

Dealing with radon emissions in respect of new development : evaluation of site investigation methods for targeting areas where new development may require protective measures

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Abstract/Summary

Radon gas comes from uranium that occurs naturally in the ground. The variation in radon levels between different parts of the country is controlled by the underlying geology. Radon decays to form radioactive particles that can enter the body by inhalation. The decay products of radon has been linked to an increase in the risk of developing cancers of the respiratory tract, and it is considered to cause approximately 5% of deaths from lung cancer in the UK. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in dwellings of 200 becquerels per cubic metre (Bq m⁻³). The Government advises that where the radon level exceeds the Action Level, measures should be taken to reduce the concentration. In the early 1990s, early responses to radon problems in new development had limitations in that: – new development was not adequately covered in radon-prone areas which had not been designated as radon Affected Areas. – the mapping procedures used to identify areas where protective measures were required in new dwellings in some cases resulted in radon protection not being installed where it was needed. – they did not adequately cover material change of use or non-domestic development, including workplaces and public buildings. – procedures were not in place to ensure that developers were made aware of requirements for protective measures in new dwellings or of employers' responsibilities with regard to radon under the Health and Safety at Work etc. Act 1974 and the Health and Safety Regulations 1985 at the planning or pre-planning stage. – developers and future occupiers of buildings subject to material change of use (e.g. example from agricultural or workplace to domestic use (e.g. barn conversions)) but not subject to Requirement C2 of the Health and Safety Regulations 1991 were not necessarily made aware of the possible need for protective or remedial measures. These limitations were addressed by the Department of the Environment, Transport and the Regions (DETR) research programme 'Dealing with radon emissions in respect of new development' which aimed to identify the circumstances, if any, where new development may be adversely affected by radon emissions and the appropriate response to such problems. Fulfilment of these objectives will help to ensure that occupiers of non-domestic developments will be adequately protected against the harmful effects of radon. The research programme was led by the British Geological Survey (BGS) working in collaboration with the Building Research Establishment Ltd. (BRE), Land Use Institute (LUI) and the

the National Radiological Protection Board (NRPB). The report Dealing with radon emissions in new development: Sur recommended framework for planning guidance (Appleton et al., 2000) explains the background to dealing with radon highlights where improvements to the responses could be made and identifies the available options for dealing with radon including their relative advantages and disadvantages. The report also identifies the potential role of the planning system conclusions and recommendations on which option(s) would be most appropriate and effective for ensuring that new development is protected against radon emissions. This report summarises an evaluation of mapping and site investigation methods currently used in areas where new development may require radon protection. The report also describes the system adopted in revised guidance to determine the level of protection needed in new dwellings and discusses mapping and site investigation costs.

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