

# NSAI

Agrément

**CERTIFICATE NO. 02/0138**

Moll Bauökologische Produkte GmbH,  
Pro Klima, Schwetzingen, Germany.

Tel: 00353 (0)46 9432104

Fax: 00353 (0)46 9432435

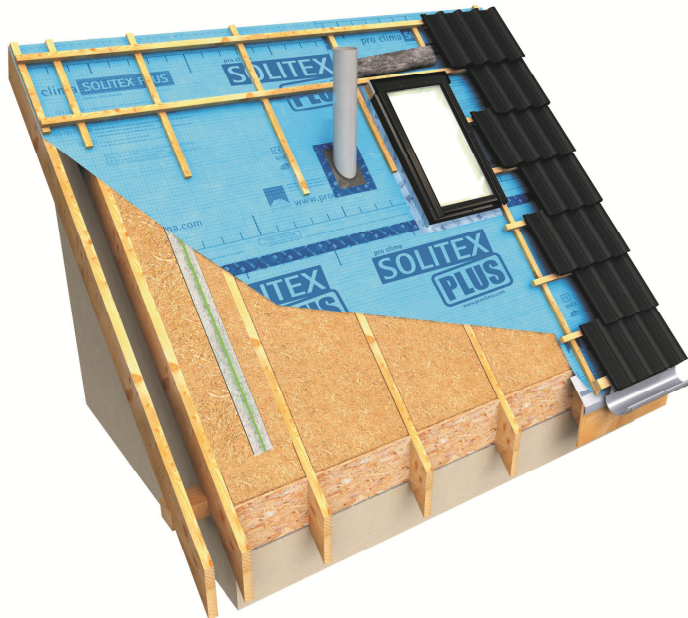
Email: [info@maccannandbyrne.ie](mailto:info@maccannandbyrne.ie)

Website: [www.ecologicalbuildingsystems.com](http://www.ecologicalbuildingsystems.com)

## Solitex Plus & Solitex Plus Connect Vapour Permeable Roofing Underlays for Pitched Roofs Revêtement D'étanchéité Dachabdichtungen

**NSAI Agrément (Irish Agrément Board)** is designated by Government to carry out European Technical Assessments.

NSAI Agrément Certificates establish proof that the certified products are '**proper materials**' suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 to 2014**.



### PRODUCT DESCRIPTION:

This Certificate relates to Solitex Plus and Solitex Plus Connect (with pre-applied adhesive tape) roof tile underlays made from a spunbonded polypropylene fabric designed for use as unsupported and supported roofing underlays for warm and cold tiled or slated pitched roofs.

This Certificate certifies compliance with the requirements of the Building Regulations 1997 to 2014.

### USE:

This Certificate relates to the use of Solitex Plus and Solitex Plus Connect on either fully supported or unsupported ventilated pitched roofs. Solitex Plus and Solitex Plus Connect roof tile underlay prevents the ingress of windblown rain, dust and snow. Solitex Plus and Solitex Plus Connect provides a barrier to minimise the effects of wind load generated under wind gusts acting on slates and tiles when installed in accordance with this

Certificate. Solitex Plus and Solitex Plus Connect facilitates the control of surface and interstitial condensation in insulated roofs. Solitex Plus and Solitex Plus Connect roof tile underlay provides resistance to tearing during installation and will give high flexibility at low ambient temperatures.

### MANUFACTURE & MARKETING:

These products are manufactured on behalf of:

Moll Bauökologische Produkte GmbH,  
Pro Klima, Schwetzingen, Germany

These products are marketed by:

MacCann & Byrne Ltd.,  
Importers and Distributors,  
Athboy, Co. Meath.

Tel: 00353 (0)46 9432104

Fax: 00353 (0)46 9432435

Email: [info@maccannandbyrne.ie](mailto:info@maccannandbyrne.ie)

Website: [www.ecologicalbuildingsystems.com](http://www.ecologicalbuildingsystems.com)

**Readers are advised to check that this Certificate has not been withdrawn or superseded by a later issue by contacting NSAI Agrément, NSAI, Santry, Dublin 9 or online at [www.nsa.ie](http://www.nsa.ie)**

## 1.1 ASSESSMENT

In the opinion of the NSAI (National Standards Authority of Ireland) Agrément Board, Solitex Plus and Solitex Plus Connect roof tile underlays, if used in accordance with this Certificate can meet the requirements of the Building Regulations 1997 to 2014, as indicated in Section 1.2 of this Irish Agrément Certificate.

## 1.2 BUILDING REGULATIONS 1997 to 2014

### REQUIREMENT:

#### **Part D – Materials and Workmanship**

**D3** – Solitex Plus and Solitex Plus Connect roof tile underlays, as certified in this Certificate, are comprised of 'proper materials' fit for their intended use (see Part 4 of this Certificate).

**D1** – Solitex Plus and Solitex Plus Connect roof tile underlays, as certified in this Certificate, meet the requirements of the building regulations for workmanship.

#### **Part A - Structure**

##### **A1 – Loading**

Tests indicate that roofs incorporating Solitex Plus and Solitex Plus Connect roof tile underlays meet the requirements provided the installations comply with the conditions set out in Section 2.4 and Part 3 of this Certificate.

#### **Part B – Fire Safety**

##### **B4 – External Fire Spread**

Solitex Plus and Solitex Plus Connect roof tile underlays will not prejudice the external fire resistance of the roof, as indicated in Section 4.1 of this Certificate.

#### **Part C – Site Preparation and Resistance to Moisture**

##### **C4 – Resistance to Weather and Ground Moisture**

Solitex Plus and Solitex Plus Connect roof tile underlays meet the requirements when installed as indicated in Section 2.4 of this Certificate.

#### **Part F – Ventilation**

##### **F2 – Condensation in Roofs**

Solitex Plus and Solitex Plus Connect roof tile underlays will provide water vapour resistance significantly less than that quoted as a maximum for conventional roof tile underlays in BS 5534:2014 *Slating and tiling for pitched roofs and vertical cladding – Code of practice* hence, movement of moisture vapour can take place through the underlays.

Where Solitex Plus and Solitex Plus Connect roof tile underlays are installed with ventilation, the design guidelines contained in TGD to Part F of the Building Regulations 1997 to 2014 and BS 5250:2016 *Code of practice for control of condensation in buildings* must be met when installing this product.

Solitex Plus and Solitex Plus Connect can be treated as vapour permeable underlays when considering the ventilation requirements of the roof.

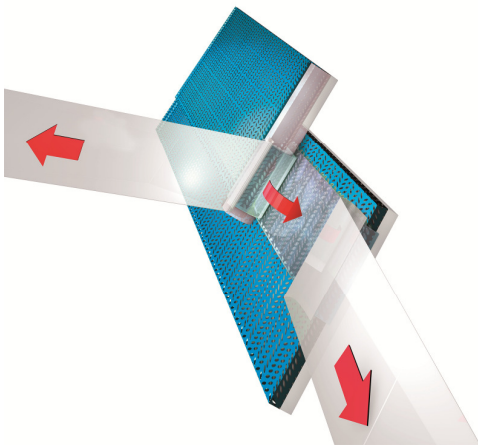
#### **Part L – Conservation of Fuel and Energy**

##### **L1 – Conservation of Fuel and Energy**

Due to the high vapour permeability of the Solitex Plus and Solitex Plus Connect, the zone between rafters can be full filled with insulation to the underside of the roof membrane subject to the provision of adequate ventilation above the Solitex membrane. As a result, roofs incorporating Solitex Plus and Solitex Plus Connect and insulation can meet the requirements of TGD Part L of the Building Regulations 1997 to 2014.

## 2.1 PRODUCT DESCRIPTION

Solitex Plus and Solitex Plus Connect (with pre-applied adhesive tape) roof tile underlays are made from spunbonded polypropylene. Solitex Plus and Solitex Plus Connect are for use under tiles or slates on supported or fully supported ventilated pitched roofs constructed in accordance with ICP 2:2002 *Irish code of practice for slating and tiling*. Solitex Plus and Solitex Plus Connect roof tile underlays prevent the ingress of windblown rain, dust and snow when installed in accordance with this Certificate.



**Figure 1 - Solitex Plus Connect with adhesive tape**

The Solitex Plus Connect incorporates two rows of pre-applied adhesive tape, one on the top side of the membrane and one underneath. Rolls of Solitex Plus Connect are supplied with a protective film over the adhesive tape with is removed on site during the installation process. The adhesive strip, which is 40mm wide, is set back 30mm from the edge of the role. Each role contains an overlap guidance line to which each subsequent overlapped membrane must line up to in order for the adhesive strips to align.

The dimensions and weights of the underlays are shown in Table 1.

Product	Weight (±5 g/m <sup>2</sup> )	Colour	Length (m)	Width (m)
Solitex Plus/ Plus Connect	170*	Blue/ Grey	50*	1.5*
Other roll widths are available on request *Refer to Clause 3.5 of this certificate				

**Table 1 - Dimensions and Weights**

## 2.2 MANUFACTURE

Solitex Plus and Solitex Plus Connect: Roof tile underlay with PP-net reinforcement. This underlay may be used draped from rafter to rafter (unsupported) or fully supported with timber sheathing or rigid insulation board, under roofing tiles/slates or metal panels. The manufacturing process involves the bonding together of two polypropylene spunbonded felts with a reinforcement net and a central layer of monolithic nonporous TEEE membrane through an extrusion-coating process, using a combination of heat and pressure in a continuous process. The Solitex Plus Connect incorporates two rows of pre-applied adhesive tape.

### 2.2.1 Quality Control

Quality control checks are conducted on the raw materials before and during manufacture and on the finished product. Quality control checks include visual inspection and checks on dimensions (length, width, thickness), tensile strength, tear resistance, roll weight, water vapour permeability and water penetration resistance test.

The product quality manufacturing systems of the company have been assessed and are satisfactory. The company is also registered to ISO 9001:2000.

## 2.3 DELIVERY, STORAGE AND MARKING

Solitex Plus and Solitex Plus Connect roof tile underlays are supplied in 50m rolls. The rolls are then placed on a pallet and shrink wrapped. Each roll is labelled with a paper wrapper, which shows the manufacturer's name, product description and production batch number identifying date and time of batch. The name of the product is also printed on the exposed surface of the material. Every roll shows the NSAI Agrément identification mark and Certificate number and contains instructions on storage and installation.

Rolls may be stored on end or laid flat and must be kept under cover to protect from UV light. Care must be taken to avoid contact with solvents and with materials containing volatile organic components such as coal tar, and timbers newly treated with creosote.

The rolls must not be exposed to a naked flame or other ignition source.

## 2.4 INSTALLATION

### 2.4.1 General

Solitex Plus and Solitex Plus Connect roof tile underlays must be installed and fixed in accordance with this Certificate, the Certificate holder's instructions, and the relevant recommendations of ICP 2:2002 and BS 5534:2014.

### 2.4.2 General Installation Criteria

Installation of Solitex Plus and Solitex Plus Connect roof tile underlays can be carried out in all conditions normal to pitched roofing work. In roof construction it is important to remember that Solitex Plus and Solitex Plus Connect roof tile underlays are the second line of defence in excluding water penetrating the roof. For this reason the requirements of BS 5534:2014, ICP 2:2002 and the following list of criteria must be met to comply with the requirements of this Certificate:

**2.4.2.1** At the eaves, an eaves carrier felt i.e. 500mm wide strip of type 5U felt, to meet specifications of I.S. EN 13707:2013 Flexible sheets for waterproofing – Reinforced bitumen sheets for roof waterproofing – Definitions and characteristics must be used. This eaves carrier felt should be dressed 50mm into the gutter and the Solitex Plus and Solitex Plus Connect Breathable Membrane must overlap the eaves carrier felt as outlined in Table 2. In an open eaves construction, the use of eaves guards is recommended. The provision of a tilting fillet/continuous ply support or proprietary eaves ventilation tray is also required to avoid water being trapped behind the fascia board (see Figure 5).

Roof Pitch	Horizontal lap		Vertical lap
	Partially Supported	Fully Supported	
	<b>Solitex Plus</b>		
Pitch < 22.5°	225 mm	100 mm	100 mm
22.5° < Pitch < 35°	150 mm	100 mm	100 mm
Pitch > 35°	100 mm	75 mm	100 mm
	<b>Solitex Plus Connect</b>		
All Pitches	100 mm		

**Table 2 - Minimum Overlaps**

**2.4.2.2** Installation commences by unrolling the membrane horizontally across the rafters, starting at the eaves and working towards the ridges of the roof. The coloured side should be uppermost.

**2.4.2.3** When used unsupported, a nominal 10mm drape must be provided between supports to allow a drainage path for moisture and prevent

excessive deflection under wind loads (see Figure 2).

**2.4.2.4** When tacking the membrane to the rafters it is recommended that a 3mm diameter x 20mm long extra-large head felt nails of copper, aluminium alloy or galvanised steel be used. The membrane should be tacked at the head of the sheet only, at centres not exceeding 1200mm. It is important that all tacking nails be covered by the overlap of the next membrane course so that the minimal headlap is maintained between the tacks and the lower edge of the overlapping membrane.

**2.4.2.5** Overlaps of the membrane should be in accordance with BS 5534:2014 Annex A, Figure A.2, with horizontal laps secured by battens (see Table 2).

**2.4.2.6** In an unsupported roof with tiling battens only i.e. no counter battens, when horizontal overlaps do not coincide with a batten, consideration should be given to either including an extra batten at the overlap or increasing the membrane overlap to coincide with the next batten. Alternatively the membrane can be sealed using double-sided TESCO VANA adhesive tape, or similar approved, at the overlap.

**2.4.2.7** Batten gauges should not exceed that recommended by the tile/slate manufacturer for the particular tile/slate being used. In areas where the wind speed is greater than 48 m/s ICP 2:2002 should be followed.

**2.4.2.8** Moisture content of battens at time of fixing should not exceed 22%. Where timbers on roofs have been treated with wood preservative due to high moisture content of timbers, it is essential that manufacturer's guidance be sought in relation to chemical attack from preservative on roofing membrane.

**2.4.2.9** Nails for use with battens, counter battens and boarding (sarking boarding) should be zinc-coated in accordance with IS EN 10230-1:2000 Steel wire nails – Loose nails for general applications. Refer to BS 5534:2014 Cl 4.12.1.2 for details, and also ICP 2:2002 Cl 4.11.

**2.4.2.10** Solitex Plus and Solitex Plus Connect Breathable Membranes are not designed to withstand the weight of operatives or tiles being loaded out. Battens must therefore be installed as work progresses from eaves to ridge for achieving support for feet and avoiding damage to the underlay surface. No materials or implements should be resting on the underlay. Where pressure on the membrane over a rafter is unavoidable, it should be noted that the membrane does not offer substantial grip, particularly at overlaps or when wet.

Characteristic	Test Standard	Results		Units
		Solitex Plus/ Solitex Plus Connect		
Thickness*	EN 1849-2:2001	0.55 ± 0.05		mm
Surface Weight*	EN 1849-2:2001	170 ± 5		g/m <sup>2</sup>
Standard roll weight	BS 2782-6	13		kg
S <sub>d</sub> -value*	EN ISO 12572:2001	0.04 ± 0.01		m
g-value*	EN ISO 12572	0.20 ± 0.05		MNs/g
Water vapour resistance	Set C At 23°C/ RH 50/93%			
Fire Class*	EN 13501-1:2010	E		
Water resistance un-/aged <sup>2,*</sup>	EN 1928:2000	Class W1/W1		
		<b>MD</b>	<b>CD</b>	
Tensile strength MD/CD <sup>1,*</sup>	EN 12311-1:1999, Appendix A	495 ± 40	350 ± 40	N/50mm
Tensile strength MD/CD Aged <sup>1,*</sup>	EN 12311-1:1999, Appendix A	495 ± 40	350 ± 40	N/50mm
Elongation MD/CD*	EN 12311-1:1999	15 ± 5	15 ± 5	%
Elongation MD/CD Aged <sup>1,*</sup>	EN 12311-1:1999	15 ± 5	15 ± 5	%
Nail tear resistance MD/CD*	EN 12310-1:1999, Appendix B	300±30	270 ± 30	N
Artificial ageing by long term*	EN 1297:2004/EN 1296:2001	passed		
Flexibility at low temperature*	EN 1109:1999	-40		°C

\*Refer to Clause 3.5 of this certificate  
<sup>1</sup> MD/CD – longitudinal direction/transverse direction  
<sup>2</sup> Artificial ageing by long term

**Table 3 - Physical Properties of Solitex Plus and Solitex Plus Connect**

**2.4.2.11** Where Solitex Plus and Solitex Plus Connect roof tile underlays become damaged for whatever reason, it is imperative that they are suitably repaired with a new piece of matching material or a suitable pro clima adhesive tape if the damage is minimal. Alternatively repairs can be carried out by overlaying the damaged area with a layer of additional material ensuring a 150mm overlap all round, ensuring that the up-slope side is overlapped by the next highest horizontal run of membrane, and secured under a batten.

**2.4.2.12** Standard methods of workmanship should be used to apply the membrane at penetrations and abutments. It must be ensured that the membrane is turned up at least 50mm at all abutments to be overlapped by the flashings, and that it overlaps the lining tray by at least 100mm at the back face of any abutment.

**2.4.2.13** Penetrations by soil and vent pipes etc. must be dealt with as follows. The underlay must be star-cut carefully to prevent tears, closely fitted over the pipe, ensuring that all tabs project upwards along the pipe, and then the tabs taped around the circumference of the pipe using a suitable jointing tape or gasket approved by the Certificate holder. A proprietary collar must be fitted over the pipe to protect the tape.

**2.4.2.14** Courses of membrane over a hip should be overlapped by at least 150mm. Each course should overlap the membrane course on the adjacent elevation of the roof.

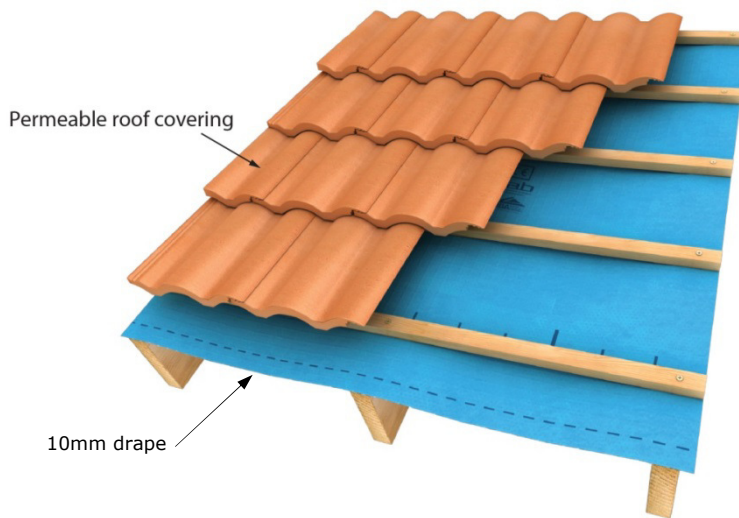
**2.4.2.15** Hips and valleys should be covered with an additional 600mm wide strip of the membrane running continuously from eaves to hip. In valleys, the 600mm wide strip of membrane must be laid over the gutter bed but under the main roof underlay, and held down by valley battens when used. The main roof underlay must be dressed over the valley battens in this case.

**2.4.2.16** For duo pitch roofs not requiring ridge ventilation, underlay from each side of the ridge should overlap the other side by at least 225mm. For mono pitch roofs, the underlay should extend over the mono ridge and the top fascia board by at least 100mm. Where proprietary ventilating ridge systems are specified, detailing of the underlay should be in accordance with the Certificate holder's recommendations.

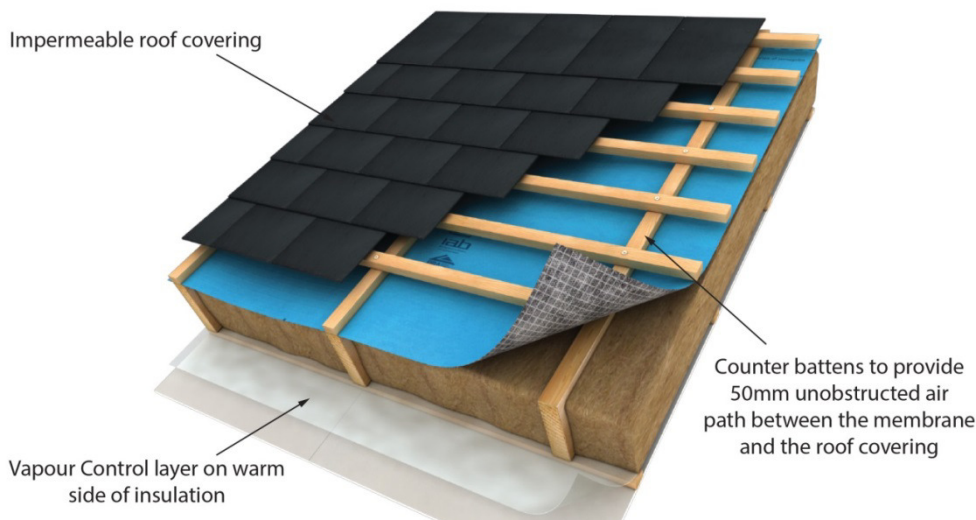
**2.4.2.17** When used in warm roof design, when the membrane is in direct contact with the insulation between the rafters, a sealed vapour control layer (pro clima Intello Plus) should be installed on the warm side of the insulation. The roof should be counter-battened to allow a 50mm unobstructed air path between the membrane and the tiles.

**2.4.2.18** Reference should be made to BS 5250:2016 Annex H for counter batten and ventilation requirements on tiled and slated roofs.

**2.4.2.19** Battens and counter battens should be used when the membrane is to be fully supported (e.g. warm roofs or roofs using a sarking board).



**Figure 2 - Cold Roof detail with permeable roof covering**



**Figure 3 - Warm Roof detail with impermeable roof coverings**

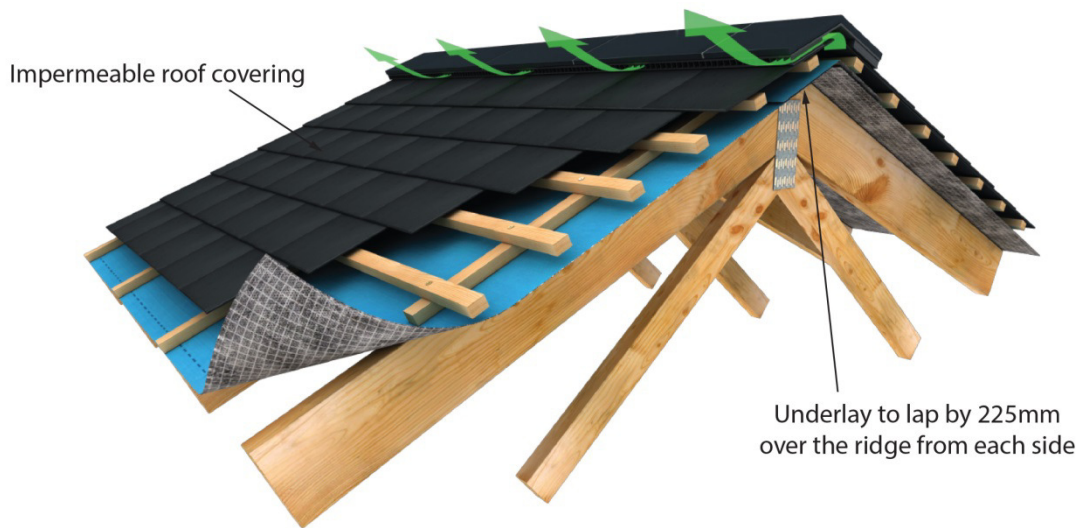
This will allow any moisture accessing the main system to drain away unhindered by the battens. In these instances where no drape is provided, for additional security against water leakage through nail holes where underlays are not self-sealing, batten tapes or other sealants approved by the Certificate holder should be used (e.g. pro clima Tescon Naideck nail sealing tape). This risk is particularly important in low pitched roofs.

**2.4.2.20** When close fitting man-made slates are to be installed as the roof covering, which constitute an impermeable external covering, counter battens shall be used. In addition, ventilation should be provided above the membrane in the form of ridge tile and eaves ventilation (see Figure 4 and Figure 5). Reference should be made to BS 5250:2016 Section H.5.3. In case of doubt, the advice of the Certificate holder should be sought.

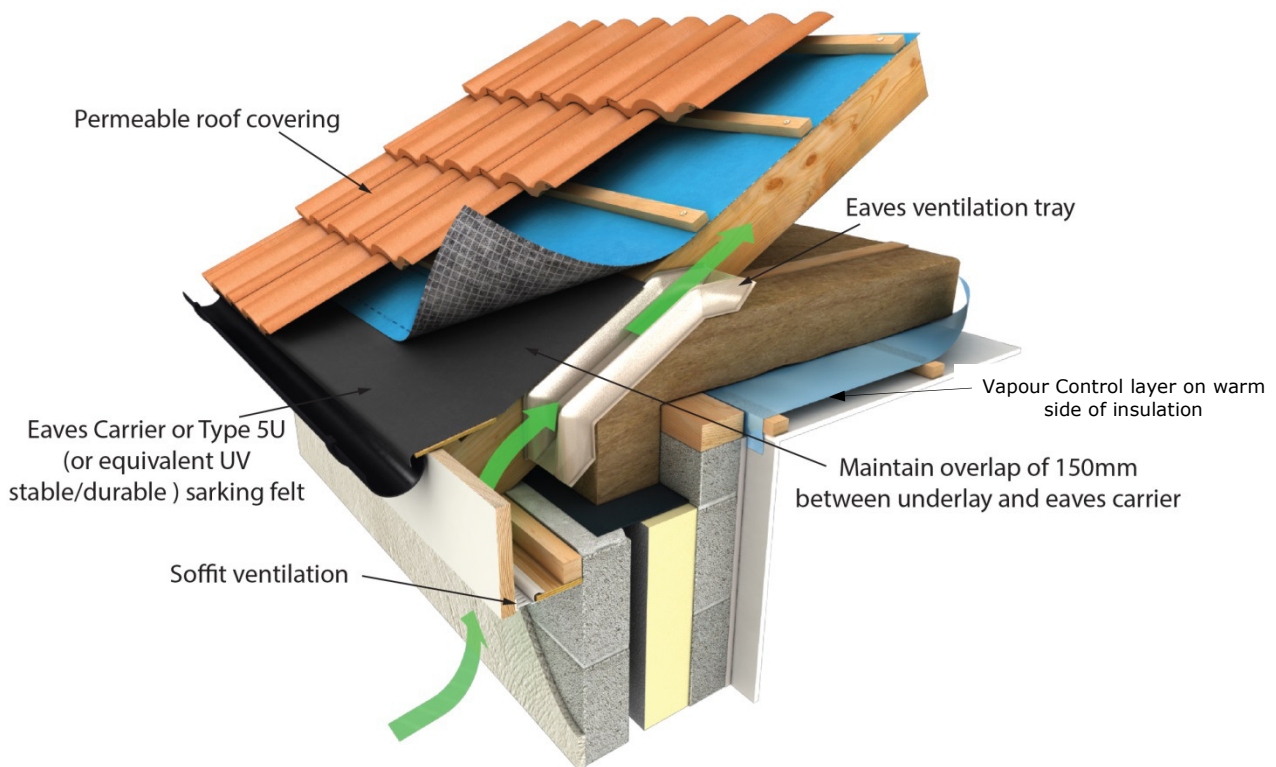
**2.4.2.21** Once the Solitex Plus and Solitex Plus Connect Breathable Membrane is installed, it should be covered by the finished roof covering as soon as practicable to minimise the effects of long term exposure to UV light. The manufacture recommends a maximum exposure time of 3 month.

**2.4.2.22** Solitex Plus and Solitex Plus Connect Breathable Membranes are not suitable for use in flat roof construction.

When used in a cold roof design and where the insulation is laid on top of the ceiling, it is essential that a sealed vapour control layer (such as pro clima Intello Plus) be used on the warm side of the insulation, and all perforations for pipes, electric cables etc. should be sealed. Continuity of the vapour control layer should be maintained at the perimeter of the ceiling to minimise moisture from the dwelling circumventing the vapour control layer.



**Figure 4 - Cold Roof detail with impermeable roof covering - Ridge Detail**



**Figure 5 - Cold Roof detail with permeable roof covering - Eaves Details**

Ideally the vapour control layer should connect with the vapour control layer or airtight layer in the external walls (see Figure 5).

In addition to a continuous sealed vapour control layer, the following measures should be considered in order to limit the migration of moisture into the attic space:-

- Ventilating the dwelling below for the dispersal and rapid dilution of water vapour, particularly in rooms that may experience high humidity (such as kitchens, utility rooms and bathrooms).
- Covering and insulating all water tanks in the loft space and lagging pipe work.
- Sealing penetrations in the ceiling and making loft hatches convection-tight by using a compressible draught seal.
- Ensuring that there is continuity of joining with walls (and behind wall linings) at sealing perimeters.
- Ensuring that masonry wall cavities do not interconnect with roof cavities.

### 3.1 GENERAL

Solitex Plus and Solitex Plus Connect breathable membranes provide a satisfactory underlay in pitched roofs constructed in accordance with ICP 2:2002, BS 5534:2014, BS 5250:2016 and BS 8000-6:2013 *Workmanship on building sites – Code of practice for slating and tiling of roofs and walls*.

### 3.2 WIND LOADING

Solitex Plus and Solitex Plus Connect breathable membranes can resist the loads associated with the installation phase of the roof.

#### 3.2.1 Unsupported

Solitex Plus and Solitex Plus Connect breathable membranes are satisfactory for use in conventional unsupported rafter and batten roof systems as described in Table 4 of this Certificate (see also Figure 6). The classifications show in Table 4 are based on the simplified approach for obtaining design wind pressure and required uplift resistance as defined in BS 5534:2014 Appendix A Cl. A7. These details are valid where a well-sealed ceiling is present and the roof has a ridge height  $\leq 15\text{m}$ , a pitch between  $12.5^\circ$  and  $75^\circ$ , and a site altitude  $\leq 100\text{m}$  where the topography is not significant.

When building and site conditions are outside these limitations, the design wind pressure,  $p_u$  should be calculated in accordance with Equation H.13 of BS 5534:2014 in order to determine the required wind uplift resistance. Calculated values can then be compared to the Declared wind uplift resistances in Table 5 of this Certificate in order to select a suitable roof underlay and batten spacing.

The design wind pressure  $p_u$  (BS 5524:2014 Eq. H.13), can be calculated from

$$p_u = f_u \times q_p$$

where:

$f_u = 0.75$  when a well-sealed ceiling is present;  
 $f_u = 0.90$  when no ceiling or no well-sealed ceiling is present;

$f_u = 1.10$  when no ceiling or no well-sealed ceiling is present and a permanent dominant opening is present on an external face of the building;

$q_p$  = peak velocity pressure from I.S. EN 1991-1-4:2005

See BS 5534:2014 for all other considerations.

When battens and counter battens are provided above the roof membrane, the limitations of Table 4 and Table 5 no longer apply.

#### 3.2.2 Supported

Solitex Plus and Solitex Plus Connect, when fully supported, have adequate resistance to withstand typical uplift forces.

The products may be used at any batten gauge in all wind zones when laid over nominally air-tight sheet sarking, for example OSB board, plywood and insulation for warm-roof designs. Counter battens are required to provide a drainage channel for wind driven rain and a ventilation void if required.

Poorly fitted sarking boards such as square-edged butt-joints planks are not considered to be airtight and the underlay should be treated as unsupported.

Product	$\leq 345$ mm batten gauge with battened lap <sup>(2)</sup>	$\leq 250$ mm batten gauge with battened lap	$\leq 345$ mm batten gauge with taped laps <sup>(1)</sup>	$\leq 345$ mm batten gauge with integrated taped laps
Solitex Plus	Zones 1 to 3	Zones 1 to 5	Zones 1 to 5	Zones 1 to 5
Solitex Plus Connect	-	-	-	Zones 1 to 5

<sup>(1)</sup> Using TESCON VANA (details available from the Certificate holder).

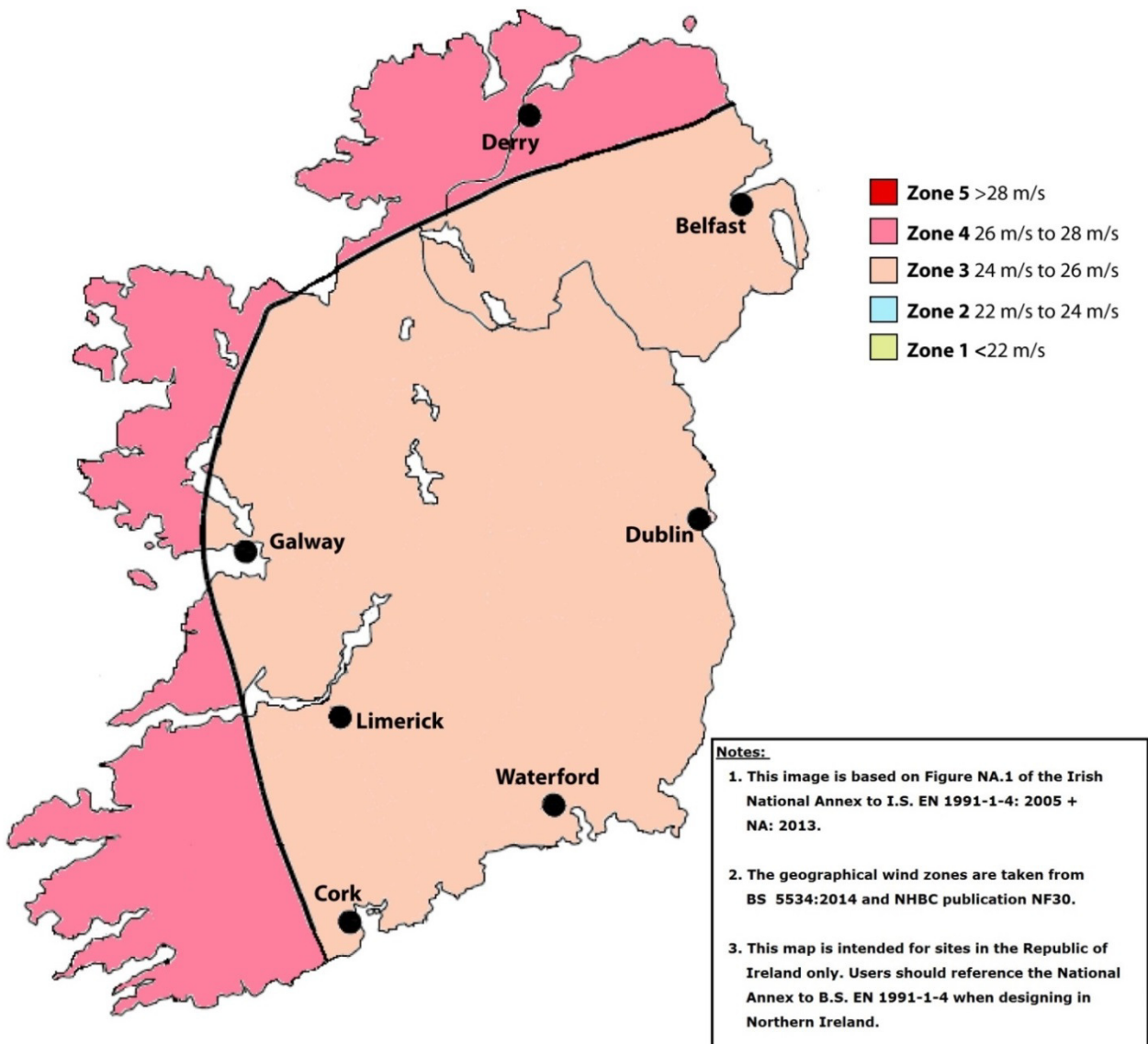
<sup>(2)</sup> When using untapped laps at 345mm batten gauges in Zone 4, the batten gauge must reduce to 250mm adjacent to the lap.

**Table 4 - Zones of applicability of Solitex Plus and Solitex Plus Connect according to BS 5534:2014, clause A.8 with battened laps and taped laps**

Product	$\leq 345$ mm batten gauge with battened lap	$\leq 250$ mm batten gauge with battened lap	$\leq 345$ mm batten gauge with taped laps	$\leq 345$ mm batten gauge with integrated taped laps
Solitex Plus	1164	2571	2626	-
Solitex Plus Connect	-	-	-	3204

**Table 5 - Declared wind uplift resistance (Pa)**





**Figure 6 - Design wind speeds for geographical wind zones in Ireland**

### 3.3 WEATHERTIGHTNESS

Tests confirm that Solitex Plus and Solitex Plus Connect will resist the passage of water, wind-blown snow and dust into the interior of a building under all conditions to be found in a roof constructed to ICP 2:2002, BS 5534:2014, BS 8000-6:2013 and I.S. EN 13111:2010 *Flexible sheets for waterproofing – Underlays for discontinuous roofing and walls – Determination of resistance to water penetration.*

For effective water management of a roof subject to severe driving rain conditions all underlay must be installed so that any water leaking through the roof tiles/slates is carried by the draped deflection of the underlay to the gutters.

### 3.4 VENTILATION

Solitex Plus and Solitex Plus Connect have a low water vapour diffusion-equivalent air layer thickness or  $S_d$  value (see Table 3 of this

certificate and the manufactures DOP). As a result the vapour resistance of the membranes is very low and the membrane is classified as a LR (low resistance) membrane as defined in BS 5250:2016.

In pitched roofs, when using impermeable roof coverings such as man-made roof slates, where the insulation follows the line of the pitch and an AVCL (air and vapour control layer) exists on the warm side of the insulation, a 50mm ventilation void must be provided either above the insulation or above the membrane (See Figure 3). The 50mm ventilation void requires openings at low level having a free area equivalent to 25mm per meter run, and at higher level, having a free area equivalent to 5mm per meter run along ridges and hips. There is no requirement for a ventilation void when permeable roof covering, such as loosely fitting natural slates or concrete roof tiles,

an AVCL and 10mm drape in the underlay are installed.

In pitched roofs where the insulation follows the line of the ceiling, attic ventilation must be provided in accordance with TGD to Part F of the Building Regulations 1997 to 2014. The optimum size and disposition of vents should be determined by the size and shape of the loft; large and/or complex roofs may require vents at both high and low levels. In general, cross ventilation having a free area equivalent to 10mm per meter run of eaves should be provided. Further design guidance can be found in BS 5250:2016.

A vapour control layer, such as pro clima Intello Plus or equivalent, should be installed on the warm side of the insulation unless a hygrothermal analysis to I.S. EN ISO 13788:2012 *Hygrothermal performance of building components and building elements – Internal surface temperature to avoid critical surface humidity and interstitial condensation – Calculation methods (Glazer)*, or I.S. EN 15026:2007 *Hygrothermal performance of building components and building elements – Assessment of moisture transfer by numerical simulation (Wufi)* deems it to be unnecessary.

It is essential that roofs be constructed so as to prevent moisture penetration and the formation of condensation. In accordance with good building construction practice, all openings for services and trap doors should be draught sealed, and trap doors should not be located in bathrooms, shower rooms or kitchens.

The risk of condensation is highest in new-build construction during the first heating period, where there is high moisture loading owing to wet trades such as cast concrete slabs or plaster. Additional ventilation should be provided during this period, including the opening of doors and windows. The risk diminishes as the building dries out naturally.

### **3.5 CE MARKING**

The Certificate holder has taken responsibility of CE marking the product in accordance with harmonised European Standard I.S. EN 13859-1:2014. An asterisk (\*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance. (DoP). Designers should refer to the latest version of the manufacturer's DoP for all essential characteristics.

#### 4.1 BEHAVIOUR IN FIRE

Solitex Plus and Solitex Plus Connect roof tile underlays have similar properties in relation to fire as those which are acceptable under BS 5534:2014, and so will present no additional fire hazard to a roof structure in which they are incorporated.

Solitex Plus and Solitex Plus Connect roof tile underlays have the risk of fire spread when used unsupported if the material is accidentally ignited during maintenance works etc. (e.g. roofer or plumbers torch). As with all types of sarking material, care must be taken during building and maintenance to avoid the material becoming ignited.

When the product is used in a fully supported situation, the reaction to fire will be determined by the supporting board.

The toxicity risks in relation to the product in the event of fire are negligible when used in a roof.

Solitex Plus and Solitex Plus Connect roof tile underlays being combustible material must be separated from chimneys and flues as indicated in cl. 2.15, 2.16 and 2.17 of TGD to Part J of the Building Regulations 1997 to 2014.

#### 4.2 WATER PENETRATION

Solitex Plus and Solitex Plus Connect roof tile underlays, when used in accordance with this Certificate, present no significant risk of water penetration.

#### 4.3 WATER VAPOUR PENETRATION AND CONDENSATION RISK

Solitex Plus and Solitex Plus Connect roof tile underlays will provide water vapour resistance less than that quoted as a maximum for conventional roof tile underlays in BS 5534:2014, and hence movement of moisture vapour can take place through the underlay. This standard also describes the factors to be considered in reducing condensation to a satisfactory minimum. The general design guidelines contained in TGD to Part F of the Building Regulations 1997 to 2014 and BS 5250:2016, Sections 8.4.2.2 to 8.4.2.6 must be met with installing this product. Typical values of water vapour resistance are given in Table 3.

Solitex Plus and Solitex Plus Connect roof tile underlays when being installed should be treated as vapour permeable underlays when considering the ventilation requirements.

The risk of condensation is highest in new-build construction during the first heating period, where there is high moisture loading due to wet trades, such as in-situ cast concrete slabs or plaster. The risk of condensation diminishes as the building naturally dries out.

#### 4.4 DURABILITY AND MAINTENANCE

Solitex Plus and Solitex Plus Connect roof tile underlays, when installed in accordance with this Certificate, Certificate holder's instructions and relevant codes of practice, is virtually unaffected by conditions normally found in a roof space and will have a design life comparable with that of the roof and in accordance with BS 7543:1992 *Guide to the durability of building elements, products and components*. The durability of the roof underlay will be dependent on the performance of the roof covering (slates/tiles) and this could be compromised if the roof is not routinely maintained or is subjected to inappropriate traffic. Such maintenance would involve building owners having their roofs inspected annually, preferably in late autumn. Inspection should include checking for missing, damaged or loose slates/tiles and their accessories or flashings. Clogged gutters or downpipes should be unblocked and cleaned.

#### 4.5 TESTS AND ASSESSMENTS WERE CARRIED OUT TO DETERMINE THE FOLLOWING:

- Density
- Water vapour permeability
- Dimensional accuracy
- Nail tear resistance
- Tear strength
- Elongation at break
- Dimensional stability
- UV stability
- Efficiency of the construction and installation process

#### 4.6 OTHER INVESTIGATIONS

(i) Existing data on product properties in relation to fire, toxicity, environmental impact and the effect on mechanical strength/stability and durability were assessed.

(ii) The manufacturing process was examined including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

(iii) Site visits were conducted to assess the practicability of installation and the history of performance in use of the product.

(iv) Driving rain resistance was assessed.

(v) A condensation risk analysis was performed.

**5.1** National Standards Authority of Ireland ("NSAI") following consultation with the Irish Agrément Board ("IAB") has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer's instructions and usual trade practice. This Certificate shall remain valid for five years from date of revision so long as:

(a) the specification of the product is unchanged.

(b) the Building Regulations 1997 to 2006 and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.

(c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.

(d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.

(e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.

(f) the registration and/or surveillance fees due to IAB are paid.

**5.2** The IAB mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate holder must not use the IAB mark and certification number and must remove them from the products already marked.

**5.3** In granting Certification, the NSAI makes no representation as to;

(a) the absence or presence of patent rights subsisting in the product/process; or

(b) the legal right of the Certificate holder to market, install or maintain the product/process; or

(c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.

**5.4** This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which may be appropriate.

**5.5** Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act. 1989, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.

**5.6** The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.

**5.7** Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standards, manufacturer's instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.

## NSAI Agrément

This Certificate No. **02/0138** is accordingly granted by the NSAI to **MacCann & Byrne** on behalf of The Irish Agrément Board.

Date of Issue: **February 2002**

Signed



**Seán Balf**  
**Director of the Irish Agrément Board**

Readers may check that the status of this Certificate has not changed by contacting the Irish Agrément Board, NSAI, Glasnevin, Dublin 9, Ireland. Telephone: (01) 807 3800. Fax: (01) 807 3842.

[www.n sai.ie](http://www.n sai.ie)

**Revisions: May 2007**

- Classification of Solitex UD and Solitex Plus as vapour permeable underlays

**Revisions: April 2017**

- Product specification updated to reflect manufactures Declaration of Performance.