

Environmental **Radon** Newsletter

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Health Protection Agency Board gives advice on radon measures for new homes

The following press release was issued on 21 May 2008:

The Board of the Health Protection Agency, having considered a paper from its Radiation Protection Division, has recommended that UK Building Regulations and Standards should be changed to ensure that all new property incorporates the basic materials and measures necessary to reduce internal radon levels. This will apply also to new extensions and to any other changes to property where the Building Regulations and Standards apply.

Sir William Stewart, Chairman of the Health Protection Agency, said: "People often don't realise that their most significant exposure to radiation may be in their own home from naturally occurring radon gas. Modern buildings tend to have low ventilation levels for valid energy conservation reasons, but this can have the drawback of encouraging the build-up of radon gas concentrations. Relatively straightforward measures taken during building construction can significantly reduce radon levels and we are recommending that building regulations should be amended to ensure these measures are carried out in all new build."

Radon is a naturally occurring radioactive gas that seeps from the ground into all buildings to some extent. Levels of radon inside buildings depend on a number of factors, including the local geology, the type of foundation, the positioning of service

pipe work and internal ventilation levels. Relatively simple measures can be taken when building new homes and other properties that will significantly reduce radon gas levels. For example, the installation of gas proof membranes in the foundations is a measure that could be taken without undue extra cost at the building stage.

Smoking is by far the greatest risk factor for lung cancer, causing more than 30,000 cases each year. However, radon is the second most common cause of lung cancer in the UK, with estimates of up to 2,000 cases per year, and there is evidence that smoking increases the risk from radon. An important way to reduce the number of lung cancers due to radon is to reduce average radon levels in the home. It has been shown that basic protective measures in new homes can halve average radon concentrations.

Notes:

Detailed advice from the Agency's Board is being given to the Department of Health (DH) on this topic. This follows a formal request from DH to the Health Protection Agency following recommendations made to it from the Committee on Medical Aspects of Radiation in the Environment (COMARE).

DH has the responsibility for advising the Department for Communities and Local Government (DCLG) about radon and DCLG are, in turn, responsible for the Building Regulations in England and Wales.

Radon survey results wanted

The radon maps produced by the Health Protection Agency (HPA) and the British Geological Survey (BGS) are based on the results of radon measurements in homes. The more results that are available, the more accurate the maps can be. If your council has carried out a survey of radon in homes, would you consider passing the results on to HPA for inclusion in the mapping database?

To preserve confidentiality, the results may be passed on with only a postcode to identify the location of each home. (If your detectors were supplied by NRPB or HPA, then we already have the results, thanks.)

If you think you may be able to help, please contact Jon Miles at jon.miles@hpa.org.uk.

POINTS OF CONTACT

Building Research Establishment (BRE)
Garston, Watford, WD2 7JR
www.bre.co.uk/radon

Radon Survey
Radiation Protection Division,
Health Protection Agency
Chilton, Didcot, OX11 0RQ
Tel 01235 822622
Fax: 01235 833891
www.hpa.org

Welsh Assembly Government
Housing Division
Cathays Park, Cardiff, CF1 3NQ
Tel: 01222 825219
Fax: 01222 825391

Environment and Heritage Service
Klondyke Building, Cromac Avenue
Gasworks Business Park
Lower Ormeau Road
Belfast BT7 2JA
Tel 02890 569305
Fax 02890 569263

Scottish Executive Development Department
Housing Division I
First Floor East, Victoria Quay
Edinburgh, EH6 6QQ
Tel: 0131 244 5575
Fax: 0131 244 5596

Health and Safety Executive
Health Directorate B6
Rose Court, 2 Southwark Bridge
London, SE1 9HF
Tel: 020 7717 6854
Fax: 020 7717 6717

Radon South West Committee
Secretary: Gerald Hudd
46 Parkfield Drive, Taunton
Somerset TA1 5BU
Tel: 01823 355194
email: GAHudd@Somerset.gov.uk

Derbyshire Radon Steering Group
c/o Environmental Health Department
Derbyshire Dales District Council
Town Hall, Matlock
Derbyshire, DE4 3NN

The Radon Council Limited
PO Box 39, Shepperton
Middlesex, TW17 8AD
Tel: 01932 221212
Fax: 01932 229779

Laboratories validated by HPA for making measurements of radon concentrations in homes are listed at: www.hpa.org, search for 'Validation scheme'.

To obtain a report on the requirement for radon protective measures for building sites, go to <http://shop.bgs.ac.uk/Georeports>

To obtain an estimate of the probability that an individual property in England and Wales is above the Action Level for radon, go to www.UKradon.org

Community involvement in radon surveys

Nicky Stopps, Health Protection Agency, nicky.stopps@hpa.org.uk

The Health Protection Agency (HPA, formerly the National Radiological Protection Board, NRPB) has undertaken many surveys of radon in homes over the past 20 years. In most cases the surveys have been carried out by sending invitations by post. The methods used have changed over the years, as we have developed ways to achieve a higher response rate.

In 1991-1992 the Government carried out a leaflet drop to 640,000 homes, using unaddressed leaflets inviting householders to post in an application form. The response rate of 12% was seen as high for this type of approach. In 1994, a survey carried out in Somerset by NRPB used a different format: letters addressed to the householder and including a reply pre-paid envelope. This increased the response rate to 27%.

During the period 1996-1998 a number of surveys were carried out in England, getting an average response rate of 27%. This included repeat surveys of areas which had been covered earlier, resulting in a reduced response. The highest response rate was 34%, in an area where there had been little previous contact.

After 1988, a number of pilot studies, commissioned by DEFRA, were undertaken in cooperation with local authorities in which different strategies were tested. Householders in Derbyshire were sent a letter offering a free radon test, and asked to send their reply to the local authority, who passed it to NRPB. In Cherwell, a publicity campaign was launched advising of the dates, times and location of an advice bus; a free test could only be obtained by attending. The resulting number of tests carried out in Derbyshire was far larger than in Cherwell.

A major change in strategy followed the pilot studies, local authorities became actively involved in running the surveys. Each survey plan was agreed with the local authority, and while HPA provided all the logistical support and literature with government funding, the councils became the public face, providing staff effort to

deal with queries and liaise with HPA.

Some surveys continue to be more successful than others. For example, one survey achieved only a 14% uptake, due to a requirement for the householder to telephone the council to accept the offer rather than returning a signed slip.

We have also experimented with different styles of letter. In a Scottish survey we used two different letters, one of which was the standard letter used for some years, the other was shorter, more direct and included the main points in bold text. The shorter letter achieved a 51% uptake compared to 49% for the standard letter. A 2% difference may seem insignificant, but on a survey of 42,000 homes a 1% increase in take-up means more than 400 extra homes tested.

In addition to the changes in the organisation of surveys, wherever possible we encouraged householders to take part by obtaining endorsements from local bodies such as NHS Primary Care Trusts, other local health professionals and organisations such as Surestart, the governments pre-school child-care initiative.

As a result of the changes in methods, most of our recent surveys have achieved around a 40% positive response rate, despite many of them being in areas that have been intensively surveyed before. Involvement of local authorities and other local stakeholders in the planning and execution of the surveys has not only increased the take-up, but also increased the local expertise on radon, and provided HPA with new ideas to assist householders.

Tackling radon in workplaces: HSE and Local Authority partnerships

Gareth Thomas and David Orr, Health and Safety Executive, Gareth.Thomas@hse.gsi.gov.uk, David.Orr@hse.gsi.gov.uk

The Health and Safety Executive (HSE) and Local Authorities (LAs) are responsible for enforcing the regulations relating to radon in the workplace. Information on the employer's legal responsibilities to carry out a risk assessment and undertake measurements where appropriate are provided on the HSE website at: www.hse.gov.uk/radiation/ionising/radon.

It is estimated that there are 90-280 lung cancer deaths every year as a result of exposure to radon in the workplace. However, less than 8% of employers in radon Affected Areas have considered radon in their premises. In issue 47 of this Newsletter, we described various initiatives forming the HSE Workplan for making employers aware of their responsibility for assessing radon risks to employees. One of the most important initiatives was working with LAs. In this article we describe some of the support that the HSE Radiation Team has provided to Environmental Health staff tackling the issue.

EXAMPLES OF HSE SUPPORT TO LOCAL AUTHORITIES

Local and regional radon initiatives

- Supporting LAs throughout the country to develop their annual work plans and establish radon as a local FIT3 or local "matter of evident concern" issue.
- Helping groups of LA representatives to plan radon initiatives on a county-wide basis to enable maximum impact for the resources available.
- Assisting in the practical application of the new radon indicative atlas, digital dataset and the use of A0-sized Affected Area maps in inspection programmes.
- Sharing the ideas and experiences of other LAs and putting relevant groups and individuals in contact with each other.
- Describing actions already taken by large national organisations such as banks, building societies, and brewery chains.
- Raising awareness of current radon issues and developments such as the HSE/Department of Health/Health Protection Agency programme to address radon in primary and secondary schools (described in issue 54 of this Newsletter).
- Carrying out inspections of HSE-enforced premises in areas which LAs are targeting for detailed inspection.
- Providing advice on radon mailshot campaigns based on HSE experience.

Inspections and inspector packs

- Supplying example inspection and enforcement letters (accessible to Local Authorities on the HELA extranet).
- Providing enforcement advice such as application of the

regulations in specific types of premises, interpretation of measurement results in premises with staff sleeping quarters, and advice on radon exposures in premises with very low occupancy.

- Giving practical inspection tips.
- Linking radon in the workplace with employees' domestic exposures.

Enforcement officer training

In conjunction with the South West Radon Committee, the HSE provided training to 60 Environmental Health Officers (EHOs) in the South West in November 2007. We have also run local training events for smaller groups of EHOs and undertaken joint training visits.

Local Authority website information

Most LAs have little information on radon in the workplace on their websites, so the HSE Radiation Team has provided advice on web site content. Websites should describe the local issue and include a link to the HSE website for detailed regulatory advice.

Publicity

Many local radon initiatives start with a publicity campaign to raise employers' awareness of their responsibilities and of the forthcoming inspection programme. The HSE have assisted in drafting articles for press releases, local trade journals, and LA Health and Safety Newsletters.

Awareness meetings with employer groups

- Assisting in organising local business Health and Safety events and radon evening seminars for invited employers.
- Providing support to EHOs attending meetings with local Chambers of Commerce, business representatives, and Trading Estate management forums.
- Assisting in the planning and preparation of Health and Safety Awareness Days and providing templates for PowerPoint presentations.

Conclusions

Radon is a potential major source of radiation exposure in all types of workplace. Since most employers and employees appear completely unaware of these risks, LAs in many parts of the country can have a significant impact on doses for relatively little resource application. In particular, experience has shown that LAs and the HSE working together in this area maximises our collective influence. The HSE Radiation Team has been very impressed by the work and initiatives of many LAs over recent years and are keen to continue to provide the types of support described above.

If you would like to discuss possible support to your Authority from the HSE Radiation Team then please contact the regional HSE/LA Partnership Liaison Officer or email the authors.

Using the new England and Wales radon map

Jane Smithard, Health Protection Agency, jane.smithard@hpa.org.uk

The new radon map for England and Wales was produced jointly by the Health Protection Agency (HPA) and the British Geological Survey (BGS) and published in November 2007 (see Environmental Radon Newsletter 51). At the same time HPA and BGS made available the underlying map data in GIS format, map extracts for Building Regulations and the on-line search website www.UKradon.org.uk.

Recent discussions with councils and professionals have revealed that there is some confusion over which source of information should be used to determine the radon potential for a property or development site. It is worth clarifying the following points:

- The new Atlas is indicative and shows the *highest* radon potential within each 1-kilometre square of the UK national grid in England and Wales. Squares allocated a greater than 1% potential may include some areas with a lower probability. Previous maps were definitive and gave a single radon probability band for the whole square. The new Atlas is only definitive for the squares with a less than 1% potential, as these contain no radon Affected Areas.
- For each 1-km square, the highest radon potential was obtained from the full underlying data set. This data set is the current definitive source of radon potential. Radon Affected Areas are defined as those areas in this data set with a 1% or higher potential of homes being above the radon Action Level. Building Regulations apply in the 3% and higher radon potential areas.
- The full underlying data set is used for the on-line search facility. Each individual building in the current Royal Mail

list of delivery points is allocated the radon potential given for that point in the full underlying data set.

- The maps provided for Building Regulations show the maximum level of radon protection required for new buildings, conversions and extensions in each 1-km square. These maps are definitive only for the squares where no protection is required.

Source

Use

Indicative Atlas of Radon in England and Wales

Published report HPA-RPD-033, free download from www.hpa.org.uk

To check whether a search of the definitive data is needed before deciding on whether or not to arrange a measurement.

Conservative risk assessments, particularly for workplaces and other large buildings, where tests are planned for all buildings in 1-km squares showing greater than 1% potential.

Indicative Building Regulations Maps (BR21 I 2007 Annex A)

Free download from www.bre.co.uk/radon/protect.htm

To check whether a search of the definitive data is needed before deciding on the level of protection needed.

Conservative check by developers opting to fit the maximum level of protection required in a 1-km square.

GIS data

Via licence from BGS (prices based on the area required)

Bulk definitive searches for buildings or land, normally used by search providers and local authorities– also determines whether or not Building Regulations apply.

UKradon website

www.UKradon.org.uk (£3.53 per search)

Definitive searches on-line for homes and small workplace buildings in England and Wales – also determines whether or not Building Regulations apply. Not appropriate for large buildings or development sites.

BGS Georeports

<http://shop.bgs.ac.uk/Georeports> (£47.00 per search)

Definitive searches provided through BGS website for Building Regulations BR21 I 2007 (Buildings and Land).

HPA postal searches

Email: Radon@hpa.org.uk (£23.50 per search.)

Definitive searches by post for homes and small workplaces – also determines whether or not Building Regulations apply. No land searches undertaken (see BGS Georeports).

Indicative searches for large workplaces.

HPA strategic assessments

Email: Radon@hpa.org.uk (variable cost)

Strategic assessments (variable data source according to requirements).

Sources of radon probability information for England and Wales and how they might best be used. Published prices include VAT.

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