

protect

ROOF UNDERLAYS





Protect Zytect

THE FUNCTION OF ROOF UNDERLAYS

Roof Underlays are required in virtually all modern tile and slate pitched roof construction and perform a number of key functions;

- As a secondary line of defence against wind-driven rain and snow.
- To reduce wind uplift on the roof covering.
- As a temporary protection layer before the roof covering is applied.

Secondary line of defence

Very few tile or slate roofs are completely effective at resisting wind driven rain and snow, even when laid within their pitch and headlap limits. The underlay is designed to provide additional protection to the internal roof and building, by arresting any moisture that gets through the roof covering and safely drain it away to the gutters or other rainwater systems.

Wind uplift

Wind that blows over a pitched roof generates positive and negative wind pressures which can, in extreme conditions, cause roof covering damage. The roof underlay helps to reduce the wind loading applied to the roof covering by absorbing a proportion of the wind load, especially when insulation is at horizontal joist level.

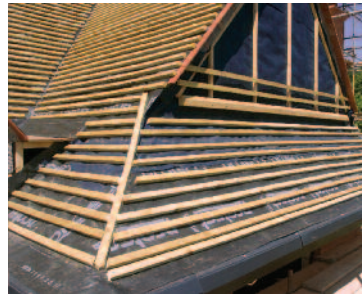
The upward deflection of the roof underlay under maximum negative pressure must be small enough to avoid contact with the underside of the roof covering. This helps reduce the wind pressure on the roof covering and so the risk of damage.

Underlays that cannot adequately resist the imposed wind loads for given locations in the country and required batten gauges cannot be used without significant risk to the roof covering.

For further information see page 6 and the Protect 'White Paper' "BS 5534: 2014 Roof Underlays and Wind Uplift".

Temporary roof covering

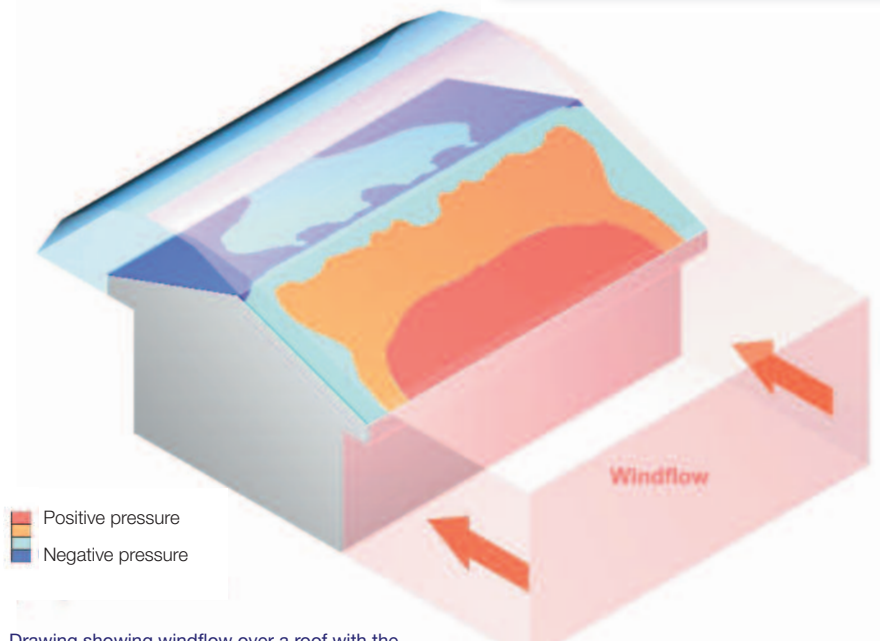
It is often necessary for the roof underlay to act as a temporary protection layer before the roof covering is installed. This is especially true of large roofs and where protection of insulation and building fabric is important, in the case of re-roofing projects. It is good practice to keep this period of time to a minimum especially in summer months when the intensity of UV radiation is at its peak. Virtually all roof underlays are polymeric based and all are vulnerable to UVA and UVB degradation if left exposed for long periods of time. Underlays should be suitably stabilised to resist both UV and heat ageing for their design life.



The Protect solution

The Protect range of roofing underlays provide the complete solution for all types of tile and slate roofs. Independent certification by BM TRADA provides verification of their performance alongside the CE marking that guarantees compliance with BS EN 13859-1. The range includes both vapour permeable (Type LR) and impermeable (Type HR) underlays which can be selected depending on use and application requirements.

All Protect underlays have a water resistance in excess of 2.0m hydrostatic head, superior to alternative air leaky underlays. All Protect underlays can be used as temporary protection and have some of the best wind uplift performance ratings enabling unrestricted use in the UK and Ireland without the need for additional sealing tapes to resist 'ballooning' under wind load.



Positive pressure
Negative pressure

Drawing showing windflow over a roof with the positive and negative pressures created

Type LR Benefits

- Highly vapour permeable yet entirely air and water tight.
- High performance under wind uplift without the need for additional sealing tapes.
- Independently certified by BM TRADA.
- Help to reduce the risk of harmful condensation formation in roofspaces.
- UV and heat durable.
- Unaffected by temperature changes.
- Can be used as a temporary protection prior to installation of roof covering.
- Do not generate nuisance noise under wind loading.
- Embossed upper surface for reduced glare and slip resistance.
- Printed with product branding for ease of identification.

VAPOUR-PERMEABLE (TYPE LR) UNDERLAYS



	Performance					
	VP400 PLUS ^{LR}		ZYTEC		VP300	
	MD	CD	MD	CD	MD	CD
Weight (gsm)	170		158		125	
Resistance to water penetration	Class W1		Class W1		Class W1	
Hydrostatic head resistance (m)	>7.0		>2.0		>2.0	
Unaged tensile strength (N/50mm)	325	305	273	230	225	160
Aged tensile strength (N/50mm)	290	295	220	198	190	130
Nail tear strength (N)	248	294	270	216	140	198
Water vapour resistance (MNs/g)	0.08		0.15		0.17	
Equivalent air layer thickness (Sd(m))	0.016		0.030		0.034	
Wind uplift resistance at 345mm*	Zone 1-5 (1676 Pa)		Zone 1-4 (1519 Pa)		Zone 1-3 (1198 Pa)	
Wind uplift resistance at 310mm*	Zone 1-5 (>1676 Pa)		Zone 1-5 (2188 Pa)		Zone 1-4 (1508 Pa)	
Wind uplift resistance at 250mm*	Zone 1-5 (>1676 Pa)		Zone 1-5 (>2188 Pa)		Zone 1-5 (2875 Pa)	

* for further information see page 6 and the Protect 'White Paper' "BS 5534: 2014 Roof Underlays and Wind Uplift".



CPS-005
CPS-007
CPS-006



Type HR Benefits

- Entirely water and air tight.
- High performance under wind uplift without the need for additional sealing tapes.
- Independently certified by BM TRADA.
- Light and clean to handle with proven installation time saving over traditional felts.
- UV and heat durable.
- Unaffected by temperature changes.
- Can be used as a temporary protection prior to installation of roof covering.
- Do not generate nuisance noise under wind loading.
- Embossed upper surface for reduced glare and slip resistance.
- Printed with product branding for ease of identification.

IMPERMEABLE (TYPE HR) UNDERLAYS

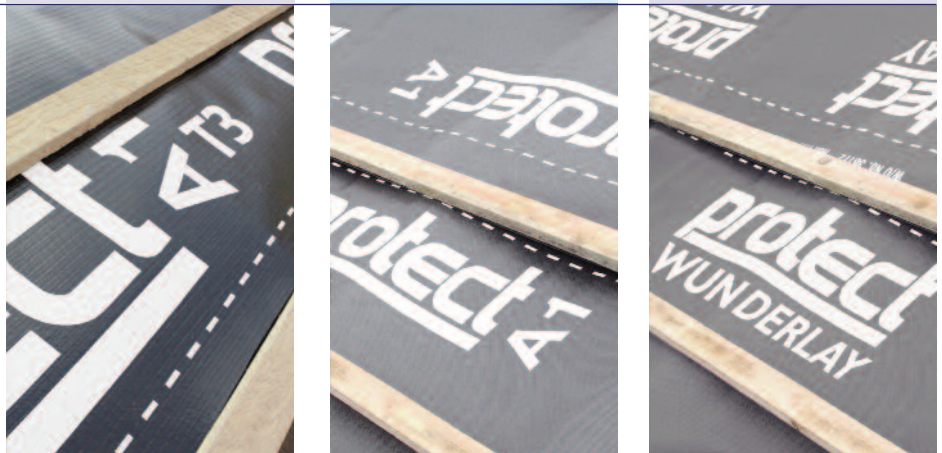


	Performance		Performance		Performance	
	A1 T3		A1		Wunderlay	
	MD	CD	MD	CD	MD	CD
Weight (gsm)	170		145		120	
Resistance to water penetration	Class W1		Class W1		Class W1	
Hydrostatic head resistance (m)	>2.0		>2.0		>2.0	
Unaged tensile strength (N/50mm)	562	377	287	274	233	246
Aged tensile strength (N/50mm)	488	352	285	238	231	206
Nail tear strength (N)	375	451	230	234	189	199
Water vapour resistance (MNs/g)	295		128		95	
Equivalent air layer thickness (Sd(m))	59		25.6		19	
Wind uplift resistance at 345mm*	Zone 1-5 (2306 Pa)		Zone 1-5 1732 Pa)		Zone 1-4 (1376 Pa)	
Wind uplift resistance at 310mm*	Zone 1-5 (>2306 Pa)		Zone 1-5 (>1732 Pa)		Zone 1-5 (2145 Pa)	
Wind uplift resistance at 250mm*	Zone 1-5 (>2306 Pa)		Zone 1-5 (>1732 Pa)		Zone 1-5 (>2145 Pa)	

* for further information see page 6 and the Protect 'White Paper' "BS 5534: 2014 Roof Underlays and Wind Uplift".



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CPS-009



WIND UPLIFT PERFORMANCE

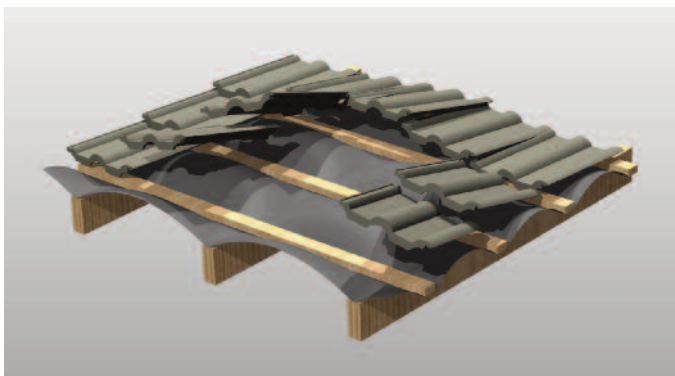
Wind uplift

Many pitched roof underlays available in the UK today have batten gauge restrictions depending on their location of use in the UK and Ireland.

A new wind uplift test method for roof underlays has been introduced in the 2014 revision of BS 5534, after many years of development and research to better reflect their actual performance in situ. It is important to ensure that such published test information by manufacturers is independently verified.

This information should be contained within such underlays independent certification such as BM TRADA, BRE or BBA approvals.

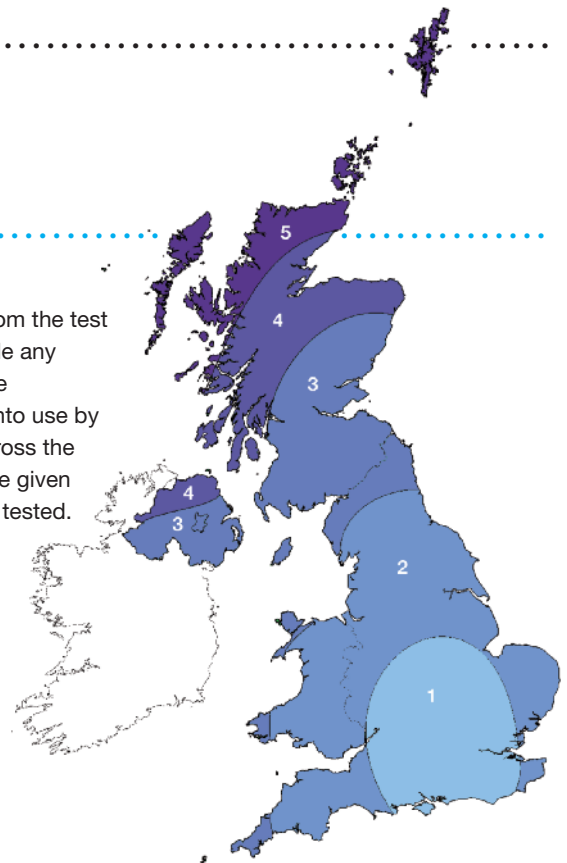
The test uses 600mm rafter centres and a range of batten gauges from 345mm for most interlocking roof tiles, 310mm for single pantile and standard pattern interlocking tiles and 250mm for the most common double lap and interlocking slates.



The test includes for an underlay lap which is the most vulnerable part of the underlay system. For over 37 years it has been required to be restrained under one of the tile or slate battens, or where it does not fall under the regular batten gauge, an additional batten. If this is not seen as desirable by the roofer then the underlay lap can be increased to the next nearest batten.

Unrestrained underlay laps have been shown to cause premature failure of roofs in combination with inadequately fixed roof tiles and slates.

The results from the test method enable any underlay to be categorised into use by zone (1-5) across the country for the given batten gauge tested.



Geographical wind zone	5	4	3	2	1
Design wind pressure for underlay (Pa)	1600	1330	1150	975	820

Protect VP400 Plus LR, Protect A1 T3 and Protect A1 all have unrestricted use from zones 1-5 at the maximum batten gauges of 345mm.

Protect Zytac and Protect Wunderlay have unrestricted use from zones 1-4 at the maximum batten gauge of 345mm and zones 1-5 at the maximum batten gauge of 310mm.

Protect VP300 has unrestricted use from zones 1-3 at the maximum batten gauge of 345mm, zones 1-4 at 310mm batten gauge and zones 1-5 at 250mm batten gauge.

No adhesive tapes are required for any Protect underlay to restrain the overlaps.

Warning Note: Fully sealing the overlaps of any underlay type will affect the balance of roofspace ventilation required, as unsealed laps do provide a water vapour route out of the roof and to remove that route will require consideration to be given to replacing that which has been lost. The ability to be able to use adhesive tapes in damp or wet conditions, along with long term adhesion and durability, are also considerations to be taken into account.

For roofers and installers using Protect underlays, it is business as usual!

CONDENSATION CONTROL IN PITCHED ROOFS

Protect vapour-permeable underlays are fully certified for use in both warm and cold roof constructions and can be used to meet the requirements of BS 5250 'Control of Condensation' which is now the main means of compliance to Building Regulations, Approved Document C2 2004 (formerly F2).

COLD ROOFS

with large voids above horizontal insulation

Cold roofs can be split into those using impermeable (type HR) underlays and those using vapour-permeable (type LR) underlays.

With impermeable underlays for pitches of more than 15° the provision of ventilation at eaves or low level of 10,000mm²/m is required.

With vapour-permeable underlays the requirements vary depending on the size of the roof and whether or not the ceiling is well-sealed.*

In dwelling sized roofs BS 5250 recommends the combined use of a vapour-permeable underlay and high level ventilation to combat the risk of harmful roofspace condensation in cold pitched roofs. This is also the preferred solution of the NHBC.

The simple combination of Protect vapour-permeable underlays and Protect Fulmetal Rediroll ventilated dry ridge system is the one sure solution to meet the new regulatory requirements in new dwellings, irrespective of the tightness of the roof covering or the depth of insulation especially over the wall plate at eaves. The shallower the roof pitch, the more difficult it becomes to maintain a clear air path over the insulation.

This same solution works equally well in existing buildings where airtightness of the ceiling is unlikely to meet the requirements of BS 5250.

WARM ROOFS

with small or no voids above sloping insulation

Following changes to BS 5250 it is now possible to provide a 'no ventilation' solution* which will limit the formation of harmful condensation in warm pitched roof construction.

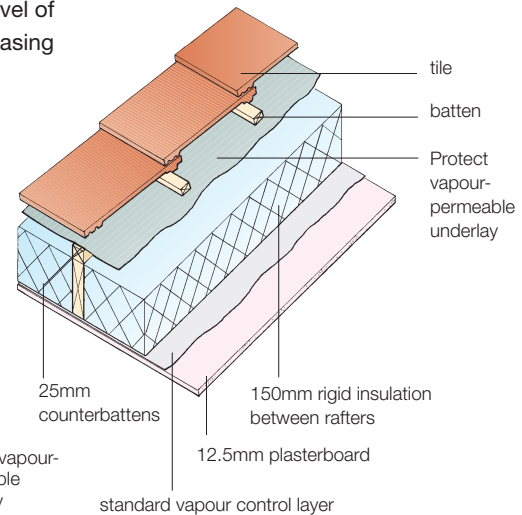
The simple combination of a Protect vapour-permeable underlay in conjunction with a well-sealed* ceiling and a separate vapour control layer on the warm side of the insulation is all that is required.

Using Protect VC Foil Ultra insulating vapour control layer in conjunction with a Protect vapour-permeable underlay can significantly improve the thermal performance of the roof. Protect VC Foil Ultra with its highly reflective surface facing an unventilated (still) air cavity creates a low emissivity airspace. This limits infra red heat loss through the roof and so enhances its U-value at a fraction of the cost of achieving the same level of improvement by increasing the insulation only.

* For tight fitting roof coverings ventilation above the underlay will be required in accordance with BS 5250.

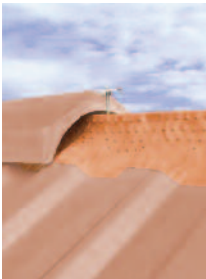
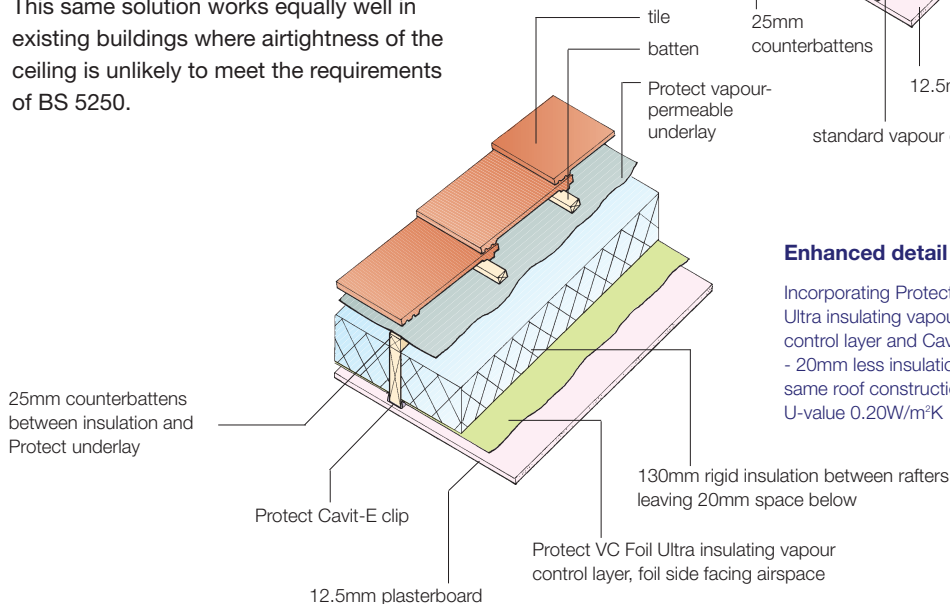
Standard detail

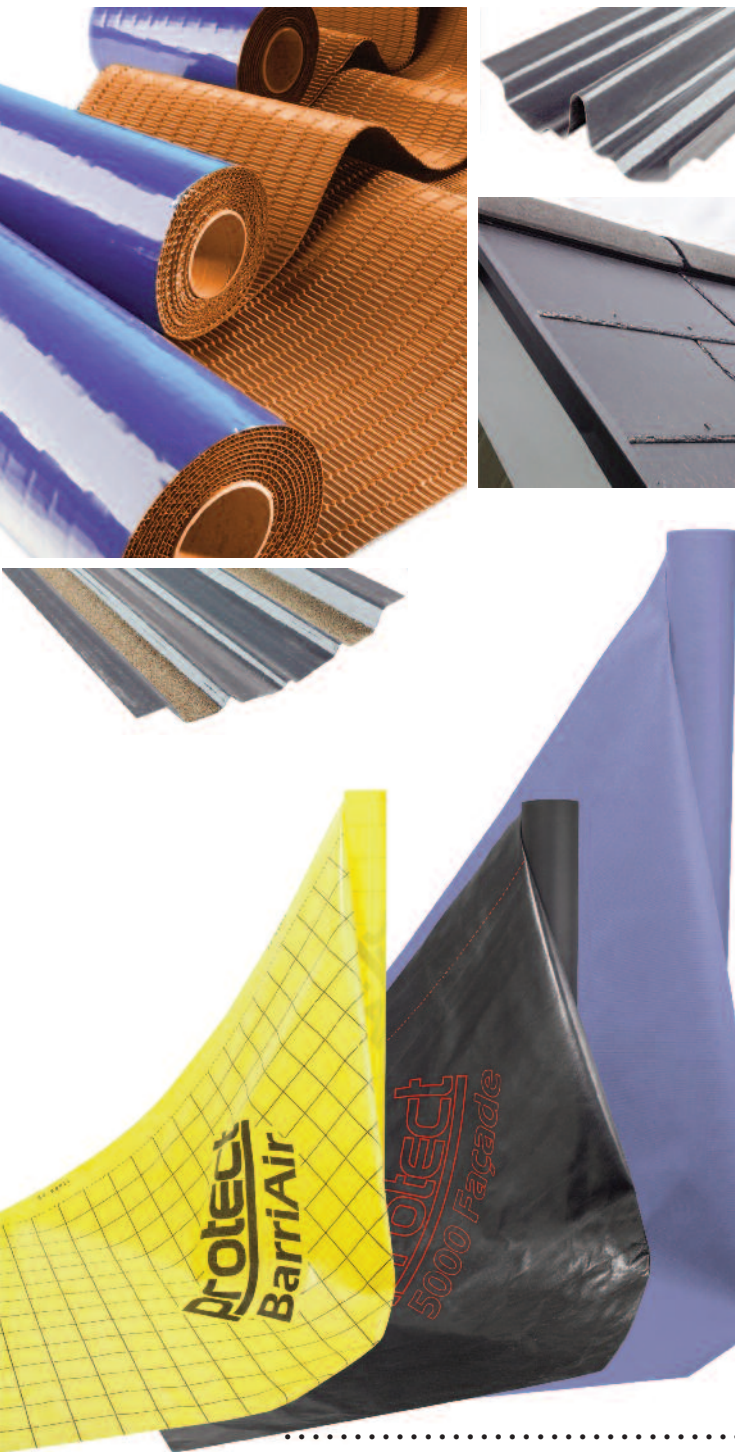
150mm insulation with standard vapour control layer. U-value 0.20W/m²K



Enhanced detail

Incorporating Protect VC Foil Ultra insulating vapour control layer and Cavit-E clip - 20mm less insulation within same roof construction. U-value 0.20W/m²K





Stockist's stamp

PROTECT ROOFING ACCESSORIES

The Protect range of roofing accessories for all tile and slate roofs is designed to complement the roofing underlays range and provide a range of solutions which offer better performance than traditional alternatives.

The range includes;

Fulmetal Rediroll Ventilated Dry Ridge/Hip system

AluFlash lead free alternative flashing

Universal Dry Verge Systems for slates and interlocking tiles

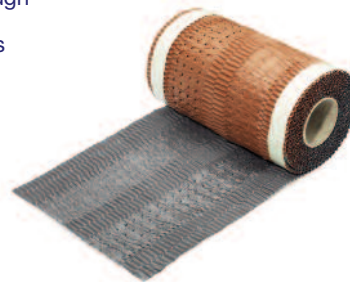
Universal Dry Valley Trough

Universal Bonding Strips

Universal Valley Troughs

OFV Eaves Skirt

Solar Inlet Terminal



PROTECT CONSTRUCTION MEMBRANES

The Protect range of building membranes are designed and developed to provide cost-effective innovative solutions for the construction standards of today and the future. The range includes the latest in reflective technology and air tightness.

Wall	AVCL	Floor	Other
TF200	VC Foil Ultra	FCM750	PWAB
TF200 Thermo	BarriAir	F1	Sealing Tapes & Accessories
5000 Façade			

For more information or to request a brochure, email: info@protectmembranes.com or visit www.protectmembranes.com

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