THE KNOWLEDGE TO PRODUCE SOLUTIONS

The A. Proctor Group has, for nearly 50 years, been serving the construction industry with an extensive portfolio of technically advanced thermal, acoustic and membrane products.

The Group provides a wide range of high quality, innovative solutions which are designed to meet the continuously evolving requirements of the construction industry. Our commitment to keeping pace with this evolution has led to the group’s expansion, today encompassing multiple product sectors.

International supply within the construction industry demands creative solutions, tailored to specific requirements. We take time to investigate local knowledge of construction technology, climatic considerations and legislative standards. This attention to detail is essential to our global vision and continued growth within the international construction market.

We have been developing breather membranes and vapor barriers for over 25 years, and can provide vapor control and air barrier solutions for all areas of the building envelope, across a variety of sectors.

With increasing emphasis on the airtightness of the building envelope, the successful management of moisture vapor and air movement within all types of structures is more critical than it has ever been.

With our many years of experience, and a dedicated team of technical advisors, the A. Proctor Group can provide the wide range of solutions needed to meet even the most complex project requirements.
WHAT IS CONDENSATION?

The air around us holds moisture in the form of a colourless vapor; the warmer the air; the greater the amount of moisture it can hold. If the air is cooled, then it cannot hold as much moisture and there comes a point at which the water changes from a vapor to a liquid, which we see in the form of “condensate”.

SOURCES OF MOISTURE IN A BUILDING

Construction Moisture
From the very start of a building’s life, moisture associated with construction such as wet concrete and plaster can take months or even years to dry completely.

Building Occupancy
The moisture produced by the occupant accounts for an estimated average of 1.2 litres of water per day. This volume of moisture increases substantially where large groups of people gather, such as in offices or airports.

Domestic functions such as washing, cooking and cleaning can also produce large amounts of moisture, leading to an even higher condensation risk.

EFFECTS OF CONDENSATION

Condensation in a building is a serious problem, as it may cause dampness, energy inefficiencies, rot, corrosion, mould which can lead to health issues due to poor indoor air quality.

The effect of not having good indoor air quality is dramatic. The average person spends 90% of their time indoors. The indoor living environment is therefore crucial to the health of the occupants.

As energy performance becomes a more important aspect of building design, measures such as air conditioning and airtightness have become more critical. The consequences of increased levels of condensation will result in damage to the building structure and failure to reduce air leakage will result in increased energy loss and poorer performing buildings.

THE SOLUTION? CONDENSATION CONTROL

It has long been recognised that the correct management of moisture vapor within buildings is an important aspect of ensuring not only the life of the building fabric, but also the health of its occupants. As today’s structures become increasingly better insulated, more airtight and more energy efficient, taking management of moisture into account in the design process becomes more critical.

An important aspect of mitigating these risks is the implementation of a vapor barrier, typically a simple polythene sheet to provide a barrier to the movement of moisture vapor and air. Although this may appear to be one of the more straightforward parts of a building specification, ensuring an adequate and durable seal is achieved can be more complex than it first appears.
REINFORCED VAPOR BARRIERS OVER UNREINFORCED

Unreinforced vapor barriers are manufactured by extruding a continuous layer of polyethylene to make a single layer membrane. Many of the performance characteristics of such membranes are directly related to the thickness of the material used; therefore to get a higher vapor resistance, tensile strength, puncture resistance etc. you need to use a thicker membrane. As the membrane becomes thicker, they become less flexible which can then lead to installation and detailing issues.

A major issue with unreinforced vapor barriers is their tendency to puncture if snagged on a corner or a screw/nail during installation. As a single layer membrane, there is nothing to stop this small tear from ripping along the whole membrane leaving a gaping hole where moisture and air can move freely causing untold damage to the fabric of the building and reducing the energy efficiency of the system. Discovering the location and repairing these tears can prove to be very difficult and expensive.

Reinforced vapor barriers on the other hand, are manufactured by laminating two layers of thinner membrane with a core of reinforcement mesh, normally multifilament PE. Varying performance characteristics can then be achieved by altering the reinforcement and thickness of membrane layers used, along with giving the option to include additional layers, such as foils, to further enhance the membranes performance.

The reinforcement grid gives great strength and tear resistance, producing membranes which are robust and easy to install.

Not only do the A. Proctor Group’s vapor barriers protect the fabric of the building from condensation risk, they also help comply with energy efficient building codes such as Estidama, GBR (Green Build Regulations), QGBC (Qatar Green Building Council), SGBC (Saudi Green Build Council) and OGBC (Oman Green Building Council).

We understand whilst it may be tempting to opt for a cheaper, unreinforced membrane during installation and throughout the life of the building, this could ultimately reveal itself to be a false economy; with higher failure rates, slower installation, and costly remedial works.
PROCHECK 125

Procheck 125 is a lightweight reinforced polyethylene vapor barrier which can be utilised in a variety of commercial applications. Procheck 125 can be utilised where very high moisture vapor resistance is not a necessity but a strong, durable airtight membrane is.

Key Features
- Thickness 0.35mm
- 350 micron
- Tensile MD = 190 N/50mm
  CD = 130 N/50mm
- Nail tear 150 N / 190 N

Advantages
- Improved airtightness
- Reinforced
- Translucent
- Low / Medium Risk Applications eg, infrastructure, light commercial buildings

PROCHECK FR200

Procheck FR200 is used as a fire retardant vapor barrier on the inside of roof and wall structures with semi-open structure in new build and renovation projects.

Key Features
- Thickness 0.15mm
- Tensile MD = 175 N/50mm
  CD = 165 N/50mm
- Nail tear 110N/95N

Advantages
- Optimal vapor barrier
- Fire retardant euroclass B-s1,d0
PROCHECK 300

Procheck 300 is a lightweight, reinforced, polyethylene, vapor barrier for use within roof and wall constructions to prevent warm, moist air entering the building fabric and condensing within the insulation. The woven, polypropylene, multifilament scrim reinforcement provides good resistance to tears and punctures.

**Key Features**
- Thickness 0.29mm
- Tensile 3.4/2.4 kN/m
- Nail tear 60N/60N

**Advantages**
- Improved airtightness
- Reinforced
- Translucent
- Unaffected by Chlorine
- Low Risk Applications eg. Warehouses, Infrastructure, Light/Medium Commercial Buildings

PROCHECK 500

Procheck Premier 500 is a strong reinforced polyethylene vapor barrier with good vapor resistance. The woven extruded polypropylene multifilament scrim reinforcing provides improved nail tear resistance. The sheet is translucent to ease the installation process and is the grade utilised by many leading system manufacturers.

**Key Features**
- Thickness 0.37mm
- Tensile 6.2/5.8 kN/m
- Nail Tear 180/170N

**Advantages**
- Improved airtightness
- Reinforced
- Translucent
- UV stable
- Unaffected by chlorine
- Low/Medium Risk e.g. Offices, Schools, Infrastructure, Commercial Buildings
**PROFOIL 861**

Profoil 861 is a heavyweight, reinforced vapor barrier with an aluminium foil core to give a high water vapor resistance. The aluminium foil is protected on both faces by polyethylene for corrosive situations such as chlorine in swimming pools.

**Key Features**
- Thickness 0.4mm
- Tensile 7.3/7.3 kN/m
- Nail Tear 215 N / 182 N

**Advantages**
- Improved airtightness
- Reinforced
- UV stable
- Unaffected by chlorine
- Aluminium Foil

**REFLECTATHERM PLUS**

With an R-Value of 0.79 m²K/W, Reflectatherm Plus is the industry leading reflective vapor barrier. It combines the highest thermal performance in its class with a high vapor resistance to prevent interstitial condensation. Suitable for use in walls, ceilings and floors on the warm side of the insulation.

**Key Features**
- Thickness 0.5mm
- Tensile MD = 260 N/50mm
- CD = 200 N/50mm
- Nail Tear 165 N / 160 N

**Advantages**
- High vapor resistance
- Improved airtightness
- Improved thermal resistance
- High Risk - Swimming Pools, Textile Factories, Infrastructure, Commercial Buildings
## PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Procheck 125</th>
<th>Procheck FR200</th>
<th>Procheck 300</th>
<th>Procheck 500</th>
<th>Profoil 861</th>
<th>Reflectatherm Plus</th>
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<tbody>
<tr>
<td><strong>Thickness</strong></td>
<td>0.35 mm</td>
<td>0.15 mm</td>
<td>0.29 mm</td>
<td>0.37 mm</td>
<td>0.40 mm</td>
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<td>93 g/m²</td>
<td>152 g/m²</td>
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<td><strong>Roll Length</strong></td>
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<td>50 m</td>
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<td>50m or 100m</td>
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<td>1.5m or 3m</td>
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<td><strong>Colour</strong></td>
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<td>Blue / Silver</td>
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<tr>
<td><strong>Water Vapor Resistance</strong></td>
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<tr>
<td><strong>MN/s</strong></td>
<td>126* MN/s</td>
<td>220 MN/s</td>
<td>343 MN/s</td>
<td>567 MN/s</td>
<td>44,600 MN/s</td>
<td>750 MN/s</td>
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<tr>
<td><strong>Sd</strong></td>
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<td>Sd 44m</td>
<td>Sd 67m</td>
<td>Sd 83m</td>
<td>Sd 8912m</td>
<td>150m</td>
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</table>

*not independently tested

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### SPECIALIST SERVICES WUFI® CALCULATION

We are pleased to be able to offer WUFI Calculations as part of our technical services. WUFI calculations allows analysis of heat and moisture movement in multilayer building envelopes, such as walls, taking into account regional weather variations.
Case Study

Al Maktoum International Airport

The new executive jet terminal at Al Maktoum International Airport, Dubai South incorporates 16000m² of the Procheck Premier 500 vapor barrier supplied by the A. Proctor Group Ltd.

The new terminal which will cater exclusively to business jets in the region will feature dedicated customs, immigration, and police services, as well as separate drop-off and lounge areas. Faithful+Gould were the official consultant on the project, with Khansaheb carrying out the main contracting works. Tiger Profiles manufactured and installed the high performing cladding system which incorporates the Procheck Premier 500.

The tough, reinforced, Procheck 500 membrane provides a durable air and vapor tight layer increasing the energy efficiency of the building, ensuring the HVAC systems perform optimally. This reduces condensation risks throughout the high occupancy terminal.

With inbuilt scope for airport expansion, the use of robust materials was critical to ensuring the long term future of the facilities, making the reinforced strength of Procheck Premier 500 the natural choice for vapor control.
Case Study
Reflectatherm Plus chosen for Muscat Airport, Oman

Reflectatherm Plus from the A. Proctor Group Ltd has been chosen as a high performance vapor barrier for the new Passenger Terminal Building at Muscat Airport in Oman. The new passenger terminal building is designed to be state of the art, with a total gross floor area of 344,995m².

Market leading roofing, cladding and façade contractor Lakesmere installed the complete roofing system covering an area of 16,750m², incorporating Reflectatherm Plus, a reflective, high vapor resistance barrier.

Reflectatherm Plus provides a vapor tight layer, which restricts the passage of both liquid water and water vapor, combined with a heat reflecting low emissivity coating, designed to enhance the energy performance of the building envelope. It has long been recognised that the correct management of moisture vapor within buildings is an important aspect of ensuring the longevity of not only the building fabric, but also the health of the occupants. The use of Reflectatherm Plus reduces the risks of condensation, maintaining the highest level of moisture resistance throughout the extensive new terminal building complex, providing protection for many years to come.
“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