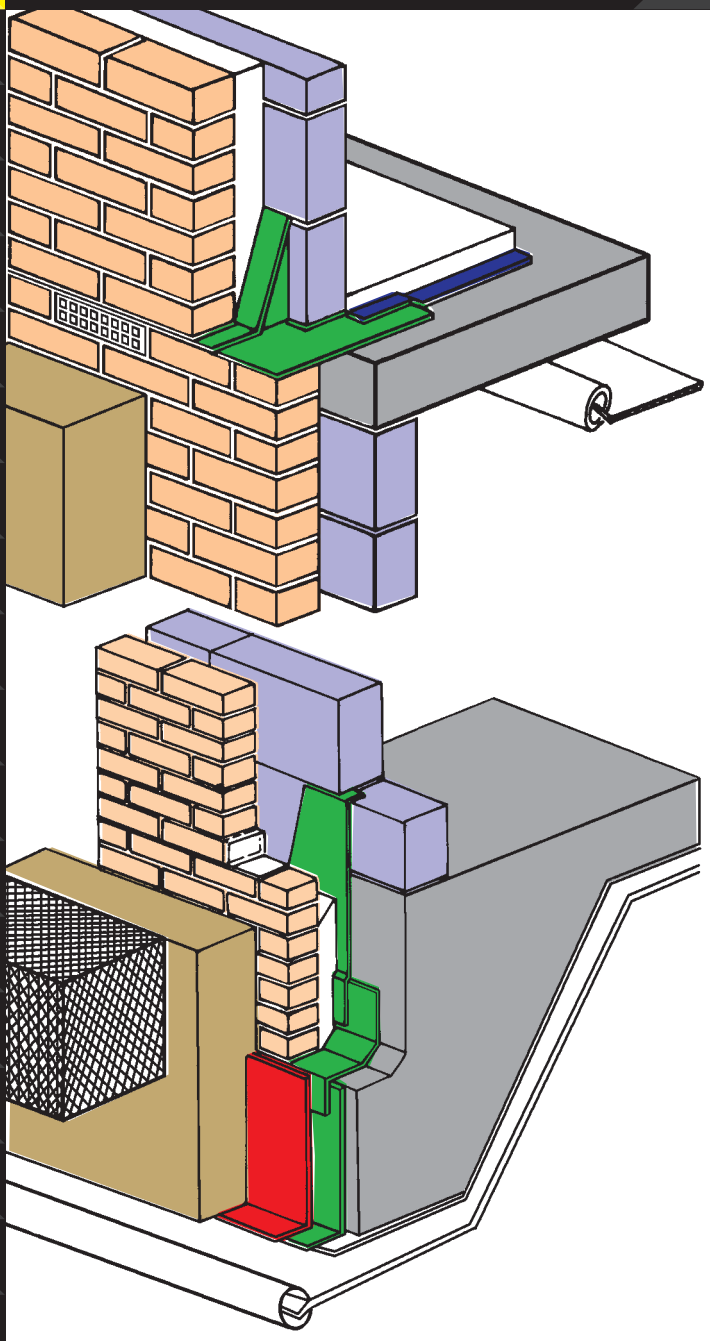
MEMBRANES

LDERPRUFE
VENT PRODUCTS



Features

Complete Systems for the passive collection, dilution and exhaust of land borne gases from beneath the building footprint.

Fully compatible and interchangeable components to allow for total versatility in design.

The most complex foundation designs can be accommodated and ventilated safely to the atmosphere.

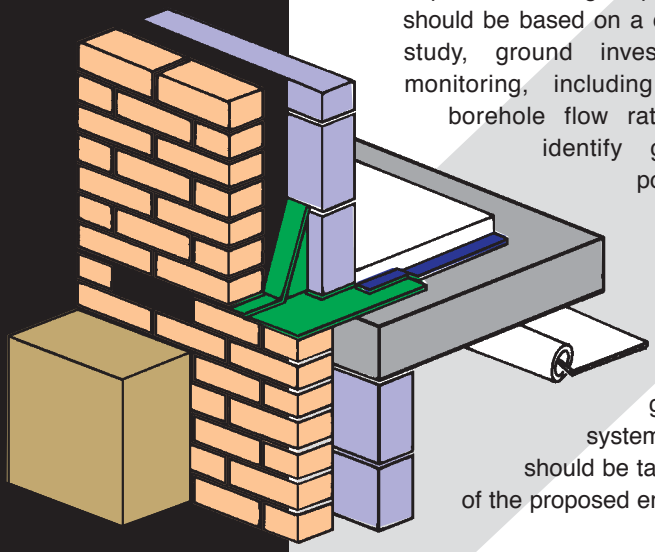
Bespoke finished components allow versatility in design to satisfy clients aesthetic requirements.

Ventilation Systems

Introduction

Background to Gas Protection Design

The principal constituents of landfill gas are methane and carbon dioxide. Waste Management Paper No 27 provides information on the hazards of methane and carbon dioxide when present in confined spaces. Methane can form flammable and potentially explosive mixtures in air when ignited. The flammable or explosive range of methane is between 5% to 15% by volume in air. The concentration limits are commonly known as the "Lower Explosive Limit" (LEL) and the "Upper Explosive Limit" (UEL) respectively. Concentrations above the UEL should not be considered safe because dilution with air will cause the composition to fall within the flammable range. The presence of Carbon Dioxide will affect the flammable range of methane but not unless present in significant concentrations. Methane can also act as an asphyxiant either alone or when mixed with air, when the oxygen content is depleted. A concentration of greater than 1% methane in a confined space is considered hazardous in Waste Management Paper No.27



Carbon Dioxide affects the respiration and central nervous systems at concentrations greater than 0.5% by volume in air. It can cause unconsciousness leading to death at concentrations greater than 10% to 15% by volume in air. Waste Management Paper No 27 considers that carbon dioxide is a hazard to health at concentrations greater than 1.5% by volume in air, at which level evacuation of an affected area is recommended.

The Building Regulations Approved Document Part C2 gives guidance for methane and carbon dioxide concentrations in the ground with respect to new development. Gas protection measures are considered necessary where the concentrations of methane and/or carbon dioxide exceed 1% and 1.5% by volume in air respectively, although the Building Regulations give little guidance on the scope of protection measures required for different gas regimes.

There are many techniques to protect development from methane and associated gases. Each measure has its own advantages and disadvantages and may be more suitable in certain situations and types of development. Furthermore no protective measure on its own is immune from factors unknown to or out of the control of the designer. Such factors might lead to failure and for this reason it is normal practice to combine individual protection measures to form a gas control system. In this way the probability of failure or of gas passing each individual protection measure in the system is minimised.

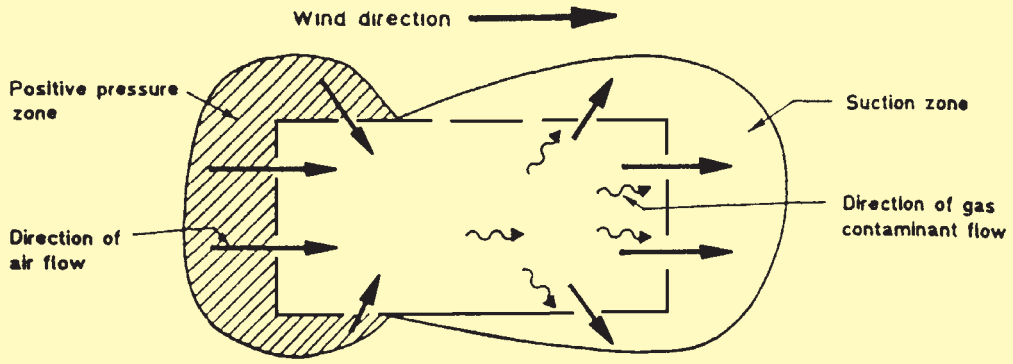
The provision of gas protection measures should be based on a comprehensive desk study, ground investigation and gas monitoring, including measurement of borehole flow rates. This will help identify ground conditions, potential source(s) of gas, migration pathways and generation potential. The level risk may then be assessed and an appropriate gas protection system designed. Account should be taken of the sensitivity of the proposed end use.

Underfloor ventilation should be designed following the guidance provided by the Partners in Technology Research Report, *Passive Venting of Soil Gases Beneath Buildings,* and also British Standard BS5925: 1991

Latest independent design guidance provided in the Department of Environment - Passive Venting of Soil Gases Beneath Buildings - Research Report advises the following:

The first gas protection measure beneath buildings is the gas dispersal layer, which should be designed to dilute ground gas(es)

Introduction



Action of wall vent. On an isolated building , wind forces exert pressures greater than current atmospheric pressure on its windward side and lower pressure on its leeward side creating suction. Increasing the number of wall vents will enhance cross-wall ventilation.

below the designed target equilibrium concentration(s) and disperse the gas(es) safety beyond the building footprint.

The gas resistant membrane acts as an additional protection to the dispersal system. The principal function of the barrier is to prevent gases entering the building through the floor slab during periods when air movement is insufficient to develop the desired dilution and dispersal levels. These still-air conditions may occur due to natural nil-wind situations for passive systems, or mechanical breakdown of active systems.

The design of the gas dispersal layer should take into account the fill-time, i.e. the time required for the dispersal layer to reach target gas concentration thresholds during still-air conditions. The fill-time is a function of the porosity of the ventilation medium, gas concentration and gas emission rate.

Wind

Wind is usually the principal driving force for dilution and dispersion of gas within a sub-floor ventilation layer. Wind movement around buildings creates areas of higher pressure (on the windward side) and areas of lower pressure (on the leeward side). This causes a pressure gradient across the ventilation layer. Under steady state conditions fresh air enters the ventilation layer on the windward side and migrates through the layer, exiting on the leeward side mixed with soil gas intercepted by the layer. For responsive ventilation layers (such as voids) wind induced pressure driven flow is reasonably approximated by steady state assumptions, particularly for moderate wind speeds. However, for less permeable media (such as gravels), steady state pressure driven flow is an over simplification, only developing with sustained periods of wind from the same general direction.

Principles of design

To achieve passive venting a void is formed between the building and underlying ground. The void is connected to the external envelope of the building by vents. The principle of passive venting beneath a building is illustrated in figure 29. It should be noted that where the surface emission rate, q, is from a combination of gaseous contaminants, e.g. methane, carbon dioxide and the other associated gases, then the required volume flow rate of fresh air, Q, should be calculated on the basis of the individual emission rate for each gas component. A fundamental problem in designing a passive venting system arises in quantifying the parameters:

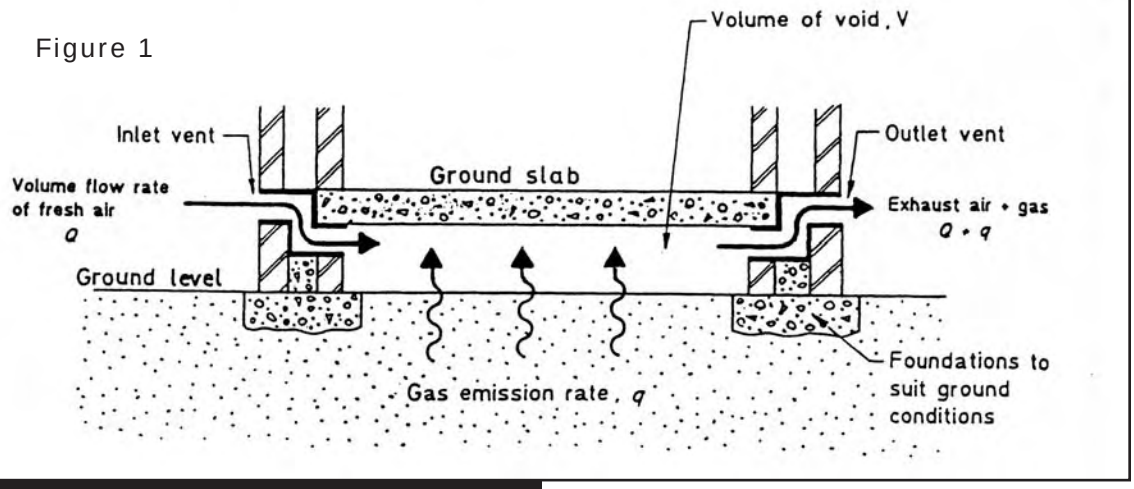
- concentration, c, of each gas component entering the void space.
- surface emission rate into the void space, q, of each gas component.

From BS 5925: 1991, Q, is given by the formula

Ventilation Systems

Introduction

Figure 1



$$Q = q \left[\frac{100 - C_e}{C_e} \right]$$

where q = the surface emission rate of the particular gas contaminant into the void.

c_e = the concentration of the gas contaminant at the equilibrium, i.e. the designed safe acceptable concentration.

Gas contaminant entering a ventilated space

Advice given allows a designer to provide adequate ventilation to any building development for habitable purposes. All habitable buildings have a capacity to dilute any ingress of gas, thus providing a margin of safety. Risk will arise if:-

- there is a confined space in the building which is inadequately ventilated
- the rate of ingress of gas is sufficiently high to render dilution and dispersion by natural ventilation inadequate.

Given the inherent difficulties of being able to measure and predict gas levels with any certainty, it is best practice to endeavour to dilute the gas before it can enter the building. This is achieved by providing passive venting between the building and the underlying ground to dilute and disperse any emission of gas.

Concept

The concept of the passive dilution barrier is to form a low pressure area relative to the surrounding gassing ground, to encourage gas to flow towards the barrier. This is achieved by driving discrete vent nodes into the ground, which are connected to a collection/dilution duct running along the top of the strips. The nodes comprise highly efficient geocomposite strips. The duct had a high flow of fresh air through it by means of passive ventilation. This is one of the key advantages of the system as it:-

- dilutes gas emissions to tolerable levels
- reduces pressure and causes a suction effect in the geocomposite vent nodes, which enhances gas flow from the ground towards the vents.

Ventilation of the duct can be achieved using a combination of vent stacks, bollards or ground level boxes, depending on the gas regime and wind conditions at a a particular site.

The system, is particularly effective where gas migration is occurring through shallow layers of sand and gravel up to 5m depth, underlain by an impermeable layer. This is typical of many situations encounted in the UK. the nodes can be installed to a maximum depth of 5m below starting level. The starting level can be in trenches up to 3m depth, giving maximum effective depth of 8m. As the depth of the migration pathway increases below the toe of the nodes the barrier becomes less effective.

Geo-Void Systems

Ventilation Systems

GEO VOID			12mm	25mm Strips	25mm Blanket	80/100*	52mm* x 260mm	52mm* x x480mm	52mm* Blanket	100mm* Blanket
Pressure Resistance Permeability Flow Rate			400KN	400KN	400KN	33KN/m	1457KN/m	1457KN/m	1457KN/m	400KN/m
Gas Regime (%v/v)	Methane Conc. (m/s)	Emission Rate1	INDUSTRIAL AND COMMERCIAL DEVELOPMENTS							
A[5]	1	0.005	✔	✔	✔	✔	✔	✔	✔	✔
B	5	0.005	-	✔	✔	✔	✔	✔	✔	✔
C	5	0.01	-	-	✔	✔	✔	✔	✔	✔
D	20	0.005	-	-	-	-	✔	✔	✔	✔
E	20	0.01	-	-	-	-	-	-	✔	✔
F	20	0.05	-	-	-	-	-	-	With Active Upgrade	
Housing	-	-	✔	✔	✔	✔	✔	✔	✔ Including regime without Active System	✔

* Based on normal side ventilation.
Additional side ventilation provisions can improve the gas characteristic

Basic guidance only

CONFORMING

The Building Regulations 1991, Approved Document C : Site Preparation and Resistance to Moisture.

NHBC Standards, Chapter 5.1 Substructure and Ground Bearing Floors.

BS 8000 : Part 4 : 1989, Workmanship on Building Sites: Code of Practice for Waterproofing.

BS 8102 : 1990, Code of Practice for Protection of Structures Against Water from the Ground.

BRE Report 211, Radon: Guidance on Protective Measures for New Dwellings, 1991.

BRE Report 212, Construction of New Buildings on Gas Contaminated Land.

BRE Report, Radon Sumps: BRE Guide to Radon Remedial Measures in Existing Dwellings, 1992.

REFERENCES

NRPB Report R272, Exposure to radon in UK Dwellings, 1994.

CIRIA Report 149, Protective Development from Methane, 1995.

BRE Good Building Guide 25, Buildings and Radon, 1996.

Building Standards (Scotland), Regulations 1990 - Part G.

Building Regulations (Northern Ireland), 1990 - Part C.

Ove Arup & Partners, 1997 - Passive Venting of Soil Gas Beneath Buildings. Partners in Technology Research Report. Department of the Environment and The Welsh Office (1992).

DOE Partners in Technology.

Ventilation Systems

Aldervent Vertiduct System

For sites with high levels of gas production, larger vent stacks are inserted 410mm x 460mm. These are pre-fabricated and lined upto 15metres in depth, individually vented or joined in series as with the standard systems.

Concept

The concept of the passive dilution barrier is to form a low pressure area relative to the surrounding gassing ground, to encourage gas to flow towards the barrier. This is achieved by driving discrete vent ducts into the ground, which are connected to a collection/dilution duct running along the top of the strips. The ducts comprise highly efficient geocomposite strips or cells. The duct had a high flow of fresh air through it by means of passive ventilation. This is one of the key advantages of the system as it:-

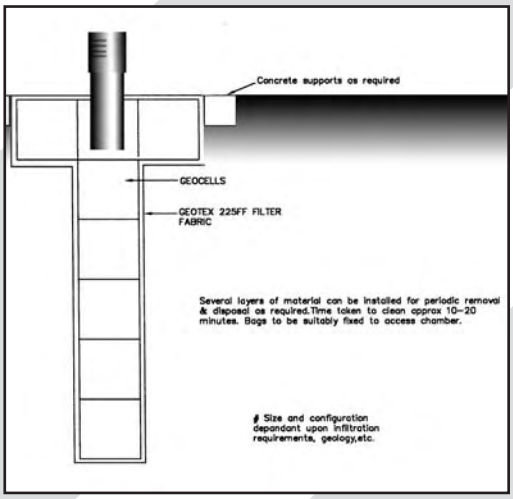
- dilutes gas emissions to tolerable levels
- reduces pressure and causes a suction effect in the geocomposite vent nodes, which enhances gas flow from the ground towards the vents.

Ventilation of the duct can be achieved using a combination of vent stacks, bollards or ground level boxes, depending on the gas regime and wind conditions at a a particular site.

The system, is particularly effective where gas migration is occurring through shallow layers of sand and gravel up to 5m depth, underlain by an impermeable layer. This is typical of many situations encounted in the UK. the nodes can be installed to a maximum depth of 5m below starting level. The starting level can be in trenches up to 3m depth, giving maximum effective depth of 8m. As the depth of the migration pathway increases below the toe of the ducts, the barrier becomes less effective.

Installation

The passive dilution barrier is installed using a no dig method in which a steel mandrel is vibrated up to 5m into the ground, using a vibrating piling hammer. Once the hollow mandrel is in the ground the Geo-void 30 or Geo-void 52 pre-wrapped strip inserted, the mandrel is then withdrawn, leaving the vent in the ground.



The key advantages of this method of installation are:

- **speed** - up to 30 vents per day can be installed,
- **cost** - there is a reduction in excavation costs and disposal of spoil that is frequently contaminated,
- **safety** - contact with contaminated materials by the installers is minimised.

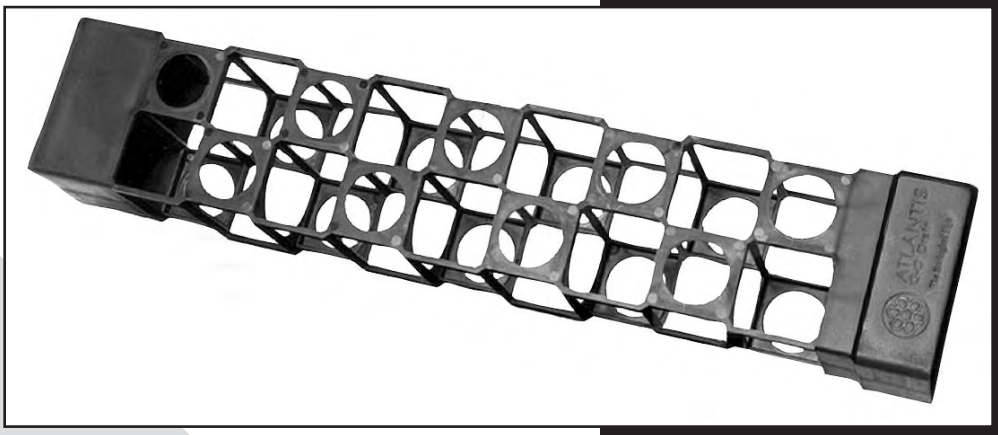
A further advantage is that walls can be constructed very close to site boundaries and in areas where access is restricted and conventional barriers could not be constructed.

Aldervent Geo-Void 100/96

Ventilation Systems

Gas collection channels and cells for the dilution and dispersion of land borne gases to atmosphere

The most efficient sub-soil pipe in the world providing an ecological solution to land gas management



Benefits

The only void channel/pipe to meet and exceed the Department of the Environment Partners in Technology' requirement for gas regime modelling.
(I.e. all flow rate calculations based on minimum 20% perforation).

Simple and Quick to install

No Maintenance Costs

Simple Connection to Pits and Pipes

Economical, Ecological

Features

Lightweight

Very High Infiltration Rate - 85% perforation area

96% Void Ratio

High Flow Rate

Modular

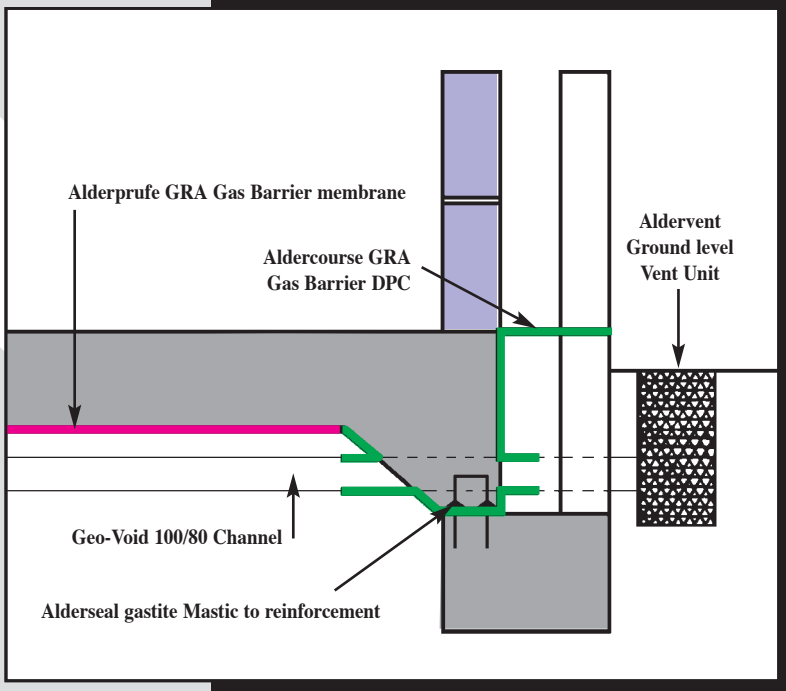
Robust - 33.5 KN Crush strength (Direct load on 80mm surface)

Size - 80 x lOOmm x 3 .15mtrs filter wrapped

Application

The geo-void channel section is laid in top granular layer or blinding layer. Encased in high strength Geo-tex filter mat, the geo-void creates clear and open pathways to attract gases from the ground, mix them with incoming air and disperse the diluted gases to atmosphere.

Laid at pre-determined centres to suit the gas regime required. Aldervent Geo-void channels are connected through the perimeter edge detail by a series of modular units to suit the foundation and building design.



Ventilation Systems

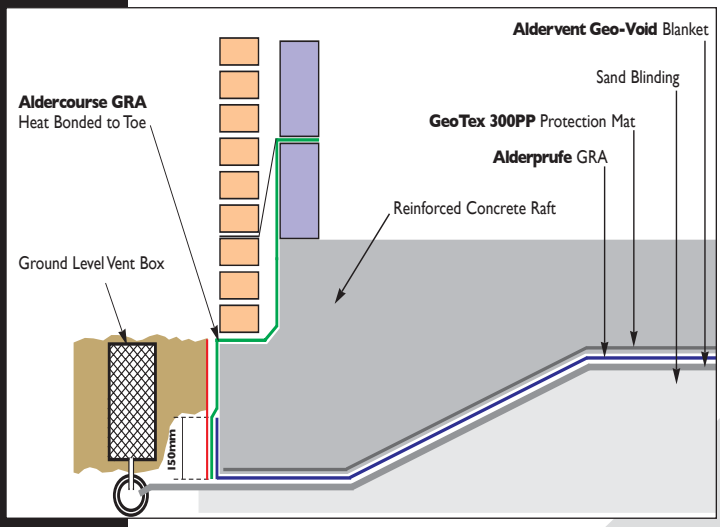
Aldervent Geo-Void 26/60

The purpose of any ventilation system below the structure is to prevent high concentrations of land borne gas Methane, Carbon Dioxide or Radon - accumulating, thus preventing a potential health and safety risk.

The main criteria for the Aldervent designed ventilation systems are:

To dilute the gas concentrations present with the through flow of air from the perimeters of the building.

To disperse any gas safety along pre-determined voids and channels to the outside atmosphere, where it will be safely diluted and dispersed into the atmosphere.

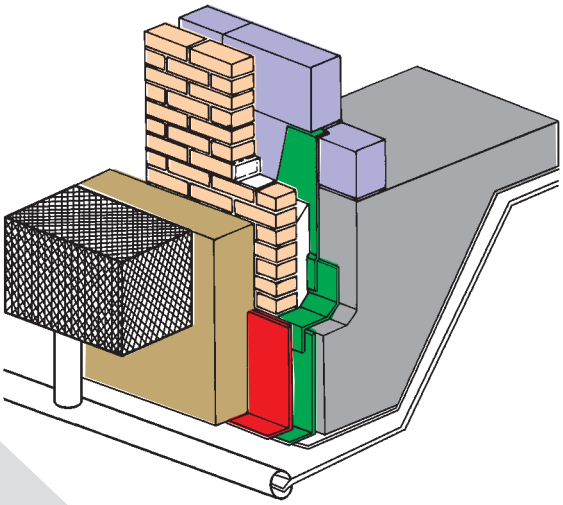


Description

Aldervent Geo-void 26/60 is a preformed void forming sheet system, installed in one operation to either cover the whole of the building footprint as a blanket or laid in strip form at design determined centres. Installed on top of the granular sub-base below the structural slab.
Installed with the geo-textile filter membrane on the underside creating a 26mm clear void space for the dilution and dispersal of gases. With an intrinsic permeability of at least 1.2 x 10.5, high pressure resistance being created by the studded pattern. The geo-textile filter layer allows gas to filter into the void but prevents clogging.
Aldervent Geo-grid 26 is connected into slotted gas collection ducts at opposing perimeters. The gas collection duct is then connected at pre-determined centres (dependent on the site investigation report and percentage target

Aldervent Geo-Void 26/60

Ventilation Systems



Specification

Aldervent Geo-void 26/60 gas dispersal mat is to be installed strictly as per manufacturers recommendations and in accordance with good building practice.

Aldervent Geo-void 26/60 has been CFD modelled in line with recommendations and tests undertaken for the DOE Partners in Technology report Passive Venting of Soil Gases Beneath Buildings Research Report Design Guide 1997.
All test results are available for engineers assessment and design calculation checks on request.

Where developments are considered on sites with extremely high gas emission figures, active upgrade and gas monitoring systems can be attached to the designed passive systems if required

Technical Data

Properties	Test Method	Unit	Value
FILTER FABRIC			
Tensile strength			
Strip bst 20cm	BS6096-1	kN/m	8.2
Elongation at max load		35%	45
At 5% elongation	BS6096	kN/m	3.35
Wide width 50cm	NF-G38-014	kN/m	8.8
Elongation at max.load		31%	43
Grab strength	DIN S 3858	N	565
Grab strength	ASTM 1682 mod 200mm	N	700
Elongation at max load	>60%	>60	
Puncture resistance ~CBR)			
Max. load	BS6°wn6/4	N	1270
Displacement	mm	50	
Burst strength	AsTM D-3786	kN/m²	1350
Trapeziodial Tear Strength	ASTM D-1117	N	370
Core			
Nominal Thickness	26mm		
Material	HDPE		
Crush / res @ 10% deflwti mean @ yield	ASTM D 1621 - 73	kN/m	400 (min)
Creep resistance	200 KPA for 100 hrs	%	5 (max)
Forchelmer Term	DoE approved method	s/m	<24.0

equilibrium required for the structure) to a series of ventilation inlets and outlets.

Dependent on the design criteria and air flow rates required, these can be Aldervent through wall vent units, vent bollards, ground level vent boxes, vertical risers (see separate data sheets)

When installed as a blanket this provides a clear prepared surface for the direct installation of an Alderprufe proprietary Gas Barrier membrane. (see separate data sheets)

Ventilation Systems

Aldervent Geo-Void 52/96

Specifically designed and manufactured to create large flow void space below structures constructed on contaminated land where landfill gas is a potential hazard

Aldervent Geo-void 52/96 is designed to be installed below the structural slab in or on top of the formation layer.

Features

Light weight heavy duty, 96% void matrix

Quick and simple to install

No maintenance cost

Economic and Ecologically friendly

Simple connections to all Aldervent inlet/outlet units.

Extremely high infiltration and flow rate capability

High Load Capacity to enable direct loading by site traffic

Description

Aldervent Geo-void 52/96 is a void forming modular system installed in one operation to either cover the whole of the building footprint as a blanket or laid in strip form at design determined centres.

provide an extremely strong heavy load bearing void former that once installed is more than capable of supporting site traffic for slab installations (i.e. concrete wagons, laser pour vehicles).

Description

When installed as a blanket the Geo-void 52/96 is overlaid with Geotex 225 filter membrane prior to the installation of the gas barrier membrane or the structural slab.

When installed in strip form in either 260mm wide or 480mm wide lengths (or multiples thereof) the Geo-void 52/96 is supplied pre-wrapped in Geotex filter fabric and installed at designed centres in the formation layer.

At perimeters of foundations the Geo-void 52/96 is connected to inlet and outlet gas collection systems. Dependent on the design criteria and air flow rates required, these can be Aldervent Thru-wall Vent Units, Vent Bollards, Ground Level Vent Boxes, Vertical risers or slim vents
(see separate data sheets)

Aldervent Geo-Void 52/96

Ventilation Systems

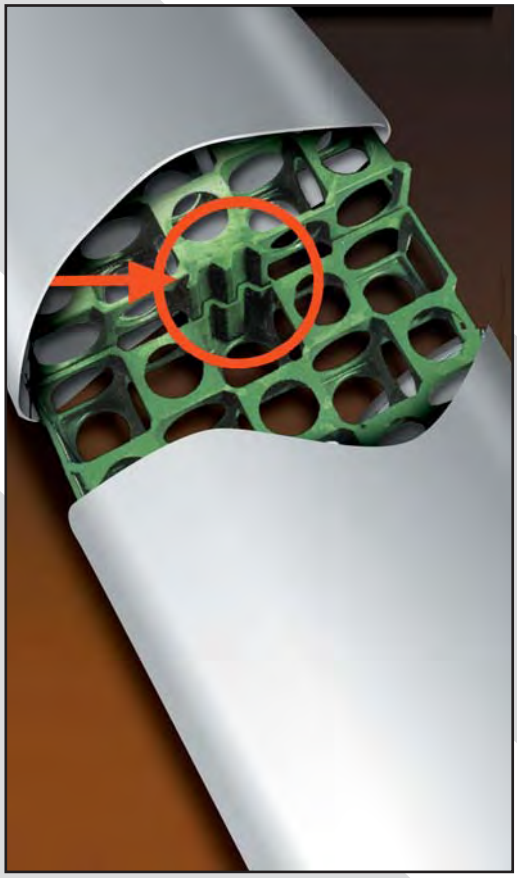
Technical Data

GEO-VOID 52/96

Size of modules	480mm x 260mm x 52mm
Filter wrapped strips	3.12mt x 480mm x 52mm 3.36mt x 260mm x 52mm
Loading/Crush Strength	1457.6 kN/m^2
Material	100% Polypropylene
Void Ratio/Porosity	96% 3D matrix
Intrinsic Permeability ($K(m^2)$)	2.4 x 10^{-4}
Clear void space equivalent	44.7mm

GEOTEX 225

Filter fabric	see separate data



Aldervent Geo-void 52/96 allows for the rapid dilution and safe dispersal of land borne gases from beneath the building footprint, allowing for complete flexibility in foundation design.

Aldervent Geo-void 52/96 has been CFD modelled in line with recommendations and tests undertaken for the DOE Partners in Technology report "Passive Venting of Soil Gases Beneath Buildings Research report Design Guide 1997".

Where developments are considered on sites with extremely high gas emission figures active upgrades and gas monitoring systems can be attached to the designed passive systems if required.

It should be noted that due to Geo-void 52/96 unique void ratio and flow capability, passive systems in strip form are more efficient than many blanket void systems designed. This makes Geo-void 52/96 extremely cost efficient and economical in use.

Ventilation Systems

Aldervent Geo-Void 52/96

Installed as a full blanket to cover the footprint of the building, the Geo-void 52/96 void forming 3d matrix provided a totally unique high permeability, high flow rate, high strength medium for the safe dilution and dispersal to atmosphere of all land borne gases from beneath the footprint of any structure, even when considerations for high emitting gas volumes have to be calculated.

Geo-void 52/96 extremely high 1400kN/m2 crush strength make it the ideal solution to under slab venting on fast-track operation sites, particularly when laser pouring vehicles and the laser pouring machines.

Geo-void is more than capable of absorbing the loading from both the concrete vehicles and the laser pouring machines.

Geo-void 52/96 in-built clipping system creates an extremely stable robust base and platform for following trades to work on with no lateral movement from the system.

Geo-void 52/96 unique void ratios create a large volume airflow gas for the rapid dilution and dispersal of land borne emitting gases.

Easily connected to the Aldervent perimeter gas collection system and the appropriate inlet and outlet connections available (see separate data), dependent on volume flow figures required and site-specific aesthetics required.

Aldervent Geo-Void 100

Ventilation Systems

Designed to allow for sufficient through flow of air below the perimeter of the building to enable sufficient dilution of potentially dangerous ground emitting gas even on active gassing sites.

The Geo-void 100 ventilation blanket creates a 99 mm clear equivalent void space beneath the footprint of the building. Flow of air from atmosphere through the blanket and expulsion through calculated outlets is increased and enhanced by the unique leg support design.

Preventing build up of dead pots and the creation of no flow calm areas created by natural turbulence and the effects of buoyancy in total clear large void areas.

The overall depth of 150 mm reduces the need for large volume fill removed to accommodate the void space.

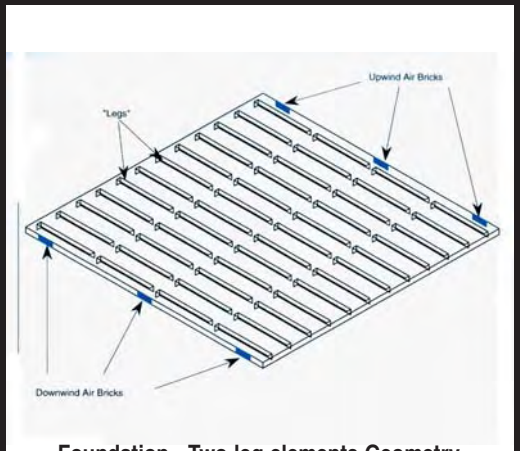
Full CFD (Computation Fluid Dynamics) modelling has been undertaken conforming to the Partners in Technology recommendations.

Due to the large void space created on very active high flow sites active extraction systems can be attached easily and economically to allow for high volume controlled gas expulsion.

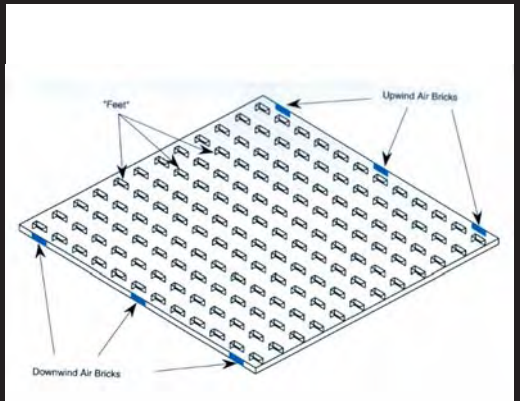
The Geo-void 100 system is available in a number of leg formations dependent on site specific requirements and structural necessity.

The resultant footprint blanket creates a flat finished surface for the installation of a suitable gas barrier membrane and construction of the finished floor slabs.

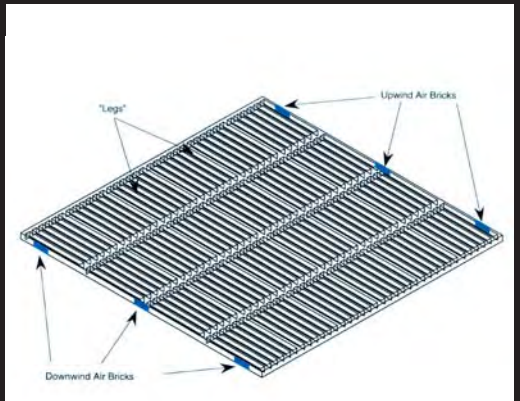
Geo-void 100 ventilation system is supplied as part of a total underfloor ground ventilation and barrier system and is only available as a component of an Alderburgh Accredited system installed by trained operatives and covered under



Foundation - Two-leg elements Geometry



Foundation - Six-feet elements Geometry

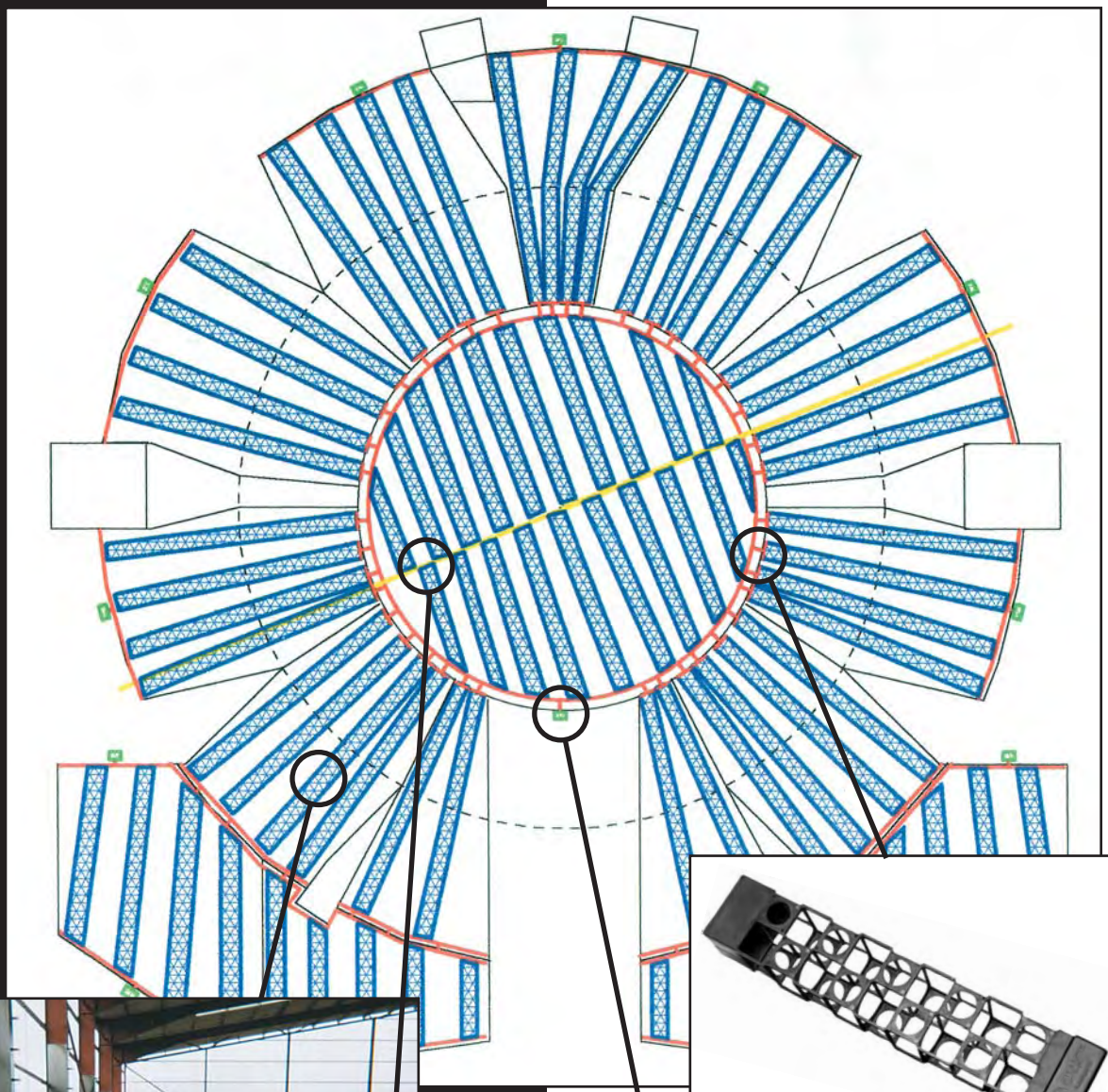


Foundation - Six-leg elements Geometry

Technical Details	1200 x 1200 x 150 mm overall dimension
Leg formation	to suit site requirements
Loading	Dependent on site requirement 30kN/m2 - 1400k/m^2

Ventilation Systems

Geo-Void Systems



Aldervent Geo Grid 26 @ 3mtr c/s

Alder Geo Void 160/200

Aldervent Collector Pipe

Aldervent Collector 'T'

Aldervent Ground Level Vent Unit

Vent Products

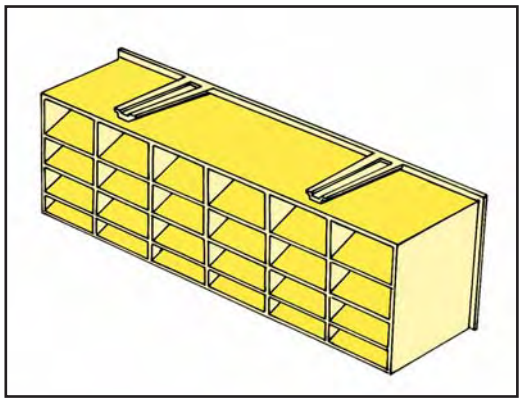
Ventilation Systems

Air Brick Vent AVAB

The vent is used in combination.with a cavity sleeve (AVAS or AVPS) through-the-wall ventilation with a high airflow capacity. The vent has been designed to match standard brick face dimensions, and has integral mortar grips.

Ventilation area: 6000mm^2.

Colours: terracotta, buff or anthracite black.



Adjustable Periscope Sleeve AVPS

The Airbrick periscopic sleeve AVPS is designed to attach to the Airbrick vent AVAB to provide effective and permanent ventilation beneath suspended and solid timber and concrete ground floors. The periscopic design allows the suspended floor to be at or below surrounding ground level, thereby saving on brickwork in construction, and gives vertical adjustment for 3 to 4 brick courses. The lower end is protected by a 9mm grille. It provides a clear airway which cannot be blocked by mortar and will bridge cavities from 50 to 100mm. The sleeve joint may be sealed with tape if necessary.

Vent Pipe Adaptor AVPA

The Vent pipe adaptor AVPA enables a standard 100mm internal diameter pipe to be connected to sleeves and/or ventilators, so that remote areas of underfloor voids may be ventilated. The adaptor can be attached directly to the vent AVAB, sleeve periscope AVPS or the straight adjustable sleeve AVAS. Joints may be sealed with tape if necessary.

Underfloor Void Vent Sleeve AVAS

As an addition to the through wall product range, Alderburgh offer the new AVAS extension sleeve to adapt its telescopic Underfloor Void Vent.

The AVPS Underfloor Ventilator already telescopes vertically to fit three to five brick courses but now the AVAS means a further two course adjustment per extension sleeve is possible.

As well as making infinite vertical extension possible the AVAS has been cleverly designed to fit the base of the telescopic vent thus enabling horizontal expansion through larger cavities by 185mm per unit.

Ventilation Systems

Vent Products

Aldervent Ventilation Bollards

Description

Designed to allow air to pass in or out of the gas ventilation system. The use of Ventilation Bollards allows considerable flexibility in design without having to compromise foundation requirements

Many options both in design and materials used are available dependent on design requirements, position of bollards and aesthetic needs.

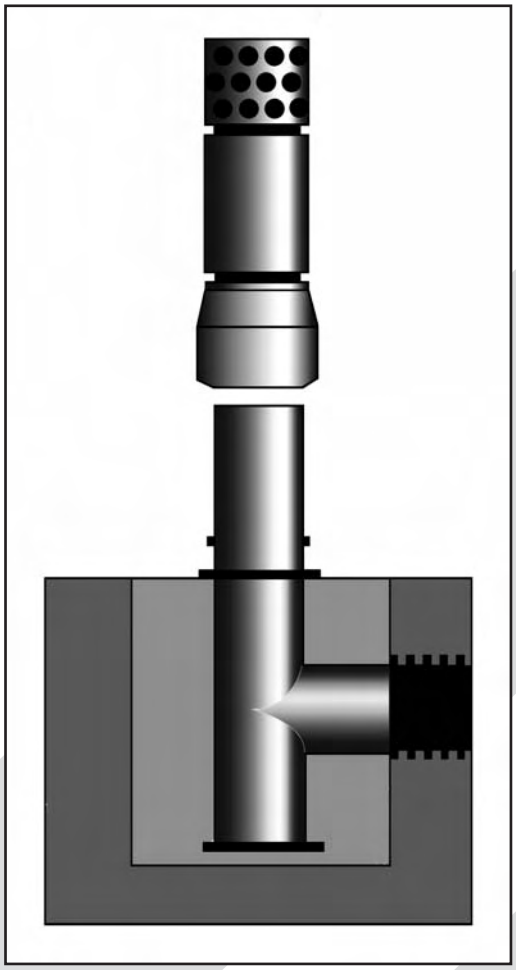
Installed against the building the bollards are fabricated out of plastic. If free-standing and particularly in trafficked areas the bollards are either galvanised steel or stainless steel.

Designs out of plastic with steel anchoring inserts can also be utilised, particularly if the requirements are to match and blend with bollard designs as part of a projects hard landscaping.

Data

Dimensions and design to suit specific projects.

Free ventilation airflow space can be adjusted to suit ventilation design regime i.e. typically 3000mm^2 - I8000mm^2 per unit are achievable.



Aldervent Ground Level Vent Units

Manufactured from inert PP UW stable compound. The Aldervent ground vent system is completely modular allowing for a variety of free air/gas spaced flow rates dependent on the construction, design and gas flow requirements.

Minimum flow rate per unit 6000 square mm up to 72,000 square mm per unit.

Design recommended centres dependent on airflow required.

Physical Properties

Wall Thickness	30mm
Crush Resistance	600KN/ square m
In plane flow	Open Void Space
Unit size	400 x 220 x 450 400 x 440 x 450 400 x 660 x 450

Supplied with perforated plastic or stainless steel top.

Aldervent Slim Vent

A preformed 96% voided slim unit for fixing against the external perimeter of the building at ground level.
Specifically designed to be unobtrusive in positions where regular access is required to outside perimeter by pedestrian or vehicular traffic.

Completely modular in design, the system can be installed with the modular collection duct in the vertical plane. Brought to the ground surface for atmospheric venting at design determined centres.

Physical Properties

Dimensions	52mm wide x any length in multiples of 480mm
Depth	Any depth by multiples of 260mm
Crush Resistance	1400KN/ square m
Porosity	96%
Top Cover	Stainless steel perforated

Ventilation Systems

Ventilation Systems

Aldervent High Level Risers

Installed against the external wall of the building - terminating at least 600mm above eaves level, or installed free standing in the surrounding ground away from the building.

Riser pipe is between 110mm - 240mm diameter dependent on flow volume and rate required. Manufactured out of Plastic, Galvanised or Stainless Steel pipe.

Terminating with a rotating spiromatic cowl manufactured from stainless steel, the characteristics of which are as follows:-

Support

A stainless steel support fitted with stainless screws 18/8 which adapts easily to all types of vertical riser pipe;

Pivot

A pivot, mounted on ball bearings, specially designed to resist extremes of temperature; the system is enclosed in a watertight area and protected by an oil seal;

BODY

A rotating body composing an assembly of helicoidal blades, each blade rivetted to the circular base frame in stainless steel and copper for chemically aggressive gases.

Air Flow and Upstand Size determine the required model:

Aspiromatic 100
Stack Diameter: 80-100mm
3-4 inches
Airflow: 80 m³/h
3,000 ft³/h

Aspiromatic 160
Stack Diameter: 80-160mm
3-6 inches
Airflow: 125 m³/h
4,000 ft³/h

Aspiromatic 200
Stack Diameter: 112-200mm
4.5-8 inches
Airflow: 225 m³/h
8,000 ft³/h

Aspiromatic 240
Stack Diameter: 150-240mm
6-9.5 inches
Airflow: 315 m³/h
11,000 ft³/h

NB: Figures for flow are calculated for wind speeds of 10-30km/h (6-18 mph)

Venting increases volumes through flow creating passive draw-through of gas ventilation system from below the building.

Connection on one side of perimeter with inlet of air through system-static altern-ative inlet units (ie. bollards, airbricks, grubs).

Also supplied with anti-vandal gauge on exposed sites.

Radon Gas Sump

Ventilation Systems

Use

To service evacuation of gas from below integrity shield.

Introduction

The gas reception sump when positioned below a floor slab (incorporating an integrity shield in the form of membranes and barriers), provides a passive gas exit route via a ventilation stack.

Gas Reception Sump

The gas reception sump is designed to be incorporated within the granular fill, beneath the floor slab. The reception sump receives gas from underneath the building and promotes passive discharge via a vertical 110mm PVC ventilation stack.

The stack is terminated above the roof finish with a tile/slate external roof ventilator. Suitable for new build or existing properties, the reception sump may service up to 250 metres' floor area, positioned in the most central location to promote even/optimum evacuation.

The sump has integral inhalation apertures and inlet/outlet portholes to permit spur connection to adjoining sumps should the size or layout of the property dictate.

A maximum of 5 reception sumps is permitted per 110mm ventilation stack. Where appropriate and if necessary, mechanical - extraction can be achieved by the introduction of a powered fan, sited in the roof space. Where sub-floor depress-urisation is created using a gas reception sump, it is recommended that the sump should not influence an area exceeding 250 metre S2. Sumps should be positioned centrally and the serviced area should not exceed a distance from the sump of 15 metres.

To promote maximum depressurisation, fill used underneath the slab around the sump should not contain excessive fines. In calculating the performance of sub-floor depressurisation, it is assumed the water table is not high and that any measures to exhaust gases will not be influenced by the waterlogged/ flooded areas.

Sizes

Sump approximately 680 x 410 x 450mm plus porthole projections which permit connection to 110mm standard vent/stack pipe. Inhalation apertures exit ratio exceeds 4 to 1 for optimum performance.

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