

Wraptite

THE AIRTIGHT AND VAPOUR PERMEABLE MEMBRANE



Wraptite
Airtightness simplified


Proctor
Group



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 OFFERS A COMPELLING COMBINATION

Wraptite combines important properties of vapour permeability and airtightness in one affordable self-adhering membrane. Wraptite 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 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's performance is unsurpassed.

Composition

Wraptite 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'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
- Most rigid insulation
- Pre-painted steel
- Steel
- Aluminium (painted or mill finish)
- Cast-in-place concrete
- Galvanized metal
- Concrete block
- OSB
- Rigid vinyl
- Precast concrete
- Plywood

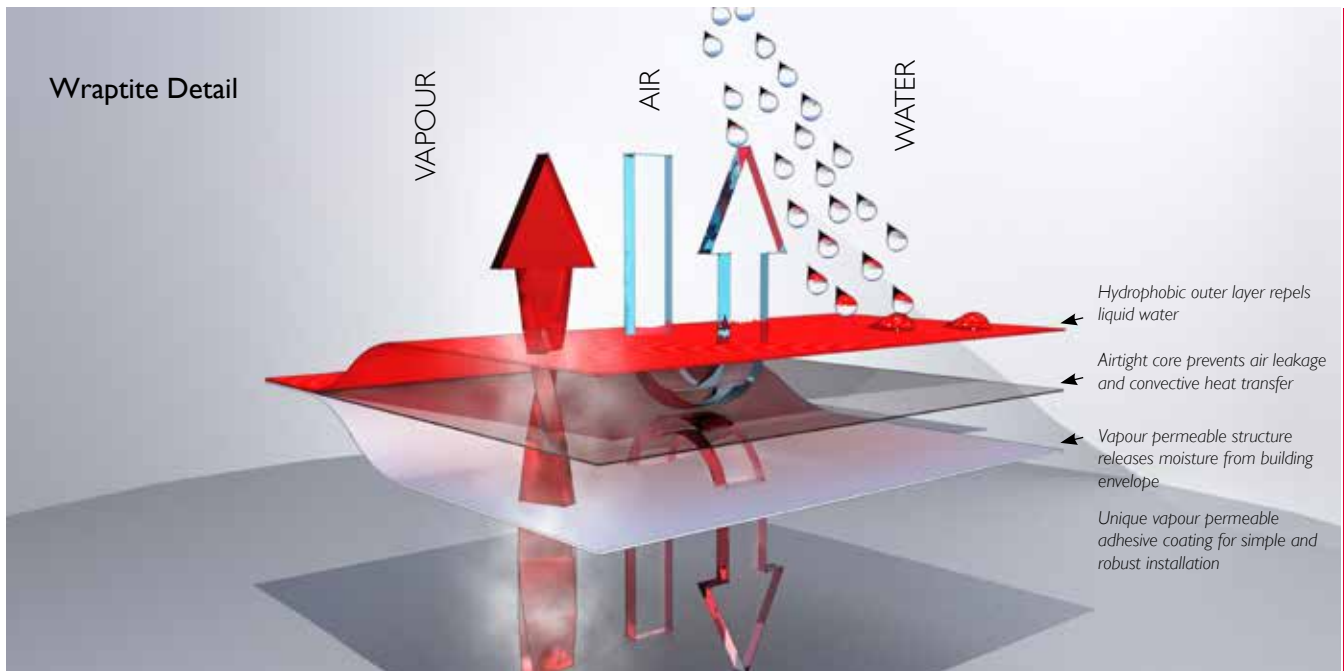
*Please contact the A. Proctor Group's technical department for advice on specific geographical locations.

WRAPTITE 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	292 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)
Resistance to Penetration of Air	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 BS EN 13501-1	Class B, s1, d0*
Flexibility at Low Temperature	EN 1109	No cracks at -40°C

*tested over 12mm Calcium Silicate Board as per BS EN 13238:2010
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 EN 13829, 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

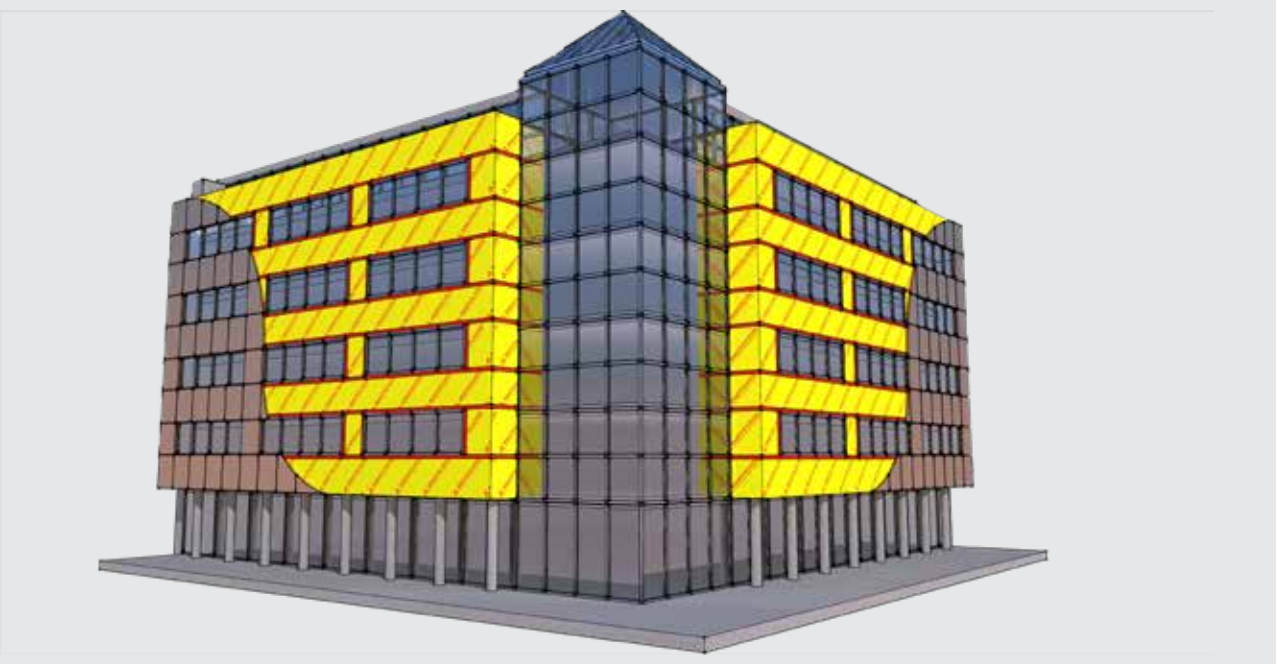
Potton Passivhaus Showhouse - 0.5 Air Changes Per Hour

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 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 Self Build Live event, Potton managed to improve on their target of $0.60 ac/h$ (air changes per hour), to $0.5 ac/h$!





FRAMETITE

Frametite offers the ideal option for a vapour permeable air barrier.

Designed to cost effectively replace traditional airtightness methods, Frametite 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.

Frametite can be utilised with 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, this approach 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 Frametite external air barrier 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

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

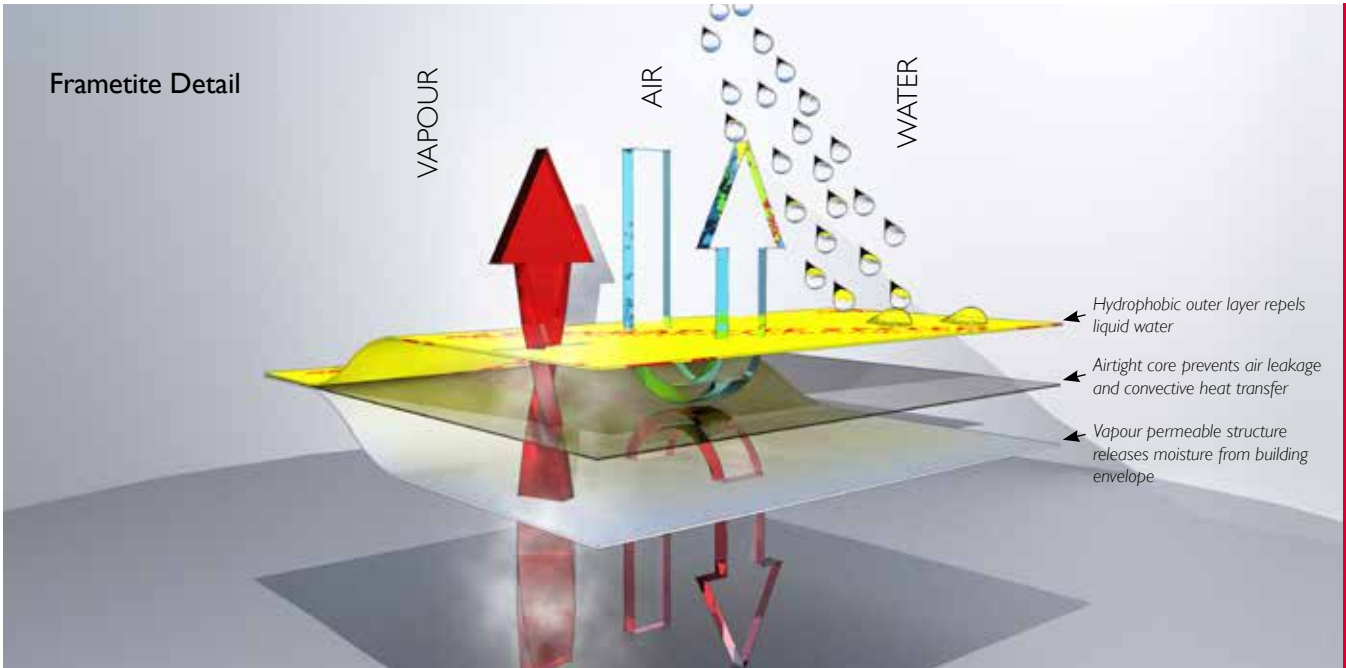
Drying Capacity

Frametite’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
- 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



FRAMETITE 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 |

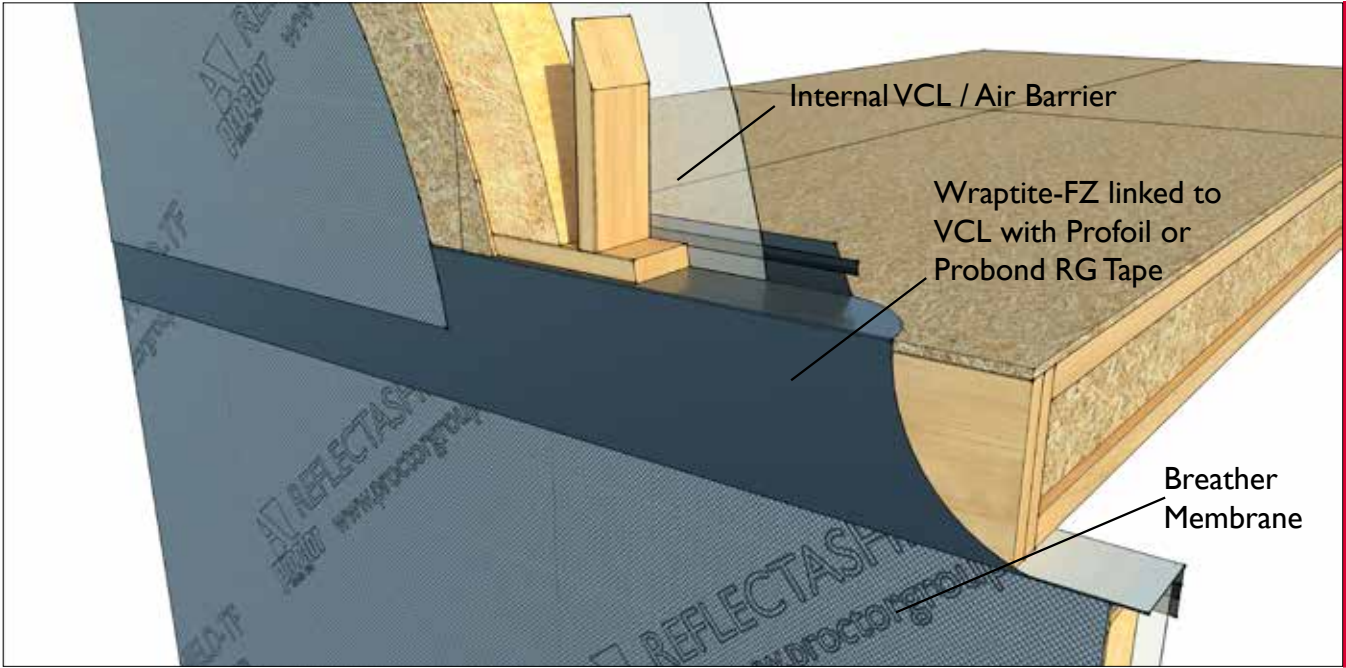
(Additional substrate compatibility available upon request.)

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	
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



WRAPTITE LIQUID FLASHING

Wraptite Liquid Flashing is a high-quality, gunable, low-odour, elastomeric, polyether, liquid applied flashing and detailing membrane. It bonds to most construction materials, such as aluminium, brick, concrete, wood, vinyl, and exterior sheathing boards. Wraptite Liquid Flashing is compatible with the entire line of A. Proctor Group's vapour permeable products for joint detailing in exterior sheathing panels.

Wraptite Liquid Flashing is for use with A. Proctor Group's range of vapour permeable membranes. This liquid applied flashing membrane is ideal for use in complex details. It can also be used to protect the leading edge of the Wraptite membrane or tape from water penetration if the edge cannot be protected by overlapping in a shingle fashion.

Key Benefits

- Vapour Permeable and Airtight
- Can be applied in damp conditions.
- Does not peel back when left exposed.
- Does not create build up in rough openings.
- Non-sag.
- 100% solvent free.
- Non-shrinking.
- Bonds to most construction materials.
- Guns and tools easily.
- Does not harm foam insulation.

Application Method

Where the Wraptite Liquid Flashing is being used to joint between a penetration, such as a pipe, and the Wraptite self adhesive membrane, any gaps greater than 6mm in width should be prefilled with Wraptite Liquid Flashing and allowed to dry.

For gaps less than 6mm, apply a bead of Wraptite Liquid Flashing around opening to be sealed. Spread the Wraptite Liquid Flashing using a putty knife across rough opening surface. Next, apply a thick bead of material to the structural wall surface around rough opening. Again, spread the material evenly using a putty knife. Make sure material is spread in an even, monolithic manner. Make sure to spread the material 100 - 150 mm on to structural wall. Repeat this step to seal the penetration, i.e. pipe and ensure continuity of Wraptite Liquid Applied Flashing across penetration, joints and Wraptite walling membrane. Make sure material contains no pinholes and is void-free. Again, make sure material is even, monolithic, and undamaged.

Make sure Wraptite Liquid Flashing covers the entire opening and seamlessly joins the Wraptite membrane being installed. Allow surface to dry before installing windows, doors and wall assembly.

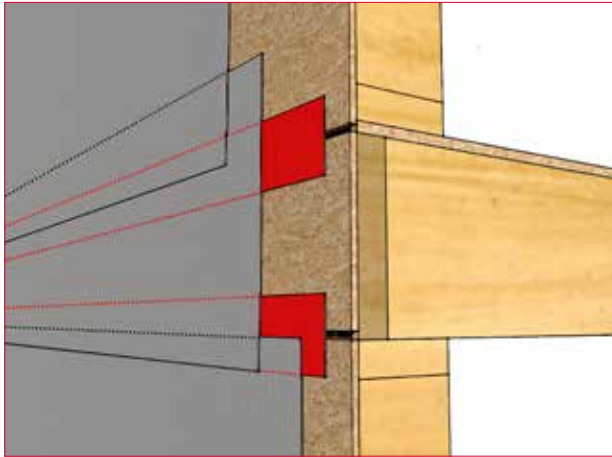
WRAPTITE-LF PHYSICAL PROPERTIES

PROPERTY	TEST/STANDARD	RESULT
Roll size		600ml Sauasages (12 per carton)
Coverage		12 - 15ml gives 1.4-1.8m ² coverage
Chemistry	Silyl-Terminated Polyether - Moisture Cure	
Density	ASTM D1475	12.2 +/- 0.2lb./Gal. (12.2 +/- 1.46 kg/L)
Viscosity at time of manufacture	900,000 +/- 200,000 cps	70°F (21.1°C) +/- 2°F (-16.7°C)
Tack-Free Time	ASTM C679	30 min +/- 15 min
Shear Strength	ASTM D412	210 psi +/- 25 psi
Tensile Strength	ASTM D412	230 psi +/- 25 psi
Elongation at Break	ASTM D412	215% +/- 25%
Low Temperature Flex	ASTM D816	Pass @ -10°F (-23°C)
Shore A Hardness	ASTM C661	38 +/- 5
Installation Temperature	>32°F (0°C)	
Service Temperature	-20°F to 200°F (-29°C to 93°C)	
Shrinkage	No visible shrinkage after 14 days	
Exposure Time	12 Months	
VOC Content	19 g/L	
Colour	Green	

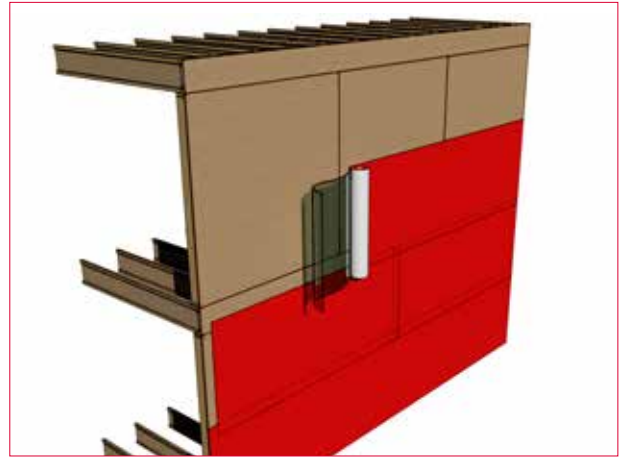
APPLICATIONS

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

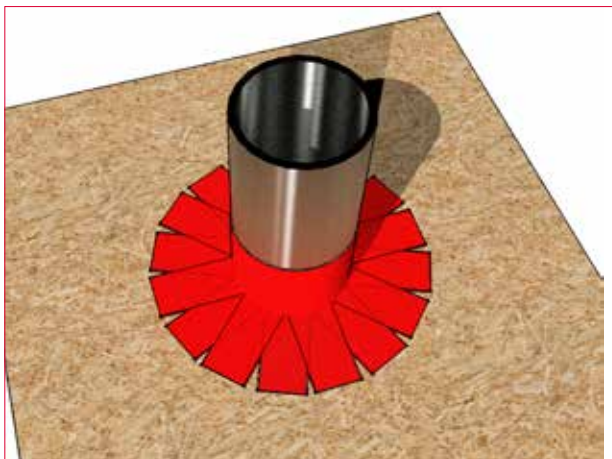
Detailing with Wraptite Tape is quick and easy, providing an excellent solution to what can be an expensive problem.



Floor junction on installation



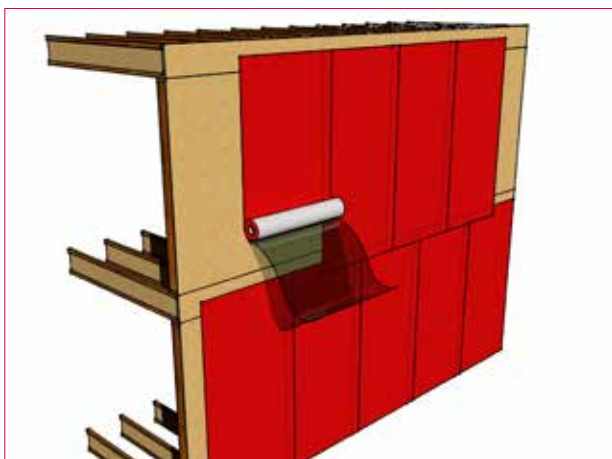
Horizontal over sheathing



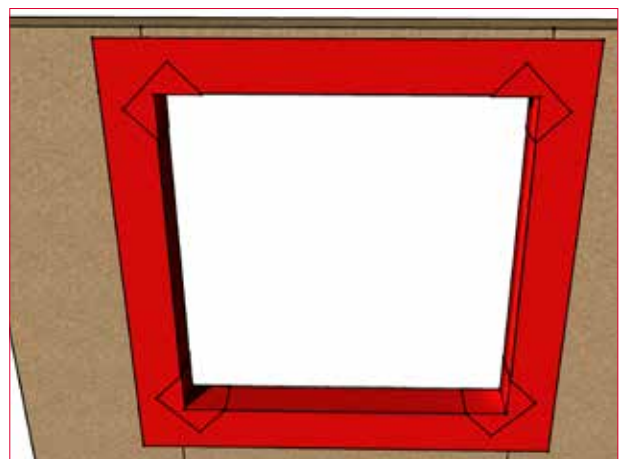
Pipe seal



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



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.



WRAPTITE EXPANSION JOINT

Wraptite expansion joints allows the continuity of the air barrier layer to be maintained across expansion gaps without adding time and cost to the installation process. This ensures structural movement in any orientation can be accommodated without risk of compromising the air leakage rate of the building.

Installation

- Allow sufficient expansion joint as defined by structural engineer or supplier of substrate.
- Place appropriately sized backer rod into expansion joint and ensure it is left proud of the surface of the substrate.
- Apply Wraptite over surface of substrate and protruding backer rod to allow extra material for expansion purposes.
- Install Wraptite as per Installation Guide ensuring full adhesion to the substrate.

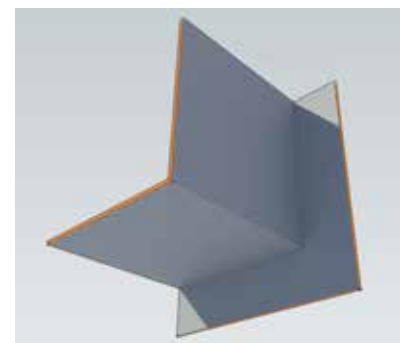
WRAPTITE CORNERS

Wraptite Preformed Airtight Corners have been developed for the difficult areas around doors and windows where maintaining good air barrier continuity is difficult and time consuming. Wraptite corners' simple design and installation process makes sealing openings against air leakage simple, just peel off the release liner, stick the corners in place, then install the Wraptite-SA membrane as normal. This helps achieve the best possible results in the shortest possible time.

Once installed, the corner sections provide the same vapour permeable air barrier performance as the Wraptite membrane itself, ensuring air leakage and water ingress are minimised without trapping construction moisture or causing condensation.

Key Benefits

- Airtight, yet vapour permeable
- Self-adhering
- Flexibility, facilitating ease of application and detailing
- Wide operating temperature range (-40°C to +100°C)





Lochside Academy, Aberdeen

The construction of a new £44 million contemporary secondary school in Aberdeen will incorporate the superior airtightness performance qualities of the Frametite air barrier system.

Designed by JM Architects Ltd, 'Lochside Academy' will provide impressive educational facilities for 1,350 pupils in the south of Aberdeen. The school will feature a three-storey teaching block with rooftop art studio, a sports block with 25m swimming pool and a single storey wing available for a variety of uses. The project will be delivered as part of the hub initiative between Aberdeen City Council and hub North Scotland and is due to be completed by June 2018.

Main contractor Balfour Beatty required a high-quality air tightness membrane and in conjunction with sub-contractor A & E Construction Falkirk chose the Frametite system as an external air barrier as opposed to an internal air barrier system. The Frametite system comprises Frametite, a low-resistance vapour permeable air barrier for walls plus Wraptite Tape. This approach saves on both the labour and material costs associated with achieving the demands of energy efficiency in buildings.

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, positioning an air barrier on the outside of the building simplifies the process of maintaining the envelope's integrity, as there are less building services and structural penetrations to be sealed.

By reducing the likelihood of potential failures to meet designed airtightness levels, the Frametite System helps ensure "as-designed" performance, narrowing the performance gap between as-designed and actual energy performance.





Bridgewater Point, Salford

An impressive new contemporary apartment development in Salford is set to benefit from the superior airtightness performance qualities of Wraptite.

The Bridgewater Point project is a 220-unit residential apartment building located in the heart of Salford, with ease of access to Media City UK, Manchester City Centre and Manchester's Metrolink Transport network. Inspired by Fortis Developments, Altrincham, the development offers a mixture of studios, one, two and three bedroom apartments, and townhouses, with parking, a gym and a communal garden.

Project architect Andrew Tate of Bowman Riley Architects, Leeds required a high-quality air tightness membrane and chose Wraptite as an external air barrier as opposed to an internal air barrier system. 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 was applied externally, quickly and easily to the Siniat Weather Defence Board in continuous pieces. The membrane fully bonds to virtually any substrate, requiring no mechanical attachment, seals or tapes to suppress air leakage around junctions or penetrations.

Wraptite, the only self-adhering vapour permeable air barrier certified by the BBA, combines the important properties of vapour permeability and airtightness in one self-adhering membrane. The introduction of Wraptite will make a significant contribution to the building's thermal performance by preventing lateral air movement.

Another important benefit of the system is that Wraptite's high vapour permeability allows the substrate beneath 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, and provides additional protection during the construction phase.





“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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