



The Z-Led range offers complete protection for ground floors against both damp and gases from the ground. This double function avoids the need for a damp-proof membrane in addition to a gas-tight membrane.

GROUND FLOOR PROTECTION & DAMP BARRIERS

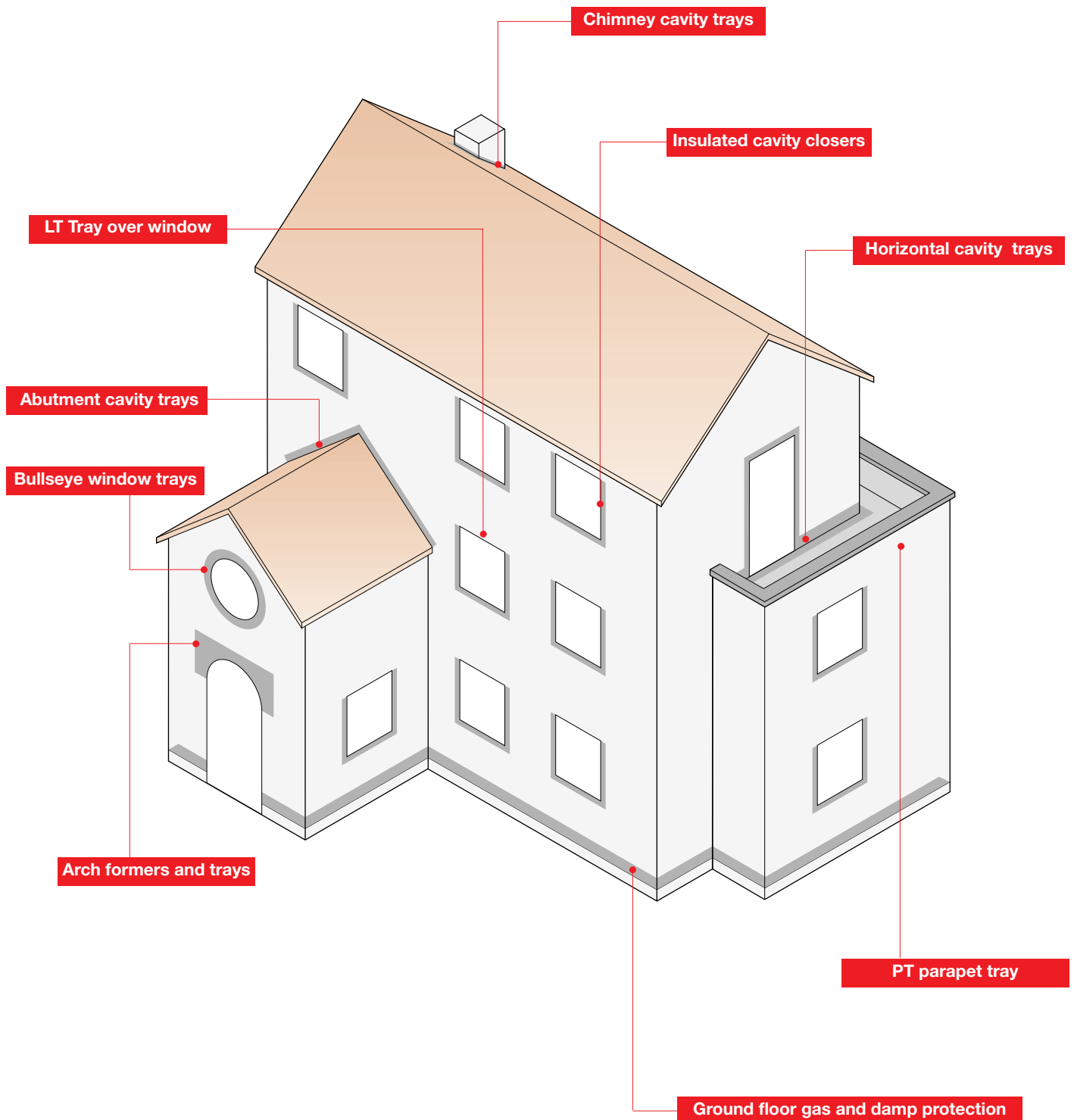
Purpose-designed accessories make it easy to ensure reliable and continuous protection across wall cavities and at corners, columns, pipe penetrations etc. The range also includes components for ventilation of underfloor spaces where provided.



THE PRODUCT RANGE

.....

The illustration below shows typical applications of Z-Led products.
For cavity trays, cavity closers and cavity barriers please see separate brochures.



GROUND FLOOR PROTECTION

.....



The requirement

Harmful ground gases entering buildings can pose health risks. Damp can similarly cause health problems and also damage to the building fabric.

Protective measures are therefore usually required in ground floors, and these requirements are enshrined in building regulations (see Technical requirements).

Government planning policy requires an increase in the amount of housing on brownfield land. This means that much more housing will need protection from ground gases.

Current high levels of thermal insulation and modern construction methods require ventilation within the building fabric to prevent the build-up of moisture and condensation.



The Z-Led complete solution

Z-Led ground floor protection products offer a complete solution;

- A continuous impermeable protective barrier against gases from the ground and damp penetration.
- A single barrier avoiding the need for an additional damp-proof membrane.
- Continuity of protection at edges and penetrations by means of purpose-designed accessories.
- Ventilation of underfloor spaces and wall cavities to remove gases and moisture vapour where required.
- Easy and reliable installation using preformed components.
- Can be used for solid ground floor slabs and for suspended concrete or timber floors.
- Can be used to meet the requirements of Building Regulations in the UK and Ireland (see Technical requirements).

Certification

The performance of Z-Led Protect GDB10 PLUS membrane has been independently assessed and certified by BM TRADA Certification for use in ground floors of buildings as a barrier against harmful gases (radon, methane and carbon dioxide) and damp penetration.
Certificate number CPS-003.

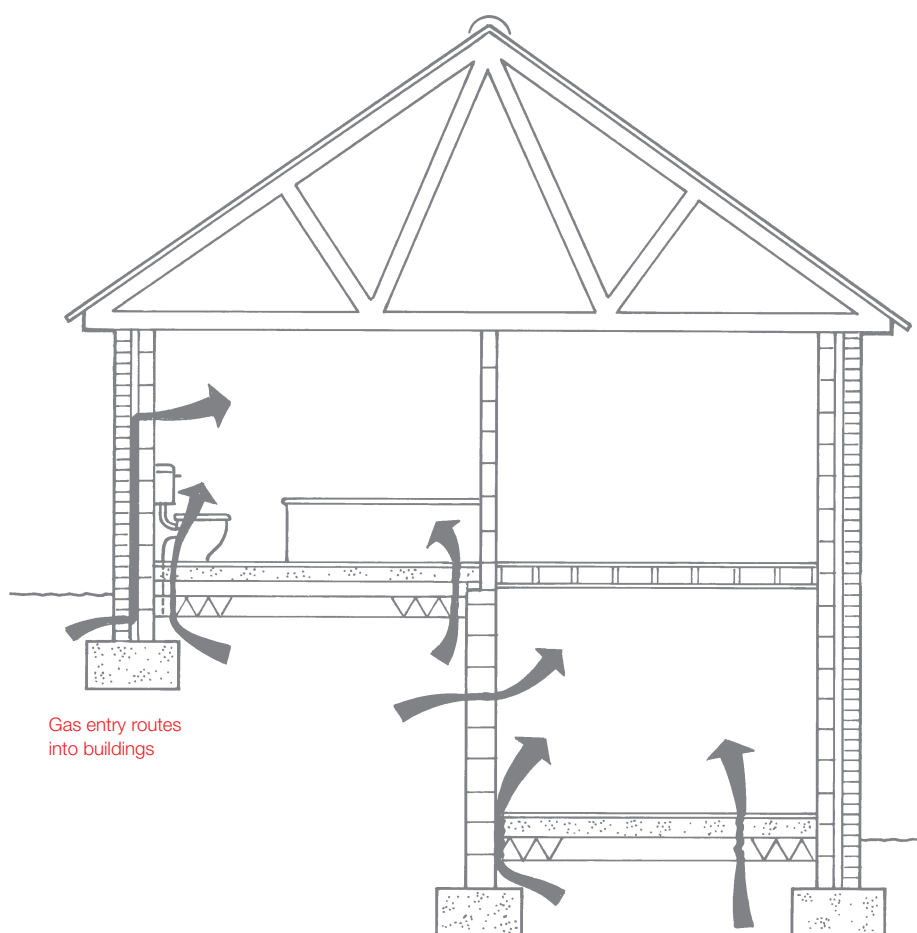
The Product Range	2
Introduction	3
Technical requirements	4
Barrier membranes	6
Protect GDB10 PLUS, Radon 1200 and Self adhesive gas resistant dpc/membrane	
Preformed accessories	8
for edges, corners, pipe penetrations etc	
Underfloor and cavity wall vents	9
Application details	10
Specification clauses	11
Further Information	12



TECHNICAL REQUIREMENTS

Harmful soil gases

Harmful soil gases such as methane, carbon dioxide and radon can enter properties by a number of different routes: through cracks in floors and walls, construction joints, wall cavities, and around services pipes.



Methane is a colourless, odourless, explosive and asphyxiating gas.

Carbon dioxide (CO₂) is a colourless, odourless, non-flammable, asphyxiating and toxic gas.

Methane and carbon dioxide can arise from landfill sites, mine workings, and organic-rich soils such as peat or river silt.

Radon is a naturally-occurring colourless, odourless radioactive gas; some parts of the country have higher levels than elsewhere. Exposure to high levels of radon for long periods increases the risk of developing lung cancer.

Building Regulations (England and Wales)

Protection against ground contaminants and moisture are specific requirements of the Building Regulations Part C for England and Wales. The relevant requirements are:

Approved Document C

Site preparation and resistance to contaminants and moisture

'Preparation of site and resistance to contaminants C1 (2) Reasonable precautions shall be taken to avoid danger to health and safety caused by contaminants on or in the ground covered, or to be covered by the building and any land associated with the building.'

'Resistance to moisture C2 The floors, walls and roof of the building shall adequately protect the building and people who use the building from harmful effects caused by:

- (a) ground moisture
- (c) interstitial and surface condensation.'

Gases from the ground

Information on methane and other gases is given in paragraphs 2.25 - 2.35. Gas control measures are given in 2.36 - 2.38. For dwellings these should consist of a gas resistant barrier across the whole building footprint, above an extraction or ventilation layer from which gases can be dispersed and vented to the atmosphere.

Hydrocarbons

Ground contaminated with hydrocarbons such as diesel or motor oils may also generate harmful emissions (not specifically covered by Approved Document C). Testing for these is extremely difficult, therefore Z-Led recommend that in such cases a ventilated sub-floor void is provided in addition to a barrier membrane.

Building (Scotland) Regulations

Site preparation

3.1 Every building must be designed and constructed in such a way that there will not be a threat to the building or the health of people in or around the building due to the presence of harmful or dangerous substances.

Harmful or dangerous substances

Harmful or dangerous substances include deposits of faecal or animal matter and any substance, or mixture of substances, which is, or could become, corrosive, explosive, flammable, radioactive or toxic or which produces, or could produce, any gas likely to have any such characteristic.

Moisture from the ground

3.4 Every building must be designed and constructed in such a way that there will not be a threat to the building or the health of the occupants as a result of moisture penetration from the ground.

3.1.6 Risk management techniques

There are a range of options for managing the risk of land that is contaminated. This can include removal or treatment of the contaminant source or breaking the pathway by which contaminants can present a risk to receptors:...

Sealing means that an impermeable barrier is laid between the contaminant and the building and sealed at the joints, around the edges and at the service entries.

Detailed guidance is given in BRE/Environment Agency Report BR 414 Protective measures for housing on gas-contaminated land.

Radon protection

All new buildings, extensions and conversions in areas where there may be elevated radon emissions may need to incorporate precautions.

3.2 Every building must be designed and constructed in such a way that there will not be a threat to the health of people in or around the building due to the emission and containment of radon gas.

Radon protective measures should be provided in accordance with the guidance contained in BRE publications BR 211 Radon: guidance on protective measures for new dwellings, and BR 376 Radon: guidance on protective measures for new dwellings in Scotland.

CIRIA C665 and NHBC Traffic Lights

Protect GDB10 PLUS complies with the NHBC Traffic Lights* and CIRIA C665, when installed as prescribed in BRE 414. (*For Amber 2 or worse the membrane should always be fitted by a specialist contractor)

Building Regulations (Northern Ireland)

Protection against ground contaminants and moisture are specific requirements of the Building Regulations Part C for Northern Ireland. The relevant requirements are:

'Preparation of site and resistance to dangerous and harmful substances' C2

(1) The site of a building and the ground adjacent to it shall be prepared and treated, and measures shall be taken, so as to prevent, as far as reasonably practicable, any harmful effect on the building or the health or safety of the occupants caused by:

b) dangerous or harmful substances.

2) Without prejudice to the generality of paragraph (1) measures shall be taken to prevent or limit the ingress of radon from the ground into any dwelling.'

'Resistance to ground moisture and

weather' C4 Every wall, floor and roof shall be constructed so as to prevent any harmful effect on the building or the health of the occupants caused by the passage of moisture to any part of the building from:

a) the ground.'

Building Regulations Republic of Ireland

Protection against ground contaminants and moisture are specific requirements of the Building Regulations Part C. The relevant requirements are:

'Dangerous Substances' C3 Reasonable precautions shall be taken to avoid danger to health and safety caused by substances (including contaminants) found on or in the ground to be covered by a building.'

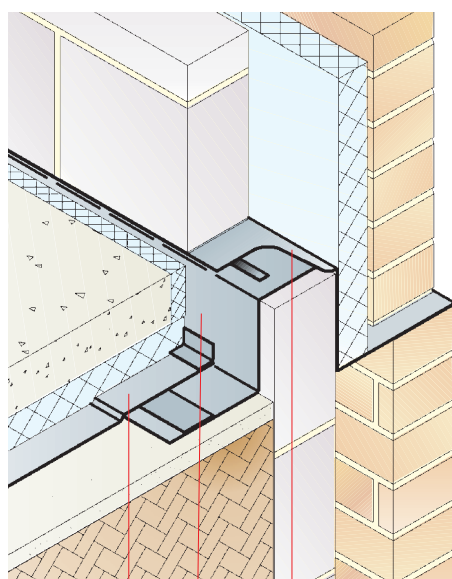
'Resistance to weather and ground

moisture' C4 The floors, walls and roof of a building shall be so designed and constructed as to prevent the passage of moisture to the inside of the building or damage to the fabric of the building.'

BARRIER MEMBRANES

Three Z-Led barrier membranes are available:

- Protect GDB10 PLUS provides protection against methane, carbon dioxide and radon as well as damp.
- Protect Radon 1200 is also for use against radon and damp.
- Self adhesive gas resistant dpc / membrane is used for sealing around columns, concrete slabs etc.



Protect GDB10 PLUS Membrane

Slab Edge Protection Tray

Cavity Barrier and combined Cavity Tray

PROTECT GDB10 PLUS GAS & DAMP BARRIER MEMBRANE

Z-Led Protect GDB10 PLUS is a universal barrier membrane for protection of new buildings against gas and damp penetration from the ground.

Used as an oversite membrane below floor slabs or suspended floors, in conjunction with Z-Led Cavity and Slab Edge Protection System, it provides a complete solution when installed in accordance with BRE Report BR 414.

- Excellent resistance to harmful soil gases and damp penetration.
- Enables Building Regulations Part C to be met by reference to Approved Document C, see Technical requirements.
- No additional damp-proof membrane required.
- Tough and durable, excellent tensile strength, puncture and tear resistance.
- Easily installed: easy to cut, lightweight and clean to handle.
- Each roll supplied with fixing instructions.
- Full range of accessories and underfloor ventilation products.

Composition, sizes

Multi-layer reinforced polyethylene membrane with an integral continuous aluminium foil.

Roll length: 40m
Roll width: 2.5m
Basis weight: 145kg/m²
Roll weight: 17.5kg

Performance and test methods: Protect GDB10 PLUS

	MD (along roll)	CD (across roll)
Nail tear strength (N) to BS EN 12310-1 modified	441	401
Tensile strength (N/50mm) to BS EN 12311-1 modified	783	670
Elongation (%) to BS EN 12311-1 modified	25	15
CBR Puncture Resistance (N) to BS EN ISO 12236	1684	
Methane permeability based on BS EN 374-3	< 1.5 ml/m ² /day	
Carbon dioxide (CO ₂) permeability to BS EN 374-3	< 1.0 µg/cm ² /min	
Radon permeability	4.2 x 10 ⁻¹² m ² /s	
Radon transmittance	21 x 10 ⁻⁹ m/s	
Water penetration resistance to BS EN 1928		
Method A modified	Pass Class W1	

RADON 1200 DAMP PROOF MEMBRANE

Radon 1200 is satisfactory for use in concrete floors which are not subjected to a hydrostatic pressure, in accordance with the relevant clauses of CP 102: 1973.

The membrane can be installed either as an oversite membrane, situated between a blinded hard core bed and the base concrete, or as a sandwich membrane in base concrete or between the base concrete and the screed.

The membrane meets the requirements for use as a gas control membrane against radon or on gas-contaminated land generally in accordance with the recommendations published by the Building Research Establishment (BRE 211) and the national Building Regulations. The membranes may be used with both unreinforced and reinforced concrete ground supported slabs. The use of reinforced concrete slabs is only necessary where, in the opinion of the designer, there is a risk of settlement and cracking of the slab occurring.

Composition, sizes

1200 gauge extruded polyethylene with nominal characteristics of:

Roll weight: 27.6kg
Standard roll length: 25m
Standard roll width: 4m



SELF ADHESIVE GAS RESISTANT DPC / MEMBRANE

An adhesive backed gas resistant membrane specifically designed for use with Protect GDB10 PLUS gas and damp barrier for sealing around columns, concrete slabs, etc.

The very high initial adhesion allows easy and instant lamination to a wide variety of substrates including concrete, steel and masonry.

Features

- Excellent resistance to harmful soil gases and damp penetration
- High adhesive properties
- Versatile, used to form column cloaks
- Easily shaped to form a gas proof cavity barrier
- Tough and durable
- Excellent tensile strength
- Puncture and tear resistant

Composition, sizes

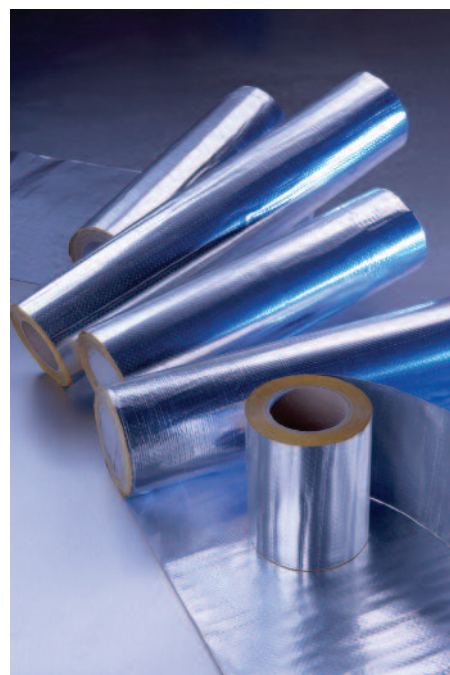
Triple ply construction including a tough polywoven core layer with a bright high purity aluminium foil which is bonded with a 0.8mm pressure sensitive modified acrylic transfer tape with siliconised paper release liner.

Weight: 309g/m²

Roll sizes: 20m roll lengths in 150mm, 300mm, 450mm and 600mm widths

Application

The surface to be bonded must be clean, ie free of dust, release agents, processing oils and grease. The temperature of the application should not be below the dew point of the surrounding air. The warmer the tape the better the immediate adhesion will be. A dedicated primer is also available for fibrous or very porous applications.



Performance and test methods: Self-adhesive gas-resistant DPC/membrane

Property	Test description	Declared	Limiting	Unaged
Thickness	EN 1848-2			0.17m
Mass per unit area	EN 1849-2	309g/m ²	302g/m ²	307g/m ²
Tensile strength	EN 12311-2			
MD (N/50mm)		>550	>500	(Mean) 783
CD (N/50mm)		>550	>500	(Mean) 670
Tensile elongation	EN 12311-2			
MD (%)		<20	<25	24
CD (%)		<20	<25	14
Resistance to tearing (nail shank) in:	EN 12310-1			
MD (N)		>500	>480	>480
CD (N)		>500	>480	>480
Water vapour resistance	EN 1931	>589MNs/g		
Water vapour diffusion equ. air layer thickness	EN 1931	S _d >117m		S _d >117m
Water penetration resistance	EN 1928 Unaged	W1	W1	W1 pass
	Aged	W1	W1	W1 pass
Radon permeability (K)				4.2 x 10 ⁻¹² m ² /s
Radon transmittance (P)				21 x 10 ⁻⁹ m/s
Methane permeation	BS 903: Part A30 Modified by INSPEC			<1.5ml/m ² /day
Low temperature flexibility of membrane on unrolling	EN 1109	No cracking at -40°C		No cracking at -40°C

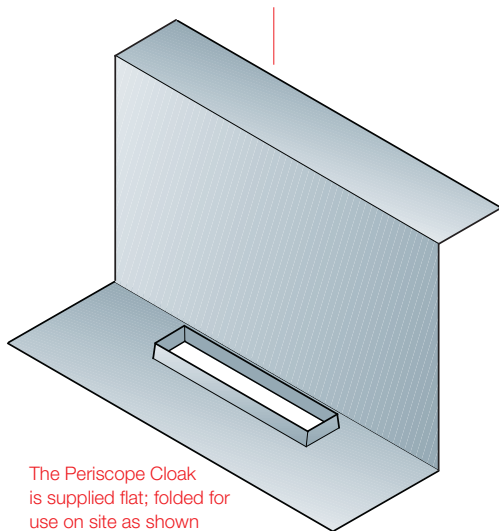
PREFORMED ACCESSORIES

A comprehensive range of preformed accessories is available for use with membranes to maintain protection at wall cavities, corners, pipe and service entries etc.

Design of components removes the need to form difficult shapes on site, giving a simpler and more reliable installation.

Self adhesive Periscope Cloak

Maintains continuity by providing a preformed cloak to seal around the vertical section of a periscope vent where such a vent passes through a cavity barrier. 1.5mm four-ply construction comprising: a woven polypropylene layer; an LDPE layer with aluminium foil; a second LDPE layer; and a polypropylene film.



The Periscope Cloak is supplied flat; folded for use on site as shown

Jointing tape

Gas Jointing Tape and Joint Protection Tape for making joints in membranes and between membranes and other components. Available in roll widths of 12, 30 and 50mm.

Where extra high adhesion is required, Transfer tape with a pressure-sensitive modified acrylic adhesive is available for use as a general mounting tape.

Bespoke fabrications available to special order.

Radon Cavity Barrier and combined Cavity Tray

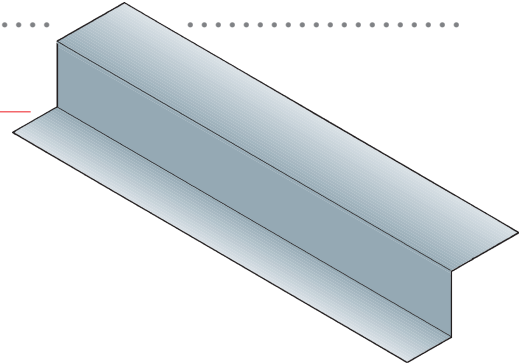
One size fits wall cavities from 50 to 100mm wide.

Also suits 150mm deep suspended floors.

Other sizes available to special order.

Sparkled finish surface promotes mortar adhesion and prevents the creation of slip planes in masonry.

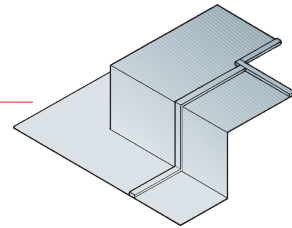
Supplied in 25m or 50m rolls.



Cavity Barrier Universal Corner

Preformed unit which is reversible for external or internal corners.

150mm deep as standard. Other sizes available to special order.

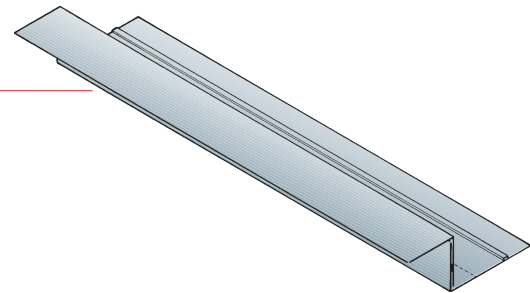


RSE Radon Slab Edge Protection Tray

Designed to accommodate slab thicknesses of 100 or 150mm.

Supplied in 25m or 50m rolls.

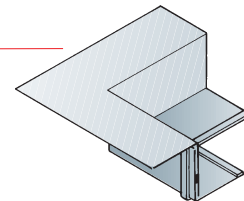
Other sizes available to special order.



RS22 Slab Edge Universal Corner

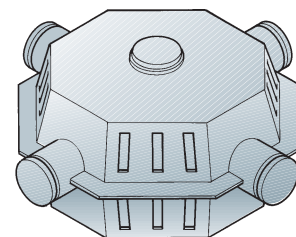
Preformed unit which is reversible for external or internal corners.

For slab thicknesses: RS22/100 for 100mm, RS22/150 for 150mm.



RS Radon Sump

Installed within fill material in underfloor voids to collect radon gas and vent it by convection through a vertical pipe.



RPS1 Universal Pipe Seal

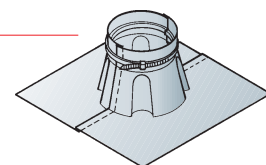
Seals around service pipes which penetrate the membrane.

To fit pipe/sleeve diameters as follows:

RPS1/110: 100 to 120mm.

RPS1/130: 130 to 140mm.

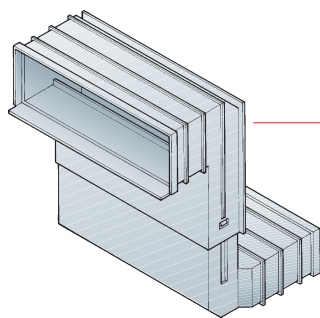
RPS1/160: 150 to 160mm.



UNDERFLOOR and CAVITY WALL VENTS

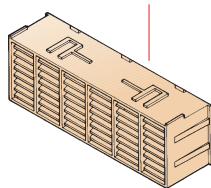
The Z-Led range of underfloor and cavity wall ventilation products enable the regulatory requirements for ventilation to be met.

- Adaptable to a wide range of situations including different floor depths and remote voids.
- Also provides protection against the entry of driving rain, birds, rodents and large insects.



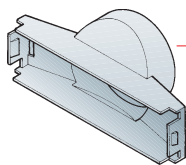
ZLAB Airbrick

Ventilation area 6000mm²
Standard brick face dimensions.
Can be stacked in multiples.
Driving rain resistant.
Can be used with ZLPS Periscope and ZLPA Vent Pipe Adaptor.
Colours: terracotta, buff, anthracite.



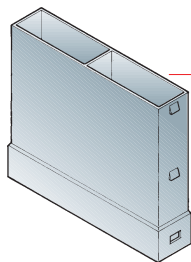
ZLPS Periscope

Provides ventilation beneath suspended floors.
Vertical adjustment for 3-4 brick courses.
Suitable for cavity widths from 50 to 100mm.
Can be used with ZLAB Airbrick, ZLVS Vertical Sleeve and ZLPA Vent Pipe Adaptor.



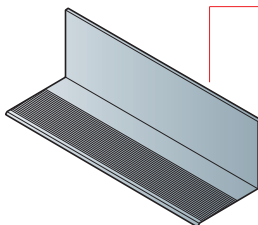
ZLPA Vent Pipe Adaptor

Enables remote voids to be ventilated via connection to 100mm internal diameter pipe.
Can be attached to ZLAB Airbrick and ZLPS Periscope.



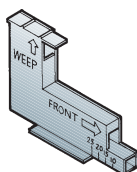
ZLVS Vertical Sleeve

Fits between two halves of ZLPS Periscope to increase overall depth adjustment up to 5-6 brick courses.
Modular design allows additional units to be added for even greater depths.



HT Airbrick Cavity Tray

Installed above an airbrick to protect the wall cavity against damp penetration in accordance with BS 8215: 1991.
Short length for ease of installation whilst providing 100mm extension on each side of airbrick.



MV650 Weepvent

Cavity wall ventilator and weep unit in one innovative product.
Fits into a single perpend joint.
Ventilation area 220mm².
Driving rain resistant and protects against large insect ingress.
Colours: terracotta, buff, grey.
Can be used in brickwork, blockwork, timber-framed and rendered walls.

Installation

Underfloor vent spacing

Locate underfloor vents on opposite sides of the building to achieve the most effective mix and distribution of air flow.

Installed at 4.0m centres they will provide 1500mm² ventilation area per metre of external wall to comply with Building Regulations Approved Document C.

However Z-Led recommend spacing at 2.0m centres to avoid the risk of stagnant air pockets and consequent risk of accumulation of gases.

Cavity trays

BS 8215: 1991 recommends use of cavity trays above any point where a wall cavity is bridged. Z-Led HT or HTR cavity trays with stopends and weepvents should be used above ZLAB Airbricks and ZLPS Periscopes.

Weepvents

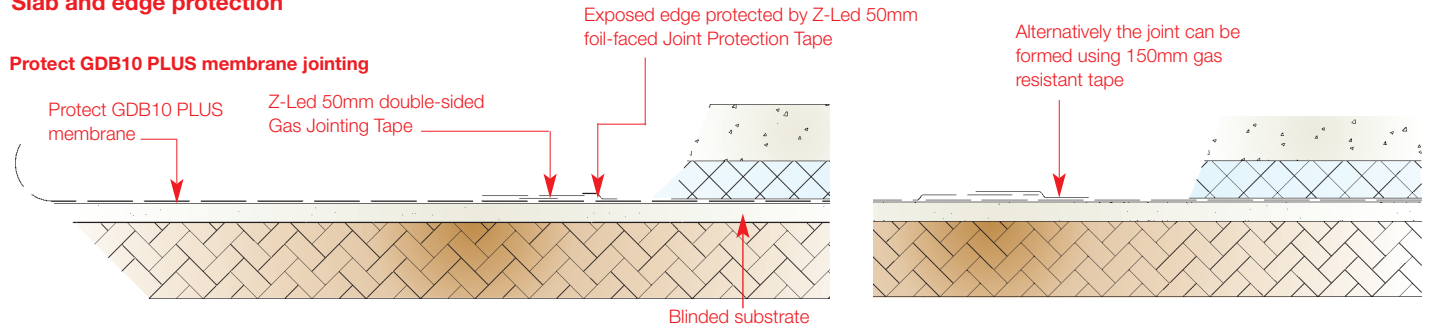
Weepvents should be installed on all cavity trays at 450mm centres.

For timber frame wall cavity ventilation, install at a horizontal spacing of 450mm centres, at low and high level and above and below fire stops in a staggered layout.

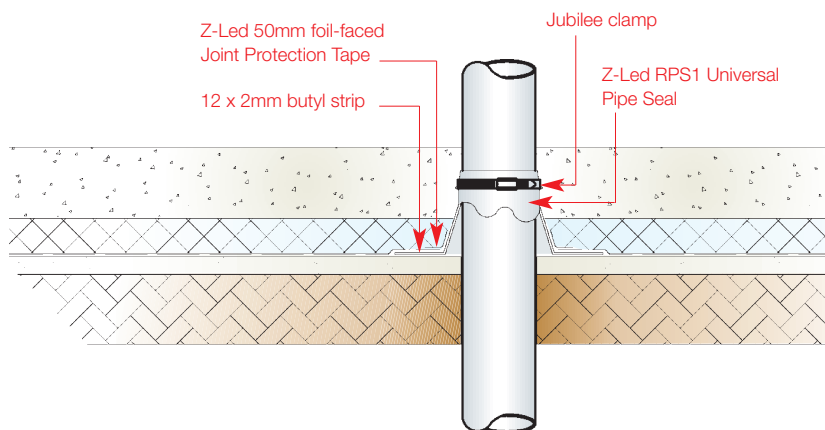
APPLICATION DETAILS

Slab and edge protection

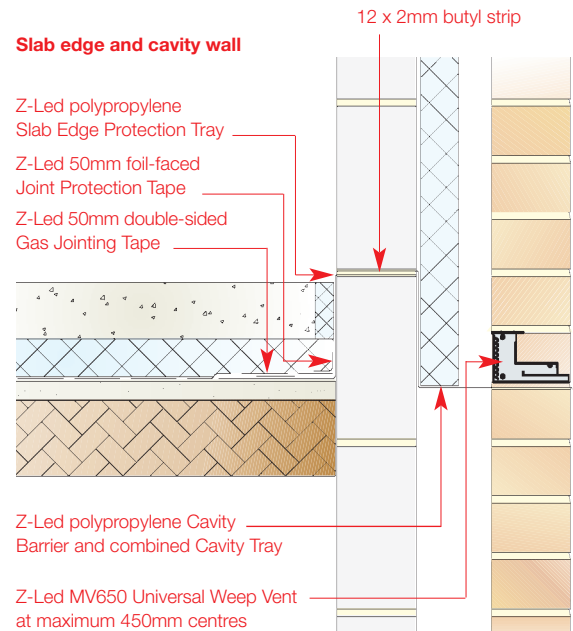
Protect GDB10 PLUS membrane jointing



Service pipe penetration of membrane

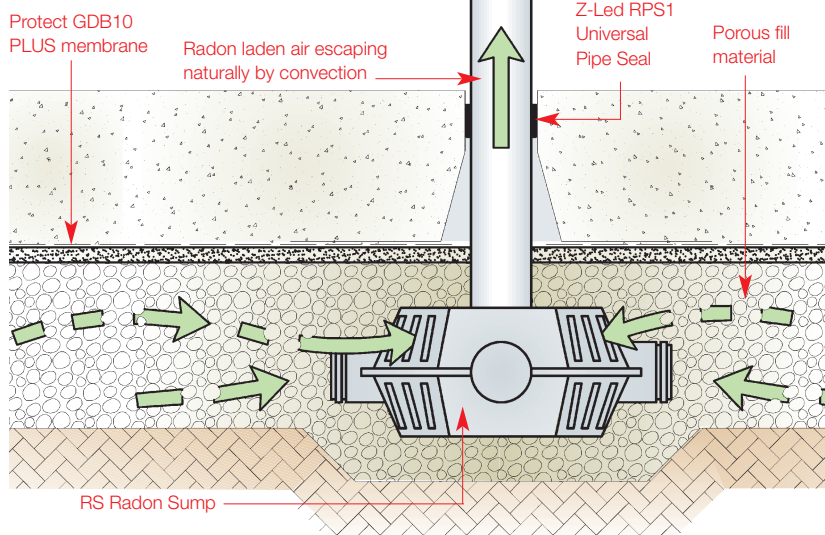


Slab edge and cavity wall



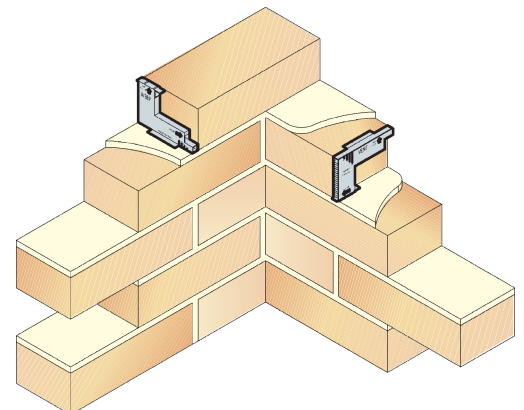
Radon ventilation

Ventilation of underfloor void with porous fill



Wall ventilation

MV650 used as weep or ventilator



Underfloor ventilation

Glidevale HT Cavity Tray
MV650 Weepvent
ZLAB Airbrick
ZLPS Periscope

RSE Radon Slab Edge Protection Tray

Membrane

Timber Frame detail

MV650

Z-Led polypropylene Cavity Barrier and combined Cavity Tray

RSE Radon Slab Edge Protection Tray

Membrane

Solid floor with ventilation

Glidevale HT Cavity Tray
MV650
ZLAB Airbrick
ZLPS Periscope

RSE Radon Slab Edge Protection Tray

Radon/damp proof membrane

Specification clauses

Gas/damp protection

Provide combined gas and damp protection to ground floors to comply with Building Regulations Approved Document C by means of:

Z-Led Protect GDB10 PLUS membrane (methane, carbon dioxide, radon) / Protect Radon Shield membrane (radon only)

Z-Led Edge and Cavity Protection System

Z-Led Underfloor and cavity wall vents all supplied by Glidevale Ltd, 2 Brooklands Road, Sale, Cheshire, M33 3SS. Tel: 0161-905 5700, Fax: 0161-905 2085, Email: info@glidevale.com.

Z-Led Protect GDB10 PLUS membrane / Protect Radon Shield membrane

Lay membrane directly on a suitable blinded substrate. Overlap joints by a minimum of 150mm and seal using

Z-Led 50mm wide double-sided Gas Jointing Tape. Protect the exposed edge of the joint by taping to the underlying layer using Z-Led 50mm wide foil-faced Joint Protection Tape. Alternatively the joint can be formed using 150mm gas resistant tape.

Sleeve service pipe penetrations using Z-Led RPS1 pipe seals, lapped and sealed to the membrane as above.

Z-Led Edge and Cavity Protection System

Ensure continuity of gas and damp barrier at all external walls by installing Z-Led Slab Edge

Protection Tray sealed to the membrane using Z-Led 50mm wide double-sided Gas Jointing Tape. Alternatively the joint can be formed using 150mm gas resistant tape.

Provide continuous gas and damp protection in the wall cavity by installing

Z-Led polypropylene Cavity Barrier and combined Cavity Tray.

Seal Z-Led Slab Edge Protection Tray to the top of the Cavity Barrier tray using Z-Led 12mm wide double-sided Gas Jointing

Tape. Site Z-Led MV650 universal weep ventilators directly on the Cavity Barrier tray in the external masonry

leaf at maximum 450mm centres around the building perimeter.

Z-Led Underfloor and cavity wall vents

Provide ventilation to underfloor voids by means of Z-Led

Underfloor and cavity wall vents installed in accordance with manufacturer's instructions.

Z-Led Radon Sump

Install Z-Led Radon Sump within porous underfloor fill material with vertical

pipe venting in accordance with manufacturer's recommendations.

Environment / Operational Information

As part of our commitment to minimising our impact on the environment, and to continuous improvement in our methods of operation, Glidevale is accredited to ISO14001 Environmental Management, OHSAS 18001 Health and Safety Management and ISO 9001 Quality Management Systems.

Technical support

Glidevale offer a full technical advisory and estimating service. Contact our Technical Services Department on 0161 905 5700 for further information or to request a complete schedule and quotation covering all products required.

Other products from Glidevale

Cavity Trays and Preformed DPCs

Insulated Cavity Closers

Horizontal and Vertical Cavity Barriers



Stockist's stamp

GLIDEVALE LIMITED

2 Brooklands Road, Sale, Cheshire M33 3SS

Tel: 0161 905 5700 Fax: 0161 905 2085

Email: info@glidevale.com Web: www.glidevale.com

Glidevale Limited maintains a policy of continuous development and reserves the right to amend product specifications without notice.



A division of Building Product Design Ltd. Company Registration No; 3944123

