

Radon in Ireland

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Irish Building Control Conference
24th and 25th March 2010



Radiological Protection Institute of Ireland

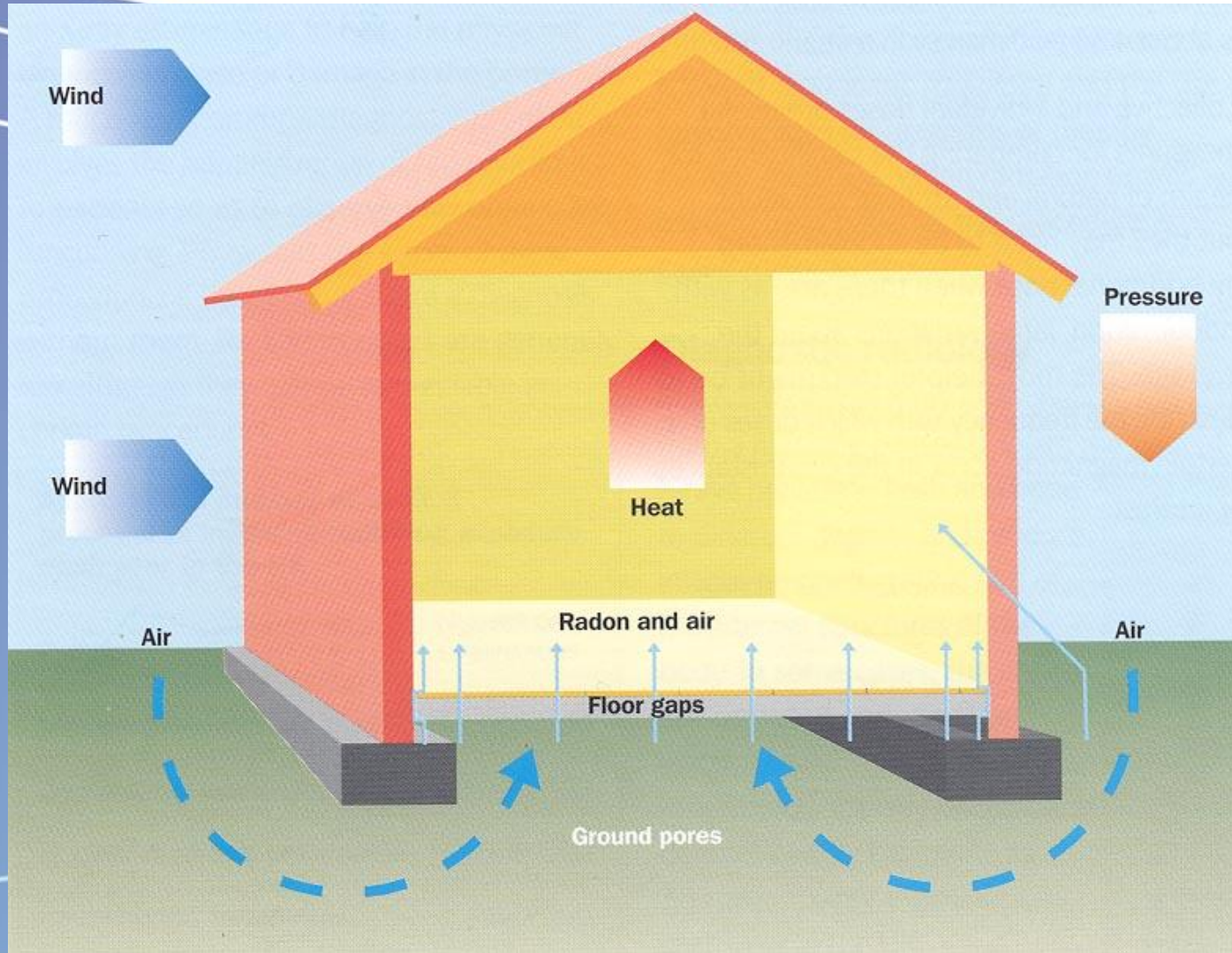
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What is Radon?

- Colourless, odourless, tasteless, radioactive gas
- Comes from uranium which is present in tiny quantities in all rocks and soil
- Radon is everywhere – outdoors radon is not a problem
- Can enter buildings from the ground through cracks and gaps and can build up to very high levels

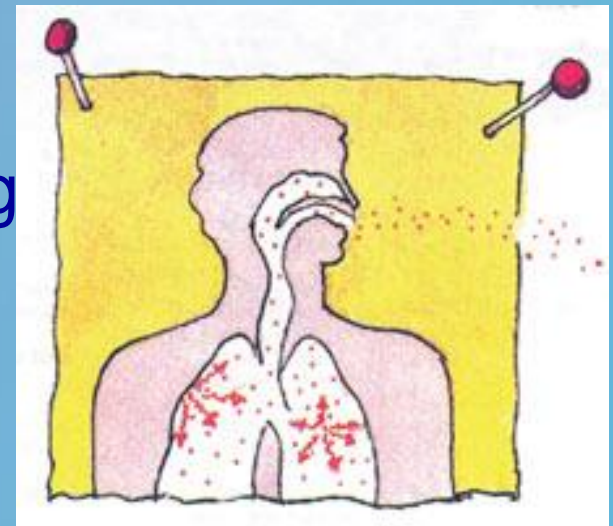


How does radon build up in homes?



Why are high radon levels a problem?

- Group 1 carcinogen - same as tobacco and asbestos
- Forms particles that can lodge in the lung resulting in a radioactive dose
- 150-200 deaths annually (10-15%)
- 2nd cause of lung cancer after smoking
- Risk 25 times greater for smokers & ex-smokers
- 56% of total dose to average Irish person



Results to date

- Almost 38,000 home measurements (RP11)
- National Radon Survey estimated 91,000 homes above 200 Bq/m³
- So far almost 5,000 of those above 200 Bq/m³ have been identified
- Key challenge is to persuade individuals to measure (4,000/year) and remediate



Measuring radon

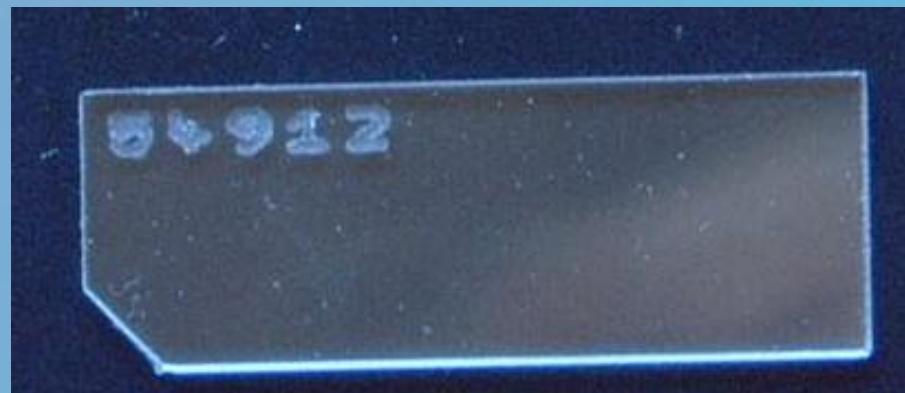
- Two detectors posted to the home
- One placed in main bedroom and one in living room
- Left for three months and posted back for analysis
- Results posted back with advice
- Cost: €40 to €80



Measuring radon



Alpha etch-track detectors
(2 part polyporpylene holder)



CR-39 (poly allyl diglycol carbonate) detection plastic



1997 Building Regulations

Technical Guidance Document C

High Radon Areas

“measures should be taken to protect the building from radon in the ground”

- a fully sealed membrane of low permeability over footprint of the building (radon barrier) and
- a potential means of extracting radon from the substructure (standby sump with connecting pipe work)

Other areas

“the building should be provided with a potential means of extracting radon from the substructure”

- standby sump with connecting pipe work



Radon barrier

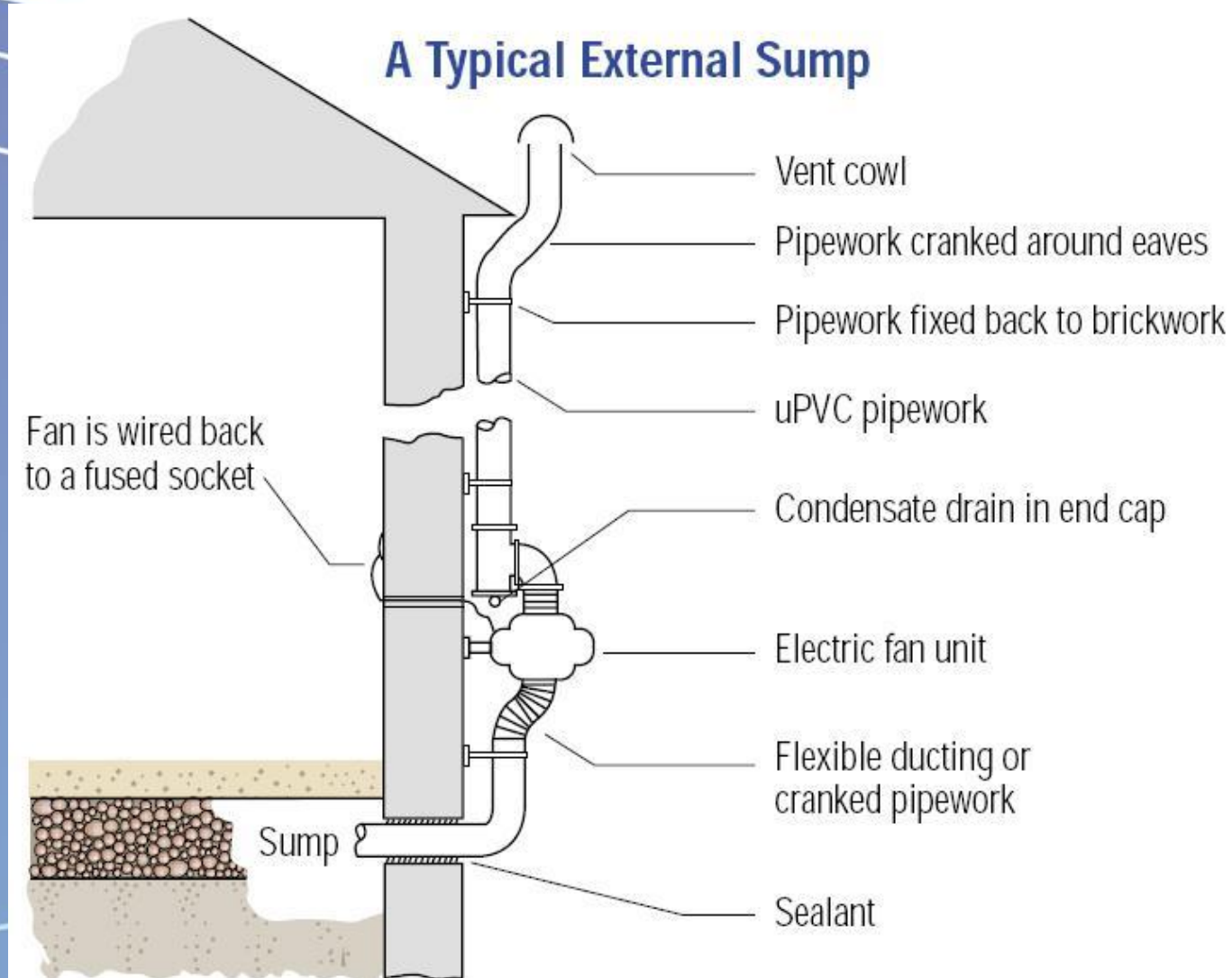


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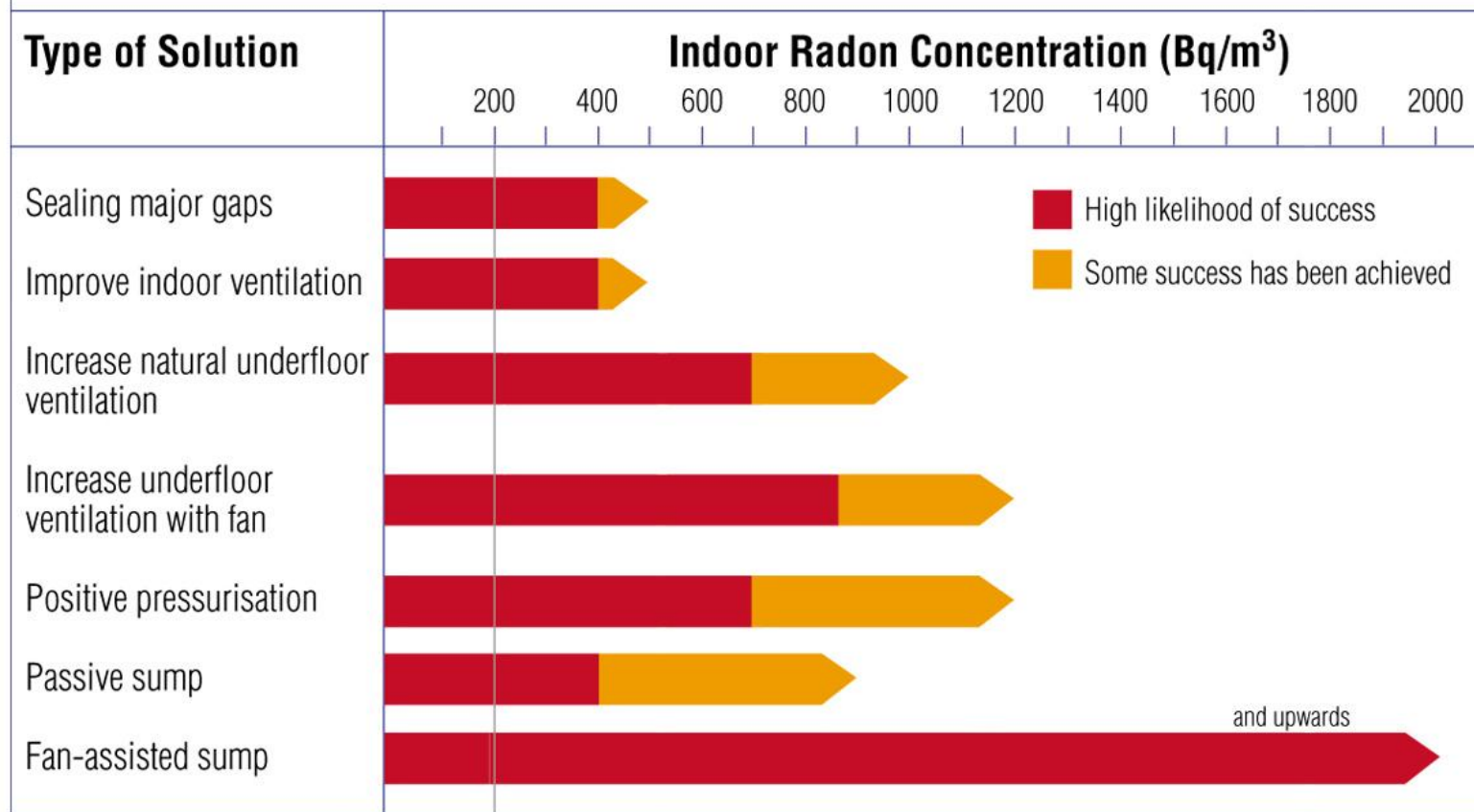
Radon sump

A Typical External Sump



Prevention and removal

Figure 1
Guide to the Likely Effectiveness of Remediation Techniques*



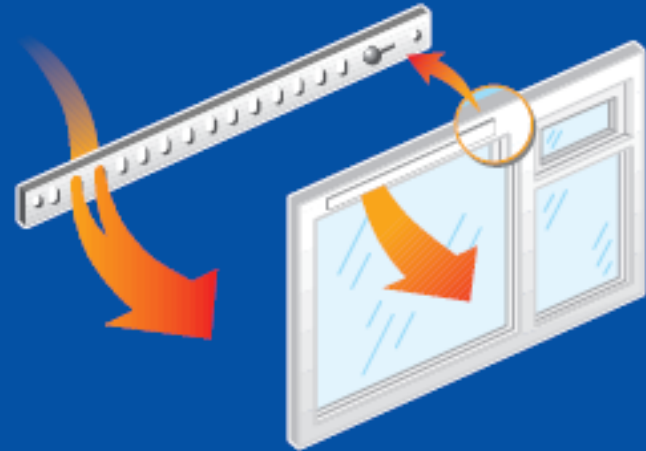
* reproduced with permission of UK Building Research Establishment



Removal of radon



Wall Vent



Trickle Vent

Better ventilation can reduce
levels by up to 50%

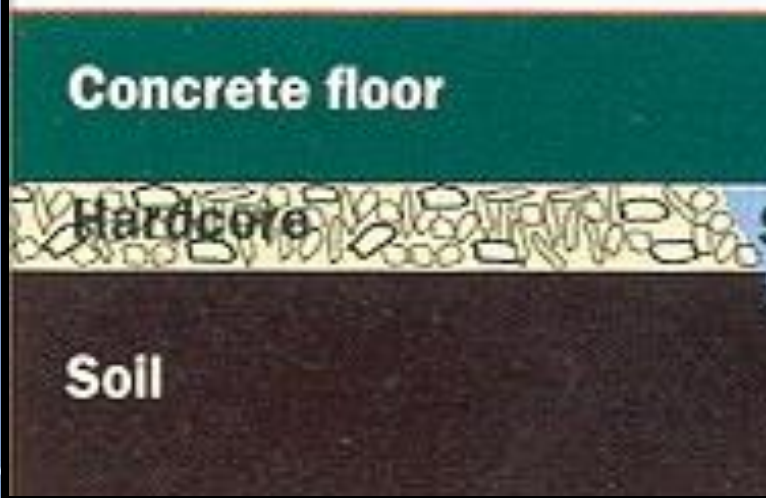
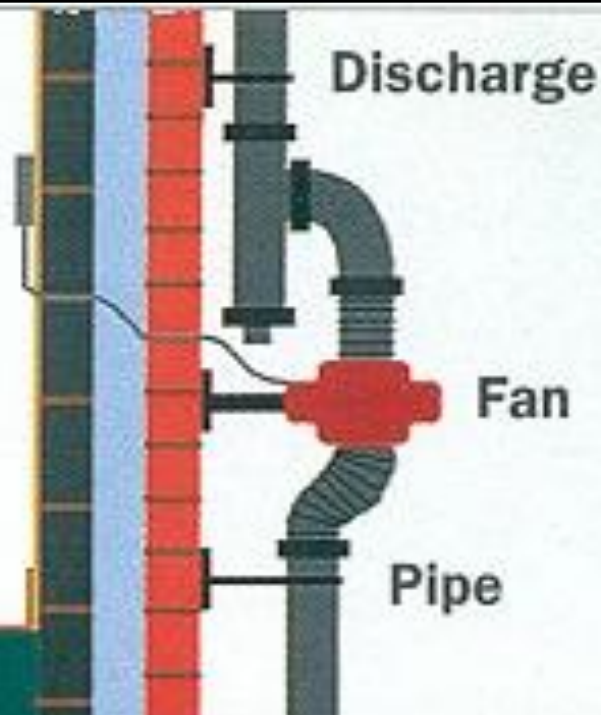


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Prevention of radon

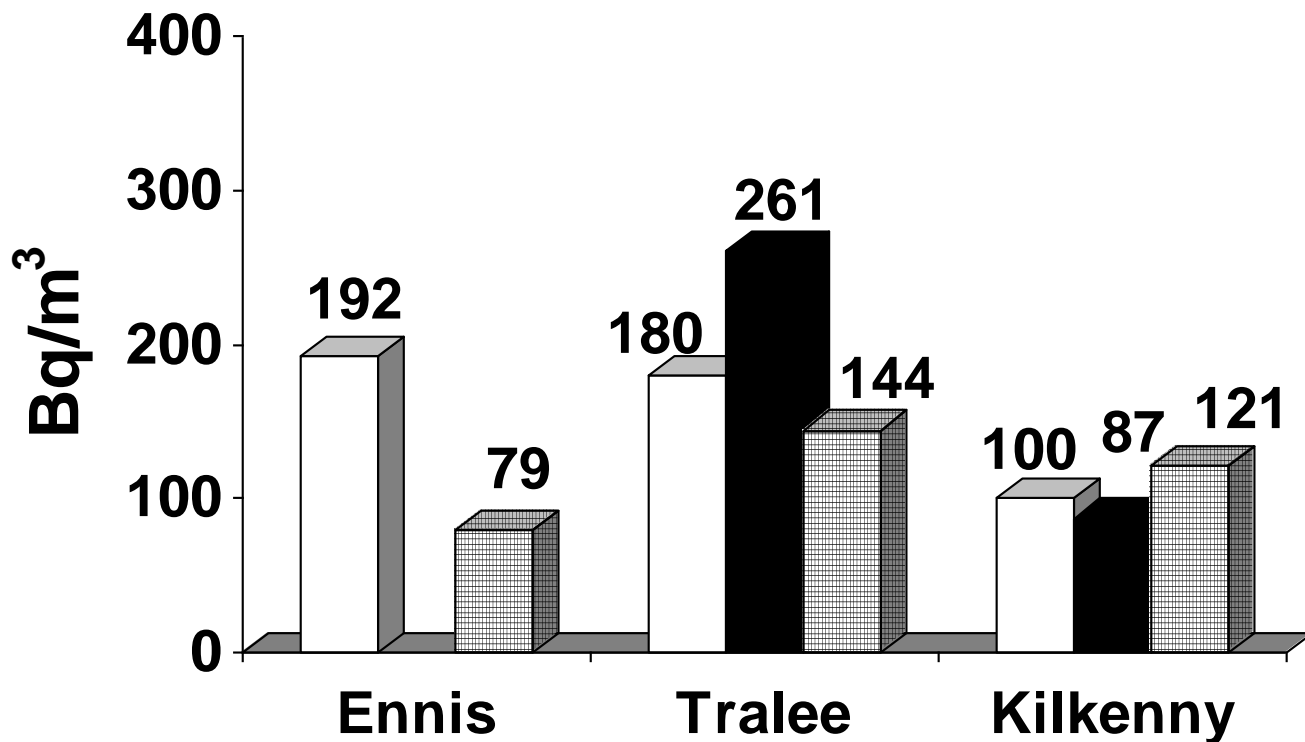
For higher radon levels, a sump can reduce levels by up to 80%



Effectiveness of Building Regulations



Fig. 3 Arithmetic mean



Effectiveness of Building Regulations

