Current remediation methods, rates and costs in Ireland

National Radon Forum
24th November 2011

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Radon Advice Section
What am I going to talk about?

- The RPII conducted two surveys to determine
  - Remediation methods and costs
  - Remediation rates

- Why did we do them and what we have found?
Remediation Methods and Costs
Focus Group Study reported in 2010

People wanted more information on the whole process

Some comments included:

- Cost of testing is ~€50 plus unknown amount which could run into €000’s
- Currently unaware of what is involved in remediation process
- How long will it last – is it a one off?
- Assumption that it is a major disruption (rip up floorboards and have put in radon barrier)
- Emotional impact on you and your family
Remediation methods and costs
Methodology

• Survey by questionnaire conducted in Jan/Feb of 2011.
• Questionnaire designed to be short (one page) and completed in a few minutes
• 66 RPII customers completed Post Remediation Measurements in 2010.
Remediation methods and costs
Questionnaire

1. The year your house was built?
2. What prompted you to carry out remediation?
3. What remediation method did you chose?
4. Who did the work?
5. How long did the work take?
6. What was the cost of the work?
7. The electrical power, in watts of the fan installed
8. Did the work cause major disruption to the house and were you happy with the service?
Remediation methods and costs

Response rate

• Completed questionnaires returned from 49 customers (74% response)

• However not all respondents answered all questions
## Remediation methods and costs

### Results

1. The year your house was built?

<table>
<thead>
<tr>
<th>Year of build</th>
<th>No of replies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre -1900</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>1900 – 1939</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>1940 – 1979</td>
<td>16 (32%)</td>
</tr>
<tr>
<td>1980 – 1990</td>
<td>16 (32%)</td>
</tr>
<tr>
<td>1991 – 1998</td>
<td>10 (20%)</td>
</tr>
<tr>
<td>Post 1998</td>
<td>1 (2%)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>49</strong></td>
</tr>
</tbody>
</table>
## Remediation methods and costs - results

2. What prompted you to remediate?

<table>
<thead>
<tr>
<th>Reason for remediation</th>
<th>No of replies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of high radon levels*</td>
<td>25 (53%)</td>
</tr>
<tr>
<td>Media report or local publicity</td>
<td>13 (28%)</td>
</tr>
<tr>
<td>Death of someone I know from cancer</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>Call from RPII*</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Local gossip</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Local diviner</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>SEIA Information</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>House built pre 1998</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Renovating house</td>
<td>1 (2%)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>47</strong></td>
</tr>
</tbody>
</table>
Remediation methods and costs - results

3. How long did the work take?

- 47 replies (96%) to this question

  - 40 (85%) said less than one day. Typically “a few hours”
  - 6 (13%) 2 days
  - 1 (2%) more than 2 days
Remediation methods and costs - results

4. Were you happy with the service and was there much disruption?

- 44 replies (94%) to these questions
  - 41 (93%) reported they were happy with the service
  - Three were not happy
    - Radon levels were still high
    - The work caused disruption
## 5. Remediation solution installed?

<table>
<thead>
<tr>
<th>Type of system</th>
<th>No. of replies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active sumps</td>
<td>42 (90%)</td>
</tr>
<tr>
<td>Passive sumps</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>Underfloor ventilation</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Indoor ventilation</td>
<td>1 (2%)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>47</strong></td>
</tr>
</tbody>
</table>
### Remediation methods and costs - results

#### 5.1 Active sumps, who did the work and cost?

<table>
<thead>
<tr>
<th>Who did the work?</th>
<th>No of replies</th>
<th>Cost €</th>
<th>Running cost 70W fan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radon contractor</td>
<td>38 (82%)</td>
<td>1100 (800 – 2000)</td>
<td>~€90 per year</td>
</tr>
<tr>
<td>DIY</td>
<td>4 (8%)</td>
<td>383 (135 – 650)</td>
<td></td>
</tr>
</tbody>
</table>
Active sump systems – do they work first time?

<table>
<thead>
<tr>
<th>Attempt</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>First attempt</td>
<td>28 (70%)</td>
</tr>
<tr>
<td>Second attempt</td>
<td>9 (92%)</td>
</tr>
<tr>
<td>Third attempt</td>
<td>2 (98%)</td>
</tr>
<tr>
<td>Fourth attempt</td>
<td>1 (100%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
</tr>
</tbody>
</table>
Remediation methods and costs - Summary

• Active sump is most common remediation method. They typically cost €1100 to install and €90/year to run (70W fan)
• They can reduce radon by over 90%.
• The chances of successful remediation at the first attempt are high but it may not work first time around.
• Remediation work typically completed within 1 day with little disruption to the house.
• Most people (94%) were happy with the service.
Remediation Rate Survey

- The health gain in identifying high radon levels is realised when people remediate.

- It is important to find out how many remediate and the obstacles that deter people from remediating.
Remediation Rate Survey
Methodology

• Survey by questionnaire was conducted in August 2011

• A sample were of 122 customers were selected
  - Were private householders
  - Had measured as high between August 2010 and May 2011
  - Distribution was representative of high results nationally. Approximately 11% > 800 Bq/m$^3$
  - Had not requested a post remediation measurement
  - Who had given their consent to be contacted
Remediation Rate Survey
Methodology

• Questionnaire designed to be short (one page) and completed in a few minutes

• Three main questions
  - Have you remediated
  - If not why not
  - Do you smoke
1. Have you undertaken work in your home to reduce the radon level?
   - Yes □
   - No □

   If yes
   Is the level of radon in your home now less than the National Reference Level of 200 becquerels per cubic metre (Bq/m$^3$)?
     - Yes □
     - No □

   If no,

2. **Reasons why remediation work was not undertaken**
   *Please tick the box beside your most relevant reason.*
   - Not certain there is a serious risk □
   - Difficult to find reliable contractor □
   - Concern about the cost of work □
   - Inconvenient and disruptive □
   - Living in rented accommodation □
   - Intend to undertake remediation □
   - Other, please specify
     
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3. Are you a smoker? □  ex-smoker? □  non-smoker? □

   The risk from radon is 25 times greater for active smokers than for lifelong non-smokers exposed to the same concentrations of radon.

**PLEASE USE THE ENCLOSED PREPAID ENVELOPE TO RETURN THE COMPLETED QUESTIONNAIRE BEFORE 05 SEPTEMBER 2011**

**THANK YOU**
Rate of Remediation survey
Response rate

- Completed questionnaires returned from 63 customers (52% response)
Rate of Remediation survey
Have you remediated?

- YES – 16 (25%)
- NO – 47 (75%)
Rate of Remediation survey
Why not remediate?

• 47 people had high radon levels and had not remediated
• There were 6 choices several respondents gave multiple answers.
• 67 choices in total were given by the 47 respondents
## Rate of Remediation survey

### Why not remediate?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concern about cost</td>
<td>24 (36%)</td>
</tr>
<tr>
<td>Not certain there is a risk</td>
<td>18 (27%)</td>
</tr>
<tr>
<td>Intended to do remediation</td>
<td>11 (16%)</td>
</tr>
<tr>
<td>Inconvenient and disruptive</td>
<td>6 (9%)</td>
</tr>
<tr>
<td>Difficult to find a reliable contractor</td>
<td>5 (7%)</td>
</tr>
<tr>
<td>Living in rented accommodation</td>
<td>3 (5%)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>67 (100%)</strong></td>
</tr>
</tbody>
</table>
### Rate of Remediation survey

**Smokers?**

<table>
<thead>
<tr>
<th>Remediation</th>
<th>Smoking Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 (6%) smokers</td>
<td></td>
</tr>
<tr>
<td>47 who didn’t remediate</td>
<td>16 (34%) ex-smokers</td>
</tr>
<tr>
<td>28 (60%) non smokers</td>
<td></td>
</tr>
<tr>
<td>1 (6%) smoker</td>
<td></td>
</tr>
<tr>
<td>16 did remediate</td>
<td>2 (12%) ex smoker</td>
</tr>
<tr>
<td></td>
<td>13 (81%) non smokers</td>
</tr>
</tbody>
</table>
Rate of Remediation survey
Summary

- People seem reluctant to remediate even when they know they have high levels
- Only 25% have remediated. Comparable to previous surveys and internationally where 20% to 30% is reported
- Non smokers are most concerned at radon, then ex smokers. Active smokers seem unconcerned. This is also seen internationally.
What now?

- The information can input directly to the strategy development

- It is recognised that the information will need to be updated with time
Thank you for your attention