



LR BREATHABLE ROOF TILE UNDERLAYS

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Building Products



INTRODUCTION

Hambleside Danelaw is an established UK manufacturer of roofing accessories and ventilation products. It has over forty years of experience and expertise supplying engineered solutions to the construction industry. It has recently added Low Resistance (LR) or 'breathable' roof tile underlays to its already extensive product range.

The product range provides an effective solution to protect the building and its occupants from the harmful effects of interstitial condensation and external climatic conditions including wind, snow and wind driven rain.

Danelaw® LR roof tile and slate underlays are three-layer composite flexible membranes. The top and bottom layers are non-woven spun bond polypropylene encapsulating a microporous film core. The three layers are laminated together using the latest thermal bonding and ultrasonic technologies to prevent delamination.

The products have been developed for use in cold and warm pitched roof applications, and are suitable for use draped and unsupported, or fully supported on sarking or insulation boards. The products should be installed in accordance with the recommended installation guidelines and will provide the following key functions:

- Temporary protection prior to tile or slate fixing during construction;
- Reduced wind loading on the outer roof covering;
- Reduced condensation risk in the roof spaces;
- Improved weathertightness of a completed roof construction;
- Improved durability of the roof construction;
- Improved airtightness for improved energy efficiency.

THE CONTROL OF CONDENSATION IN PITCHED ROOFS

The company recognise that good design and specification of reputable building products is essential to enable architects to comply with the relevant Building Regulations and British Standards. The approved Building Regulations Approved Document C requires that all roofs are designed and constructed to ensure their structure and thermal performance are not adversely effected by interstitial condensation.

This requirement can be met if the pitched roof is designed and constructed in accordance with Annex H of BS 5250:2011 *Code of practice for the control of condensation in buildings*. In addition, BS 5534 *Slating & Tiling for pitched roofs and vertical cladding - Code of practice* recommends the provision of ventilation in accordance with the requirements of BS 5250.

The level of ventilation required and location of the ventilation openings will depend on the type of roof covering, building type and use, the design, size, roof pitch, roof tile underlay type and the amount of water vapour entering the roof void from habitable rooms below.

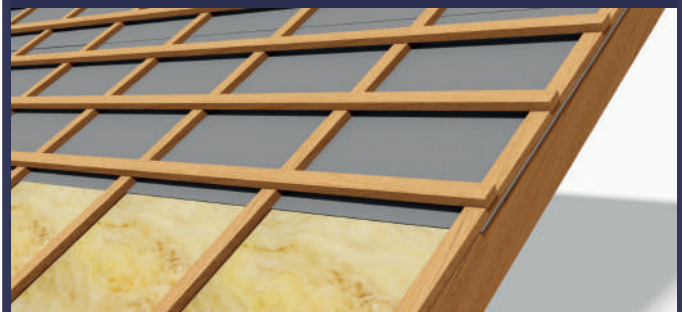
Cold Roof Construction above 15° Pitch > Typical Residential Dwelling



Draped over rafters - cold roof

The simple combination of Danelaw LR breathable roof tile underlay and Danelaw dry fix ventilated ridge system provides an effective and simple solution to comply with the Standards, Building Regulations and NHBC Technical Standards, Chapter 7.2 Pitched roofs.

Warm Roof Construction > Typical Detail



Draped over rafters - fully supported warm roof

The simple combination of a Danelaw LR breathable roof tile underlay in conjunction with Danelaw eaves ventilation products and dry fix ventilated ridge system again provides an effective solution to comply with all regulatory requirements.

AIRTIGHT ROOF COVERINGS

The use of a Low Resistance underlay reduces the risk of condensation in the loft or roof space, but does increase the risk of condensation in the batten space leading to premature decay of the battens unless there is sufficient air movement through the roof covering. Where the outer roof covering is not classified as sufficiently 'air permeable' in accordance with BS 5534 Annex L, then BS 5250 recommends that additional ventilation may be required between the underlay and outer roof covering.

FULLY SUPPORTED UNDERLAYS

Where Low Resistance roof tile underlays are used in applications where the underlay is fully supported by materials that offer a higher resistance to the passage of vapour, such as plywood or OSB, then the underlay should be treated, for design purposes, as a High Resistance (HR) underlay.

UNVENTILATED ROOF CONSTRUCTION

The construction and requirements for pitched roofs to be constructed without the use of any ventilation is not covered by BS 5250 or any other Standard. The requirements to both construct this type of roof in respect of the level of vapour sealing required, and for the level of sealing to be maintained for the life of the roof is extremely onerous and difficult to achieve in practice and is generally not recommended where the guidance in BS 5250 can be adopted.

WIND LOADING

Danelaw® LR roof tile and slate underlays have been independently tested by the Building Research Establishment and British Board of Agrément. The physical properties of the products are adequate to resist the wind loads imposed on the underlay and will therefore adequately reduce the wind uplift forces acting on the outer roof covering.

The products are satisfactory for use in unsupported pitched roof systems for the BRE defined geographical wind zones given in the table below. The Danelaw® LR120TT and LR150TT are supplied with an integral tape to tape system and is as an alternative option to a batten for restraining the horizontal overlap.

PRODUCTS	250MM BATTEN GAUGE WITH LAP RESTRAINING BATTEN	345MM BATTEN GAUGE WITH LAP RESTRAINING BATTEN	345MM BATTEN GAUGE WITH TAPED HORIZONTAL OVERLAP
Danelaw® LR 120	Zones 1 to 5	Zones 1 to 3	-
Danelaw® LR 120TT	-	-	Zones 1 to 5
Danelaw® LR 150	Zones 1 to 5	Zones 1 to 3	-
Danelaw® LR 150TT	-	-	Zones 1 to 5

NOTE 1: Zone suitability applies only for underlays in applications where a well-sealed ceiling is present, ridge height is not greater than 15m, roof pitch is between 12.5° and 75°, site altitude is not greater than 100m, and no significant site topography is present. Other applications might require underlays with greater wind uplift resistance and it is advisable to seek professional advice from our Technical Department.

NOTE 2: Zones 3 and 4 apply to Northern Ireland. Zone 3 applies to the Scilly Isles and Channel Islands. Zone 5 applies to the Shetland Islands.

Please see UK geographical wind map and zonal boundaries on separate product specification sheets.

HAMBLESIDE DANELAW PRODUCTS AND ROOFING ACCESSORIES



Rigid Support Tray
Product Code: HDRFST



Roofing Underlay Support Tray
Product Code: HD 3000



FOR ADDITIONAL HIGH VENTILATION
Dry Fix Rollout Ridge and Hip
Product Code: HD ROR & HD CON



FOR ADDITIONAL LOW VENTILATION
Eaves and Soffits Vents
HD 12000U and HD 8000

TECHNICAL SUPPORT

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Hambleside Danelaw Limited

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