

Product Solutions for Housebuilders & Developers

SPECIALIST MEMBRANES, THERMAL INSULATION
& ACOUSTIC FLOOR SOLUTIONS





A. Proctor Group

Experts in membrane systems

Housebuilders and developers are facing increasing requirements to achieve compliance with ever tighter standards and building regulations, coupled with the demand to design and build homes and properties which are energy efficient, moisture free and provide a healthy living environment for the occupants.

This necessitates a clear need to manage the balance of Heat, Air & Moisture management (HAMM) throughout the process of the building's life cycle from design, construction, completion and use. The importance of these key elements upon the building fabric is crucial to the successful construction and use of all residential properties.

The A. Proctor Group has, for 50 years, been serving the construction industry with an extensive portfolio of technically advanced thermal, acoustic and membrane products. With an extensive portfolio of products, the A. Proctor Group provides product solutions for housebuilders and developers, *"from the ground up to the roof."*

The range includes solutions for:

Roof membranes

Wall membranes

Vapour control layers

Airtightness membranes

Acoustic flooring solutions

Ground gas protection

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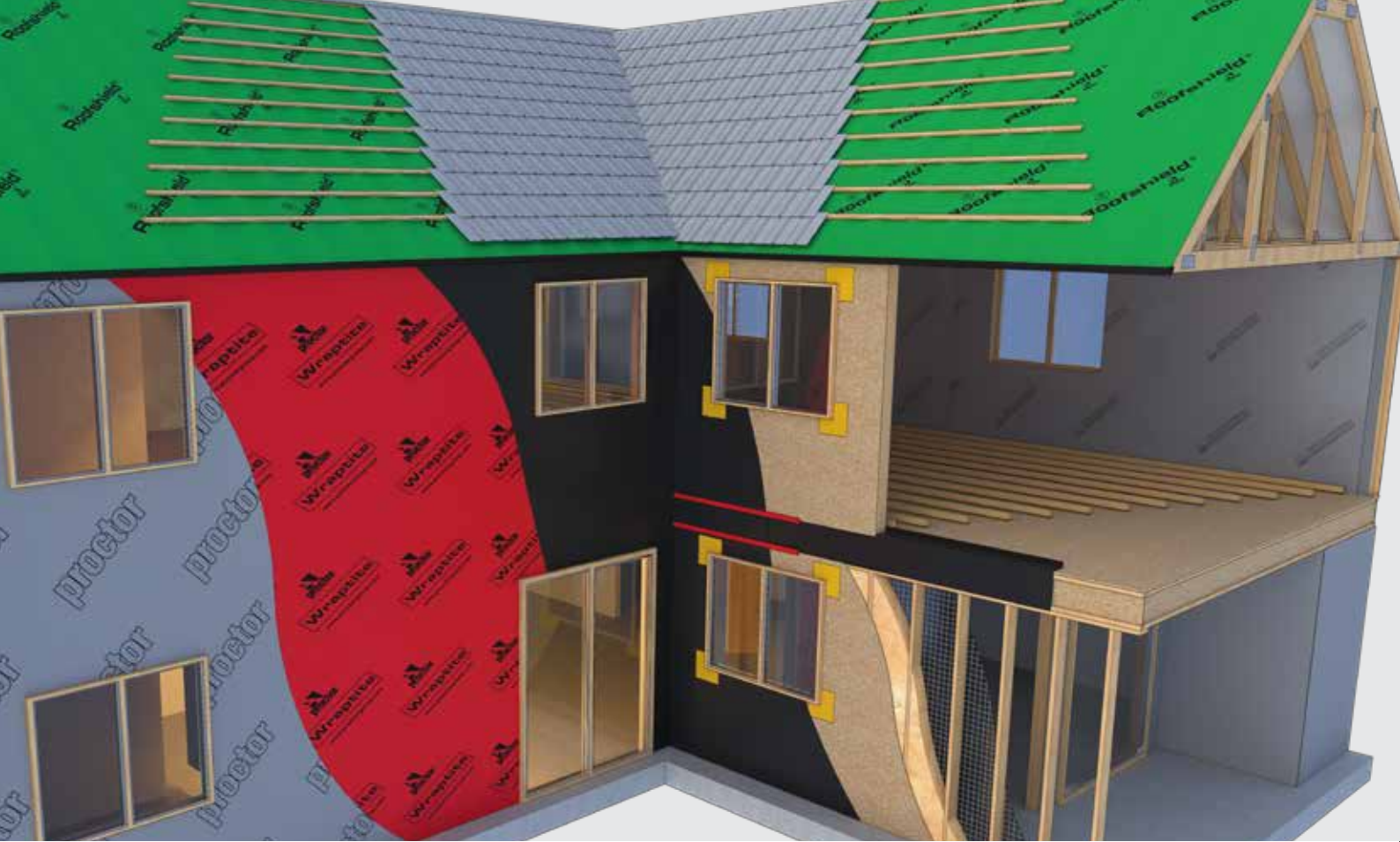
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Construction membranes – applications in house building

Already a trusted brand with housebuilders and contractors, the A. Proctor Group product portfolio includes such familiar names as Roofshield®, the high quality, unique air and vapour permeable pitched roof underlay, a world recognised brand synonymous with the highest performing roofing solutions, and Wwaptite®, an external air barrier to solving the problem of reliably achieving airtightness in buildings.

Timber frame construction

Structural Timber Association STA issues the following guidance (STA Advice Note 18):

A breather membrane is the layer on the structural timber wall panel that faces the cavity of an external wall. The breather membrane may be directly on the cavity face of a sheathed timber frame panel or structural insulated panel, or be on the face of the insulation layer over a laminated timber wall panel. They are called breather membranes as they allow water vapour to pass through the material.

Requirement during the build process

The breather membrane is designed to keep the exposed perimeter frame from excessive weather wetting and at the same time allow the construction to dry out.

During the service life of the building wall

Where appropriate to the design of the project:

- To provide a second line of defence against water penetration that might bridge a cavity.
- To provide thermal enhancement of the wall assembly.
- To protect the wall panel against water ingress from open jointed façade cladding, sometimes called open cladding.

Modular and offsite construction

In the drive for more energy efficient housing, government led initiatives have continued to stimulate the growth of thermal insulation within the housing sector. Housebuilders will also seek to build homes which are designed as carbon neutral moving away from fossil fuels to renewable energy sources. This push towards increased insulation and renewables will, however, be rendered largely ineffective unless the airtightness and condensation control of the structure itself is addressed effectively.

Other construction types

Other building types will also benefit from the use of the high performance membranes from the A. Proctor Group range. Based on extensive experience and leading industry research, the A. Proctor Group have developed some of the most technically advanced membranes and product solutions for walls, roofs and floors. Other construction types may include brick and block, stone, masonry, and CLT.

Increasingly leading housing developers backed by the NHBC, and independent industry research, all agree that some membranes perform at an exceptional level. A. Proctor Group products are backed up by a dedicated team of technical experts, able to assist developers at every project stage from pre-planning to on-site.

Standards & Building Regulations

The key guidance on meeting the requirements of Building Regulations for England, Ireland and Wales, and Building Standards (Scotland) relating to ventilation, thermal efficiency, moisture and condensation control is outlined within the Approved Documents and Technical Standards below.

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

Ventilation

- Part F1 Means of Ventilation (England & Wales)
- Building Standards Section 3 Environment (Scotland 2017)
- Technical Booklet K - Ventilation (N. Ireland Oct 2012)
- Technical Guidance Document F - Ventilation (Ireland 2019)

Moisture

- Part C Site Preparation and Resistance to Contaminants and Moisture 2013
- Building Standards Section 3 Environment (Scotland 2017)
- 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 1997 Reprint 2004)

Thermal

- Part L Conservation of fuel & power (England 2013 with amendments 2016/ Wales 2014)
- Building Standards Section 6 Energy (Scotland 2017)
- Technical Booklet F - Conservation of fuel and power (N. Ireland Oct 2012)
- Technical Guidance Document L - Conservation of fuel and energy (Ireland 2019)

Ground Gas

- Part C Site Preparation and Resistance to Contaminants and Moisture 2013
- BR 211-2015: 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
- CIRIA C716 – Remediating and mitigating risks from volatile organic compound VOC vapours from land affected by contamination
- BS5250 Condensation in Buildings 2011 + A1:2016
- BS EN 15026:2007 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.
- BS8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings





External Airtight Membranes - an Introduction

Why are airtight membranes needed?

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 building envelopes. Housebuilders have a key role to play in the installation of effective air barrier systems which have become essential in achieving the most effective means of controlling and reducing air leaks.

As thermal insulation requirements have increased over the last few years, the proportion of energy lost through air leakage has become more evident. The ever-increasing thermal insulation required will, however, be rendered largely ineffective unless the airtightness of the structure itself is addressed. Air leakage greatly reduces the effect of thermal insulation; therefore if energy efficiency is to be improved within buildings, this is the most critical area to focus on.

The two main ways to achieve airtightness in the building envelope are internally or externally, or in other terms, “inside of the services zone” or “outside of the services

zone’. For the housebuilder, the use of traditional 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.

For many years, external air barriers have been commonly used in North American building design and construction. By moving the air barrier to the external side of the structural frame, external air barrier systems such as Wraptite® allow for an almost penetration-free airtight layer, which can be installed faster and more robustly. This offers an effective but simple system comprising a self-adhesive vapour permeable air barrier membrane, plus vapour permeable sealing tape, Wraptite Corners and Wraptite Liquid Flashing, and provides effective secondary weather protection while preventing trapped moisture and air leakage. Far simpler than internal options an external air barrier system like Wraptite will maintain the envelope’s integrity, with less building services and structural penetrations to be sealed, and less room for error.



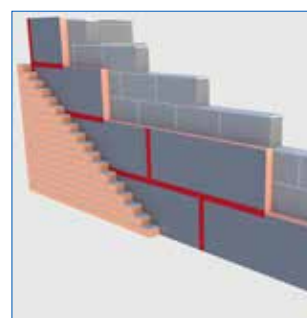
WRAPTITE®

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. 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.

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

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 ²
Application Temperature	-	Air & surface: minimum -10°C maximum 60°C
Air Permeance	EN 12114	0.01 m ³ /m ² .h.50 Pa
Water Vapour Resistance Sd	Sd EN 12572	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
Reaction to Fire	EN 11925-2 BS EN 13501-1	Class B, s1, d0*

*tested over 12mm calcium silicate board / fibre cement board as per BS EN 13238:2010. All tests carried out to EN 13859-2 standard.



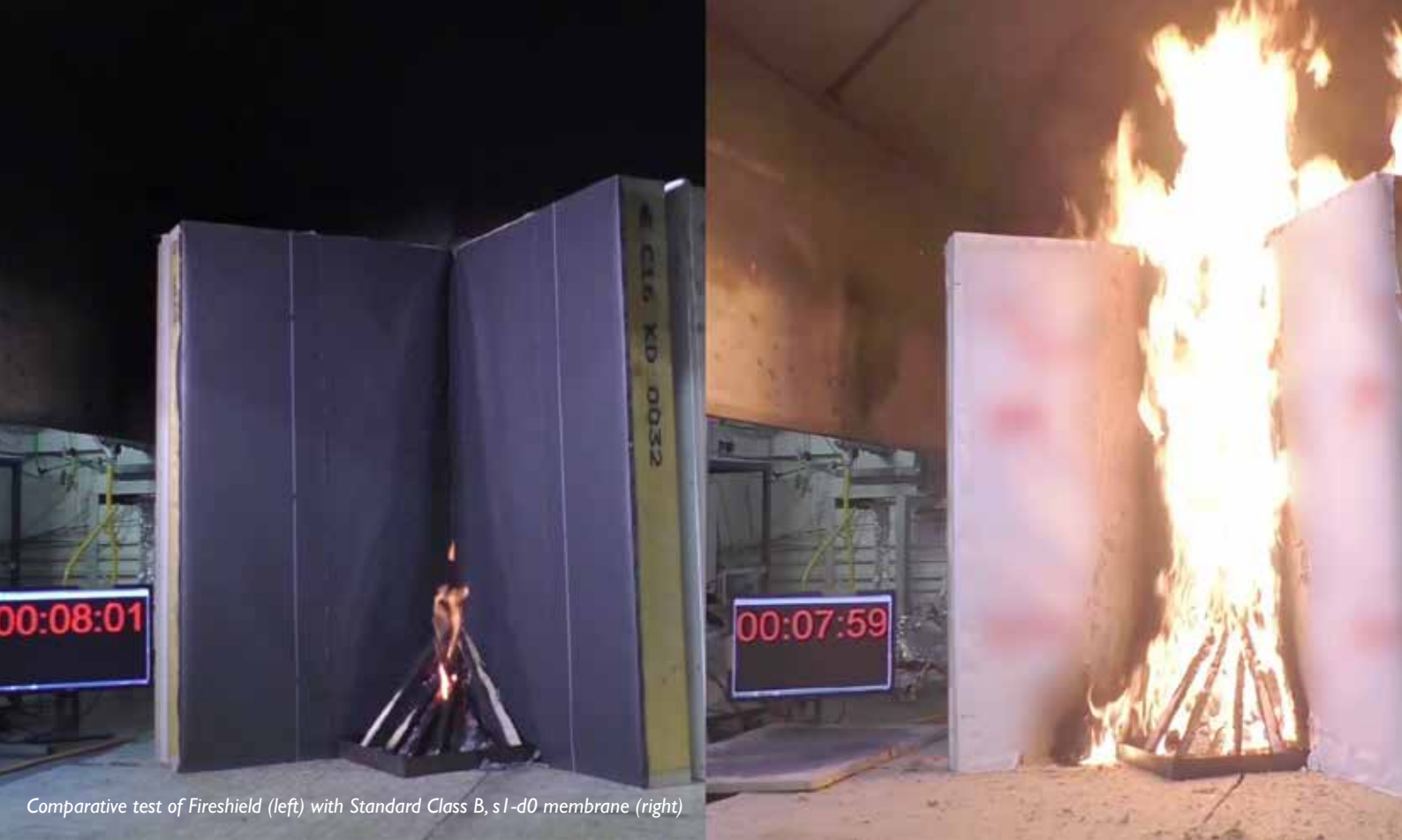
premier guarantee | Approved



Key Benefits

- Self adhered
- Airtight yet vapour permeable
- BBA certification no 15/5274
- Wraptite Tape recommended by Kingspan® for use with their Kooltherm® K106 Cavity Board (see graphic above)
- 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 (-40°C - 100°C)
- Can be left exposed for up to 90 days (North America) or 120 days (UK) during construction*
- No VOC's

Please see the Wraptite brochure for technical details and information on the full Wraptite range of accessories.



Comparative test of Fireshield (left) with Standard Class B, s1-d0 membrane (right)

Fire Performance & Breather Membranes

In selecting a membrane it is important that performance is not compromised and meets the requirements of both Approved Document B: Fire Safety and BS5250 the Code of Practice for Condensation Control. Housebuilders should understand that some European membrane products whilst quoting A2 ratings do not breathe sufficiently to comply with BS5250, meaning the use of these membranes in the UK climate could make the building unhealthy and result in a much greater risk of condensation issues and mould growth.

The culmination of years of research into membranes by the A. Proctor Group has led to the development of a vapour permeable membrane with a fireproof surface, which has a unique intumescent composition that actively reacts to prevent fire taking hold and that also significantly reduces the formation of droplets and smoke.

FIRESHIELD®

Fireshield is a vapour permeable walling underlay with a fire proof 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.



Fire Performance & Breather Membranes

PROCHECK® FR200

Procheck FR200 is a fire retardant vapour control layer used in roof and wall structures in both new build and renovation projects. Procheck FR200 has a Reaction to Fire classification of B-s1, d0 which provides assurance of fire performance for the structure. Procheck FR200, air and vapour tight membrane improves energy efficiency and reduces the condensation risk, and has a vapour resistance of Sd 44m.

PROCHECK® A2

Procheck A2 is a laminated glass fibre and foil composition protected by a clear lacquer. This clear surface gives Procheck A2 a unique additional benefit of a low emissivity surface which when used with a service cavity can enhance the overall thermal performance of the construction as well as providing high fire performance with its A2-s1,d0 fire classification. Procheck A2 air and vapour tight membrane improves energy efficiency and reduces the risk of condensation.

FAÇADESHIELD® UV

Façadeshield UV is designed specifically to ensure the building fabric maintains good water resistance and breathability when used behind open jointed façades. It is a breathable membrane that combines exceptional water and UV resistance with the aesthetically pleasing 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. Façadeshield UV is robust, with good tear resistance and tensile strength.

The A. Proctor Group supplies a wide range of tape accessories for their membranes to ensure the installation process is both simple and robust.

Specially designed for the requirements of the building and construction industry, the tapes guarantee extra performance, resistance and reliability.





Applications

- Pitched Roofing
- New Build
- Refurbishment
- Extensions

ROOFSHIELD®

Roofshield is an air and vapour permeable pitched roof underlay for installation beneath tiles and slates. It is highly water resistant, providing a secondary barrier to the ingress of rain, wind and snow and reduces interstitial condensation. It has been made to the same high standard for over 20 years, and has consistently met the evolving demands of the roofing industry to be the first choice for most roofing contractors. It complies with BS5534.

The underlay's reliable performance has been demonstrated in the toughest locations around the world. Its characteristics allow even very complex pitched roofs to breathe, without the need for air gaps or secondary venting.



Property	Test Method	Mean Results
Roll Size	-	0.5m x 50m 1m x 50m 1.5m x 50m
Mass per unit area	EN 1849-2	185 g/m ²
Reaction to Fire	EN 13501-1	Class E
Water Vapour Resistance Sd	EN 12572	0.013m
Vapour Resistance	EN 12572	0.065 MNs/g
Air Permeability	EN 12114	34.4 m ³ /m ² .h.50Pa
Water Penetration	EN 1928	Class W1 (before ageing) Class W1 (after ageing)

Key Benefits

- No ventilation required
- More uniform airflow than vents
- High degree of vapour permeability greatly reduces the risk of condensation
- Significantly reduces condensation risk and negates requirement for ridge ventilation
- Ensures continuity of air movement in loft
- Gives protection to the building until primary water shedding layer, e.g. slates or tiles, is installed
- No reliance on different trades to install VCL
- Air permeable



Reflective Membranes - an Introduction

By utilising high performance low emissivity coatings to restrict heat flow, the A. Proctor Groups' range of reflective construction membranes allow the thermal performance of timber frame walls to be enhanced with little or no increase in thickness. As well as thermal enhancement, these membranes offer the same excellent weather protection and moisture vapour management characteristics as the conventional membranes.

REFLECTASHIELD® TF 0.81

Reflectashield TF 0.81 is a water resistant, non-woven polypropylene foil faced laminate with a unique patented three layer composition, providing excellent breathability, as well as secondary protection to the building during construction. Reflectashield TF 0.81 is vapour permeable, has low emissivity and an enhanced foil surface designed to improve the thermal resistance of timber and steel frame structures. It has a high strength to weight ratio. The product is installed on the external face of the timber frame, foil side face out, similar to that of a traditional breather membrane but with added thermal benefits. Reflectashield TF 0.81 complies with the low vapour resistance requirements set out by BS 4016, TRADA and the NHBC. The existing legislation requires a breather membrane in walls to have a vapour resistance not greater than 0.60 MNs/g. Reflectashield TF 0.81 has a vapour resistance of 0.41 MNs/g.

REFLECTATHERM® PLUS

Reflectatherm Plus is a reflective, high resistance vapour barrier for internal walls, ceilings and floors, specifically designed to improve the thermal performance and airtightness when placed on the warm side of the insulation.

The membrane should be installed with the foil side facing the cavity. In ceilings the product is placed between the underside of the rafters and the ceiling lining. Adjacent sheets should be lapped by 150mm and sealed with Reflectafoil Tape. Penetrations caused by services must be minimised to ensure effectiveness, and all joints need to be sealed.



REFLECTATHERM® PREMIER

Reflectatherm Premier is a reflective vapour control layer with integrated tape for ease of installation. Reflectatherm Premier is for internal walls, ceilings and floors, specifically designed to enhance the thermal performance when placed on the warm side of the insulation. The integrated tape, which is a key feature of Reflectatherm Premier, ensures an efficient, consistent, continuous and well sealed membrane to protect the structure from vapour and air movement. The quick and efficient installation, utilising the integrated tape, reduces time and labour on site as well as increasing the quality of the joints in the membrane.





Introduction to Vapour Control Layers

Installed on the warm side of the heated envelope, vapour control layers restrict the ingress of moisture into the building fabric by limiting both vapour diffusion and air leakage. The correct specification of vapour control layers is closely related to the anticipated moisture loading and maintaining the integrity of the membrane is critical. The A. Proctor Groups' range of vapour control layers covers all building uses, and are reinforced for enhanced durability during construction and throughout the lifetime of the building.

PROCHECK® 300

Procheck 300 is a lightweight, 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 excellent 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.



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 improved nail tear resistance and robustness 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.




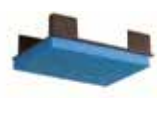
PROCHECK® ADAPT

Procheck Adapt is a high performance 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 fast installation time.





Profloor Acoustic Solutions

Profloor Systems are designed to meet the requirements of the Building Regulations and Robust Details for impact and airborne sound. Solutions are available for timber and concrete floors on both new build and refurbishment projects. The combination of open-cell polymer foam and vertical polyester fibres are the key to the success of the A. Proctor Group's range of Profloor products.

Product selector

Battens					
Properties	Unit	Profloor Dynamic Batten	Profloor Excel Batten	Profloor Solo Batten	Profloor Levelling System
Resilient layer composition		Open & Closed Cell	VOF	Closed Cell	Closed Cell PE
Timber Type	-	Homegrown	Homegrown	Homegrown	Homegrown
Resilient layer nominal thickness	mm	22	13	7	10
Overall nominal thickness	mm	55 / 67 / 81 / 91	61 / 75 / 85	40 / 52	range 33 - 185
Batten length	m	2.4	2.4	2.4	2.4
FFT compliant	-	1, 3 & 80*	1 & 3	3 (utilising 52mm batten)	2 (on concrete floor)
Timber or Concrete Floor		Both	Both	Concrete	Both

* Scotland only

Decks					
Properties	Unit	Profloor Dynamic Deck 26	Profloor Excel Deck 31	Profloor Micro Deck 17	Profloor SoloDeck 23
Resilient layer composition	-	Open & Closed Cell	VOF	Open & Closed Cell	Composite PU
Type and thickness of board	-	18mm T&G Chipboard	18mm T&G Chipboard	9mm T&G MDF	18mm T&G Chipboard
Resilient layer nominal thickness	mm	8	13	8	5
Overall nominal thickness	mm	26	31	17	23
Board size	m	0.6 x 2.4	0.6 x 2.4	0.6 x 1.2	0.6 x 2.4
FFT compliant**	-	5	5	5	5
Timber or Concrete Floor		Both	Both	Both	Both

** Only FFT5 compliant on concrete floor: Can be used on timber; but wouldn't be RD compliant.

Ground Gas Protection

In the need to identify suitable land, the safe development of housing on brownfield sites will be fundamental in achieving the objectives set by government. The A. Proctor Group has over twenty years of experience in providing solutions for the safe development of brownfield land, and an extensive range of ground gas protection products to make the development of these sites safer and easier.

PROTECH VOC FLEX

Protech VOC Flex complies with CIRIA C748 and BS 8485:2015 + A1:2019. It is a high performance 6 layer flexible proprietary reinforced VOC gas barrier and is suitable for use on brownfield sites that require protection from dangerous contaminants such as VOCs and 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 high performance damp proof membrane.



PROTECH GM SUPER

Protech GM Super is a high performance proprietary LDPE reinforced gas barrier, which incorporates a 12 micron aluminium foil layer for maximum protection against ground-borne gases. Please contact our technical department for further details. The product has been specifically designed to conform to the latest guidance documents, and its unique composition makes the membrane extremely robust and flexible, and easy to install. The membrane also provides protection from damp, therefore there is no need for a separate DPM.



PROVOID 25

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.

PROTECH GM ACCESSORIES

Both the British Standard BS8485:2015 and the CIRIA C735 guidance document emphasise the importance of on site verification to ensure design performance targets for gas membrane systems are met. In order to achieve this, good installation and site practices are increasingly important. To assist contractors in meeting the strict guidance given in the most recent standards documents, the A Proctor Group supplies a wide range of membrane accessories to ensure the installation process is both simple and robust.



Please refer to the Protech GM Accessories brochure for full product details.

Technical Support

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



Customer Focused

- Online Technical Advice
- WUFI & U-Value Calculations
- Condensation Risk Analysis
- CAD Design
- Site Advice
- CPD Presentations
- Accreditations
- System Design

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 OBJECTS

The A. Proctor Group's range of Performance Specifications & BIM content, covering our Condensation Control Membranes, External Airtight Barriers, Acoustics Flooring Solutions, Ground Gas Protection Systems & Thermal Insulation range is now available in a combination of Revit Project files (.rvt), Revit Detail Component files (.rfa), Industry Foundation Class files (.ifc) & PDF format.

GAS PROTECTION TECHNICAL SUPPORT

The A. Proctor Group can review Site Investigation Reports including Gas Monitoring Results and advise routes for

compliance. Full Ground Gas Protection System Design available. CIRIA, NHBC & Building Regulations compliant. They also have close links to Specialist Installers who are qualified to NVQ Level 2 in Gas Membrane Installation as recommended in CIRIA C735.

PRODUCT DIVISIONS

The A. Proctor Group 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
- Acoustic Floor Solutions
- External Airtight Barriers
- Ground Gas Protection
- Thermal Solutions

Get in touch for more information

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“ 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, A. Proctor Group Ltd



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