

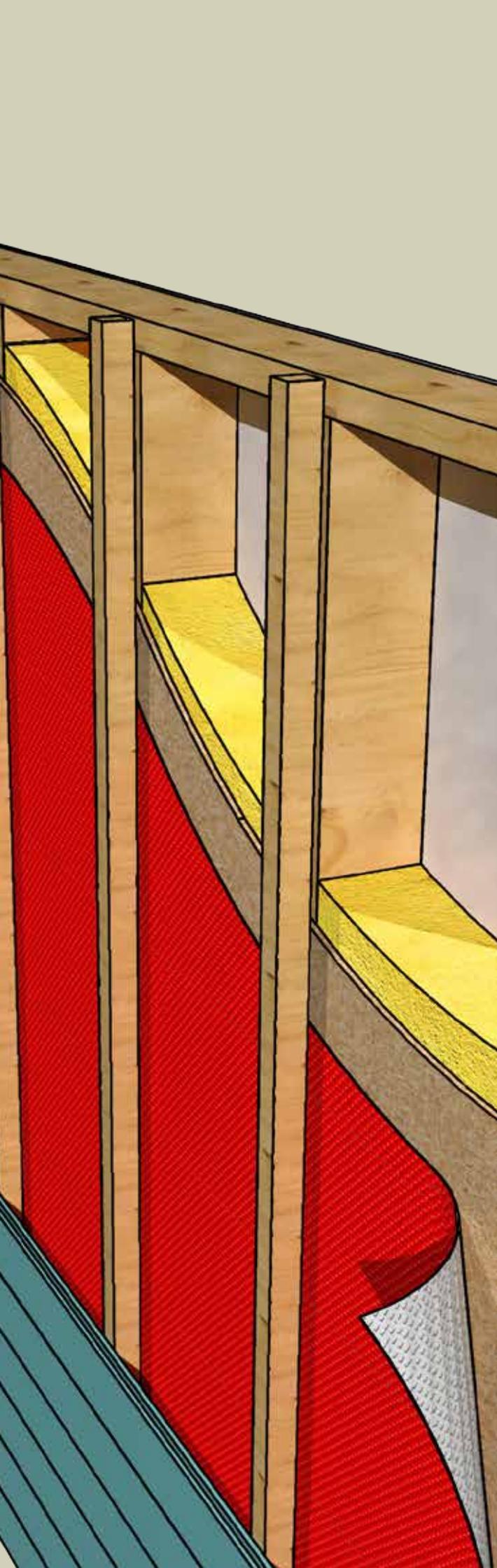
Wraptite

THE AIRTIGHT AND VAPOUR PERMEABLE MEMBRANE



Wraptite-SA
Airtightness simplified


proctor
GROUP LTD



The A. Proctor Group Ltd, a family-owned company in its fourth generation, has been providing solutions and products to the construction industry for over 50 years.

The built environment accounts for around 40% of Scotland's CO₂ emissions, generated through the heating, lighting and running of buildings (around 25% within domestic buildings and 15% within non-domestic buildings). At UK level, it is estimated that around 16% of the entire carbon footprint of the construction industry is related to design, manufacture, distribution and on-site operations activities, with 84% accounted for by energy use for electricity, water and space heating.

In buildings, air leakage normally manifests itself as uncontrolled flow of air through gaps and cracks in the fabric. The result shows significant reduction in the thermal performance and efficiency of structures.

The construction industry, driven by increasingly rigorous regulations and the overall energy-efficiency agenda, is putting the creation of airtight buildings at the top of the agenda, in refurb as well as new build.

The Wraptite membrane has been developed to provide the airtightness solution for all air leakage problems.



WRAPTITE-SA OFFERS A COMPELLING COMBINATION

Wraptite-SA combines important properties of vapour permeability and airtightness in one affordable self-adhering membrane. Wraptite-SA has received BBA certification (no. 15/5274) for use in both roofs and in walls behind the rain screen cladding making it an ideal choice for commercial projects with large uninterrupted facades. It is the only self-adhering vapour permeable air barrier certified by the BBA.

It fully bonds to virtually any substrate, with a key benefit being its ease of installation, negating requirement for sealants or tapes.

Wraptite-SA airtight membrane makes a significant contribution to a building's thermal performance by preventing lateral air movement, but it also contributes to a healthy living environment and a healthy building, thanks to its vapour permeability. With a rating of Sd 0.039, it provides a high degree of vapour permeability in a commercial quality, self-adhered, airtight breathable membrane.

Specifiers can have confidence that Wraptite-SA's performance is unsurpassed.

Composition

Wraptite-SA consists of a triple layer polypropylene micro-porous film laminate, with a proprietary acrylic moisture vapour permeable adhesive and silicone-coated PET release liner.

Drying Capacity

Wraptite-SA's high vapour permeability allows damp sheathing to dry quickly and moisture vapour to escape. This ensures good indoor air quality and reduces the likelihood of mould, mildew, condensation, timber distortion and metal corrosion.

Key Benefits

- Airtight yet vapour permeable
- BBA certification no 15/5274
- No primer required
- Tough facer laminate resists punctures and tears during construction
- Lightweight and easy to install
- Manufactured rolled goods ensure consistent properties and performance
- Wide service temperature range
- Can be left exposed for up to 90 days (North America) or 120 days (UK) during construction*
- No VOC's

Multiple Substrate Compatibility

- | | | |
|-----------------------------|--------------------------------------|--------------------|
| • Exterior Gypsum Sheathing | • Aluminium (painted or mill finish) | • OSB |
| • Most rigid insulation | • Cast-in-place concrete | • Rigid vinyl |
| • Pre-painted steel | • Galvanized metal | • Precast concrete |
| • Steel | • Concrete block | • Plywood |

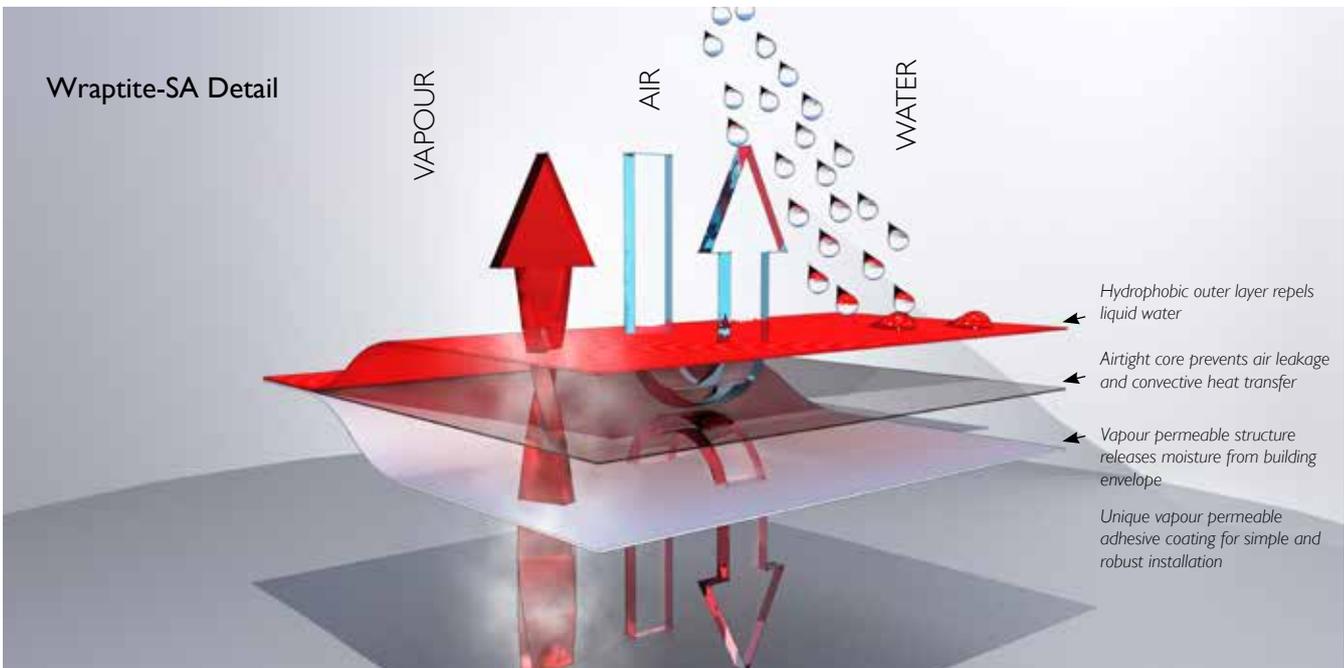
*Please contact the A. Proctor Group's technical department for advice on specific geographical locations.

WRAPTITE-SA PHYSICAL PROPERTIES

PROPERTY	TEST/STANDARD	RESULT
Roll Length	-	50m
Full Roll Width Tape Widths	-	1.5m 75mm, 100mm, 150mm
Roll weight		24kg
Nominal Thickness	Calibrated Deadweight Micrometer	0.65mm
Basis Weight	Electronic Weigh Scale	280 g/m ²
Installation Temperature	-	-6°C to 60°C
Service Temperature	-	-40°C to +100°C
Water Penetration	EN 1928 : 2000 Method A	Class W1 (before ageing) Class W1 (after ageing)
Air Permeance	EN 12114	0.01 m ³ /m ² .h.50 Pa
Water Vapour Permeability	EN ISO 12572 (C)	Sd 0.039
Water Vapour Transmission	BS 3177:1959	893 g/m ² .24hr
Peel Adhesion	-	>0.26N/mm
Tensile Strength	EN 12311-1	Mean MD 417N Mean XD 252N
Tear Resistance	EN 12310-1	Mean MD 412N Mean XD 286N
Dimensional Stability	EN 1107-2	MD -0.34% XD +0.02%
Reaction to Fire	EN 11925-2	Class D
Flexibility at Low Temperature	EN 1109	No cracks at -40°C

All tests carried out to EN 13859-2 standard





TESTING

A practical test of the extent of air leakage through a buildings fabric is an important part of ensuring “as built” performance come as close as possible to the design performance targets. Such testing also allows contractors to identify air leakage paths within the building, allowing them to take appropriate remedial action if the design targets are not met.

The methods governing such testing are laid out in EN13829, and are based around achieving a pressure differential between the inside of the building and the outside. Testing is done by pressurising the interior by blowing in air; and depressurising it by sucking air out. The pressurisation is achieved by replacing the door with a large powered fan, and pumping air in (or out) to reach the test pressure of 50 Pascals. The volume of additional air that must be provided to maintain this pressure is then measured.

This result, along with the buildings floor area is then used to arrive at the final air leakage result, which is expressed as cubic metres of air required (m^3) per hour per square metre of floor area (m^2) to maintain a pressure differential of 50 Pascals. This is usually written as $m^3/(h.m^2) @ 50Pa$, and a value no greater than $10 m^3/(h.m^2) @ 50Pa$ is required to demonstrate compliance with Part L in England, Wales and Northern Ireland. In Scotland (Section 5) and in the Republic of Ireland (Part L) this is reduced to $7 m^3/(h.m^2) @ 50Pa$, however the test procedure used is the same. In practice however; design values used are often lower than required by building regulation, making verification of compliance all the more important. ‘Passivhaus’ is a low energy construction standard. A Passivhaus building requires very little energy for heating or cooling, whilst providing a high level of comfort for the occupants.

Case Study

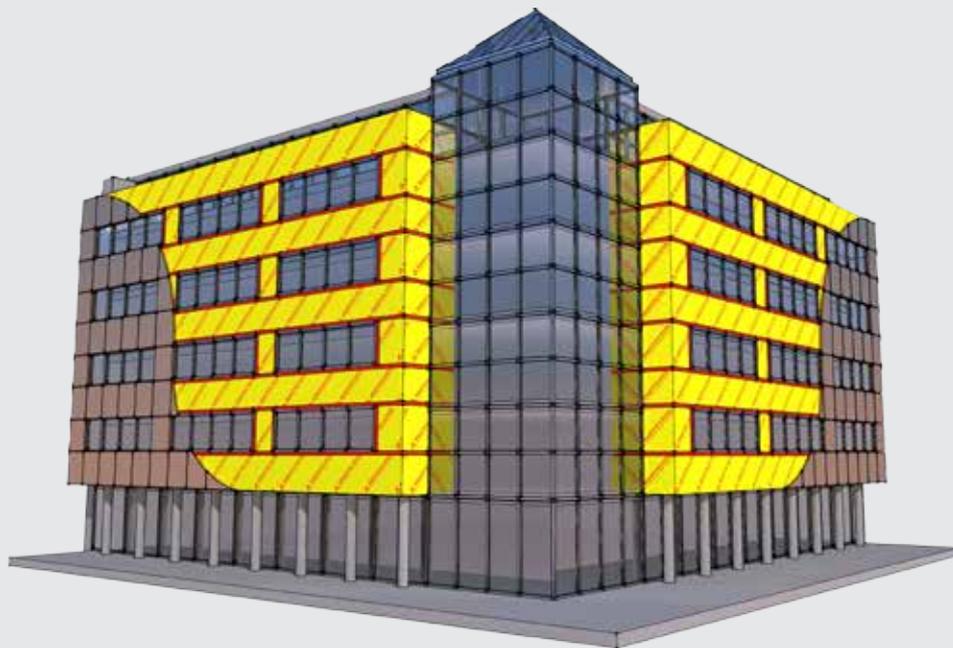
Potton Passivhaus Showhouse - 0.5 Air Changes Per Hour

Passivhaus is a very low energy construction standard that minimises a buildings requirement for heating or cooling due to excellent thermal performance and extremely good airtightness. The UKs first permanent Passivhaus show house, has been built by Potton using the Kingspan TEK® Building System. It joins four existing show homes at their Self Build Show Centre in St Neots.

As a Passivhaus standard show house, this project required a very low level of air leakage, making Wraptite-SA the ideal choice as it significantly improves the building’s thermal performance by preventing lateral air movement.

The Passivhaus standard must be demonstrated by means of an airtightness test. The air change rate must be less than or equal to $0.60 ac/h$ (air changes per hour), under test conditions, to meet Passivhaus levels. At a recent Self Build Live event on the 4th March 2016, Potton managed to improve on their target of $0.60 ac/h$ (air changes per hour), to $0.5 ac/h$!





WRAPTITE SYSTEM

The Wraptite system offers the ideal option for a vapour permeable air barrier.

Designed to cost effectively replace traditional airtightness methods, Wraptite is a low-resistance vapour permeable air barrier for walls, which is durable, flexible and lightweight, allowing for easy installation. It offers temporary protection against wind-driven rain, snow and dust.

The Wraptite system comprises Wraptite plus Wraptite Tape. Used together these components provide a simplified and robust method of achieving low air leakage rates, particularly when installed on site, as is typical with large scale rainscreen construction, or when sealing junctions between prefabricated building components. By reducing the likelihood of failures to meet designed airtightness levels, the Wraptite System helps ensure “as-designed” performance is achieved, helping to narrow the ‘performance gap’ between as-designed and actual energy performance. Failure to meet the specified targets can cause substantial reductions in the energy performance of the completed building, as has been identified in many studies of predicted versus actual building energy use.

Positioning an air barrier on the outside of the insulation rather than on the interior simplifies this process of maintaining the envelope’s integrity considerably, as there are less building services and structural penetrations to be sealed. While not a common method in the UK, the A. Proctor Group’s Wraptite external air barrier system provides a simple and robust solution that can be easily incorporated into existing site practices. It must be noted however that careful consideration of the specification and installation of this barrier remains critical during design and construction respectively.

Composition

Wraptite consists of a triple layer polypropylene micro-porous film laminate.

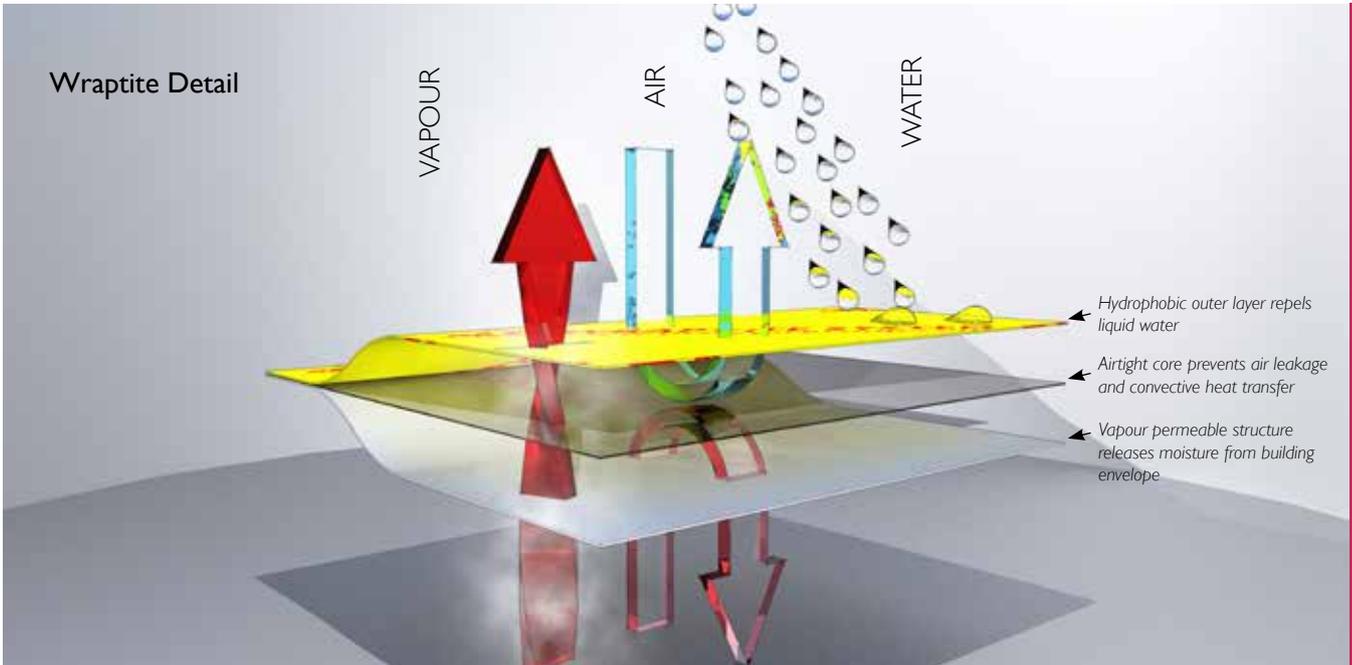
Drying Capacity

Wraptite’s high permeability allows damp sheathing to dry quickly and moisture vapour to escape. This ensures good indoor air quality and reduces the likelihood of mould, mildew, condensation, timber distortion and metal corrosion.

Key Benefits

- Airtight yet vapour permeable
- Water resistant
- Resilient composition, which resists punctures and tears during construction
- BBA certification
- Flexibility, facilitating ease of application and detailing
- Can be left exposed for up to 90 days (North America) or 120 days (UK) during construction*
- No VOC’s
- Creates airtight seal

*Please contact the A. Proctor Group’s technical department for advice on specific geographical locations



WRAPTITE PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	MEAN RESULTS	
Roll sizes	-	1.5m x 50m	
Mass per unit area	EN 1849-2	92 g/m ² (+/- 10 g/m ²)	
Reaction to Fire	EN 13501-1	Class E-d2	
Water vapour resistance Sd	EN 12572	0.029m (-/+ 0.01)	
Water Penetration	BS EN 13859-2: 2010	Class W1 (before ageing) Class W1 (after ageing)	
Tensile Strength	EN 12311-1	MD 230N (-50N) MD 190N (-50N)	CD 125N (-30N) (before ageing) CD 100N (-30N) (after ageing)
Elongation	EN 12311-1	MD 65% (+/- 20%) MD 35% (+/- 20%)	CD 70% (+/- 20%) CD 40% (+/- 20%)
Tear resistance	EN 12310-1	MD 75 N (-40N)	CD 80 N (- 40N)
Flexibility at Low Temperature	EN 1109	No cracking at -40°C	
Resistance to penetration of air		0.01 m ³ /m ² .h.50 Pa	
Wraptite Tape Widths	-	75mm, 100mm, 150mm	

All tests carried out to EN 13859-2 standard



WRAPTITE TAPE

A useful way of stopping unnecessary air leakage around openings and overlaps is to use Wraptite tape, an airtight, tear resistant tape with high vapour permeability for internal and external applications.

It fully bonds to all standard substrates, suppressing air leakage around joints, openings and penetrations. It is also suitable for permanent airtight sealing of membrane overlaps.

Composition

Wraptite Tape consists of a triple layer polypropylene micro-porous film laminate, with a proprietary acrylic moisture vapour permeable adhesive and silicone-coated PET release liner.

Drying Capacity

Wraptite Tape's high vapour permeability allows damp sheathing to dry quickly and moisture vapour to escape. This ensures good indoor air quality and reduces the likelihood of mould, mildew, condensation, timber distortion and metal corrosion.

Key Benefits

- Airtight yet vapour permeable
- Resilient composition, which resists punctures and tears during construction
- Flexibility, facilitating ease of application and detailing
- Wide operating temperature range (-40°C to +100°C)
- Can be left exposed for up to 90 days (North America) or 120 days (UK) during construction*
- No primer required
- No VOC's

Multiple Substrate Compatibility

- | | | | |
|-----------------------------|--------------------|-------------------------|--------------------------|
| • Exterior Gypsum Sheathing | • Aluminium | • Most rigid insulation | • Cast-in-place concrete |
| • Pre-painted steel | • Galvanized metal | • OSB | • Rigid vinyl |
| • Precast concrete | • Steel | • Concrete block | • Plywood |

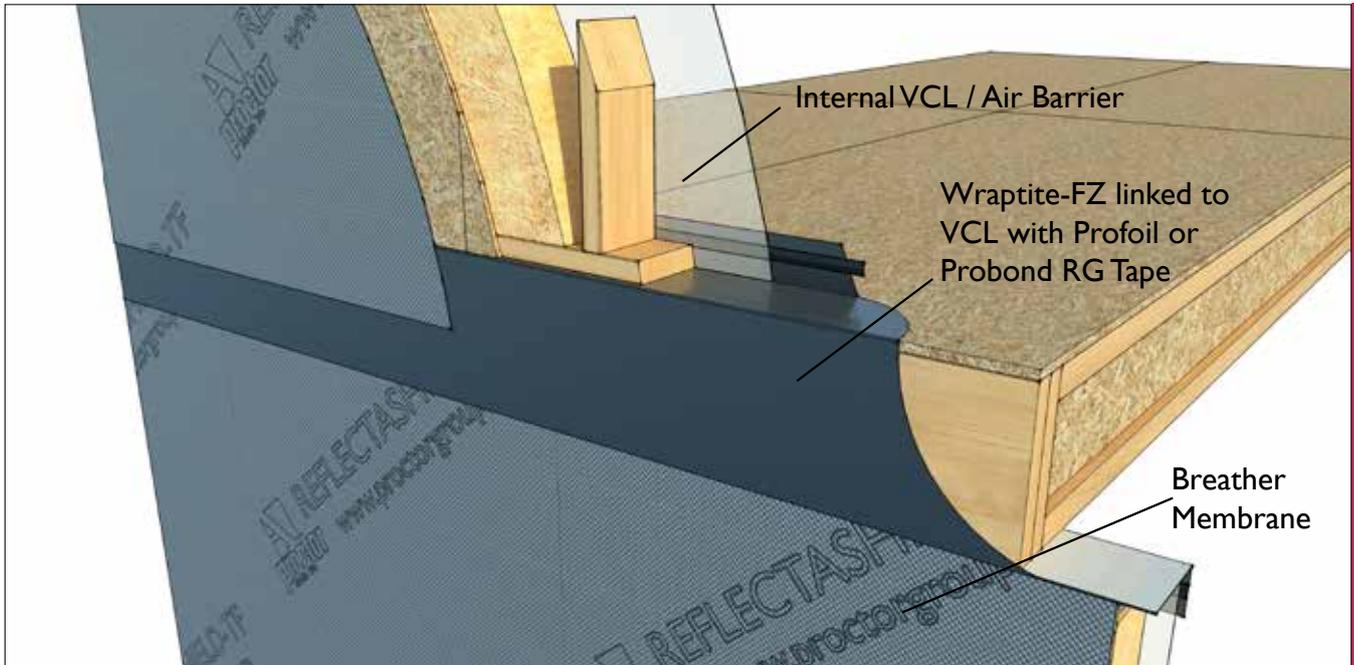
(Additional substrate compatibility available upon request.)

Vapour Permeability

With an Sd rating of 0.039, Wraptite tape provides a highly vapour permeable, but fully airtight performance for multiple applications and conditions.

These crucial characteristics allow moisture vapour to escape the structure easily whilst maintaining the integrity of the building envelope (see following page for info on applications).

* Please contact the A. Proctor Group's technical department for advice on specific geographical locations



WRAPTITE-FZ

Wraptite-FZ is a vapour permeable air barrier membrane for use at floor junctions. It is durable, flexible and lightweight, and offers temporary protection against wind driven rain, snow and dust and is supplied in 750mm roll widths for easy site handling. Wraptite-FZ conforms to the Construction Products Directive and is manufactured under control of an ISO9001 quality management system.

WRAPTITE-FZ PHYSICAL PROPERTIES

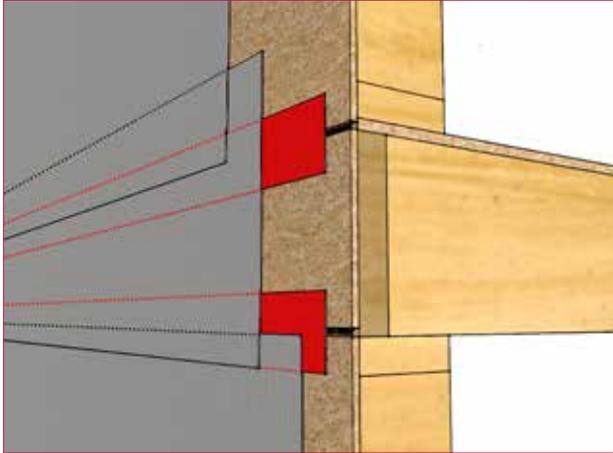
PROPERTY	TEST/STANDARD		RESULT	
Roll size			750mm x 50m	
Product Code			FNS 165	
Mass per unit area	EN 1849-2			165/m ² (+/- 10 g/m ²)
Reaction to fire	EN 13501-1			Class D, d2*
Water vapour resistance Sd	EN 12572			0.029 m (+/-0.01)
Water penetration	EN 1928	Before ageing: After ageing:	Class W1 Class W1	
Tensile strength	EN 12311-1	Before ageing: After ageing:	MD 320 N (-80 N) MD 270 N (-80 N)	CD 210 N (-50 N) CD 170 N (-50 N)
Elongation	EN 12311-1	Before ageing: After ageing:	MD 85% (-35%) MD ≥50%	CD 100% (-30%) CD ≥50%
Tear resistance	EN 12310-1			MD 200 N (-50 N) CD 190 N (-50 N)
Flexibility at low temperature	EN 1109			No cracking at minus 60°C

*When tested to EN 11925-2

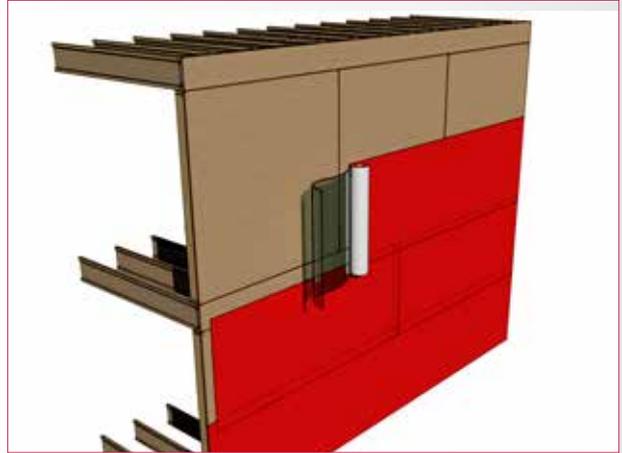
APPLICATIONS

Penetrations in sheet material such as pipes, ducts and electrical work need to be sealed to stop air leakage from the structure.

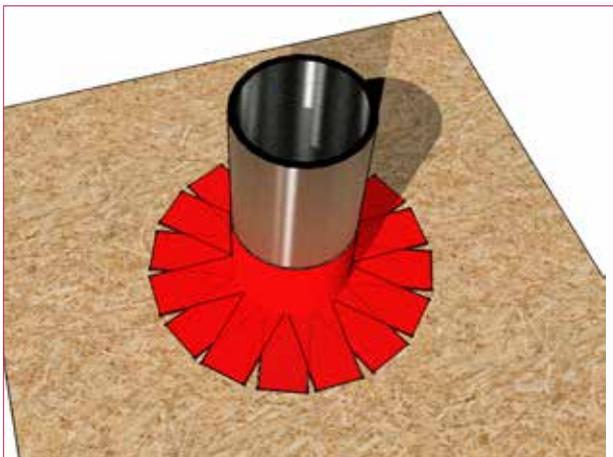
Detailing with Wraptite tape is quick and easy, providing an excellent solution to what can be an expensive problem.



Floor junction on installation



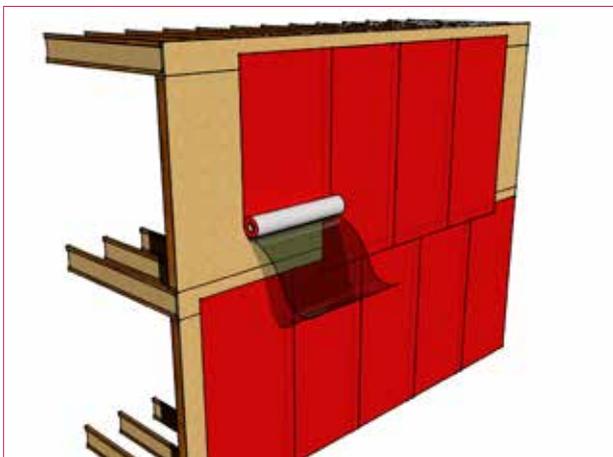
Horizontal over sheathing



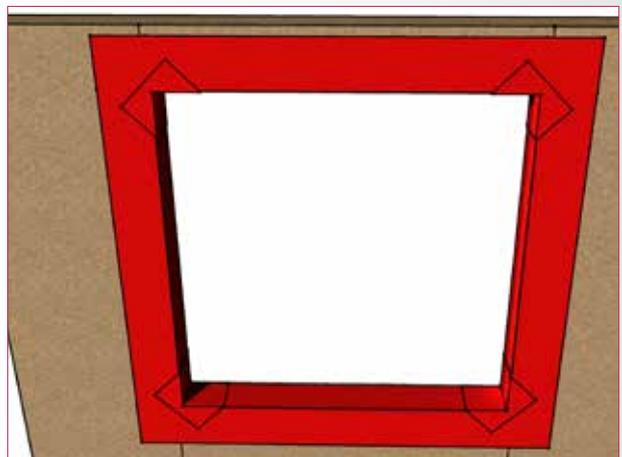
Pipe seal



Seal joints of rigid insulation with Wraptite tape / or use Wraptite-SA



Vertical over sheathing



Window Flashing

Customers must complete their own assessment of the product for its intended use. For any new applications other than those shown, please liase with our technical department as regards suitability on 01250 872261.

BRE Innovation Park, Watford

Wraptite-SA airtight membrane has been selected by the Zero Bills Home Company and RIBA award winning development pioneers ZEDfactory in their latest innovative solution to deliver zero carbon housing. The Zero Bills Home has been built at the world-renowned BRE Innovation Park in Watford.

Wraptite-SA, the only self-adhering vapour permeable air barrier certified by the BBA, was installed as part of the OSB panel construction of the home. The use of Wraptite-SA in the construction makes a significant contribution to a building's thermal performance by preventing lateral air movement. It also provides high vapour permeability in a continuously sealed, self-adhered, airtight membrane.

Unlike internal air barriers, which can be complex and costly to install due to the need to accommodate building services such as electrical, lighting, heating and drainage systems, Wraptite-SA was applied externally, quickly and easily to the OSB boards in continuous pieces. The membrane fully bonds to virtually any substrate, requiring no mechanical attachment to suppress air leakage around junctions or penetrations. On the Zero Bills Home project the results for airtightness were exemplary, achieving on the first test 1.3 ac/h at 50 pascals.



Chester le Street School

Wraptite Tape has proven to be a real winner in combining the essential properties of airtightness and vapour permeability behind rainscreen cladding in the newly refurbished Chester le Street Primary School.

Wraptite Tape was installed in conjunction with Kingspan Rainscreen Insulation Board behind the new rainscreen cladding. Typically an aluminium coated Butyl adhesive tape would be used to seal joints, openings and penetrations. Whilst providing a seal against air leakage, these tapes may not only prevent air, but also prevent the movement of moisture vapour, leading to potential problems and damage to the boards underneath over time. Due to the nature of the project being a refurbishment, breathable felt was not suitable for the Vapour Control Layer (VCL) as it would come into direct contact with the rear cladding surface, and conflict with specified continuous air flow ventilation methods. The introduction of the Wraptite Tape solved all issues with airflow, and necessary air clearances to ensure a continuous Vapour Control Layer to the existing Building.

Wraptite Tape was selected because it is not only an effective airtight barrier; but because its high vapour permeability allows damp sheathing to dry quickly, and moisture vapour to escape. Thus ensuring good indoor air quality and reducing the likelihood of mould, mildew, condensation, timber distortion and metal corrosion.



Scothaus Loanhead Project

Scothaus are known to 'design with the future in mind' and they have been working closely with Eskgrove Homes in Loanhead.

The 'Dunkeld' house type was recently constructed and Wraptite Tape was used at the mid floor conjunction in lieu of a separate air barrier membrane which had been used in previous projects.

After installation, the house had an airtightness test carried out by Eskgrove Homes and they were delighted to report that 0.54 air changes per hour had been achieved which is better than Passivhaus standards.

Blair Higgins of Scothaus commented " we are continually developing enhancements to the Scothaus system to further improve the airtight performance and speed up on-site operations. Using Wraptite has allowed us to achieve excellent airtightness and save on standing time for cranes, as the tape can be fitted retrospectively after the actual erection."





“I believe the success of the A. Proctor Group is down to a solid foundation of innovation backed up by an excellent loyal and committed team, every one of them playing an important role in our continued success. Scotland provides us with a unique platform to launch our ideas, systems and products. I am fiercely proud of this heritage and our brand.”

Keira Proctor
Managing Director



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