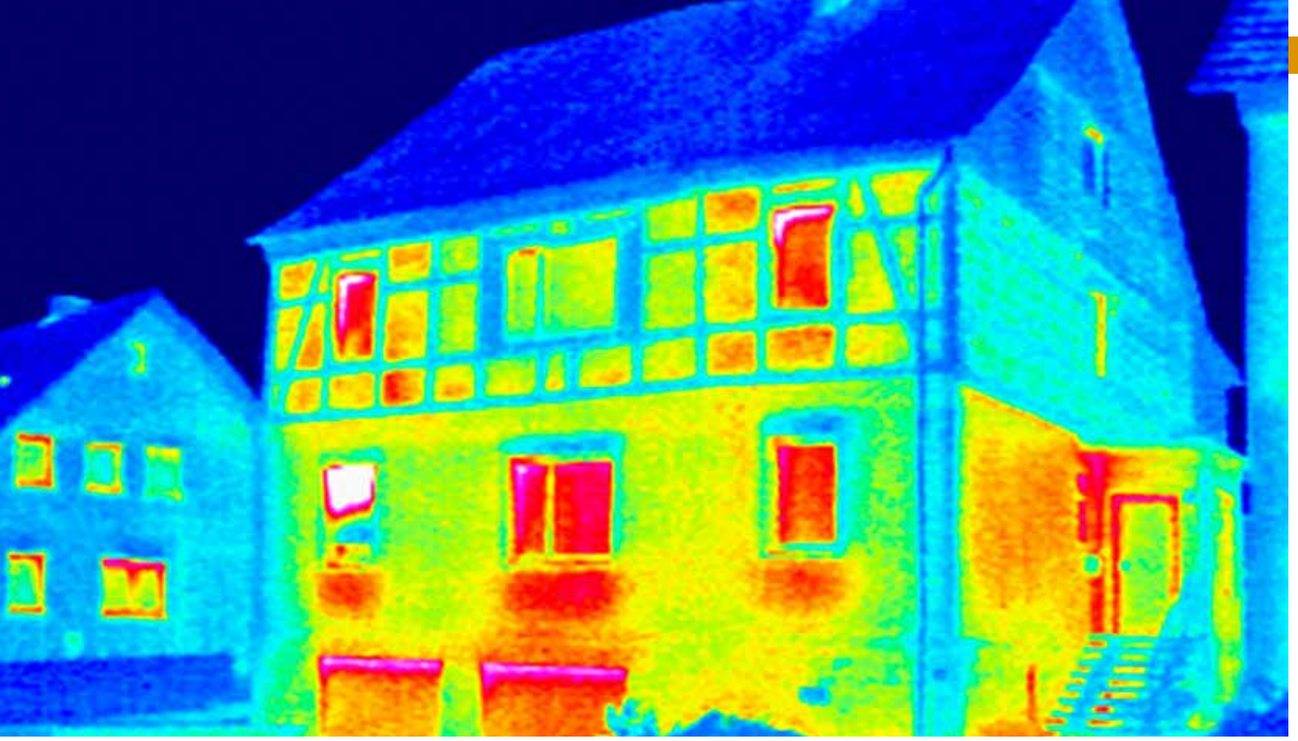
SOLITEX MENTO® System

Maximum protection for roofs

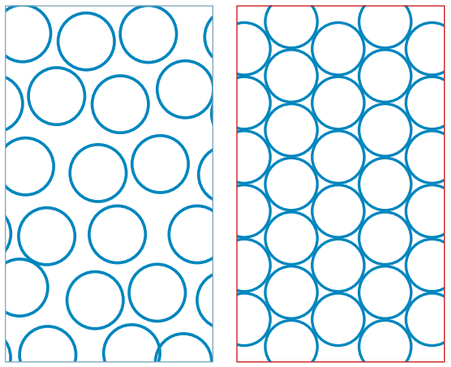
Highly permeable roof lining with moisture-managing TEEE functional membranes

pro clima®



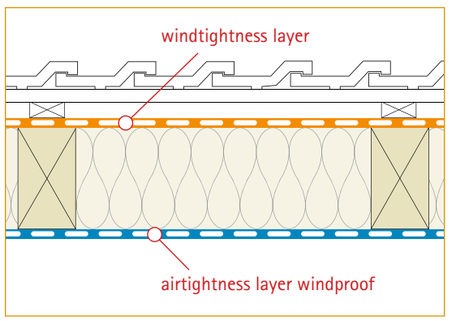
The ideal structure

Thermal insulation systems work on the basis of the inclusion of air in the insulation material (cellulose fibres, cork, wool and mineral fibres, other materials). These air pockets must be protected against air movements if the insulation is to have an insulating effect. For this reason, the insulating material should be sealed on all sides in the ideal insulating structure: i.e. airtight on the inside and windtight on the outside.



Insulation by stationary air

Left: Unprotected insulation material
Air movement in the porous structure reduces the insulating effect.
Right: Protected insulation material
No air movement possible in the porous structure, full insulation effect.
An example:
The thermal insulation effect of a woolen jumper is based on the stationary air inclusions in the fibres: as soon as a cold wind starts to blow, the insulation effect decreases. However, the effect is restored if you wear a thin windbreaker, which itself has no significant heating function, over the jumper.



Airtight on the inside, windtight on the outside

For this reason, the insulation material is sealed on all sides in the ideal insulation structure:
outside with the windtightness layer, e.g. an underlay or facade membrane that is open to diffusion, and on the inside with an airtightness layer, e.g. a vapour retarder.

The windtightness stops cold outside air flowing through the insulation. The airtightness provides protection against the entry of humid indoor air and thus against condensation and mould.

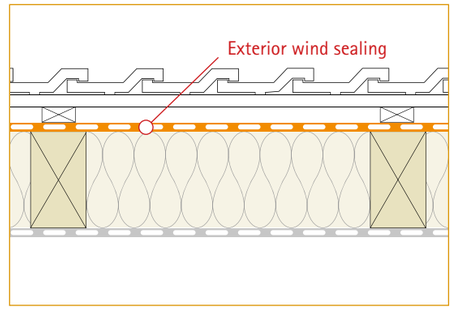
Note

Faultless installation work is important when installing air sealing, as leaks in surfaces and at joints will have consequences.

Why is windproof construction important?

Protection from wind and weather

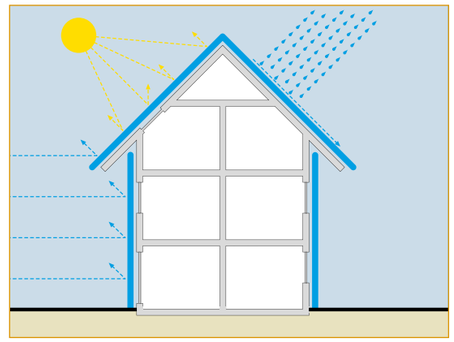
On the exterior side: A wind barrier such as a roof-lining or wall-lining membrane covers the insulation



The windproofing layer protects the thermal insulation from rain, snow and wind from the outside. It also ensures that the insulation will not be permeated by cold air and hence can fully unfold its effectiveness.
Thus the windproofing layer is critical for optimal effectiveness of the insulation. Mounted on the outside of the thermal insulation, it prevents cold outside air passing through the outer insulation layers and also ventilates the insulation layer.
Fixed air pockets in the material are required for the insulating effectiveness of cellulose, wood fibre, hemp, wool, mineral fibres, etc. The wind seal thus ensures the effectiveness of the thermal insulation and prevents localised cooling of surfaces adjacent to the inside of a room.
The windproofing layer provides ventilated constructions with bottom-ventilated roof seals with an additional level of protection from any dripping secondary condensation, rain and driving snow. A carefully executed windproofing layer increases the protection level to avoid convective air flows.

Requirements

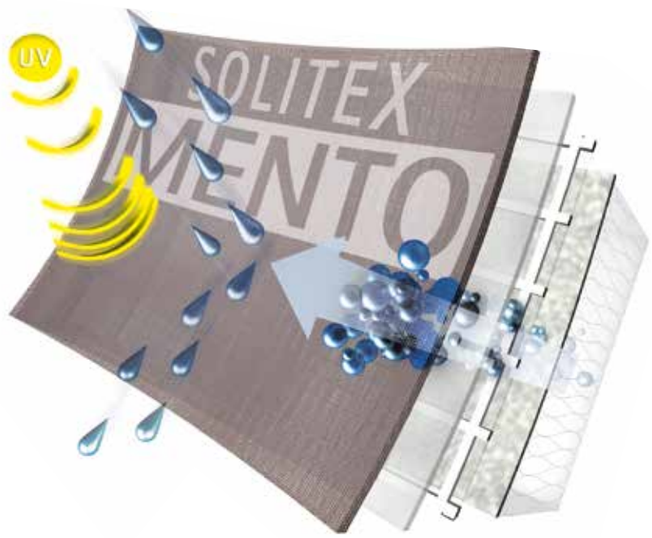
Durable, rainproof, diffusion-open, thermostable



Roof and facade membranes must meet high tightness requirements for protection from driving rain and water. At the same time, they should also be highly permeable to allow moisture to dry and evaporate quickly and reliably from the structural component to the outside.
The previously available microporous membranes met these requirements only to a limited extent. New, moisture-activated membranes with a non-porous, monolithic functional film offer significantly higher protection levels for structural components.

Best possible protection for roofs – SOLITEX

Windproofing with active moisture management



The roof lining membranes in the SOLITEX MENTO family are equipped with monolithic, non-porous functional membranes that actively manage moisture and which are made from state-of-the-art TEEE.
They offer significantly higher levels of structural protection compared with conventional, microporous membranes.
SOLITEX MENTO membranes have a non-porous, closed cell TEEE membrane, which provides particularly good protection against driving rain.
Compared to conventional roof lining membranes in which the permeability is achieved via air exchange through the microporous membrane, a SOLITEX MENTO membrane enables active diffusion along the molecular chains.
At the same time, SOLITEX MENTO membranes have a very low diffusion resistance with an s_d-value of 0.05 m, a g-value of 0.25 MN·s/g and a vapor permeance of 38 US perms).
Its active moisture transportation makes the TEEE membrane extremely quick drying, which optimally protects against ice forming on the membrane in winter. This is a plus for the protection of the structure because permeable roof lining membranes turn into vapour barriers when ice forms (ice is impermeable), thereby creating moisture traps.
Additional features of the TEEE membrane are its reliable protection against substances that impregnate wood (drops of water cannot penetrate the membrane even at reduced surface tension because there are no pores) and the particularly high thermal stability (melting point TEEE about 200 °C (390 °F), PP approx. 140 °C (280 °F).
This thermal stability gives the plastic an extremely high ageing stability – even for dark roofs.

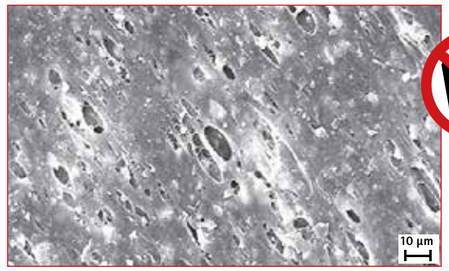
Top performance for all requirements

The functional film is reliably protected between two robust, particularly tear-resistant protective and covering fleeces made of polypropylene – ideal if there are high loads when walking on and laying the membranes, and when installing the roofing.

- ✔ The covering fleece is also water repellent and provides optimum protection against penetrating water. It protects the underlying specialist film from damage and UV radiation.
- ✔ The honeycomb structure also guarantees high slip resistance in wet conditions.
- ✔ As a result of the dark-grey colour of the top covering fleece, the membranes are anti-glare.
- ✔ Watertightness levels of 10 000 mm (approx. 33 ft) of water column are achieved, i.e. SOLITEX MENTO membranes are also impermeable to heavy driving rain.
- ✔ These membranes can be exposed to the elements for up to 4 months.

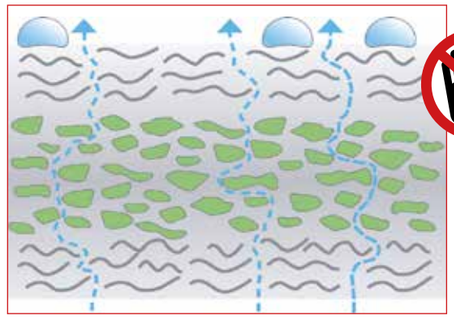
Conventional reliability – micropores

Microporous membrane: little protection against rainwater



Conventional PP membranes with micropores only protect against water from the outside when the surface tension of the drops makes them too large to pass through the pores of the membrane. However, in of case driving rain or when wood components or solvents lower the surface tension, considerable amounts of water may penetrate the insulation and cause structural damage and foster the growth of mould and mildew.

Microporous membranes become more diffusion-tight



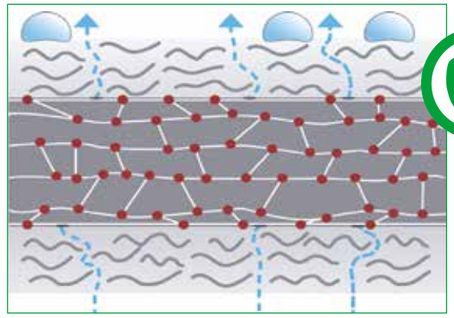
These microporous membranes must transport water vapour through tiny holes to the outside. This moisture transport is a passive process, which only works when a relatively high partial vapour pressure gradient is present. In modern, highly insulated structures, this is difficult to achieve. Another disadvantage arises when a lot of vapour must escape. This may lead to a moisture film forming on the inside of the membrane. The result is that the membrane becomes denser, the structure does not dry effectively, and damage may occur. If a film of moisture freezes in the winter, a vapour barrier effect may even be created.

Absolute permeability and maximum sealing: Monolithic SOLITEX membrane

Pore-free membrane: high component protection

Pore-free membranes provide protection against driving rain in particular. Since their membrane functions without pores, even high impact speeds or reduced surface tension of water droplets are not a problem.
These monolithic membranes transport moisture to the outside – the more moisture is present, the faster the transport speed. Their diffusion resistance decreases. Only a minimal partial vapour pressure gradient is required for the transport.

Pore-free membrane: active moisture transport



The result is that non-porous, monolithic membranes with moisture-activated functional film deliver a high level of reliable protection from outside moisture for structural components while maintaining consistent diffusion-openness at the same time.

Conclusion

Conventional approach: Micropore membrane

Micropores in a functional film:

- ✖ Conventional protection against driving rain
- ✖ Passive moisture transport
- ✖ Large vapour partial pressure gradient required
- ✖ Wet membrane becomes more closed to diffusion

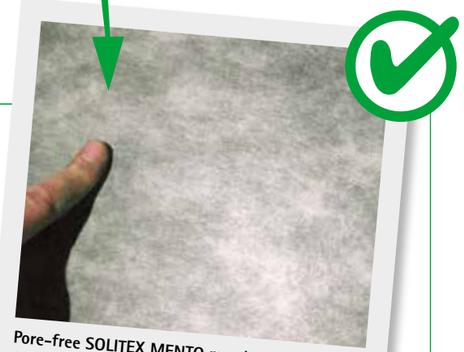
Microporous membrane:
No active moisture transport > A wet structure.

One roof, the same conditions, different results:
pore-free SOLITEX MENTO membrane on the hip roof, microporous membrane on the main roof surfaces to the left and right.

SOLITEX approach: Pore-free membrane for greater reliability

Pore-free SOLITEX membrane:

- ✔ Maximum protection against driving rain
- ✔ Water column > 10 000 mm (approx. 33 ft)
- ✔ Active moisture transport
- ✔ Minimum vapour partial pressure gradient required
- ✔ Wet membrane becomes more open to diffusion
- ✔ No tent effect
- ✔ Can be used as a temporary covering



Pore-free SOLITEX MENTO membrane:
Active moisture transport > Dry structure, no condensation.

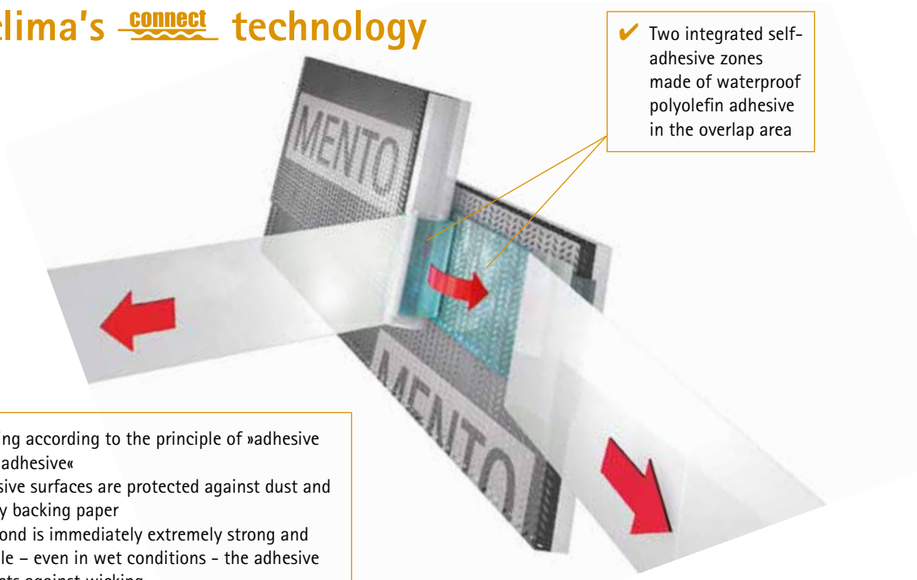
The SOLITEX membrane – Absolute permeability … and maximum sealing

- ✔ SOLITEX MENTO ULTRA: high degree of occupational safety, even for large-sized roof tiles, in accordance with the requirements of DIN 4426 »Equipment for protection against falls on roofs«
- ✔ Ensures reliable building components: highly diffusion-open and maximum protection against driving rain
- ✔ Dry building components: pore-free TEEE functional membrane actively transports moisture to the outside
- ✔ Permanent protection thanks to the high resistance to ageing and heat of the TEEE membrane
- ✔ Maximal flexibility in planning construction schedules thanks to up to 6 months of outdoor exposure
- ✔ Optimal insulating effect thanks to wind sealing
- ✔ High degree of protection for building structures during the construction phase: suitable as a temporary covering/seal during the construction period
- ✔ SOLITEX MENTO PLUS / ULTRA: extremely robust thanks to reinforcement: suitable for blown-in insulation materials

Reliable seals more quickly

pro clima's connect technology

- ✔ Two integrated self-adhesive zones made of waterproof polyolefin adhesive in the overlap area



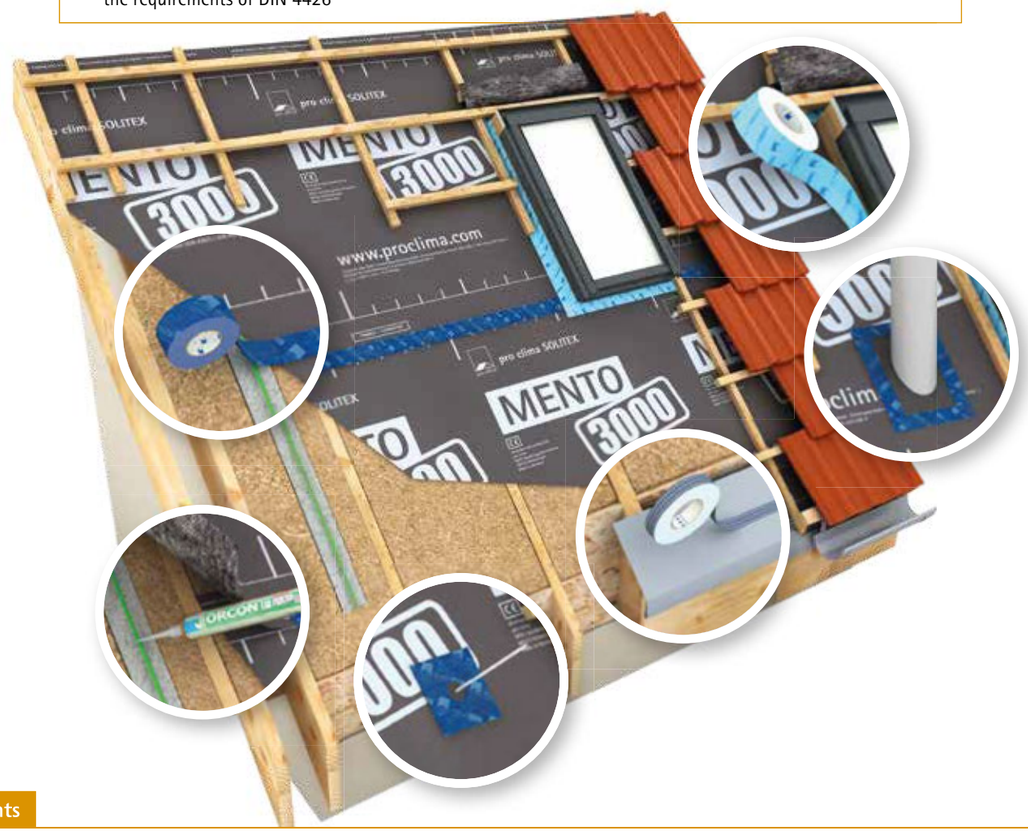
- ✔ Bonding according to the principle of »adhesive in an adhesive«
- ✔ Adhesive surfaces are protected against dust and dirt by backing paper
- ✔ The bond is immediately extremely strong and reliable – even in wet conditions - the adhesive protects against wicking

The SOLITEX MENTO® family

Highly permeable roof lining and sarking membranes that actively manage moisture for installing on linings, MDF and fibreboard roof lining panels and on all kinds of insulating materials. Suitable for use as a temporary cover.

Advantages

- ✔ Maximal flexibility in planning construction schedules thanks to up to 6 months of outdoor exposure
- ✔ Ensures reliable building components: highly diffusion-open and maximum protection against driving rain
- ✔ Dry building components: pore-free TEEE functional membrane actively transports moisture to the outside
- ✔ Permanent protection thanks to the TEEE membrane's high resistance to ageing and heat
- ✔ High degree of protection for building structures during the construction phase: suitable as a temporary covering/seal during the construction period
- ✔ SOLITEX MENTO PLUS / ULTRA: extremely robust thanks to reinforcement: suitable for blown-in insulation materials
- ✔ SOLITEX MENTO ULTRA: high degree of occupational safety, even for large-sized roof tiles, in accordance with the requirements of DIN 4426



System core components

SOLITEX MENTO Family
Protects against wind, rain and snow, and actively supports drying of building structure and insulation at the same time

ORCON F
Creates reliable joints with rough or mineral adjacent building components

ORCON MULTIBOND
Creates reliable joints with rough or mineral adjacent building components; joints can be subjected to loading immediately

TESCON VANA
Provides permanent, reliable adhesion that is airtight and rainproof – both indoors and outdoors

TESCON NAIDECK
Seals nail holes permanently and securely

A perfect membrane for every requirement

Also available in connect technology with two integrated self-adhesive zones

SOLITEX MENTO 1000 / 1000 connect
Light-weight roof underlay

SOLITEX MENTO 3000 / 3000 connect
Medium-weight roof underlay

High performance for all requirements

The 3-ply underlay membranes in the SOLITEX MENTO family offer perfectly coordinated solutions in terms of reliability and cost-effectiveness for a range of applications.
All SOLITEX MENTO membranes feature monolithic, pore-free functional membranes using the latest TEEE technology. The functional film lies safely protected between two robust, particularly tear-resistant protective and covering fleeces made of polypropylene – this is ideal for the high loads that occur when walking on or installing the membranes and when fitting the roof covering. In addition, the covering fleece is designed to be water-repellent and provides ideal protection against penetrating moisture. It protects the special film underneath it against damage and UV radiation. The honeycomb structure guarantees good non-slip behaviour even in wet conditions. The membranes are glare-free as a result of the dark grey colour of the upper covering fleece. Watertightness of 10 000 mm (approx. 33 ft) of water column is achieved, i.e. SOLITEX MENTO membranes are watertight even in heavy driving rain and can be exposed to outdoor weathering for up to four months.

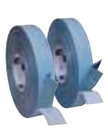
Best protection for roofs

SOLITEX MENTO membranes have a pore-free, closed-cell TEEE membrane that offers particularly good protection against driving rain. In contrast with conventional lining membranes where diffusion results from air exchange through a microporous membrane, diffusion occurs actively along the molecule chains in the case of a SOLITEX MENTO membrane. At the same time, SOLITEX MENTO membranes have very low diffusion resistance with an s_d-value of 0.05 m and a g-value of 0.25 MNtt.
Thanks to active moisture transport, the TEEE membrane has an extremely fast drying capacity that protects the membrane against ice formation in winter. This is of great benefit for the stability of the overall structure, as permeable underlay membranes turn into vapour barriers when ice forms (ice is impermeable) and act as moisture traps.
Other features of TEEE membranes include reliable protection in the presence of wood preservatives (drops of water cannot penetrate the membrane even if there is reduced surface tension, as there are no pores present) and the particularly high thermostability (melting point of TEEE 200 °C (390 °F), PP approx. 140 °C (280 °F). This stability at high temperatures gives the plastic material extremely high ageing stability over a period of decades – even on dark-coloured roofs.

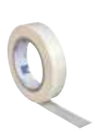
More information

Web
proclima.com/products/external-sealing

Supplementary products for detail solutions

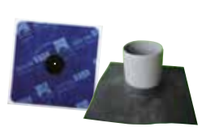


TESCON PROFECT
Provides permanent, reliable adhesion in corners in an airtight and rainproof manner – both indoors and outdoors

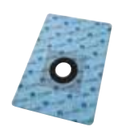


DUPLEX
Sticks membrane overlaps and joints

TESCON PRIMER RP / TESCON SPRIMER
Primes and strengthens subsurfaces in a simple, quick and permanently reliable manner



KAFLEX / ROFLEX
Allows for quick, reliable joints to cables and pipes – airtight on the inside, and resistant to driving rain and windtight on the outside



ROFLEX exto
Allows for quick joints that are windtight and resistant to driving rain between pipes and ventilation tiles

Planning and construction guidelines

In certain cases, there are differing requirements and conditions for the use of underlay membranes in various countries. For example, these might relate to minimum roof slopes or possible additional measures such as joint bonding or the use of nail sealing tape.
For this reason, please always observe the valid national regulations that apply to the use of underlay membranes in each specific case.

Areas of application

Membranes in the SOLITEX MENTO family can be used as both underlay and sarking membranes. They stop cold air from flowing through the building structure and ensure that the thermal insulation works in an optimal manner. With its extremely high level of watertightness and high stability, the SOLITEX MENTO family can also be used as a temporary covering.
They are suitable as an additional measure for rainproofing as sarking membranes when covering a roof with roofing tiles with simple overlapping. When used as an underlay membrane with simple overlapping on wooden decking, SOLITEX MENTO membranes are suitable as an additional measure for rainproofing even in the case of more demanding requirements.

Use as a temporary covering

SOLITEX MENTO membranes can be used as temporary covering for up to 4 months to protect the building structure during the construction phase.
The minimum pitch for the use of SOLITEX MENTO membranes is stipulated by national regulations in certain cases. For further information, please contact the pro clima partner in the country where the membranes are to be used. System adhesive tapes and adhesives should be used to stick overlaps and joints.
The connect variants have two self-adhesive zones for reliable exterior sealing. Dark marks may form on the membrane as a result of rainwater. These have no influence on the high high level of watertightness and the effectiveness of the interior membrane.

No rear ventilation is necessary

No rear ventilation is necessary thanks to the high diffusion permeability of pro clima SOLITEX MENTO, rear ventilation of insulation is not required. The membrane can be applied directly onto the thermal insulation in all cases, i.e. the insulation thickness can be equal to the full height of the rafters. In the case of non-insulated attics, it is advantageous to provide hip ridge ventilation in order to ventilate the attic space. Complicated and often ineffective aeration and ventilation details at the eaves, ridge, valley, hip and additional roof features are thus unnecessary.

Maximum diffusion permeability

Moisture can dry out of the structure to the outside more easily and more quickly. This is advantageous both during the construction phase (when construction timber may be moist) and during normal use (when moisture from indoor air penetrates into the structure by diffusion or convection). As a rule, moisture due to construction work should be able to escape the building quickly by ventilation through open windows. Dryers can help to speed up the drying process in wintertime. This helps to avoid permanently high levels of relative humidity.

No tent effect

The pore-free SOLITEX MENTO membrane offers particularly good protection against driving rain. Membranes in the SOLITEX MENTO family can be installed directly on top of insulation materials or roof decking. A tent effect is reliably prevented by the monolithic membrane and the multi-layer structure. The term 'tent effect' refers to the phenomenon that watertight tent sheets cause the entry of large amounts of moisture into building components at their points of contact.

Retrofitting underlays

Insufficient roof linings can be rectified internally by retrofitting SOLITEX MENTO roof lining membranes.
In cases where there were previously no underlays, these can be retrofitted using SOLITEX MENTO. SOLITEX MENTO membranes provide optimal protection for the insulation structure thanks to the new technology of pore-free membranes. They are highly permeable and, at the same time, particularly resistant to driving rain, tear-resistant and insensitive to wood preservatives.
SOLITEX MENTO 1000 and 3000 can be combined with all mat-shaped and panel-shaped insulation materials.

Installation and fastening

The SOLITEX MENTO family is installed with the dark grey covering fleece side (printed side) facing outwards. The membranes can be installed taut parallel or perpendicular to the eave. Horizontal installation (perpendicular to the eave) is preferable with regard to water flow paths during the construction phase. When the product is used as a sarking membrane, the rafter spacing is limited to 1 m (3 ft).
Use clout nails or fastening staples that are at least 10 mm/0.39" wide and 8 mm/0.31" long to attach the membranes. The membranes can only be fastened with staples in the protected overlap area. The maximum distance between fasteners is 10 to 15 cm/4" to 6".
Allow for an overlap of at least 10 cm/4" between the membranes. A larger overlap is recommended if the roof slope is less than the critical roof slope.

Approval and composition

The special membranes in the SOLITEX MENTO family are made of a thermoplastic elastomer-ether-ester; the protective and covering fleeces are made of polypropylene. All SOLITEX MENTO membranes have been tested in accordance with the requirements of EN 13859-1. They have the CE label.

Technical hotline

If you have questions on applications, please contact: proclima.com/service/technical-support

General information on sticking the membranes

pro clima adhesive tapes for exterior bonding have very good adhesion behaviour on:

- Subsurfaces that are dry, smooth and free of dust, bitumen and grease
- Smooth surfaces such as wood-based panels (chipboard, OSB panels, plywood)
- Planed and painted wood
- Plastic, glass, metal, and PE, PA, PP and aluminium sheeting (surface tension > 40 dyn)
- Smooth mineral subsurfaces (e.g. plaster or concrete; pre-treated with e.g. TESCON SPRIMER) and
- Wood fibre underlay panels (pre-treated with e.g. TESCON SPRIMER)

Adhesion to frozen surfaces is not possible. Subsurfaces must be suitable for permanent bonding. The best results in terms of structural stability are obtained on high-quality subsurfaces. To ensure optimal bonding, the tape must be rubbed into place carefully e.g. with pro clima PRESSFIX. A hard subsurface (such as timber, solid thermal insulation materials) is advantageous here. No permanent tensile or shear stresses may act on bonds implemented using adhesive tape. It is your responsibility to check the suitability of the subsurface. Adhesion tests may be advisable.

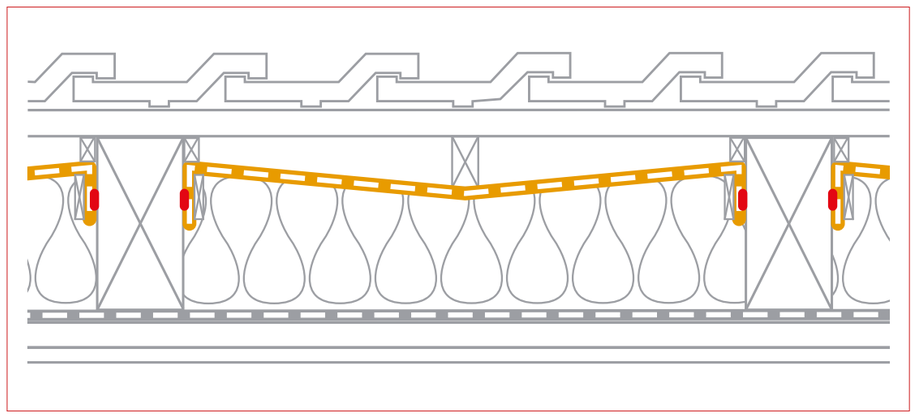
Repairs

Surface defects can be sealed with SOLITEX MENTO membranes and the system adhesive tapes. The repair patch on the roofing membrane should then be positioned underneath the overlap of the next continuous roofing membrane above the defect and should be joined in a waterproof manner.

Conditions

SOLITEX MENTO membranes should be laid with the printed side facing the installer. The membranes are to be installed as an underlay or sarking membrane horizontally (parallel to the eave) in a taut manner with no sagging. When using as a sarking membrane the spacing between the rafters is restricted to 1 m (3 ft). pro clima's Engineering Hotline or your local pro clima partner will be glad to provide information on how to proceed in the case of larger spacings.
The membrane must not be secured in areas where water collectively drains off (e.g. in grooves).
In the case of uninsulated, undeveloped attic floors, ridge ventilation should be provided. For this purpose, the SOLITEX membrane should finish 5 cm (2") before the ridge. In addition, the undeveloped attic floor should be provided with permanent ventilation devices. The membrane should be protected against the long-term effect of UV (e.g. by blocking the entrance of light through the windows).

To protect the construction during the building SOLITEX MENTO roof lining membranes can be used as a temporary roof cover for up to 4 months.
In this case the roof pitch must be at least 14°. The system components TESCON NAIDECK nail sealing tape, ORCON F joint adhesive and TESCON VANA for sticking overlaps or joints must be used. The connect versions have two self-adhesive zones for secure exterior sealing. The applicable national regulations must be taken into account when installing and sticking pro clima underlay membranes.
According to the technical regulations of the roofing trade association, they are suitable as a sarking membrane for covering a tiled roof with simple overlapping as an additional protective measure against rain. When using as a roof lining membrane with simple overlapping on a timber shell, the SOLITEX MENTO membranes are also suitable at elevated requirements as an additional protective measure against rain.



Installation instructions

Installing the membrane

Roll out the membrane parallel to the eave and use galvanised staples that are at least 10 mm (3/8") wide and 8 mm (5/16") long to fasten the membrane in the overlap area in a manner that protects against moisture. Install the membrane to stop approx. 4 cm (2") short of adjacent building components so that a windtight bond can be applied here subsequently.

Overlapping the membranes

Allow for an overlap of 10 – 15 cm (4" – 6") between the membranes. The marking that is printed onto the membrane will serve as a guide here.

Sticking the overlap

Clean the subsurface (dry and free of dust, silicone and grease) and carry out an adhesion test, if necessary. Centre the TESCON VANA system adhesive tape on the overlap and gradually stick it in place, ensuring that there are no folds or tension.

Connect adhesion technology

Sticking of membrane overlaps using connect membranes with two integrated self-adhesive zones. Rub the adhesive joint firmly (PRESSFIX), taking care to ensure that there is sufficient resistance pressure.

TESCON VANA
Provides permanent, reliable adhesion that is airtight and rainproof – both indoors and outdoors

Ridge / hip formation

In the case of fully insulated cross sections, place membranes over the ridge/hip and attach in place using staples in the area of the counter batten. Overlap relative to the membrane underneath of at least 10 - 15 cm (4"- 6"). Then stick in an airtight manner using the TESCON VANA system adhesive tape. Alternatively, stick a wide strip of TESCON VANA onto the ridge. Press firmly to secure the adhesive tapes in place.

Sealing at eaves

Position the membrane on the eave flashing or eave strip and stick in place using the integrated self-adhesive zone (for connect membranes), double-sided DUPLEX adhesive tape or single-sided TESCON VANA system adhesive tape, ensuring that there are no folds or creases.

Sealing to rough or mineral subsurfaces

First create a smooth finish on rough wall caps. Clean the subsurface. Apply a line of ORCON F system adhesive with a thickness of 5 mm (3/16") – more in the case of rough subsurfaces, if necessary. Apply the membrane, leaving slack to allow for expansion, and do not press the adhesive completely flat.

DUPLEX
Sticks membrane overlaps and joints

ORCON F
Creates reliable joints with rough or mineral adjacent building components

Installation instructions continued

TESCON VANA
Provides permanent, reliable adhesion that is airtight and rainproof – both indoors and outdoors

Sealing at skylights

SOLITEX membranes can be bonded to smooth surfaces such as skylights, chimneys, pipes and other roof elements using the TESCON PROFECT system adhesive tape.

Installation of a water deflector

Install a batten with a lateral fall above the integrated roof element and stick it to the membrane using TESCON VANA. Create the water deflector in such a way that moisture is guided by a continuous counter batten into the next adjacent field that does not have an integrated roof element.

TESCON NAIDECK
Seals nail holes permanently and securely

Nail sealing

When installing temporary covering, TESCON NAIDECK nail sealing tape must be installed between the counter battens and the SOLITEX membrane in order to create a seal.

Technical data

SOLITEX MENTO 1000 / SOLITEX MENTO 3000

Material		SOLITEX MENTO 1000	SOLITEX MENTO 3000
Protective and covering fleece		Polypropylene microfibre	Polypropylene microfibre
Membrane		monolithic TEEE	monolithic TEEE
Attribute	**Regulation**	**Value**	**Value**
Colour		anthracite	anthracite
Surface weight	EN 1849-2	115 g/m² ; 0.38 oz/ft²	150 g/m²; 0.5 oz/ft²
Thickness	EN 1849-2	0.40 mm ; 16 mils	0.45 mm ; 18 mils
Water vapor resistance factor μ	EN ISO 12572	125	110
s_d-value	EN ISO 12572	0.05 m	0.05 m
g-value		0.25 ±0.1 MN·s/g	0.25 MN·s/g
Vapor permeance	ASTM E 96	65.6 US perms	38 US perms
Surface burning characteristics	ASTM E 96	Class A (Flame Spread 0; Smoke Developed 85)	-
Fire rating	EN 13501-1	E	E
Exposure time		3 months	4 months
Water column	EN ISO 811	10 000 mm ; 32' 10"	10 000 mm ; 32' 10"
Water tightness non-aged/aged*	EN 13859-1	W1 / W1	W1 / W1
Tensile strength MD/CD	EN 13859-1 (A)	220 N/5 cm / 170 N/5 cm ; 25 lb/in / 19 lb/in	280 N/5 cm / 220 N/5 cm ; 32 lb/in / 25 lb/in
Tensile strength MD/CD aged*	EN 13859-1 (A)	185 N/5 cm / 160 N/5 cm ; 21 lb/in / 18 lb/in	240 N/5 cm / 165 N/5 cm ; 27 lb/in / 19 lb/in
Elongation MD/CD	EN 13859-1 (A)	60 % / 70 %	60 % / 70 %
Elongation MD/CD aged*	EN 13859-1 (A)	40 % / 50 %	50 % / 65 %
Nail tear resistance MD/CD	EN 13859-1 (B)	130 N / 135 N ; 29 lbf / 30 lbf	180 N / 230 N ; 40 lbf / 52 lbf
*) Durability after artificial ageing	EN 1297 / EN 1296	passed	passed
Flexibility at low temperature	EN 1109	-40 °C ; -40 °F	-40 °C ; -40 °F
Temperature resistance	EN 1109, EN 1296, EN 1297	permanent -40 °C to 100 °C ; -40 °F to 212 °F	permanent -40 °C to +120 °C; -40°F to 248°F
Thermal conductivity		2.3 W/(m·K) ;16 BTU·in/(h·ft²·F)	2.3 W/(m·K) ;16 BTU·in/(h·ft²·F)
Weight-bearing	GS-BAU-20 (10/2003)	–	passed
Sarking membrane/roof lining membrane	ZVDH-Produkt-datenblatt	USB-A / UDB-B	USB-A / UDB-A
Temporary roof covering; suitable as ...	ZVDH	yes	yes
CE labelling	EN 13859-1	available	available

ORCON F

		Substance
Material		Dispersion based on acrylic acid copolymers and ethanol. Free from plasticisers, halogens
Attribute	**Regulation**	**Value**
Colour		green
Properties		very tensile
Requirement for bond strength, non-aged/aged	DIN 4108-11	passed
Application temperature		-10 °C to 50 °C ; 14 °F to 122 °F
Temperature resistance		permanent -40 °C to 80 °C ; -40 °F to 176 °F
Storage		up to -20 °C; -4 °F, cool and dry

ORCON MULTIBOND

		Substance
Material		SOLID acrylate, no plasticisers, solvents, emulgators or preservatives
Release film		Silicone-coated PP film
Attribute	**Regulation**	**Value**
Colour		translucent green
Width of adhesive bead		11 mm ; 7/16"
Thickness of adhesive bead		3 mm ; 1/8"
Moisture resistance		waterproof
Requirement for bond strength, non-aged/aged	DIN 4108-11	passed
Adhesion	EN 1939	16 N/cm
Application temperature		from -15 °C ; 5 °F
Temperature resistance		permanent -40 °C to 100 °C ; -40 °F to 212 °F
Storage		horizontal, cool and dry, protect from direct sunlight

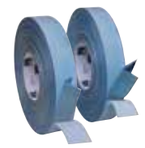
TESCON VANA

		Substance
Backing		special PP fleece
Adhesive		waterproof SOLID adhesive
Release film		siliconized paper
Attribute	**Regulation**	**Value**
Colour		dark blue
Exposure time		6 months
Requirement for bond strength, non-aged/aged	DIN 4108-11	passed
Can be plastered over		yes
Application temperature		above -10 °C ; 14 °F
Temperature resistance		permanent -40 °C to 90 °C ; -40 °F to 194 °F
Storage		cool and dry

TESCON NAIDECK

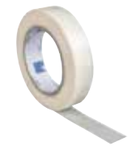
	Substance
Material	Butyl rubber
Release film	siliconized paper
Attribute	**Value**
Colour	black
Thickness	1.0 mm
Exposure time	6 months, installed under the counter battens
Application temperature	5 °C to +35 °C ; 41 °F to 95 °F
Temperature resistance	permanent -40 °C to 80 °C ; -40 °F to 176 °F
Storage	cool and dry

TESCON POFECT



		Substance
Fleece		special PP fleece
Adhesive		special pressure sensitive acrylic adhesive
Release film		silicone-coated PE film
Attribute	**Regulation**	**Value**
Colour		light blue
Thickness		0.5 mm
Exposure time		3 months
Requirement for bond strength, non-aged/aged	DIN 4108-11	passed
Can be plastered over		yes
Application temperature		above -10 °C ; 14 °F
Temperature resistance		permanent -40 °C to 90 °C ; -40 °F to 194 °F
Storage		cool and dry

DUPLEX



		Substance
Adhesive		special acrylate adhesive
Release film		silicone-coated PE film
Reinforcement		Plastic
Attribute	**Regulation**	**Value**
Colour		transparent
Requirement for bond strength, non-aged/aged	DIN 4108-11	passed
Application temperature		above -10 °C ; 14 °F
Temperature resistance permanent		-40 °C to 90 °C ; -40 °F to 194 °F
Storage		cool and dry

ROFLEX 30 – 300

		Substance
Material		EPDM
Attribute	**Regulation**	**Value**
Colour		black
Exposure time		6 months
Application temperature		above -10 °C ; 14 °F
Temperature resistance		permanent -40 °C to 150 °C ; -40 °F to 302 °F
Storage		cool and dry

TESCON PRIMER RP

	Substance
Material	acrylic copolymer, solvent-free
Attribute	**Value**
Colour	white
Application temperature	-10 °C to 45 °C ; 14 °F to 113 °F
Temperature resistance	permanent -40 °C to 90 °C ; -40 °F to 194 °F
Storage	protect from frost, cool and dry

TESCON SPRIMER

	Substance
Material	Synthetic rubber
Attribute	**Value**
Colour	translucent
Application temperature	-5 °C to 40 °C ; 23 °F to 104 °F
Temperature resistance	permanent -25 °C to ~90 °C, short-term up to 100 °C (1h); °F: -13 to ~195; 212
Storage	12 months, protect from frost, cool and dry

KAFLEX mono / duo

		Substance
Material		TESCON VANA width EPDM
Adhesive		waterproof SOLID adhesive
Release film		siliconized paper
Attribute	**Regulation**	**Value**
Colour		dark blue / black
Exposure time		6 months
Requirement for bond strength, non-aged/aged	DIN 4108-11	passed
Can be plastered over		yes
Application temperature		above -10 °C ; 14 °F
Temperature resistance EPDM		permanent -40 °C to 150 °C ; -40 °F to 302 °F
Storage		cool and dry

ROFLEX exto

		Substance
Backing		Spezial-Vlies aus PP mit EPDM
Adhesive		waterproof SOLID adhesive
Release film		centrally divided silicone-coated PE film
Attribute	**Regulation**	**Value**
Colour		light blue
Thickness		about 1.2 mm ; 47 mils
Pipe diameter		100 - 120 mm ; 4" - 4.75"
Exposure time		6 months
Bonding requirement, non-aged/aged	DIN 4108-11	passed
Application temperature		above -10 °C ; 14 °F
Temperature resistance EPDM		permanent -40 °C to 150 °C ; -40 °F to 302 °F
Storage		cool and dry

WARRANTY AGREEMENT

comprehensive • transparent • fair

Moll bauökologische Produkte GmbH, Rheintalstraße 35–43, 68723 Schwetzingen, Germany

Version: March 2019

1. Subject of this Warranty Agreement

Moll bauökologische Produkte GmbH (hereinafter referred to as "Moll") hereby assumes a limited manufacturer's warranty in accordance with the conditions of this Warranty Agreement for pro clima standard products supplied by Moll (hereinafter referred to as "product") for the benefit of the party entitled to make claims as per Clause 2 for the warranty period as per Clause 4.

2. Party entitled to make claims

The party entitled to make claims shall be the customer that purchased the product directly from Moll as well as this customer's end customer that processes the products, insofar as this end customer can prove that it has purchased the products from a direct customer of Moll (hereinafter referred to as the "Claimant"). Presentation of the purchase receipt or – insofar as no written contract exists – of the invoice (hereinafter referred to as the "proof of entitlement to make claims") shall suffice as proof of entitlement to make claims.

3. Warranty event

A warranty event in the sense of this Warranty Agreement shall only exist if a deviation in the characteristics of the product with respect to the specification from Moll that was valid at the time of the purchase becomes evident within the warranty period as per Clause 4 and if this deviation cannot be ascribed to an error in the use of the product – in particular, to non-observance of the operating, maintenance or installation instructions – or to external influences on the product. Moll explicitly refuses to provide any warranty that goes beyond this.

4. Warranty period

The warranty period for products shall begin at the time of the sale of the product to the first customer by Moll and shall end six years after this time. The warranty period shall extend to ten years after the time of the sale of the product to the first customer by Moll if installation of the products is carried out solely in combination with pro clima standard products, insofar as products for the relevant application are available as part of the pro clima system.

5. Notification of a warranty event

If a warranty event as per Clause 3 occurs within the warranty period as per Clause 4, the Claimant must notify Moll of this in writing without delay within the warranty period as per Clause 4, but at the latest within fourteen days of the Claimant becoming aware of the warranty event, and the Claimant must include proof of entitlement to make claims with this notification.

6. Warranty claims

If the Claimant has notified Moll properly as per Clause 5 of a warranty event as per Clause 3 within the warranty period as per Clause 4, Moll shall at its own discretion supply a replacement product to the Claimant at the place of use of the defective product at Moll's own expense or shall rectify the fault with the product.
If the product has already been installed, Moll shall at its own discretion either bear the documented, reasonable costs for its installation and removal or else commission a third party to carry out installation and removal. The Claimant who makes a claim in this manner must present a binding cost estimate to Moll at the Claimant's own expense and obtain a decision from Moll as to whether Moll will bear these costs or commission a third party to carry out installation and removal. The warranty claims of the claimant described above shall be final and MOLL shall assume no further liability.

7. Period of limitation

The warranty claims as per Clause 6 shall expire within one year of notification of these claims being provided.

8. Legal claims

Any legal claims by the Claimant against Moll or against a customer of Moll as a seller shall remain unaffected by this Warranty Agreement.

9. Final provisions

Schwetzingen is hereby agreed as exclusive place of jurisdiction for both parties. However, Moll shall also be entitled to take legal action against the Claimant at the Claimant's generally applicable place of jurisdiction.
This Warranty Agreement shall be solely subject to German law to the exclusion of the United Nations Convention on Contracts for the International Sale of Goods (CISG).
Should individual provisions of these Terms and Conditions be or become legally invalid, the legal validity of the remaining provisions shall remain unaffected. In this case, the parties shall be obliged to conduct negotiations in good faith with the aim of replacing the invalid provision with a valid provision that corresponds as closely as possible to the intended economic purpose of the invalid provision. This shall apply accordingly in cases of loopholes in this Warranty Agreement.

100 YEARS

CONFIRMED BY TESTS

Permanent airtightness with pro clima!
Tested for the entire usage period

- **Reliable functioning tested for 100 years**
- **Independently confirmed**
- **Minimum requirements significantly exceeded**

Thermal insulation and airtightness should perform for more than 50 years

Adhesive joints for the creation of airtightness in accordance with DIN 4108-7, SIA 180 or RT 2012 should have a durability of 50 to 100 years – after all, this is the expected service life of the thermal insulation structures that they have to reliably protect against damage due to the convective entry of moisture. This period corresponds with reality, as airtightness is currently being optimised and thermal insulation is being replaced or adapted for today's legal requirements on structures dating from the 1950s, 1960s and 1970s.

As little as 17 years can be regarded as permanent

Processes for accelerated ageing of joints with adhesive tapes and adhesive masses have been developed at the University of Kassel as part of two research projects on quality assurance for adhesive-based joint technology in airtightness layers. These new processes are now included in the DIN 4108-11 standard, which demands that adhesive joints have to demonstrate certain specified minimum tensile strengths after being stored at increased air temperature and humidity (65 °C and 80 % relative humidity) for a period of 120 days (this corresponds to around 17 years in reality). The joint can then already be regarded as permanent.

pro clima adhesive tapes and adhesives have been successfully tested for 100 years

As part of tests on the permanence of airtight joints, pro clima's TESCON VANA, UNI TAPE and TESCON No.1 adhesive tapes and the ORCON F joint adhesive have also been subjected to accelerated ageing at the University of Kassel under the conditions described above. The test period was also increased from 120 days to 700 days here. Accelerated ageing for 700 days corresponds to 100 years in reality. The test results for the four adhesive materials from pro clima were also positive for this increased period of accelerated ageing.

You are on the safe side with pro clima!

TESCON® Vana

UNI TAPE

TESCON® №1

ORCON® F

These demanding tests with increased test periods have confirmed the suitability of the TESCON VANA, UNI TAPE and TESCON No.1 adhesive tapes and of the ORCON F joint adhesive for the creation of permanent airtightness in accordance with the requirements of DIN 4108-7, SIA 180 and RT 2012. This confirms that vapour retarders, airtight membranes and airtight wood-based panels can be reliably and verifiably stuck and bonded using pro clima products!

pro clima partners

pro clima is one of the pioneers in intelligent air sealing. Today, we are active all around the world and provide complete sealing systems for interior and exterior use that include intelligent membranes, joining agents, quality assurance and comprehensive service.

pro clima – MOLL bauökologische Produkte GmbH

Rheintalstraße 35–43
68723 Schwetzingen
Germany

+49 (0) 62 02 – 27 82 0
info@proclima.com
proclima.com

Austria & Slovenija
Vinzenz Harrer GmbH
Badl 31
A-8130 Frohnleiten
+43 (0) 31 27 – 20 945
+43 (0) 31 27 – 20 945 218
office@harrer.at
www.harrer.at

Switzerland
pro clima schweiz GmbH
Teichgässlein 9
4058 Basel
info@proclima.ch
www.proclima.ch

France
pro clima France SARL
3 quai Jacques Sturm
+33 1 86 37 00 70
info@proclima.info
www.proclima.com

Luxemburg
MOLL bauökologische
Produkte GmbH
Rheintalstraße 35-43
D-68723 Schwetzingen
Allemagne
+49 6202 27 82 0
France
+33 1 86 37 00 70

Finland
Tiivistalo / Redi-Yhtiöt Oy
Yrittäjäntie 24
01800 KLAUKKALA
+358 (0)207 439 670
info@tiivistalo.fi
www.tiivistalo.fi

Ireland & Northern Ireland
Ecological Building Systems
Main Street, Athboy
County Meath
C15 Y678
Republic of Ireland
+353 46 94 32 104
info@ecological
buildingsystems.com
www.ecological
buildingsystems.com

United Kingdom
Ecological Buildings Systems
Cardewlees, Carlisle
Cumbria, CA5 6LF, UK
Tel: +44 1228 711 511
Fax: +44 1228 712 280
info@ecological
buildingsystems.com
www.ecological
buildingsystems.com

Island
Redder ehf byggingalausnir
Hyrjarhofda 2
110 Reykjavik
Iceland
+35 45 58 08 88
redder@redder.is
www.redder.is

Denmark
BetaPack a/s
Agerskovvej 9
8362 Hørning
+45 70 20 87 00
js@betapack.dk
www.betapack.dk

Belgium
ISOPROC
Boterstraat 23a
2811 Mechelen (Hombeek)
+32 15 62 39 35
+32 15 62 39 36
info@isoproc.be
www.isoproc.be
be-nl.proclima.com
be-fr.proclima.com

Netherlands
for a list of stockists please
ask Mr. Axel Schmidt
+49 (0) 62 02 – 27 82 38
axel.schmidt@proclima.de
www.proclima.com

Spain
Sistemas Pasivos Materiales
Activos S.L.
c/Eduardo Dato-42-1°
E-01005 Vitoria - Gasteiz
+34 945 15 71 58
proclima@sistemaspasivos.es
www.sistemaspasivos.es

Poland
for a list of stockists please
ask Mr. Axel Schmidt
+49 (0) 62 02 – 27 82 38
axel.schmidt@proclima.com
www.proclima.com
www.proclima-polska.pl

Italy
Naturalia-Bau srl
Via Carlo Abarth Str. 20
39012 Meran / Merano (BZ)
+39 0473 499 050
+39 0473 499 060
info@naturalia-bau.it
www.naturalia-bau.it

Sweden
ISOLERINGSLANDSLAGET AB
Gamla tallet, Stora Wäsby
19437 Upplands Väsby
+46 20 44 66 40
info@isoleringslandslaget.se
www.isoleringslandslaget.se

Norway
for a list of stockists please
ask Mr. Jens-Lüder Herms
+49 (0) 62 02 – 27 82 41
jens.lueder.herms@proclima.com
www.proclima.com

Romania
for a list of stockists please
ask Mr. Jens-Lüder Herms
+49 (0) 62 02 – 27 82 41
jens.lueder.herms@proclima.com
www.proclima.com

Greece
for a list of stockists please
ask Mr. Jens-Lüder Herms
+49 (0) 62 02 – 27 82 41
jens.lueder.herms@proclima.com
www.proclima.com

Turkey
for a list of stockists please
ask Mr. Jens-Lüder Herms
+49 (0) 62 02 - 27 82 41
jens.lueder.herms@proclima.com
www.proclima.com

Czech Republic
CIUR a.s.
Pražská 1012
250 01 Brandýs nad Labem
Czech Republic
+420 326 901 411
+420 326 901 456
info@ciur.cz
www.ciur.cz
www.pro-clima.cz

Slovak Republic
VUNO HREUS, s.r.o.
Kvačalová 1207/47
010 04 Žilina
Slovak Republic
+421 41 56 26 799
vuno@vuno.sk
www.vuno.sk
www.proclima.sk

Russia
for a list of stockists please
ask Mr. Jens-Lüder Herms
+49 (0) 62 02 - 27 82 41
jens.lueder.herms@proclima.com
www.proclima.com

Latvia
Artiva Ltd
Sila iela 9 Riga, LV-1057
Office: Katlakalna iela 1,
Riga, LV-1073
+371 29 25 28 82
+371 29 11 61 16
info@artiva.lv
www.artiva.lv
www.proclimalv

Estonia
Tervemaja OÜ
Tähe 135A
50107 Tartu
+372 740 55 09
+372 56 509 709
tervemaja@tervemaja.ee
www.tervemaja.ee

Lithuania
Artiva Ltd
J. Kubiliaus str. 4b - 43
08241 VILNIUS
+370 682 41313
antanas@artiva.lv
www.proclima.lt

USA
475 High Performance
Building Supply
334 Douglass street
Brooklyn, NY 11217
+1 800 – 995 63 29
info@foursevenfive.com
www.foursevenfive.com

Canada
475 High Performance
Building Supply
207 - 1425 Marine Drive
West Vancouver
Canada V7T 1B9
+1 800 – 995 63 29
info@foursevenfive.ca
www.foursevenfive.ca

South Korea
Proclima Korea
Suyang-ri 474-3
Gonjiam-eup / Gwangiu-si
529-851 GYEONGGI-DO
+82 (0) 31 - 797 5473
+82 (0) 31 - 797 5472
info@proclima.co.kr
www.proclima.co.kr

Japan
EcoTransfer Japan K.K.
KDX Nihonbashi Edodori
Building, 3rd Floor
3-9-4 Nihonbashi Honcho
Chuo-Ku
Tokyo 103-0023
+81 3 56 40 26 97
+81 3 56 40 36 89
info@ecotransfer-japan.com
www.ecotransfer-japan.com

Australia
pro clima Australia Pty Ltd
Level 3, 15 – 21 Doody St.
Alexandria, Sydney, NSW 2015
+61 2 9160 8300
welcome@proclima.com.au
www.proclima.com.au

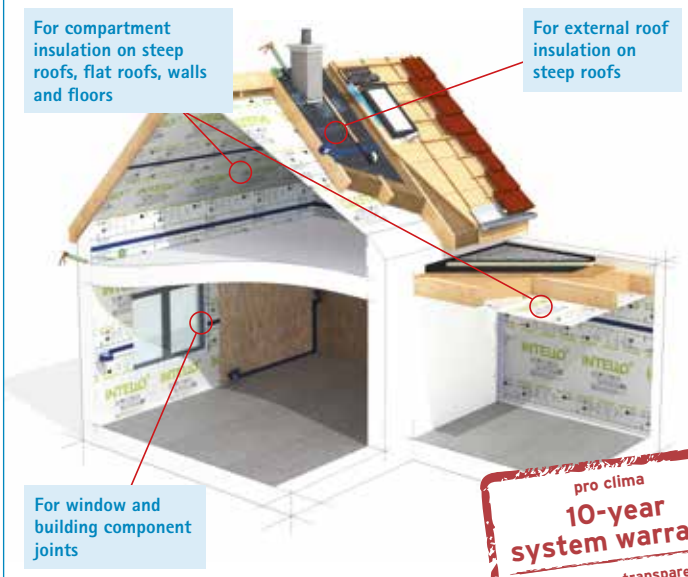
New Zealand
pro clima NZ Ltd
7 Daly Street
Lower Hutt 5010
+64 4 589 8460
welcome@proclima.co.nz
www.proclima.co.nz

Chile
for a list of stockists please
ask Mr. Jens-Lüder Herms
+49 (0) 62 02 – 27 82 41
jens.lueder.herms@proclima.com
www.proclima.com

Mexico
for a list of stockists please
ask Mr. Jens-Lüder Herms
+49 (0) 62 02 – 27 82 41
jens.lueder.herms@proclima.com
www.proclima.com

Additional system solutions for sealing the building envelope

Interior air sealing for new buildings



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10-year system warranty
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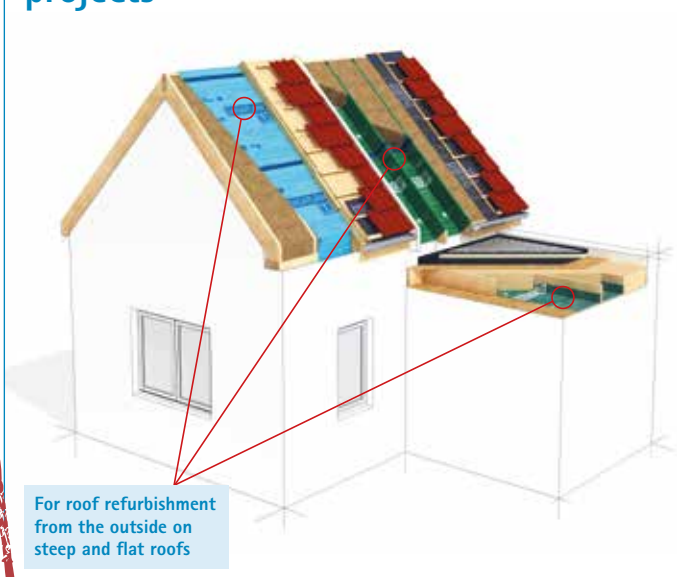
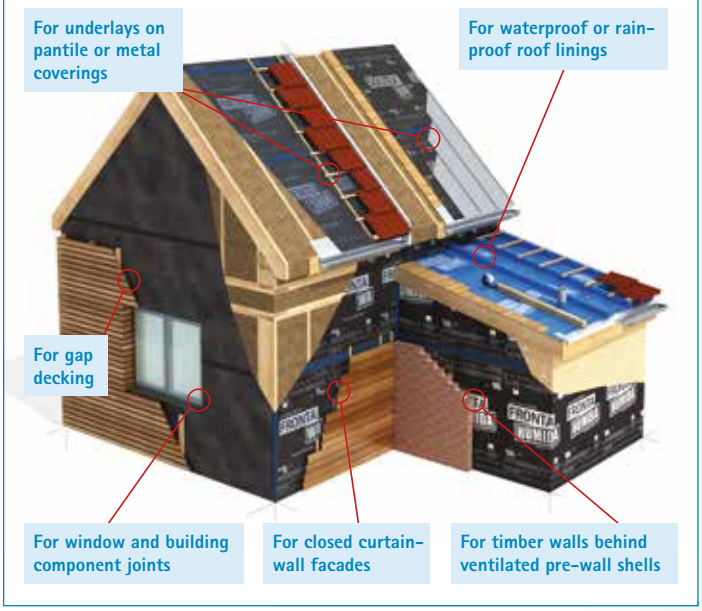
Interior air sealing for refurbishment projects



Exterior wind sealing for roofs and walls



Secure bonding and detail solutions

- All-round adhesive tapes and joint adhesives for interior and exterior use
- Plaster sealing tapes
- Sealing grommets

You can also visit pro clima online!

Further information and background information at

proclima.com

Information and ordering

You can obtain information on all pro clima systems, tender information and brochures quickly and simply by contacting our information service:
Phone: +49 (0) 62 02 – 27 82.0
info@proclima.com

proclima.com

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The applications and conditions described here are based on current state-of-the-art research and practical experience at the time of printing. We reserve the right to change the recommended structures and processing methods and to further develop and thus alter the quality of individual products. We would be glad to inform you about the current state of engineering knowledge at the time that your installation is carried out.

MOLL
Bauökologische Produkte GmbH
Rheintalstraße 35 – 43
68723 Schwetzingen
Germany
Phone: +49 (0) 62 02 – 27 82.0
info@proclima.com

pro clima®