

# Current remediation methods and costs in Ireland

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## Supporting householders with high radon levels

Many householders have questions about remediation

Can we answer these questions?

Use the experience of those who have remediated



# Remediation methods survey 2015

- Survey carried out in Feb 2015
- 58 EPA customers who completed post remediation measurements in 2013 and 2014
- Sent a questionnaire
- 43 responses – 74%



# What did we ask them?

Remediation (9)	Building characteristics (5)
Why?	Age of the home?
Method used?	Type of home?
Who did the work?	Type of ground floor?
How long did it take?	Type of windows?
What did it cost?	Extra insulation?
Exhaust pipe from fan assisted sump?	
Strength of electric fan?	
No. of remediation attempts?	
Other comments?	

# Year house was built

Year of build	Number of replies
Before 1980	27
Between 1980 -1998	9
Between 1999 - 2005	4
After 2005	3
<b>TOTAL</b>	<b>43</b>



# Reason(s) for remediating

Reason for remediating	Number of replies
Results of radon test	17 (37%)
Geology/local area reported to have high radon levels	12 (26%)
Public awareness/media coverage	8 (17.5%)
Felt they should test/make sure it was normal	2 (4.5%)
Curiosity/fear	2 (4.5%)
Cancer in the family/neighbourhood	2 (4.5%)
Death of family member	1 (2%)
Damp walls and ceilings	1 (2%)
Health concerns	1 (2%)
<b>TOTAL</b>	<b>46</b>

# Remediation method(s) chosen

Remediation type	No. installed (%)	No. below ref. level (%)
Fan assisted sump	23 (53%)	20 (87%)
Increasing indoor ventilation	6 (14%)	4 (67%)
Passive sump	3 (7%)	1 (33%)
Increasing underfloor ventilation	2 (5%)	1 (50%)
Combination of methods	9 (21%)	3 (33%)

# Fan assisted sump - the work

- Done by remediation contractor (78%)
- Typically took half a day (60%)
- Average cost €925 (ranging from (€400 - €1500))





# What is the fan strength?

- Only a small number of householders (5) knew this information
- Ranged from 24 – 85 watts
- All 5 successfully remediated
- Electrical running costs of €34 and €122 respectively



# Where is the sump exhaust located?



**Versus**



6 (29%) located above the eaves

All remediated successfully

15 (71%) located near ground level

12 (80%) below Reference Level

# Fan assisted sumps - The results

- Single most popular and most effective method of remediation in Ireland
- Used in homes with radon levels from 344 – 2791 Bq/m<sup>3</sup>
- Successful in 87% of homes
- 74% remediated successfully after one attempt
- Average reduction of 87% (14-99%)

# Multiple remediation methods

Remediation type	No.	Initial radon levels (Bq/m <sup>3</sup> )	Installed by (Number)	Average Cost (Range)	Typical installation time	Reduction factor	No. reduced below Ref level
Increased indoor and under floor ventilation	3	273 - 401	Local builder (2) DIY (1)	€0 - €480	30 minutes to few days	32%,	1
Fan assisted sump and passive sump	2	1272, 2618	Remediation company (1) Local builder (1)	€900 and €1200	6 hours	77% , 55%	0
Fan assisted sump and increasing under floor ventilation	1	812	Remediation company (1)	€800	1 day	69%	0
Fan assisted sump and positive pressurisation unit	1	1317	Remediation company (1) & local builder (1)	€4,200 (€700 + €3500)	3 days	98%	1
Fan assisted sump, increased indoor and under-floor ventilation	1	2262	Local builder (1)	€700	Few days	80%	0
Fan assisted sump and specialised barrier paint	1	443	Local builder (1)	€12,000	4 weeks	96%	1

# Customer service

- Happy with service, minor disruption—89%
- Feedback - confident, competent, tidy workmanship
- 3 people noted the noise of the fan
- Where radon levels remain above the Reference level, customers were happy with the service
- Some householders noted that they will do further remediation work



## Remediation surveys - 5 years on...

- 151 participants to date, 74% response rate
- Fan assisted sump remains most popular method of remediation (86%, 75%, 53%)
- Average reduction with fan assisted sump ranged from 87% to 90%
- Majority installed by remediation contractors (90%, 82%, 78%)
- Overall the installation cost has decreased from €1150 to €925
- No. respondents with homes built post 1998 = 1, 8 and 7 respectively
- Increase in use of multiple methods of remediation (4%, 10%, 20%)

# Thank you!

- Thank you all very much for your attention
- Any questions?