Radiation Safety



Guidance on Radon

What is radon?

Radon is a radioactive gas, formed by the decay process of uranium. Uranium is present in rocks and soil around us and therefore radon naturally occurs in the atmosphere. Usually, radon is dispersed in the air and the levels we breathe in are not high. However, high concentrations of radon may build up in enclosed indoor or underground areas. Some areas are particularly prone to radon build-up:

- Areas with high levels of uranium in their geological make-up
- Indoor areas with poor or no ventilation
- Underground areas e.g. basements, mines

When radon is inhaled, it increases the risk of developing lung cancer.

Legislative requirements for employers

The Health and Safety at Work Act 1974 & Management of Health and Safety at Work Regulations 1999:

Employers are required to ensure the health and safety of their employees. This includes carrying out a suitable and sufficient risk assessment. An assessment of radon levels in the working environment should form part of this risk assessment. The Health and Safety Executive (HSE) advises that radon should be identified as a hazard under the following circumstances:

- If the workplace is in a radon affected area
- If the workplace has a basement area that is occupied for more than c.50hrs per year
- If the workplace is a mine, cave or other underground environment
- If the workplace has a suspected radon source e.g. ground water or geological samples

The Ionising Radiations Regulations 2017:

If annual average radon levels in a workplace exceed 300 Bq/m³ the employer **must always** provide notification to the HSE. In addition, a Radiation Protection Adviser (RPA) with relevant radon experience should normally be contacted. Possible remedial measures that can be put in place to disperse radon depend on the levels of radon present and works should be carried out by a specialist radon removal contractor.

The radon risk assessment flow-chart on the next page shows the actions taken during radon risk assessment and the possible actions required to reduce radon levels in the workplace.

References and useful links

Radon in the workplace (hse.gov.uk)

https://www.ukhsa-protectionservices.org.uk/radon/sectors/employers

https://www.ukradon.org/information/ukmaps

https://www.ukhsa-protectionservices.org.uk/radon/

https://www.gov.uk/government/publications/radon-in-homes-in-england-2016-data-report

https://www.gov.uk/government/publications/radon-in-homes-in-scotland-2016-data-report

https://www.gov.uk/government/publications/radon-in-homes-in-wales-2016-data-report

https://radonassociation.co.uk/

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Radon Risk Assessment flow chart



Check UKHSA reports for more detailed information or order a 'Radon address search'.

https://www.ukhsa-

protectionservices.org.uk/radon/information/workplace

https://www.gov.uk/government/publications

Do the reports indicate a > 1% risk of elevated radon levels?

Do you carry out a significant amount of work in a basement or other underground area?

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Carry out a period of radon monitoring in consultation with your Radiation Protection Adviser (RPA):

- Order a Radon test pack (several providers available)
- Consult with your RPA on how many monitors are needed
- Radon monitors placed around the premises follow pack instructions
- Leave in place for three months (or as advised by your RPA)
- Return to the provider, monitors will be read and a report provided

Do annual radon levels exceed 300 Bq/m³?



- Notify the HSE
- Contact an RPA with relevant radon experience
- Continue to monitor radon levels

Consult with a specialist radon removal contractor and take remedial action:

- Install suitable radon mitigation devices in areas with high radon concentrations e.g. sealing large floor and wall gaps in contact with the ground, radon sumps, positive ventilation systems
- Record your findings and actions
- Re-assess radon levels on a regular basis, dependent on assessed radon levels
- Ensure any remedial equipment installed is regularly serviced
- Comply with relevant legislative requirements e.g. restriction of hours and monitoring of employees to ensure radiation doses do not exceed annual radiation dose limits
- Recommend home testing to employees if you are in a radon affected area

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