

Wraptite[®]

THE SELF-ADHERING 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 technical solutions and specialist products to the construction industry for over 50 years.

In the 21st century the increasing focus on emissions reduction and energy efficiency has led to the development of specialist construction membranes aimed at reducing energy use by limiting air leakage.

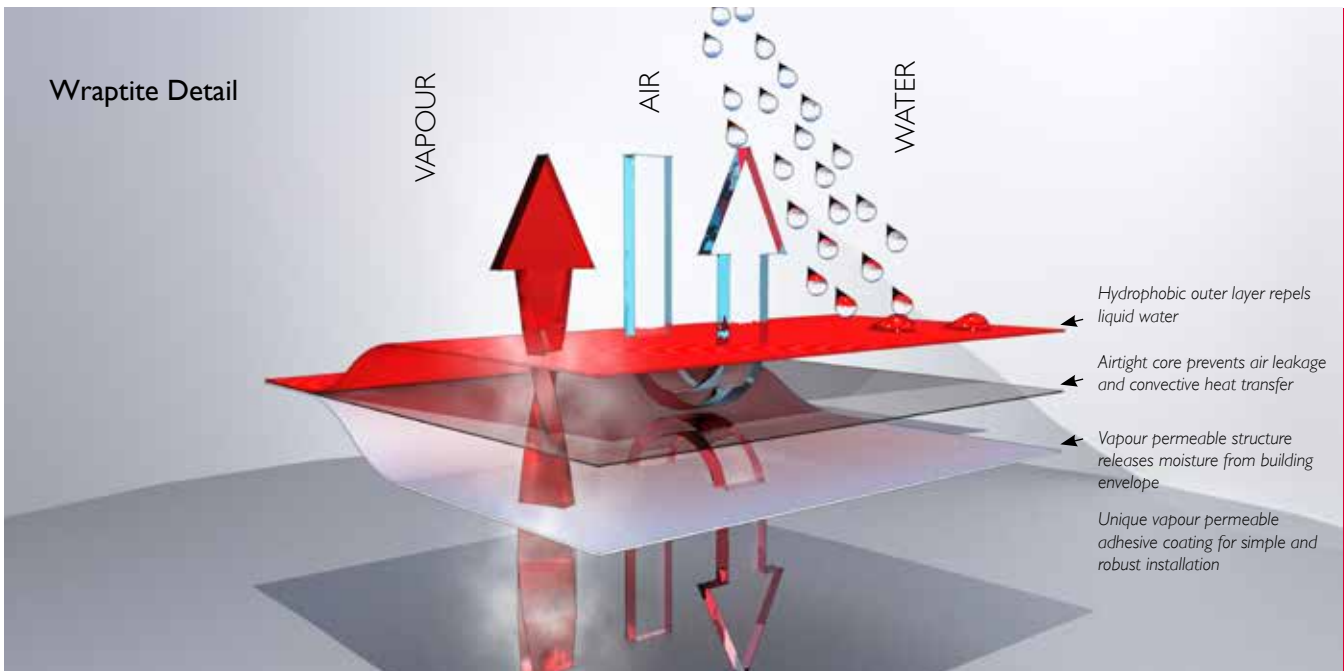
A large proportion of UK CO₂ emissions are associated with the built environment, of which surprisingly little comes from the design and construction phases. The majority is generated by the ongoing requirements for space heating, lighting and other building services.

Following many years of increasing insulation requirements, further improvements in that area are now both impractical and economically unrealistic, leaving air leakage reduction as the most effective pathway to future progress.

In buildings, air leakage is the uncontrolled flow of air through gaps and cracks in the building envelope. If this flow is not adequately controlled it can significantly impact the energy performance of a structure.

The Wraptite membrane has been developed to provide a simple and robust solution to the challenges of reducing air leakage.





WRAPTITE OFFERS A COMPELLING COMBINATION

By combining vapour permeability and airtightness in a unique, self-adhering membrane, Wraptite offers a fast and effective solution to unplanned air leakage and its detrimental effects on energy performance. With BBA certification for a comprehensive range of wall and roof constructions and compatibility with multiple substrates, this high-performance air barrier solution can be employed on projects from domestic scale timber frame to large steel framed high rise and everything in between.

With an Sd-value of 0.039m, Wraptite's high vapour permeability means any construction moisture can dry out rapidly, reducing the likelihood of mould, mildew, and condensation related damage such as timber rot and distortion or metal corrosion. This ensures the building fabric remains as healthy as the indoor environment. Vapour permeability also allows flexibility in the placement of the air barrier, meaning it can be moved outwards in the construction without risking trapping moisture. This minimises the potential for damage from following trades, in turn allowing design air leakage rates to be reduced with increased confidence pressure test targets will be met.

AIR LEAKAGE 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. The pressure differential 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 input 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.

WRAPTITE PHYSICAL PROPERTIES

PROPERTY	TEST/STANDARD	RESULT
Roll Length	-	50m
Full Roll Width Tape Widths	-	1.5m 75mm, 100mm, 150mm (other sizes available on request)
Roll weight		24kg
Nominal Thickness	Calibrated Deadweight Micrometer	0.65mm
Basis Weight	Electronic Weigh Scale	292 g/m ²
Installation Temperature	-	-10°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 0.039m
Water Vapour Transmission	BS 3177:1959	893 g/m ² .24hr
Peel Adhesion	EN 1939	5.01 N/10mm
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 +0.3% XD +0.1%
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 / fibre cement board as per BS EN 13238:2010.

All tests carried out to EN 13859-2 standard.





WRAPTITE FOR WALLING

The self-adhered nature of Wraptite allows for a simple and fast installation process, minimising the use of additional sealants and tapes, and requiring no specialist contractors to achieve a robust result. This one-step solution provides both a damage resistant air barrier layer and effective secondary weather protection in one installation process, allowing a wind and watertight envelope to be achieved more quickly than using traditional methods.

Key Benefits

- Self adhered
- Airtight yet vapour permeable
- BBA Certified (Cert. No. 15/5274)
- Tough 3-Layer Laminate resists punctures and tears
- Lightweight and easy to install
- Wide service temperature range
- Can be left exposed for up to 90 days (North America) or 120 days (UK) during construction*
- Free from Volatile Organic Compounds

Multiple Substrate Compatibility

- | | | |
|-----------------------------|--------------------------------------|--------------------|
| • Exterior Gypsum Sheathing | • Aluminium (painted or mill finish) | • OSB |
| • 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 air barrier membrane exceeds latest fire safety tests

Wraptite has completed the latest fire tests applicable to building products with a Class B certification.

Wraptite was extensively tested by an independent testing authority and achieved the highest classification for a polypropylene membrane of its type. The product was subjected to two separate tests: BS EN ISO 11925-2:2010 Ignitability of building products subjected to direct impingement of flame – Part 2 Single-flame source test, and to BS EN 13823:2010 Building Products excluding floorings exposed to the thermal attack by a single burning item. Following the test results the samples were classified according to BS EN 13501:2007+A1:2009. Fire classification of Construction Products and Building Elements: Part 1: Classification using Test Data from Reaction to Fire Tests.

BS EN 13823:2010 evaluates the performance of products in relation to heat & smoke production, lateral flame spread and the presence of flaming droplets or particles. Under these test conditions Wraptite achieves a Class B-s1-d0 rating, the highest possible for a polypropylene membrane. This classification gives specifiers absolute confidence in the membranes performance in the event of fire.





WRAPTITE FOR ROOFING

Where a full wall and roof airtight envelope is required Wraptite can be used in both applications. The self-adhered backing not only ensures an airtight seal but resistance at laps against water penetration, dust, air infiltration and wind resistance making it an excellent choice for this application.

Key Benefits

- Self adhered
- Airtight yet vapour permeable
- No ventilation required
- Can be used in all wind zones
- No maintenance required
- Class B, s1 d0 in accordance with BS EN 13501-1:2007
- BBA Certified (Cert. No. 15/5274)
- Tough 3-Layer Laminate resists punctures and tears
- Lightweight and easy to install
- Wide service temperature range
- Can be left exposed for up to 90 days (North America) or 120 days (UK) during construction*
- Free from Volatile Organic Compounds

Wraptite Tool Box

Each box includes;

- Utility Knife
- Stiff Brush
- Marker Pen
- Measuring Tape
- Rubber roller





WRAPTITE DETAILING 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. Wraptite Tape is also available as a split release liner for ease of installation.

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 and 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
- Suitable for sealing insulation boards
- Free from Volatile Organic Compounds

Multiple Substrate Compatibility

- Exterior Gypsum Sheathing
- Aluminium
- 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 page 12 for info on applications).

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



WRAPTITE LIQUID FLASHING

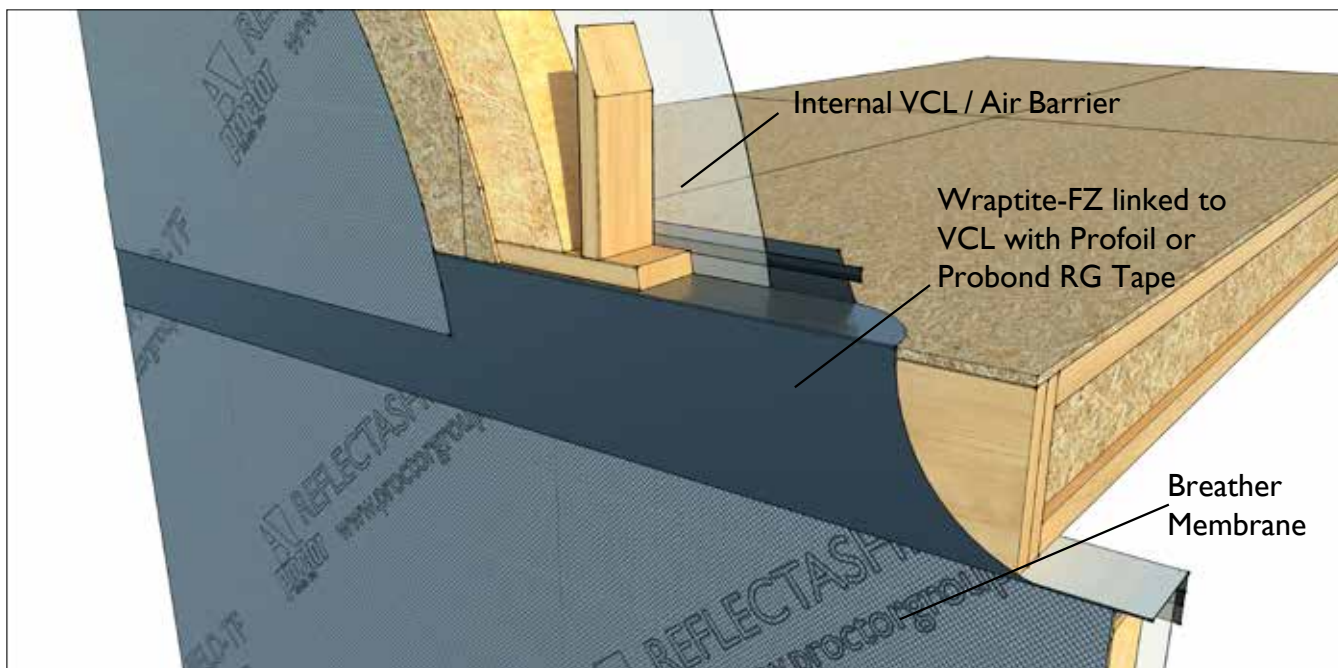
Wraptite Liquid Flashing is a high-quality, gunable, elastomeric, polyether, liquid applied flashing and detailing membrane. It bonds to most construction materials, such as aluminium, brick, concrete, wood, vinyl, and exterior sheathing boards. Wraptite Liquid Flashing is compatible with the entire 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.

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

Key Benefits

- Continuous seal and system approach.
- 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.
- Easily applied and spread.
- Does not harm foam insulation.



WRAPTITE-FLOOR ZONE (FZ)

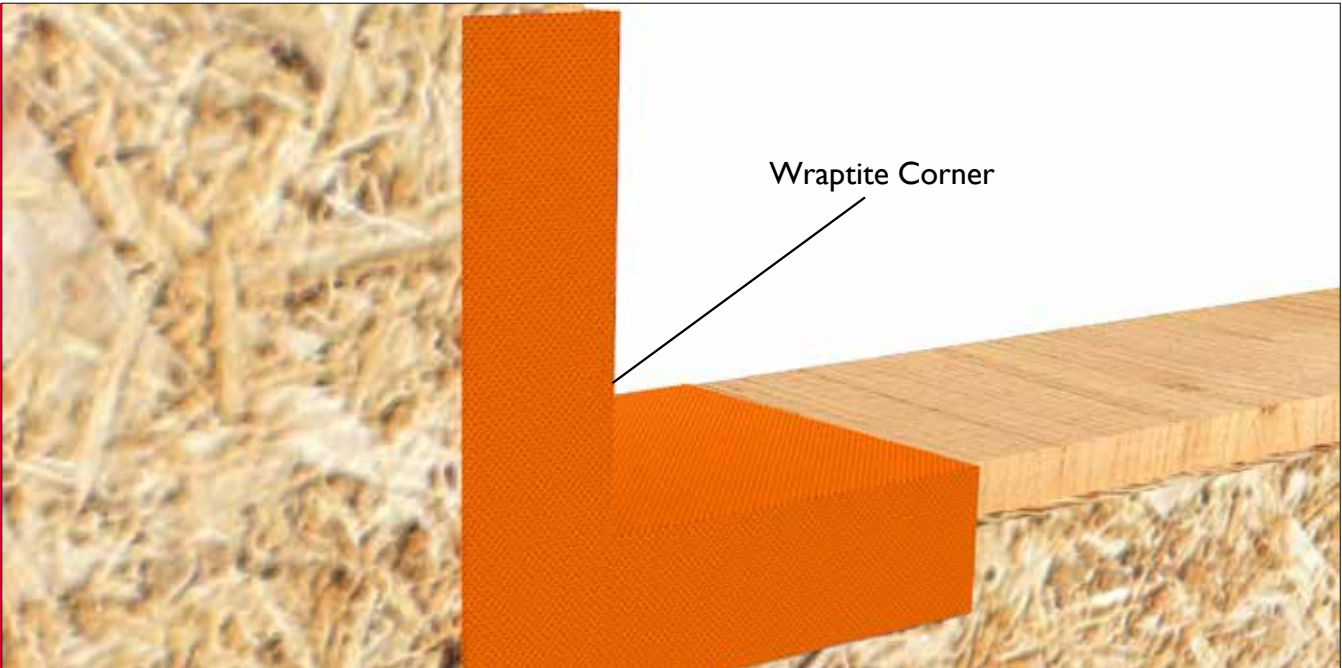
Wraptite-FZ is a vapour permeable air barrier membrane for use at floor junctions. It is durable, flexible and lightweight, and offers temporary protection against wind driven rain, snow and dust and is supplied in 750mm roll widths for easy site handling. Wraptite-FZ conforms to the Construction Products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

Property	Test Method	Mean Results	
Roll size	-	750mm x 50m 1m x 50m	
Mass per unit area	EN 1849-2	170 g/m ²	
Reaction to fire	EN13501-1	Class E*	
Water vapour resistance Sd	EN 12572	0.029 m	
Water penetration	EN 1928	Before ageing After ageing	Class W1 Class W1
Tensile strength	EN 12311-1	Before ageing After ageing	MD 400N (-80N) MD ≥50% CD 260N (-50N) CD ≥50%
Elongation	EN12311-1	Before ageing After ageing	MD 80% MD ≥50% CD 100% CD ≥50%
Tear resistance	EN 12310-1	MD 190N (-50N)	CD 190N (-50N)
Flexibility at low temperature	EN 1109	No cracking at minus 60°C	

Key Benefits

- Provides continuity of internally applied air barriers around floor zone junctions in new build developments
- Allows temporary protection to the floor zone during construction
- Reduces risk of condensation within the floor cassette

*When tested to EN 11925-2



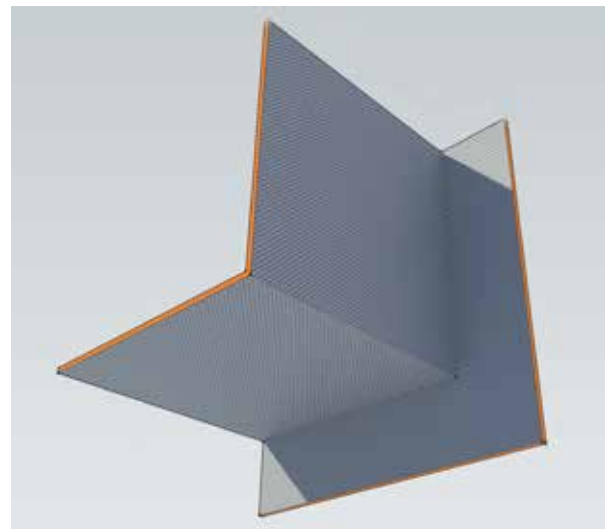
WRAPTITE CORNERS

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 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)





Potton Passivhaus Showhouse, St Neots

Passivhaus is a low energy construction standard where the building requires very little energy for heating or cooling. To achieve this, the building must have excellent thermal performance with exceptional airtightness. The UK's 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 and utilises Wraptite air barrier membrane, supplied by the A. Proctor Group.

Wraptite is both vapour permeable and airtight, combining two important properties in one BBA certified solution for wall and roof applications. Its unique vapour permeability allows the air barrier to be positioned externally, leading to a faster and more robust installation, with fewer penetrations for building services and structural elements.

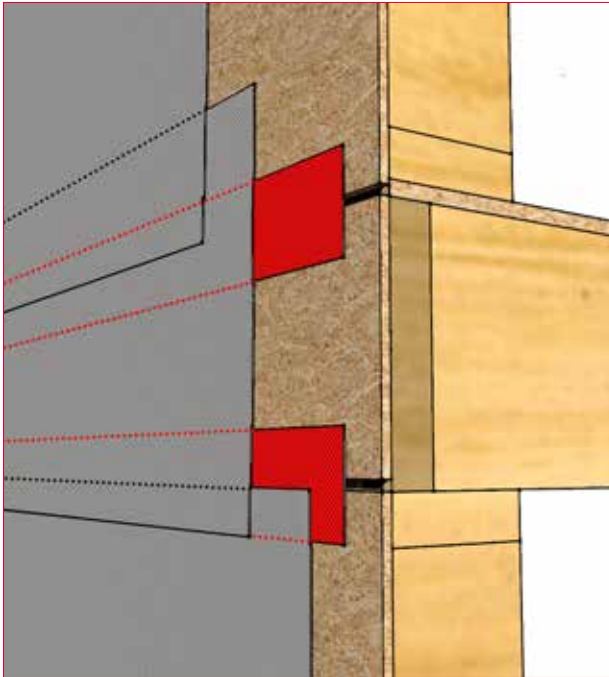
As a Passivhaus standard show house, this project required a very low level of air leakage, making Wraptite the ideal choice. This membrane significantly improves the building's thermal performance by preventing lateral air movement, while ensuring a healthy building and living environment due to its high degree of vapour permeability.

The Passivhaus standard must be demonstrated by means of an airtightness test, carried out using a blower door. 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!

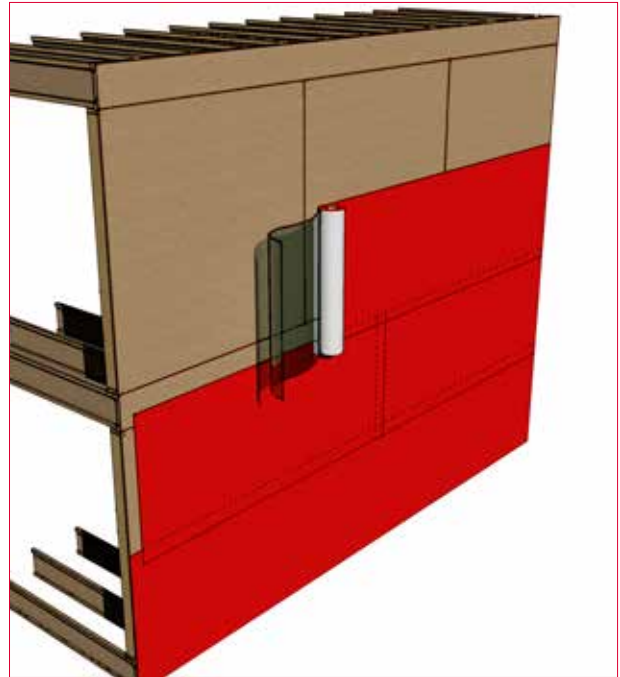


APPLICATIONS

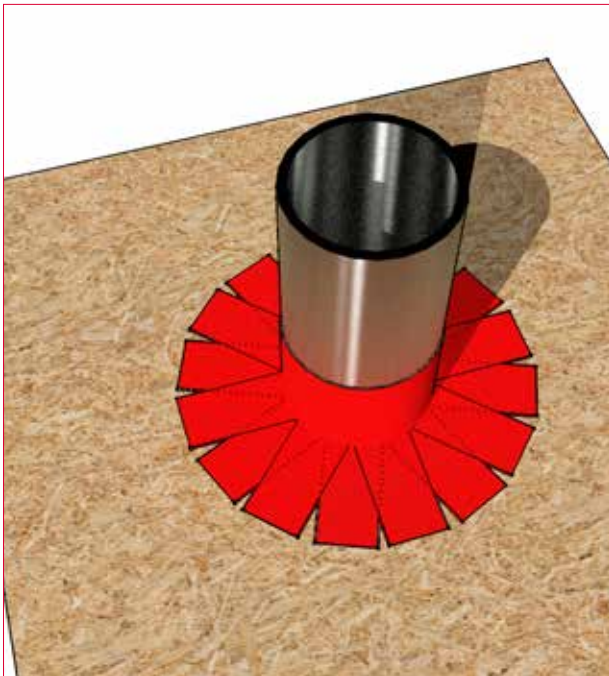
Penetrations in sheet material such as pipes, ducts and electrical work require to be sealed to stop air leakage from the structure.



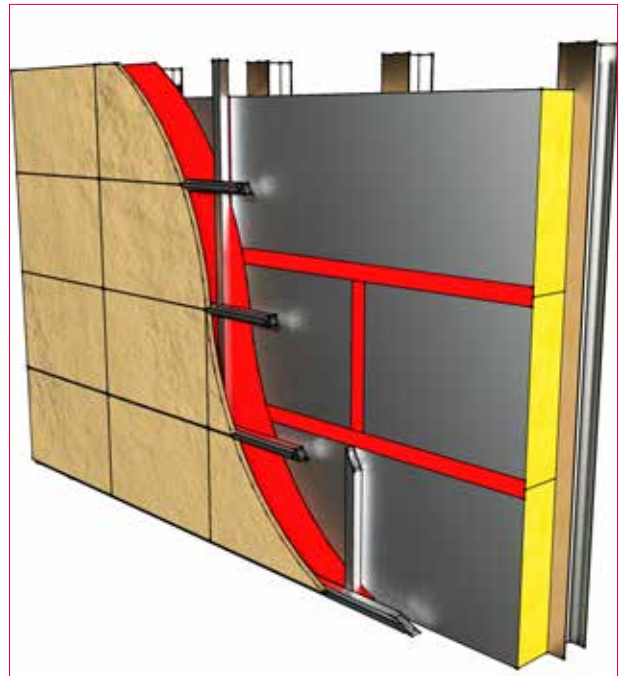
Floor junction on installation



Horizontal over sheathing



Pipe seal



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

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.

APPLICATIONS

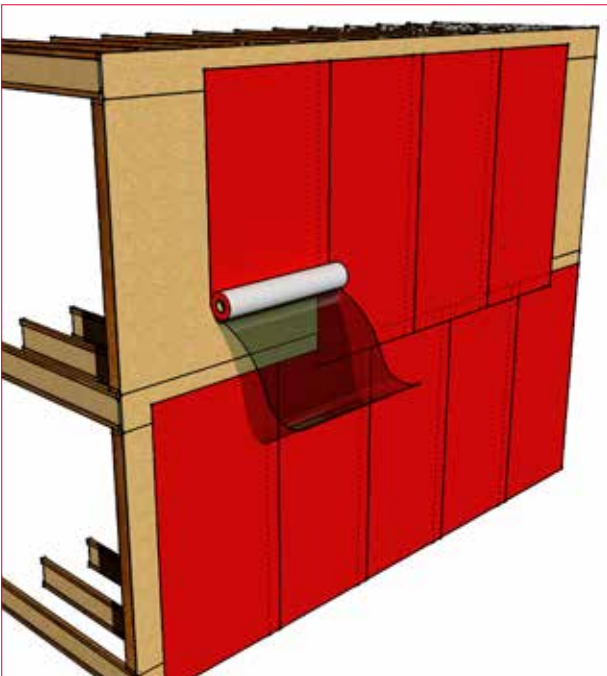
Detailing with Wraptite Tape is quick and easy, providing an excellent solution to what can be an expensive problem.



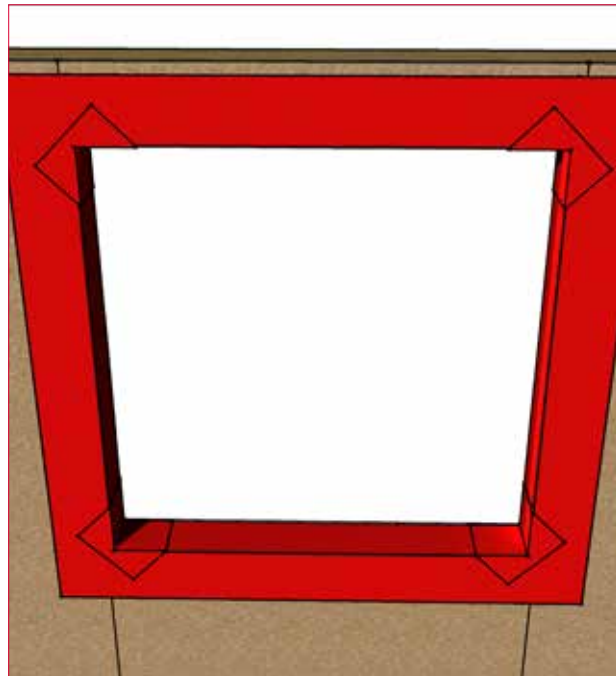
Expansion Joint



Draughtproofing



Vertical over sheathing



Window Flashing

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Student Accommodation, Portsmouth

The superior performance benefits of the Wraptite external air barrier system from A. Proctor Group have been highlighted in a brand new flagship project to deliver student accommodation in the centre of Portsmouth.

ECE Westworks, the Bristol office of ECE Architecture were appointed to design a new 23 storey, 576 bed, purpose built student accommodation scheme, Portsmouth One on behalf of Crown Student Living. The main contractor on the project is Osborne.

Facades contractor Fabrite engaged Facade Materials Specialist, InOpera Facades to provide guidance and design the support structure behind the Rainscreen Cladding. Providing detailed assessments in accordance with BS EN 10211 and BRE 443 Conventions for U-values, InOpera were able to model the performance benefits offered by the total through wall cladding system incorporating the Wraptite air barrier.

The Wraptite System was installed as an external air barrier and alternative to a traditional standard breather membrane. Wraptite is the only self adhering vapour permeable air barrier certified by the BBA. This approach saves on both the labour and material costs associated with achieving the demands of energy efficiency in buildings.

Stephen Hull, Director of InOpera Facades, commented: "Modelling the intended construction with the use of Wraptite, highlighted the ability to improve airtightness whilst reducing the depth of rainscreen support system and insulation. The use of a standard membrane would have required a greater emphasis on this, therefore increasing the overall component cost of the project. Minor cladding zone increases on a project of this height can have a huge effect.

The Wraptite self-adhesive membrane was applied externally, quickly and easily ensuring a higher quality installation, and a more robust through wall rainscreen cladding system."





Royal College of Pathologists, London

The first external fully adhered vapour permeable air barrier with full BBA certification has been installed as a solution for airtightness, weather protection and breathability at the new administrative headquarters of the Royal College of Pathologists in London.

The Wraptite air barrier system from the A. Proctor Group is the only self-adhering vapour permeable air barrier certified by the BBA and combines the important properties of vapour permeability and airtightness in one self-adhering membrane. This approach saves on both the labour and material costs associated with achieving the demands of energy efficiency in buildings.

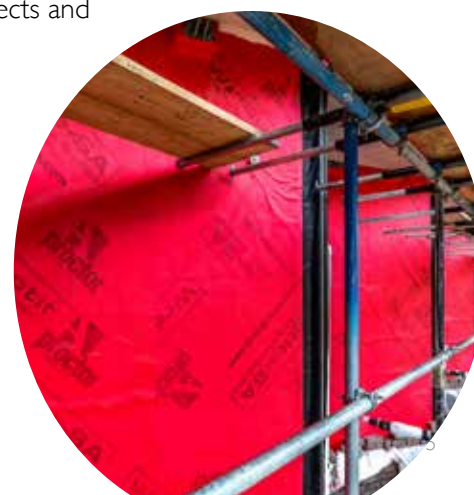
Designed by architects Bennetts Associates the new £15 million eight-storey building on Alie Street in Whitechapel will become the new home for the college and features a double-height reception area, flexible office space, a library, meeting and conference rooms and a 200-seat auditorium. Gilbert-Ash has been chosen to build and manage the project which aims to reach BREEAM Excellent assessment.

Cladding contractor Windell installed the Wraptite System as an external air barrier and alternative to a traditional standard breather membrane. The use of a standard membrane would have required mechanical fixing and provided some challenges given the concrete structure of the building. As an alternative, the Wraptite self-adhesive membrane was applied quickly and easily to the external envelope in continuous pieces.

George Marcantonio, the Site Manager of Windell, commented: "The application of the self-adhesive Wraptite System has proven really easy to use, and quick to apply, with no requirement to return for additional fixing or accessories. We will certainly be using the system for future projects and recommend it without hesitation."

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 structural frame 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 Wraptite System helps ensure "as-designed" performance, narrowing the performance gap between as-designed and actual energy performance.





“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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www.proctorgroup.com
wraptite@proctorgroup.com | +44 (0) 1250 872261

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