

Improved quality in the UK house building sector since surveys began in 2000?

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Improved Quality In The UK House Building Sector Since Surveys Began In 2000?

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1. Introduction

The private house building sector has had results from seven customer satisfaction surveys since 2000, the latest being 2009 and each survey has shown an increase in snagging items in new houses. The surveys themselves were self-completion postal surveys initiated by two industry bodies (Housing Forum and the HBF) to new home owners whom had recently purchased a house built by a private house building developer within the UK. Response rates over the six years since HBF undertook the survey range from 39.8% (71,481 surveys sent out) in 2008 to 52.1% (40,075 surveys sent out) in 2009.

The overall quality of new houses according to the surveys dropped from 87% in 2000 down to a low of 76% in 2006; it remained at this figure in 2007; and 2008 then rose to 77% in 2009 (HBF 2009) and whilst the results of this research are primarily concerned with snagging and defects, the issue of quality is nevertheless important as an increase in quality levels could ultimately result in a decrease in the number of snagging items found within a new home. More alarmingly, during these surveys from 2000 to 2009, there has been a marked increase in the number of home owners reporting 'snagging' items although the results of these surveys do not indicate the actual extent of this. The authors of this paper have been researching into quality and defects in new housing since 1997 and find the results of these surveys concerning. The sector has had definitive data showing where it has been found to be lacking by its customers, yet still seems to be unable or unwilling to address the root cause of customer dissatisfaction by reducing the number of snags customer find in their new house.

Within the UK it is clear that the house buyer plays a decisive role in selecting the house builder and the actual house itself, together with the finance provider. With conclusion of the contract terms to purchase, the control of quality on the new house moves from what may be perceived as the buyer's realm to the builder's and finance providers. Although in reality, the quality expectations were never that of the buyer despite the buyer having quality expectations of their own. Indeed in the vast majority of cases the quality standards are set and managed by the builder. The new home buyer therefore has no control over the quality of the finished product. In other words if the house builder

constructs the new house to the original specifications that they have set, they will consider the new home to meet the “quality standard”. This would indicate that a new house builder is concerned with the technical quality of the building such as the foundations and structural integrity rather than the functional aspect such as the paintwork and the aesthetics.

With the multiplicity of clients within the private house building sector there is an implicit argument that the house builders will focus on the quality of the product they offer in order that they differentiate themselves from rivals and attract buyers. These house buyers of course have their own set of quality expectations i.e. requirements, which are often at odds with those of the house builder. The surveys seem to demonstrate that there is not show that the house building sector perceives that Technical Quality (TQ) as more important, whilst the author’s research shows that customers perceive that Functional Quality (FQ) is more important.

2. Current image of the industry according to press reports

The continued media attention on defects and the resulting ‘snagging’ in new homes ensures that the issue continues to be a subject of popular debate. Many prospective buyers believe they are investing in top quality developments only to move into their new home and discover it is riddled with faults (Press and Journal, 2005). A leaked memo from the National house building regulator in an article by Kelly (1998) highlighted that the number of complaints from home buyers about defects in their new homes had risen dramatically in the past decade. Kelly (1998) also reported that the NHBC mediated in 4732 cases between home owner and home builder compared with only 889 cases in 1989 and voiced concern about the effectiveness of the NHBC as a regulator of quality given the NHBC is funded by the house building industry.

Watson (2004) comments that local authority building inspectors who must pass fit new homes as safe and fit for habitation are not looking for minor defects (snagging). The former Chairman of the Scottish Trading Standards officers Bill Cassie in the article by Watson said its members were receiving a steady stream of complaints over defects and suggests that the problem is that private house building is an industry that has an incentive to quickly move to new jobs rather than hanging around to fix complaints. Press and Journal (2005) suggest that the NHBC inspectors concentrate on the most significant points of construction which would be the most expensive to remedy should any problems arise. Tomlinson (2004) discusses that fact that snagging lists are an accepted part of the building trade and that when a construction project is finished inspectors normally carry out checks to identify defects that inevitably remain after the main work has been completed.

Another high profile article (Barrie, 2006) reports on a family that bought a home for £200,000 from Barratt homes, and within two and a half years of moving in 130 snagging items were identified and at one point the homeowners snagging list was six pages long. The snagging items were of different kinds, four toilet cisterns and three toilet bowls have been replaced because of leaks and fourteen ceilings have been re-plastered on four separate occasions. Tyrell and Inman (2003) comment about a family who bought their house because they wanted a hassle free few years although 15 months after the family moved in the developer has yet to finish putting right a lengthy list of more than 200 snagging items even though the family pointed out most of the problems before they completed and were assured that the outstanding work would be completed before they moved in. Hill (2005) writing in the Scotsman discusses the problems experienced with her own flat supposedly built by a reputable builder. Hill comments that despite having an NHBC certificate which has 'ticked all the boxes', many of the defects remain.

Docherty (2007) comments on an independent snagging organisation that discovered ceilings collapsed in a property handed over two weeks previously and the fact that the independent organisation helped the client to receive over £1300 in compensation. Murray (2005) comments that during the past 30 years enough studies have been carried out on defects in house building and there is little need for further research as house builders know all about defects, but choose to ignore them.

The negative manner in which the problem of snagging has been reported over the years is an indication that the industry has done little to address 'customer issues' within the new homes arena as customers still feel that the standards that have been achieved are low. When a customer purchases a new home there is the potential to discover many underlying instances of defects, and failure to rectify defects and snagging and meet the requirements of the customer brings about customer dissatisfaction.

3. Rationale Behind the Research

Why does it matter whether the house building sector addresses customer satisfaction when during normal times they can sell all their houses? Admittedly the sector is currently going through a difficult time and over the twelve month period, and according to the National House Building Council (NHBC) the number of new homes completed during January 2010 was 5,546, which is down 24% from January 2009 and the lowest for 29 years. The January figures for 2010 show that the sector is beginning to pick up with 7,400 starts in January 2010, 55% higher than January 2009 (Gardiner 2010). According to research by Disney, (1999) and Gruska (2000), consumers in general are becoming more discerning and demanding what they consider to be better service and quality of goods and services. This is becoming more evident in the house building sector also with more

customers reporting defective work in their houses year on year HBF (2009). The authors of this paper suggest that this is the optimum time for house builders to begin to address the perception gap in quality identified by Auchterlounie(2004) and alluded to earlier in this section. To be proactive in terms of setting deliverable quality parameters that they can be measured against so that future customer satisfaction surveys will have more relevance. Current surveys as customer to judge quality in their new home, after sales service, buying experience etc., but each customer will have their own perception of what they expect. It is therefore inexact to statistically analyse these customer perceptions as each customer is using a different set of criteria.

The first house builder to set a deliverable set of performance criteria will undoubtedly have a commercial advantage over their rivals as has been seen with the Estridge experience in Indiana USA (Auchterlounie 2004). Looking at statistics from the National House Building Council (NHBC), the largest warranty provider for the house building industry that covers approximately 1.7m homeowners (NHBC 2009) and relating them to Technical Quality (TQ) does not seem to say that the house building industry has got that right either. According to their figures they carried out over 530,405 inspections in 2008/9 on approximately 81,000 new homes; 65,100 in the capacity of Building Control inspector, at a time when the number of new properties in registration fell from 186,000 in 2007/08 to 82,000 in 2008/09. One could reasonably argue that if the number of properties being built has decreased so markedly then the inspections made could be expected to be more exhaustive and detect more of the defects that the customers have reported.

Figures for claims paid to homeowners that claimed on their NHBC Warranty in 2008/09 went up from £46.4m in 2007/08 to £59.3m in 2008/09. This trend does not indicate an industry that has quality and customer satisfaction as a major part of its strategy. However in fairness to the industry this figure of £59.3m does need some further analysis. It includes claims resulting from the insolvency of builders in the sum of £1.7m; a result of the current difficult times being experienced by many industries and in no way a comment on quality in new housing. It includes £18.9m for claims made within the first two years of the warranty, and we can reasonably assume that this figure relates to major items that affect the structure of the home as minor defects are the responsibility of the builder in years 1 and 2 under the terms of the warranty. Claims under the warranty for years 3 to 10 which normally relate to major structural aspects was £38.7 million. These two figures, £18.9m and £38.7m relate to the structure, an area that customers would reasonably expect to be inspected by competent inspectors, the NHBC do carry out the role of Building Control on $\frac{3}{4}$ of the new homes covered by their warranty and their inspectors are trained to carry out the task. This again does not portray an industry that has quality as a major pre-occupation even in the areas that they consider to be the most important aspect of a new home the structure. Despite being inspected by the NHBC and Local

Authority Building Control (LABC) the some parts of the industry does not seem to be capable of achieving acceptable levels of TQ.

Carrying on the theme of TQ, the NHBC claims figure for 2008/09 detail that 17.3% of claims related to foundations, substructure and ground floors, all areas that are fundamental structural aspect of a house and normally subject to building control inspections. The superstructure; the actual 'box' including intermediate floors accounted for 34.6% of all claims, again a fundamental structural aspect of any new home and again subject to inspections by the NHBC inspectors, the NHBC 2008/09 report is not detailed in type of claims made in this section. The roof accounted to nearly as many claims at 33.9%, services, fixtures and finishes accounted for 11.5% and finally ancillary buildings such as garages 2.7%. Taking all of the forging into account it is difficult to see what measures some of the industry is taking with regard to quality assurance of major structural aspects of the new house. Thus the authors would suggest that the house building industry as a whole does not have a good record in providing high levels of TQ in new houses.

4. The HF/MORI HBF Surveys

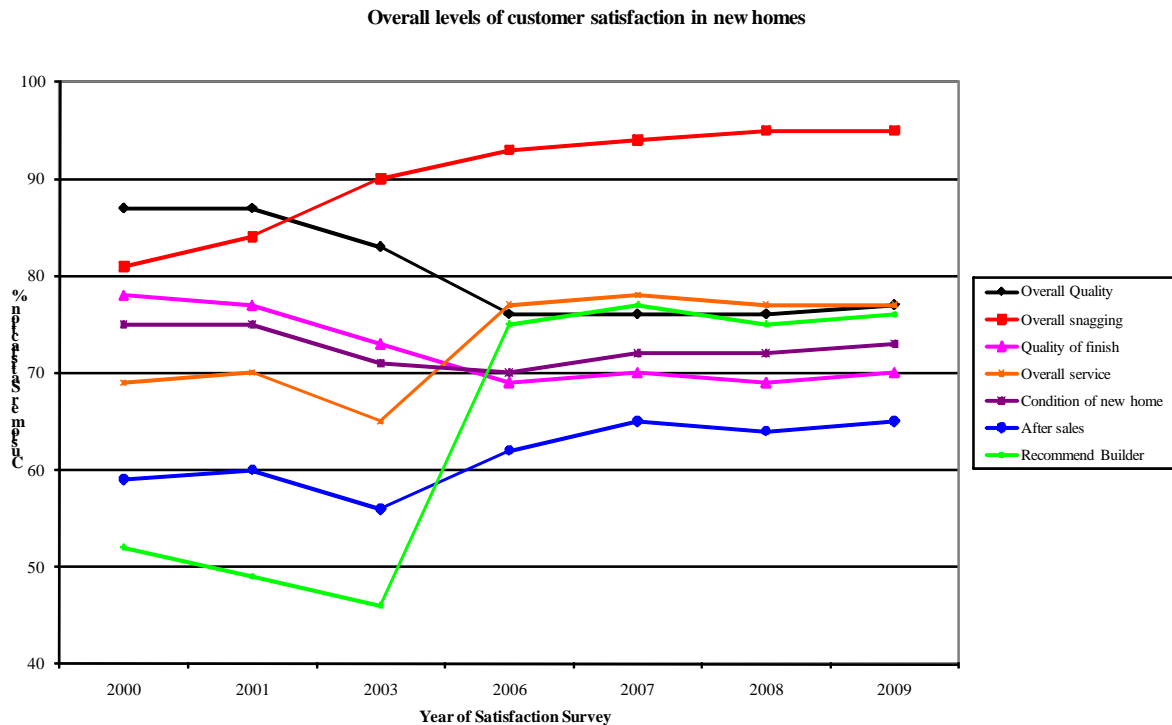
The first survey was conducted by the Housing Forum(HF) in conjunction with MORI in 2000, the HF was set up under the Movement for Innovation (M4I) programme to improve quality in the house building sector as a result of the 1994 Latham Report. They continued to conduct the surveys, in 2001 and 2003 until they were disbanded and in 2006 the House Builders Federation took over the surveys and began to conduct them on a yearly basis, 2006; 2007; 2008 and most recently 2009.

Despite the wording of the questions being asked during the surveys being slightly different, it is possible to combine the results for the national surveys of 2000, 2001, 2003, 2006/7/8/9 and from this combination identify trends from within this particular period as displayed in Figure 1. What is evident from Figure 1 is that the overall levels of quality, finish, and condition of the new home display downward trends from 2000-2006 and since 2006 have somewhat 'levelled off'. At the same time, the amount of home owners reporting snagging within their new homes is on the increase having risen by 14% over the last 9 years to a staggering level of 95%. Also noticeable is the rise in homeowners recommending their house builder between 2003 and 2006 which just so happened to coincide with the target dates set within the Barker review 2004.

If no action is taken to prevent the trends of dissatisfaction (snagging, overall quality, and overall finish) continuing it can be assumed that the overall quality of new build homes will continue to decrease. We thus have an industry which indicates that performance levels are increasing with regards to overall satisfaction and reduction in defects levels (according to the house builders), but

end customers who indicate that the overall satisfaction levels are increasing on the back of improved service levels whilst at the same time the overall quality of their new homes is decreasing whilst snagging levels have risen dramatically. New house buyers appear to be receiving little assistance from house builders when it comes to rectifying these defects and snagging. It is apparent that despite everything that has been written about quality or indeed the lack of quality within the construction industry, the problem is still prominent within the private house-building sector and at the forefront of customer concerns.

Figure 1: Trends from housing surveys 2001 - 2009 (adapted from Constructing Excellence, 2000, 2001, 2003 and HBF 2006/7/8/9).



5. Methodology

The lack of available literature and research data with regards to the snagging problem does not provide clear and solid guidance which means comparisons between this research and other research will be difficult to achieve. Also, the data has been provided by an independent snagging inspection organisation, which may not be deemed as a representative sample of snagging items relating to the private house building sector. Data sets are not widely available within the public domain due to reasons of confidentiality and commercial sensitivity so until such industry data samples are provided and made more widely available to researchers the data set used within this research can be deemed to be a robust and representative sample of the private house building sector.

The independent snagging organisation carried out 3696 snagging inspections on new homes between 2002-2007 and this information was made available to the researchers. The data was initially constructed in word format, this 'text' based data was initially transferred to Excel and later Access so further analysis and data management could take place. Data available for extraction from the inspection reports included a host of information on: the name of the client, the location of the property, the type of property, the house builder, the independent inspector, date of inspection, number and type of snag and so on. The names of clients, house builders and inspectors are not specified for confidentiality reasons. The end result was a coded database of 199,095 snagging items identified by 63 inspectors across 3696 new homes all of which had been signed off by the NHBC. The formatting of the data involved the transfer, examination, coding and analysis of over 2.5m individual data cells. All 2.5m data cells are coded with a 'number' which allows for quantitative analysis to take place. Statistical quantitative procedures enable researchers to organise, interpret and communicate numerical information and with this research being quantitative based it allows statistics to be used to present information and results in a form that is easy for the reader to interpret and understand. An associated limitation of the research relates to the amount of snagging items analysed. With the database of actual items being extremely large, analysis of all possible variables cannot take place due to certain time and resource constraints within the timescale of the project.

6. Results and findings

Within section 2.6.2, Egan (1998) suggested that by reducing defects by 20% annually then the goal of ZERO defects was achievable within the construction industry although no specific mention was made of the private housing sector. Despite this assertion, Egan did not provide any clarity as to how solving this was to be generated and did not provide any 'benchmark' figure of current defect levels that the industry could work towards reducing. Such benchmarking information is essential for setting realistic targets and it was initially thought that a review of the literature available would discover a reliable benchmark that the construction industry could adopt and use as a basis for improving its overall performance.

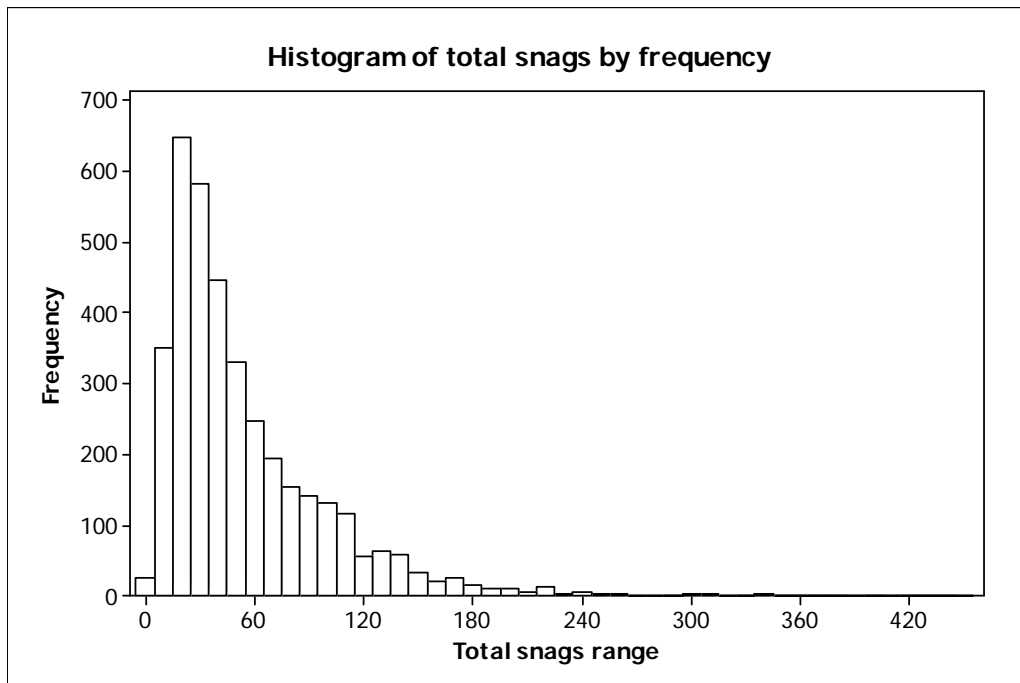
The first variable considered was the number of snagging items found within each of the 3696 properties. Table 1 displays the basic descriptive statistics of the 3696 new homes inspected and the number of reported snagging items within seven different ranges. It can be seen from Table 1 that there is considerable variation in the number of snagging items identified. The minimum number of snagging items identified was one, identified on three separate occasions in two, one bedroom flats, and one, two bedroom flat.

Table 1: Distribution of snagging items across the 3696 properties

No of Snags	No of Houses	1 bed	2 bed	3 bed	4 bed	5 bed	6 bed	Other	% of total snags	Mean		
1-9	126	51	73	1	1	0	0	0	0.4	6.7		
10-50	2144	464	1415	152	77	13	0	10	30.6	28.3		
51-100	915	95	394	175	198	47	3	2	32.8	71.2		
101-150	376	6	82	91	114	75	6	2	22.7	120.1		
151-200	91	2	17	16	33	18	5	0	7.8	171.4		
200-300	34	0	0	4	14	12	3	1	4.0	233.8		
300+	10	0	0	1	2	4	3	0	1.8	353		
Total homes	3696							% over 50	69.0			
Homes over 50	1426	39%							Total %	100		

The maximum number of snagging items found was 452 within a six-bed roomed house. From the histogram displayed in Figure 2 it is apparent that most values are located towards the left hand side of the figure which suggests the snags to be positively skewed. A standard deviation of 44.9 is exists across the 3696 properties suggesting that the number of snagging items found varies considerably.

Figure 2: Distribution of snagging items across the 3696 properties



Taking the different house sizes (by number of bedrooms) and the reported number of snagging items for these particular house types within the database, further analysis was undertaken to identify any relationship between the house size and the number of snagging items found. The majority of new

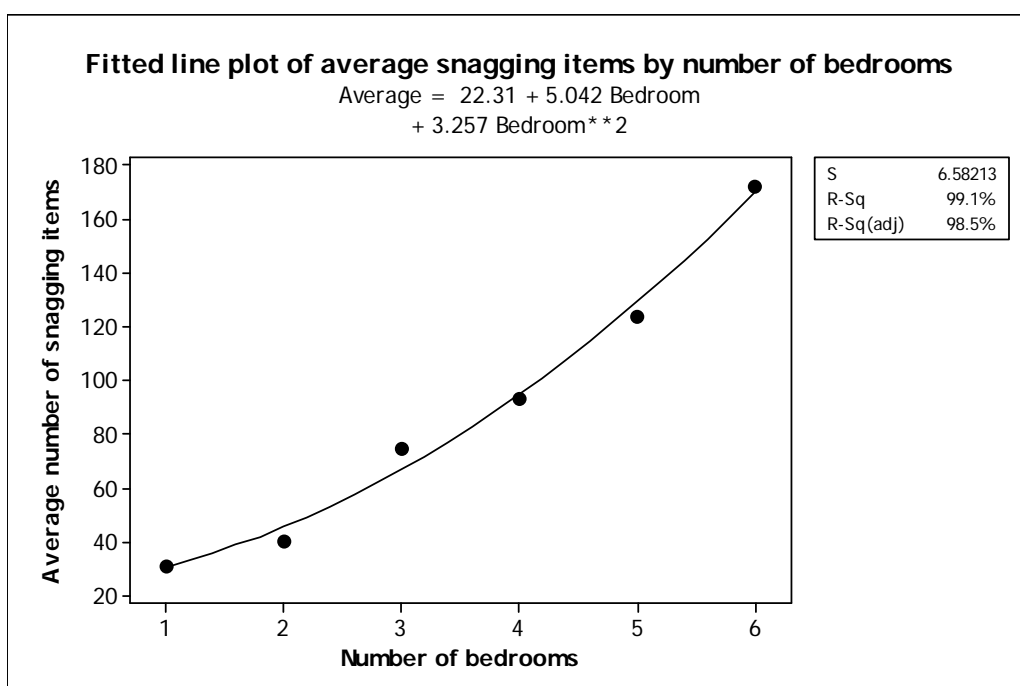
homes inspected were two bedroom properties as can be seen in Table 2 and the analysis of data within this particular includes data on new homes ranging in size from one bedroom to five bedrooms.

Table 2: Descriptive statistics relating to house type

House Type	Sample Size	Average Snagging items	Minimum snags	Maximum snags
Code 1: One bed	618	31.3	1	198
Code 2: Two bed	1986	40.4	1	195
Code 3: Three bed	434	74.7	8	307
Code 4: Four bed	435	92.9	6	405
Code 5: Five bed	165	124.3	23	389

From the analysis of the data by house size, it became clear that as the number of bedrooms in a property increased, so did the number of snagging items. Although it might have been expected and indeed logical to expect an increase in the incidence of snags as the bedroom number increases, the full extent of this increase was not expected. However, as the house size increases then so does the number and size of service rooms (kitchens and bathrooms) and it is these rooms that are responsible for the increase in snagging items (due to the service items). Further regression analysis was undertaken and a line of best fit produced to estimate the number of snagging items. This is displayed in Figure 3. The calculated R² (adjusted) value of 98.5% indicates that the model is a good fit and the number of snags that are likely to be found in any new house can be accurately calculated.

Figure 3: Number of snagging items identified by number of bedrooms



To further investigate if the number of bedrooms had an effect on the number of snagging items detected, a box plot was constructed which is displayed in Figure 4. Figure 4 displays how the number of snagging items is increasing as the number of bedrooms in the house increase. Figure 4 also shows the outliers, the median, the quartiles and the range.

The next variable to be examined is the role of the most important member of the research project; namely the inspectors who collect and record the snagging information. Some 63 inspectors were utilised to collect the snagging data although for the purposes of this part of the paper only those inspectors who carried out more than 30 inspections will be included (some inspectors only carried out 1 inspection). Table 3 outlines the descriptive statistics for the number of properties the top 10 inspectors have individually inspected.

Figure 4: Box plot of total snags by number of bedrooms

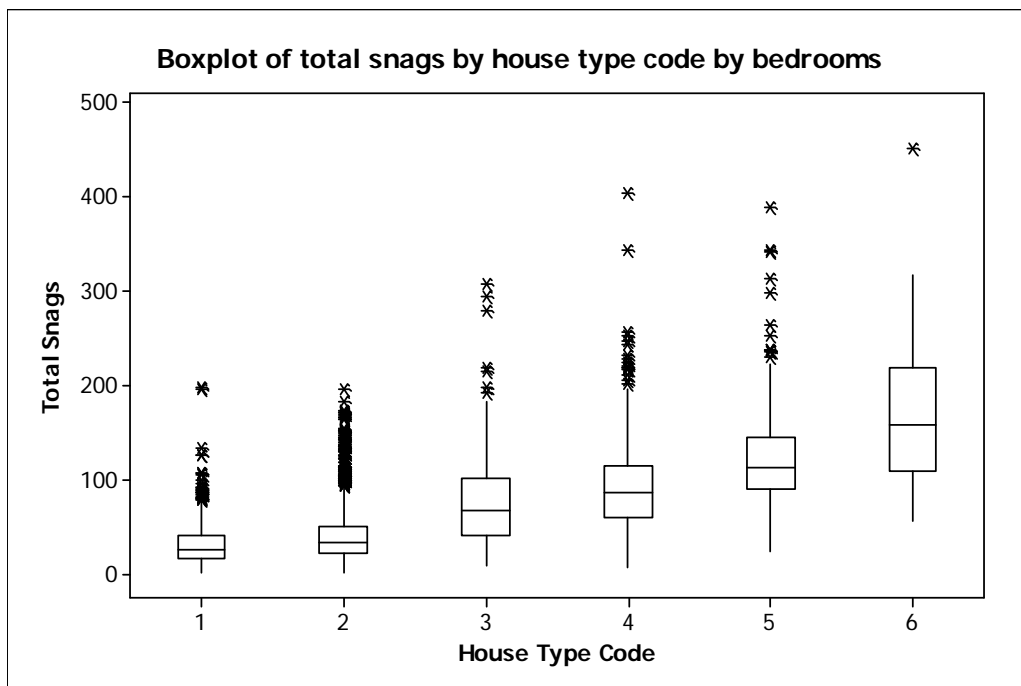
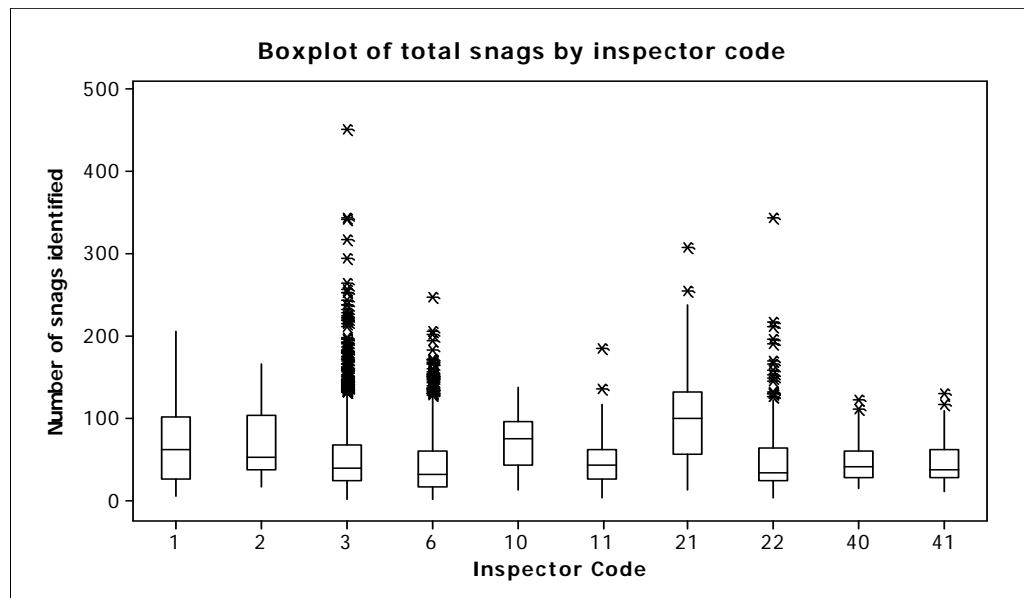


Figure 5 highlights that inspector codes 1, 2 and 21 have much variability on the number of snagging items being reported. The opposite is true for inspector codes 11 and 40 who have less variability in the number of snagging items they are reporting. The outliers for inspector codes 3, 6 and 22 can be attributed towards the large number of inspections they have carried out.

Table 3: Descriptive statistics on properties per inspector

Inspector	No of Inspections	Average	Minimum	Maximum	St Dev
3	1698	52.15	1	452	44.17
6	651	43.40	1	247	39.34
22	285	49.14	3	344	42.02
10	81	70.46	12	137	31.08
2	74	67.53	16	166	38.68
1	62	68.90	4	205	49.20
11	59	49.61	2	184	35.16
41	59	46.78	10	129	26.91
21	52	107.23	11	307	61.45
40	51	46.20	14	121	25.57

Figure 5: Number and range of snagging items per inspector



7. Conclusions

National customer satisfaction surveys have been carried out on a sporadic basis over a ten-year period and yet despite the home owners indicating that quality has fallen over this period, great swathes of home owners continue to recommend their house builder to their friend. The reality is though that these new homes continue to be beset with snagging items with 95% of new home owners reporting snagging items.

The issue of snagging has been reported in much press based literature over the last ten years in a negative manner and yet despite this negative image being portrayed, private house builders continue to hand over new homes that are riddled with snagging items. It could be said that the house builders

have a very relaxed attitude towards snagging and would favour issues of a technical issue, a claim backed up by the fact that the NHBC claims over the same ten-year period concentrate on the technical items within a new home. This is despite the fact that the home owner is more interested with the look and feel of a new home, in effect the items which can be termed 'snags'.

The database used within this research could be deemed to be representative of the new build house industry as it was the only database made available to the researchers. However, the lack of detailed research in the area of defects and snagging within new homes inhibits a more robust conclusion on the findings of this research i.e. directly with prior work/s. The results of the research from the 199k snagging items highlight some worrying trends. It was found that in a three bedroom home a new home owner could expect to find around 79 snagging items at handover. This is despite the fact that the new home has been signed off by the relevant authorities and been passed fit for habitation. In reality however, it is not the technical aspect of quality that the new house buyer is concerned with, it is the functional aspect of the building.

The amount of snagging found within new homes must be perceived as damaging to the overall reputation and image of the house building industry. Despite this, private house builders continue to ignore the issue and continue to handover new homes with high snagging levels, a fact the customer satisfaction surveys have highlighted as a major issue. Pooling efforts into reducing the amount of snagging items would surely result in higher levels of customer satisfaction being achieved across the private house building industry although with many customers indicating they are overall happy with the quality of their new home the house builders can quite rightly argue that they don't need to attend to the issue.

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