



Derry City & Strabane  
District Council

Comhairle  
Chathair Dhoire &  
Cheantar an tSratha Báin

Derry Cittyie & Stràbane  
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Derry City & Strabane District Council  
Environmental Health Service

# Radon In The Workplace

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Guidance  
For Employers  
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Radon

[www.derrystrabane.com/healthandsafety](http://www.derrystrabane.com/healthandsafety)

## What is Radon?

Radon is a naturally occurring, radioactive gas emanating from the ground from many naturally occurring rocks and soils and can build up in indoor workplaces. High concentrations are also found in some buildings because warm air rising draws radon from the ground underneath buildings to enter through cracks and gaps in the floor. Radon has no taste, smell or colour and can only be detected by carrying out radon testing. Radon is measured in units of becquerels per cubic metre Bq/m<sup>3</sup> (i.e. concentration of radioactivity in the air).

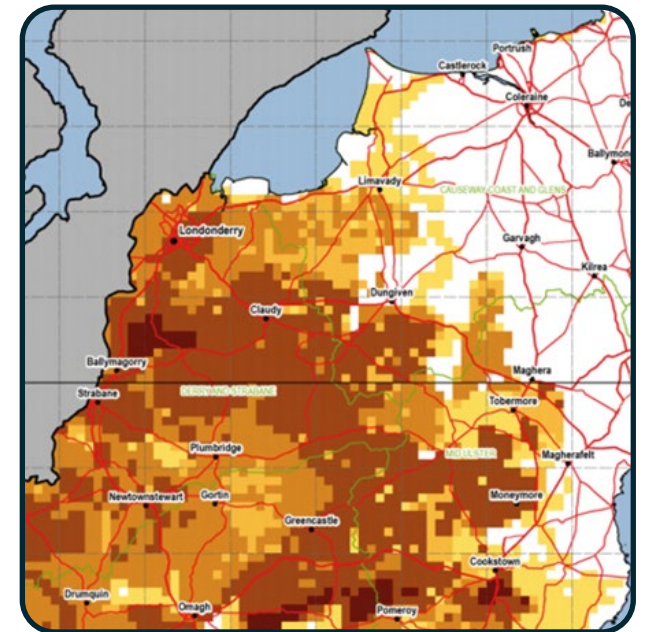
## Health Effects

Radon and the radioactive elements formed during its decay can be inhaled and enter the lungs. Inside the lungs, these elements continue to decay and emit radiation. The radiation causes cell damage and can lead to lung cancer. Radon contributes by far the largest component of background radiation dose received by the UK population and significant exposures are possible in workplaces. In the UK, exposure to indoor radon is responsible for an estimated 1,100 lung cancer deaths each year with smokers and ex-smokers at the greatest individual risk. It is the second largest cause of lung cancer in the UK after smoking.

## Radon Affected Areas

Radon affected areas have been defined as parts of the country which have a 1% or greater probability of exceeding the action level of 200 Bq/m<sup>3</sup>. An indicative atlas of radon affected areas in Northern Ireland was published in 2015 by Public Health England in conjunction with Northern Ireland Environment Agency and can be found at:

[www.gov.uk/government/  
publications/  
radon-indicative-atlas-for-northern-ireland](http://www.gov.uk/government/publications/radon-indicative-atlas-for-northern-ireland)



The map shows radon affected areas within the Derry & Strabane District. Many parts of Northern Ireland also have high radon levels. The darker the colour on the radon map, the greater the probability of a high radon level with a building.

To confirm the Radon Affected Area status of a workplace, an employer may choose to request a radon risk report for their postcode area from [www.ukradon.org](http://www.ukradon.org) – a small fee is charged.

### Workplaces which may be affected

The highest levels are usually found in underground spaces such as cellars/basements, caves and mines. High concentrations are found in ground floor buildings.



Winter months see an increase in radon levels due to reduced ventilation and increased heat in buildings.

### Legal Requirements for Workplaces

Under the Health and Safety at Work (NI) Order 1978 employers must, so far as reasonably practicable, ensure the health and safety of employees and anyone else who has access to their work environment.

The Management of Health and Safety at Work (NI) Regulations 2000 require employers to carry out risk assessments to assess health and safety risks. This includes Radon.

The Ionising Radiations Regulations (NI) 2017 apply where radon is present above the defined level of 300 Bq/m<sup>3</sup>. At this level employers are required to take action to restrict radon exposure.

### Testing for Radon

Radon measurement surveys can be carried out to determine radon levels within the workplace. They are carried out by placing small detectors in rooms of interest for a period of around 3 months and then sending them to a validated laboratory for analysis. Public Health England (PHE) – UK Radon website below outlines this process and associated costs for a workplace pack, currently priced around £25 per pack [www.ukradon.org/information/measuringradon](http://www.ukradon.org/information/measuringradon)

Assessment of radon risks should include radon measurements in the following circumstances:

- **All workplaces located in Radon affected areas**
- **All occupied (>1hr per week average) below ground workplaces irrespective of Radon Affected Area**

### What do the test results mean?

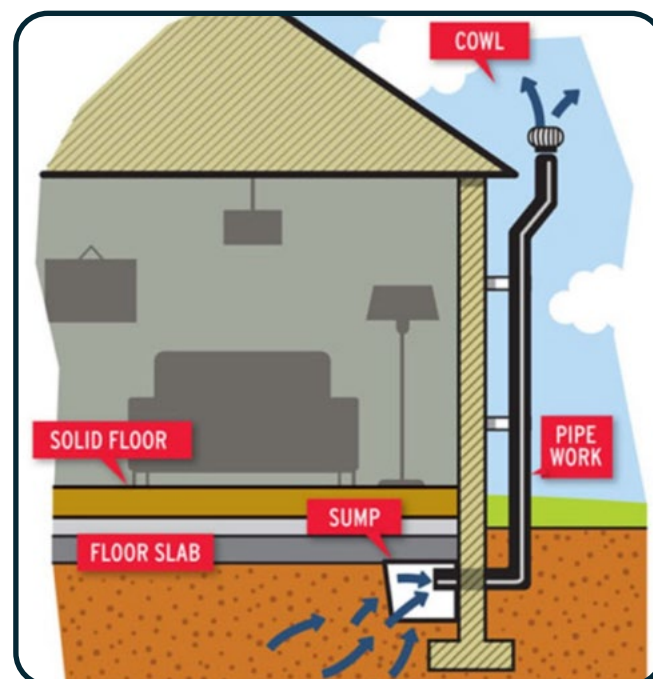
For occupied areas with levels above 300 Bq/m<sup>3</sup>, the employer may need to immediately take steps to manage occupational exposures. A Radiation Protection Adviser (RPA) with radon experience should normally be consulted about how to best manage radon exposures and if the employer plans to introduce engineering controls to immediately reduce the radon exposures, they will also need to consult a specialist radon removal (remediation) contractor. The specialist will be able to advise on the most cost-effective engineered means of reducing radon levels.

Where the workplace measurements show annual average radon levels below 300 Bq/m<sup>3</sup>, as is the case for the majority of employers, then the only further action required is to decide when the risk assessment is to be reviewed.

The PHE & Government endorsed target level of 100 Bq/m<sup>3</sup> is the ideal outcome for remediation works in existing buildings and protective measures in new buildings.

### Practical control measures for radon levels in buildings

In existing buildings where radon proof barriers cannot be installed, typical radon control measures include sealing gaps in floors, walls and contact with the ground, improved under floor and indoor ventilation, positive pressure ventilation, installation of radon sumps and extraction pipework. Further information can be obtained from:



[www.buildingcontrol-ni.com/advice-and-guidance](http://www.buildingcontrol-ni.com/advice-and-guidance)  
[www.bre.co.uk/radon](http://www.bre.co.uk/radon)

## Notes



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Pre-exercise screening should be carried out to identify people who may

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**To help improve our service,  
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**[healthandsafety@derrystrabane.com](mailto:healthandsafety@derrystrabane.com)**

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For further information on alternative formats please contact

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