

Radon protective measures GIS

Guidance for new dwellings

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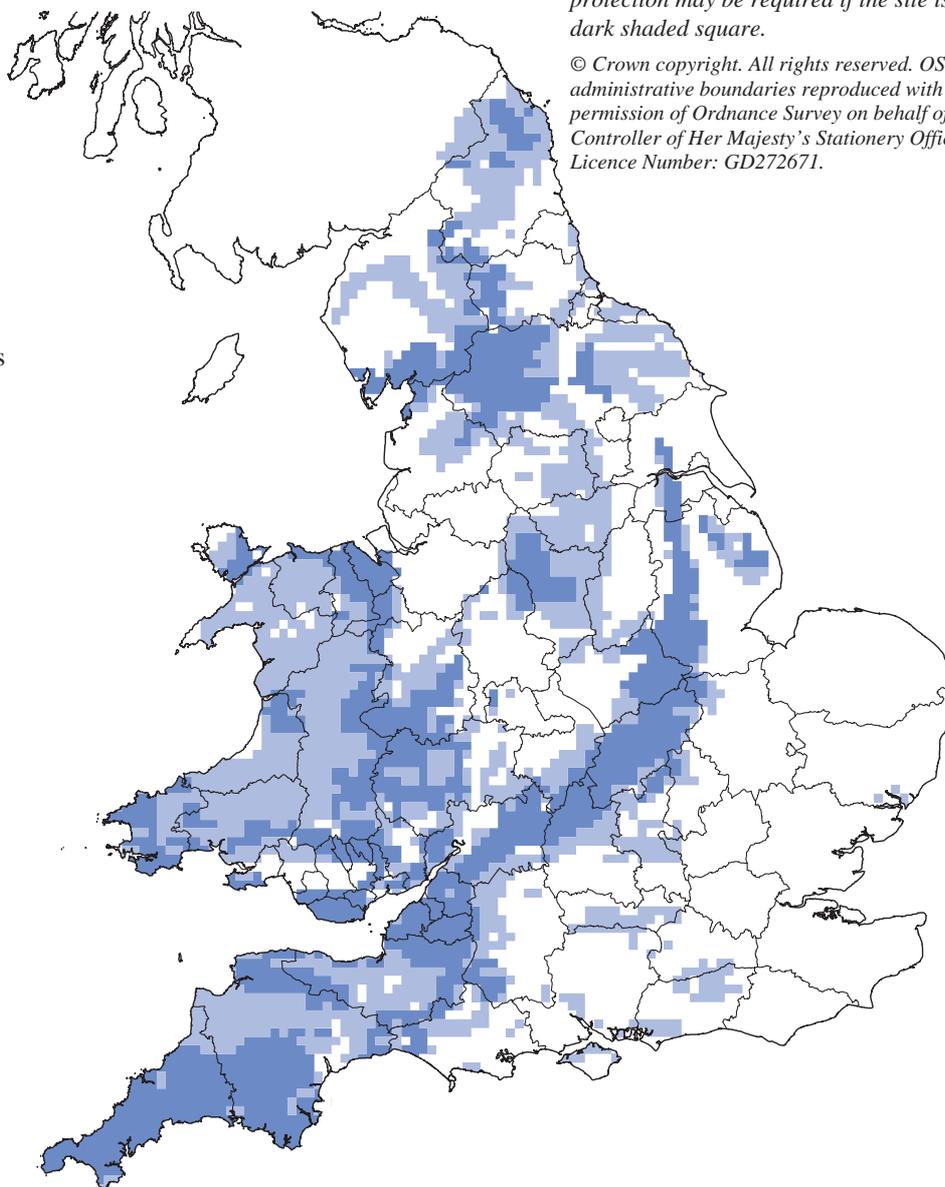
The variation in radon levels between different parts of the country is mainly controlled by the underlying geology so the radon risk for a new dwelling may, in general, be estimated from the radon potential of the geological units underlying the proposed development site. A new service to provide advisory reports on the requirement for radon protective measures in new dwellings and extensions has been launched by the BGS. These reports fulfil the requirements of the Stage 2 Geological Assessment outlined in revised guidance on the protection of new dwellings from radon gas (*BR 211: Radon: guidance on protective measures for new dwellings, 1999 edition*). BR211 (1999) brings together the best practice for protecting new homes against radon. It updates previously published guidance, details measures that must be incorporated in new dwellings and defines the geographical areas in England and Wales where radon protection is necessary. In addition to Cornwall and Devon and parts of Somerset, Northamptonshire and Derbyshire — which were covered in previous guidance — the guidance identifies new areas where radon protection will be needed. These are parts of the Yorkshire Dales; parts of Wales and the Welsh Border; North Oxfordshire; parts of the Midlands adjacent to the currently delineated areas in Derbyshire; Northamptonshire; and parts of Gloucestershire, the Lake District and Northumberland. There are also a few scattered areas in southeast England where these measures need to be applied.

There is a flow chart in BR 211(1999) that sets out a two-stage procedure to help

determine the level of radon protection required in new dwellings. In Stage 1, the five kilometre grid square radon potential maps produced by the National Radiological Protection Board (NRPB) are used to make the primary determination of the level of radon protection needed. In Stage 2, a second series of maps produced by the BGS is used to decide whether it is necessary to consider upgrading the requirement for protection

Areas where a geological assessment may need to be carried out to determine whether radon protective measures are required in new dwellings. This is a re-coloured version of Map 2, Annex B, BR211 (1999). Basic radon protection may be required if site is in a pale shaded square; full or basic radon protection may be required if the site is in a dark shaded square.

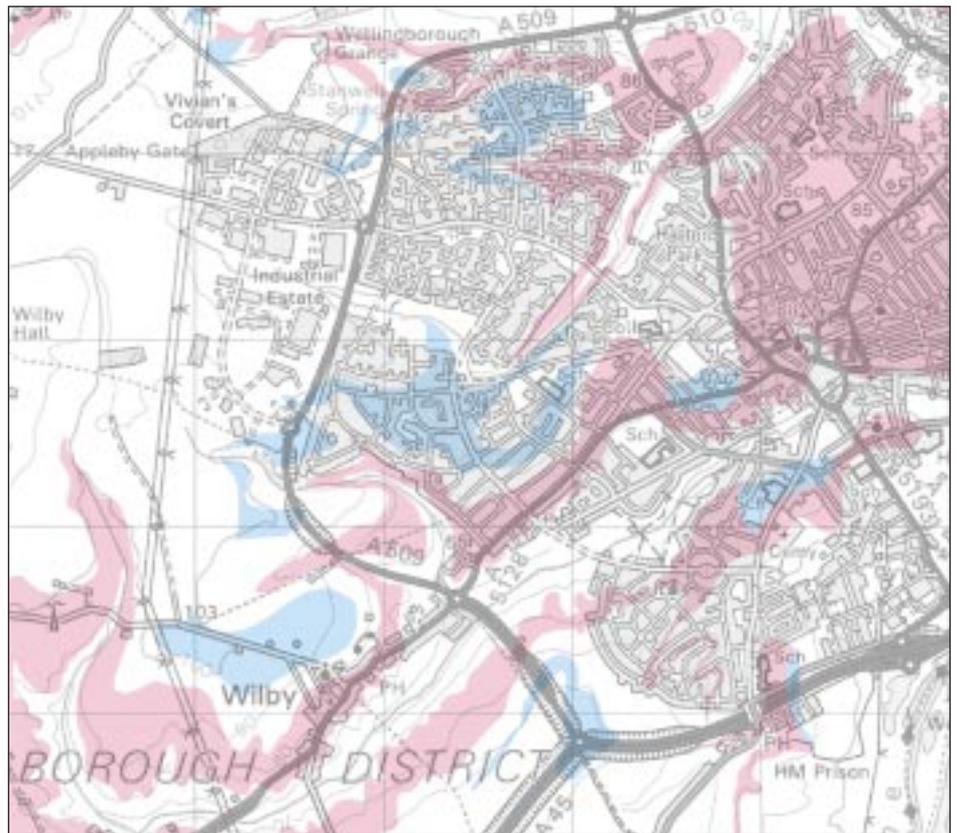
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indicated by Stage 1. This has the objective of avoiding cases of underprotection that might occur had the guidance depended solely on the average radon level in the five kilometre grid square indicated by the NRPB maps. The BGS maps show those five kilometre grid squares that are underlain, completely or in part, by geological units that require either basic or full protection to be installed in new dwellings.

A geological assessment may need to be carried out where the site falls within a shaded grid square on the BGS map in Annex B of BR211 (1999) (see map on facing page). The geological assessment checks whether a site is on, or close to, a geological unit which potentially exceeds the action levels for either basic or full radon protection. Consideration must be given to installing basic or full radon protection if the geological assessment shows that this is indicated. If a site falls within one of the shaded squares, it does not necessarily mean that it must have radon protection. This is because some of the grid squares contain bedrocks and unconsolidated (drift) deposits with lower radon potential than the maximum levels shown on the map. In many cases the geological radon potential varies considerably within a grid square. In other cases, only a very small area (sometimes only a few hundred square metres) with a radon potential exceeding the thresholds for basic or full protection occurs within the shaded grid square. The level of protection that might be required is thus site specific, and can be determined by reference to the relevant radon potential map in BR211 (1999) followed by a geological assessment of the site.

The BGS Radon Protective Measures Geographical Information System (RPM GIS) has been developed to provide Stage 2 Geological Assessments (RPM site reports). The RPM Site Reports are derived from a geologically based interpretation of radon measurements in dwellings which were provided to the BGS by the NRPB without prejudicing confidentiality undertakings to householders and the Department of the Environment, Transport and the Regions (DETR). The search area (which may be a circle or rectangle) for a site is increased by a buffer zone of 50 metres in areas with 1:50 000 scale data and 500 metres in areas with 1:250 000 scale



Geological radon potential map of part of the five kilometre grid square (485265) encompassing the western sector of Wellingborough, Northamptonshire. The map illustrates the distribution of areas for which basic (blue) and full (pink) radon potential measures are indicated.

Topography based on Ordnance Survey 1:50 000 Scale Colour Raster data with permission of The Controller of Her Majesty's Stationery Office © Crown Copyright. Ordnance Survey Licence number GD272191/2000.

data. This is to allow for potential inaccuracies in the position of the geological boundaries. The advisory report indicates the level of protection required within the buffered search area.

The RPM GIS currently comprises 1:250 000 scale data with more detailed information for twenty 1:50 000 scale geological map sheets covering the most radon-prone parts of Derbyshire, Northamptonshire, Nottinghamshire, Leicestershire, Lincolnshire, Oxfordshire, Shropshire, Somerset and Yorkshire.

An example of the 1:50 000 scale geological radon potential data for a single five kilometre grid square is shown on the map above.

The GIS is being upgraded to 1:50 000 scale as new digital maps become available through the BGS DigMapGB programme.

Radon Protective Measures (RPM) Site Report Request Forms may be obtained from:

National Geological Records Centre,
British Geological Survey,
Keyworth, Nottingham NG12 5GG

Telephone: 0115 936 3109,
Fax: 0115 936 3276
e-mail: ngrc@bgs.ac.uk

Background information and a report request form may be down loaded from the BGS web site
<http://www.bgs.ac.uk/radon>.

The cost of a RPM Site Report is £30 plus VAT (£35.25) for which prior payment is required by cheque (payable to NERC) or MasterCard, Visa, VisaDelta, JCB, Switch credit/debit cards.