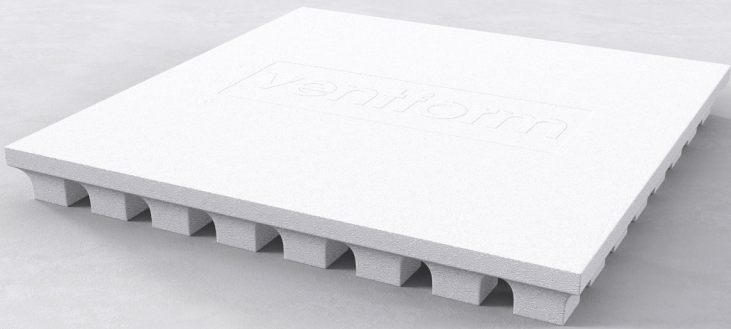


# Ventform Data Sheet



The Cordek Ventform range provides an excellent passive gas venting medium for use under suitably reinforced concrete ground floor slabs. When used in combination with perimeter vent outlets and a suitable gas resistant membrane system, it will provide an effective method of protecting structures against the ingress of harmful ground gases.

## Key Features

- Highly effective venting medium suitable for ground gas affected sites as part of a gas protection system
- Manufactured from expanded polystyrene (EPS) which achieves a BREEAM rating of A+, in addition to providing a high degree of insulation.
- Available in a range of thicknesses and grades to suit most project requirements
- Light, robust and easy to install 1.2m x 1.2m (1.44m<sup>2</sup>) panels
- Resistant to UV light and water. Are manufactured with a flame retardant (FR) additive.

## Installation

The procedure for installing Ventform panels is straightforward; however the following points should be adhered to:

- Ensure that the Ventform panels are placed upon a firm, level surface. In ground-bearing situations, the subgrade should be designed to accept the dead and live load concentration transferred through the legs of the panels.

- The lightweight but durable panels can be easily laid by one person. If additional cutting is required, this can be carried out using a fine tooth saw or hot wire cutter (available for hire from Cordek – please contact our sales team on 01403 799600).
- Individual panels should be butted together, staggering the joints where possible, with taping of the joints using the Cordek Formwork Tape to avoid any grout loss between them unless they are to be covered with a membrane.
- Further information relating to installation can be found within the Ventform Installation Guide, available for download from [www.cordek.com](http://www.cordek.com).

## Storage & Handling

All products are delivered in a polythene wrapping and are clearly labelled. Both packs of Ventform and individual panels can be manually handled and offloaded upon delivery, taking in to account any site-specific manual handling regulations.

Due to the relatively light nature of the product, all packs of Ventform should be weighted down or secured should they be stored outside prior to installation.

For further information on the full range of VOC & Ground Gas Protection, please contact the Cordek technical team on 01403 799600, [techsupport@cordek.com](mailto:techsupport@cordek.com) or consult our website at [www.cordek.com](http://www.cordek.com).



## Product Data

The specification of Ventform panel should be based upon the required clear void equivalent and the maximum loading conditions that it will be required to support. This information is provided in the table below, however please contact the Cordek technical team should further assistance be required.

### Dimensions and Performance Characteristics

| Ventform Panel Type                           | Overall Depth (mm) | Leg Depth (mm) | Clear Void Equivalent (mm) | Maximum Load Capacity (kN/m <sup>2</sup> ) | Nominal ventilated cross sectional area as seen in elevation (mm <sup>2</sup> per m width of floor) |
|---|--------------------|----------------|----------------------------|--|---|
| 80/20   | 80                 | 40             | 19                         | 20   | 11,500  |
| 80/50   | 80                 | 40             | 19                         | 50   | 11,500  |
| 100/50  | 100                | 60             | 30                         | 50   | 13,200  |
| 150/13  | 150                | 80             | 60                         | 13   | 37,100  |
| 200/13  | 200                | 130            | 100                        | 13   | 60,400  |
| Panel size: 1.2m x 1.2m (1.44m <sup>2</sup> ) |                    |                |                            |  |   |

### Structural Performance

#### Suspended Slabs:

The appropriate panel type should be selected according to the proposed finished thickness of the concrete slab. To limit the maximum anticipated compressive creep deformation of the panel to an acceptable level of 2 mm or less, the maximum uniformly distributed load (UDL) carried by the panels during the initial period (1 to 16 hours) from commencement of the concrete pour must not exceed the maximum load capacity of the panels indicated in the table below. The design UDL should include the weight of the wet concrete and an allowance for heaping of the concrete during pouring. The minimum allowance for heaping should be taken as 1.5 kN/m<sup>2</sup>, but may need to be increased depending on the methods used for placing and compacting the concrete.

#### Ground Bearing Slabs:

The panel type proposed should be selected so that it also limits the anticipated maximum long-term (50-year) compressive creep deformation to the level determined by the structural design engineer responsible for the design of the building. This will depend on the type of building and its intended use. Anticipated 50-year compressive creep deformations and permissible design loads for each panel specification are given in the table below. In all cases, the design load should be taken as the maximum combination of unfactored dead and imposed load likely to be transmitted to the panels, determined in accordance with BS EN 1990 : 2002 and BS EN 1991-1-1 : 2002, and their UK National Annexes.

| Panel Specification |  | Maximum anticipated 50-year compressive creep deformation under a design load equal to maximum load-bearing capacity of the panel (%) | Maximum permissible design load to limit 50-year creep deformation to 2% (kN/m <sup>2</sup> ) |
|---------------------|--|---|---|
| Panel depth (mm)    | Maximum load-carrying capacity of the panel (kN/m <sup>2</sup> ) |   |   |
| 80                  | 20   | 5   | 13  |
| 80 and 100          | 50   | 7   | 30  |
| 150 and 200         | 13   | 5   | 9   |

For both suspended and ground-bearing floor slabs, the structural engineer responsible for the design of the building should confirm the adequacy of the bearing substrate to carry maximum short and long-term design loads transmitted through the panels.

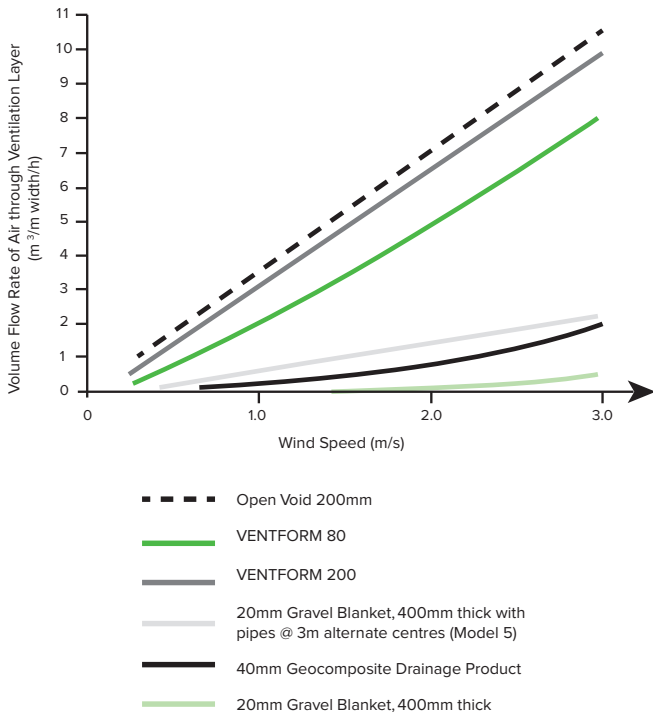
Provision should also be incorporated into the design to limit short-term concentrated loads that could cause localised damage to the panels and gas-resistant membrane (for example, reinforcement spacers). Reinforcement spacers should be selected with large base areas and should be located at sufficiently close centres to ensure that the maximum load beneath the spacer does not exceed the maximum short-term load carrying capacity of the panel. Where necessary, load spreader plates should be specified beneath the reinforcement spacers.



**Result of CFD Modelling**

By comparison, other methods of venting ground gases can be compared to the Cordek Ventform in terms of performance using the CFD modelling data provided below.

**Volume Flow Rate v Wind Speed for 30m Wide Foundation**



Data sourced from: DOE Partners in Technology – Passive Venting of Soil Gases Beneath Buildings – Guide for Design. Full document available as a download from the Cordek website at [www.cordek.com](http://www.cordek.com).

**Thermal Performance**

The thermal performance of the Ventform panels is dependent on the depth and density of the panel type used. For design purposes e.g. U-value calculations, the panels can be 'simplified' so that they are considered as flat boards using the 'effective thickness' information provided in the table below.

Should the target U-value for the proposed floor design not be met when incorporating the performance of the Ventform panels alone, an additional layer of Filcor EPS can be provided. For further assistance regarding thermal performance, including U-value calculations, contact the Cordek technical team.

| Ventform Panel Type | 'Effective' Thickness of Panel (mm) | Thermal Conductivity $\lambda_{90/90}$ ( $W.m^{-1}.K^{-1}$ ) |
|---------------------|-------------------------------------|--|
| 80/20               | 48                                  | 0.036  |
| 80/50               | 48                                  | 0.033  |
| 100/50              | 48                                  | 0.033  |
| 150/13              | 71                                  | 0.035  |
| 200/13              | 71                                  | 0.035  |

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DISCLAIMER: Information contained within this 'Technical Data Sheet' is for guidance only, and it is intended for experienced construction industry workers. It contains summaries of aspects of the subject matter and does not provide comprehensive statements of construction industry practice. As conditions of usage and installation are beyond our control we do not warrant performance obtained. Please contact us if you have any doubt as to the suitability of application. The information provided within this document is based on data and knowledge correct at the time of printing.

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