

# FIVE STAR STATUS IN THE UK HOUSE BUILDING SECTOR: A REALISTIC INDICATION OF CUSTOMER SATISFACTION OR PURE FANTASY?

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The Barker Review of Housing published in March 2004 commanded that “the house building industry must demonstrate increased levels of customer satisfaction” and called for the Home Builders Federation (HBF) to develop a strategy to improve the level of customer satisfaction. In partnership with the National House Building Council (NHBC) the HBF introduced a national survey of house builders, which launched in 2005 as a self-completion survey to the purchasers of new build homes at both eight weeks and nine months after legal completion. The results for two questions “quality of the home” and “recommendation to a friend” culminate in the award of a star rating between one and five and the surveys completed over the past decade show steady improvement in relation to customer satisfaction. Further research was conducted to examine how the data collected by the NHBC is used in practice to improve the service provided to the customers, the transition of any changes into practice and the overall management of the customer satisfaction process by the builder. In order to explore how this data is utilised in practice, eight semi structured in depth interviews have been carried out with three developers and analysis of the exploratory data revealed a gap between the published statistics and current practice and further suggests the HBF surveys were unlikely to reflect the true experiences and opinions of the customer. The research concluded that the customer can be manipulated by the builders in some cases causing a bias in the market; on the whole the customer satisfaction surveys and star rating are simply seen as a marketing tool, used by the builders marketing department as a sign of quality and a way to promote the company.

Keywords: customer satisfaction, quality, defects, housing

## INTRODUCTION

For over twenty years the construction industry has seen a continuous outcry from both the government and customers for an improvement in the quality of new homes constructed by the house-building sector in the UK. As a result of the findings of the Mori/House Builders Federation (HBF) surveys completed between 2000 and 2003 and the Barker Review of Housing (2004) the National House Building Council (NHBC) in partnership with the HBF introduced a national survey of house builders, which launched in 2005 as a self-completion survey to the purchasers of new build homes at both eight weeks and nine months after legal completion. The results of the surveys completed over the past decade indicate that there was a steady improvement across the sector, as commanded by Barker albeit the target of 85% for service quality

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was not met until 2010 for the “overall service provided” and has still to be met for the “after sales service” the builders provide to their customer, however the target set of 75% for the Recommend their house builder was met. Heath (2014) suggests that the decade since the Barker review has been a lost one in terms of addressing the shortcomings of the housing market, which is reflected in the last three years figures which demonstrate a reduction in the published results as the number of NHBC registered completions started to rise at the start of the recovery from the economic downturn. With an increase in demand for new homes and a decrease in both NHBC new home registrations and completions over the last decade the HBF Customer Satisfaction survey results published include only a snapshot of the data collected within the customer satisfaction survey of new homeowners within the UK eight weeks after legal completion. This study seeks to explore how the data collected by the NHBC is used in practice to improve the service provided to the customers, the transition of any changes into practice and the overall management of the customer satisfaction process by the builder.

## **THE LITERATURE**

### **The concept of quality**

Quality has long been the center of debate and for decades has focused on the improvement of the specific business rather than focusing on the customer or end user of the product. Over this period of time there have been numerous studies and work completed which have been influential in shaping the way we view quality, this includes the work of Shewhart (1931), Feigenbaum (1983), Crosby (1984), Juran (1989), Deming (1986), and Taguchi (1986). The two most influential include the work of Deming and Juran, Deming (1986) proposed that quality can only be defined in terms of customer satisfaction and can be achieved by a business that evolves and continuously strives to improve the service provided to their customers, furthermore he believed that management is responsible for 94% of all quality issues and stated that ‘improving quality will reduce expenses while increasing productivity and market share’ (Deming, 1986).

Following a comprehensive review Yi (1993) concluded quality could be measured in two ways, as a product (defects) or as a process (service provided). If quality is considered to be a product, Howard and Sheth (1969) state that “it is the buyer’s cognitive state of being adequately or inadequately rewarded for the sacrifices he has undergone”. If it is a process Hunt (1977) suggests that it is an evaluation rendered that the experience was at least as good as it was supposed to be, or it could be an evaluation that the chosen alternative is consistent with prior beliefs with respect to the alternative (Engel and Blackwell 1982, 501) or as Tse and Wilton (1988) suggest the consumers response to the evaluation of the perceived discrepancy between expectations and the actual performance of the product.

Prior to the introduction of quality assurance (ISO9000 & 9001), the primary measure of quality was the finished product. It is widely acknowledged and understood that good management leads to a quality product that leads to customer satisfaction; as Harris and McCaffer (2006) suggest can only be achieved if all the participants directly contribute to achieving the objectives. Forsythe (2015) states that the tone of the debate has gradually shifted from a predominantly supply-side perspective of quality, to one that increasingly aims to deliver customer value and satisfaction. This is largely because quality is seen as a significant contributor to business success by increasing market share, profits and customer equity (Kotler and Armstrong, 2013).

The customer's perception of quality includes more than the satisfaction obtained from the primary product or service, quality is delighting the customer by continuously meeting and improving upon the agreed requirements (Macdonald & Piggott 1990).

### **Quality in the house building sector**

Historically one of the most perplexing issues facing organisations in the construction industry is their inability to become quality focused, which is resulting in a substandard product or service (Love *et al.*, 1999). Throughout the last sixteen years following the findings of the Mori surveys (2000-2003), the HBF surveys (2005-to date) and the Barker Review of Housing in 2004 companies have been more focused on managing quality, as an attempt to improve their overall performance and competitiveness within the sector and thus has received a considerable amount of attention (Karna and Sorvala 2004).

Throughout this period of time numerous other academics and practitioners have researched both defects, snagging, quality and rework within the UK house building industry including Sommerville and McCosh (2006), Sommerville *et al.*, (2006), Sommerville (2008) Auchterlounie (2009) and, Rotimi *et al.*, (2014) with the majority of these focusing on defects in terms of numbers created. It is generally acknowledged that the number of defects at the completion or handover stage of a building appears to have a positive or negative influence on the satisfaction of the client or customer, however over the last two decades the construction industry has become obsessed with the attainment of quality through the measurement and use of defects as a proxy. This is demonstrated by Craig *et al.*, (2010) whose research analysed over 199,000 defects related to technical and functional quality and established the issues and problems associated with snagging and the house-building sector.

The principles of good quality in the house-building sector are encapsulated in legislation and standards such as the Building Regulations and NHBC Standards and it must be remembered that speculative developers will not respond unless it is imposed by regulations (Watts 2007). The problem is that quality is a subjective issue and positively correlates with the overall customer satisfaction. Craig *et al* (2010) states that the customer is "perceived simply as a buyer who purchases the final product and as the "customer" they have no control over the finished product or the quality of the product". It must be noted that in the speculative house building sector the client ordinarily has no or minimal control over the basic specification of the property, the clients only input is within the finishes or the options permitted by the house builder albeit this is dependent on the stage of the build when they secured or purchased the property. The exception as suggested by Curtis (2011) is the client who is building a bespoke dwelling and is involved with the design, as they will have input at all levels.

### **Customer satisfaction in the house building sector**

The purchase of a house is likely to be the largest single investment an individual will make (Stephenson & Carrick 2006) and the industry is facing a more informed client. Stephenson & Carrick (2006) also suggest that the industry still has a poor image, customers are becoming increasingly more aware and savvy and this has forced the industry to review the way it views the customer or home buyer. The emergence of the customer as the champion for change has increased the pressure on the construction industry to provide the higher quality and better service to satisfy customer needs and expectations (Dulaimi 2004).

Customer satisfaction can be seen as a goal or as a measurement tool in the development of construction quality (Karna and Sorvala 2004). It is generally acknowledged that the role of satisfaction is well established within the marketing literature and customer satisfaction has become an essential part of performance criteria in the construction sector, particularly house-building. The literature indicates that there is no commonly accepted method of measuring customer satisfaction in the construction industry (Torbica and Stroh 2000; 2001; Auchterlounie and Hinks 2001) and that satisfaction is a post purchase affect and its measurement is naturally reactive.

The heart of the satisfaction process is the comparison of what is expected with the product or service's performance, which Vavra (1997) describes as the confirmation or disconfirmation process. Customer satisfaction can be determined by either subjective (e.g. customer needs, emotions) or objective factors (e.g. product and service) (Oduro 2012). Numerous researchers have tested the relationship existing between customer expectation, perceived service quality and customers satisfaction and found out that, there is a strong positive correlation. (Parasuraman *et al.*, 1985)

Following two decades of incessant outcry from both the government and customers for an improvement in the quality of new homes in the UK and as a result of the findings of the Mori/HBF surveys (2000- 2003) and the Barker Review of housing in 2004 the HBF in partnership with the NHBC introduced a national survey of house builders, which launched in 2005 as a self-completion survey to the purchasers of new build homes at both eight weeks and nine months after legal completion.

The results were first reported in 2006 and consisted of eight questions, a further ten questions were added in 2013 and one in 2014 making a more comprehensive survey. The first eight questions collated data on how satisfied or dissatisfied the home owner was with the service provided during the buying process, completing on time, the condition of the home on the day the purchaser moved in, the standard of finish, the after service provided, problems (i.e. snags, defects) including the number of problems and if they were in line with the expectations of the new home owner. The final two questions were taking everything into account, overall how satisfied or dissatisfied is the homeowner with the quality of their home and would they recommend the builder to a friend which culminate in the developer receiving a star rating (1-5). The statistics published in 2016 included a further question that asked the customer to rate on a scale of one to ten how likely they would be to recommend the builder to a friend (net promoter score, which has three categories Promoter, neutral and detractor) which in the first year shows that only 47% of the customers are considered to be promoters who would recommend the builder to a friend, the others are neutral or detractors.

The published results of the returned NHBC house builder's eight-week surveys for the "levels of quality" and "service provided" can be seen in figure 1. Initial analysis of the published results indicates that there has been a steady improvement across the sector as commanded by Barker. Further analysis taking into account all the four aspects that determine the "quality of a home" see an upward trend in customers reporting defects or snagging rising significantly until 2009, the "quality of the finish", "condition of the new home" and "quality of the new home" demonstrate a downward trend, all significantly reducing until 2006 and then fluctuated for a three year period until a sharp improvement in 2010 which was throughout the years when a significantly lower number of homes were completed and registered with the NHBC. This comes as no surprise as the number of registrations was significantly lower than

numbers seen in previous year as the number of completions and registrations increase the over quality levels are reducing and the overall defects and snagging are increasing.

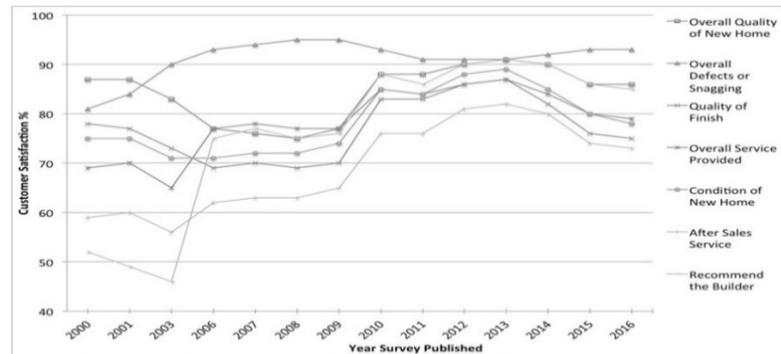


Figure 1: Levels of quality & service provided 2000-2016 (adapted from Constructing Excellence 2000, 2001, 2003 and the HBF 2006-2016).

Barker called for an improvement in the service quality provided to the customers by the developers, figure 1 plots the results collected and reported by the NHBC. It was expected from the launch date that the overall “service quality” would significantly improve and rise from 65% to at least 85% by 2007. The target of 85% was not met until 2010 for the “overall service provided” and has still to be met for the “after sales service” the builders provide to their customers, which both demonstrate a downward trend as the number of NHBC registration and completions rise. Heath’s (2014) findings following “The Barker review” a decade on state that all the three levels highlighted within the Barker’s review are still to be achieved and the last decade may have been a lost one in terms of the service quality provided to the customers.

The literature reveals that the construction industry and specifically the housing market predominately concentrate on defects as an indication of quality when considering customer satisfaction. Albeit the HBF/NHBC customer satisfaction completed over the past decade demonstrate that the house-building sector met some of the improvements commanded by Barker however there are other improvements that have still to be met. None of the academic or practice lead research undertaken to date has explored how the data collected by the NHBC is used in practice to improve the service provided to the customers, the transition of any changes into practice or the overall management of the customer satisfaction process by the builder.

## RESEARCH APPROACH

The research reported in this paper sought to explore how the data collected by the NHBC is used in practice by speculative house builders to (i) improve the service provided to the customers (ii) the transition of any changes into practice resulting from the data received following the satisfaction surveys and (iii) the overall management of the customer satisfaction process by the house builder(s). To meet the objectives of the study, a qualitative research approach was implemented with semi-structured interviews used to collect data from all sizes of developers within the North West of England (small, medium and large). This approach is supported by Creswell (2009) who states that it is an unfolding model that occurs in a natural setting that enables the researcher to develop a level of detail from high involvement in the actual experiences, allowing the researchers to gather data for the social phenomenon being investigated from the participant’s viewpoint (a Phenomenological Study).

To ensure reliability with the data collection the interview sample was selected using 'discriminate sampling' to maximise the chances of collecting relevant data from a small sample. A total of ten developers/house builders (selected from “Buildings” top 25 list of house builders) were identified within the North West (NW) of England who have been awarded a star rating and have been included within the results of all the HBF customer satisfaction surveys published to date (2003–2016). The criteria for the size of the house builder is based on the total number of units built per annum with the small <500, Medium >500 but < 2500 and the large builder >2501 units per year. Initially emails were sent to the top ten NW house builders outlining the purpose and background of the study and asking them if they would be willing to participate prior to sending the finally invitation. A total of (3) companies and (8) individuals agreed to participate in the study (see table 1).

Table 1: Interview Participant Profile

Respondent	Role	Type of organisation
A	Managing Director	Large Developer
B	Contracts Manager	Large Developer
C	Site Manager	Large Developer
D	Managing Director	Medium Developer
E	Contracts Manager	Medium Developer
F	Site Manager	Medium Developer
G	Managing Director	Small Developer
H	Site Manager	Small Developer

Each participant was invited to take part in a 20 - 30 minute interview, held at his or her offices between October 2014 and April 2015. The interviews were transcribed then analysed using Nvivo qualitative software, allowing the researcher to arrange the data using a hierarchical tree structure. The central phenomena (customer satisfaction) formed the root of the tree, from which sub-categories or nodes were generated based on a theoretical framework developed from the researchers' previous analysis of the NHBC customer satisfaction surveys. The analysis used open coding to identify the various sub-categories associated with the three central themes.

## RESULTS

### NHBC Data; How is it used to improve the service provided to the client?

The initial area explored during the interviews sought to determine how the information collected in the HBF nine-week customer satisfaction survey is used by the builders to improve their service provide to the customer.

The large and medium size developers indicated that the published results are a good way to benchmark their own company against the competitors; the data revealed that the builders only concentrate on the seven areas that make up the quality and the service provided elements of the satisfaction questionnaire (see figure 1). All interviewees agreed that customer satisfaction is unequivocally a necessity of any business albeit it is time consuming and costs a considerable amount of money.

The interviews revealed that the large builder concentrates on maintaining the high satisfaction level for the “recommend the builder” and the “overall quality” to ensure that they retain a high star rating, when asked why the interviewee opined;

...a good star rating in the customers eyes is a sign of quality, it sells houses, it's like a hotel rating system the higher the stars rating the better the perceived service and quality of the hotel. Ultimately it's good for marketing the company (Managing Director A).

When further questioned if they have any data to support the statement they stated;

...we have seen a rise in sales since we have had a four star rating and hope that we will continue to see the same upward trend after we are awarded a five star rating (Managing Director A).

The medium size builder is very customer focused, unlike the large builder, the company concentrates not on the results of one or two questions, but they consider all the data as valuable for future business development as they are striving to continually improve quality and the service provided to their customers by;

...building on their past results and developments to improve the next and concentrate on managing the customers' expectations rather than relying on the overall satisfaction of the customer, based on the results of the eight week HBF survey (Managing Director D).

The small builder disregards the results of the HBF satisfaction surveys considering them as irrelevant stating;

...to us a true measure of the level of a customer's satisfaction is repeat business or a good relationship throughout the building process, providing a home that meets the needs and expectations of the customer. A good reputation is more important to us as a small family business and it sells houses (Managing Director G).

### **Changes into practice**

The next area reconnoitred through the interviews sought to establish how the builders implement any changes highlighted by their results of the HBF customer satisfaction surveys to improve either the quality of the finished home, the service provided and or the overall satisfaction of their customers. Once again the interviews revealed that both the large and medium builders implement changes to improve the results. The managing directors & contract managers agree that they restrict the extras allowed depending on the stage of the build for each property. They have a consensus of opinion that the extras permitted within the property is dependent on the base specification of the property as some levels of finish don't allow certain extras, for example the entry level property has a minimal number of allowable extras;

...if a bath is from the budget range, of a poor quality it flexes so much that we only fit a shower curtain and therefore do not offer a shower screen upgrade due to the number of reports of it leaking as we cannot get a seal between the bath and the shower screen, therefore we no longer offer this as an option which improves the overall satisfaction of the customer (Contracts Manager, Large Builder B).

### **Managing the customer satisfaction process**

The final area explored during the interviews revealed that the large developer is more customer focussed and commercially aware of the importance of customer satisfaction and the future sales therefore are very proactive in contacting the client a number of times over the first two - three weeks through there dedicated customer services department.

our customer care team contact the client seven and fourteen days after legal completion to see if they are experiencing any problems or issue since they moved in enquiring and ...if the site manager has completed the minor issues and scheduled for the others outstanding issues or defects to be completed, at six weeks they are contacted again and the process is repeated if required (Managing Director A).

They compete with the other regional offices within their company in relation to the satisfaction level achieved as measured by an independent company who contact the customers by telephone to carry out a satisfaction survey approximately six weeks after legal completion. The results are immediately sent to the builder, any

outstanding issues are highlighted, the builder receives a score (between one and ten), to indicate if they are a promoter (>7) or a detractor (<7) if a detractor or any issues are outstanding the builder will contact the home owner to resolve any outstanding defects or issues prior to receipt of the eight week HBF survey.

The medium sized developer is not proactive in the follow up service they provide and they are much more reliant on site staff to rectify issues. They employ the same external company to complete a satisfaction survey providing them with a similar data set as the large builder, which acts as a trigger point to complete any outstanding issues or defects if not already complete however;

...when eight weeks after legal completion has passed we are not proactive in resolving any outstanding issues, as it's too late to affect the survey results so we concentrate on the properties that still may receive the survey (Managing Director D).

The interviews further revealed that both the large and medium builders offer a range of incentives to the staff if they (i) retain or improve on the HBF star rating, (ii) the overall HBF results relating to the customer satisfaction improve on the previous year or (iii) the development is completed ahead of programme. The builders urge the customer facing staff to actively encourage customers to complete the HBF satisfaction survey, canvassing the customer in relation to the importance of a favourable outcome for the “recommend the builder to a friend” question.

## **CONCLUSIONS**

This paper sought to explore how the data collected by the NHBC is used in practice to (i) improve the service provided to the customers, (ii) the transition of any changes into practice and (iii) the overall management of the customer satisfaction process by the builder. The literature revealed that the HBF customer satisfaction survey results demonstrate that the house-building sector has met some of the improvements commanded by Barker but still need to meet the others. The results published by the HBF neglect to look at the long-term satisfaction of the customer, due to the published statistics and figures being solely based on the eight week satisfaction survey.

The analysis of the exploratory data provided through the interviews with the developers revealed a gap between the published statistics and current practice and further suggest the surveys are unlikely to reflect the true experiences and opinions of the customer. It furthermore suggests that as a result of the in-house survey instructed by the developers can influence the results of the HBF eight-week customer satisfaction survey as the customers are contacted at key stages prior to the receipt of the eight week survey, thus causing a bias in the market. The large and medium builders appear to concentrate on the on the customer satisfaction surveys and particularly the star rating which is seen simply as a marketing tool, used by the builders marketing department as a sign of quality and a way to promote the company.

The star rating awarded to the builder is based on two questions and are calculated using a limited number of the actual completed unit by the particular builder in the any year awarded. The question introduced in the 2014 which rates on a scale of 1-10 and asks how likely would you be to recommend your builder to a friend, when considering the results in the first published year its reported that only 47% are home owners are considered as promoters and 53% either detractors or neutral, which does not reflect the figure of 85% reported for the “recommend your builder to a friend” question for the same year (2015) published in 2016.

For the star rating to be more realistic rating a larger number of returned surveys should be included within the calculation of this award and the it should also include a wider range of questions to include all the questions (figure 1) that make up quality and service provided aspects of the HBF eight week questionnaire, thus providing a more robust system for awarding the star rating which in turn would improve the over quality and the service provided to the customer as commanded by Barker and would also be a better reflection of quality and guide for future home buyers in the UK. While the surveys appear to be selective in their approach this is a snapshot of the customer satisfaction in the NW of England and is not representative of the whole house-building sector within the UK. The next stage is to carry out further research to establish if this is a true reflection of the house-building sector within the UK.

## REFERENCES

- Auchterlounie, T (2009) Recurring quality issues in the UK private house building industry. *Structural Survey*, **27**(3), 241- 251.
- Auchterlounie, A and Hinks, J (2001) *Assessing Customer Criteria for Quality in New Housing*. First Post-Graduate Research Conference, University of Salford, Manchester.
- Barker, K (2004) *Review of Housing Supply*. Norwich: Her Majesty's Stationery Office.
- Curtis, M D (2011), *New House Owners' Satisfaction Survey 2011*. Building Research Levy, Wellington.
- Craig, N Sommerville, J and Auchterlounie, A (2010) Customer satisfaction and snagging in the UK private house building sector. In: C Egbu (Ed.) *Proceedings 26th Annual ARCOM Conference*, 6-8 September 2010, Leeds, UK. Association of Researchers in Construction Management, Vol. 2, 1199–208.
- Creswell, J W (2009) *Research Design: Qualitative, Quantitative and Mixed Method Approaches 3edition*. London: Sage Publications.
- Crosby, P B (1984) *Quality without Tears*. USA: McGraw Hill.
- Deming, W E (1986) *Out of the Crisis*. Cambridge: MIT/CAES Press.
- Dulaimi, M, F (2004) *The Challenge Of Customer Orientation in the Construction Industry*. *Construction Innovation*, **5**(1), 3-12.
- Feigenbaum, A V (1983) *Total Quality Control 3rd Edition*. New York: McGraw Hill.
- Forsythe, P (2015) Monitoring customer perceived service quality and satisfaction during the construction process. *Construction Economics and Building*, **15**(1), 19-42.
- Harris, F and McCaffer, R (2006) *Modern Construction Management 6th Edition*. London: Blackwell Scientific Publications.
- Home Builders Federation (2006-16) *New Home Customer Satisfaction*. Home Builders Federation, London.
- Home Builders Federation (2014a) *Barker Review: A decade on*. Home Builders Federation, London.
- Housing Forum (2000-2003) *National Customer Satisfaction Survey*. Constructing Excellence, London.
- Howard, J A, Sheth, J N (1969) *The Theory of Buyer Behaviour*. London: Wiley.
- Gann, D, Biffen, M, Connaughton, J, Dacey, T, Hill, A, Moseley, R, and Young, C (1998) *Flexibility and Choice in Housing*. Bristol: Policy Press.
- Juran, J M (1989) *On Leadership for Quality*. New York: Jossey Bass

- Karna, S and Sorvala, V (2004) *Factor-Specific Approach to Customer Satisfaction with Construction*, CIB W55/65CIB, Rome.
- Kotler, P and Armstrong, G (2013) *Principles of Marketing 15th Edition*. Harlow, Essex: Pearson.
- Love, P E D, Mandal, L P and Li, H (1999) Determining the causal structure of rework influences in construction. *Construction Management and Economics*, **17**(4), 505-517.
- Macdonald, J and Piggott, J (1990) *Global Quality: The New Management Culture*. London, Mercury Books.
- Mitchell, V W (1993) Handling consumer complaint information: Why and how? *Management Decision*, **31**(3), 21-28.
- Oduro, R (2012) Factors that determine customer satisfaction level in banking institutions: Evidence from Ghanaian banking industry. *Asian Journal of Business and Management Sciences*, **2**(7), 1-13.
- Parasuraman, A, Zeithaml, V A and Berry, L L (1985) A conceptual model of service quality and its implications for future research. *The Journal of Marketing*, 41-50
- Rotimi, F E, Tookey, J E and Rotimi, J O B (2015) Home owners and developers' relationships: Exploring the cordiality factor. *Structural Survey*, **33**(3), 278-292.
- Sommerville, J (2008), *Homebuilding Market Study*. Office of Fair Trading.
- Sommerville, J, Craig, N and Ambler, V (2006), Functional and technical quality in new homes in the UK: the snagging problem. Paper presented *Royal Institution of Chartered Surveyors Annual COBRA Conference*, 7-8 September, University College, London.
- Sommerville, J and McCosh, J (2006) Defects in new homes: An analysis of data on 1696 new UK houses. *Journal of Structural Survey*, **24**(1), 6-21.
- Stephenson, P and Carrick, C J (2006) Select and accept a new build home: Buyers' experiences, expectations and attitudes. In: H Smyth (Ed.) *Royal Institution of Chartered Surveyors Annual COBRA Conference*, 7-8 September, University College, London: RICS.
- Shewhart, W A (1931) *Economic Control of Quality of Manufactured Product* 509. ASQ Quality Press.
- Taguchi, G (1986) *Introduction to Quality Engineering*. Tokyo: Asian Productivity Organisation.
- Torbica, Z M and Stroh, R C (2000) HOMBSAT: An instrument for measuring home buyer satisfaction. *Quality Management Journal*, **7**(4), 32-44.
- Tse, D K and Wilton, P C (1988) Models of Consumer Satisfaction Formation: An Extension. *Journal of Marketing Research*, **25**(May), 204-12.
- Vavra, T G (1997) *Improving your measurement of customer satisfaction: A guide to creating, conducting, analyzing, and reporting customer satisfaction measurement programs*. Milwaukee, WI: Society of Automotive Engineers.
- Watts, G (2007) *The Callcut Review of House Building Delivery*. London: Construction Industry Council
- Yi, Y (1991) A critical review of consumer satisfaction. In: V A Zeithaml (Ed.) (1989) *Review of Marketing 1989*. Chicago: American Marketing Organisation.