

VP400 VAPOUR-PERMEABLE ROOF UNDERLAY





FUNCTION

Roof underlays are required in virtually all modern tile and slate pitched roof constructions for various reasons:

- As a secondary line of defence against wind-driven rain and snow.
- To reduce wind uplift.
- As a temporary roof covering.

Secondary line of defence

Very few tile or slate roof coverings are completely effective at resisting wind-driven rain and snow, even when laid within their pitch and headlap limits. The underlay provides additional protection to the internal roof and building by arresting any moisture that gets through the roof covering and safely draining it away to the rainwater system.

Wind uplift

Wind blowing over a pitched roof generates positive and negative pressures which can in extreme conditions cause tile and slate damage. The roof underlay reduces the wind loading on the roof covering, especially when insulation is at horizontal joist level. The upward deflection of the underlay under maximum negative pressure must be small enough to avoid contact with the underside of the roof covering; this reduces the wind pressure on the roof, and thereby the risk of damage.

See back page for further details.



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

Temporary roof covering

It is often necessary for the roof underlay to act as a temporary roof covering before tiles or slates are installed. This is especially true of large roofs, and where protection of the insulation and building fabric is important.

Disadvantages of traditional underlays

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Traditional bitumen-impregnated underlays perform these functions, but have serious disadvantages. They are highly impermeable to water vapour; this causes a high condensation risk in the roof space and makes them particularly unsuited to roofs with insulation at rafter level, and fullysupported applications on timber boarding.

Further disadvantages are: lack of flexibility at low temperatures, softening at high temperatures, weight, and difficulty of handling.

The Protect Solution

Protect VP400 underlay provides an effective solution for all types of tile and slate roofs.

Independently certified for use in both warm roof and cold roof constructions on any roof shape and building type.

Benefits

- Highly vapour permeable, but entirely watertight.
- Helps to avoid condensation risk in the roof space in accordance with BS 5250: 2002.
- Now even tougher offering enhanced performance.
- UV- and heat-resistant, tough and durable.
- Does not generate nuisance noise under wind loading.
- Easy to cut and lightweight to handle.
- Embossed dark blue upper surface prevents glare.
- Can be used in cold roofs without restriction for wind uplift in all exposure conditions in the UK and Ireland.
- Can be used as a temporary roof covering for up to 3 months.
- Independently certified

Protect A1 non-permeable underlay with adsorbent underside is also available, see separate leaflet.







CONDENSATION CONTROL IN WARM & COLD PITCHED ROOFS

Protect VP400 is fully certified for use in both warm and cold roof constructions and can be used to meet the requirements of BS5250 '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 such as Protect VP400 the requirements vary depending on the size of the roof and whether or not the ceiling is well-sealed.**

In dwelling sized roofs BS5250 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, see NHBC Standards 2007, Chapter 7.2.

The simple combination of Protect VP400 and Glidevale 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 BS5250.

For larger than dwelling sized roofs additional ventilation is required at eaves see Glidevale White Paper "The new roof ventilation provisions explained" for further details.



WARM ROOFS with small or no voids above sloping insulation

Following changes to BS5250 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 Protect VP400 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 insulating vapour control layer in conjunction with Protect VP400 can significantly improve the thermal performance of the roof. Protect VC Foil 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 it's 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 BS5250.

** For more detailed information on well-sealed ceilings

a Glidevale White Paper is available on request.





DESCRIPTION

Roll size:	width	length	total area	weight
	1.0 or 1.5m	50m	50 or 75m ²	10.0 or 15.0kg

Appearance

Embossed royal blue upper and lower surface. Printed with product branding for ease of identification.

Compatibility

As with all vapour-permeable underlays, do not lay in direct contact with undried timber preservatives (whether water or solvent based).

Minimum laps

Roof pitch	Horizontal lap up slope	Vertical lap across slope
12.5° - 14°	225mm	100mm minimum
15° - 34°	150mm	100mm minimum
35° and over	100mm	100mm minimum

Rolls are printed with 150mm vertical lap line to achieve easily the correct overlap.

PERFORMANCE	MD	CD
Nail tear strength (N) (EN12310-1 with mods)	160	160
Tensile strength (N/50mm) (EN12311-1 with mods)	350	310
	MD	

UV & heat stabilityMDCDTensile strength (N/50mm) (EN12311-1 with mods)310273

MD = machine direction (along roll), CD = cross direction (across roll).Nail tear strength tested to EN12310-1 with mods. Tensile strength tested to EN12311-1 with mods. UV and heat ageing conditions: UVA lamps at 50°C for 336 hours followed by heat ageing at 70°C for 90 days.

Weight	180gsm ²	
Water vapour resistance (MNs/g) EN	ISO 12572 0.11	
Watertightness	Pass Class W1	
Wind uplift resistance	2.5kPa at 343mm batten gauge	
	and 600mm rafter centres	



Specification clause

Roofing underlay to be Protect VP400 supplied by Glidevale Ltd, 2 Brooklands Road, Sale, Cheshire M33 3SS, Tel: 0161 905 5700, Fax: 0161 905 2085, Email: info@glidevale.com Underlay to be of tripleply construction with waterproof and vapourpermeable core laminated and protected between two layers of non-woven spun-bonded polypropylene. Water vapour transmission resistance: 0.11MNs/g. Resistance to wind uplift: unrestricted use Underlay to be laid in accordance with BS 5534: Part 1: 1997 and manufacturer's instructions.



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WIND UPLIFT PERFORMANCE

Wind uplift

Many pitched roof underlays have batten gauge restrictions when fixed in exposed locations and this information is contained within independent certification such as BRE or BBA approvals. Certified products generally have their resistance to wind uplift performance quoted in terms of an acceptable uplift for a specified batten gauge. For typical concrete interlocking tiles the batten gauge would range between 320-345mm, while for double lap plain tiles it would typically be 90-100mm. An independent report on wind load calculations shows that a resistance of at least 2.5kPa is required at maximum batten gauge to ensure that an underlay can be safely used at more than 95% of all locations in the UK.

Protect VP400 has a wind uplift performance of 2.5kPa at 343mm batten spacing enabling unrestricted use in all exposure conditions in the UK and Ireland.

BS 5534: 2003 'Code of practice for slating and tiling' clearly states in clause 4.10.1: *Roofing underlay should provide a* barrier to *minimise the wind uplift load acting on the slates or tiles.*

In clause 5.5.2.7 it also states:

With stretching of the underlay and reverse drape under wind load, the underlay should not be able to touch the underside of the tiles and slates. Measures should be taken to ensure that the design load carried by the underlay is not transferred to the slates and tiles and their fixings.

Underlay rating 2.5kPa



Ridge height = 0.4m mid altitude in 1km Roof picht 20° Underlay rating = 2.5kPa % sites CK = 100% % sites CK = 100% 0 400000 0 0 200000 0 200000

Ridge height 9.4m Mid altitude Roof pitch 30°

restricted use

unrestricted use

Maps selected from Anemos Associates report 'Wind Uplift on Roofing Underlays'. Full copy of report available on request.

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Glidevale Limited maintains a policy of continuous development and reserves the right to amend product specifications without notice.

BPD A member of the Building Product Design Group



