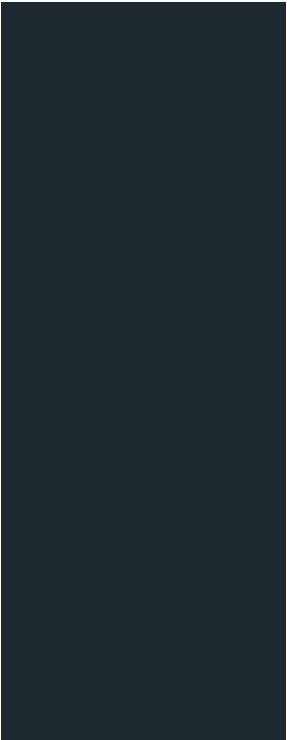


INSTALLATION GUIDE



Skytech[®] PRO XL



Innovation for performance and confort.

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SKYTECH PRO XL INSTALLATION GUIDE

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KEY PRODUCT FEATURES

THERMAL
INSULATION
**45% energy
saving**

ACOUSTIC
INSULATION
**-16 dB
(product alone)**

GAIN IN
INSTALLATION TIME
+ 10%

PROTECTION
**against
fire risks**



R_D WITH INSULATION
BETWEEN RAFTERS
**+ insulation 80 mm (0.032 W/mK) $R_D = 4,2$
+ insulation 100 mm (0.035 W/mK) $R_D = 4,5$
+ insulation 140 mm (0.032 W/mK) $R_D = 6$**

ENHANCED
AIR-TIGHTNESS
**integrated
adhesive tape**

INSTALLATION ON
ANY KIND OF INSULATION
Breathable

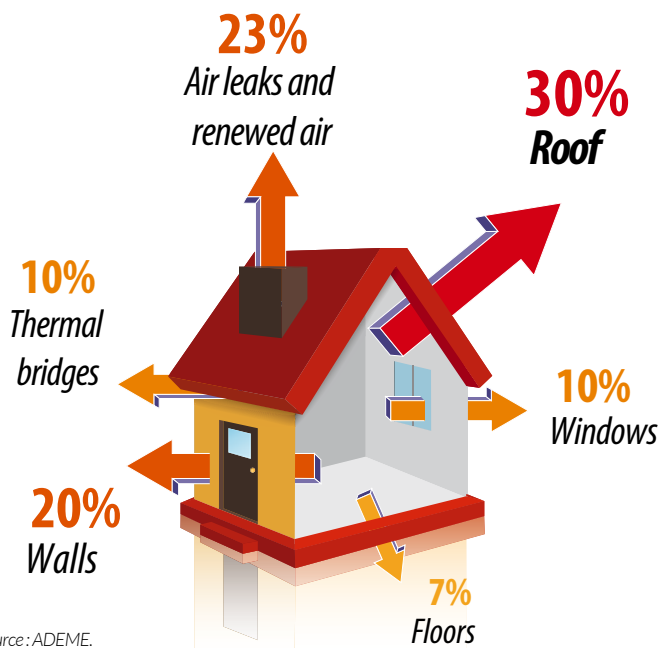
INTRODUCTION

INSULATION MAIN PRINCIPLES

For an effective housing renovation, it is necessary to choose materials which are as efficient in winter to protect against the cold as in summer to protect from the heat.

IN WINTER

In winter SKYTECH PRO XL allows to create a **continuous envelope** to hedge against cold air intakes thanks to its internal reflective siding, its **airtight membrane** and its **low-conductivity blanket**.

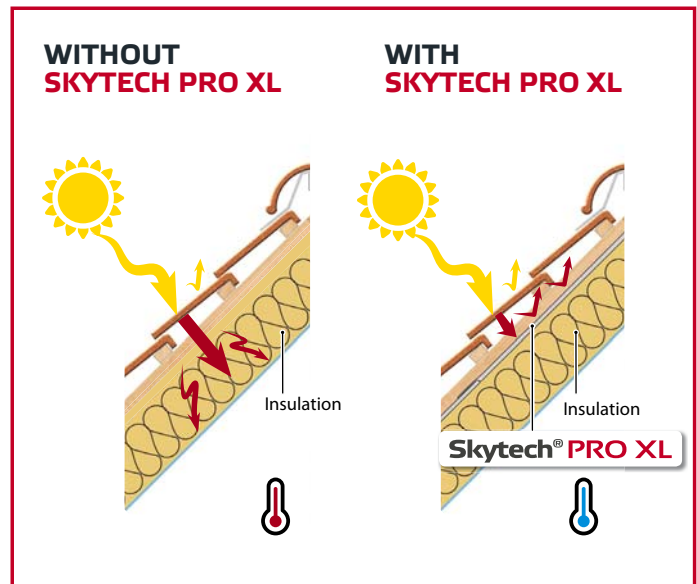


Source: ADEME.

IN SUMMER

In summer SKYTECH PRO XL reflects **95% of the solar radiation** back into the ventilated air-gap thanks to its high reflectivity and improves phase-shift thanks to its high-density blanket.

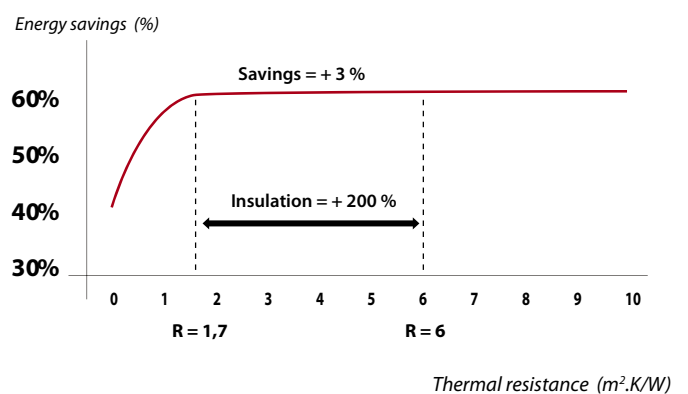
SUMMER OPERATION :



THERMAL RESISTANCE AND ENERGY SAVINGS

The R-value is a mathematical formula that only takes into consideration the thickness and the thermal conductivity of the material. However the adjacent chart shows the energy consumption of a dwelling according to different insulation R-values.

However renovating a home by only increasing the insulation thickness without dealing with air tightness or thermal bridges brings only few additional energy savings.

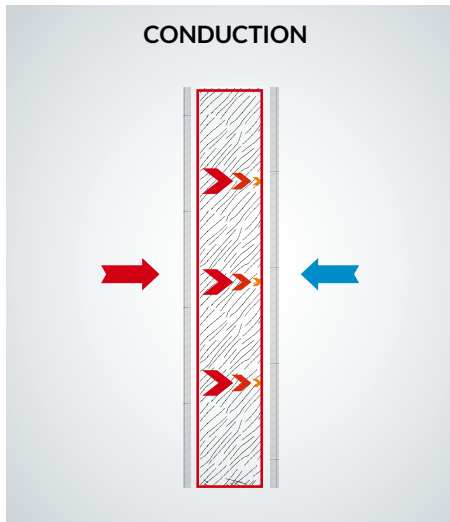


Source : 3CL calculation method (Home conventional consumption calculation) established in 2006 to carry out energy performance diagnostics in France.

INTRODUCTION

INSULATION MAIN PRINCIPLES

Heat always travels from a warm area to a cold area. It spreads in 3 ways : conduction, convection and radiation.



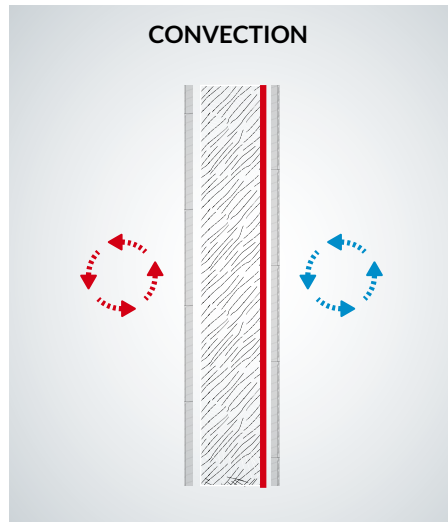
CONDUCTION

Transmission of heat by contact, within a material or between materials.

The conductivity of a material is characterised by its thermal conductivity also called lambda and symbolised by the λ sign. The smaller λ , the more the material acts as a barrier against conduction.

SKYTECH PRO XL outcome :

Its high-density fiberglass blanket creates a barrier against conduction thanks to its very low thermal conductivity $\lambda = 0,029$ W/m.K. SKYTECH PRO XL tackles conduction above the rafter.



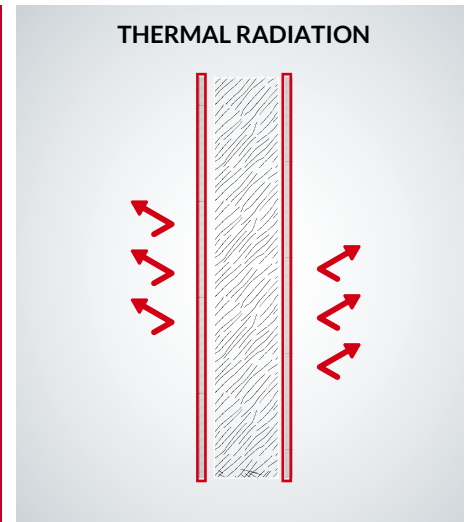
CONVECTION

Transmission of heat by movement of air.

Convection is a result of air movements caused by a temperature and a density difference. Hot air rises and dissipates its heat.

SKYTECH PRO XL outcome :

Its weatherproof membrane (to water and air) acts as a barrier to hot air movements.



THERMAL RADIATION

Heat transfer without contact or remotely between two bodies. Radiation is characterised by the thermal emissivity which is symbolised by the epsilon ϵ sign. The smaller the ϵ of the walls, the more the material acts as a barrier against radiation.

SKYTECH PRO XL outcome :

Its very low emissivity pure aluminum sidings (5%) reflect 95% of the heat back towards the emission source (heating device in winter, solar radiation in summer).

! Traditional insulation materials (glass wool, rock wool, polystyrene) only deals with conduction. SKYTECH PRO XL acts on the 3 heat modes (conduction, convection and radiation) simultaneously.

Skytech[®] PRO XL COMPOSITION

- Integrated folding adhesive tape.
- External micro-perforated pure aluminium reflective foil reinforced with fiberglass fabric.
- Waterproof membrane.
- Insulating continuous E-fiberglass blanket.
- Internal micro-perforated pure aluminium reflective foil.



SKYTECH PRO XL application

APPLICATION FOR ROOF ROOF UNDERLAYS



A roof underlay is a soft membrane intended to create a protective layer between the cover material and the roof frame.

The roof underlay is installed on a discontinuous support (rafters, trusses) or on a continuous support (wood panels, boarding). When the underlay is highly vapour permeable (breathable), it can be applied in direct contact with the thermal insulation. It can be installed in attic spaces whether converted or not.

WHAT ARE THE FEATURES OF A ROOF UNDERLAY ?

- ✓ Protecting the attic spaces from snow, rain, dust and pollen penetration also from birds and insects intrusion. Curbing pollution.
- ✓ Leading potential water ingress to the gutter in the event of a covering element break or move or due to underside condensation.
- ✓ Limiting covering elements wind uplift by balancing the pressure.
- ✓ Lowering the roof pitch.
- ✓ Optimising the internal insulation efficiency by protecting it from moisture.
- ✓ Allowing the building to be temporary weatherproof for a maximum of 8 days.

THE ROOF UNDERLAY LEXICON

Waterproof

A roof underlay must be permanently waterproof. The W1 rating ensures that the product complies with the EN 13859-1 european standard and indicates that it is waterproof under a 1000mm water column. The W2 rating indicates that the product is drip-proof.

Sd

To allow the evacuation of moisture from the thermal insulation and the roof frame, the underlay must have a Sd-value lower than 0,10m. It is then rated Sd1 i.e. highly vapour permeable. Sd2 and Sd3 underlays that are not highly vapour permeable can not be installed in direct contact with the insulation and do not allow the closure of the roof ridge. The attic spaces air-tightness is therefore highly reduced.

Tensile and tear resistance

The tensile and tear resistance is defined by the R-rating. The R3-rating allows a 90cm-distance between rafters. R2 (60cm) and R1 (45cm).

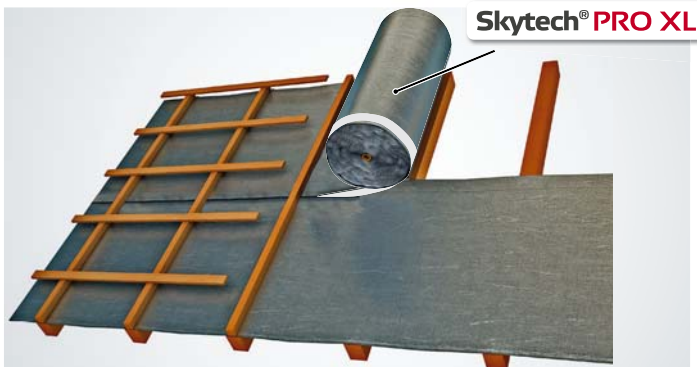
Skytech® PRO XL RATING

	Water-tightness	Water vapour permeability	Tensile strength Tear resistance
Best rating <i>According to the EN 13859-1 standard</i>	W1 Waterproof under a 200mm water column	S_{d1} S_d value ≤ 0.10 m	Tensile strength before ageing : 303 x 300 N/50 mm Tensile strength after ageing : 200 x 200 N/50 mm Tear resistance : 225 x 225 N
SKYTECH PRO XL rating	W1 Waterproof under a 1000mm water column	S_{d1} S_d value ≤ 0.10 m	Tensile strength before ageing : 700 x 700 N/50 mm Tensile strength after ageing : 650 x 650 N/50 mm Tear resistance : 275 x 280 N

SKYTECH PRO XL installation

ROOF APPLICATION

Installation diagrams



SKYTECH PRO XL is used with all types of roof covers (slates, tiles...) for new build or renovation projects.

Maximum distance between the roof supports : **90 cm**
 SKYTECH PRO XL unwinding : **parallel to the gutter**
 Temporary installation : **19mm staples, nails or screws**
 Permanent installation : **counter-battens**



SKYTECH PRO XL must be installed tightly on the roof elements. It is not compulsory to create an air gap between SKYTECH PRO XL and the insulation or the underside continuous support.

STRIPS OVERLAPPING

The strips are connected together by the integrated adhesive tape. Press well.



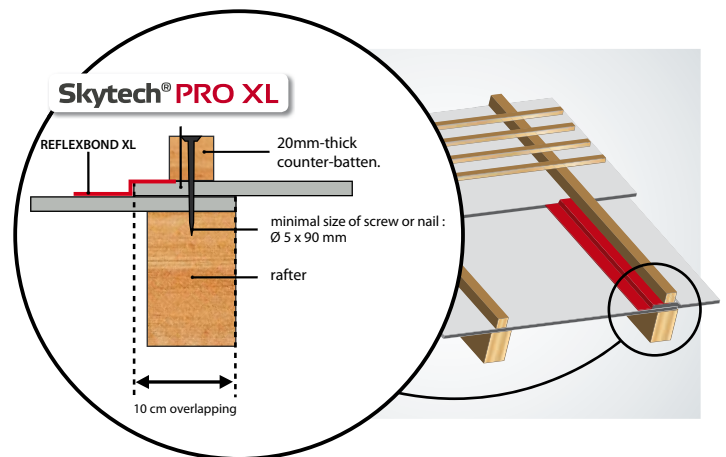
= 10 cm overlapping
 Use the overlapping line as a mark for the positioning of the adhesive tape.



= 20 cm overlapping

STRIPS ENDS

- The connection of strips ends must be completed upright with a 10cm overlapping.
- The junction of strips ends must be carried out using the **REFLEXBOND XL** reinforced aluminium adhesive tape.
- **REFLEXBOND XL** must be installed on a clean and dry surface free from any contaminant (grease, dust, sawdust...).
- Pressing the adhesive tape must be carried out with a dry cloth to exert a sufficient pressure when taping. **REFLEXBOND XL** adhesion is optimal between 5°C and 30°C and between 30% and 70% relative humidity.



ADDITIONAL INFORMATION

VENTILATION :

Ridge and bottom of the slope ventilation holes : follow national regulations and products technical advice.

PRECAUTIONS :

Temporary weatherproofing : 8 days (Outside exceptional weather conditions. If the direct exposure duration is longer, tarping is necessary).

Eye protection : wear UV 400 glasses.

Oxidation. : do not use in contact with copper, brass and lead.

SKYTECH PRO XL installation

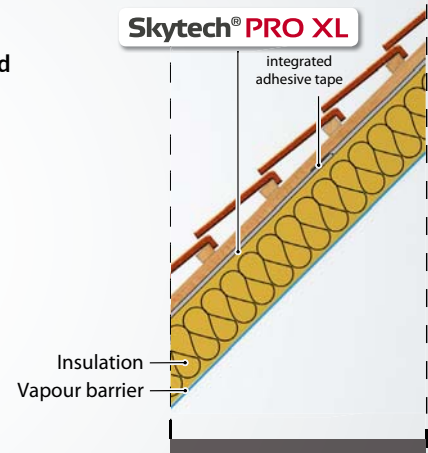
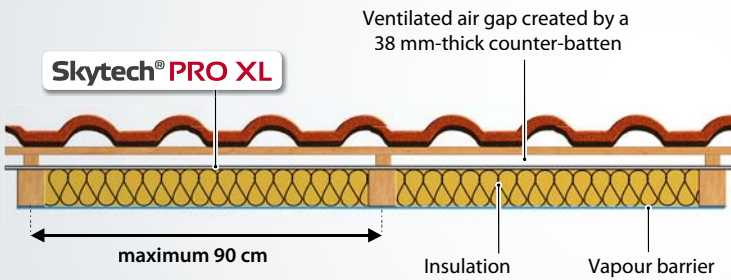
ROOF APPLICATION

TRADITIONAL INSULATION

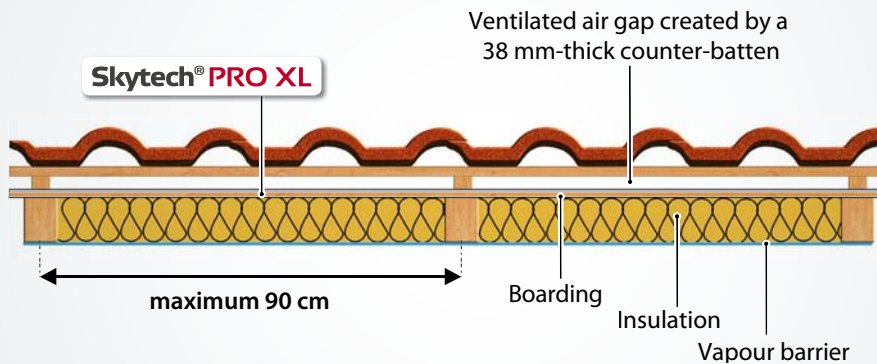
INSTALLATION IN CONVERTED ATTIC SPACES

This installation allows to insulate while saving interior space and without raising the roof frame. SKYTECH PRO XL protects the insulation against air and water penetration and against fire risk.

ON RAFTERS

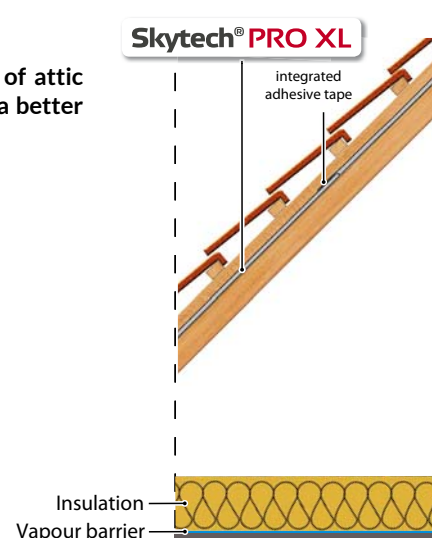
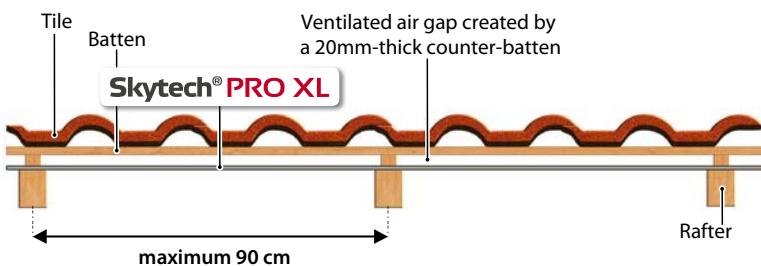


ON BOARDING

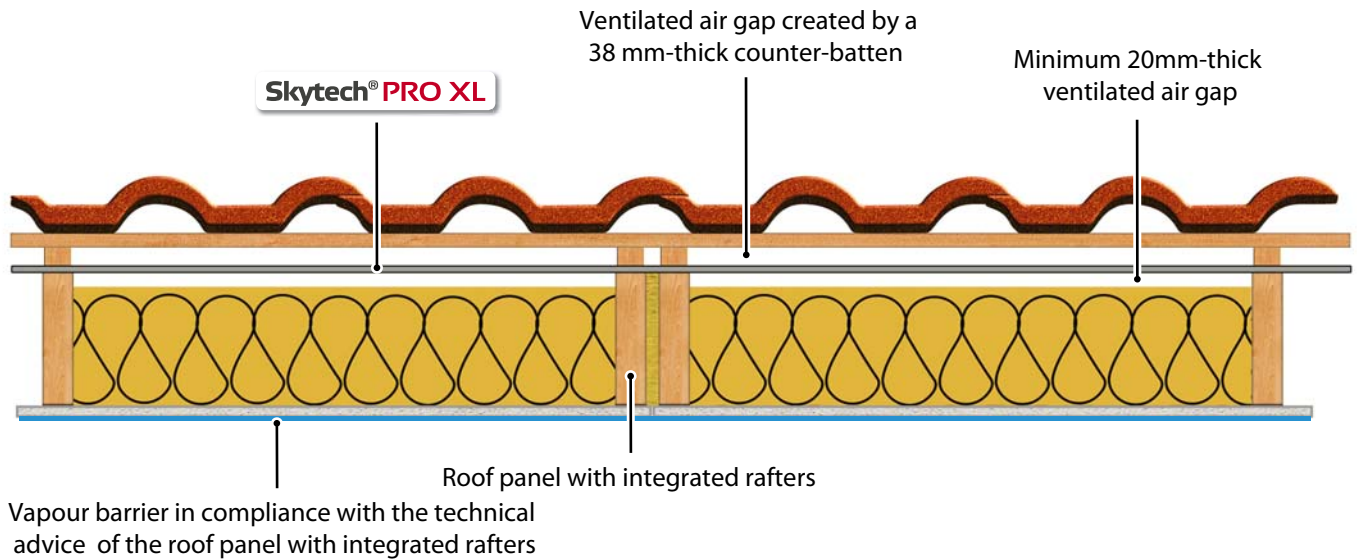


INSTALLATION IN ATTIC SPACES

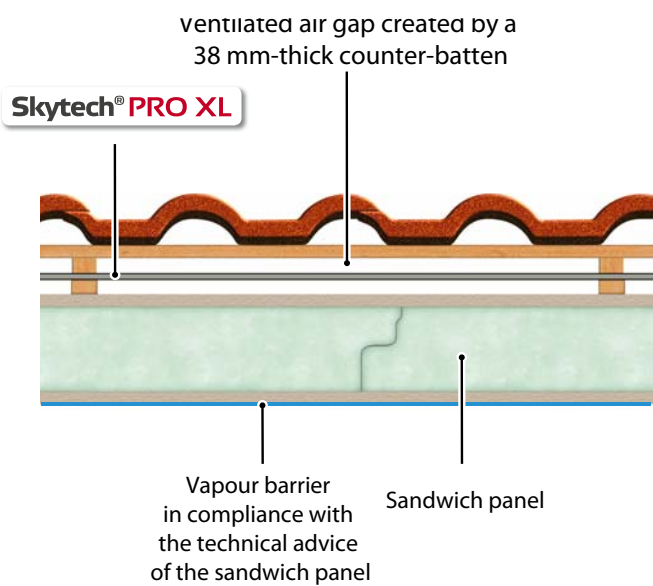
This installation allows to enhance summer comfort while avoiding the overheating of attic space. There is no risk of condensation on the underlay internal side thus ensuring a better protection for the insulation against moisture.



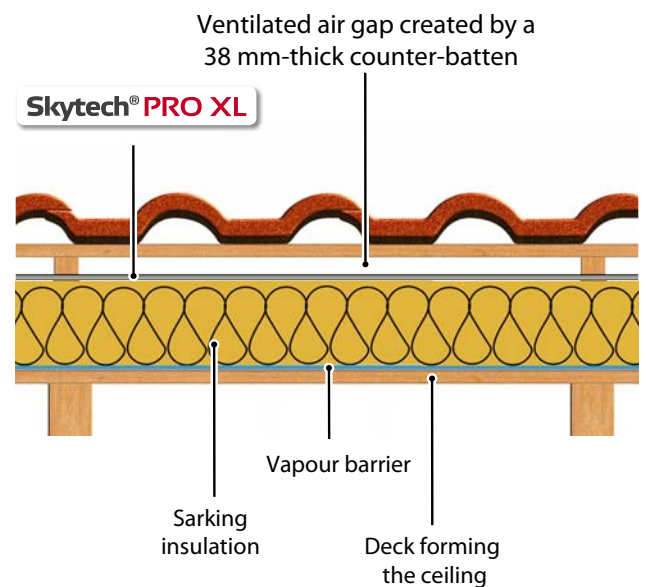
ROOF PANEL WITH INTEGRATED RAFTERS



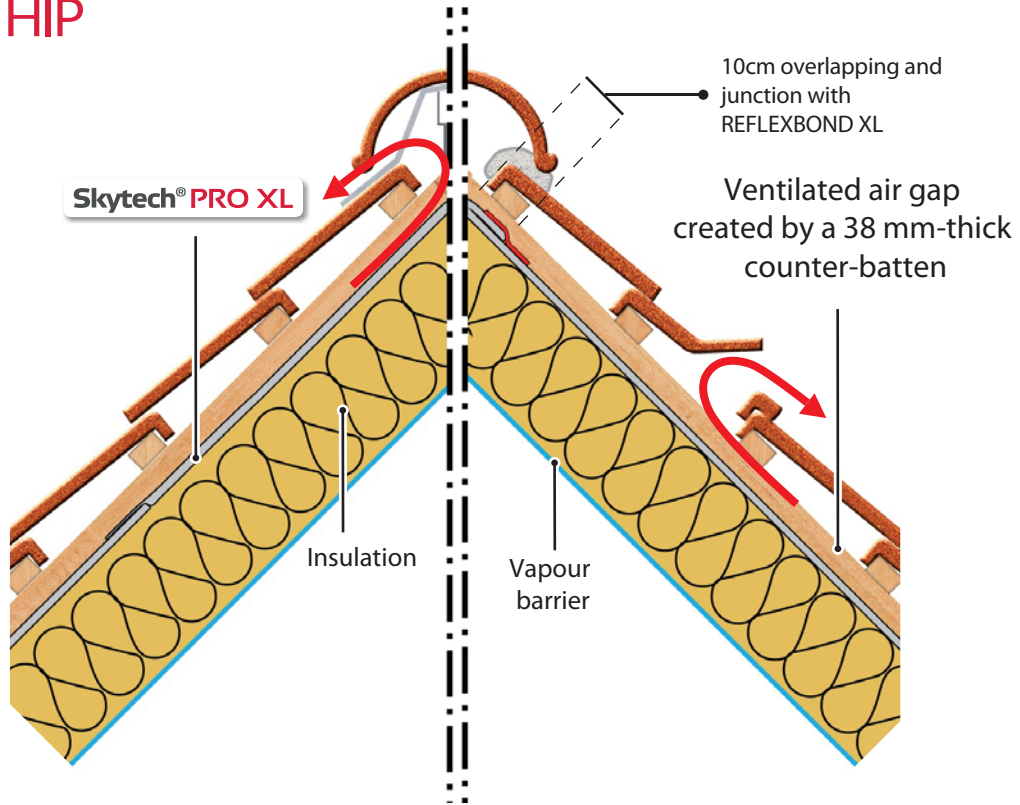
SANDWICH PANEL



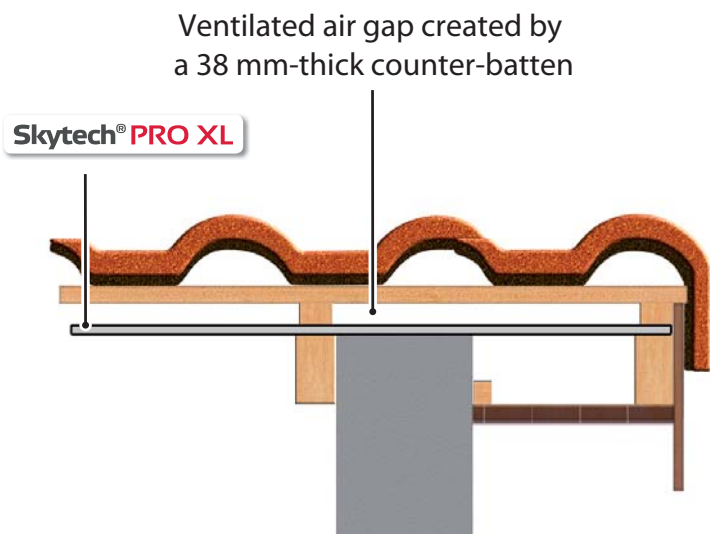
SARKING INSULATION



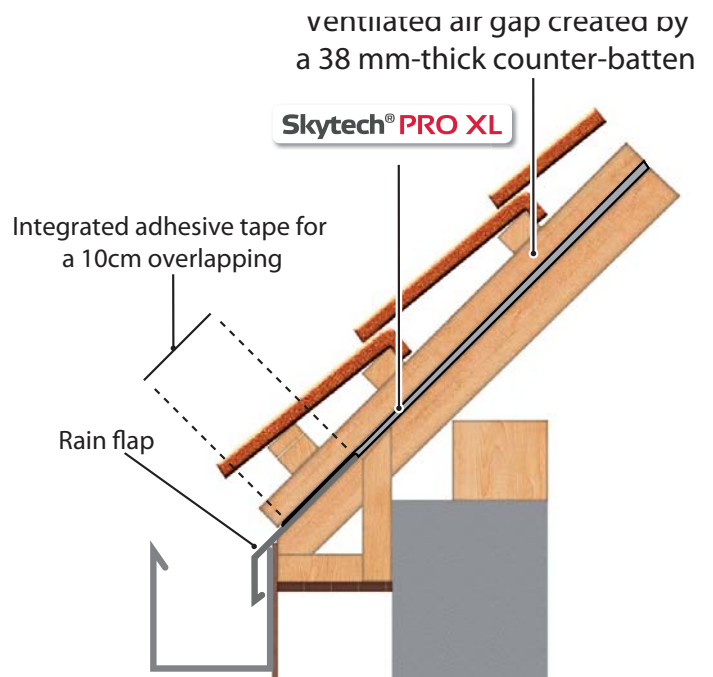
RIDGE AND HIP



SIDE EDGE



BOTTOM OF THE SLOPE

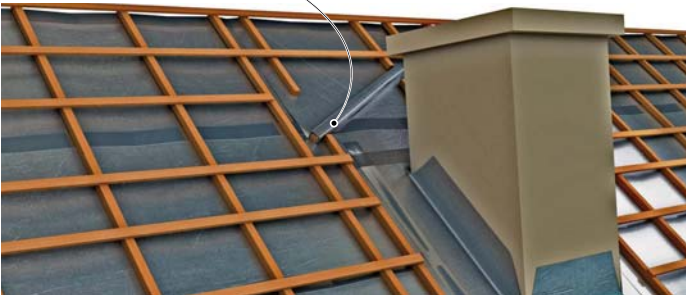


SKYTECH PRO XL application

ROOF APPLICATION

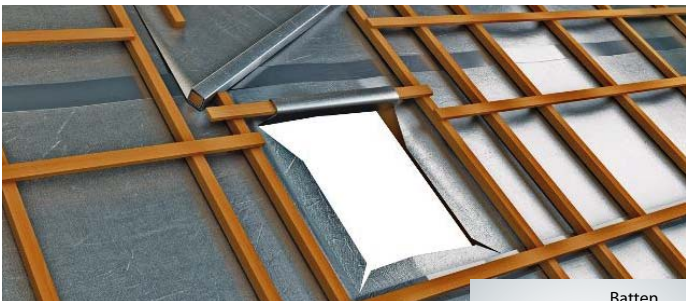
HANDLING OF THE SPECIFIC POINTS

CHIMNEY DUCT

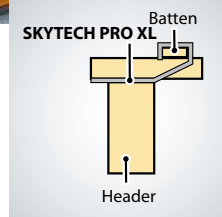


SKYTECH PRO XL thanks to its reaction to fire properties can be installed directly on chimney surrounds.

ROOF WINDOW



- ✓ Make 10cm to 20cm strips and fix them on the counter-battens around the header.
- ✓ Instal a deflector above the header.



ROOF VALLEY



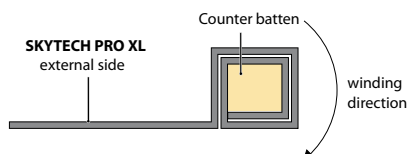
- ✓ Cut a strip according to the roof valley axis.
- ✓ Overlap the strip parallel to the roof valley axis with 30cm on the opposite side.

DEFLECTOR



A strip of **SKYTECH PRO XL** external facing carefully separated from the rest of the underlay and whose width equals the distance between the rafters increased by 20cm must be cut up.

This strip is slid into the overlapping located above the header. A batten is then wrapped in the strip (at least 2 whole turns). This wrapped-up batten is used as a deflector. It is installed obliquely above the shortened counter-battens and finally nailed.



VENTILATION DUCT



In the case of a clay outlet vent installation :

- ✓ Cut SKYTECH PRO XL into quarters square to the duct.
- ✓ Grout by using the REFLEXBOND XL adhesive tape.
For the other types of connections, instal a deflector above the duct.

SKYTECH PRO XL application

FACADE APPLICATION

INSTALLATION AS RAIN SCREEN



The rain screen allows to **protect the facade from moisture, insects and dusts penetration**. It improves the **wind-tightness** of the wall in order to **limit heat leaks** from the building.

It is installed on a **continuous** (wall or braced panel) or **discontinuous** (wood frame) **support**, in direct contact or not with a thermal insulation.

Maximum distance between the roof supports : **90 cm**

SKYTECH PRO XL unwinding : **horizontal**

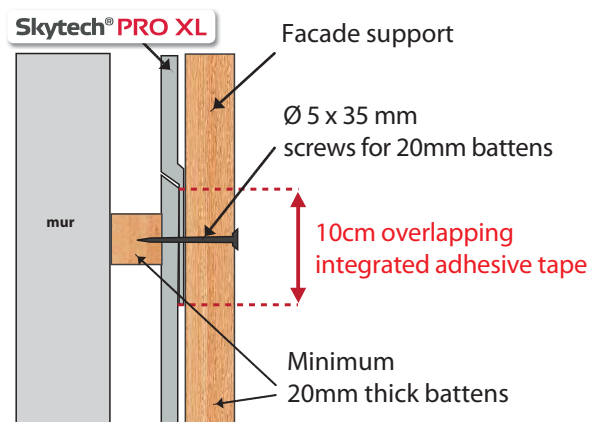
Temporary installation : **19mm staples, nails or screws**

Permanent installation : **battens**

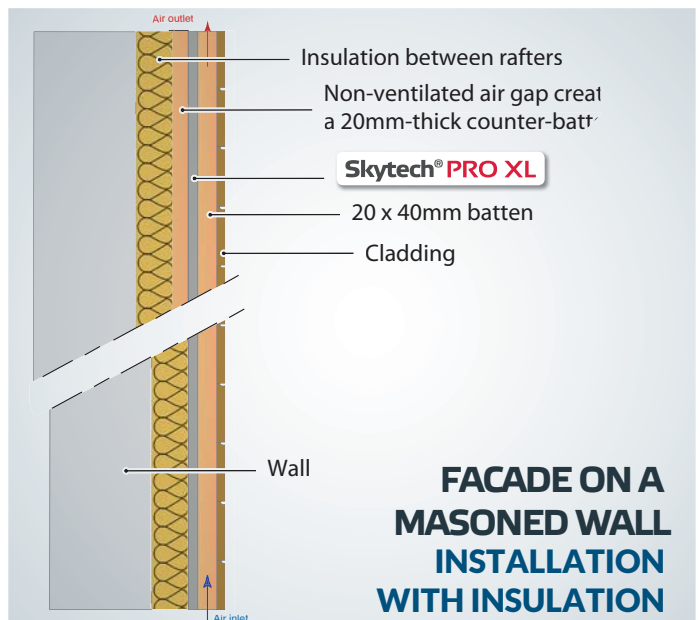
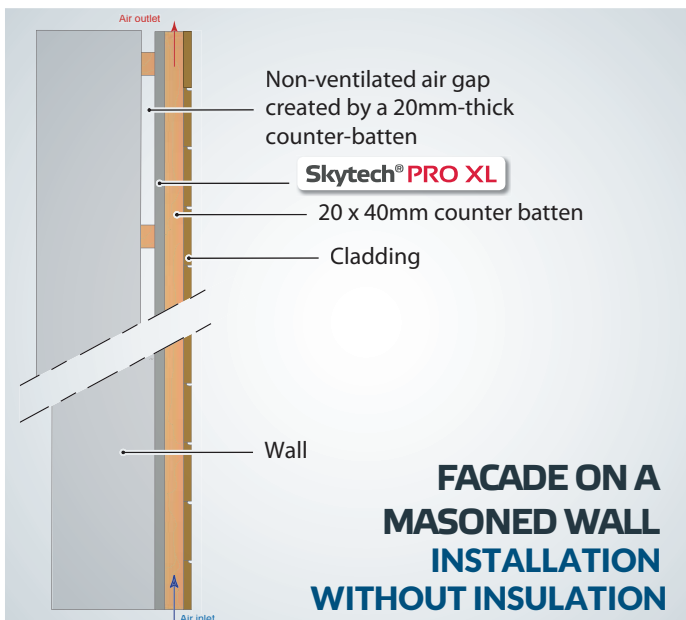
! **A rain screen is compulsory for the following external claddings :**
 Wooden slats cladding, masonry doubling walls with an air gap, exterior wall claddings with wood shingle, exterior wall claddings with natural slates, exterior wall claddings with flat clay tiles.

OVERLAPPING

The strips are connected together with the integrated adhesive tape. **Press well.**



INSTALLATION DIAGRAMS



In direct contact with the wall :

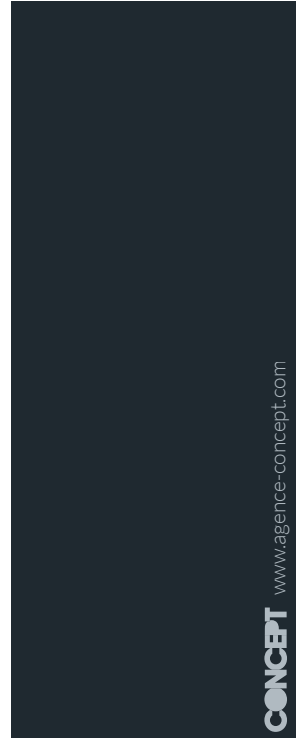
As **SKYTECH PRO XL** is breathable it allows to save space and installation time by creating only one ventilated air gap between the cladding and the screen.

With an air gap between the support and the screen :

The non-ventilated air gap between **SKYTECH PRO XL** and the wall allows a better insulation in winter.

In direct contact or with a non-ventilated air gap :

SKYTECH PRO XL allows to cover the thermal bridges at rafters thus avoiding the cross-installation of an external additional insulation.



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