HPK/2012/0630

UKradon - Radon Risk Reports

British Geological Survey

-5 NOV 2012

Radon Risk Report for addresses in England and Wales

Issued by the Health Protection Agency and the British Geological Survey using Address PointÂ®. Fee paid Â£3.00 + VAT. Email receipt issued by Secure Trading Ltd.

Address searched: 69 West Road, Buxton, SK176HQ

Numerical grid reference for this address:

405509 East

372882 North

Date of report: 05/10/2012

Guidance for existing properties

Is this property in a radon Affected Area? - YES

The answer to the standard enquiry on house purchase known as CON29 Standard Enquiry of Local Authority; 3.13 Radon Gas: Location of the Property in a Radon Affected Area is:

Yes, this property is in a Radon Affected Area as defined by the Health Protection Agency.
The estimated probability of the property being above the Action Level for radon is: greater than 30%

The result may not be valid for buildings larger than 25 metres.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the Health Protection Agency. HPA advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and the results of re-testing confirmed the effectiveness of the measures.

Further information is available from HPA or www.ukradon.org.

Guidance for new buildings and extensions to existing properties

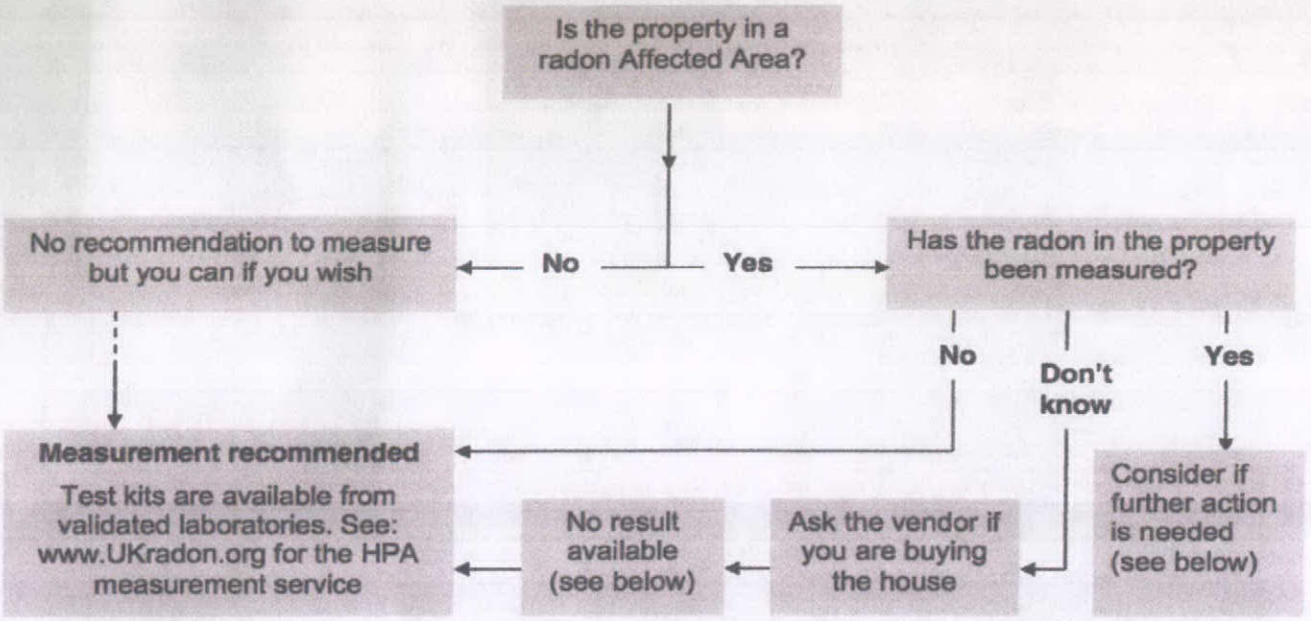
What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - Full Protection

If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

Report design 27 July 2011. V 2012.8

HPA guidance for occupiers and prospective purchases



Existing radon test results: There is no public record of individual radon measurements. Results of previous tests can only be obtained from the seller. Radon levels can be significantly affected by changes to the building or its use, particularly by alterations to the heating and ventilation which can also be affected by changes in occupier. If in doubt, test again for reassurance.

Radon Bond: This is simply a retained fund, the terms of which are negotiated between the purchaser and the vendor. It allows the conveyance of the property to proceed without undue delay. The purchaser is protected against the possible cost of radon reduction work and the seller does not lose sale proceeds if the result is low. Make sure the agreement allows enough time to complete the test, get the result and arrange the work if needed.

High Results: Exposure to high levels of radon increases the risk of developing lung cancer. If a test in a home gives a result at or above the Action Level of 200 Becquerels per cubic metre of air (Bq/m3), formal advice will be given to lower the level. Radon reduction will also be recommended if the occupants include smokers or ex-smokers when the radon level is at or above the Target Level of 100 Bq/m3; these groups have a higher risk. Information on health risks and radon reduction work is available from HPA. Guidance about radon reduction work is also available from some Local Authorities, the Building Research Establishment and specialist contractors.

HPA designated radon website: http://www.ukradon.org
Building Research Establishment: http://www.bre.co.uk/radon/reduce.html

Mechanical underfloor ventilation

Fans

For average sized dwellings a single fan should be adequate. The fan should have a flow rate such that it can exchange the air in the underfloor space between 3 and 10 times an hour (or an approximate power rating of 75W check with your stockist as some manufacturers are introducing lower wattage fans) and be able to run continuously throughout the year. The fan may be either axial or centrifugal. A list of companies known to supply suitable fans is available from BRE.

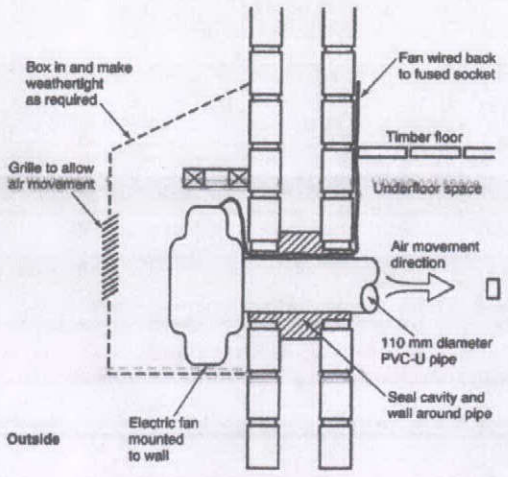
Fans can be installed to blow air into the underfloor space (supply ventilation) or suck air from it (extract ventilation). Both extract and supply ventilation have been used successfully, but it is hard to say which is best for any particular dwelling. Success depends on many factors, including soil permeabilities, floor 'leakiness', the number and position of airbricks, etc. The usual approach is to try one method, and if that does not work reverse the fan, i.e. use supply instead of extract ventilation or vice versa.

Fan wiring

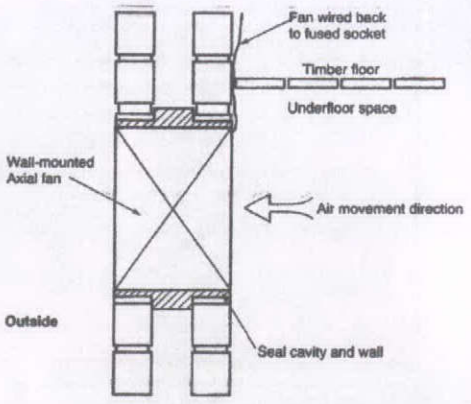
Fans should be wired in accordance with BS 7671: 2001 as amended, Requirements for Electrical Installations, the IEE Wiring Regulations.

Positioning the fan

Where a fan is to be exposed to weather it should be of a type that is suitably protected. It will need to be protected to level IP54 as classified in BS 5490.



Mechanical supply ventilation with fan mounted outside



Mechanical extract ventilation with a wall-mounted axial fan

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The fan manufacturer or supplier should be able to confirm that the chosen fan complies with this requirement. If the fan does not meet this level of protection the fan will need to be mounted within a suitable weatherproof housing.

Where a fan is fixed to a house wall, it may be connected to an existing ring circuit through a fused connection unit with a double pole switch. Where the fan is remote from the house, it must be on its own Residual Current Device RCD-protected circuit running from the consumer unit and capable of isolation by means of a double pole switch.

The fan can be mounted outside possibly in a weathertight box with a grille to protect it. But it can be mounted beneath the floor and so hidden from view, but this is likely to increase the noise levels in the rooms above. Avoid locating inlets or exhausts close to doors or windows.

To avoid noise problems position the fan away from noise-sensitive areas, such as living rooms or bedrooms. Fans located beneath floors may need to be fitted with a silencer.

Do not install an extract fan within 1.5m of an airbrick as it may simply draw outside air through the air brick instead of drawing air from the floor void.

Additional points to consider

Check whether services routed under the floor, particularly central heating or water pipes, could be put at risk from freezing and insulate vulnerable pipework. Avoid locating a fan adjacent to an open flued combustion appliance such as an open fire or boiler which draws air from the room for combustion because there is a potential risk of spillage of harmful gases. If it cannot be avoided use supply, not extract ventilation. If this is not possible seek further specialist advice.

This sheet describes using a single fan to reduce radon levels. Experience has shown that using two smaller fans one on each side of the building can also work. Being smaller they can prove easier to install, are less visually obtrusive and are quieter.

Further information

More detailed guidance is available in BRE Report BR270 *Protecting dwellings with suspended timber floors: a BRE guide to radon remedial measures in existing dwellings*, Good Building Guide 25 *Radon and Buildings* and Good Building Guide 26 *Minimising noise from domestic fan systems and fan-assisted radon mitigation systems* obtainable from BRE Bookshop, BRE Garston, Watford, WD25 9XX, telephone 01923 664262, e-mail bookshop@bre.co.uk, or visit www.BREbookshop.com

- **for further practical advice about work to reduce radon levels**
- **for a list of companies known to supply suitable fans**

Contact BRE Radon Hotline 01923 664707 www.bre.co.uk/radon

Disclaimer

It should be noted that BRE cannot guarantee that the measures described on this sheet will reduce the radon level in your home, however similar measures have regularly proven successful elsewhere in the UK.

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Other useful contacts

Defra 020 7082 8498
www.defra.gov.uk/environment/radioactivity/radon

NRPB 0800 614529 www.nrpb.org/radon

The Radon Council 01932 221212 www.radonhotline.org

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Simple sealing of floors

Note: Sealing of floors is only likely to prove to be a practical, cost effective solution if there are major gaps and cracks that can be easily filled.

Sealing concrete floors

Simple sealing of small gaps around service penetrations such as pipes and cables, and cracks in the floor itself can usually be achieved using gun-applied mastic or bathroom sealants. Larger holes will first need to be filled using sand cement mortar, expanding foam or similar sealant, with any subsequent shrinkage cracks sealed using gun-applied mastic or bathroom sealant.

Other sealing such as sealing of the continuous joint between the floor and the wall can be achieved with gun-applied sealant. Unfortunately it is likely to prove difficult and disruptive to carry out because of skirtings, and fixtures and fittings obstructing access.

It is important in all cases to clean cracks or gaps to remove loose or flaking material before applying sealant.

Stone flag or brick paved floors

Sealing has to be confined to simple sealing of major gaps around services. Improved jointing between stone flags or brick paviors can help but is unlikely to give significant reductions in radon entry.

Suspended timber floors

You should only consider sealing major gaps, for example where services pass through the floor or where pieces of boarding are missing, using gun-applied or expanding foam sealants. **Do not seal suspended timber ground floors with sheet materials such as polyethylene sheet** as it can encourage timber rot problems.

Suitable sealants

There are a wide range of sealants available commercially and most of them have suitable performance characteristics for sealing cracks and gaps in floors. Of those available the following types can usually be obtained from DIY stores and builders merchants:

- **Acrylic (emulsion) sealants –** usually gun-applied are ideal for small gaps and cracks, will accommodate movements up to 10%, can be readily painted on curing which takes a day or two.
- **Silicone sealants (general purpose and 'low modulus' types) –** usually gun-applied are ideal for small gaps and cracks, will accommodate movements up to 20%, but are more expensive than acrylic sealants and are not readily paintable.
- **Expanding polyurethane sealants –** dispensed from a pressurised can they are ideally suited to filling larger holes and gaps.
- **Polymer-modified cement mortars –** principally of use for filling large gaps and holes.

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