Investigating the impact of defects on key stakeholders in the UK new housing sector

Tony Hopkin, Dr. Shu-Ling Lu, Phil Rogers & Professor Martin Sexton
T.J.Hopkin@pgr.reading.ac.uk

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Pressures the UK house building industry is facing:

- Need to increase supply
- Zero Carbon homes agenda

Industry response:

- Increase supply
- Incorporate new technical solutions into new homes
Research Problem

More homes, more defects?

Low carbon requirements, more defects?

Dual pressure, dual defects?!
Construction Defect Literature

- General findings
- Individual types of defect
- *Lacking understanding of impact defects*
- *Lack of models to quantify the impact*
UK housing defect detection and remediation process
Impact of Defects Literature

Three distinct impact factors:

- H&S implications
- Cost incurred
- Disruption caused
H&S Implications

• Danger to workers on site
• Danger to home occupants
• Other?
Cost Incurred

- Investigation
- Remedial works
- Complaints
- Warranty repairs (premium)
- Fines/legal action
- Other?

NHBC annual claims bill

- First two years including builder insolvency: £24.6m
- Before completion: £0.8m
- Building Control: £4.1m
- Years 3-10: £51.3m

.Builder undertakes 50% of 3-10 repairs.

Source: NHBC
Disruption Caused

- Construction Programme
- Arranging for trades to return
- Trades returning
- Other?
Aim & Objectives

Aim

• Better understand the impact of defects on key stakeholders who detect and rectify defects in new homes.

Objectives

• Determine which of the identified aspects are more important to the relative stakeholders, and why.
• Develop and verify a defect impact assessment system for the purposes of defect analysis.
Research Method

Questionnaire survey

- Web link through email
- 1 month duration
- Follow up emails
- House builders
- Building inspectors
- Warranty provider
- Home owners
Early findings: Home occupants (n=143)

With respect to disruption caused, please identify the level of priority for each criterion below:

With respect to Health and Safety Implications, please identify the level of priority for each criterion below:

With respect to cost incurred, please identify the level of priority for each criterion below:
Early findings: House builder \((n=50)\)

With respect to disruption caused, please identify the level of priority for each criterion below:

With respect to Health and Safety Implications, please identify the level of priority for each criterion below:

With respect to cost incurred, please identify the level of priority for each criterion below:
Early findings: Warranty provider (n=52)

With respect to disruption caused, please identify the level of priority for each criterion below:

With respect to Health and Safety Implications, please identify the level of priority for each criterion below:

With respect to cost incurred, please identify the level of priority for each criterion below:
Early findings: Building inspector \( (n=42) \)
## Discussion

<table>
<thead>
<tr>
<th>With respect to Health and Safety Implications, please identify the level of</th>
<th>House Builder</th>
<th>Warranty provider</th>
<th>Building Inspector</th>
<th>Home occupant</th>
<th>Average overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger to workers on site</td>
<td>4.43</td>
<td>4.00</td>
<td>3.58</td>
<td>2.59</td>
<td>3.65</td>
</tr>
<tr>
<td>Danger to home occupants</td>
<td>4.48</td>
<td>4.35</td>
<td>4.44</td>
<td>3.86</td>
<td>4.28</td>
</tr>
</tbody>
</table>

| With respect to cost incurred, please identify the level of priority for each criterion below: |
|---|---|---|---|---|---|
| House builder investigation cost | 3.16 | 2.62 | 3.03 | 2.04 | 2.71 |
| Warranty provider investigation cost | 2.88 | 3.05 | 3.86 | 2.27 | 3.01 |
| House builder repair cost | 3.43 | 2.86 | 3.03 | 2.26 | 2.89 |
| Warranty provider repair cost | 3.02 | 3.51 | 3.80 | 2.35 | 3.17 |
| House builder complaints cost | 3.41 | 2.52 | 3.34 | 2.24 | 2.88 |
| Warranty provider complaints cost | 3.10 | 3.63 | 3.94 | 2.35 | 3.25 |
| Warranty repairs knock on to builder (recovered cost) | 3.43 | 2.81 | 3.26 | 2.01 | 2.88 |
| Builder fines for non compliance | 3.91 | 2.83 | 3.20 | 2.13 | 3.02 |
| Approved inspector fines for breach of contract | 3.57 | 3.49 | 4.14 | 2.15 | 3.34 |
| Warranty B-Reg claims cost | 3.27 | 3.65 | 4.06 | 2.14 | 3.28 |

| With respect to disruption caused, please identify the level of priority for each criterion below: |
|---|---|---|---|---|---|
| Disruption to builder construction programme | 2.89 | 2.14 | 2.63 | 1.79 | 2.36 |
| Disruption to builder arranging trade return | 3.00 | 2.14 | 2.60 | 1.89 | 2.41 |
| Disruption to home occupants having trades return | 4.02 | 3.79 | 4.12 | 3.85 | 3.95 |
Next steps

• Finalise questionnaire findings
• Develop defect assessment method from the findings
• Apply to individual defects from claims files
• Verify and/or improve from industry expert focus groups
Thank you...

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