

Soil Gas Venting

Ventform by Cordek

Ventform is a moulded EPS panel developed specifically for venting harmful gases from beneath buildings. Available in two types and a choice of grades, Ventform is suitable for both ground-bearing applications and for use beneath suspended ground-floor slabs.

Versatile

Ventform is available in different densities; and in round- or square-legged configurations for use below suspended ground floors and ground-bearing slabs.

High performance

Ventform has excellent venting characteristics and is fully compatible with all commonly used perimeter venting systems.

Loadbearing

Ventform is able to support loads up to 50kN/m².

Permanent

Ventform provides an ideal surface on which to lay a gas-protection membrane, and is rot-proof and durable. It will withstand the conditions encountered below ground, and will not degrade in the presence of high levels of ground water or precipitation.

Easy to handle

Ventform is manufactured from expanded polystyrene (EPS), and is lightweight and easy to handle.

AVAILABILITY

Ventform is a registered trademark of Cordek Ltd, and is a product they have developed. It is manufactured on their behalf by Vencel Resil Ltd.

Further information is available from:

Cordek Limited, Spring Copse Business Park, Slinfold, West Sussex RH13 0SZ.
Tel: 01403 799600.
Fax: 01403 791718.

APPROVALS

Ventform has been assessed and approved by Wimlas Ltd to confirm its suitability for use as a ventilation void former for supporting cast in-situ concrete slabs in either suspended or ground-supported floor applications; Certificate of assessment number 031/96.

TYPE

All Types are supplied as Euroclass E, flame-retardant additive material, as defined in BS EN 13163.

Ventform 80 and 100 have high load-bearing capacities, and are intended for relatively low gas risk applications; Ventform 150 and 200 provide increased gas ventilation performance but have a lower load-bearing capacity.

DIMENSIONS AND DENSITY

See Table 11.

SHAPE

The panels are rectangular with a smooth upper surface and square edges.

There are moulded legs on the underside which provide a free path for the ventilation of gases; Ventform 80 and 100 panels have 100 x 100mm square legs placed at 150mm centres; Ventform 150

and 200 panels have 120mm cylindrical legs at 240mm centres.

ACCESSORIES

Special fabrications are available to accommodate piles and changes in the under-slab profile.

THERMAL INSULATION

Although not designed specifically for this purpose, the use of Ventform panels will typically provide an improvement in the U-value of a 50m² ground floor from 0.8W/m²K to 0.35W/m²K. Further information is available from Cordek Ltd.

FIRE

When properly installed Ventform is fully protected by the concrete slab and will have no adverse effect on the fire performance of the structure.

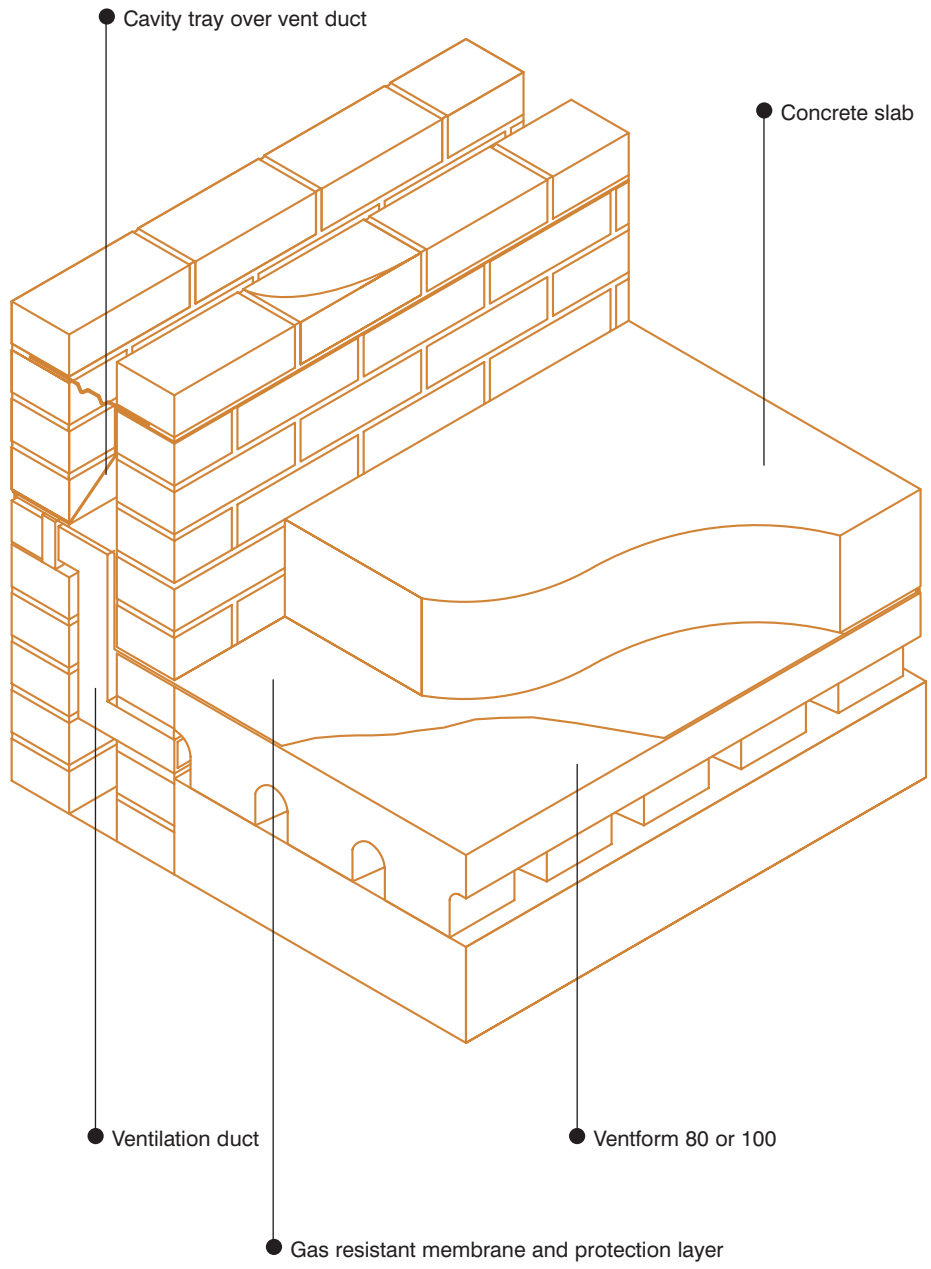
DESIGN

Ventilation

The minimum area of ventilation to the sub-floor void is 1500mm² per metre run of wall, or 500mm² per square metre of floor, whichever provides the greater area. All Ventform panels provide in excess of this minimum figure.

The void must be adequately ventilated to the external atmosphere; the size and spacing of the vents should be determined by considering all factors which will affect ventilation, and particular care should be taken with cross ventilation to prevent accumulations of gas in dead zones.

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Suitable final ventilation devices include air bricks or low-level pipes with telescopic risers; the leg height of Ventform 200 panels allows a standard 110mm diameter pipe to be inserted into the aperture between the supporting legs.

As a guide, standard air bricks at 2m centres will provide an adequate level of performance.

For sites where it is suspected that gaseous contaminants are present, reference should be made to BS DD 175 and BS 5930. Where it is likely that radon might be present, reference should be made to BRE Reports 211 and 212.

Load-bearing performance

Table 11 gives the maximum permissible thickness of concrete for each density grade for suspended floors, and the bearing capacity for ground-supported floors.

For ground-bearing floors/slabs, the formation must be designed to accept the combined dead and live loads which will be transmitted through the legs of the panels.

INSTALLATION

The site should be adequately prepared by grading to a smooth, level surface with all loose material removed. For suspended-floor applications, a well-compacted layer of sand or sand/cement blinding will normally be adequate.

The panels should be laid over the whole area of the floor, ensuring that they are butted tightly together.

A compatible waterproofing or gas-retardant membrane should be laid across the completed Ventform installation and fixed in accordance with the manufacturer's instructions. For ground-supported floors, some allowance should be made for differential settlement at the floor/wall junction by leaving a slight slackness in the membrane.

If necessary, the membrane should be protected from damage while the reinforcement is placed and the concrete poured.

Spacing blocks should be used to ensure that the correct depth of cover is achieved over steel reinforcement, and spreader plates should be used to prevent damage to either the membrane or the EPS from localised loading.

Service penetrations

Where possible, service penetrations through Ventform should be avoided. Where this is not possible, the penetration can be accommodated by carefully cutting the panels round pipes etc and sealing around them using a suitable sealant. Penetrations through the membrane should be sealed using 'top hats' or other devices as supplied by the membrane manufacturer.

REFERENCES

BS 5930 Code of practice for site investigations.

BS 10175 Investigations of potentially-contaminated sites. Code of practice.

BRE Report 211. Radon: guidance on protective measures for new dwellings.

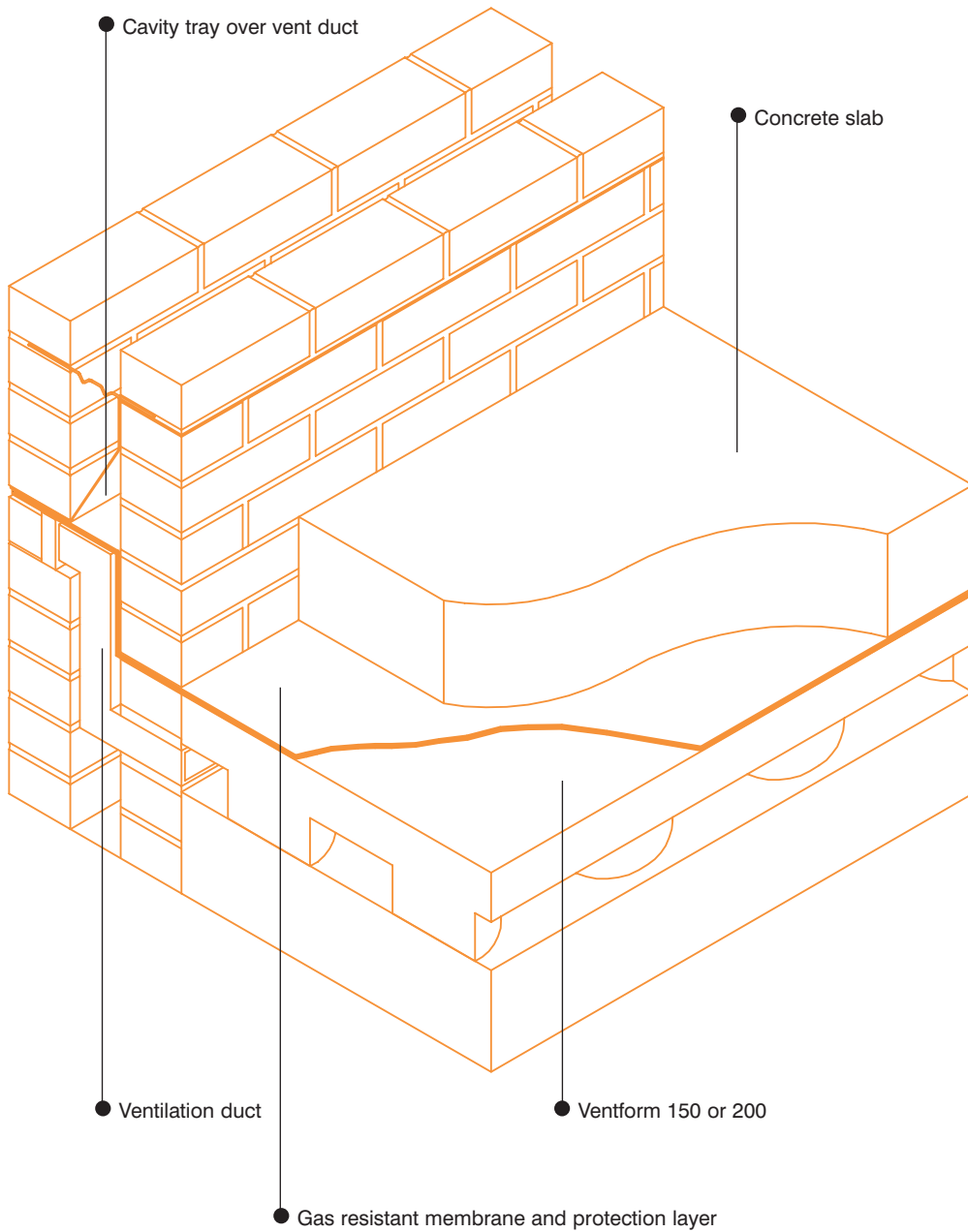
BRE Report 212. Construction of new buildings on gas-contaminated land.

Thermal insulation products for buildings - Factory made products of expanded polystyrene (EPS) - Specification.

BS EN 13163 Thermal insulation products for buildings - Factory made products of expanded polystyrene (EPS) - Specification.

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Figure 50.
Ventform 150 or 200



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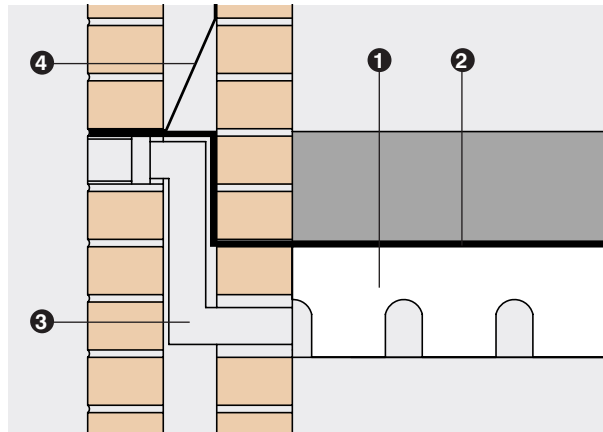
Table 11. Dimensions and application details

Ventform reference	Dimensions (mm):			Density (kg/m ³)	Performance:		
	panel size	overall depth	leg length		bearing capacity (kN/m ² , max)*	ventilation area per m length of side (mm ²)	footprint (% of panel area)
Ventform 80							
80/20	1200 x 1200	80	40	20	20	11,540	44
80/30	1200 x 1200	80	40	25	30	11,540	44
80/40	1200 x 1200	80	40	30	40	11,540	44
80/50	1200 x 1200	80	40	35	50	11,540	44
Ventform 100							
100/20	1200 x 1200	100	60	20	20	18,200	44
100/30	1200 x 1200	100	60	25	30	18,200	44
100/40	1200 x 1200	100	60	30	40	18,200	44
100/50	1200 x 1200	100	60	35	50	18,200	44
Ventform 150							
150/9	1200 x 1200	150	80	20	9	41,300	19.5
150/13	1200 x 1200	150	80	25	13	41,300	19.5
Ventform 200							
200/9	1200 x 1200	200	130	20	9	67,150	19.5
200/13	1200 x 1200	150	130	25	13	67,150	19.5

* Bearing capacity consists of both dead and imposed loadings.

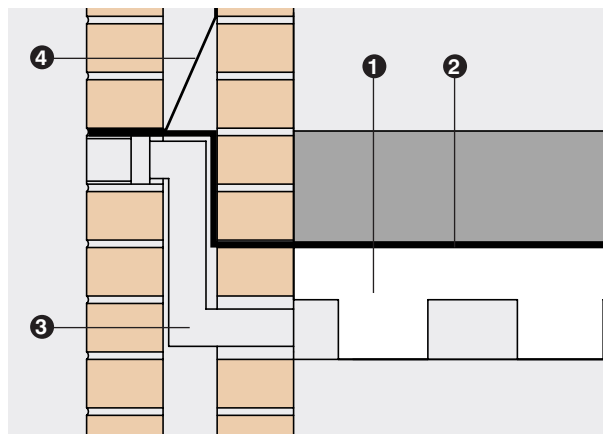
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Figure 51.
Ventform 80 or 100



- 1. Ventform 80 or 100
- 2. Gas resistant membrane and protection layer
- 3. Ventilation duct
- 4. Cavity tray

Figure 52.
Ventform 150 or 200



- 1. Ventform 150 or 200
- 2. Gas resistant membrane and protection layer
- 3. Ventilation duct
- 4. Cavity tray