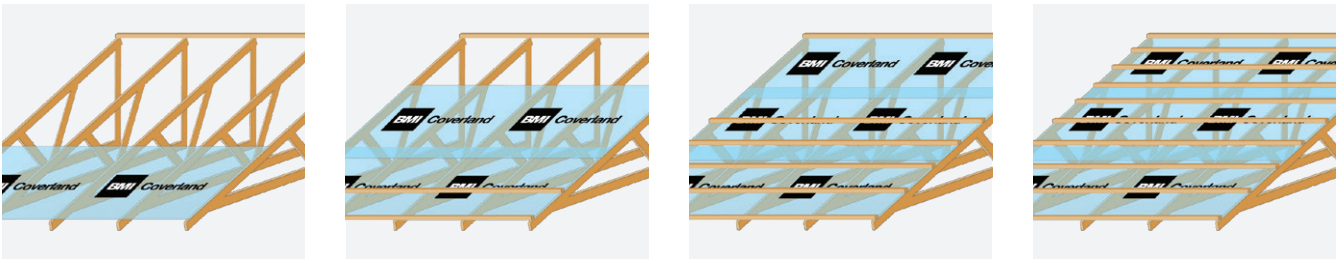
Moisture, wind and dust barrier for tiled-roof buildings with timber roof construction.

2-PLY

Material	2-ply laminate of 95 g/m ² white, 20 g/m ² Polypropylene	
Agrément Certification	2011/384, NHBRC approved	
Roll dimensions (m)	30 (L) x 1.5 (W)	45 (L) x 1.5 (W)
Mass (kg per roll)	4.5	4.5
Coverage (m ²)		
Effective with 150 mm overlap	40.5	60.75
Tensile Strength	180 Newtons	
Average Nail Tear Strength	80 Newtons	
Fire rating	B/B1	
Water Resistance	Waterproof barrier and vapour impermeable	



INSTALLATION FOR DOMESTIC / LIGHT INDUSTRIAL ROOFING

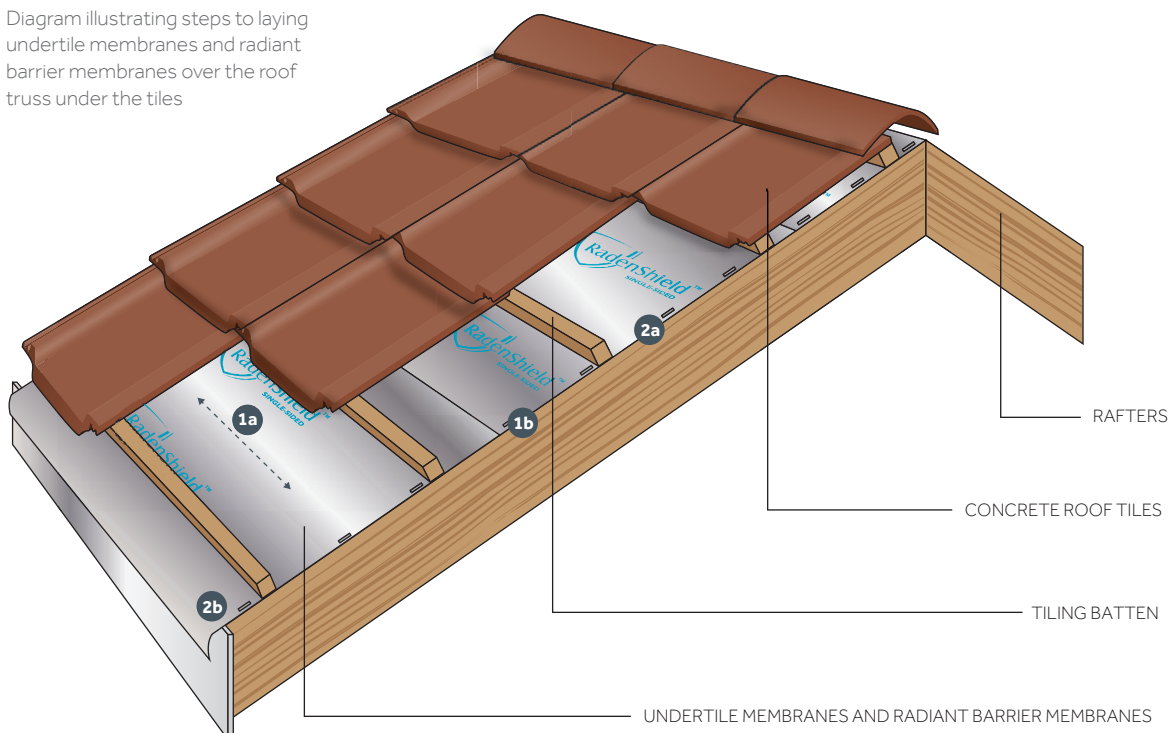


1. Unroll underlay and install horizontally, from left to right, across the rafters and starting at the eaves. Work towards the ridge of the roof (1a). The upper side of the underlay is marked with the Coverland logo and a dotted line indicating the minimum overlap between layers of 150mm.
2. Ensure each horizontal layer is placed across the rafters in such a way as to avoid sagging, creases and/or gaps. Tack-nail into position and secure using through-nail horizontal battens. Avoid unnecessary tears/penetrations through the underlay.
3. Minimum recommended width of horizontal overlap is 150mm (1b). Horizontal overlaps should be secured under a batten. Ensure vertical joints overlap by a minimum of 150mm and that they are secured to a rafter (2a). Corrosion-resistant staples or EP clout nails are recommended. If the building is in a high wind area, it is recommended that the underlay is nailed to the underside of the tiling battens.
4. The underlay between the trusses must be sufficiently taut, while allowing a shallow through to facilitate run-off beyond the wall or into the gutter, should rain water penetrate the tiles (2b).
5. Layers of underlay that run over a hip should overlap by a minimum of 150mm. Each layer should overlap the layers of underlay on the adjacent elevation of the roof.
6. Ensure that a layer of damp-proof course is applied over the underlay at roof ridges, hips and at the roof's apex.
7. Ensure that a layer of underlay at least 600mm wide is laid in the roof's valleys before the final layers of underlay are laid. Secure these strips beneath valley battens, ensuring that the final underlay layer is laid over these battens.
8. Where holes need to be cut for ventilation and soil pipes use the following procedure:
 - Underlay must be star-cut carefully to prevent tears, ensuring the tabs face downward and that the pipes fit closely through the holes.
 - Fit a proprietary collar over the pipe to protect the underlay.

In high wind areas RadenShield might be very noisy and it is therefore recommended that eaves be closed and in extreme cases have RadenShield nailed to the underside of the brandering from eaves to apex with an additional piece of timber.

Also applies if roof sheeting is used instead of roof tiles.

Diagram illustrating steps to laying undertile membranes and radiant barrier membranes over the roof truss under the tiles



INSTALLATION FOR INDUSTRIAL APPLICATION

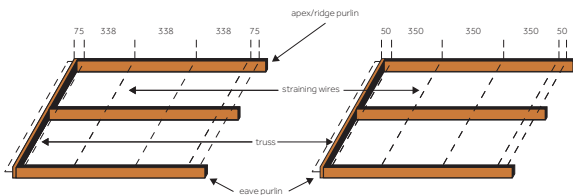


Fig 4.1: Diagram A – 150mm sidelap joint. Straining wire central to overlapping.

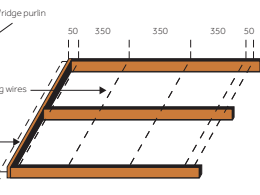


Fig 4.2: Diagram B – 100mm sidelap joint. Straining wire central to overlapping.

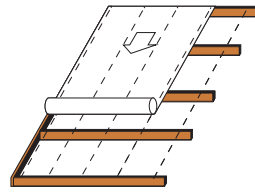


Fig 4.3: Diagram C – Laying over the straining wire and fixing to the apex.

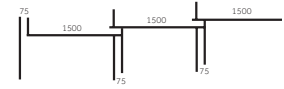
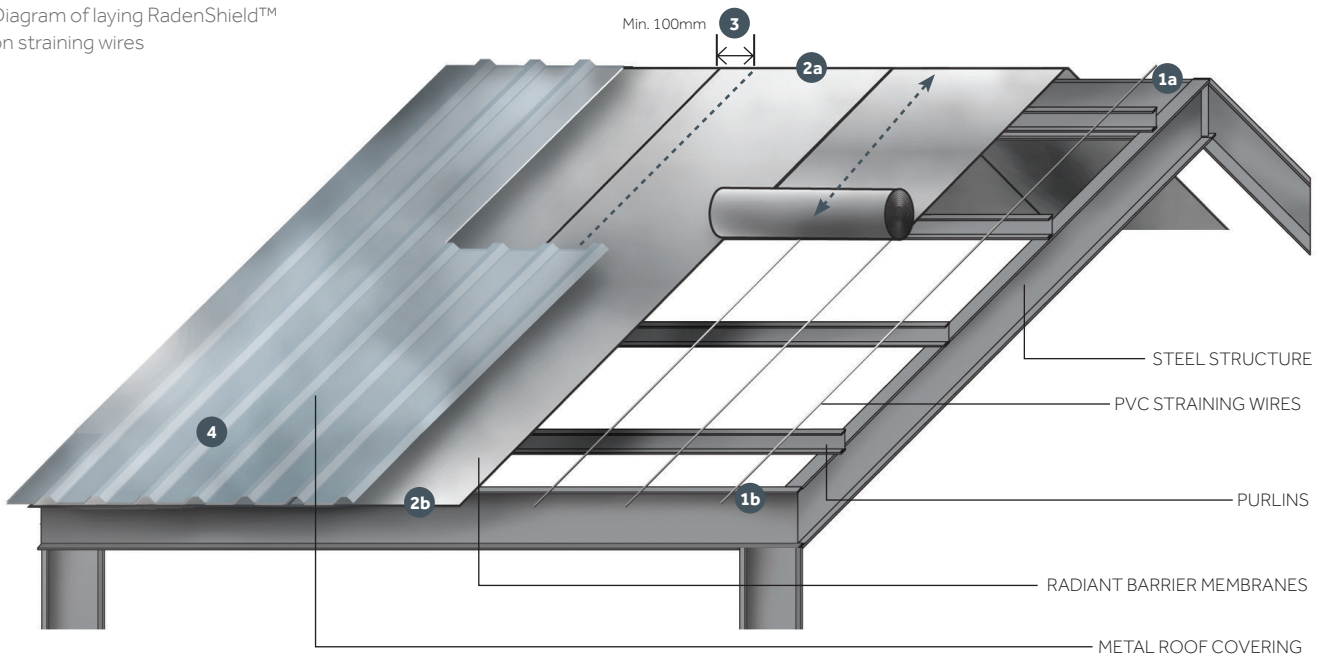


Fig 4.4: Diagram D – Laying over the straining wire and fixing to the apex.

1. Refer to diagrams A, B, C and D. Polyvinyl chloride (PVC) coated straining wires are secured from the top apex purlin, over intermediate purlins to the bottom eave purlin at 338mm centres (1b).
2. The first straining wire is secured 75mm away from the gable end. All wires are evenly tensioned ensuring that cut ends face downwards.
3. Note: All other applications to comply with the National building regulations and codes of practice.
4. RadenShield™ is laid over the straining wires (2a) ensuring that it is squared off to the underlay and is secured to the apex purlin using double-sided tape (2b). The underlay is evenly tensioned and secured to the eaves purlin again using double sided tape.
5. All subsequent layers of RadenShield™ are to be fixed as above with a not less than 100mm overlap over the previous sheet. Straining wires must be positioned at the centre of the overlaps and not less than 50mm from the sheet edges.

Diagram of laying RadenShield™ on straining wires



1**RadenShield™
Single-sided****2****RadenShield™
Double-sided****3****RadenShield™
Ecosential****4****RadenShield™
Industrial****5****Undertile
Membrane****BRANCHES**

Bloemfontein	051 492 0210
Brits	010 492 8800
Cape Town	021 492 2230
Durban	031 565 3260
East London	043 492 0041
Germiston	010 492 8780
Nelspruit	013 492 1930
Polokwane	015 495 0070
Port Elizabeth	041 492 0130
Richards Bay	035 797 2160

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As of April 2017, Coverland forms part of the BMI Group. The BMI Group, a Standard Industries company, is the largest manufacturer of flat and pitched roofing and waterproofing solutions throughout Europe. With 128 production facilities and operations in Europe, parts of Asia and South Africa, the company brings more than 165 years of experience. For more information visit www.bmigroup.com

Our expertise and innovations are bringing advantages in sustainability, performance and architectural design to residential, commercial, and public sector projects. Our product offering integrates functionality, energy efficiency and aesthetics for the homeowner. As the largest concrete roof tile manufacturer in Southern Africa, our reach expands across 8 production facilities and 4 depots nationally.