Snagging Surveys: An investigation of finishing quality in new housing

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Compiled: 2005/06

Printed: April 2006

B.Sc. (HONS) Building Surveying: 2005-2006

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1 ABSTRACT

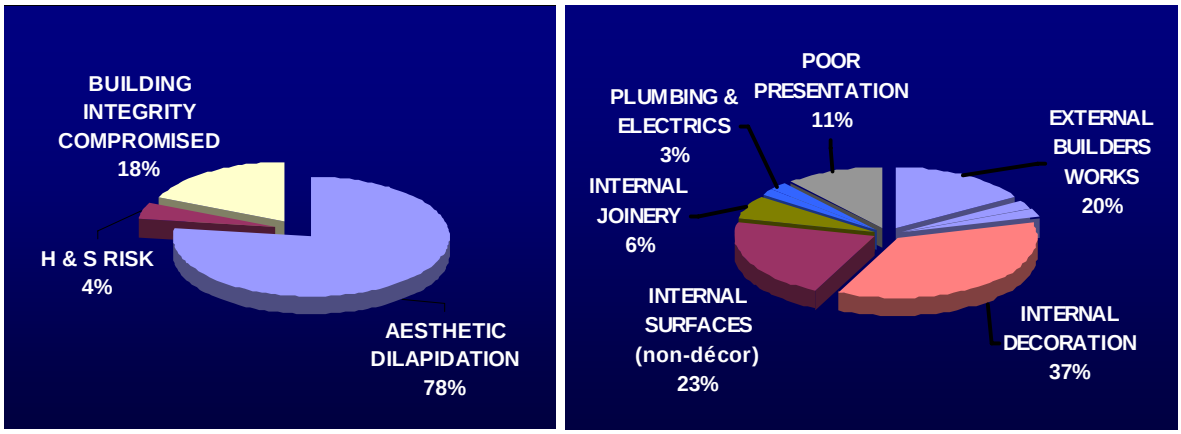
1.1 Important Definitions & Abbreviations

Snagging:	An act of rework; the unnecessary effort of re-doing a process or activity that was incorrectly implemented the first time. In house construction it is the process by which an item is made to conform to the original requirement by completion or correction (Love & Li 2000)
Snagging Survey:	A detailed inspection report of a newly completed building providing a defect assessment focused on industry established finishing standards
Building Defect:	A departure from good practice as defined by criteria in the Building Regulations, British Standards and Codes, and the published recommendations of recognised authoritative bodies. BRE (1982:03)
NHBC:	National House Building Council (UK)
BRE:	British Research Establishment
HBF:	House Building Federation (UK)
ODPM:	Office of the Deputy Prime Minister (UK)

1.2 Summary

This dissertation recognises a current perception of general dissatisfaction with the handover condition and finish of new housing within the United Kingdom (UK). By utilising data from a finite sample of end-customer commissioned defect reports, commonly referred to as *snagging* surveys, the dissertation sets out to substantiate that existing control systems and policies for finished product quality and consumer protection within the UK new house-building industry are not effective in delivering and progressing acceptable quality performance and customer satisfaction.

Through defect analysis and pathology the report identifies and apportions prime building function and trade skill deficiencies, including insufficient drainage & rainwater disposal, lack of external and internal joint & timber sealing and premature aesthetic dilapidations due to sub-standard workmanship or simply a lack of care.



Extract from Ch4 'Result Findings': Defect association with Building Function & Trade Skills respectively

Such basic failings, when related to a construction industry with an established focus on achieving excellence in the eyes of clients[1] are deduced to reflect an unacceptable level of interest in client satisfaction by the private UK housebuilding industry: Evaluation of the results with historical data and comparison with industry and government standards for new house-building concludes that the current system fails to ensure a consistent "duty of care" responsibility on those agents acting on the end-customer's behalf in delivering a value-for-money product: This is certainly the case in terms of current asset value through dilapidated handover condition and potentially detrimental to future asset value through reduced longevity and accelerated maintenance activity due to latent risks to building integrity.

A number of supplementary measures are recommended that in the author's opinion would encourage a greater duty of care on house-builders to deliver an appropriate standard of product to the end-customer: These include a statutory contract of sale for new homes (rather than vendor prescribed) with payment retention clause, national standardisation and modernisation of the Housebuilding Industry's snagging management practices and reporting systems, and a immediate revision of UK sales legislation and new home certification system structure to redress the buyer-seller balance of rights in the new build housing market.

[1] The Rethinking Construction initiative (Egan 1998) established the industry vision "to realise maximum value to all customers and exceed their expectations" (Constructing Excellence 2006)

2 INTRODUCTION

2.1 Background

The current dominant organisation representing the interests of over 85% of new house owners (NHBC 2005) in terms of establishing, monitoring and warranting acceptable quality standards for new UK housing construction are the National House Building Council. The NHBC is a private non-profit organisation funded not by the end-customer, but by the Builders and Developers supplying the housing product. This inevitably places the NHBC in conflict when attempting to balance both end-customer and developer interests in determining the extent that quality measures should be routinely inspected and enforced. This conflicting interest is further challenged by the introduction of competition for the NHBC from the late 1980s onwards, where the builder, not the end-customer, selects which quality management company will establish and enforce quality standards upon them.

External monitoring and testing of the house-building industry's quality performance has become limited to either consumer satisfaction surveys, lacking the technical detail to determine cause-and-effect, or only that information the NHBC selects to circulate within the public domain. It is deduced that in a competitive private industry the NHBC fear that by disclosure they will lose their competitive edge or risk alienating existing and potential building clients. However, one would speculate that the suppression of such information inevitably restricts quality improvement for the benefit of end-customers, a view re-enforced by the findings of the UK Government commissioned 'Review of Housing Supply' final report stating that 'customer satisfaction levels have fallen since 2000, with only 46 per cent of customers saying that they would recommend their house-builder' (Barker 2004:112).

A relatively recent source of end defect information is more accessible in the form of end-customer commissioned "snagging" surveys. These reports are compiled as a direct result of customer dissatisfaction with the finishing condition of their new home on transfer from the builder/developer and therefore provide an available source of defect data in relation to investigating quality performance in new housing.

2.2 Objectives & Methodology.

In analysing snagging defect data the dissertation aims to satisfy a number of key questions:

What are the common/most serious defects found after a developer has handed over a new house to the end-customer? By cumulative collation of the defect information a more complete picture of defects occurrence, frequency and nature is obtained. Further analysis of the results and assimilation with other available data on housebuilding finishing defects seeks to reinforce the validity of the findings.

Are any/all of the defects acceptable, in terms of established professional standards & best practice and previous historic defect studies? Through a comparative study with current NHBC Housebuilder finish quality standards and historical defect analysis & recognition, the dissertation seeks to ascertain whether the nature and level of defects discovered is sufficient evidence of unsatisfactory housebuilder performance with respect to quality improvement and ready compliance to standards

What deductions can be concluded in relation to the existing quality control processes and legislation for new UK housebuilding? The scale and nature of the defects discovered, combined with an assessment of the perceived level of commitment housebuilders demonstrate to defect reduction, provides adequate information to conclude the effectiveness, and potential for improvement, of UK control mechanisms and factors influencing housebuilders' interest and priorities with respect to finished product quality and ultimately customer satisfaction.

3 CURRENT QUALITY PERCEPTIONS

It is first appropriate to establish credibility to the claim that there is an existing perception of significant general dissatisfaction with the handover condition and finish of new housing within the UK. This is best achieved with an appraisal of impartial Housebuilding Industry and UK Government statistics and sponsored independently commissioned reviews.

During 2003/4 a total of 171,588 private UK new homes were completed (ODPM 2006a). In the same period the NHBC received 58,300 dissatisfaction enquiries and processed 12000 claims against housebuilders (Carter 2005). The Office of Fair Trading additionally received a further 3990 complaints related to housing construction (OFT 2005). These statistics suggest concerning levels of 5 to 10 percent deep customer dissatisfaction and can be further supplemented with the most recently published findings of the National Customer Satisfaction with New Homes Survey on 10,000 new UK home owners, independently commissioned by Constructing Excellence's Housing Forum and sponsored by the ODPM. The Survey covers a number of key satisfaction areas including the standard of finish, defects requiring builder rectification, and perception of value for money. The salient findings of this survey were echoed by the comments and accepted recommendations of the UK Government commissioned 'Review of Housing Supply' final report stating at Recommendation 32….

> The House Builders Federation should develop a strategy to increase the proportion of house buyers who would recommend their housebuilder from 46 percent to at least 75 per cent by 2007. Over the same period, levels of customer satisfaction with service quality should rise from 65 per cent to at least 85 percent. (Barker 2004:112).

According to the survey a staggering 90 percent of homeowners experience defects/snags with only 51 percent of these satisfied with the service provided in dealing with these problems (Constructing Excellence 2005). Rather than improving satisfaction levels between 2000 and 2004, repeated surveys indicate at best that general satisfaction levels have remained unchanged and at worst has fallen by between 5 and 10 percent.

A secondary industry source of statistical information was made available through the November 2004 Housing supplement of Building magazine. The magazine quotes a 2004 survey by Zurich Insurance, supplier of a rival new home warranty scheme to the NHBC. The article states (Smith 2004:27) that according to the Zurich First Customer Survey results 2004 'nearly 70% of buyers had not had all their snags attended to before they had moved in, and more than 60% of customers were less than satisfied with feedback regarding when and how remedial work would be undertaken'.

Overall these multiple sources of customer feedback combine to establish that approximately 10 percent of new home owners can be considered extremely dissatisfied, and as many as 60 percent generally dissatisfied, with the finish condition of their property and the processes available for remedying those failings. More telling is the historical statistical evidence that this is not a new problem but one that has persisted for a number of years without improvement.

4 THE INVESTIGATION RESULTS

The prime objectives of the data collation and review were to determine:

- The common/most serious defects and implied deficiencies found after a developer has handed over a new house to the end-customer;
- The acceptability of any/all of the defects in terms of established professional best practice and previous historic defect reporting
- The associated implications in relation to current housebuilder defect management practices and control mechanisms.

4.1 Sample Sourcing & Selection

Defect report data was sourced from a single midlands-based organisation 'Brick Kickers' [2] specialising in providing professional snagging surveys throughout middle and eastern England: All surveys in the sample were conducted by two experienced and qualified Building Surveyors to maintain consistency in reporting and were all under warranty by the NHBC for consistency in standards referencing.

The cumulative data sample was collated from 32 survey reports conducted during 2005 on detached 3 to 5 bedroom housing constructed by 13 private UK housebuilding companies[3]. All the housebuilders involved are established regional or national housebuilding companies with at least 40 years focused private housing construction experience. All the companies are additionally recognised as quantity housebuilders, constructing between 900 and 16000 homes in 2005 and with an annual turnover ranging from £150 million to over £2 billion. (2005 published company figures).

The 32 surveys provide a total defect count of 4523 defects categorised into 100 differing defect descriptions and providing a mean of 141 defects per property survey.

[2] Brick Kickers available online at www.brickkickers.co.uk
[3] at Brick Kickers request the building company identities have been removed from publication

4.2 Data collection & structure

Each snagging survey[4] provides a numbered log of each defect found; the description and specification of the defect is aligned to NHBC and Building Regulation standards. The initial objective was to capture the frequency of occurrence of each defect in each survey without filtration; format selection needed to facilitate accurate manual entry of information, while providing functional flexibility for the organisation and presentation of data. A spreadsheet of one hundred comprehensive defect descriptions tabled against each survey was populated for this purpose.[5]

An initial review of the cumulative defect data prompts the following observations:

- The majority of defects (78%) related to aesthetic values of internal finishing
- A substantial number of defects (22%) carried significant implied risks relating to existing and future building integrity and occupier health and safety.
- The fundamental nature of many of the defects suggested an overall distinct lack of care or a basic lack of trade skills/understanding.
- A number of defects (1.7%) were non-compliant with established building regulations; 25 of the 32 surveys sampled had at least one contravention.

Given these initial findings, the results were further evaluated in two separate studies; defects sub-categorised in relation to their potential impact on key functional aspects of the building, including aesthetic requirements and defects sub-categorised into associated trade skills.

4.3 Presentation of the Findings

The following charts 4.1 & 4.2 present a visual summary of the completed findings, providing a proportional breakdown of cumulative defects represented as categories for building function and trade skills. The subsequent tables support the charts with summary data on cumulative totals of categorised defects. A full record of the captured data tables is contained in Appendix 1.

[4] For sample snagging survey format see Appendix: Section II
[5] For full tabulated records of snagging survey data see Appendix: Section I

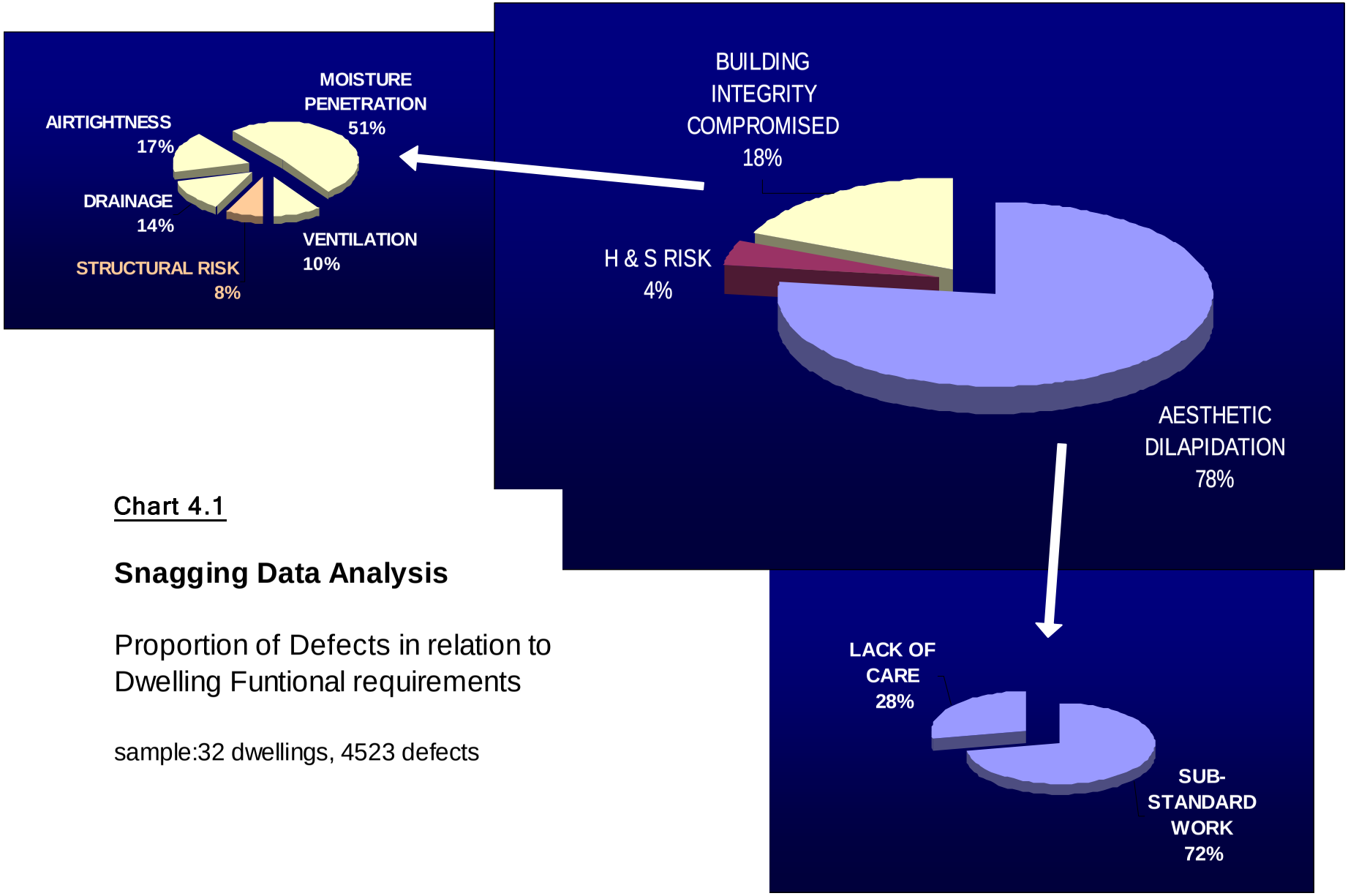


Chart 4.1

Snagging Data Analysis

Proportion of Defects in relation to Dwelling Funtional requirements

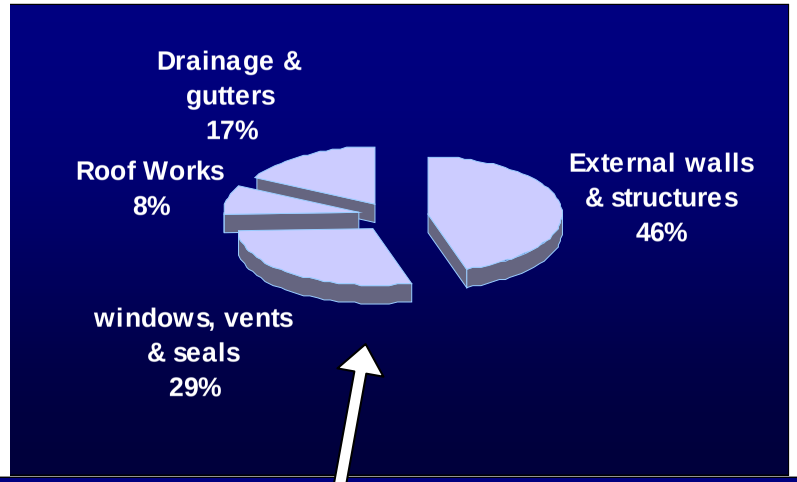
sample:32 dwellings, 4523 defects

Chart 4.2

Snagging Data Analysis

Proportion of Defects in relation to associated trade skills

sample:32 dwellings, 4523 defects



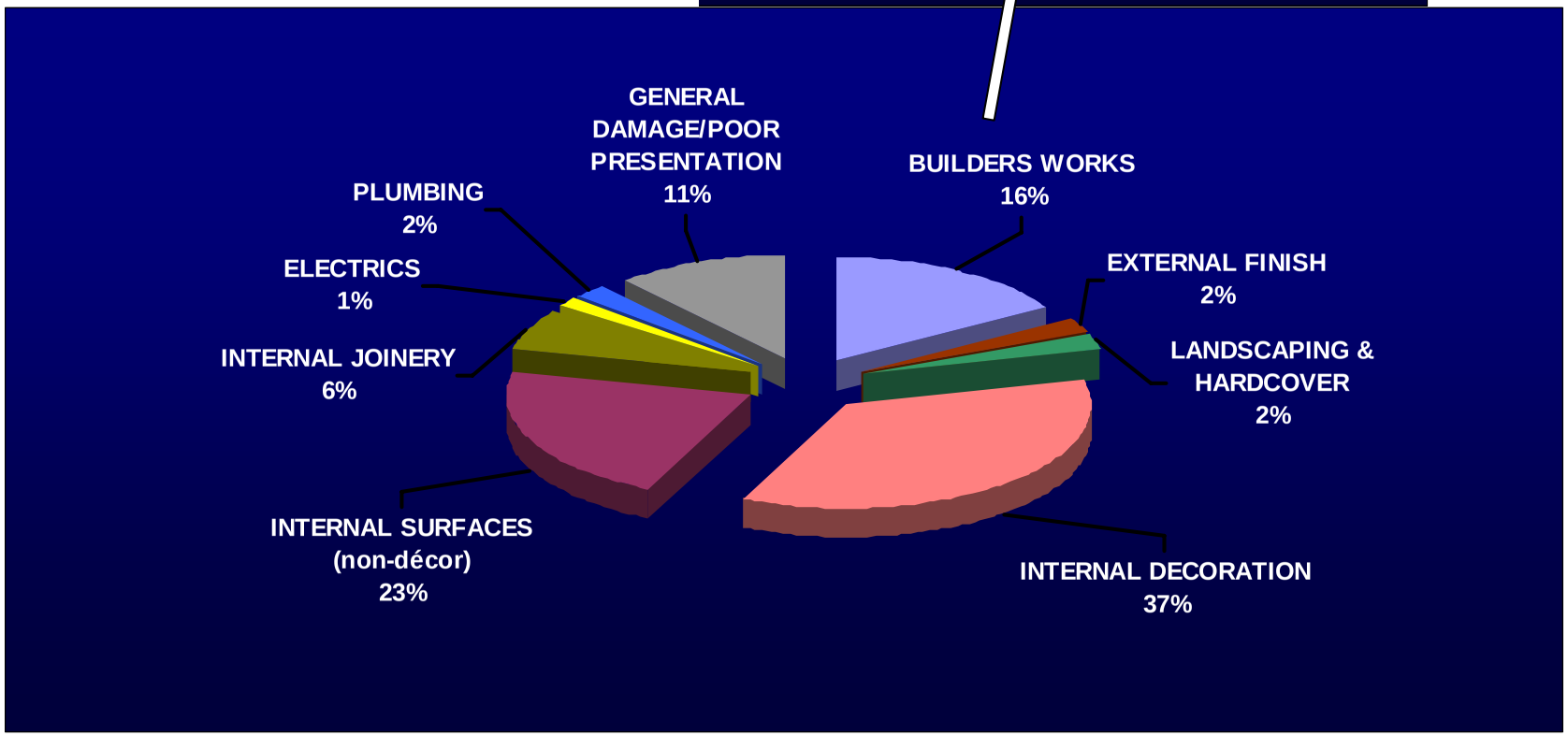


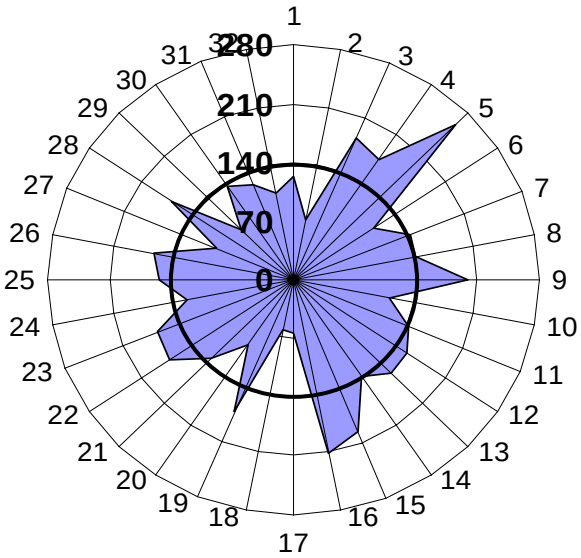
Table 4.1: DEFECT RESULTS RELATED TO BUILDING FUNCTION		
AESTHETIC DILAPIDATION	(78%)	3489
External		311
Internal		3178
SUB-STANDARD WORK		2513
LACK OF CARE		976
HEALTH & SAFETY RISK	(4%)	203
External		84
Internal		119
BUILDING INTEGRITY COMPROMISED	(18%)	831
External		626
Internal		205
STRUCTURAL RISK		72
DRAINAGE		127
AIRTIGHTNESS		154
MOISTURE PENETRATION		466
VENTILATION		95

Table 4.2: DEFECT RESULTS RELATED TO TRADE SKILLS		
EXTERNAL FINISH	(2%)	106
LANDSCAPING & HARDCOVER	(2%)	112
INTERNAL DECORATION	(37%)	1612
INTERNAL SURFACES (non-décor)	(23%)	987
INTERNAL JOINERY	(6%)	288
ELECTRICS	(1%)	57
PLUMBING	(2%)	106
GENERAL DAMAGE/ POOR PRESENTATION	(11%)	515
BUILDERS WORKS	(16%)	740
External walls & structures		336
windows, vents & seals		215
Roof Works		62
Drainage & gutters		127

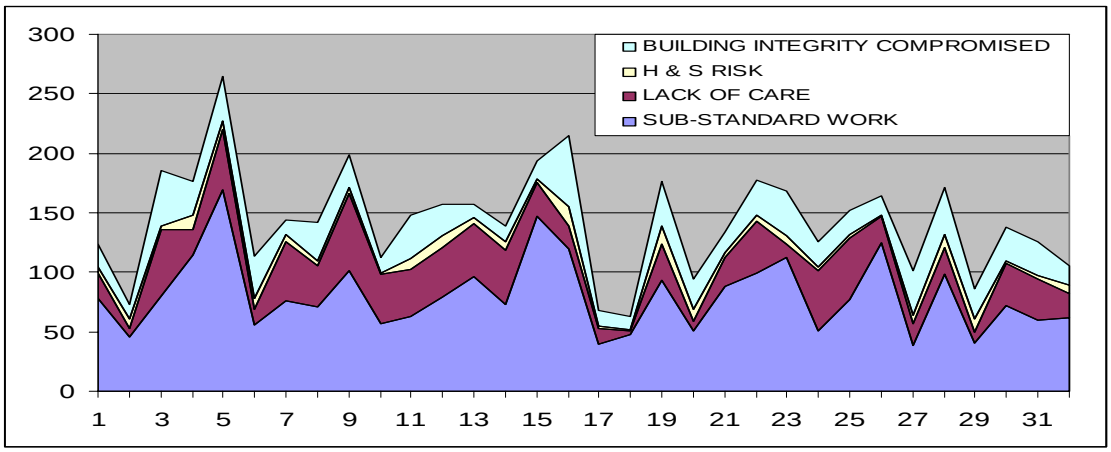
TOTAL DEFECTS (for 32 dwellings)	4523

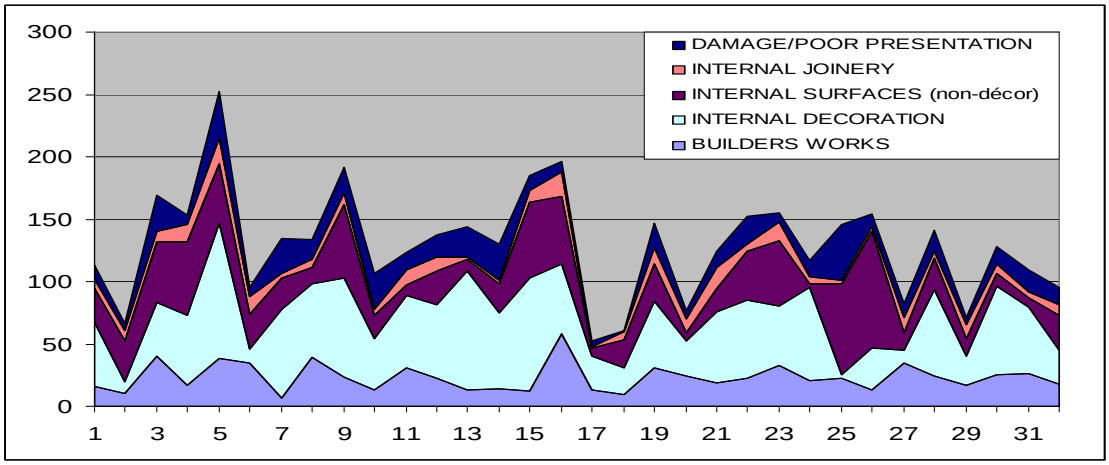
4.4 Data range and consistency

The following radar chart provides a visual indication of the actual distribution of defects found across each of the 32 properties surveyed; the average of 141 defects is emphasised; some fluctuations are inevitable given a limited sample and variations in property size and diligence of the individual builder, but overall the results show a satisfactory concentration around the mean.



The charts below additionally provide simple visual confirmation of consistent proportional distribution of defects across the majority of individual surveys





4.5 Comparative Analysis

4.5.1 Benchmarking satisfactory quality

In realising the result findings consideration was applied to the definition of quality control in terms of expectations of defect occurrence. The dissertation adopts a fair and practical definition provided by Powell (1971,5) that

> While perfection in any product is desirable, it is unattainable … because the nearer one gets to perfection the greater the likely cost. Therefore quality is concerned with defining the levels of acceptable imperfection, or tolerances, and in ensuring the minimum standards are achieved.

Application of this principle is achieved by utilising the NHBC standards to benchmark acceptable quality and meeting or exceeding that benchmark as a measure of successful quality control.

4.5.2 Comparison with the current NHBC Standards

The NHBC is the Standard setting body for new homes in the UK; 85% of new homes are constructed by NHBC registered housebuilders who agree under the terms of registration to comply with NHBC Standards. The NHBC additionally advocates itself as promoting best practice, with its governing council represented by key stakeholders with an interest in raising standards in UK housebuilding, including Financial, Government, Legal and Consumer organisations (NHBC 2005). The NHBC Standards therefore form an essential element of comparison when attempting to establish the degree to which housebuilders are meeting standards and quality expectations of finished product.

The NHBC Standards give the technical requirements, performance standards and guidance for the design, construction and finish of dwellings acceptable to the NHBC. It is necessary to provide a selection of relevant extracts from the NHBC Standards (2000 Edition with 2002 revisions) to adequately prepare the reader in understanding the minimum requirements the standards expect housebuilders to conform to, and the conclusions deduced from comparative analysis with the snagging data under evaluation.

Part 1 of the NHBC Standards (NHBC 1999) provides a number of key general technical requirements housebuilders must satisfy to remain compliant.

> R1 Statutory compliance with current building regulations and other statutory requirements relating to completed construction works
>
> R3 Materials, products and building systems to provide a minimum of 60-year structural life.
>
> R4 Workmanship; carried out in a proper, neat and workmanlike manner including satisfactory prevention of damage from storage, movement, weather and follow-on trades.

In direct contradiction the dissertation result findings have already noted that nearly every home snagging survey contained at least one contravention to Building regulations. It was also noted that the reported defects associated with aesthetic dilapidations, accountable for 78% of the total defects, either related to sub-standard workmanship or a simple disregard for care to prevent damage. The remaining majority of 18% of faults related to defects that were deduced to hold significant future risks to building integrity, such as allowing moisture penetration; such defects would put into question the ability of the property to deliver a 60 year structural life without at least the need for premature and excessive maintenance activities.

To reinforce the position that the results not only suggest regular non-compliance but also a disregard for the standards, Table 3.1 provides a necessary comparison of a selection of relevant NHBC standard specifications with directly opposing reported snagging defect descriptions.

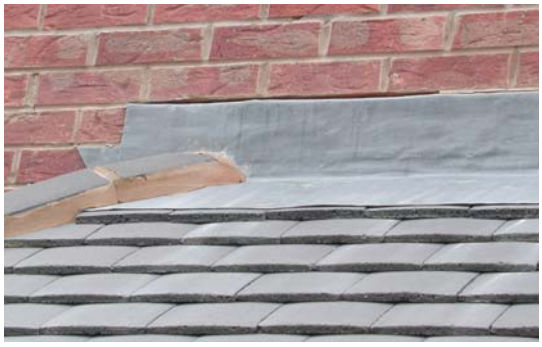
Table 3.1

NHBC Standards (NHBC 1999)	Reported Defect Descriptions
Part 6.1 – EXTERNAL MASONARY WALLS **D4** External walls shall be suitable for their exposure and resistance to the passage of moisture to the inside of the dwelling. **b)** Rain penetration – mortar joints: All joints should be fully filled. **D15** Rendering, in conjunction with the surface to which it is applied, shall satisfactorily resist the passage of moisture. **S2 (b)** Construction shall ensure a satisfactory standard of brickwork and blockwork; Perpendicular joints should be kept in line and plumb. Courses should be kept level using lines and spirit levels. **S2 (g)** A regular bonding pattern is to be maintained **S4** A DPC should provide a minimum of 150mm above adjoining internal and external surfaces	EXTERNAL WALLS • Cracked/damaged brickwork/sills or open sills • Significant gaps: facia/ wall or wall/ roof • Lack of significant mortar fill / seal • Missing/cracked/damaged render • Brickwork bonding mis-alignment • Poor uniformity/bowing - openings (no former) • Poor/untidy pointing/mortar to brickwork • DPC compromised (<150mm to gnd)

	Continued…
PART 6.7 – DOORS, WINDOWS & GLAZING **M2 (d)** Surface finish of timber doors and windows: any surface finish defects should not be apparent with a matt paint finish. **S2** Door and window components shall, where necessary, be adequately protected against damp; neither primer nor the first coat (of paint) prevent joinery from taking in moisture. **S3 (k)** Finishing trades should not be relied upon to correct untidy work	EXTERNAL WINDOW & DOOR FINISH • poor finish/peeling paintwork • overpaint & paint drips • insufficient paint/stain cover • inconsistent/damaged materials • poor fitting/condition windows/doors • poor fitting/sealing - frames
PART 7.2 PITCHED ROOFS **S12** Flashings and weatherings shall be constructed to prevent damp entering the dwelling **S15** Roof drainage **(b)** falls: gutters should be laid with sufficient fall towards the outlet (**c)** If a downpipe discharges above ground level or a drainage gully, a shoe should be fixed to the end of the pipe to prevent walls becoming saturated	ROOF WORKS & DETAILING • loose/ broken/ lifting roof tiles • broken/ no seal to roof details (tiles/ leadwork) • blocked gutters (builder's debris) • lack of adequate guttering • wrong gutter fall • poor fitting - guttering (leaks) • gutter misalignment -rainwater capture • downpipe inadequate fixing/ ground discharge
PART 8.5 - PAINTING & DECORATION **S5** Workmanship shall ensure a satisfactory finish **(a)** Painting on wood: door and window furniture, sockets and light switches should be removed before painting to avoid over-painting and splashing. Any surfaces showing deterioration of primer or seal coat should be rubbed down and a second coat applied. All knots should be sealed using knotting **(d)** Painting on plaster / plasterboard skim coat: all joints should be completed and any cracks, nail holes , and surface imperfections filled. The surface should be rubbed down and dusted prior to not less than 2 coats of paint application. For dry lining a seal coat should be applied. **(e)** Quality of finish: brush marks, runs and abnormal roughness should be rubbed down and re-painted. Spilt, splashed or badly applied paint should be removed. On completion there should be no paint marks on any surfaces not intended to be painted. Completed work should be protected against dirt and damage until the dwelling is handed over.	INTERNAL DECORATIVE FINISH • Paintwork/decoration poor finish/ thin/ missing (particularly around fittings & sockets) • Overpainting /grouting/ plaster drops • Marked/ stained walls/ ceilings/flooring • Dented/ gouged/ uneven wall/ ceiling • Joint/ fixings cracks/ pops to ceilings & walls (incl. Architrave and skirting) • Poor jointing (ceilings/ walls/ floor mastic/ caulking) • Poor plasterwork finish
PART 9.2 - DRIVES, PATHS & LANDSCAPING **S4,S5** Surfaces to drives and paths shall be regular, stable, adequately drained and durable **S7** rubbish and debris should be disposed of satisfactorily.	LANDSCAPING & HARDCOVERS • lack of adequate drainage – gardens/paving/patio / driveways • loose/poorly fitted paving/patio • poorly laid drive (tarmac/block paving) • Unacceptable presentation

The photographs that follow are extracted directly from the snagging survey reports forming the sample for this investigation, and provide addition visual evidence of the extent of defect non-compliance encountered…

Wrong gutter fall, lack of guttering & uneven ridge line



No/ poor mortar fill to lead detailing

Lack of waterproof seal to worktop

Paintwork – poor finish/ missing

No provision for disabled access

Unacceptable presentation

Poor floor installation - movement

Over painting (lack of care)

In summary, a comparison of snagging report results with established, acknowledged and agreed to standards & specifications for the finishing quality of UK new-build housing strongly implies a significant under-performance by UK housebuilders in meeting, let alone exceeding minimum finishing expectations. This is not only a potential indictment of those participating in the final construction process but also those involved in the quality inspection and control process prior to property handover; an independent snagging survey is at minimum the third inspection a property should have received, with both the builder and the NHBC expected to have conducted and actioned their own defect assessment programme prior to release of the property to ensure minimum standards are in place at property handover to the home buyer.

4.5.3 Comparison with Historical NHBC reporting

In 1976 the Institute of Building published an occasional paper entitled 'Quality Control in Speculative Housebuilding' containing the defect analysis results for 1000 disputes referred to the NHBC after new home occupation; the defects reported were related directly to finishing deficiencies and validated by qualified inspectors.

Table 3.2 provides an extract from this analysis of the priority listing of the top ten defects reported in 1971 by frequency of occurrence; these results have been tabulated against the dissertation snagging survey result findings for 2005, again in priority order of frequency of occurrence. What is apparent from this comparison is that there has been little change in the key contributing defects detectable at completion in the last 35 years.

The following items were also identified within the 1971 survey results as the top four defect priority items based on both frequency and seriousness of impact to the building function…

> Leaks at gutter joints, Loose pipes, Damp entry at openings, Non-alignment of gutters (Institute of Building 1976:15)

The 2005 dissertation results replicate these findings in terms of key defect contributors to building function performance outside of aesthetic degradation; 18% of the cumulative defects in the snagging records related to compromised building integrity and two thirds of these related to moisture penetration and rainwater disposal/drainage issues.

Table 3.2 Historic comparison of prioritised new home handover defects by frequency

NHBC 1971 survey (Institute of Building 1976:12)	snagging surveys (Brick Kickers 2005)
Rough Internal Paintwork	Internal paintwork & decoration
Incomplete external paintwork	Cracks & pops to ceilings/walls (incl. Architrave and skirting)
Missing mastic pointing to windows	Overpainting/grouting & plaster drops
Incomplete Internal Paintwork	Poor jointing (ceilings/ walls/ floor mastic/caulking) incl. K & BR
Shrinkage gaps	Incomplete/marked or damaged fixtures (stairs, frames, fires, ironmongery, glass)
Ponding on drives	Marked or stained walls/ceilings/flooring
Internal door fitting	Poor fitting /damage to kitchen, bathroom or wardrobe fitted units
External door fitting	Poor plasterwork finish
Cracked, incomplete or flaking plaster	Poor Door/window & frame fitting

The comparison with a credible and referenced source of historical defect data exposes a fundamental lack of drive by both housebuilders and the NHBC to progressively improve the finishing standards of new homes. Defects identified in the 1971 survey are still in the majority of cases the most frequent and serious items identified in the 2005 snagging surveys. The basic nature of many of these faults, such as simple attention to details in sealing external surfaces & openings, adequate provision of surface drainage of rainwater and care in final finish of surfaces and decoration, bears the overriding implication that lack of improvement is not due to the complexity of the issues faced but primarily to a lack of diligence on the part of those responsible for construction and final acceptance of new homes.

5 DISCUSSION OF THE FINDINGS

5.1 Interpretation of the results

An average of 141 defects per four bedroom property are identified after both housebuilder and NHBC are presumed to have inspected and certified compliance with NHBC completion standards: Within the 141 defects there is an 80% likelihood that one of these defects will contravene statutory building regulations, an 18% risk to building functional integrity and therefore premature life expectancy and running costs, and a 4% risk to the occupants direct health & safety. The majority of common defects identified relate to construction trades of low complexity and in general low additional costs to obtain acceptable finishing standards such as installing ample drainage, correct fitting of rainwater goods, effective weather sealing of openings & external joints, and providing a visually attractive, clean and complete set of surfaces and decorative finish.

Comparative studies with the agreed NHBC Standards illustrate a flagrant disregard of these standards by the housebuilders and a lack of conviction and commitment to upholding the standards by the finishing inspection and warranty system.

A comparative study with historical NHBC defect analysis additionally identifies the majority of defects as long-standing issues. Acknowledged continuous quality improvement practices (Egan 1998:22) promote the targeting of primary defects for reduction and eradication; the results suggest that over a 35 year period the UK housebuilding industry and the NHBC have had little success in delivering progressive improvement through common fault reduction.

5.2 Consideration of Contributory Factors

5.2.1 Educating the end-Customer

Research conducted on behalf of the Joseph Rowntree Foundation (JRF 2004) found

> *'little evidence that new-build buyers are attracted primarily by the quality or 'newness' but for more practical reasons like location, certainty of entry date & price, or to avoid the potential complexities of a chain of second hand buyers*. It also noted that *many buyers had expressed considerable dissatisfaction with quality and customer care … which they had not appreciated when buying, but were finding irksome to live with.*

This research implies a lack of early understanding between housebuilder and end-customer with respect to product specifications, priorities and completion conditions – a situation compounded with the growing number of properties sold 'off-plan' i.e. before they are constructed. It may also imply an uninformed reliance by the end-customer on superficial marketing, statutory regulation and warranty systems associated with new homes. It certainly indicates that more work needs to be done to educate potential customers, prior to contract commitment, about their entitlements, choices and responsibilities with respect to the purchase of a new home: Ultimately, as part of a professional industry seeking recognition for exceeding customer expectations [6], it is the housebuilders who must be held accountable for effectively communicating to the customer the realities of the service that determines the final product.

5.2.2 Government Pressure

Within the ODPM's summary response to the Barker review (ODPM 2006b), the government targets the housebuilding industry with increasing output from 150,000 homes to 200,000 homes per annum while challenging them to reduce the price of housing, setting a benchmark of a £60,000 home. In the successful development of any product there is an accepted balance to achieve between the three primary objectives of cost, quality and quantity (time). An unchecked focus on only two of these objectives will inevitably de-prioritise the third: While the UK government continues to only develop and publicise accurate performance statistics associated with housebuilder annual output and economic performance the industry is unlikely to respond to quality concerns.

5.2.3 Fragmented processes for defect management

A study by Glasgow Caledonian University examined the snagging process within a number of construction organisations (Summerville, J., Craig, N., Bowden, S. 2004) and discovered that between 60 & 70 percent of the companies had no way of identifying how many snags have been created, what number of snags are applicable to certain contractors or trades and had no ownership or date information recorded in relation to when the defect occurred or by when rectification should be implemented. Worse still the majority of the participating organisations use paper records only, subject to becoming lost or damaged over time and use. This fragmented and dated approach to defect management places little priority or responsibility emphasis on remedying snagging defects.

[6] This is an essential element of the vision statements for the industry representative bodies of Constructing Excellence and the Strategic Forum for Construction

5.2.4 Sub-contracting culture

It is estimated that at least two thirds of the labour force in house building is sub-contracted (HBF 2001). Barker (2003, 101) suggests that 'this short-term flexibility using sub-contracting to soak-up uncertainty of demand appears to be at the expense of the long-term sustainability of the industry's skills base'. Concerns over managing subcontractor quality have additionally been echoed in parliamentary debate (House of Commons Debate 1998:c 793)

> 'The NHBC vets builders, but there is no way in which it can vet subcontractors. The system of competitive tendering, the penalties system and the low skills of the workforce that many subcontractors use, mean that we have a real problem of poor workmanship'

Building on these comments, such a scaled use of inherent contracted operation can only serve to increase difficulties and complexity for housebuilders to ensure the correct level of skills, and therefore quality, are provided and adhered to on site; this issue becomes critical when considering the previous factor comments relating to the fragmented processes of defect & trades management (4.2.3).

5.2.5 Conflicting Interests & Insufficient Consumer Rights Protection

The NHBC's current dependency for funding from housebuilders puts into question its objectivity in analysing claims and supporting clients rights; Its role as standards agency and consumer defender is in direct conflict with its role as an insurance company whose prime objective must ultimately be to minimise claim costs on behalf of its investors, the housebuilding industry. Repeated calls to government through public appeal that 'The government must tackle the monopolistic aspects of the (new home) warranty system' (House of Commons 1998:c794) and 'something needs to be done to redress the imbalance between the bargaining positions of the purchaser of a new home and the developer that sells it' (House of Commons 2002: c165) have been continually rebuffed with government preferences for seeking internal and voluntary responses from the Housebuilding Industry and the NHBC. Such a need for repeated public and government pressure demonstrates an Industry failing to be proactive in motivating its members to adequately consider the interests of its customers and emphasises a reliance on effective statutory intervention and legal process to protect such interests and compel industry change.

However, the Scottish Consumer Council (SCC) within a recent briefing paper examining regulation of the new house building market in Scotland, encapsulated similar weaknesses within the contractual and legislation system for general UK consumer protection of home buyers. Paraphrasing the relevant findings…

The common practice of builders' missives [7] containing provisions for the timely effect of snagging items now appears to have become the exception rather than the norm'. Missives associated with new homes more often require a deposit at an early stage and involve an offer to sell by the builder, as opposed to an offer to buy by the buyer: With the omission of new homes from The Sale of Goods Act 1994 [8], the purchase of a house is only governed by the private law of property and the common law of *caveat emptor* [9]. With such basic consumer protection lacking, action must be taken to redress the buyer-seller balance in the new build property market. (SCC 2005)

[7] Missives are the formal letters dealing with the finer points of the contract (SCC 2005).
[8] The Sale & Supply of Goods Act 1994 (OPSI 2006) applies only to moveable property as opposed to heritable property
[9] *Caveat emptor* means 'buyer beware' i.e. buyers must take responsibility for the quality of goods that they are buying.

6 CONCLUSION & RECOMMENDATIONS

The results substantiate, through quantitative analysis and comparison with recognised standards, the initial indicators of perceived customer dissatisfaction with current new home finishing standards. Overall the frequency and nature of defects analysed and the comparative studies indicate a distinct lack of care and diligence by new home construction and inspection participants in maintaining NHBC quality standards and improving quality performance. This is emphasised in the implied origins and unchanged nature of the defects identified; a lack of satisfactory workmanship, careless damage and over-marks, inconsistent material selection, and a continued occurrence of historically prioritised defects.

Through interpretation and consideration of the factors influencing the results, it is apparent that the UK housebuilding industry must…

1. Accept greater responsibility for ensuring that the end customer is fully conversant and in acceptance of the realities of the service and product to be provided prior to contractual commitment. The formation of standard contract terms, as proposed in recommendation 3 below, would aid this process by providing a consistency in essential information.

2. Rapidly modernise and standardise it practices with respect to defect logging and rectification prior to customer handover. This includes an increased focus and resources for on site inspection and accountability of sub-contract and follow-on trade activities.

3. In conjunction with UK Consumer groups and Law Societies, develop a standardised new home purchase contract with fair and comprehensive missives providing balanced legal redress for both contracting parties; Consideration should also be given to the use of a retained payment clause, as is common in commercial contracts, to provide housebuilder incentive and reserves to meet quality commitments.

4. In conjunction with the UK government must broaden the existing national electronic statistical data systems to provide the same level of commitment, detail and regular reporting for quality key performance indicators as is currently devoted to new house completion and economic published statistics.

Furthermore

5. The UK government should accelerate the recommendation of Barker (2004:140) that

   > 'if (quality) progress is unsatisfactory or the consumer satisfaction levels do not rise substantially by 2007, the Office of Fair Trading should conduct a wide-ranging review of whether the market for new housing is working well for consumers'.

   The housebuilding industry cannot be expected or relied upon to address the significant issues of statutory consumer protection and impartiality internally. Legislation and the system of quality acceptance and product warranty require an immediate and independent external public review. Within such a review consideration should be given to transferring the NHBC inspection and certification system to an independent such as the local authority, creating provision for home-buyer selected and funded warranty cover, and ensuring dispute arbitration is effected through an impartial assignment system, such as Royal Institute of Chartered Surveyors (RICS), as has become common practice in commercial construction disputes.

6. The UK Government and RICS may also wish to reconsider the current exclusion of new homes from the Home Information (Seller's) Pack to be introduced in 2007 (Home Information Pack 2006); by extending the Pack's remit to include new housing and perhaps amendments to verify finishing quality and condition, the system could support the housebuilding industry in creating a structured approach to improving standards and informing / educating customers. This would bring the additional benefit of placing control and accreditation of snagging reporting within the remit of professional surveying codes of practice.

6.1.1 Limits of the Research

The lack of historical data available on finishing defects, a lack of willingness on the part of associated agencies such as the NHBC to share such information, and the scope limitations of this dissertation restricted the sample size and the use of multiple sources to fully endorse the result findings: The use of only independent snagging data may provide an unbalanced perception of UK housebuilder quality performance although the dissertation has attempted to minimise this issue by inclusion of recognised customer satisfaction survey results to supplement the findings.

6.1.2 Further Research Potential

The investigations have provided a firm basis for expanded study into finishing defect nature, cause and occurrence. Further research should consider in detail the mechanisms for creating structure, standardisation and accountability within the snagging process and further examine the conditions and attitudes that currently prevent the UK housebuilding industry from modernising. In particular, positive opportunities still exist to explore the potential benefits and effectual method of implementation of lean construction and total quality management practices promoted by the wider construction industry through the Constructing Excellence forum.

6.1.3 Closing Comment

Within the Rethinking Construction report, Egan (1998, 11) relates ambitions for the UK construction industry performance to the car industry amongst others, citing successes in efficiency and productivity while defects standards are achieved in parts per million rather than parts per hundred. The car analogy seems an appropriate comparison for the housebuilder when we consider the relative costs & complexity of production, the inherent need to consider structural and occupier safety, and customers who generally buy on the basis of image and marketing rather than tangible details but with an unspoken expectation of increased reliability and quality. The Egan report was published in 1998 – quality improvement and first class customer satisfaction is proven attainable but appears not desirable to UK Housebuilders, with the unfavourable consequence that only increased external regulation can secure future home-buyer interests and a better quality of new housing product.

7 ANNOTATED REFERENCES

- Barker, K. (2003) *Barker Review: securing our future housing needs – interim report* [online] available from http://www.hm-treasury.gov.uk/consultations_and_legislation/barker/consult_barker_index.cfm [10/11/2005]

  Provides a detailed review of the factors effecting future housing supply in the UK, including factors that can effect various parameters of housebuilder performance and useful leads for other sources of research information.

- Barker, K. (2004) *Barker Review Delivering stability: securing our future housing needs – final report* [online] available from http://www.hm-treasury.gov.uk/consultations_and_legislation/barker/consult_barker_index.cfm [10/11/2005]

  Provides future outlooks and recommendations for government and the housing industry to meet forecasted housing demands and includes recognised endorsement of an under-performing house building industry in terms of customer satisfaction and quality performance

- BRE (1982) Quality in Traditional Housing Vol 1: Investigation into faults and their avoidance. Watford, Building Research Establishment

  Useful in terms of providing a template for considering how to set about documenting the research data and findings in a professional manner. Provides some insight to historical research on housing defects, particularly a satisfactory definition of a defect, although is primarily focused on design-related defects that occur during construction as opposed to those encountered at handover.

- Carter, J. (2005) 'NHBC Consumer Protection – The UK'. [presentation] *10th International Housing & Home Warranty Conference.* Held 11th – 14th Sept 2005 at Keio Plaza Hotel, Tokyo, Japan

  Sir John Carter is the NHBC Chairman; the data within this presentation and the International arena in which it was presented therefore provided a reliable source of information relating to the services the NHBC provide and

associated recent operating statistics with respect to customer claims. Other presentations from this conference additionally provided sources of valuable ideas on alternate ways of managing home warranty systems.

- Constructing Excellence (2005) *The Housing Forum - Publications* [online] available from http://www.constructingexcellence.org.uk/pdf/hforum/HF_survey_2003.pdf [27/10/2005]

  This link provides access to directly relevant Housing Forum customer survey statistics in relation to quality satisfaction performance, including customer opinions relating to defect occurrence and handling.

- Constructing Excellence (2006) *About Constructing Excellence* [online] available from http://www.constructingexcellence.org.uk/aboutus/default.jsp [08/01/2006]

  Provides information on the origins, structure, objectives and vision for the constructing excellence initiative. The full website provides various details in relation to initiating, implementing and obtaining benefits from performance improvement within construction activities.

- Egan, J. (1998) *Rethinking Construction* [online] available from http://www.dti.gov.uk/construction/rethink/report/ [29/12/05]

  The Egan report and its contents are repeatedly used to indicate an established fundamental change of attitude by the wider construction industry to desiring improved performance, highlighting ways in which this can be achieved, and forming a benchmark in determining the housebuilding industry's level of response to such goals.

- HBF (2006) *HBF 2001 Employment survey Results* [online] available from http://www.hbf.co.uk/index.php?id=1515 [07/01/2006]

  Although somewhat dated, this data formed the most reliable quoted source for determining a quantified level of sub-contracting labour within the housebuilding industry. More recent figures supporting this information are available through the DTi and the Office of National Statistics but are not as conclusive in associating labour numbers with house construction.

- Home Information (seller's) Pack (2006) *Contents of the Home Information Pack* [online] available from http://www.homeinformationpacks.gov.uk/home.aspx [16/03/06]

  This site provides the most up-to-date progress status and content of the forth-coming Home Information Pack. It validates (at the time of access) that new homes are not included in its remit and familiarisation with its format provides insight into how it could be adapted/expanded to aid new home buyers.

- House of Commons Debate (1998) 422, col. 792-800 National House-Building Council (Warranty) [online] available from http://www.parliament.the-stationery-office.co.uk/pa/cm199798/cmhansrd/vo980422/debtext/80422-18.htm [22/02/2006]

  This is an insightful and senior debate lobbied to the Minister for London and Construction in respect of continued concerns relating to NHBC conflict of interests between housebuilders and home buyers and forms a key example of public awareness of the issue but limited government response.

- House of Commons Debate (2002) 416, col. 163-170WH Housebuilding Industry m[online] available from http://www.publications.parliament.uk/pa/cm200102/cmhansrd/vo020416/halltext/20416h05.htmn [23/02/2006]

  This is a more recent parliamentary debate again addressed to a senior government representative, the under-secretary of State, with repeat public concerns relating to NHBC conflicts of interest and wider legislative weaknesses in respect home buyers rights, again receiving a limited government response.

- Institute of Building (1976) 'Quality Control in Speculative Housebuilding.' Occasional Paper No. 11. Ascot, The Institute of Building

  This paper forms a key element of historical comparative study with the dissertation results and inspired the initial research idea. It is conducted by a recognised professional UK construction body and is based on NHBC information that can be directly referenced to snagging data findings.

- Joseph Rowntree Foundation (2004) *Why do people by new-build housing?* [online] available from http://www.jrf.org.uk/knowledge/findings/housing/114.asp [21/11/2005]

  The Joseph Rowntree Foundation is a well respected social policy research organisation which includes the area of housing and neighbourhoods. This summary paper and its associated full report 'Preferences, quality and choice in new-build housing' provided relevant insight into new-home buyer behaviour and preferences.

- Love, P. and Li, H. (2000) 'Quantifying the causes and costs of rework in construction'. *Construction Management and Economics* 18 (4) 479-90

  Although on deeper reading, this paper was not directly concerned with housebuilding, some fundamental definitions relating to snagging and reasons for snagging occurrence provided useful references and connecting research ideas.

- NHBC (1999, 2002) NHBC Standards 2000 with April 2002 revisions. Amersham: National House Building Council

  An essential element of the data review and assessment process required an in-depth understanding of the detailed specifications laid down in the existing NHBC standards for finishing quality of new homes

- NHBC (2005) *Who we are - Our role* [online] available from http://www.nhbc.co.uk/Aboutus/Whoweare/ [08/11/2005]

  It was important to ensure that any references to the NHBC, the services and products they provide and the structure and financing of their operation were validated and extracted directly from the NHBC at source.

- ODPM (2006a) *Live Tables on Housebuilding* [online] available from http://www.odpm.gov.uk/pub/33/Table201Excel32Kb_id1156033.xls [19/01/2006]

  This is a direct link to government published statistics providing the yearly completion rates for UK housebuilding used to form the key denominator of any percentage analysis of UK customer annual satisfaction performance.

- ODPM (2006b) *Government Response to the Kate Barker review on housing supply* [online] available from http://www.odpm.gov.uk/index.asp?id=1162076 [16/02/06]

  This document provides evidence of the government's bias focus with respect to housing, setting in place targets to address flagged issues in relation to the production and cost constraints that could be detrimental to future housing supply but little evidence of committed action in relation to flagged quality issues.

- OFT (2005) *Customer Complaints Statistics 2003* [online] available from http://www.oft.gov.uk/NR/rdonlyres/64911092-2EA6-4A4E-B5D4-5BC8FCB2ED4B/0/annexee.pdf [20/11/2005]

  The Office of Fair Trading provide a direct link to annual statistics of customer complaints received in relation to various sectors of industry, including complaints specifically related to house construction

OPSI (2006) *Sale & Supply of goods Act 1994* [online] available from http://www.opsi.gov.uk/acts/acts1994/Ukpga_19940035_en_1.htm [09/03/2006]

One of the repeated themes highlighted in literature and public debate was the omission of new home purchase from the protective buyer rights provided by this act. It was important to verify at source that this was still correct at the time of publication.

- Scottish Consumer Council (2005) *Regulation of the New House Building Market in Scotland.* Glasgow: Scottish Consumer Council

  This document provided recent and concise confirmation, from an acknowledged independent body, of the particular public concerns in relation to home buyer contractual and statutory rights

- Smith J. (2004) 'Inside: and here's the snag…' *Homes: BUILDING Housing Supplement* (Nov 2004) 26-27

  Having discovered this article while conducting a general review of the Building journal, I was unable to access the original full report information from Zurich but believed this secondary source credible enough to include as further supporting evidence of customer dissatisfaction.

- Summerville, J., Craig, N., Bowden, S. (2004) 'The standardisation of construction snagging.' *Structural Survey* 22 (5) 251-258

  This paper provides recent research into the snagging methodology employed by UK construction companies within the UK, with analysis focused on those practices adopted by housebuilders. It thus provided valuable complimentary research when considering the potential route causes of finishing defect occurrence and lack of rectification.

- RICS (2006) *RICS Dispute Resolution Services* [online] available from http://www.rics.org/RICSservices/RICSDisputeResolutionService/property_problems.htm [18/03/06]

  It became apparent on examining recent 'initiatives' by the NHBC that an arbitration service was offered through the NHBC. Aware of practices in the wider construction industry in this area, a key element of effective arbitration is the early allocation and confidence in an objectively appointed arbitrator; this seemed a further conflict of interests within it's role and worthy of research through established RICS practices in this area.

8 ANNOTATED BIBLIOGRAPHY

- Brick Kickers (2005) *Professional Home Snagging Service* [online] available from http://www.brickkickers.co.uk/home.php [09/11/2005]

  One of the three key companies involved in providing independent snagging surveys to UK house buyers. A background review of the company, their practices, and their perspective on housebuilding performance and practices was an essential element of initial research

- Competition Commission (1991), Structural warranty services in relation to new homes: A report on the existence or possible existence of a monopoly situation in relation to the supply within the United Kingdom of structural warranty services in relation to new homes [online] available from http://www.competition-commission.org.uk/rep_pub/reports/1991/299structural.htm#full [03/11/2005]

  This report provided valuable background of the wider origins, history and development of the new home warranty industry in the UK and its changing relationship with government and the housebuilders.

- Marten D, Luff P (1974) *Guarantees for New Homes – a guide to the NHBC Scheme*. London: Oyez Publishing Ltd

  A second source of background information and understanding on the origins and early development of the NHBC

- Naoum S (1998) Dissertation Research & Writing for construction students. Oxford: Elsevier Butterworth-Heinemann

  This book provided an invaluable aid in understanding the generic requirements and the right ingredients and structure necessary for producing a coherent construction dissertation.