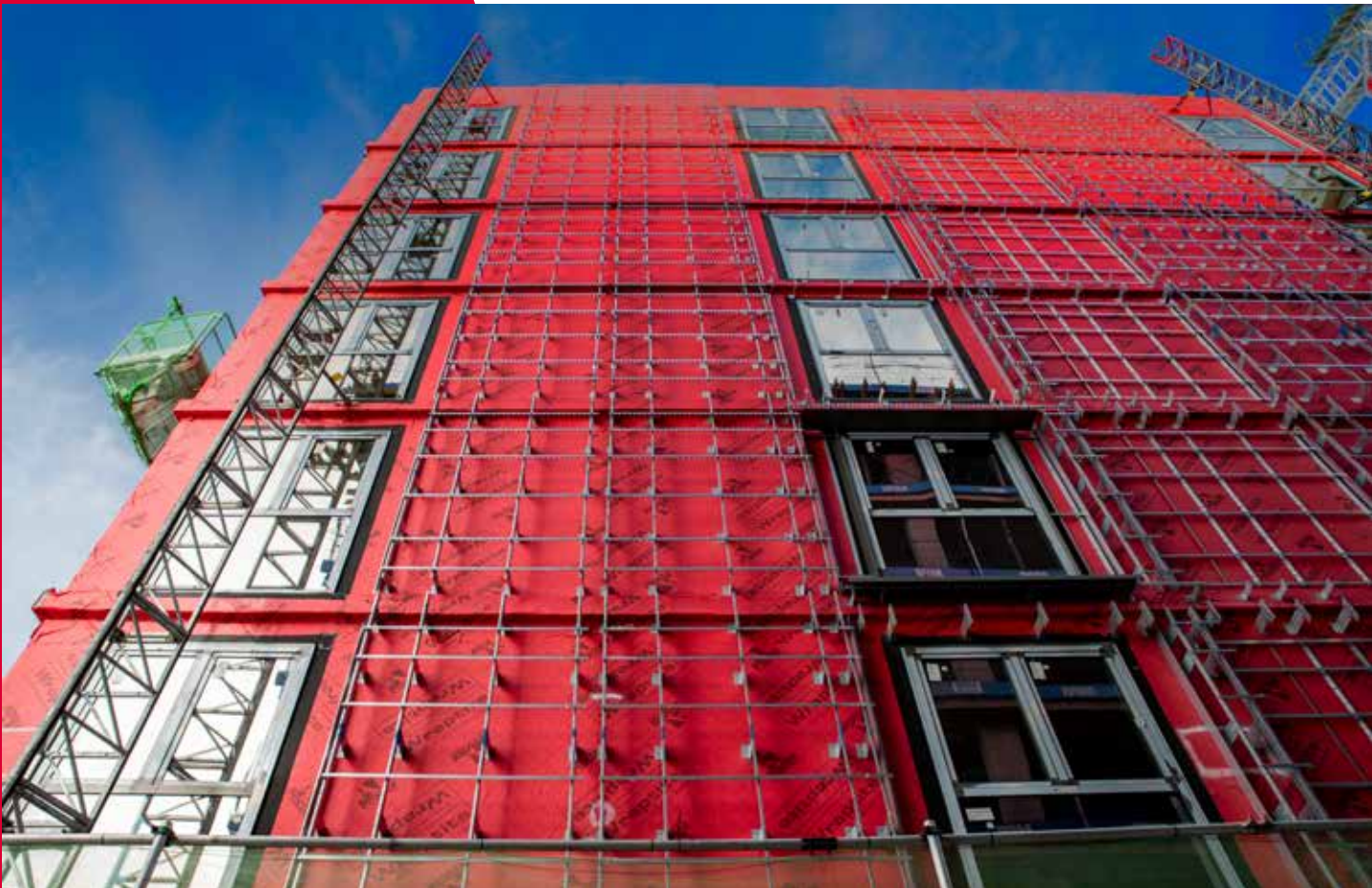


# Façade & Highrise Building Design

SOLUTIONS FOR AIRTIGHTNESS AND HEAT, AIR  
& MOISTURE MOVEMENT



System Solution Providers



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Revised: January 2025

Version: 2.015

Next review due: January 2026

## A. Proctor Group

### Experts in membrane systems

We offer a range of product solutions covering thermal, acoustic, ground gas, vapour control & airtightness, suitable for your commercial building. These are applicable for Steel, Concrete, Timber, CLT and Offsite construction projects.

Our portfolio of specialist vapour and airtight membranes, combined with our extensive technical expertise, ensure that the correct balance of Heat, Air & Moisture Movement is achieved via the building envelope. Our patented externally applied airtight membrane system, Wraptite, offers commercial construction providers the ability to reliably and comfortably exceed current airtightness requirements.



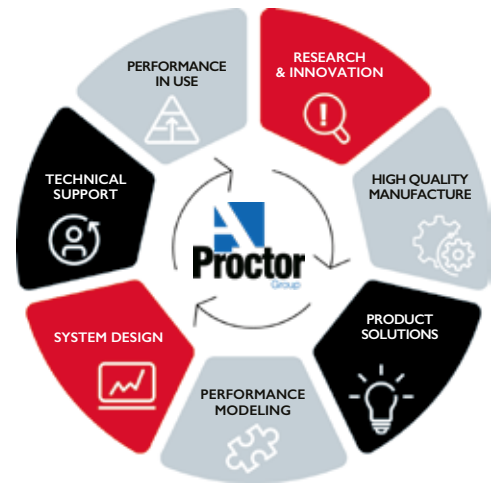
# Total Solution Capabilities

Our products are backed up by a dedicated team of technical experts, able to assist at every project stage from pre-planning to on site. We offer CAD detail reviews, installation guidance, condensation risk analysis, WUFI calculations, U-Value calculations, ground gas system designs, telephone support & more. Our products also have a range of BIM Objects & Performance Specifications.

## From concept to completion

In doing so, we consider six core aspects in the process:

- Research & innovation
- High quality manufacture
- Product solutions
- Performance modelling
- System design
- Technical support
- Performance in use



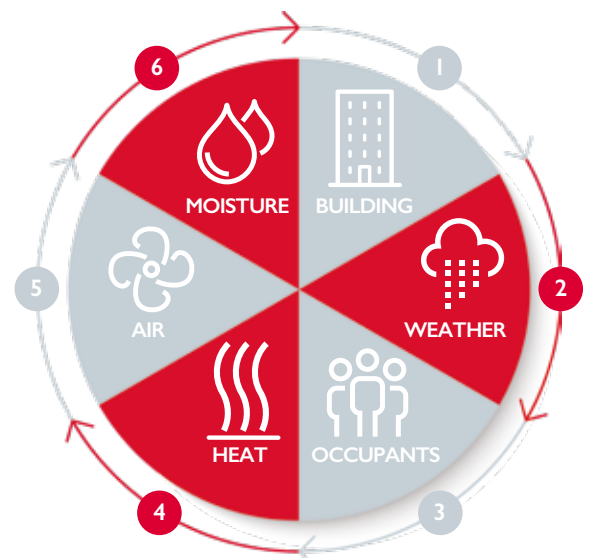
## Heat, Air & Moisture Management (HAMM) in building design

Based upon over 50 years of providing solutions and products for the construction sector we understand that a totally holistic approach is required to building design. This is equally essential in the design, manufacture, assembly and construction of offsite modular buildings. In doing so, we consider six core aspects in the process:

- Building
- Weather
- Occupants
- Heat
- Air
- Moisture

For any building to be an energy efficient, healthy, moisture free building envelope there is a clear need to manage the balance of Heat, Air and Moisture Movement throughout the process of the building's life cycle from design, construction, completion and use.

Understanding the importance of these key elements upon the building envelope is crucial to the successful design, construction and operation of a building.







## Standards & Building Regulations

With the increased spotlight and focus on building regulations and the suitability of materials specified for use within building construction, the correct selection and application of materials are at their most critical. The key guidance on meeting the requirements of Building Regulations for England, Ireland and Wales, and Building Standards (Scotland) relating to airtightness, energy efficiency, moisture and condensation control as well as fire safety are outlined within the Approved Documents and Technical Standards below.

For specific advice on any of these please contact our technical support on 01250 872261.

### Building Regulations

#### Ventilation

- Approved Document F - Means of Ventilation (England & Wales)
- Building Standards Section 3 Environment (Scotland 2023)
- Technical Booklet K - Ventilation (N. Ireland Oct 2012)
- Technical Guidance Document F - Ventilation (Ireland 2019)

#### Moisture

- Approved Document C Site Preparation and Resistance to Contaminants and Moisture 2013
- Building Standards Section 3 Environment (Scotland 2023)
- Technical Booklet C - Site Preparation and Resistance to Contaminants and Moisture (N. Ireland Oct 2012)
- Technical Guidance Document C - Site Preparation and Resistance to Moisture (Ireland 2023)

#### Thermal

- Approved Document L Conservation of Fuel & Power (England 2021 with amendments 2023 / Wales 2022)
- Building Standards Section 6 Energy (Scotland 2023)
- Technical Booklet F - Conservation of fuel and power (N. Ireland Oct 2012)
- Technical Guidance Document L - Conservation of fuel and energy (Ireland 2022)

#### Ground Gas

- Approved Document C Site Preparation and Resistance to Contaminants and Moisture 2013
- BR211 -2023: Radon: Guidance on protective measures for new buildings
- CIRIA C665 – Assessing risk posed by hazardous ground gas to buildings
- CIRIA C735 – Good practice on the testing and verification of protection systems for buildings against hazardous ground gases





## Standards & Building Regulations

### Ground Gas (cont'd)

- CIRIA C716 – Remediating and mitigating risks from volatile organic compound VOC vapours from land affected by contamination
- BS5250:2021 Management of Moisture in Buildings – Code of Practice
- BS EN ISO 13788:2012 Hygrothermal performance of Building Components and Building Elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation. Calculation methods.
- BS8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings

### Product & Performance Standards

- BS5250:2021 Management of Moisture in Buildings - Code of Practice
- BS EN 15026:2023 Hygrothermal Performance of Building Components and Building Elements
- BS EN ISO 13788:2012 Hygrothermal performance of Building Components and Building Elements. Internal surface temperature to avoid critical surface humidity and interstitial condensation. Calculation methods.

### *Amendment to Approved Document B: December 2022*

Guidance on how external walls can meet the Building Regulations requirement for resisting fire spread is set out in Approved Document B. Following the Independent Review of Building Regulations and Fire Safety, and subsequent Interim Report by Dame Judith Hackitt, the Government has introduced an amendment to the Approved Document B: Fire safety - which was updated in December 2022. This has a significant impact on the design and construction of relevant buildings and those over 11m/18m. Published in November 2018, the new regulations came into force on 21 December 2018.

#### **Use of membranes as part of the external wall construction.**

It is important to note that with specific reference to membranes the Regulation provides an exemption and further clarification is found within Regulation 7, as stated below:

- 10.21 Particular attention is drawn to the following points: a. Membranes used as part of the external wall construction should achieve a minimum classification of European Class B-s3, d0.

*In summary, the amendment stipulates significant changes to which membranes can now be used and limits these to a minimum rating of Class B,s3,d0.*







## Modelling & Analysis

### Energy Performance

Calculating the heat flows and energy performance can be achieved by using a variety of modelling tools such as U value, SAP and SBEM calculation to more sophisticated BIM models. These models can account for insulation levels, complex life cycle assessments, and allow for optimisation of the building's design.

We are able to provide a full range of assessment methods backed up with design guidance on compliance and improvement.

### Condensation Risk

Key guidance on assessment methods in relation to the risk of condensation in buildings is given within BS EN ISO 13788:2012. Traditionally, methods of assessment have been based on the Glaser method – a standard static interstitial moisture calculation based on average monthly temperatures, vapour pressure and steady state conduction of heat to determine if critical condensation points are reached within one year.

BS5250 (Moisture Management in Buildings - Code of Practice 2021) has been amended to specify the conditions when the traditional simplified Glaser modelling is not appropriate, and when more sophisticated modelling to BS EN 15026 is needed.

Hygrothermal assessment is based upon the analysis of heat; vapour and moisture transfer through the elements of a building. The data provided by this method provides an accurate measure to the temperature, relative humidity and water content within the elements of a building measured over a specified time period.

The use of hygrothermal assessment employs sophisticated computer modelling to simulate the interactions between building envelopes, building services and the use of buildings. Hygrothermal analysis will consider different climatic conditions and realistically evaluate the potential moisture levels in building components, identifying weaknesses, and thus enabling these to be corrected at the design stage.

The A. Proctor Group uses WUFI software, which is fully compatible with BS EN 15026, and dynamically predicts moisture movement and storage as well as condensation for each location.

#### WUFI Analysis can help identify:

- The effectiveness of condensation control with and without a VCL
- How to achieve faster drying out times

# External vs Internal Air & Vapour Control

The two main ways to achieve airtightness and manage vapour control in the building envelope are internally or externally, or in other terms, “inside of the services zone’ or ‘outside of the services zone’. The use of an effective external air barrier can offer the following benefits:

- External air barrier vs internal VCL - An external barrier such as Wraptite can lead to the removal of the VCL - **Achieving airtightness and moisture control, whilst reducing the level of insulation thickness required, gaining more space.**
- External line vs internal line – **External detailing can remove the risk of weaknesses created by internal works penetrating through the VCL and compromising airtightness and vapour control.**

Traditional use of internal air barriers can be more complex and costly to install, due to the need to accommodate building services such as electrical, lighting, heating and drainage systems.

**An internal air barrier is only as good as its’ installation. If all the service penetrations are not adequately sealed, performance will be compromised.**

By moving the air barrier to the external side of the structural frame, an external air barrier system such as Wraptite provides an almost penetration-free airtight layer, which can simplify installation on site.



Far simpler than internal options Wraptite external air barrier system will maintain the envelope’s integrity, with less building services and structural penetrations to be sealed, and less room for error.

## Fixing Options for Air & Vapour Control

The traditional forms of VCLs and airtightness membranes will often require mechanical fixing. The self-adhered nature of Wraptite allows for a simple installation process, minimising the use of additional sealants and tapes, and requiring no specialist contractors.

This one-step solution provides both an 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.

- A completely self-adhered one part system – Providing a reduction in the number of works required, thereby reducing installation time, costs and potential for error



# Airtightness



## **Air Permeability & Airtightness**

Air movement is important in the building envelope, both infiltration and exfiltration. We need to control interior conditioned air escaping (whether heated or cooled) and exterior air infiltrating as it puts more pressure on heating or cooling mechanisms internally.

Airtight membranes are an obvious choice in this area whether vapour open/closed or variable.



# Airtightness

## Designing for airtightness in buildings



Façade & Highrise

### Air Permeability & Airtightness

Air movement is important in the building envelope, both infiltration and exfiltration. We need to control interior conditioned air escaping (whether heated or cooled) and exterior air infiltrating as it puts more pressure on heating or cooling mechanisms internally. Airtight membranes are an obvious choice in this area whether vapour open/closed or variable.

### Air Leakage Control Strategies

As Building Regulations have imposed more stringent energy performance criteria on the building envelope, improvements have often been driven through higher standards of insulation for roofs, walls, windows and floors. In the drive for higher standards, the significance of localised areas of reduced insulation or thermal bridging leading to air leakage has become even more crucial.

Air leakage through cracks, gaps, holes and improperly sealed elements, such as doors and windows, can cause a significant reduction in the performance of even thermally insulated envelopes, in some cases reducing their effectiveness by up to 70%. As thermal insulation requirements increase, this reduction in performance is becoming a critical issue; a consensus has emerged in the industry that, discrepancies between 'as-built' and 'as designed' performance are largely attributable to uncontrolled air leakage. Architects and developers are increasingly turning to air barrier membranes as an essential part of the design process in achieving the most effective means of controlling and reducing air leaks.

### Product Range

- Wraptite
- Wraptite UV
- Wraptite Tape / Split Liner
- Wraptite Corners
- Wraptite Liquid Flashing

### Benefits of air-tight buildings

- More thermally efficient
- Reduce energy costs
- Lower CO<sub>2</sub> emissions
- Reduce interstitial condensation
- Improved performance of HVAC
- Improved health and comfort for occupants

# Designing for Airtightness in Buildings

## 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 comes 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. The resulting figure, 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 ( $\text{m}^3$ ) per hour per square metre of floor area ( $\text{m}^2$ ) to maintain a pressure differential of 50 Pascals, and is usually written as  $\text{m}^3/(\text{h} \cdot \text{m}^2)$  @ 50Pa.



*Part L in England, Wales and Northern Ireland requires a value no greater than  $8 \text{ m}^3/(\text{h} \cdot \text{m}^2)$  @ 50Pa to demonstrate compliance.*

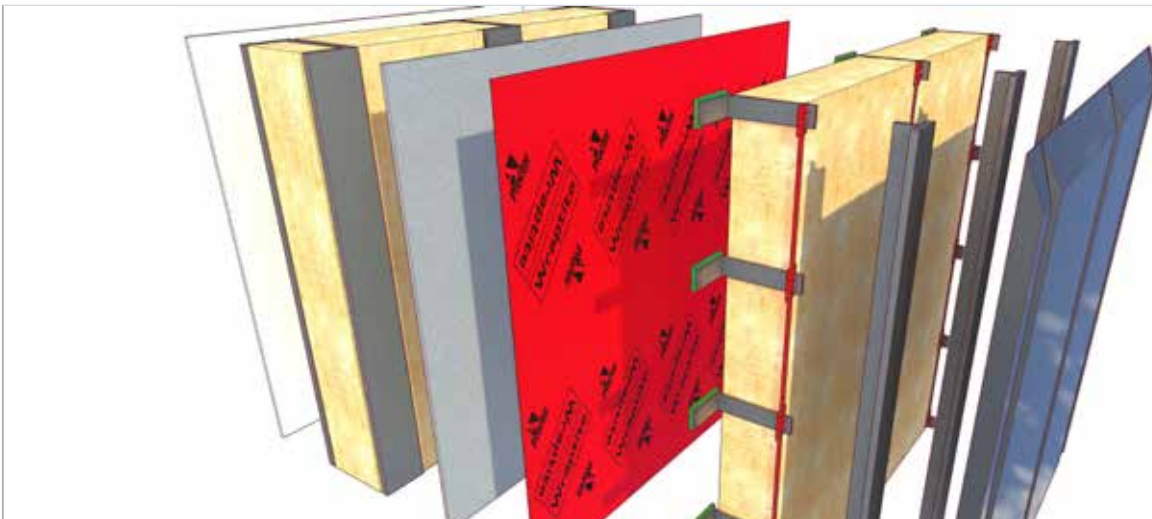
*In Scotland (Section 5) this is reduced to  $7 \text{ m}^3/(\text{h} \cdot \text{m}^2)$  @ 50Pa and in the Republic of Ireland (Part L) this is reduced to  $5 \text{ m}^3/(\text{h} \cdot \text{m}^2)$  @ 50Pa.*

*In practice, design values used are often lower than required by building regulation, making verification of compliance all the more important.*

# WRAPTITE®

Wraptite is a unique patented external airtight and vapour permeable, self-adhered membrane which solves the problem of reliably achieving airtightness in buildings. Applying Wraptite to the outside of the building will mean there are fewer penetrations for services therefore the likelihood of expensive remedial work is greatly reduced. Wraptite fully bonds to virtually any substrate, with a key benefit being its speed and ease of installation, negating any requirement for sealants or tapes. This new approach saves on both the labour and material costs associated with meeting the demands of modern energy efficiency requirements in both commercial and residential buildings.

Wraptite has received BBA certification for use in roofs, walls and modular floor construction making it an ideal choice for commercial projects with large uninterrupted façades. Its unique patented technology means it is the only self-adhering vapour permeable air barrier certified by the BBA. Wraptite is compliant with Part B regulation changes for use in the external wall systems of relevant buildings and those over 11m/18m, both as a continuous layer on sheathing board, behind fire classified insulation, and for use to tape joints in insulation behind rainscreen.



## Key Benefits

- Water resistant yet vapour permeable and airtight membrane
- Self adhered to avoid air bypass
- Full adhesion avoids damage during transportation of modular timber frame kits to site
- Part B compliant for relevant buildings and those over 11m/18m
- Reaction to Fire - Class B-s1,d0
- Can reduce wall thickness
- Leading airtightness performance
- Removes requirement for complex internal detailing and may negate requirement for VCL internally
- Reduces thermal by-pass
- Allows temporary protection until primary external covering
- Provides durability and reduced risk of tears and subsequent remedial work
- Unique patented technology
- Continuous airtight seal
- Simple detailing at junctions and corners - less EPDM required





# WRAPTITE PHYSICAL PROPERTIES

Property	Test Method	Mean Results
Roll Size	-	1.5m x 50m
Nominal Thickness	Calibrated Deadweight Micrometer	0.65mm
Basis Weight	Electronic Weigh Scale	292 g/m <sup>2</sup>
Application Temperature	-	Air & surface: minimum -10°C maximum 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 <sup>3</sup> /m <sup>2</sup> .h.50 Pa
Water Vapour Resistance Sd	Sd EN 12572	0.039m
Water Vapour Transmission	BS 3177:1959	893 g/m <sup>2</sup> .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
Reaction to Fire	EN 11925-2 BS EN 13501-1	Class B-s1,d0 <sup>1,2</sup>

<sup>1</sup>tested over 12mm calcium silicate board / fibre cement board as per BS EN 13238:2010.

<sup>2</sup>free hanging. It is unlikely that any breathable membrane in this application, including Wraptite would be free hanging due to either the self-adhered backing in Wraptite or the tapes used in installing non-self-adhered membranes. This test result is included to allow product specifiers to objectively compare Wraptite to other membranes tested using this method, and does not constitute a recommendation that Wraptite is installed free-hanging. Clients are urged to discuss their individual project with the Technical Department to ensure the suitability for any given project taking into account substrate, building height and boundary proximity.

All tests carried out to EN 13859-2 standard.



# WRAPTITE® UV

Wraptite UV is a Class B-s2,d0 fire rated membrane that combines the properties of vapour permeability and airtightness in one innovative, self-adhering product, which is specifically designed for use behind open jointed cladding.

Wraptite UV has Class WI water resistance and UV resistance to provide a “shadow” appearance within open rainscreen façades.

Wraptite UV bonds (no mechanical attachment) to multiple substrates for air tightness and ease of installation, negating the requirement for a primer, sealants or tapes. Adhesive curing time is approximately 6hrs depending on environmental conditions.

Wraptite UV prevents lateral air movement enhancing the buildings thermal performance. With a rating of Sd 0.06m it provides a high vapour permeability in a commercial quality, self-adhered, airtight breathable membrane.

To protect the membrane from mechanical damage, the joint openings in the façade covering have to be less than 40% of the area, and maximum 50mm wide.



Property		Mean Results	
Roll Size		1.5m x 50m	
Nominal thickness		0.38mm	
Basis Weight		392 g/m² (incl. liner)	
Water penetration	Before ageing After ageing	Class WI (before ageing) Class WI (after ageing)	
Water Vapour Permeability		Sd 0.06m	
Tensile strength	Before ageing After ageing	MD 490N/50mm MD 480N/50mm	CD 330N/50mm CD 310N/50mm
Tear resistance		MD 327.38N CD 453.38N	
Reaction to Fire		Class B-s2,d0*	
Resistance to penetration of air		<0.01m³/(m².h.50Pa)	
UV resistance uncovered		9 months (Climate:Central Europe)	

\*tested over 12mm calcium silicate board as per BS EN 13238:2010.

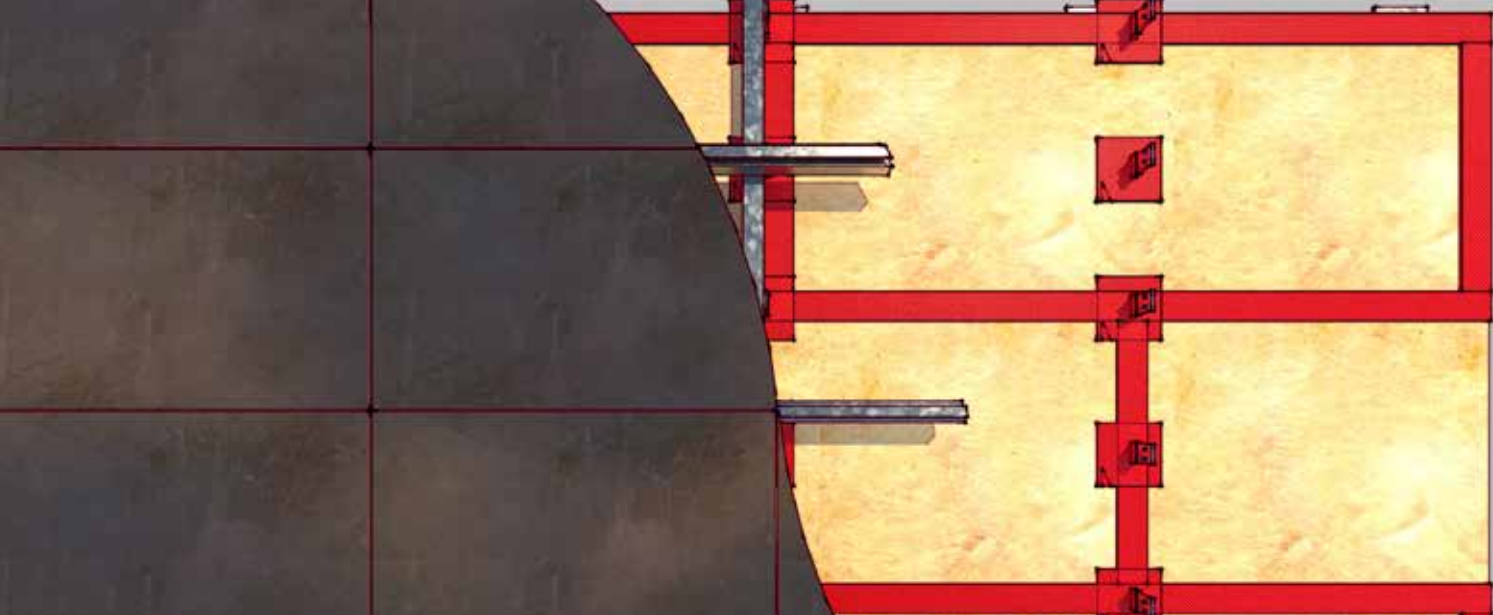
## Key Benefits

- Airtight yet vapour permeable
- No primer required
- Tough facer laminate resists punctures and tears during construction
- Manufactured rolled goods ensure consistent properties and performance
- Wide service temperature range
- Can be left exposed for up to 9 months (UK climate)

## Accessories

- Wraptite UV Tape
- Wraptite UV Tape Split Liner
- Wraptite UV Corners
- Wraptite LF

Please see pages 16-17 for details



## WRAPTITE® TAPE

A useful way of stopping unnecessary air leakage around openings and overlaps is to use Wraptite Tape, an airtight tape with high vapour permeability for internal and external applications. Wraptite Tape's flexibility facilitates ease of applications and detailing, while its resilient composition resists punctures and tears during construction. It can be left exposed for up to 120 days during construction and has a wide operating temperature range (-40°C to +100°C). Wraptite Tape is also available with a split release liner for ease of installation.

It fully bonds to all standard substrates, with no primer required, suppressing air leakage around joints, openings and penetrations. It is also suitable for permanent airtight sealing of membrane overlaps and for taping insulation joints. 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. Wraptite Tape contains no VOC's.

## WRAPTITE® TAPE SPLIT LINER

Whilst Wraptite Tape is suitable for most applications there are some details, such as panel joints, cassette edges, complex detailing, where the benefit of a split liner is advantageous. The split liner allows one part of the Wraptite Tape to be adhered to the substrate, prior to the second portion, and can allow panels to be sealed on site. It can also be used for complex detailing where you need to protect part of the tape from bonding to areas until its needed. The split can be accommodated at any position across the reverse of the tape allowing flexibility of taped lap.

### Key Benefits - Wraptite Tape and Split Liner

- Vapour permeable tape used to protect exposed joints in insulation
- Airtight
- Ultimate airtightness accessory
- Can seal joints in mechanically fastened air barrier

### Key Benefits - Wraptite Split Liner only

- Easier removal of backing
- Location of split can be bespoke
- Aids accurate detailing
- Maintains adhered edge until installation phase
- Easier installation non-linear application ie pipe or window flashing





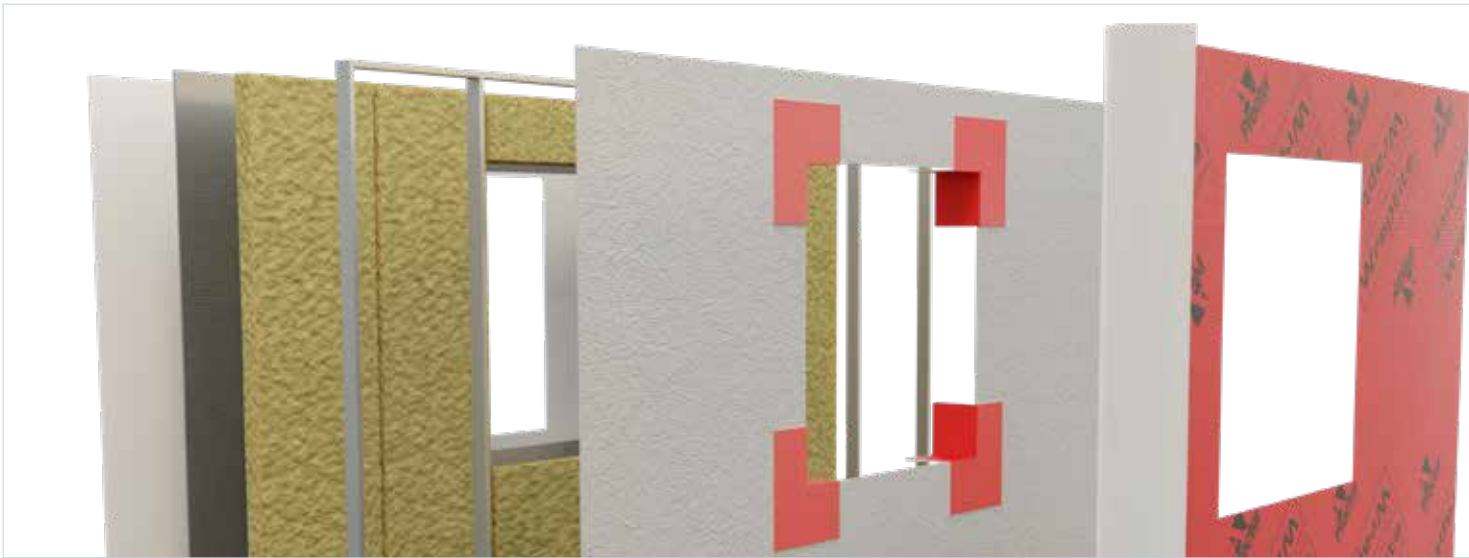
# WRAPTITE® CORNERS

Wraptite Preformed Airtight Corners have been developed for the difficult areas around doors and windows where maintaining 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.

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

- Ensures continuity of airtightness measures
- Simplifies complex detailing
- Flexible



# 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 our entire range of vapour permeable products for joint detailing in exterior sheathing panels.

Wraptite Liquid Flashing 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

- Airtight & vapour permeable
- 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 accessories are available for both Wraptite and Wraptite UV applications.

# Fire Solutions



## **Membranes for Building & Construction**

The A. Proctor Group has long considered the importance and impact of the message relating to fire in the construction industry, in particular the importance of correct specification and the impact application of products has on the building envelope. Years of investigation, research and development has resulted in new and innovative ways to protect buildings, both whilst being constructed and once built. The A. Proctor Group's range of construction membranes combines this expertise to provide comprehensive protection to building envelopes from both the inside and the outside of the structure, whatever design criteria may apply.

# Fire Solutions

## Best practice building design



Façade & Highrise

### Designing for fire solutions in buildings

Due to the tragic event at the Grenfell Tower in 2017 and subsequent building fires in the UK, Facades and Fire Safety has, rightly so, elicited increased focus on the fire performance of products used in the constructions of today. It has had a huge impact on the high-rise sector and has resulted in one of the biggest changes in Regulation 7 and Approved Document B (ADB) that has been experienced for a number of years.

Whilst Regulation 7 and Approved Document B (ADB) are the regulatory and advisory documents, it was unfortunately the case that they were considered ambiguous and therefore the reading and interpretation of them could end up with flawed or potentially dangerous outcomes in both design and specification. The update in late 2017 sought to improve and strengthen the message, language, terminology and examples in order to simplify the information and attempt to remove any ambiguity and achieve mutual understanding of the requirements.

One of the most important amendments was the shift in classification of materials within ADB and the removal of references to BS 476-6&7 which previously classified products for Spread of Flame. The issue with the classification was that it only considered the reaction of the surface of the material being tested, and did not consider the combustibility of the whole product. Amendments in December 2022 have provided further clarification.

### Product Range

- Proctor A1 Cement Board
- Procheck® A2
- Probreathe® A2
- Procheck® A2 Air
- Fireshield®
- Procheck® FR200

### Guidance on

- Standards & building regulations
- Membranes & fire performance





# PROCTOR A1 CEMENT BOARD

Proctor A1 Cement Board is a lightweight A1 non-combustible external grade ‘score and snap’ cement board with mesh reinforced facings. For use on steel or timber frame wall applications.

While suitable for all buildings, the through-wall fire testing carried out featuring Proctor A1 Cement Board means it can be used with Wraptite to support compliance with fire safety requirements for relevant buildings.

Property		Test Method	Mean Results
Board Size		-	1200 x 2400mm
Thickness			12.5mm
Reaction to fire		BS EN 13501-1	A1 (Non-combustible)
Fire resistance - through wall test		BS EN 1364-1:2015	120 mins Integrity
Durability & Strength		BS EN 12467	Category B, Class I
Dimensional Stability		-	< 0.1% R.H. 30% to 80% @ 20°C
Weight per sheet		-	39.6 (ex-production kg)
Thermal Conductivity		BS EN 12664 and ISO 8302	0.223 W/mK
Moisture Content		-	10%
Water impermeability		BS EN 12467	Pass
Water vapour diffusion resistance factor		BS EN ISO 12572	40.9 μ
Water vapour diffusion equivalent air thickness			Sd 0.502
Water absorption		EAD 210024-00-0504	11%
Compressive strength (fc,k)	perpendicular	BS EN 789	2.32 N/mm²
	parallel		2.28 n/mm²
Compressive modulus of elasticity (Ec, mean)	perpendicular		1,800 N/mm²
	parallel		2,233 N/mm²

## Key Benefits

- Can be scored and snapped with a utility knife and straight edge.
- Proctor A1 Cement Board is tested in accordance to BS EN 12467:2012+A2:2018 “Fibre-cement flat sheets”.
- KIWA Certificate No. BAW-25-374-P-A-UK
- Manufactured combining Ordinary Portland Cement, with a reinforced matrix, enhancing the workability and handling properties.
- It is supplied in 12.5mm thickness.
- Makes an ideal exterior sheathing board to SFS walling.
- Inorganic composition making it dimensionally stable.
- Can be installed externally and/or internally to the main wall structure.
- Lighter weight compared to cement particle and calcium silicate sheathing boards.

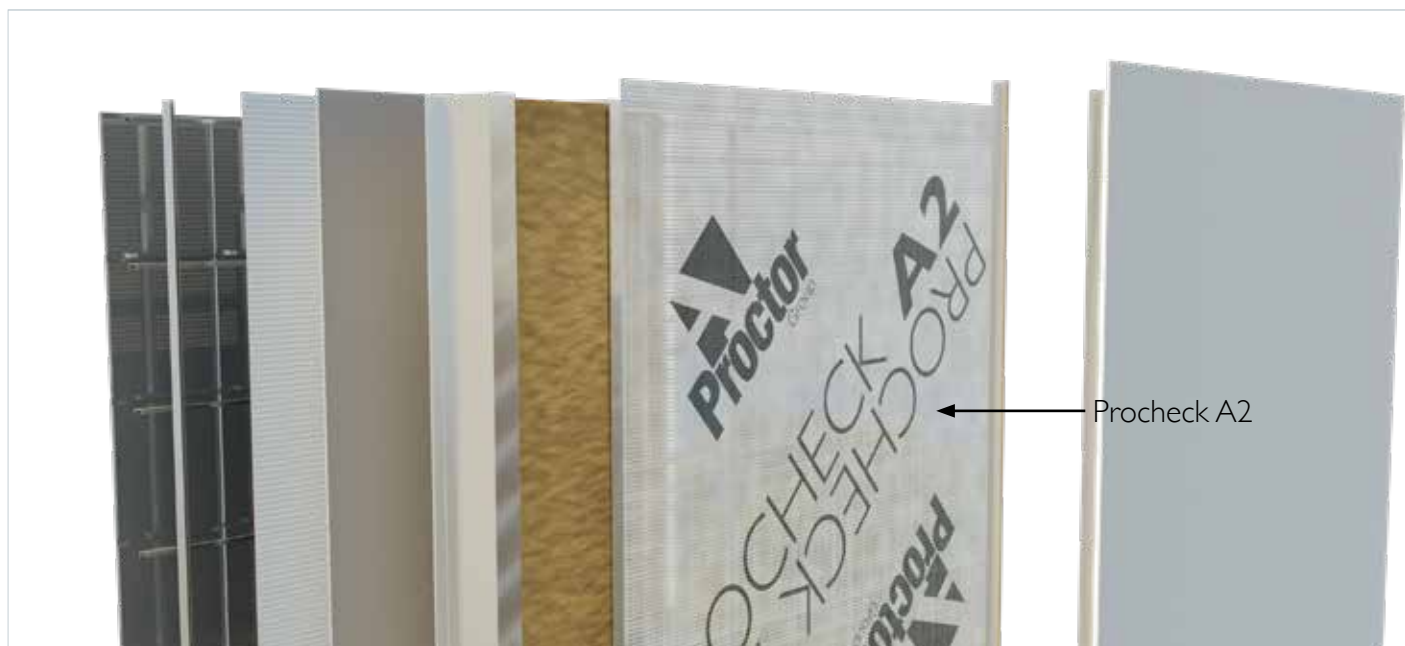


# PROCHECK® A2

Procheck A2, is a fire resistant, vapour and airtight membrane. Procheck A2, with it's Class A2-s1,d0 fire classification to BS EN 13501-1, is considered non-combustible with no contribution to fire. Its composition comprises of the glass fibre backing, with a pure aluminium foil and clear lacquer coating. This composition affords the membrane its Class A2 performance as well as giving it a high degree of vapour controlling properties. The membrane comes with a high vapour resistance, as well as being airtight, which allows its use as an AVCL in the construction. Providing high levels of airtightness can ensure the thermal efficiency of the building.

The integral foil layer, with its protective clear lacquer coating, gives this A2 membrane the added benefit of having a low emissivity surface. This means that the membrane, when installed with the foil face next to a service cavity, with a minimum depth of 19mm, will provide additional thermal performance to the overall wall construction.

Procheck A2 air and vapour tight membrane improves energy efficiency and reduces the risk of condensation.



Property	Test Method	Mean Results
Roll Size	-	1.2m x 50m
Weight	EN 1849-2	165 g/m²
Sd value	EN 1931	>1500m
Reaction to fire	EN 13501-1	A2-s1,d0
Water tightness	EN 1928	W1
Tensile strength	EN 12311-1	MD 700 N/50mm CD 400 N/50mm
Elongation	EN 12311-1	MD 3% CD 3%
Tear resistance	EN 12310-1	MD 170N CD 130N
Thermal resistance of an adjacent airspace	-	0.606 m²K/W

## Key Benefits

- Fire resistant to A2-s1,d0
- Water vapour diffusion tight
- Reflective material, emissivity <0.05
- Clear lacquered aluminium surface allows for low emissivity surface
- Able to withstand tough site conditions
- Suitable for use in relevant buildings and those over 11m/18m





## PROBREATHE® A2

Probreathe® A2 is an A-rated breather membrane with an airtight woven glass fibre membrane with a PU coating. The membrane combines breathability, water resistance and airtightness in one membrane. It has a Reaction to Fire classification of A2-s1,d0 when installed free-hanging or onto a substrate which is minimum A2-s1,d0.

Property	Test Method	Mean Results
Roll Size		1.5m x 50m
Weight		230 g/m <sup>2</sup>
Thickness		0.20mm
Temperature range		-36°C to 150°C
Water vapour resistance	EN 12572	Sd 0.095m
Reaction to Fire	EN 13501-1	A2-s1,d0

### Key Benefits

- A2 Reaction to Fire Classification
- Increased airtightness over traditional breather membranes
- Vapour permeable membrane for use either directly onto sheathing or over insulation.
- Ideal for use in rainscreen/facade construction
- Suitable in relevant buildings and those over 11m/18m
- Allows temporary protection of the building until the primary external covering is installed

### ACCESSORIES

- Probreathe FR Duo Tape (50mm x 50m)
- Probreathe FR Tape (75mm x 25m)





# PROBREATH<sup>®</sup> A2 AIR

Probreathe<sup>®</sup> A2 Air is a woven glass fibre membrane designed to provide water resistance and breathability to the building fabric. This membrane is air permeable, and will be installed either directly to the sheathing board, or over the insulation, providing a Reaction to Fire classification of A2-s1,d0.



Property	Test Method	Mean Results
Roll Size		1.5m x 50m
Weight		210 g/m <sup>2</sup>
Thickness		0.18mm
Air permeability	EN 12114:2000	27m <sup>3</sup> /(h.m <sup>2</sup> )
Vapour permeability	EN 12572	Sd 0.03m
Temperature range		-36°C to 150°C
Resistance to water penetration	EN 1928	W2
Reaction to Fire*	EN 13501-1	A2-s1,d0

\*free-hanging

## Key Benefits

- A2 Reaction to Fire Classification
- Vapour permeable membrane for use either directly onto sheathing or over insulation.
- Ideal for use in rainscreen/facade construction
- Suitable in relevant buildings and those over 11m/18m

## ACCESSORIES

- Probreathe FR Duo Tape (50mm x 50m)
- Probreathe FR Tape (75mm x 25m)



## FIRESHIELD®

Fireshield is a vapour permeable walling underlay with an intumescent coated surface. Fireshield is suitable for all walling applications including those in multiple storey buildings. Its unique coating doesn't just resist fire, but eliminates fire spread. It is installed and fixed to the substrate in the same manner as standard breather membranes using mechanical fixings.

Fireshield can also be used on the external cavity face to improve the fire robustness of closed panel assemblies when installed to the external sheathing alongside suitable non-combustible internal linings.

Fireshield is the first fire resistant vapour permeable membrane approved for inclusion in the structural timber association tested product listing for fire robustness during construction. As part of such a construction, Fireshield will be part of a system to limit the spread of fire to adjacent properties, which can allow for reduced spacing to adjacent properties.

Property	Test Method	Mean Results
Roll Sizes	-	1.1m x 20m
Weight	EN 1849-2	737g/m <sup>2</sup>
Thickness	EN 1849-2	1.2mm
Nail Tear Resistance	EN 12310-1	MD 273N CD 330N
Resistance to Water Penetration	EN 13859-1	Class W1
Tensile Strength	EN 12311-1	MD 300N/5cm CD 275N/5cm
Elongation	EN 12311-1	MD 2-3% CD 2-3%
Water Impermeability	EN 20811	Minimum Value: 2m
UV Resistance	Internal Method, UVB	12 Months
Water Vapour Transmission Properties	EN ISO 12572 Conditions C	Sd=0.08m
Flexibility at Low Temperature	EN 1109	-20°C
Reaction to Fire	EN 13501-1 Test Method: EN 11925-2 & EN 13823 (SBI)	B-s1,d0
Resistance to Air Penetration	EN 12114	1m <sup>3</sup> /m <sup>2</sup> /hr@50Pa
Artificial ageing (5000h uv + 90 days 70°C) Tensile strength after ageing Resistance to water penetration after ageing	EN 13859-1	MD: 290N/5cm CD: 240N/5cm Class W1

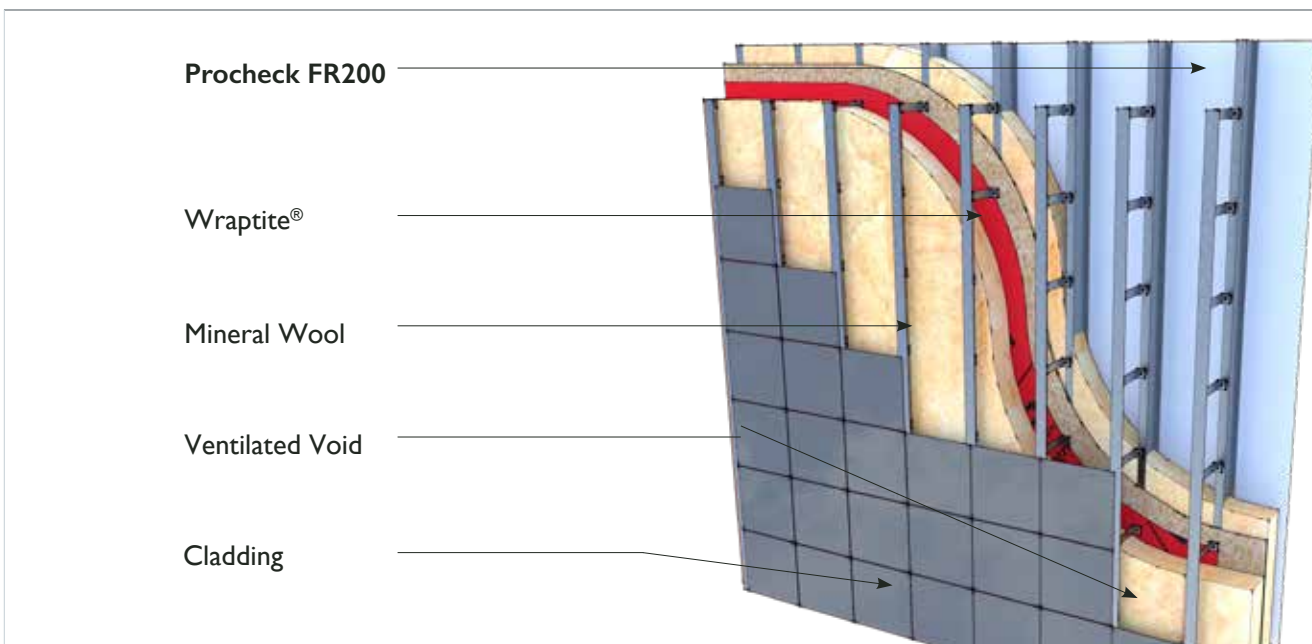
### Key Benefits

- Part B compliant in relevant buildings and those over 11m/18m
- Unique composition actively reacts to prevent fire taking hold
- Vapour permeable walling membrane for use either directly onto sheathing or insulation
- Class B-s1,d0 but performs differently to other similar class products
- Complies with BS5250 & NHBC requirements for vapour permeable walling underlays
- Ideal for use in rainscreen/façade construction



# PROCHECK FR200

Procheck FR200 has a Reaction to Fire classification of B-s1,d0 which provides assurance of fire performance for the structure. Procheck FR200 AVCL improves energy efficiency and reduces the condensation risk. Procheck FR Tape is an aluminium faced, air and vapour tight tape designed for use with Procheck FR200.



Property	Test Method	Mean Results
Roll Sizes	n/a	1.6m x 50m
Thickness		0.06mm
Weight	EN 1849-2	94g/m <sup>2</sup>
Colour		Black / White
Water Vapour Resistance	EN 1931	44m Sd 220 MNs/g
Service Temperature		100°C
Temporary UV Exposure		9 months
Water resistance (after ageing)	EN 1928	WI
Reaction to fire	EN 13501-1	B-s1,d0 <sup>1,2</sup>
Tensile strength MD	EN 12311-1	175 N/50mm
Tensile strength CD	EN 12311-1	165 N/50mm
Elongation MD	EN 12311-1	4%
Elongation CD	EN 12311-1	4%
Tear strength MD	EN 12310-1	81 N
Tear strength CD	EN 12310-1	83 N
Resistance against impact	EN 12691	250 mm
Durability against ageing: Water vapour resistance	EN 1296 / EN 1931	Passed
Durability against alkali:	EN 1847 / EN 12311-2	Passed

<sup>1</sup> Tested on 12.5mm paper-faced gypsum plasterboard

<sup>2</sup> Tested on 25mm standard Rockwool Substrate

## Key Benefits

- Independent assurance of fire performance (EN 13501-1 B-s1,d0)
- Reduced condensation risk
- Water vapour diffusion tight
- Withstands tough site conditions

## Accessories

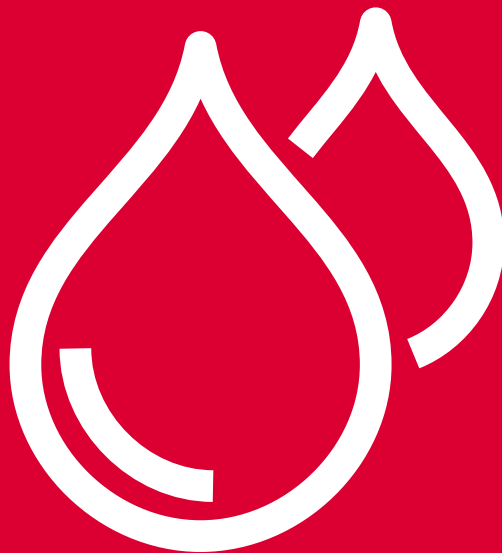
Procheck FR Tape is an aluminium faced, air and vapour tight tape

- Reaction to fire (Procheck FR Tape) is Class B-s2,d0





# Condensation Control



## High Performing Solutions

The A. Proctor Group is at the forefront of the development of vapour permeable membranes, vapour control layers and condensation control solutions for all areas of the building envelope.

Our range of innovative solutions includes Fireshield (vapour permeable walling membrane with a fire resistant surface), Procheck Adapt (high performing variable resistance vapour control layer), and Proctor Air (air and vapour permeable pitched roof underlay).

# Condensation Control

## Best practice building design



Façade & Highrise

### Innovative high performing solutions

The A. Proctor Group is at the forefront of the development of vapour permeable membranes, vapour control layers and condensation control solutions for all areas of the building envelope. Our range of innovative solutions includes Fireshield (vapour permeable walling underlay with a fire resistant surface), Procheck Adapt (high performing variable resistance vapour control layer), and Proctor Air (air and vapour permeable pitched roof underlay).

### Managing moisture – effective vapour control

Moisture vapour will pass through the various layers of any construction by both convection and diffusion. The objective is to ensure, by design, that the moisture vapour can disperse to the outside atmosphere without being cooled to below dewpoint temperature, thus eliminating condensation and associated problems such as mould growth. Controlling the moisture flow in a building is fundamental to the core principals of HAMM and maintaining the durability of the building envelope. Well managed moisture maximises energy efficiency by reducing adverse effects on fabric insulation, in addition to protecting the health and safety of the occupants.

### Product Range

- Procheck® Adapt
- Façadeshield UV
- Procheck® 125
- Procheck® 300
- Procheck® 500
- Profoil 86 I

### Guidance on condensation control

- Condensation risk assessments
- 'U' Value calculations
- Overcoming condensation in the roofspace



## PROCHECK® ADAPT

Procheck Adapt is a variable-permeability vapour control layer for use in a variety of commercial and residential applications. It is designed to protect the building fabric from potential risks of condensation and it will also act as an airtight barrier. Its variable permeability adapts to changes in humidity levels becoming more resistant in winter and more permeable in summer. This means the building fabric is protected from damaging moisture levels during cold, wet months of the year and it will allow the fabric to dry out effectively in warmer, drier months. Procheck Adapts' translucent structure eases fixing to structural frames and in conjunction with its integral tape allows for a simple installation.

Property	Test Method	Mean Results
Roll Size	-	1.5m x 50m 3m x 50m
Weight	ISO 536	110 g/m <sup>2</sup>
Nail Tear Resistance	EN 12310-1	MD 350N CD 375N
Tensile Strength	EN 12311-1	MD 350N/50mm CD 315N/50mm
Elongation	EN 12311-1	MD 20% CD 20%
Vapour Resistance	EN 12572	Sd 0.4m - 90m
Reaction to Fire	EN 13501-1	Class E
Air Permeability	BS EN 12114:2000	0.00 m <sup>3</sup> /m <sup>2</sup> .hr @ 50 Pa

### Key Benefits

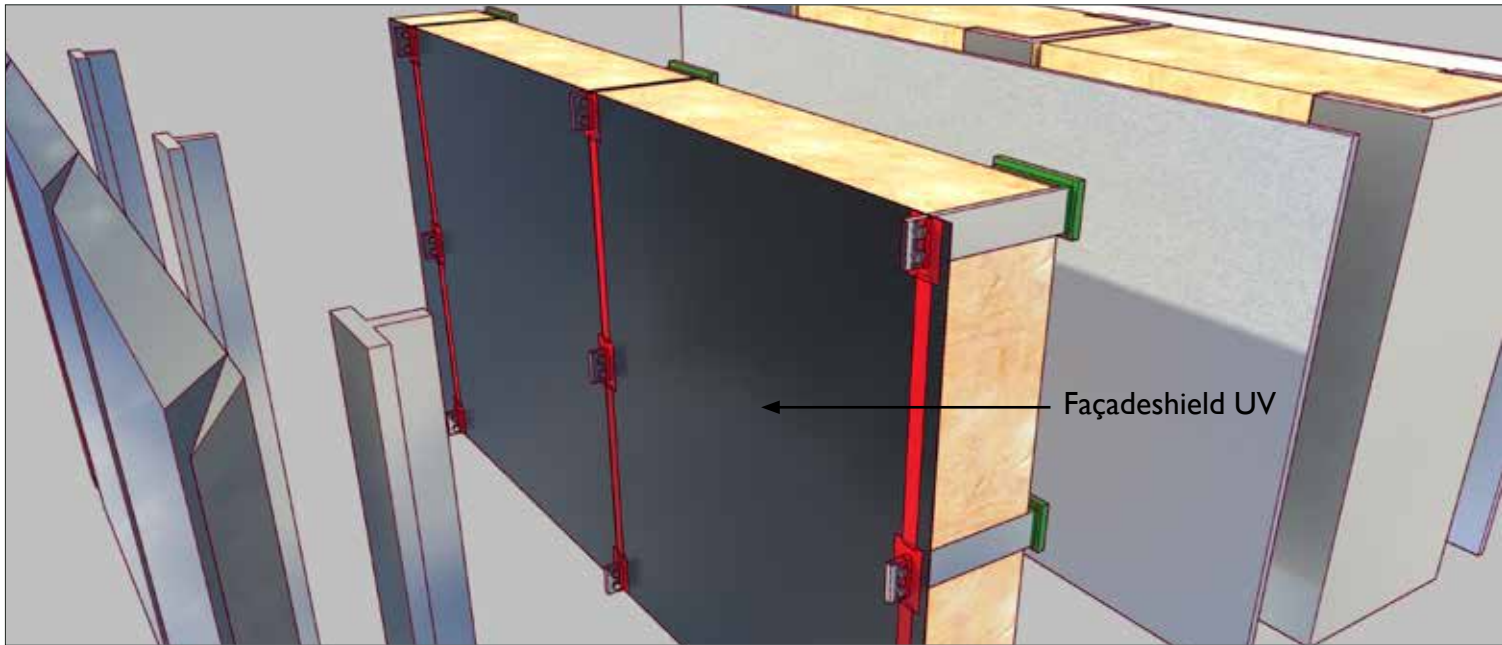
- Variable permeability adapts to changes in humidity
- Wide Sd range guarantees performance in demanding climatic conditions
- Ensures effective drying out of building materials
- Suitable for variety of commercial and residential applications
- Provides airtightness to structure as well as vapour control
- Translucent material allows for ease of installation onto framework





# FAÇADESHIELD® UV

Façadeshield UV is designed specifically to ensure the building fabric maintains water resistance and breathability when used behind open jointed façades. It is a breathable membrane that combines water and UV resistance with the anti-glare dark colour which provides a “shadow” appearance within open rainscreen façades. Façadeshield UV enhances the airtightness of the building whilst reducing the risk of condensation due to its’ high vapour permeability, yet airtight fabric.

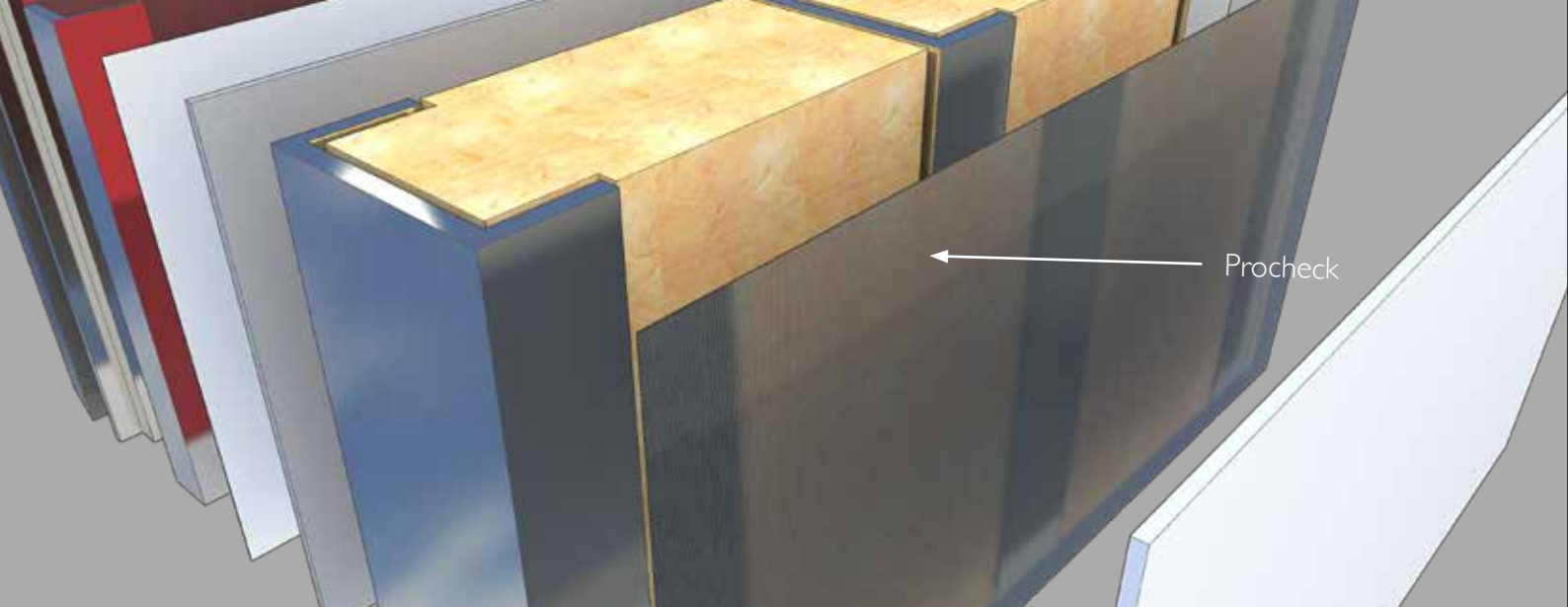


Property	Test Method	Mean Results
Roll Size	EN 1848-2	1.5m x 50m
Weight	EN 1849-2	210 g/m <sup>2</sup>
Colour		Black
Sd-value	EN ISO 12572	0.04 m
Temperature resistance	EN 13859-2	- 40°C to +80°C
Fire performance*	EN 13501-1 / EN ISO 11925-2	B-s1,d0
Resistance to water permeability	EN 1928	W1
UV resistance uncovered		12 months (Climate-Central Europe)

## Key Benefits

- Provides secondary protection to open jointed & perforated façades
- Achieves a shadow gap behind open façades
- Provides externally applied airtight layer for continuity of air barrier
- Has long term durability
- Class B fire performance
- Can be fully exposed for up to 12 months

\* on substrates of Class A1 or A2-s1,d0 with a density  $\geq 653 \text{ kg/m}^3$  and a thickness of  $\geq 11 \text{ mm}$



## PROCHECK® 125

Procheck 125 is a reinforced polyethylene vapour control layer which can be utilised in a variety of commercial applications. It has a vapour resistance of Sd 25m, meaning it can be utilised where very high moisture vapour resistance is not a necessity but an airtight membrane is.

### Key Benefits

- VCL for low to medium risk applications
- Reinforced, ensuring minimal tears even on tough site conditions
- Translucent, allowing visibility to substructure for ease of installation

## PROCHECK® 300

Procheck 300 is a reinforced, polyethylene vapour control layer for use within roof and wall constructions to prevent warm, moist air escaping from inside the building and condensing within the insulation. The woven, polypropylene, multifilament scrim reinforcement provides resistance to tears and punctures to withstand tough site conditions and is unaffected by chlorine. Procheck 300's vapour resistance of Sd 64m makes it the ideal choice for applications such as heated warehouses, schools and shops. Its translucent colour allows visibility to the substructure.

### Key Benefits

- Suitable for low risk applications e.g. heated warehouses
- Minimal tears due to reinforcement
- Reinforced to withstand tough site conditions
- Visibility to substructure for ease of installation

## PROCHECK® 500

Procheck 500 is a strong reinforced polyethylene vapour control layer with a vapour resistance of Sd 100m, making it suitable for low to medium risk applications e.g. offices, schools & housing. The woven extruded polypropylene multifilament scrim reinforcement provides nail tear resistance to withstand tough site conditions. The sheet is transparent allowing visibility to the substructure to ease the installation. Procheck 500 is the grade utilised by many leading system manufacturers. It is UV stabilised and unaffected by chlorine.

### Key Benefits

- Suitable for low to medium risk applications e.g. offices, housing
- Reinforced, ensuring minimal tears
- Reinforced to withstand tough site conditions
- Visibility to substructure

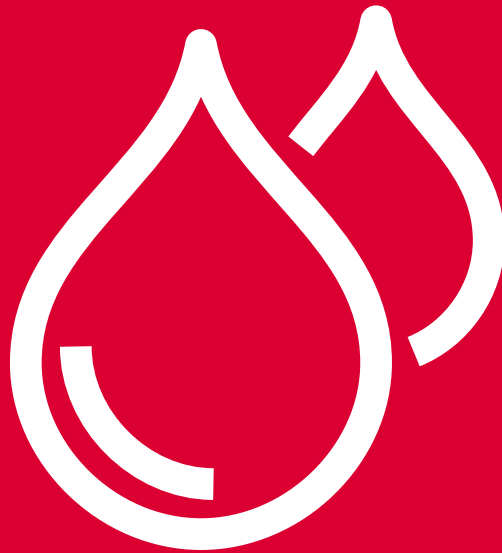
## PROFOIL 86 I

Profoil 86 I is a heavyweight, reinforced, UV stabilised vapour control layer with an aluminium foil core which gives a high water vapour resistance of Sd 1700m. This makes it ideal for high risk applications such as swimming pools (unaffected by chlorine) and textile factories. The aluminium foil is protected on both faces by polyethylene for corrosive situations. The reinforced scrim minimises tearing and ensures that the membrane is able to withstand tough site handling while the encapsulated foil ensures high vapour resistance.

### Key Benefits

- Ideal for high risk applications e.g. leisure centres, textile factories
- Minimal tears
- Reinforced to withstand tough site conditions
- Unaffected by chlorine
- High vapour resistance

# Ground Gas Protection



## **Experts in ground gas protection systems**

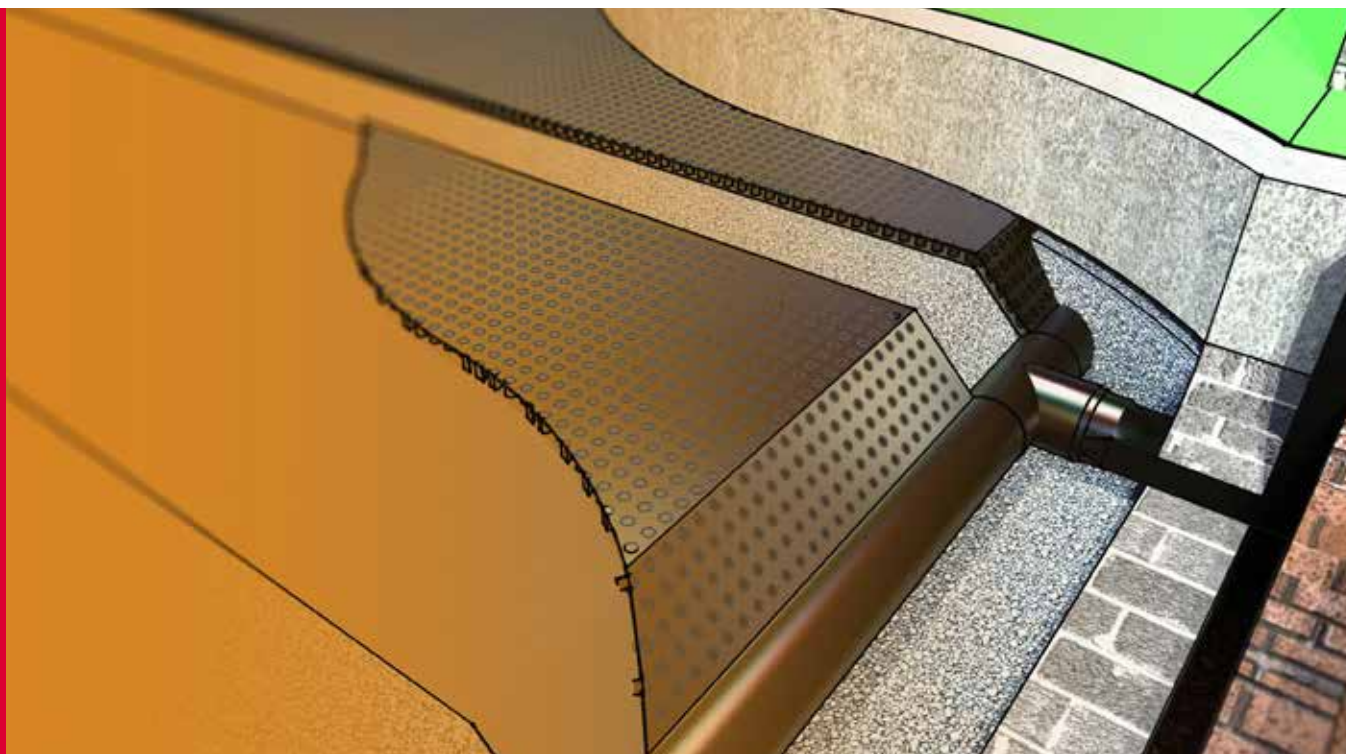
Gas protection systems are critical in developments constructed on sites affected by permanent ground gas and/or volatile organic compound (VOC) contamination. Systems are designed using the methodology which is set out in various advisory documents and legislation. The primary purpose is the prevention of hazardous gases and contaminants from the underlying soils that may cause harm to occupiers. A well-designed system should also perform the function of a damp-proof membrane, assisting in preventing the uptake of moisture into the construction.





# Ground Gas Protection

## Why are gas protection measures needed?



The accepted industry methodology of determining the risk to an end-user of a building, in line with guidance and legislation, comprises 'source,' 'pathway' and 'receptor.' This methodology is used by design consultants during the creation of the conceptual site model to provide the remediation strategy, in the context of the associated risks specific to the site and construction.

Current legislation and advisory documents stipulate levels of protection required, depending on the specific permanent ground gas or VOC risks associated with the site. Landfill or naturally occurring gas (or its components) can enter buildings through:

- Gaps around service pipes
- Construction joints
- Wall cavities
- Cracks in walls and ground slabs

In most buildings, measures to protect against ground gas are constructed below the ground floor level. A permanent ground gas (or VOC) protection solution consists of several individual elements, combining to form an integrated system. This is done to limit the reliance on one individual component. These components are separately designated, concerning gas protection in BS8485:2015 (permanent ground gas) and CIRIA C748 (VOCs), as:

1. Structural barrier (floor & substructure design)
2. Ventilation protection (floor slab type)
3. Membranes

4. Monitoring and detection

5. Pathway intervention

Depending on the site risks present, these components will be used to determine the overall protection system chosen. At the A. Proctor Group we have been involved in the supply and specification of gas protection systems since 1990, specifically in the areas of venting and dilution, and membranes.

Our PROVIDE ventilation system is backed by a proven track record in the supply of quality materials for passive ventilation systems. As well as the necessary pipework arrangements, the system is provided with options on air inlets and outlets to suit specific site requirements.

The A. Proctor Group also supplies the PROTECH GM range of proprietary gas barrier membranes, designed to protect against permanent ground gases and VOCs. Our specialist technical team is available to advise on membrane specification to tailor specifications to individual site requirements, and can also advise on levels of required installation and verification.

### Product Range

- |                     |              |
|---------------------|--------------|
| • Protech VOC Flex  | • Provoid 25 |
| • Protech GM Super  | • Protech GM |
| • Protech Radon 400 | Accessories  |

# PROTECH VOC FLEX

## High risk characteristic sites



Protech VOC Flex complies with CIRIA C748 and BS 8485:2015. It is a 6 layer flexible proprietary reinforced VOC gas barrier and is suitable for use on brownfield sites that require protection from dangerous contaminants such as hydrocarbons. Protech VOC Flex has been developed to ease installation on site due to the flexibility of the membrane. It is also suitable as a damp proof membrane.



Property	Test Method	Mean Results
Roll Size		2m x 50m
Weight		564 g/m <sup>2</sup>
Thickness		0.55 mm
Tensile Strength	EN 12311-1 +Mods EN 13859-1	MD 700 N/50mm CD 640 N/50mm
Elongation	EN 12311-1 +Mods EN 13859-1	MD 30% CD 25%
Nail tear resistance	EN 12310-1	MD 500N CD 540N

### Key Benefits

- Complies with CIRIA C748 and BS8485:2015
- Resists VOCs and Hydrocarbons
- Gas resistant
- BBA Certified
- Additional damp proofing protection
- Flexible membrane to ease installation on site
- Durable multi-layer membrane
- High resistance to puncturing

## INSTALLATION

Protech VOC Flex can be sealed either by welding or using Protech GM Tape. It is considered prudent that taped joints should not be used where there will be no long term compression of the membrane or where there is a likelihood where the membrane will come into direct contact with the VOCs in a liquid state.

In areas where the membrane crosses cavity walls or internal single skin walls, Protech VOC Flex Starter Band should be used in conjunction with Protech VOC Flex Internal and External preformed corner units. Pipe penetrations should be sealed with Protech GM Tophats or Protech GM Flashing Strips. Stanchions and columns should be sealed with Protech GM Primer and Protech GM Flashing strips (Photos, isometric and standard details are available on our website).

### Accessories

- Protech VOC Flex Starter Band
- Protech GM Tophats
- Protech GM Flashing
- Protech GM Corners
- Protech GM Primer
- Protech Protection Board
- Protech GM Protection Fleece
- Protech Liquid Applied Gas Membrane (LAGM)
- Protech GM Tape

For further information regarding permeation testing results please visit our website [www.proctogroup.com](http://www.proctogroup.com) or contact our technical department on 01250 872261.



# PROTECH GM SUPER

## High risk characteristic sites



Protech GM Super is a proprietary reinforced gas barrier, that incorporates a integral aluminium foil layer, for maximum protection against ground-borne gases. This has been specifically designed to conform with the latest guidance documents. The membrane also provides protection from damp when placed below the slab and, therefore, there is no need to install a separate DPM.

Property	Test Method	Mean Results
Roll Size		2m x 50m
Weight		370 g/m <sup>2</sup>
Thickness		0.4 mm
Colour		Green / Silver
Methane Permeability	ISO 15105-1	≤ 0.1 ml/day/m <sup>2</sup>

### Key Benefits

- BS 8485:2015 Compliant
- Reinforced virgin polymer proprietary gas membrane
- Reinforced to provide tear resistance
- Aluminium core for reduced methane permeability on higher risk sites
- Complies with the latest guidance
- BBA certified
- Flexible

### Accessories

- Protech GM Super Starter Band (1m x 50m)
- Protech GM Tape
- Protech GM Tophats
- Protech GM Flashing
- Protech GM Corners
- Protech GM Primer
- Protech Protection Board
- Protech GM Protection Fleece
- Protech SAGM (Self Adhesive Gas Membrane)
- Protech LAGM (Liquid Applied Gas Membrane)

### REGULATIONS COMPATIBILITY

	CIRIA 665 CHARACTERISTIC SITUATION 2	CIRIA 665 CHARACTERISTIC SITUATION 3-6	BS8485 CHARACTERISTIC SITUATION 2	BS8485 CHARACTERISTIC SITUATION 3-6	BRE 211 RADON	NHBC AMBER 1	NHBC AMBER 2 & RED
METHANE	✓	✓	✓	✓	N/A	✓	✓
CARBON DIOXIDE	✓	✓	✓	✓	N/A	✓	✓
RADON	N/A	N/A	N/A	N/A	✓	N/A	N/A

The table above can be used as a basic guide but for site specific guidance please contact the A. Proctor Group technical department



# PROTECH RADON 400

## High risk characteristic sites



Protech Radon 400 is a proprietary reinforced gas barrier, for maximum protection against ground-borne gases particularly radon. It can be jointed with use of our Protech tapes or heat welded. The membrane also provides protection from damp when placed below the slab and, therefore, there is no need to install a separate DPM.



Property	Test Method	Mean Results
Roll Size		2m x 50m
Weight		400 g/m <sup>2</sup>
Thickness		0.43 mm
Tensile Strength	EN 12311-1 +Mods EN 13859-1	MD 385 N/50mm CD 295 N/50mm
Elongation	EN 12311-1 +Mods EN 13859-1	MD 20% CD 17%
Nail tear resistance	EN 12310-1	MD 320N CD 330N
Radon transmittance		1.4.10-8 m/s
Radon permeability		6.0.10 <sup>-12</sup> m <sup>2</sup> /s

### Key Benefits

- Elastic material to give protection against radon gas
- BBA certified
- Wide temperature range

## INSTALLATION

Protech Radon 400 is a flexible construction membrane which provides a barrier against radon and other ground gases. Material is designed to be used in conjunction with solid and suspended ground floor applications.

### Accessories

- Protech Radon 400 Flex Starter Band
- Protech GM Tophats
- Protech GM Flashing
- Protech GM Corners
- Protech GM Primer
- Protech Protection Board
- Protech GM Protection Fleece
- Protech Liquid Applied Gas Membrane (LAGM)



#### Features and Benefits

- 25mm Geocomposite Void Former which results in less contaminated spoil compared to a 'pipe and gravel' venting layer
- Flexible and simple to lay
- Large rolls available for reduced installation times
- Full range of ancillary products
- Compatible with Protech GM Range of Gas Membranes

## PROVOID 25

### High risk characteristic sites

Provoid 25 is a 25mm thick single-sided geocomposite that provides a void beneath floor slabs which, when connected to air inlets and outlets, allows sufficient air changes to dilute gases to safe concentrations when designed correctly.

Provoid 25 can be laid in strips at predetermined centers or in a full blanket depending on site requirements. Being only 25mm thick means there is a reduced dig when compared to the alternative of 200 to 300mm of clean stone. If Provoid is laid in strips it must be bedded in 200mm of clean stone to achieve a good venting performance in compliance with BS8485:2015. Provoid 25 is also extremely strong and flexible with a crush resistance of 300 kpa and is supplied in rolls of 45m<sup>2</sup>; therefore large areas can be covered very quickly.

Provoid 25 is flexible and can be laid horizontally and vertically to deal with awkward foundation arrangements. Because of its flexibility, it will cope with settlement under the slab without compromising the system.

We offer venting design advice in line with DOE (1997) Passive venting of soil gases beneath buildings. We can offer venting layouts and detailing of inlets and outlets on existing foundation slab layouts.

Property	Test Method	Mean Results
Roll Length		50m
Width		450mm / 900mm
Thickness		25 mm
Compressive strength		300 kPa
Gas flow capacity - Composite		0.07 m <sup>3</sup> /s (Calculated <sup>1</sup> )

<sup>1</sup>Gas flow calculation based on a discharge coefficient of 0.61 with a pressure difference of 10Pa and a standard air density of 1.29kg/m<sup>3</sup>

### Key Benefits

- Optimised for maximum strength and performance
- UV stabilised
- Allows for a reduced dig
- High crush resistance

### Accessories\*\*

Venting System Components  
 7,000mm<sup>2</sup> ventilation area  
 1: Ground Level Gully Vent Box\*  
 2: Provoid Connector 'T-Piece'  
 3: Provoid (Geotextile side down)

\* Provoid Gully Vent Boxes need to be set in 150mm surround of no fines concrete. No vehicular trafficking should be driven over Gully Vents.

\*\* Please refer to Protech GM Accessories brochure for full range



# Thermal Insulation



## **Thermal insulation – managing heat flow**

Depending on climate and location “heat” is keeping heat in or keeping heat out, therefore when we are considering heat we are mainly concerned with thermal insulation. The effects of heat flow can have a significant impact on the energy efficiency of a building. Managing energy efficiency from design to construction is increasingly important.



## The Impact of Heat Flow

To maximise the design of a building's energy efficiency a holistic approach is required to provide a total system which embraces the principles of HAMM, considering an integrated approach to airtightness and condensation control.

Incorrect specification or installation of effective thermal barriers will lead to unmanaged heat loss, impacting directly on the energy efficiency of the building and its systems. In recent years, schemes by the UK and European governments have sought to improve the energy efficiency of buildings.

In many cases, insulation has been a “silver bullet” to address these needs. However, whilst insulation has a key part to play, the most effective solutions will demand a total system approach from the outset.

The A. Proctor Group has 50 years experience in the Thermal Insulation sector. We offer a complete range of thermal insulation products and technical support including U-value calculations. Our fabrication facilities offer the ability to cut our Spacetherm aerogel insulation to almost any required size, thickness or shape.

## Product Range

- Spacetherm A1

## Guidance on thermal insulation

- ‘U’ Value calculations



# SPACETHERM® A1

Spacetherm A1 is a flexible, high-performance, silica aerogel-based insulation material of limited combustibility used for exterior and interior applications. The product is used to optimise the thermal performance and fire properties of façade systems in a number of ways. These include enhancing the thermal performance of the ventilated façade, and addressing thermal bridging in the façade. Spacetherm A1 is also useful in minimising thermal bridges around windows in areas such as window reveals and roller shutter cases.

With a thermal conductivity of less than 0.02 W/mK, Spacetherm A1 performance credentials qualify it as one of the lowest thermal conductivity available worldwide. Engineered for space-critical applications, the product offers compression strength, plus breathability allied to hydrophobic characteristics. Spacetherm A1 can be also be supplied in a variety of finishes, the substantial layers meeting the requirements for A1 classification (insulation, MgO and plasterboard).



## Key Benefits

- Class leading reaction to fire classification from an Aerogel insulation
- Limited combustibility
- Water vapour diffusion open
- Permeable
- Flexible
- Thinnest A1 Aerogel insulation available

*For specific details please contact technical for further information.*

*Please note, only the Spacetherm A1 material is fire rated - for any components laminated to this product, it will no longer achieve this.*





## Case Study - Wraptite® Dublin City Quarter

**Wraptite®, the vapour permeable external air barrier from A. Proctor Group, is part of the high-performance residential building specification in the new Dublin city quarter, Glass Bottle.**

Connecting Dublin to its bay at the base of the Poolbeg Peninsula, the development is also linking the communities of Irishtown, Ringsend and Sandymount. The creation of Glass Bottle is transforming some 15 hectares of a former glass bottle-making site that was once home to one of the most modern factories in Europe.

Building an entirely new city quarter, that is also intended to be a city-within-a-city, is expected to take around a decade. The work currently being undertaken, and which features the use of Wraptite as part of the specification, is Phase I.

Specifying an external air barrier for the new Glass Bottle city quarter. Granted planning permission in March 2022, Phase I of Glass Bottle comprises three individual buildings with around 570 apartment units overall. 10% are social housing units and 15% are affordable housing units – percentages that will be maintained across delivery of the entire scheme, which will eventually deliver 3800 new homes for some 9500 people.

The external wall build-up of the apartment buildings is a fairly typical light steel frame structure with a sheathing board and external finish. Designed and specified by Dublin-based architectural practice Henry J. Lyons, the Wraptite external air barrier was named within their specification pack.

As an airtight and vapour permeable membrane, Wraptite can be positioned to the external side of the structure. This moves the airtightness barrier away from the internal services zone, simplifying detailing and reducing the number of penetrations through the membrane. At the same time, allowing the passage of moisture vapour eliminates condensation risk.



It is even possible to use Wraptite as the sole membrane in a wall build-up, subject to the appropriate condensation risk analyses being carried out. However, at Glass Bottle, the Phase I specification still included an internal vapour control membrane as part of a belt-and-braces approach.

# Specialist Services and Technical Support

Our technical back-up has always been an integral part of our strategic development, with an outlook based on technical solutions, rather than commodity driven.

Our dedicated technical team is focused on providing high quality advice and support to our customers all the way from drawing board to site.



## Customer Focused

- Online Technical Advice
- Members Area / Onsite App
- WUFI & U-Value Calculations
- Condensation Risk Analysis
- CAD Design
- Site Advice
- CPD Presentations
- Accreditations

## Expertise and know-how to support your project

### CONDENSATION RISK ANALYSIS

Condensation can significantly reduce the effectiveness of insulation, and result in damage to the building fabric.

A Condensation Risk Analysis evaluates the likelihood of interstitial condensation in your roof or wall construction.

These calculations are regularly required by building control to demonstrate compliance with building regulation requirements. Calculations are performed free of charge when using our products.

### BIM DATA

Available through NBS Chorus and NBS Source, specifiers can now access a full suite of digital products and technical specifications for many of our product solutions. The collaboration with NBS provides architects and designers with a technical specification writing service. In addition, specifiers have access to the manufacturer's specification data, BIM objects, literature and third-party certifications.

### PRODUCT DIVISIONS

We provide a wide range of high quality, innovative solutions which are designed to meet the continuously evolving requirements of the construction industry.

#### Product divisions include:

- Condensation Control Membranes
- External & Internal Airtight Membranes
- Ground Gas Protection
- Thermal Solutions

#### Get in touch for more information

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**Keira Proctor**

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