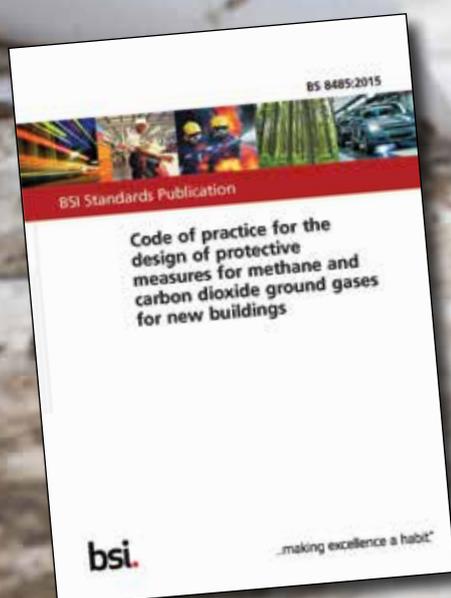




## **GUIDANCE ON BS 8485**

By Simon Poole, Technical Manager, Cordek Limited

**Redevelopment of Brownfield sites has led to an increased need for Ground Gas Protection – Cordek provides a summary of updated guidance BS 8485: The code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings**



Since the late 1990s, successive UK governments have committed to encouraging the redevelopment of brownfield sites as a means of combating 'urban sprawl'. The relative success of the measures put in place resulted in the government publishing findings in October 2014, which stated that 'following reforms of the planning system, more than two thirds of all homes are built on brownfield land<sup>1</sup>', thus highlighting the increased relevance of protection against ground gases<sup>2</sup>.

The guidance available to designers, contractors and manufacturers has tried to keep pace with the growth experienced within brownfield development. Many brownfield sites have a legacy of either contamination and/or ground gas issues based upon their historical use. These issues can prove challenging to overcome when considering the proposed redevelopment of the site and, therefore, a range of documents has been published by industry leading organisations such as the BRE, CIRIA and BSI.

In the UK, the primary guidance used when assessing the risks posed by ground gases is BS 8485:2015 – The code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. This document was initially published in 2007 and then revised in 2015 to reflect changes in good practice and reference other supporting documents published since its inception. It provides a structured risk assessment process for determining the risk posed by common ground gases and outlines the appropriate measures for dealing with them.

The risk assessment process detailed in BS 8485 is based upon a site specific characterisation determined by any gas monitoring data collected during the site investigation. This information, coupled with the proposed building type e.g. residential, public, commercial or industrial, allows the user to identify the number of points required to achieve the necessary level of gas protection. The required points can then be achieved depending on factors such as the proposed foundation type, use of sub-floor ventilation and the inclusion of a gas membrane within the foundation design where required.

The updated version of BS 8485 has incorporated the following, when compared to its predecessor:

- an empirical method of assessing the ground gas regime without the need for gas monitoring
- more detailed guidance on interpretation of gas monitoring data
- 'zoning' of risk rather than assuming the worst-case scenario across the entire site
- changes to gas protection scores for each characteristic situation / building type
- added annexes on radon and volatile organic compounds (VOCs)
- comparative guidance on the sub-floor venting systems
- definition of the required properties for suitable gas membranes.

Once a designer has worked through the risk assessment process outlined in the British Standard, there is often a need to seek the advice of a manufacturer, particularly with reference to the potential requirement for a sub-floor venting system and suitable gas membrane. Venting can be achieved via a clear void in the case of beam and block floors for example, but more commonly where ground bearing, suspended cast in-situ concrete or raft slabs are proposed a 'void former' can be considered.

The relative performance of void forming systems can be found within the Partners in Technology Report – Passive venting of soil gases beneath buildings, extracts of which are now incorporated within the revised standard. This allows the designer to calculate the most appropriate venting system, taking into account the various factors of the proposed development.

Similarly, with regards to gas membranes, there is a range of products available that are marketed as a 'gas membrane' but the updated guidance has, for the first time, provided a list of physical and performance characteristics that a suitable product should meet. This should help designers identify the most appropriate product and allow them to discount those that do not meet the required standard.

As a market leading manufacturer in the field of gas protection, Cordek assists designers with interpreting the latest information available and recommends practical, cost-effective solutions to deal with the risks posed by ground gases and VOCs. Cordek has developed a range of venting and protection systems which have evolved through extensive research and development. Cordek's team of technical experts are on hand to provide suitable recommendations and technical support for a number of construction and engineering challenges, including ground gas protection.

For further information about how Cordek can help please visit our website at [www.cordek.com](http://www.cordek.com) or contact one of our technical team on 01403 799600.

#### References:

<sup>1</sup> [http://www.designingbuildings.co.uk/wiki/Brownfield\\_Land](http://www.designingbuildings.co.uk/wiki/Brownfield_Land)

<sup>2</sup> <https://www.gov.uk/government/news/brownfield-sites-to-be-prioritised-for-development>

