

## Ground Gas Barriers

- HDPE/PP membrane systems
- Liquid applied systems
- Cavity drain systems used as gas barriers
- Ground gas fans, sumps and pumps



## About Triton

The company holds British Board of Agreement approvals and is a BS EN ISO 9001 Quality Assured Company. Triton was represented on the technical committee responsible for drafting British Standard BS 8102 (2009) – the Code of Practice for protection of below ground structures against water from the ground – and supplies systems and products to meet the requirements of all three methods of waterproofing as defined by the Standard.

Triton also supplies associated products including anti-condensation products, flooring systems, flood resilience and remediation systems, cavity wall ties, damp proofing and timber preservation systems.

To support architects, surveyors and contractors, a full programme of training courses has been created including RIBA approved CPD seminars on basement waterproofing and green roof construction. More details can be found at [tritonsystems.co.uk/training](http://tritonsystems.co.uk/training)

## Ground Gas Barriers

Triton supplies systems for use as barriers against the following:

### Radon

The naturally occurring radioactive gas Radon is a hazard in many homes and workplaces and is the second cause of lung cancer in the UK. The principal areas in which Radon is a problem are the granite areas of Cornwall and Devon, and the limestone areas of Derbyshire, Northamptonshire, North Oxfordshire, Lincolnshire, and Somerset, however there are many other areas in England and Wales affected by Radon.

### Landfill Gas

This occurs when the organic content of household waste is broken down by bacteria into Methane (CH<sub>4</sub>) and Carbon dioxide (CO<sub>2</sub>), as well as many hundreds of harmless trace gases. It should be noted that it is not just domestic waste landfills that produce gases, industrial and demolition waste landfills may also have the potential to generate large quantities of landfill gas. Both Methane and Carbon dioxide are odourless and colourless and it is only the presence of trace gases that produces the distinctive landfill gas odour.

### Ground Gas

Ground gas is mainly composed of Methane and Carbon dioxide, both of which are harmful to health, and therefore presents similar risks to that of landfill gas. Ground gas can be formed by natural or man-made means and may be present in peat bogs, mosslands, coal measures, limestone, river sediments, farmland and sewers.

Further background information and other resources are available at [tritonsystems.co.uk](http://tritonsystems.co.uk)

### Available for download at [tritonsystems.co.uk](http://tritonsystems.co.uk)

- Material Safety Data Sheets for all Triton products
- A complete library of technical drawings
- Order form for Triton Radon Monitoring Kit



Further information is available from:  
Health Protection Agency – [www.hpa.org.uk](http://www.hpa.org.uk)

## TRITON TT VAPOUR MEMBRANE

A multi-functional, ready blended coating that can be retro-applied as a waterproof and gas-proof membrane to concrete, masonry and brick substrates, or as an alternative to sheet membranes in new construction. TTVM can be applied by airless spray, roller or brush to walls, floors and soffits.

- Fast drying waterproof and gas-proof membrane
- Single component
- Cannot be punctured as fully bonded
- Easily repaired by locally overcoating
- **Methane, Carbon Dioxide and Radon barrier\***

### NBS Specification:

J30 Liquid Applied Damp Proofing  
 10 Cold Applied Damp Proofing  
 J30 Liquid Applied Tanking / Damp Proofing  
 130 Cold Applied Damp Proofing

### Technical Data:

Components	1
Form	Thixotropic Liquid
Specific Gravity	1.40 (approx)
Application Temperature	Plus 4°C
Toxicity	Non – toxic
<b>Cured Properties</b>	
Adhesion to concrete	>1.1N/mm <sup>2</sup>
Elongation ASTM D2370 %	>100%
Tensile Strength ASTM D2370	11 N/mm <sup>2</sup>

### Technology Centre Methane Gas Permeability Test Results:

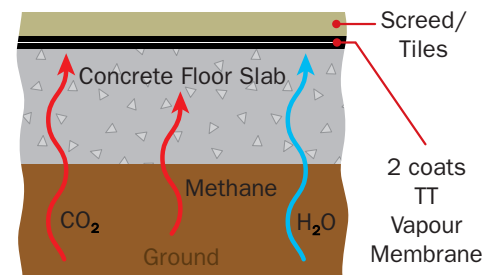
Product	Triton TT Vapour Membrane
Specimen Thickness (m)	0.000727
Exposed Area (m <sup>2</sup> )	0.005064
Methane Gas Permeability (Kgas) (m/s)	$8.527 \times 10^{-15}$
Methane Gas Permeability (Kgas) (ml/m <sup>2</sup> /s)	$8.527 \times 10^{-9}$

NB: The Methane gas permeability values gained by the test method can also be used for Radon gas permeability values.

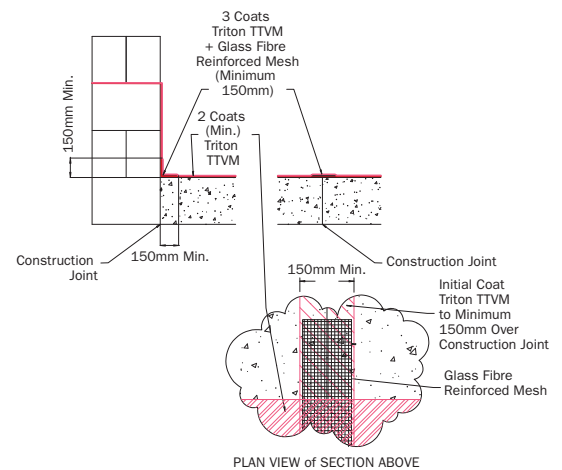
\* Gas permeability test certificate available to download at [tritonsystems.co.uk](http://tritonsystems.co.uk)



TT Vapour Membrane used as a landfill gas barrier and applied to external walls below internal floor level to the base of the wall/foundation level and internally to new floor slab.



### TRITON TT VAPOUR MEMBRANE GAS BARRIER CONSTRUCTION JOINT DETAIL (CO<sub>2</sub>, METHANE & RADON)



## PLATON RADON STOP 400

- Combined Radon and damp proof membrane
- Strong and flexible polyethylene film

Platon Radon Stop 400 provides safe and effective protection against dangerous concentrations of Radon and other ground gases from penetrating a building. At the same time it acts as a robust and solid damp proof membrane.

It is a non-reinforced polythene film with high strength and flexibility. Radon Stop 400 is supplied in 4m widths and installed with overlaps which are sealed with sealer and butyl sealing tape. A complete system of components is supplied including preformed details for sealing around pipes and for strengthening corners.

It can be laid under the concrete slab (protected in the upper insulation layer) or directly on top of the slab (see diagram below).

### NBS Specification:

J40 Flexible sheet tanking, damp proofing 35, 140

### Technical Data:

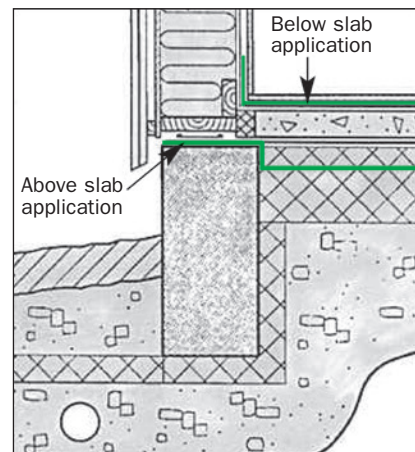
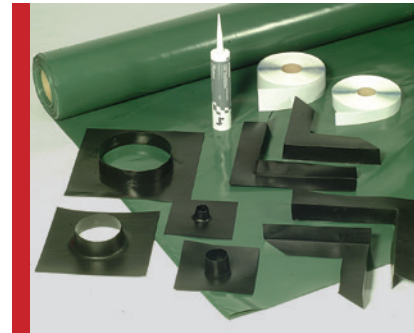
Material thickness	Polyethelene 0.4mm
Roll dimensions	4m x 25 m 4m x 12m
Radon resistance	$5.8 \times 10^{11} \text{ m}^2 \cdot \text{s} \cdot \text{Pa} / \text{kg}$
Tensile strength MD/CMD	400/400 N/50mm
Elongation MD/CMD	600/700 %
Resistance to shear of joints	>100 N/50mm
Dimensional stability MD/CMD	-0.5/+0.1 %
Flexibility at low temperature	< -30°C
Resistance of tearing MD/CMD	100/100 N
Resistance to impact	30mm
Resistance to static loading	100N
Water vapour resistance	$700 \times 10^9 \text{ m}^2 \cdot \text{s} \cdot \text{Pa} / \text{kg}$ 135**m
Airtightness – construction	2* l/min

\* Measured at pressure difference of 30 Pa

\*\* Water vapour resistance of Radon Stop 400 corresponds to 135m equivalent stationary air layer

### Other Platon Membranes used as Gas Barriers

In addition to their primary use in Type C waterproofing, Platon Multi, Platon P8 and Platon P20 cavity drain membranes are also suitable for use as gas barriers, as well as providing a barrier against other contamination on the substrate. In new build it is possible to incorporate cavity drain membranes to seal the building completely from ground gases. In all cases attention must be given to the sealing of joints and details. We recommend you speak to Triton's technical team for further advice before specification.



Platon Multi used as barrier against contaminated substrate in renovation of industrial building



## TRITON GROUND GAS FANS (TGGF)

- Commercial and domestic versions available
- Supplied as kit with sump and fittings

Triton Ground Gas Fans are suitable for the evacuation of ground gases such as Radon, Methane and Carbon Dioxide from domestic or commercial properties. Both versions are compact, quiet and easy to install. Each is supplied as a kit with all fittings and a 600mm x 600mm perforated sump which is installed into the ground for the collection of the ground gases which are then evacuated by the TGGF. The sump should be connected to perforated under floor pipe work.

### Technical Data:

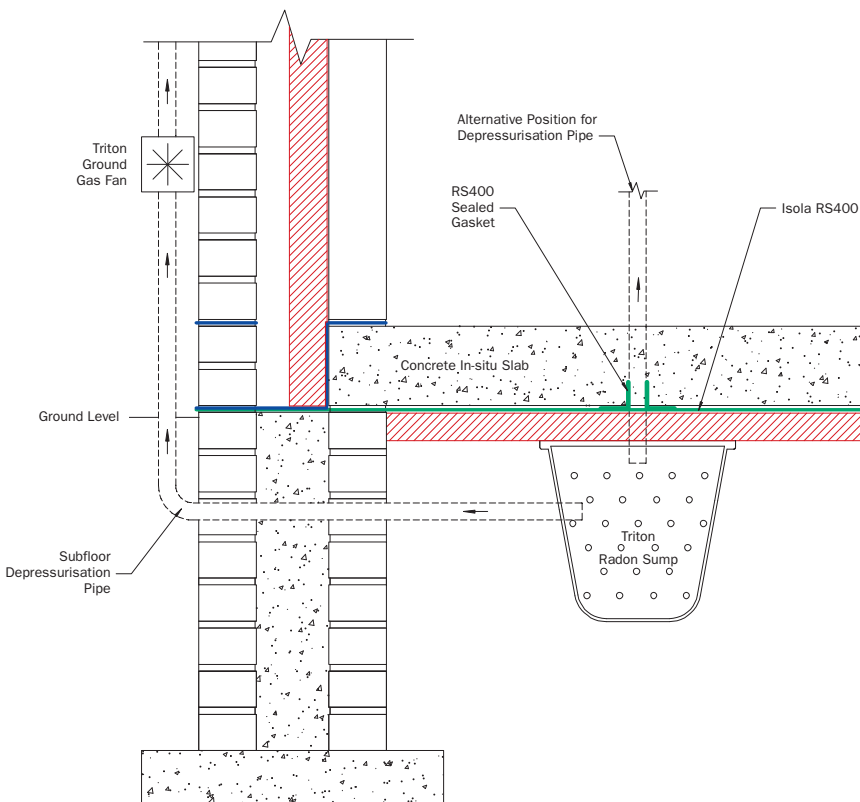
Extract rate at free air discharge	Commercial TGGF 450m <sup>3</sup> /hour Domestic TGGF 160m <sup>3</sup> /hour
Speed	2 speed for remote switching.
Electrical	220-230V ~ A.C. 50Hz Single phase consuming 65 watts. The fans are double insulated and do not require an earth. All wiring must comply with current IEE regulations. A double pole isolating switch, having a contact separation of at least 3mm in all poles, must be used with a 3 amp fuse fitted.
Motor	Single phase induction motor with pre-oiled bearings fitted for a long maintenance free life and protected by a thermal fuse.
Guarantee	Two year no quibble guarantee.
Installation	The fans are designed to be duct mounted. A full range of ducting accessories is available. Please contact Triton for more information.



Commercial TGGF



Domestic TGGF





### Guarantees

Triton approved contractors have access to TUG Insurance Backed Guarantees which are issued for a maximum of 30 years and which cover wall tie replacement, below ground waterproofing and damp and timber treatment. The TUG Insurance Backed Guarantee provides peace of mind to clients by coming into force in the event of the approved contractor ceasing to trade.

Triton also issues its own guarantees to cover the performance of Triton products plus the workmanship of the Triton Approved Contractor. These are designed for contractors who do not issue their own company guarantees. Triton Guarantees are valid for up to 30 years from date of completion of the works (up to 10 years for below ground waterproofing).

Visit [www.tug.uk.com](http://www.tug.uk.com) to apply for Triton Approved Contractor status and to download the guarantee application forms.



### Also available from Triton

Flooring Systems (gas barriers, waterproofing and damp control)

Flood Resilience/Restoration

Replacement Cavity Wall Ties

Protective Coatings, Structural Repair

Timber Preservation and Repair

Green Roof Systems

Concrete Waterproofing – Type A Barrier Protection

Concrete Waterproofing – Type B Integral

Concrete Waterproofing – Type C Cavity Drain

Condensation Control Systems



### Triton Systems

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