HOUSE BUYERS AND BUILDERS: THE "IDEAL" HOME IN SCOTLAND

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The UK Government has outlined a variety of targets for new build housing to be zero carbon (Zc) from 2016. In realising this ambitious target, house builders will be required to deliver high energy efficient housing adding to the existing rules and regulations bedevilling the construction industry. This, combined with the selection and purchase of a new home being the single, largest capital investment that a person is likely to make in their lifetime has resulted in the success of Zc housing depending, to some extent, on consumer acceptance, which must align with the attitudes, values and wants of potential home buyers, particularly when faced with a variety of factors influencing consumer decisions. Consequently, this research presents the findings from a comprehensive quantitative study of 202 questionnaires undertaken by house buyers relating to energy efficient, private housing which highlights a misalignment between perceptions and reality with regards to what buyers consider to be the "ideal" home. The results obtained are particularly important as they go some way in narrowing the gap between the views and opinions of house buyers and builders relating to energy efficient homes and the home buying process.

Keywords: consumer, energy efficiency, housing.

INTRODUCTION

"The UK house building industry is no stranger to change. For decades, it has frequently altered its processes, building methods, design requirements and quality standards" (Farookhi *et al.,* 2010) in order to align with consumer attitudes, market demands, Government legislation, the economy and more recently, zero carbon (Zc) compliance and the green building movement. As the housing industry contributes to approximately *"30% of the UK's total energy use and 27% of its CO_2 emissions"* (National House Building Council, NHBC, 2008) it is imperative that such change is ongoing in order to respond to the biggest change management programme the industry has faced (Farookhi *et al.,* 2010). As a result, the days of inconsiderate construction methods and disregard for the environment are becoming a thing of the past. If Zc standards are to be implemented across all new homes within the UK, it is essential that house builders are willing and able to construct such homes to the necessary standards and to the volumes required; which involves changes to current design and procurement practices as well as implications for all those involved in the construction process and more importantly, the end users (NHBC, 2013).

The problem arises from mounting pressure to reduce CO_2 emissions and the need for the UK Government to enforce energy efficient strategies and targets. In order to assist in achieving the Government's 2050 carbon emissions targets and 2020 goal of

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supplying 15% of UK's energy from renewable sources, house builders are being forced to innovate whilst maintaining high levels of customer satisfaction. However, as a lack of consumer demand is a potential hindrance to the implementation of energy efficient homes (Zero Carbon Hub, 2010) and as house buyers are seemingly *"non-participators"* in this process, engagement and consumer demand for Zc homes is often low, which is a significant hindrance to the drive towards energy efficient homes.

For the purpose of this paper, an energy efficient home is defined as one which delivers the proposed *"carbon compliance limit of 11 kg CO_2/m^2/year by reducing emissions of around 17 kg CO_2/m^2/year compared with a similar (semi-detached) home built to 2006 standards. The remaining carbon is the amount that may be addressed using allowable solutions"*, which aligns with that of Zero Carbon Hub, (2013). This research area was selected due to a gap in knowledge regarding the alignment of the views and opinions of house buyers and builders in Scotland relating to energy efficient homes; where the few studies undertaken to date, predominantly relate to perceptions of house buyers and builders in England.

LITERATURE

The selection and purchase of a new home is likely to be the single, largest capital investment a person undertakes in their lifetime; and next to marriage and divorce, it is considered to be one of the most stressful events in life (Michaels, 2001). To ensure an easy transaction, it is imperative that house builders maintain high levels of customer satisfaction though the development of strategic management systems. As a result, the construction industry has had the difficult task of encouraging new buyers to purchase homes in the midst of failing markets, low consumer confidence and potential credit difficulties (Adair *et al.,* 2009). As pressures increase and home buyers become better informed; proactive construction organisations are realising the need to redesign and redevelop their business strategy to practice good customer relations (Forsythe, 2007). As a result, house builders need to identify and understand buyer needs in order to continuously improve their service level.

DECISION MAKING PROCESS

It has been suggested by Wright (2006) that consumers undertake a standard decision making process when buying a new home. Initially, this process begins with *"need awareness"* where the consumer recognises that there is a problem with the current situation and that there is a need for change (Wright, 2006). This is followed by the consideration of the *"evoked set"* which is the group of products that instinctively come to mind when considering a purchase (LeBlanc and Turley, 1994). The evoked set is determined by the types of homes available within the marketplace at that particular time, which may include, but is not limited to; an apartment, semi-detached or detached home, bungalow, new modern home or a period, character-full home.

The next stage involves an evaluation of potential alternatives, through an *"information search"*, where each criterion is ranked in first, second, third order etc. For example, if a consumer decides to downsize due to their age, then it is likely that a bungalow or apartment will gain the highest rank and thus the other options will feature further down the list – however, they may never be totally discounted. If a decision cannot be made, the consumer will return to the search phase.

Once a consumer has decided to purchase a specific type of home, they will consider vital aspects such as location, price and the type of house builder, also known as the

"evaluation of alternatives process". This is emphasised by research undertaken by the NHBC (2008) which suggests that the location, type and design of a property will have a significant influence on the final purchase deliberations. The results shown in figure 1 overleaf highlights that location is the most influential factor, closely followed by number of bedrooms. Disappointingly, energy efficiency was the least influential factor influencing decisions (NHBC, 2008).
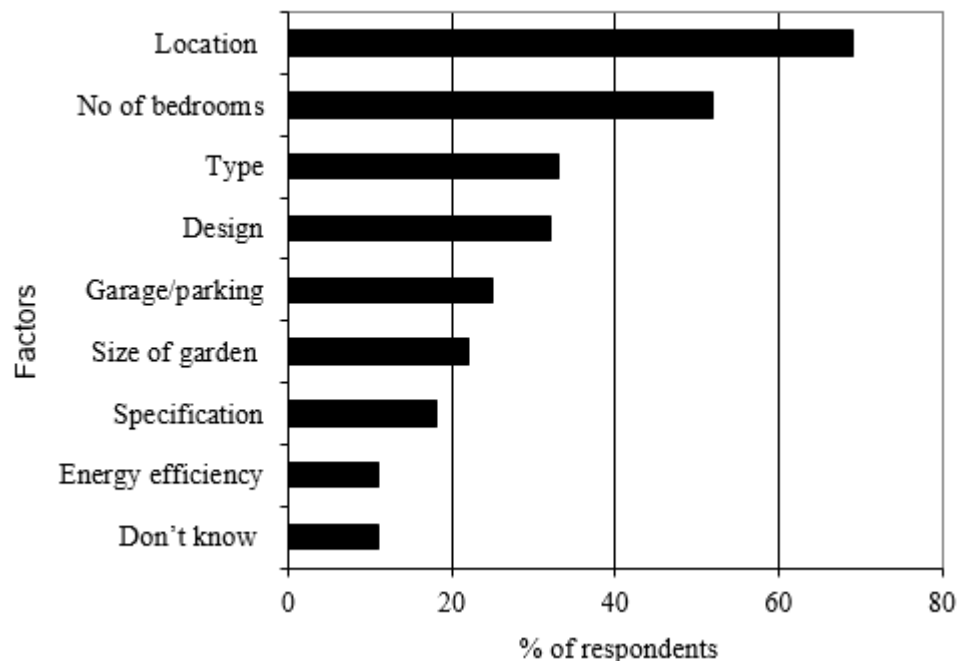

Figure 1: Chart of the most popular factors influencing the choice of home (adapted from NHBC, 2008).

These results are further emphasised by a recent study undertaken on the behalf of the National Association of House Builders (NAHB, 2013) which states that home owner's rate energy efficiency highly on their *"most wanted"* list. According to the NAHB (2013) *"94% of home buyers want energy-star rated appliances, 91% want an energy-star rating for the whole home, 89% want energy-star rated windows and 88% want ceiling fans"*. A survey conducted by Opinion Matters (2011) with a 1,556 UK adults, states that more than 50% of home owners claim that the happy to pay more for an energy efficient property. In fact, one in five buy willing to pay up to £1,000 extra and one in ten claimed that they would pay additional £5,000 for energy efficient features; highlighting that energy efficiency is important to house buyers.

Having identified popular factors influencing the choice of home as stated by the NHBC (2008), this paper presents the results of a similar questionnaire developed to determine whether or not public opinion has changed.

METHODOLOGY

This study conducted research with a philosophical underpinning of objectivism, based on a positivism outlook which uses a mixed method research technique in a deductive way.

For many years the adoption of the positivist approach has been the dominant paradigm used to conduct consumer research which is based on the assumption that

consumers are *"rational, stable and knowable entities"* (Pachauri, 2002) and that the causes of behaviour can be *"identified, manipulated and predicted"* (Pachauri, 2002). When related to consumer behaviour, positivism states that consumers have little overall control over their decisions and instead, are influenced by other internal or external forces (O'Shaughnessy, 1985). This particular research, therefore, analysed facts in order to explain whether or not the views and opinions of house buyers and house builders are aligned in order to influence the uptake of more energy efficient homes.

A questionnaire (face to face and postal) technique was selected to primarily gain an understanding of the underlying views and opinions of construction buyers, potential buyers, new home buyers and house builders which provided 202 responses. The response rate for each group is shown in table 1 below.

Table 1: Response Rates

Groups	Number distributed	Number of replies	Response Rate
Construction buyers	90	72	80%
Potential buyers	130	79	61%
New home buyers	76	33	43%
House builders	79	18	23%
Total	375	202	54%

*Note: construction buyers are individuals who work in the construction industry and who are also *"potential"* buyers.

The potential buyer sample relates to anyone living in Scotland who is over the age of sixteen and who may be in a position to either buy or rent a home. This particular sample was selected to represent the views of the *"average"* consumer and the wider population. During the data collection process, an exponential non-discriminative snowball sampling technique began to emerge. This *"chain referral"* process was very simple, cost efficient and required very little planning.

The new home buyer sample, on the other hand, refers to house buyers who had purchased or are currently renting a private new build home which was constructed within the last three years. As energy efficiency ratings and Zc awareness has seemingly increased over the last three years, this sample was selected to provide a comparison between the other groups to determine whether or not house buyers who had moved home recently, had different views from those who moved home many years ago. The data collection for new home buyers was undertaken using a random sampling technique.

The construction buyer sample was chosen to establish the effects of *"informed decisions"*. Whilst working for construction firms, such buyers were expected to have different opinions compared to *"average"* house buyers due to their increased knowledge of energy efficiency and sustainable practices allowing for deeper, more interesting comparisons to take place between the various samples.

Finally, the house builder sample was selected to gain the views and opinions of those at the forefront of the housing industry. The house builders were given a different questionnaire which asked them to provide information about what they thought buyers wanted from their new homes. This allowed a comparison to be made between what house buyers said they wanted and what house builders thought that they

wanted. Although the poor response rate achieved for the number of house builders is subject to some sample limitations which makes generalisation difficult, some basic analysis was undertaken within this group in order to provide an understanding of general tends.

RESULTS

The paper reports a small aspect of a more comprehensive survey where an analysis of the results has been obtained from the stated questionnaires in order to;

Identify the key factors which influence buyer decisions about whether or not to rent or purchase a particular home and compare these to the NHBC study undertaken in 2008.

Determine whether or not a gap exists between the views of house buyers and builders.

Although the following results are subject to some sample limitations, the results aim to provide an understanding of general tends which require further investigation.

Respondents (excluding the house builders) were asked to state the main reasons for deciding to purchase or rent their current home, where 115 terms were identified. From the 184 respondents who answered this question, the most influential factor was location which contributed to 14.94% of the total factors identified. Only 8.7% (n = 10) of the 115 terms were responsible for over 51.39% of the total items analysed.

According to Sanders (1988), Vilfredo Pareto was a nineteenth-century sociologist who reported through observation that approximately 80% of wealth was concentrated in 20% of the population. Table 2 overleaf shows that 22% of the terms used in the main database (26 factors) are responsible for approximately 73% of the total factors observed which demonstrates that the 80/20 rule can be applied to this particular research. This imbalance of terms suggests that focusing on the most influential factors would encourage the uptake of more energy efficient homes by members of the public.

Table 2: Reasons for choosing the home including percentages.

Description	Total	%	Description	Total	%	Description	Total	%
Location	107	14.94	Garage	4	0.56	Suited needs	1	0.14
Cost	57	7.96	Rental income	4	0.56	Market conditions	1	0.14
Size	53	7.40	Own space	4	0.56	Low carbon	1	0.14
Area	36	5.03	Facilities	3	0.42	Low rent	1	0.14
Price	27	3.77	Community	3	0.42	Needed to move fast	1	0.14
Space (actual)	25	3.49	Freedom	3	0.42	New to the market	1	0.14
Garden	20	2.79	Available land	3	0.42	No main roads	1	0.14
Amenities	17	2.37	Better home	3	0.42	Crime levels	1	0.14
Schools	13	1.82	Having a child	3	0.42	Accessibility	1	0.14
Transport network	13	1.82	Responsibility	3	0.42	Accommodation	1	0.14
Close to work	12	1.68	Modern	3	0.42	Aesthetics	1	0.14
Number of rooms	12	1.68	Looks	3	0.42	Future	1	0.14
Close to family	11	1.54	Upgrading	3	0.42	Appearance	1	0.14
Neighbours	11	1.54	Surroundings	3	0.42	Government incentive	1	0.14
Design	11	1.54	Income increase	3	0.42	Room to expand	1	0.14
Investment	11	1.54	Necessary	2	0.28	Heating bills	1	0.14
Energy efficiency	**10**	**1.40**	No work to do	2	0.28	Savings	1	0.14
Style	10	1.40	Noise levels	2	0.28	Large kitchen	1	0.14
Right for the family	9	1.26	Own home	2	0.28	Second choice	1	0.14
Independence	9	1.26	Roommate/flatmate	2	0.28	Short term	1	0.14
More (extra) space	8	1.12	Room size	2	0.28	Lifestyle	1	0.14
Parking	8	1.12	New home	2	0.28	Length of lease	1	0.14
Layout	7	0.98	Decoration	2	0.28	Letting agent	1	0.14
Comfort	7	0.98	Driveway	2	0.28	Stamp duty	1	0.14
Quality	7	0.98	Economical	2	0.28	Long term plan	1	0.14
Potential to add value	7	0.98	Personal circumstance	2	0.28	Student	1	0.14
Type of home	6	0.84	Practicality	2	0.28	Bungalow	1	0.14
Availability	6	0.84	Specification	2	0.28	Change	1	0.14
Views/outlook	6	0.84	Standard	2	0.28	Inheritance money	1	0.14
Value for money	6	0.84	Age	2	0.28	Insulation	1	0.14
New build	5	0.70	Convenient	2	0.28	Internal fittings	1	0.14
Maintenance	5	0.70	Bills	2	0.28	Hosting parties	1	0.14
Safety	5	0.70	Central	2	0.28	Games room	1	0.14
First time buyer	5	0.70	Character	2	0.28	Ventilation	1	0.14
Condition	5	0.70	Heating system	2	0.28	Family dispute	1	0.14
Move in with partner	5	0.70	Profit	1	0.14	Homeless (no choice)	1	0.14
Close to motorway	5	0.70	Property developer	1	0.14	Wellbeing	1	0.14
Affordable	5	0.70	Traditional features	1	0.14			
Re-sale	5	0.70	Rent includes bills	1	0.14			
Total no of items = 115; Total count = 716								

When reviewing the literature and research results regarding the reasons why house buyers bought their current home, a level of disagreement was found. The reasons provided by consumers for purchasing their current home fell into 6 distinct categories relating to *"independence, economic, external environment, internal environment, practicality and other"* which were based on 115 individual factors identified. However, such results largely contradict research previously untaken by the NHBC (2008) which claims that only 9 individual factors were identified when they asked house builders to spontaneously mention the key factors affecting buyer purchases. The research therefore contributes to the body of knowledge by identifying almost 13 times the number of factors identified by the NHBC. Moreover, the results from the NHBC study showed that house builders believed that energy efficiency was among

the top 8 factors influencing the consumer's choice of home. However, the findings from this research undertaken in 2013 show that energy efficiency was not mentioned within the top 8 factors, as shown in table 3 below.

Table 3: House builder versus house buyer perceptions of housing priorities.

Ranking	NHBC (2008) house builder perceptions of homeowner priorities	Findings from this research i.e. actual house buyers (2013)
1	Location	Location (specific)
2	No of bedrooms	Cost (overall cost of living)
3	Type	Size
4	Design	Area (general area)
5	Parking	Price (of home)
6	Garden	Space
7	Specification	Garden
8	Energy Efficiency	Amenities (nearby)

THE *"IDEAL"* HOME

Respondents were also asked to consider their *"ideal"* home relating to CO_2 emissions, additional cost (over and above their current budget), location, personal involvement (in the buying process), features (hi-tech, low tech, modern and period) and their toleration of problems in order to assess their expectations relating house buying. All 202 questionnaires have been included in the analysis of this question, allowing a comparison between house buyers and builder.

The potential buyers were the most likely group to purchase a Zc home (46.84%) followed by new home buyers (36.36%). Surprisingly, the construction buyers were the least likely group to purchase a Zc home and are in fact, more likely to purchase a home which is being built to current practice standards compared to the other groups. Although the majority of buyers do not wish to pay the additional costs associated with energy efficient homes, new home buyers are however, more likely to accept additional costs in excess of £20,000 for energy saving features within their new home. Furthermore, all of the consumers want homes in the best possible (1st choice) locations, which strongly aligns with the views of the house builders. Figure 2 overleaf, shows some variance in shape between the opinions of the house buyers and house builders was discovered, particularly relating to the toleration of problems and the level of personal effort that buyers would like whilst purchasing a new home. The findings show that consumers believe that they have a medium level of toleration of problems which may be encountered when purchasing a new home, for example, issues relating to defects and snagging. House builders, however, believe that buyers are unwilling to accept such issues and have a low toleration suggesting that house builders underestimate their buyers to some extent. On the other hand, the majority of house builders believe that consumers want more involvement in the purchase process, when in fact; the house buyers opted for medium personal effort, suggesting that they want a *"hassle"* free option.
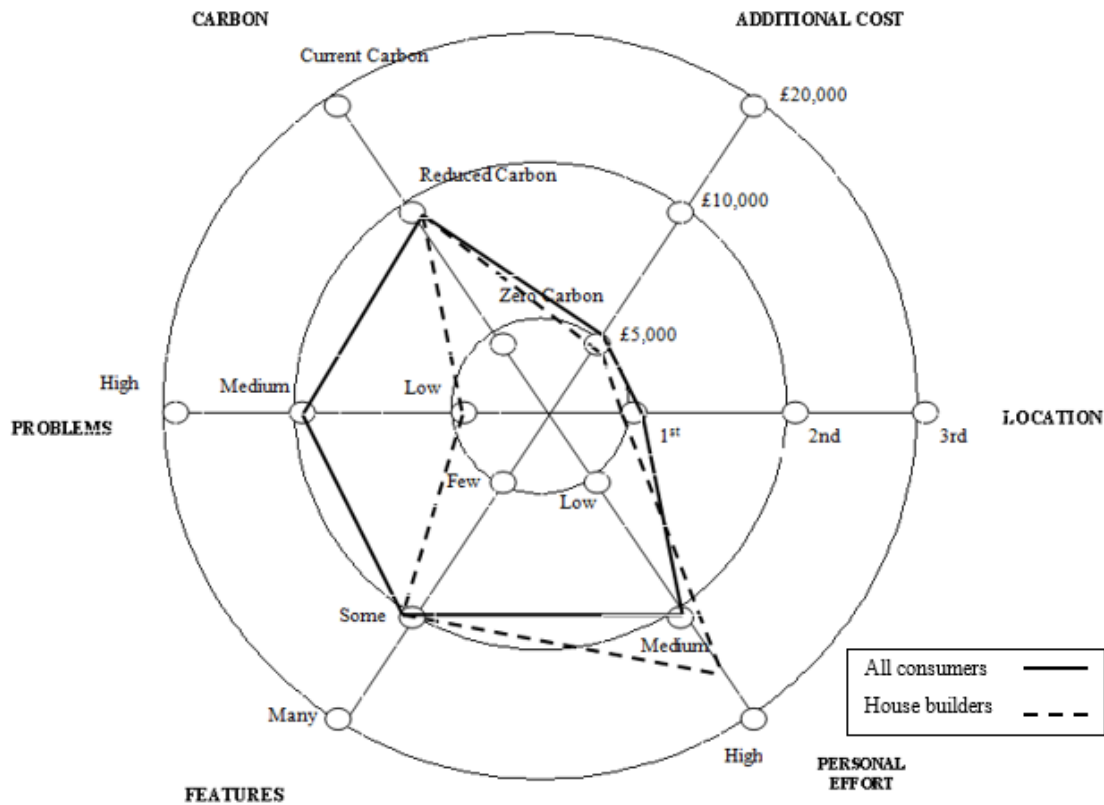
Figure 2: Radar diagram of the ideal home, house buyers versus house builders.

Additional results found that although house buyers believe that the range of homes currently available within the marketplace is good; many house builders believe that the choice is very good. Similarly, house buyers perceive show homes as being helpful; again house builders believe that they are very helpful. This overestimation was also apparent in the results obtained when asked about the level of new home buyer satisfaction, where the house builders overestimated their ability of delivering homes in accordance with time, cost, quality and safety by 18%. Such overestimations and underestimations can be seen in table 4 below.

Table 4: Over and Underestimations.

Factor	House builder	House buyer	Over or underestimation
Choice within the marketplace	Very good	Good	Overestimation
Show homes	Very helpful	Helpful	Overestimation
Kind of home	Low tech	High tech	Underestimate
Toleration of problems	Low toleration	Medium toleration	Underestimate
Satisfaction of time, cost, quality and safety	94%	76%	Overestimation
Satisfaction of needs, wants and desires	79%	75%	Minor overestimation

CONCLUSIONS

The findings from this research show that energy efficiency did not feature within the top 8 factors influencing buyer decisions. Instead, the results obtained from this study are much more monetary focused as both the overall living cost and price of the home were included within the top 7 factors influencing home buying decisions. This undoubtedly relates to the unstable conditions of the Scottish (and indeed wider UK) housing market over the last few years, where lower house prices, unstable mortgage

advances, high unemployment and job uncertainty are having a negative impact on consumer buyer behaviour.

However, this contradicts the findings when compared to the *"ideal"* home where buyers opted for a reduced carbon home. This suggests that there is a misalignment between perceptions and reality. The impact of this finding is that the Government must recognise that consumers believe that energy efficient homes are out with their current capability and although they would be open to living in a reduced carbon home in the future, financially they are not willing to pay the inflated premiums.

Throughout the research findings and discussions, it was discovered that house builders often overestimate their own abilities and underestimate their buyers. The significance of this finding is that it highlights a need for house builders to actively undertake more research relating to the views and opinions of their home buyers.

Although the results obtained can only be used as an indication of general trends due to the restricted sample size, with the knowledge gained as part of this research, house builders should have a clearer idea of the needs, wants and desires of their house buyers, relating to energy efficiency.

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