

Environmental **Radon** Newsletter

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The HSE Action Plan to inform employers of their responsibility for radon risks to employees

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Together the Health and Safety Executive (HSE) and Local Authorities regulate health and safety in the workplace through provision of information and advice and, where appropriate, various enforcement methods. Employee exposure to radon in workplaces located in radon

Affected Areas is regulated in the same manner. The statistics for workplace radon risks and the employer's legal responsibilities to carry out a risk assessment and, in most cases, undertake measurements, were described in Issue 37, Winter 2003, of this Newsletter.

During a series of inspections in 2003 and 2004, HSE and Local Authorities confirmed their belief that the vast majority of employers with workplaces located in radon Affected Areas have not assessed the radon hazard in relation to the protection of their employees – despite the potential risks. Consequently, in 2005 HSE Field Operation Directorate Radiation Team embarked upon a 5-year national action plan aimed at reducing workplace exposures and possible resultant fatalities.

The action plan contains 13 initiatives targeted at ensuring employers in radon Affected Areas are aware of their responsibilities to assess the risks and, where appropriate, reduce exposures.

Although the initiatives summarised below currently form part of a HSE workplan, progress has been made to link with relevant Local Authorities and other organisations such as the Health Protection Agency (HPA).

HSE Radon Action Plan

The initiatives broadly fall into three coordinated categories, namely; provision of general information

Statistics:

1. Second largest cause of lung cancer in the UK after smoking.
2. Estimated 90 to 280 lung cancer deaths per year result from exposure in the workplace.
3. Approximately 10% of the 160,000 workplaces located in radon Affected Areas are likely to have levels in excess of legal action level.
4. Measuring radon is simple and cheap.
5. Established building techniques can virtually eliminate radon in the workplace for good.

Do I need to measure radon?

Is the workplace in a radon Affected Area?

Yes

Are parts of it at or below ground level?

Yes

Are ALL of these parts open to the outside throughout the working day?

No

MEASURE LEVELS

and advice, working with stakeholders and intermediaries, and direct contact with employers. Many of these initiatives will be developed further during 2006 but those relating to publicity, availability of HSE workplace guidance, and direct communication with employers in the most seriously affected areas, commenced in 2005.

continued on back page

POINTS OF CONTACT

Building Research Establishment (BRE)
Garston, Watford, WD2 7JR
BRE Radon Hot Line:
Tel: 01923 664707 Fax: 01923 664010
www.bre.co.uk

Radon Survey
Radiation Protection Division, Health
Protection Agency
Chilton, Didcot, OX11 0RQ
Radon Freephone: 0800 614529
Fax: 01235 833891
www.hpa-rp.org.uk/radiation

Department for Environment,
Food and Rural Affairs
Zone 4-F7, Ashdown House
123 Victoria Street, London SW1 6DE
Tel: 020 7082 8497/8498 Fax: 020 7082 8474
www.defra.gov.uk

National Assembly for Wales
Housing Division
Cathays Park, Cardiff, CF1 3NQ
Tel: 01222 825219 Fax: 01222 825391

Environment and Heritage Service
Department of the Environment for
Northern Ireland
Calvert House, 23 Castle Place
Belfast, BT1 1FY
Tel: 01232 254754 Fax: 01232 254700

Scottish Executive Development Department
Housing Division 1
First Floor East, Victoria Quay
Edinburgh, EH6 6QQ
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Health and Safety Executive
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Rose Court, 2 Southwark Bridge
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Northern Radon Liaison Group
c/o Environmental Health Department
South Lakeland District Council
South Lakeland House, Lowther Street
Kendal, Cumbria, LA9 4UD

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

Steering Group on Radon
(Northamptonshire and elsewhere)
Environmental Health Department,
Daventry District Council
Lodge Road, Daventry
Northamptonshire, NN11 5AF.

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

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Middlesex, TW17 8AD
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Feedback on UK Radon Forum

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

The fourth meeting of the UK National Radon Forum was hosted by the Radiation Protection Division of the Health Protection Agency (HPA-RPD) in December 2005 (see Environmental Radon Newsletter 46). To ensure that future Forums are as useful and relevant as possible, questionnaires were issued to delegates, seeking their opinions on various aspects of the day. The questionnaire asked delegates to rate each presentation, and to identify the day's highlights and missing features.

Of the 80 questionnaires that were sent out, 40% were returned, with the majority of the feedback being very positive. Overall the presentations were rated highly with the average score for the majority comfortably towards the excellent side of the mid-point. Gareth Thomas (Update on Radon in the Workplace) and David Gell (Remediation experience from a local authority standpoint) scored particularly highly. Other popular presentations were those from Jill Meara (Radon risks: recent developments and possible implications) and Jon Miles (New radon mapping incorporating data and geological information).

Gratifyingly, 31 of the 32 people who returned the questionnaires said that they would attend the forum again with the south of England being the preferred location and the HPA-RPD lecture theatre and associated facilities were highly praised. The most mentioned highlight of the day was having the opportunity to network with other people who share similar concerns about radon. This was closely followed by the technical content, different approaches and glimpses of possible future developments contained within many of the presentations. The visits to the radon measurement laboratory proved very popular with each of the three time slots full to capacity.

The majority response to the question "Was anything missing from the day?" was either "no" or left blank. The omissions identified by delegates included a summary of progress in Europe, the opportunity for discussion groups, and a final summing up session. The organisers intend to consider these comments for the next forum (see below)

but must also take account of those who would have preferred coffee and comfort breaks.

The overwhelming response from the general comment section of the questionnaire was very positive. Comments were made that the venue was in a good location with good travel links and that the day was very

informative and well

organised. On the negative side was the fact that travel time made it a long day. Delegates would prefer a mid-week date to ease travelling, though booking pressures on the RPD training centre for preclude this for the 2006 event.

The organisers are encouraged by the positive response to the first forum to be held without the benefit of EU funding. The format of a series of short concise presentations was well received. The additional benefit of creating a forum for open and unfettered exchange of views and the opportunities for networking was much appreciated by the delegates. It is hoped that we can build on this experience and incorporate at least some of the omissions noted above in the next forum – however the time and budgetary constraints have also to be considered.

HPA-RPD is planning to hold the fifth meeting of the UK National Radon Forum on Friday 1st December 2006. If you would like to be put on the mailing list for information on this forth-coming event, please e-mail radon@hpa-rp.org.uk.

Questionnaire - Radon Forum '05

Please tick the box that most accurately indicates how you rated the presentations at the Forum on Friday 2nd December. The boxes range from 1 being poor - 5 excellent.

	Poor 1	2	3	4	Excellent 5
Morning Session:					
Jill Meara, Radon risks: Recent developments and possible implications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ronnie Alexander, Radon in Wales.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Robert Larmour, Radon in Northern Ireland.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Martyn Green, Radon in Scotland.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Martyn Green, Radon in England.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jon Miles, New radon mapping incorporating house radon data and geological information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gareth Thomas, Update on Radon in the workplace.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Afternoon Session:					
Tony Denman and Brian Abern, Do interventions reduce radon levels Adequately in new houses? The radon council's view of these findings. Are short-term measurements of value in support of radon remediation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
David Gell, Remediation experience From a local authority standpoint.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chris Suliver, Understanding failures in radon protection for new buildings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Michael Johnson, New Build: Preventative Measures and possible changes after new advice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Effectiveness of radon protective measures in rural areas

Peter A Lilley, Building Control Officer, Derbyshire Dales District Council, peter.lilley@derbyshiredales.gov.uk

Protecting against the ingress of radon gas in new dwellings has been mandatory in Derbyshire Dales District Council's area for 12 years, and yet radon related works are still sometimes missed on site. Because concerns have been voiced over the effectiveness of the installation of radon barriers in new dwellings, I was asked to answer the following question:

“How are rural authorities checking that the correct radon provisions are being implemented on new build, and to what extent are works adequate or otherwise on site?”

To answer this question it was necessary to:

- Gather information from site inspectors and operatives
- Determine what Building Control achieves in this area
- Determine how there can be improvement

The Building Control Officers view

Builders often do not consider the project in any depth, and apply standard solutions to all situations, resulting in problems. It became apparent that the major area of concern centred on workmanship. There is lack of attention to detail. Examples of problems include:

- Inadequate sealing of membrane in stepped floor slabs and in split level semi-detached dwellings.
- Use of inappropriate materials, for example use of sticky tapes in wet or adverse weather conditions when joining plastic sheets.
- Poor standard of workmanship when trying to joint materials, particularly when using glues and also when fixing around obstacles such as service pipes.
- Builders may purchase incorrect jointing tape and PVC membranes, not just because of price but often because the builder's merchant does not have the correct material in stock.
- Standards are higher on a dry sunny day than on a cold wet day. During times of inclement weather, work is rushed resulting in jointing tapes left out and folds left in the membrane leading to poor jointing, allowing leakage to occur.
- Membranes may be punctured due to lack of care.
- Bending PVC membranes and attaching them to damp proof courses or cavity trays can also be a source of construction defects, particularly when concrete is poured.
- Owing to time constraints Building Control cannot always check that remedial works to radon membranes have been completed.

Many contractors, however, do currently get the installation right and are aware of what is needed. These tend to be large house-building firms who have adequately researched radon problems. They have detailed procedures in place to ensure the construction is correctly carried out.

Also, when a Housing Association initiates the work, a Clerks of Works is generally employed with a result that there is more site supervision and a proper standard of installation is achieved.

The small builder with a good reputation, who only builds

locally, tends to be a competent installer. Such a builder can also act as a source of advice for members of the public wishing to undertake remedial measures where they have a high radon level in their property.

The Building Control Inspector

As a rule the Building Control Inspector sees all membranes, but it is much less likely that the method of jointing, or the jointing tape, is actually seen. Thermal insulation is frequently laid on top of the membrane before an inspection. In such cases the Inspector is less likely to see all joints in the membrane or other possible defects.

Because of the geography of a rural area it is not always practical for the Inspector to return at a particular time, and consequently radon preventive works can go unseen. The complexity of the inspection will vary, depending upon how much time the inspector can spend on a particular site. On some days the Inspector's time may be very limited and no more than quick viewing can be achieved.

As other Building Regulations are revised, the Inspector's attention is drawn to these changes, leaving less time to be spent on long-standing issues such as radon.

How to improve

- The architect, when producing construction drawings, must be more informative about the design details for the exclusion of radon gas, and make the detailing simple both to understand and to construct.
- Building operatives need to keep up to date, and it is essential that the operatives installing membranes understand what they are installing and why.
- The Building Inspector could very often help by providing information sheets with typical details, and ensuring this information is made available in time for the relevant stage of work.
- Building Control can also inform clients and house owners of the potential problems of not installing barriers. The client can use this information to apply pressure to persuade the developer to make a satisfactory installation.

The Building Regulations

Other parts of the Building Regulations now require mandatory tests for certain elements of the construction. Such a test could be introduced for radon, requiring a measurement in all new buildings, and the result of the measurement included in the forthcoming home buyers pack.

Legislation needs to be easier to understand. Builders will co-operate with legislation if it is understandable, and if “deemed to satisfy” clauses are included, which can be used as a fall back position.

There should be a further national awareness campaign to bring the Regulations to the forefront of builder's minds.

However, on reflection, I am only aware of one disaster in a new property in Derbyshire Dales District Council's area, where the radon level exceeded 200 Bq m⁻³. I conclude that whilst works are not perfect, they are generally adequate in limiting the ingress of radon gas.

The HSE Action Plan to inform employers of their responsibility for radon risks to employees

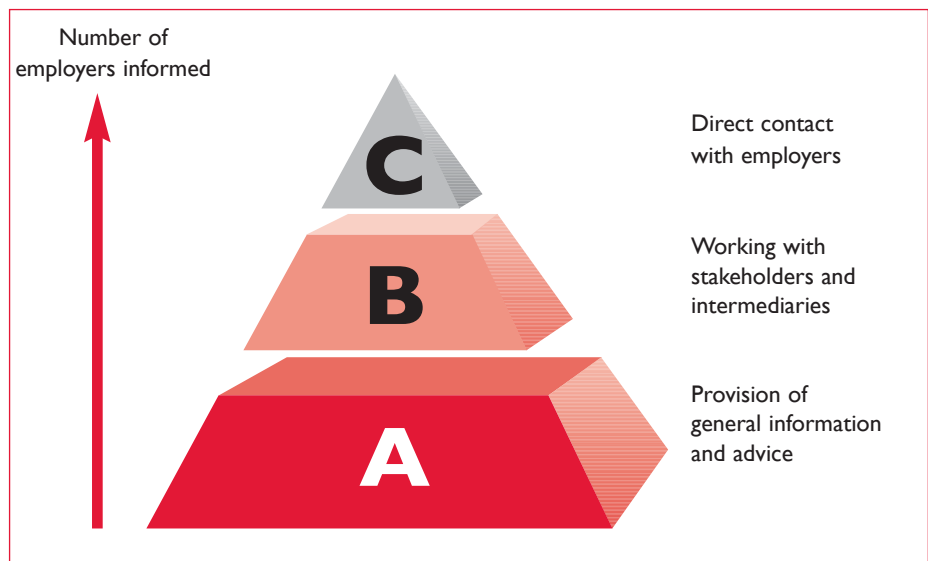
Continued from front page

A. Provision of general information and advice

- 1. Publicity campaign (including articles in professional journals).** Coordinated long term publicity regarding all initiatives and overall programme including public and technical media.
- 2. Update HSE guidance on radon.** See new February 2006 guidance on www.hse.gov.uk/radiation/ionising/radon
- 3. Health & safety training programmes.** Examine methods of including/ increasing radon awareness in health and safety training programmes of professional bodies and education establishments.

B. Working with stakeholders and intermediaries

- 4. Joint action with other government departments and Local Authorities.** HSE works closely with many government departments, Local Authorities, non-departmental public bodies such as the HPA, and the devolved administrations in Wales and Scotland. Ways of coordinating efforts between various health programmes are being developed.
- 5. Encourage professional bodies and organisations to raise the profile of workplace exposures.** Many employers obtain their health and safety information through professional organisations.
- 6. Joint initiatives with Trade Unions.** HSE and Local Authorities often work with trade unions and their employee safety representatives to influence health and safety in the workplace. A number of unions have called for increased action on radon.
- 7. Advice from Building Inspectors during their routine work and new permissioning regime for building change of use.** Increased liaison with the Building Research



Establishment (BRE) to raise awareness amongst Local Authority Building Control Officers and Approved Inspectors.

C. Direct contact with employers

- 8. Routine inspection by HSE inspectors during their normal work.** Include inspection of radon in HSE inspections of all employers' premises located in radon Affected Areas.
- 9. Advice from HSE Health and Safety Awareness Officers (HSAOs) during their routine work.** HSE has recently employed 50 HSAOs throughout the UK to further improve the provision of advice and information to employers.
- 10. Intensive inspection programmes in selected high radon areas.** Inspection of a large number of employers over short periods. The first two of these took place in spring and autumn 2005.
- 11. Targeting large employers through head offices.** Contacting large employers and national organisations, including government and Local Authorities.
- 12. Targeted mail shots in very 'hot' local areas.** Mail-shots in specific

local areas informing employers of legal responsibilities.

- 13. Closer work with Local Authority Health & Safety inspectors.** HSE to provide increased support for local initiatives including training provision and joint inspections of workplace premises.

Conclusions

Radon is overwhelmingly the major source of ionising radiation exposure to the workforce, although most employers and employees appear unaware of it. The risk posed to life from excessive radon exposure at home and at work is significant and justifies additional resource allocation in informing employers of their responsibilities.

It is hoped that the implementation of the initiatives described above by the various stakeholders working together will maximise their collective influence on radon health and safety in workplaces. It is also hoped that increased awareness in the workplace will result in increased awareness of employees themselves in relation to their domestic exposures. For further information about radon in workplaces, links to other relevant websites, and contact details, try the HSE website at www.hse.gov.uk/radiation/ionising/radon.