

Improving the quality of new housing

Technical background paper



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CABE
1 Kemble Street London WC2B 4AN
T 020 7070 6700 F 020 7070 777

E enquiries@cabe.org.uk www.cabe.org.uk

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1 Why the quality of our homes and neighbourhoods matters

This is an issue that people care about – and respond to

The design quality of new housing underpins the success or failure of a community. The last decade has seen a surge in the public interest in the design of their homes, but also their wider neighbourhoods. But even a decade ago¹ an overwhelming 81 per cent of people said they are 'interested in how the built environment looks and feels' and 85 per cent of people agreed with the statement 'better quality buildings and public spaces improve the quality of people's lives' and thought that the quality of the built environment made a difference to the way they felt.

By design quality, we are talking about creating places that work well, not about architectural style. Design quality is fundamental to how places work: road layouts that prioritise pedestrians; public spaces that are safe and attractive; buildings that are at an appropriate scale and density to support local services.

New developments should respect their context, using it as a starting point to enhance local character. If new housing connects physically and socially to the surrounding built environment and landscape, it is more likely to have a strong, positive identity. A well-designed neighbourhood should also be sustainable – socially, economically and environmentally.

Well-designed houses will increase in value quicker than average

Agree 72% - Disagree 9%

How streets look and feel makes no real difference to crime

Agree 22% - Disagree 66%

Well-designed schools improve children's education

Agree 70% - Disagree 17%

The design of hospitals makes no difference to how fast patients recover

Agree 29% - Disagree 52%

People work more productively in well-designed offices

Agree 77% - Disagree 7%

Source: MORI/CABE, 2002²

**Design quality is
fundamental to how
places work**

Does good design add to the social and economic value of housing?

CABE research on the value of a sensitive approach to the design and layout of development³ showed that, in all types of development, good urban design:

- adds economic, social and environmental value and does not necessarily cost more or take longer to deliver
- delivers high investment returns for developers and investors by meeting a clear occupier demand that also helps to attract investors
- enhances workforce performance and satisfaction and increases occupier prestige
- delivers economic benefits by opening up new investment opportunities and delivering more successful regeneration
- helps to deliver places accessible to and enjoyed by all
- benefits all stakeholders – investors, developers, designers, occupiers, public authorities and everyday users of developments.

Research also shows that good quality housing has many benefits:

- It can improve the social well-being and quality of life and people's sense of pride in their neighbourhood, or a community's willingness to accept new development⁴

- It can bring public health benefits. Research shows the costs to society of poor housing may be greater than £1.5 billion per annum and explores the links between housing quality, better welfare and reduced costs to society⁵
- It increases property values. Case studies show that exemplar schemes can achieve higher residual values than conventional schemes⁶, whereas poor design can reduce future sales values⁷
- It reduces crime. Research shows that residential developments designed to Secured by Design standards showed lower reported crime rates and less fear of crime than those without. Conversely the average cost of building in Secured by Design measures was just £440 per new dwelling, compared with average losses of £1,670 per dwelling from burglary
- It eases transport problems and slows traffic down. The *Manual for Streets* shows how concepts such as home zones can help streets become social spaces rather than transport corridors that give priority to the car
- It rewards developers. The additional residual value for the developers of a well-designed housing scheme has been estimated at almost £11 million per scheme, realised over the five years from first completion of the scheme.⁸

Good quality housing rewards developers – the additional value of a well-designed scheme is almost £11 million

Why space in the home matters

Evidence drawn from a new historical review of standards and contemporary research⁹ illustrates the benefits of space standards:

- Improved health and wellbeing from living in a well-designed home that provides sufficient space to function well and support privacy and social activity
- Family life and the opportunity for children to study in private and therefore achieve more, and therefore increase educational attainment and the opportunity to work from home more
- The flexibility of space within the home and adaptability to changing needs
- The ability to respond to occupants' changing physical requirements over their lifetimes
- The benefits to society from reduced overcrowding, which can result in anti-social behaviour
- It contributes to a more stable housing market underpinned by an understanding of long-term need and the usability of homes, rather than short-term investment.

There is little evidence to show how space is used in the home in the 21st century. The last comprehensive review looking at how residents use their internal space was undertaken by the Parker Morris committee and led to the publication of *Homes for Today and Tomorrow* (DoE 1961). But recent research examines the features that residents consider to be important in their home. The CABI report, *A sense of place*¹⁰ published in 2007, included an analysis of residents' perceptions of important factors from a new housing development showing that the type and size of home is almost equal in importance to the location (58 per cent of respondents agreeing that location influences selection of new homes, compared to 54 per cent citing type and size of home).

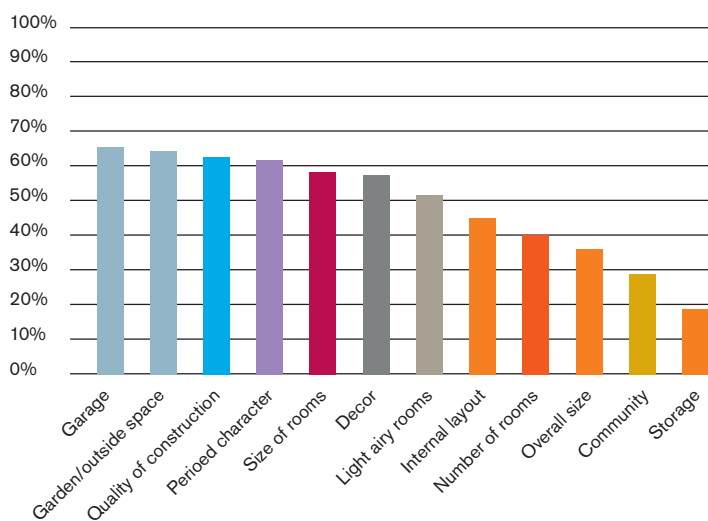


Figure 1: Percentage of respondents viewing features as important¹¹

While the number of rooms in a house is a relatively important consideration for people, the size of rooms is significantly more important. The research also shows that outside space, internal layout and period character are important features of housing; possibly a reflection of the popularity of older housing typologies and their often more generous space standards.

How do we compare with the neighbours?

The smallest homes in Europe are now being built in the UK, as illustrated in Figure 2. We are unique in not setting a legal floorspace minimum for new private sector housing. Various minimums do apply to different sorts of housing funded or delivered by the public sector, particularly through the national affordable housing programme (NAHP) and on some publicly owned land through the application of standards by the Homes & Communities Agency (HCA). But in the rest of Europe, basic rules govern factors such as the quantity of living space that must be provided, minimum acceptable ceiling heights, ventilation, and light requirements¹². These minimum standards are set for all tenures. Given this contrast, the proposals within the London plan, which will be applied throughout the capital through the planning system, mark important progress in the UK context.

The impact of space standards on the UK house-building industry has been hotly debated. A study of the Italian market¹³ reveals that space standards are perceived as setting a beneficial 'market standard' which stabilises the market against the production of inflexible unsuitable products in the form of too small, too high density, low-quality homes. By shaping the expectations of buyers and controlling one aspect of risk within a less restrictive market, it guards against market failure. This is also a view held by some, but certainly not all, developers in the UK.

Figure 2: Comparison with European Union (pre 2004)¹⁴

	All dwellings			Newly built dwellings		
	floor space, m ²	number of rooms	room size, m ²	floor space, m ²	number of rooms	room size, m ²
Denmark	108.9	3.7	29.4	137.0	3.5	39.1
Austria	90.6	3.4	26.6	96.0	3.7	25.9
Netherlands	98.0	4.2	23.3	115.5	4.1	28.2
Luxembourg	125.0	5.5	22.7	104.1	5.1	20.4
France	88.0	3.9	22.6	112.8	4.5	26.9
Italy	90.3	4.1	22.0	81.5	3.8	21.4
Finland	76.5	3.6	21.3	87.1	4.0	21.8
Sweden	89.8	4.3	20.9	83.0	4.0	20.8
Greece	79.6	3.8	20.9	126.4	3.2	39.5
Belgium	86.3	4.3	30.1	119.0	5.8	20.5
Germany	86.7	4.4	19.7	109.2	5.1	21.4
Portugal	83.0	4.3	19.3	82.2	4.7	17.5
Spain	85.3	4.8	17.8	96.6	5.1	18.9
Ireland	88.3	5.3	16.7	87.7	5.2	16.9
UK	85.0	5.5	16.3	76.0	4.8	15.8

Source: Evans, W. and Hartwich, O.M., 2005, *Unaffordable Housing: Fables and Myths*. London: Policy Exchange

2 What is the housing market currently delivering in England?

CABE's wider research has examined the quality of housing being delivered as well as customers' satisfaction with new housing. The research considers the quality of homes (relating to internal and architectural standards) and housing (relating primarily to the design of the wider development and neighbourhood – its urban design).

We look first at housing quality through the lens of Building for Life; report on our own housing audits; examine how the occupiers respond; and then draw conclusions.

Building for life

Building for Life is the national standard for well-designed homes and neighbourhoods, promoting design excellence and celebrating best practice in the housebuilding industry. Building for Life assessments score the design quality of planned or completed housing developments against the 20 Building for Life criteria: based on aspects which outline a development's contribution to and relationship with the local environment and community, its character, the layout of streets and needs of pedestrians and car users, and the design and construction of homes. Further background on Building for Life is provided in Appendix 1. Building for Life assessments categorise schemes according to their score out of 20:

- <10/20 = poor
- 10.5-13.5/20 = average
- 14-15.5/20 = good / silver standard
- >16/20 = very good / gold standard

The annual Building for Life awards present an opportunity for developers to submit schemes. What is striking is that the vast majority of volume housebuilders have demonstrated their capacity to deliver housing schemes of good to high quality. In 2009 over 50% of schemes submitted received a silver standard (good – 14/20) or gold standard (very good – 16/20). Schemes are deemed to have met the Building for Life standard when they score 14 or more out of 20.

The success of the awards demonstrates that achieving the standards set by Building for Life is achievable and within the capabilities of the majority of volume housebuilders. There is also emerging evidence about the long term value of developments that achieve a higher Building for Life score.

The quality of housing has not improved and, while there are slightly more good schemes, there are many more poor schemes

CABE's housing audits

CABE's national housing audits¹⁵ assessed housing developments for their quality in terms of layout, urban design and placemaking, and uncovered the processes that helped to shape them. Using Building for Life as the benchmarking tool, the housing audit of private sector housing uncovered some examples of very good design – great places which residents are clearly proud to call home. This demonstrates just what can be achieved when the developers get it right.

Unfortunately, housing quality is not getting better quickly enough. The housing audits demonstrated that almost one in three homes (29%) were so poor that they should not have been given planning permission. They showed family housing with no play areas, windows looking out on blank walls, and broad expanses of tarmac. Schemes frequently lacked character or distinctiveness and failed to respond to the local context. Confusing site layouts made it difficult to find your way around, and access to local amenities was often poor. The majority of homes were “average” (53%), revealing overall a disappointing picture of housing quality, and demonstrating that consumers are getting a raw deal when it comes to new homes and neighbourhoods.

CABE has established a national network of accredited assessors for Building for Life, with a commitment to training at least one assessor in each local planning authority in England by 2011. The accredited assessors support good planning decisions within local authorities using Building for Life as a proactive tool, including through planning policy and development management. Data relating to formal assessments by local authorities gives a useful indication of the quality of 123 schemes from across England over the last year. The results show that the quality of housing has not improved and, whilst there are slightly more good schemes, there are many more poor ones.

Figure 3: Results of CABE's national housing audit and the CABE / HCA affordable housing survey¹⁶

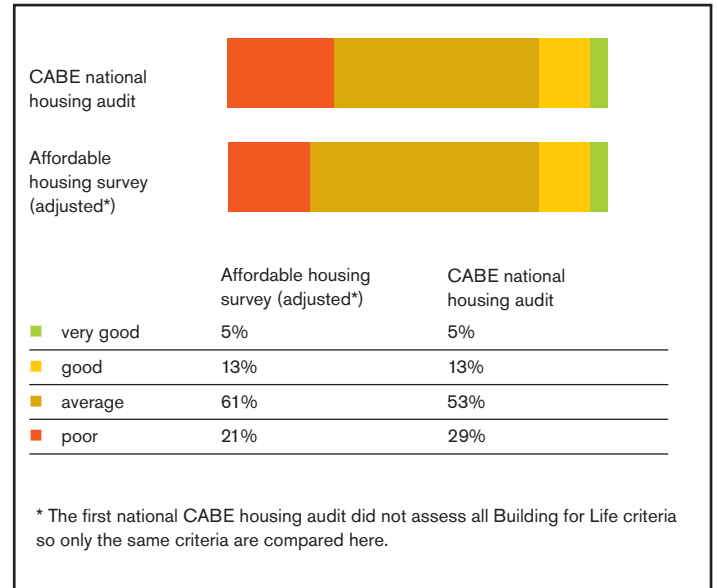
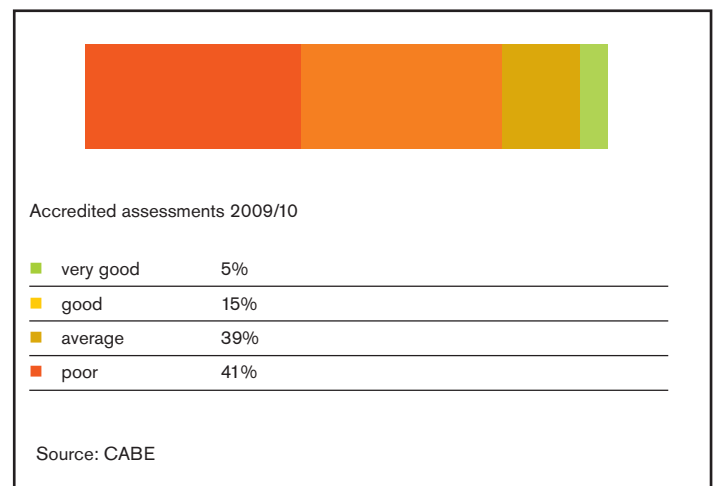


Figure 4: Building for Life accredited assessments 2009 - 2010



What do customer satisfaction surveys tell us?

As well as the benchmarking approaches identified above, customer satisfaction surveys also provide insights into the quality of new homes being delivered and should be taken seriously. *What home buyers want: attitudes and decision making among consumers*¹⁷ brings together information about home buyers' attitudes to new housing. This independent research concluded that:

- A key drawback of new homes was considered to be an overall shortage of space
- 40% of second-hand home buyers were put off buying a new home by the lack of space
- New homes were perceived as having smaller rooms, very small bedrooms and no storage space when compared with older houses
- More living space was preferred, as were fewer but bigger bedrooms
- For families, kitchens needed to be big enough to accommodate a table for meals and for all age groups as this was regarded as the heart of the house
- Specialised rooms for utilities and computers were also considered desirable
- The emerging preference is for rooms that are capable of being used for a number of functions rather than a large number of bedrooms; this would mean providing more living space.

In contrast to the above, the results of the Home Builders Federation annual customer satisfaction survey¹⁸ showed that nearly nine out of 10 buyers (88%) were very or fairly satisfied with the overall quality of their new home (up from 77% on the previous survey), and that nearly nine out of 10 buyers (88%) would recommend their builder to a friend (up from 76% on previous survey).

These results are impressive but cover only one element of an assessment of quality.

Some of the confusion in evidence may result from what behavioural economists call the endowment affect. When we own something, we value it much more highly. This will apply especially to an investment as big as a new home.

*Space in new homes*¹⁹ addressed space standards in new private sector housing and sought to establish whether residents have enough space to allow them to go about their everyday lives in comfort. It concluded that occupants of housing built since 2002 have varying degrees of satisfaction with the design and layout of their homes, but would prefer to have rooms that can be used for multiple purposes. The research highlighted a preference for:

- more space for accommodating furniture and storage cupboards
- more space for circulation and movement of furniture
- more space in the kitchen for food preparation and for supervision of children at play by adults
- adequate space for waste bins and efficient waste removal.

These studies suggest that while, initial levels of satisfaction with their purchase of a new home remain high, the longer term expectations for space and adaptability may not be met. Housing needs to be more durable and flexible so that people have the opportunity to adapt internal spaces to their own needs. Some of the older typologies provide examples of housing that allow for this.

What space is currently provided in new homes?

The amount and quality of internal space in housing has an important impact on the design quality of homes. The above satisfaction survey showed that residents tend to want more space in the home. This is perhaps not surprising as wanting more space is a common reaction in many homes, large or small, and it need not imply any quality deficit.

Nonetheless, an approach to space needs which starts from the detail of furniture layouts, accessibility requirements (such as those in Lifetime Homes), and anticipated occupancy levels, provides another important perspective on the space being delivered in homes.

This type of approach forms part of the evidence upon which both the HCA and the Mayor of London/Greater London Authority (GLA) proposed minimum space standards have separately and independently been derived.

It can usefully be coupled with CABI's recent survey of the space designed in standard housing typologies²⁰ which provides useful data to compare the space standards proposed and that currently delivered by some of the volume housebuilders in England. Our work measured the gross and net floor areas of standard unit types (eg one-bed studio through to five-bedroom houses) and classified the space within units. The data does not provide comprehensive evidence of the number of units being designed and delivered to different space standards; rather, it offers a comparison of different developers' standard unit types against existing and proposed space standards. It includes data from the major volume housebuilders.

The report of the research findings shows the median measurements for different housing types, which at first glance suggests that many of the unit types are close to the space standards proposed. However, an examination of the range of types of units provided, relating to bed spaces and designed occupancy levels (as provided in Appendix 2), reveals that for most typologies a significant majority of standard units fall below the space standards being set by the HCA and the GLA.

The dataset studied meant that the sample size was variable, but where there was a reasonable sample size some conclusions can be drawn. The percentage of house typologies that fall below the HCA or LDA / GLA standards are as follows:

- 57% of the one bedroom flats for two people (80% fall below the London housing design guide [LHDG] standards)
- 80% of the two bedroom flats for three people (HCA and LHDG standards are identical for this type)
- 86% of the two bedroom flats for four people (HCA and LHDG standards identical)
- 84% of the two bedroom houses for four people
- 63 -79% of the three bedroom houses for five people (HCA and LHDG have differing standards for houses with different numbers of stories).

This would suggest that while the average space standards are reasonably close to the aspiration, the market has been delivering units that fall below the proposed minimum thresholds. The introduction of space standards would increase the space provided and ensure a minimum space standard is delivered across all developments. The results suggest that the biggest effect of introducing space standards would be to increase the space provided in flats and apartments with one or two bedrooms and would address the issue of the space provided in some three bedroom houses, even when high occupancy levels are expected.

3 Does an increase in quality increase cost?

Does meeting Building for Life decrease viability or increase costs?

Using the information derived from recent Building for Life assessments from across England, CABI has undertaken design case studies looking at six volume housebuilder layouts achieving less than 14 of the 20 Building for Life criteria and examining the scope to raise the scores through some redesign of the layout of houses on the site – including any possible cost implications.

At the neighbourhood and site level, for lower density schemes, this work found that reconfiguration of layouts can improve BfL scores from “poor” to “good”, whilst delivering equal or higher development quantum and density, and using standard house types. This can be cost neutral, or even allow greater efficiency of land use.

More generally, the work concluded:

- Amendments to the layout alone can improve the level of performance against Building for Life. In figure 5 a simple redesign has improved the building for life score from 4 to 12.5. This indicates that there are a large number of standard housing types and layouts which would perform poorly in relation to a Building for Life assessment, but which could meet an acceptable standard with straightforward modifications. This could be achieved without fundamental changes to housing units themselves, and whilst delivering equal or higher numbers of homes and car parking spaces compared to the original layouts.
- That, simply put, the application of some key urban design principles can dramatically improve the performance of schemes. Houses can be better laid out across a site, creating a clear street pattern and frontage, there can be better definition of public and private space and more appropriate allocation of space for parking.
- The redesign of layouts and the parallel analysis of development cost implications demonstrates that there are no major cost implications to the alternative layouts, and that a better quality of development can be produced with equal or more units on the site and thereby enhance the scheme’s viability.

Figure 5: Example of design changes to achieve a higher Building for Life score



Existing scheme

Existing design proposal
 222 homes @ 60 dw/ha
 247 car parking spaces
 BfL 4 / 20



- ① Fronts and backs are clearly differentiated
- ② Smaller parking courtyards
- ③ Larger plots and gardens
- ④ More coherent green public space network
- ⑤ More retained trees
- ⑥ Formal flats emphasise key route

Revised design proposal
 237 homes @ 64 dw/ha
 237 car parking spaces
 BfL 12.5 / 20

Building on this work, CABI research²¹ also looked at five sites in London to assess the extent to which schemes could be designed or redesigned to comply with planning policy (in this case, the London plan density matrix) as well as successfully applying a minimum housing standard (in this case, the Mayor of London's proposals as contained in the London housing design guide). This work showed that:

- housing schemes can be delivered within the density matrix and meet the housing standards, even on tight urban sites
- the application of the housing standards should, therefore, have no impact on the total number of units that can be delivered on allocated housing sites in London and, by implication, should not have a negative impact on achieving strategic housing targets
- schemes which otherwise achieved a good Building for Life score needed very little redesign, illustrating that there is a positive relationship between design quality and the London housing standards. The reverse is also true, it follows that standards can help raise the bar for quality.

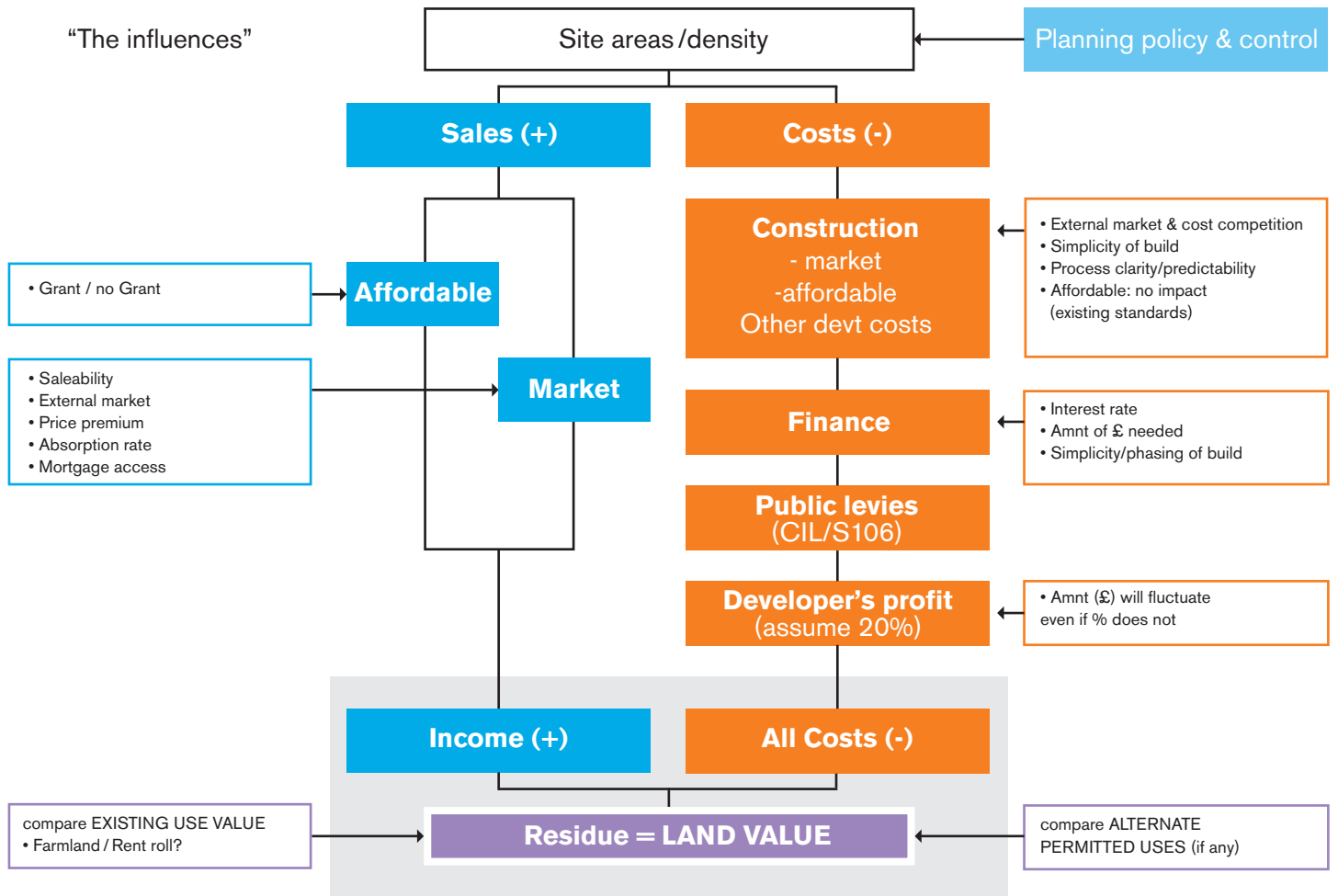
Would improved standards reduce the value or viability of development?

A key argument against higher housing standards is that it costs more, with these costs being either unacceptable to housebuilders or making housing less affordable for consumers. Whilst there is a long history of standards and requirements on housing being implemented without such impacts (notably through regular changes to the building regulations and key planning policy initiatives), there is no doubt a need to consider the cost implications.

While the analysis contained in this report suggests that Building for Life has a negligible impact on the cost of development, space standards and compliance with the Code for Sustainable Homes²² may have an impact over the short to medium term. The GLA commissioned some recent work²³ looking at the cost implications of its proposed new housing standards. However this does not look at issues of market adjustment or impact on design quality. Also, this work does not provide a thorough cost and benefit or whole-life cost / value analysis to the application of standards. Neither does it take into account the wider context of development costs and viability within which standards will be applied.

It is important to understand the basic development 'model' (see figure 6) upon which most housebuilders operate. The basic model is useful to explore this issue of how the market will adjust to new standards.

Figure 6: Illustrative model of housing development viability and key influences



The basic developer's model in fig 6 shows that there are considerable influences on housebuilders, which contribute to the residual value of a development opportunity and ultimately the price a developer is willing to pay (or receive) to purchase land. Housing standards influence two key stages – the planning policy and control stage, and the construction cost stage. However, as can be seen in the diagram, there are a number of other factors that can have more significant impacts, such as the broader economic context.

Coherent standards may also contribute to increasing the commercial viability of a scheme, with the application of standards potentially bringing some other commercial advantages, such as:

- Limiting overdevelopment, thus reducing the capital tied up during the development phase and therefore over a series of sites, has the potential to provide higher rates of return to developers
- Requirements such as maximum units per core reinforce a phased approach to development which is inherently less risky
- A belief that quality does increase value, rate of sales and sale price.

One of the challenges of the existing fragmented housing standards framework is that it is difficult to understand what the cumulative impact of the short term cost implications will be. This is because they are not being applied universally and differ depending on location and funding mechanisms.

It must be recognised that in the short term an adjustment is required. To minimise any short-term cost implications of applying standards, emerging advice suggests that it is important that standards are made mandatory and that while there will inevitably be a period of market adjustment the end point will be cost neutral or capable of being managed within the broader development process. There is a risk that if standards, or their application are unclear then the market will not adjust effectively.

Appendix 1: Building for Life as a measure of quality

Building for Life is the national standard for well-designed homes and neighbourhoods, promoting design excellence and celebrating (through awards) best practice in the house building industry. Building for Life assessments score the design quality of planned or completed housing developments against the 20 Building for Life criteria: based on aspects which outline a development's contribution to and relationship with the local environment and community, its character, the layout of streets and needs of pedestrians and car users, and the design and construction of homes. Anyone can do an informal assessment, but formal assessments, now required by several agencies, are carried out by accredited Building for Life assessors.

- Building for Life has a number of roles to play in delivering better quality homes. This includes being a simple and easy to understand tool to support a dialogue about design between housebuilders, planners, councillors and the community
- It is a structured way through which local authorities can make planning decisions about design and check new development against their local policies and objectives. Some local authorities, such as Sheffield, have more formally included Building for Life into how they manage larger housing applications
- It allows national policy objectives to be considered and implemented at the local level. This reflects a key strength of Building for Life in that 17 out of the 20 criteria relate directly to the framework for planning currently set out in planning policy statements, but in a way which is flexible to meet new policy objectives (see figure below.)

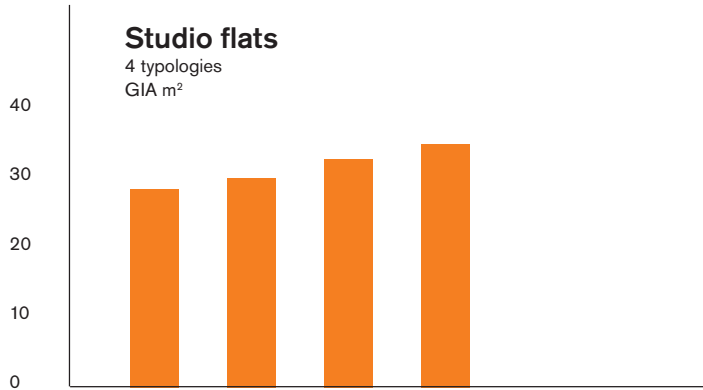
In addition, Building for Life is also used as a benchmarking tool for consumers and councils so they can test the quality of development and become more aware of the importance of the design quality of new homes.

The 20 Building for Life criteria

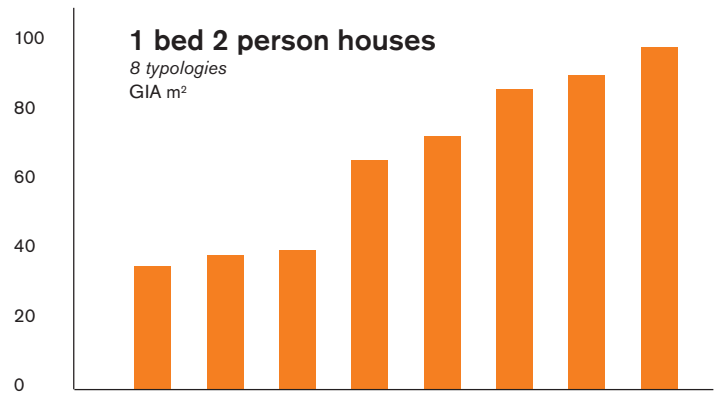
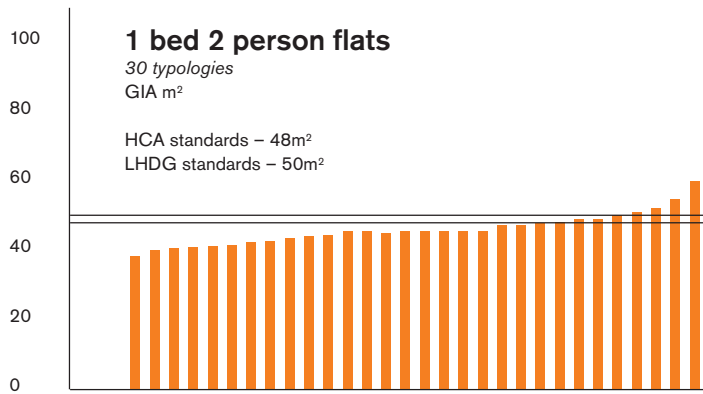
Criteria		Criteria which should be meet to address planning policy statements 1 & 3
1	Does the development provide (or is it close to) community facilities, such as a school, parks, play areas, shops, pubs?	✓
2	Is there an accommodation mix that reflects the needs and aspirations of the local community?	✓
3	Is there a tenure mix that reflects the needs of the local community?	✓
4	Does the development have easy access to public transport?	✓
5	Does the development have any features that reduce its environmental impact?	✓
6	Is the design specific to the scheme?	
7	Does the scheme exploit existing buildings, landscape or topography?	✓
8	Does the scheme feel like a place with a distinctive character?	✓
9	Do the buildings and layout make it easy to find your way around?	
10	Are streets defined by well structured building layout?	✓
11	Does the building layout take priority over the roads and car-parking, so that the highways do not dominate?	✓
12	Is the car parking well integrated and situated so as to support the street scene?	✓
13	Are the streets pedestrian, cycle and vehicle friendly?	✓
14	Does the scheme integrate with existing roads, paths and surrounding development?	✓
15	Are public spaces and pedestrian routes overlooked and do they feel safe?	✓
16	Is public space well designed and does it have suitable management arrangements in place?	✓
17	Do buildings exhibit architectural quality?	✓
18	Do internal spaces and layout allow for adaptation, conversion or extension?	✓
19	Has the scheme made use of advances in construction or technology that enhance its performance, quality, and attractiveness?	✓
20	Do buildings or spaces outperform statutory minima, such as building regulations?	
Total Building for Life Score required to meet national planning policy		17/20

Appendix 2: CABE dwelling size research

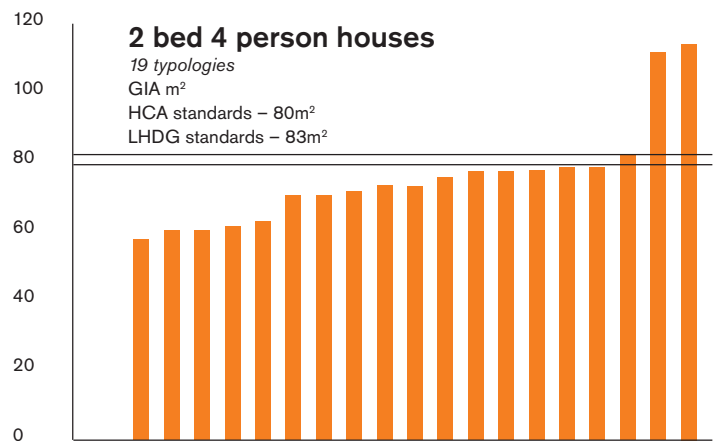
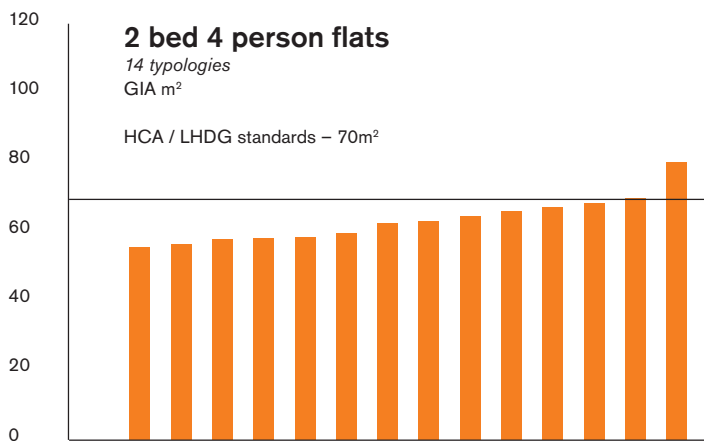
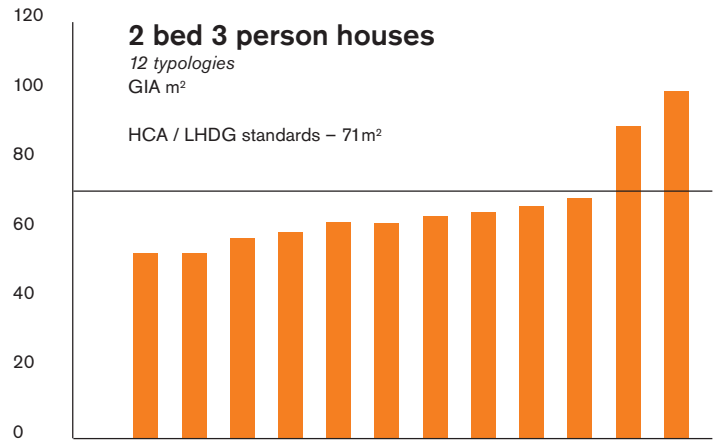
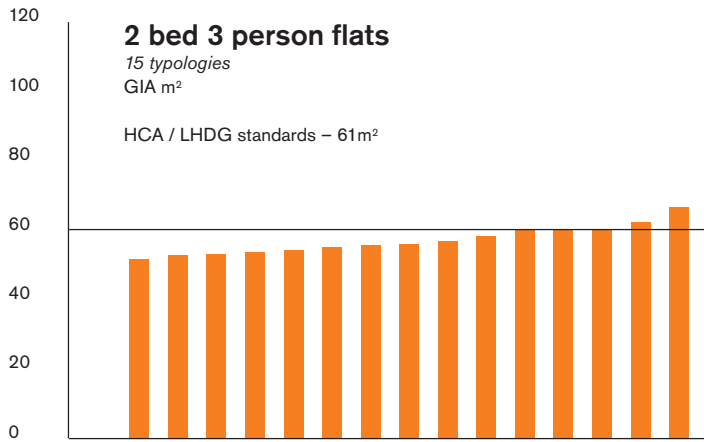
Studio flats (no proposed standards)



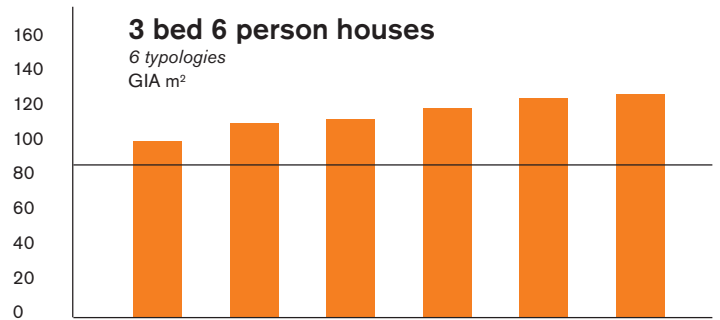
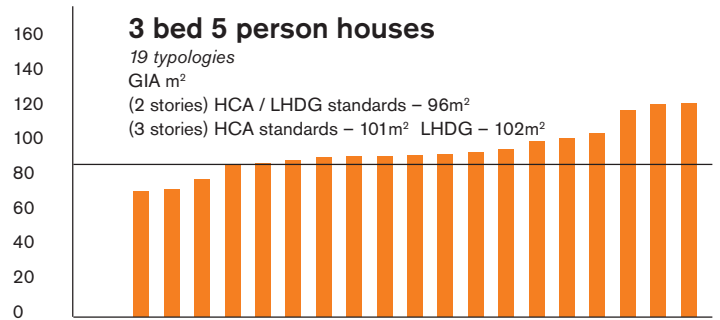
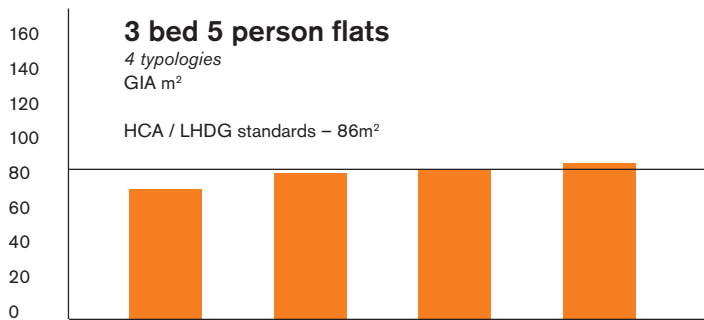
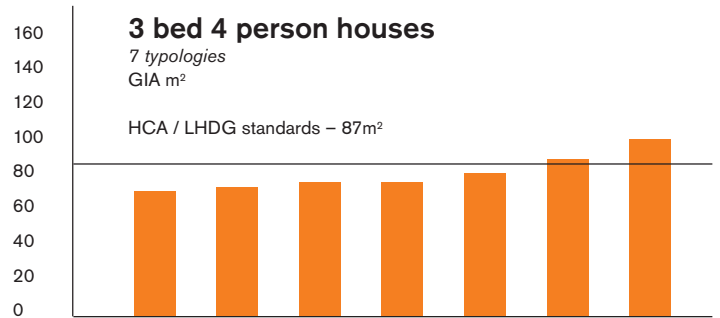
1 bedroom dwellings



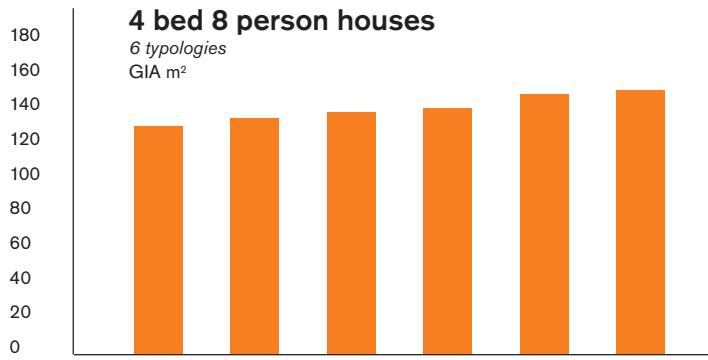
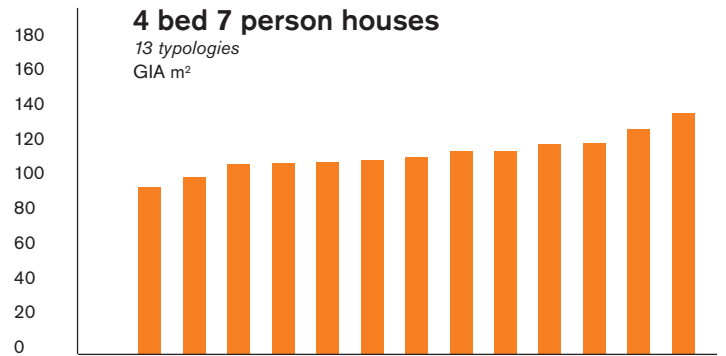
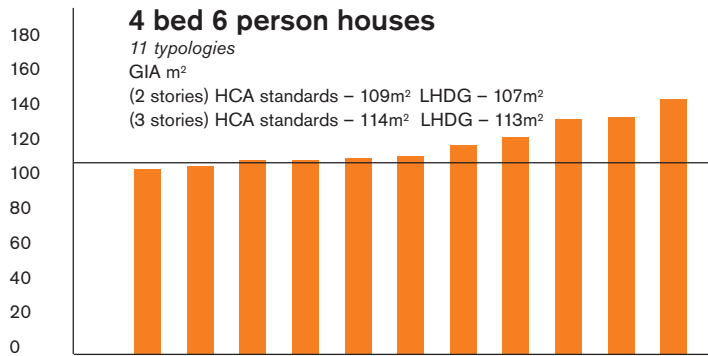
2 bedroom dwellings



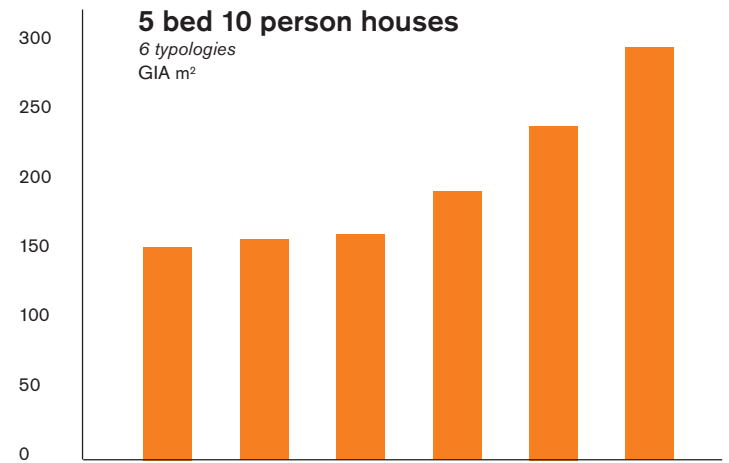
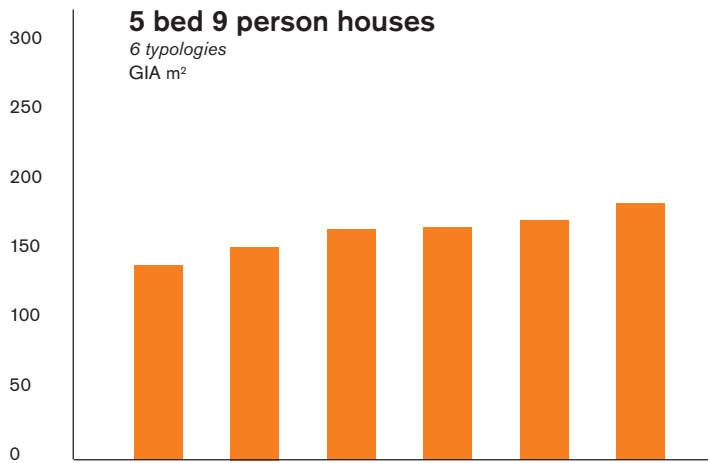
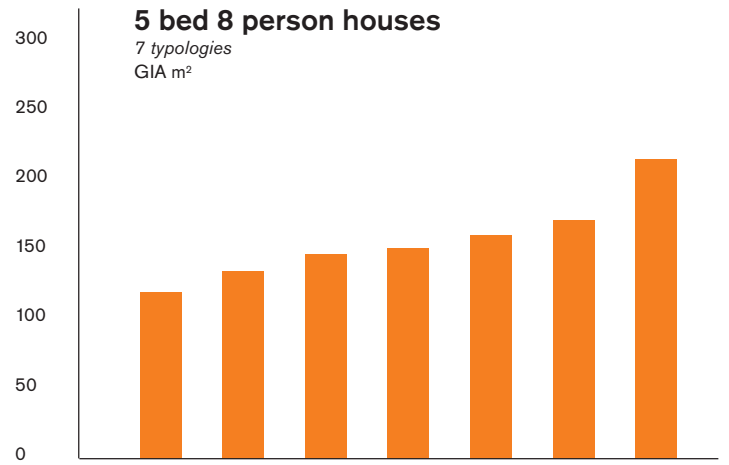
3 bedroom dwellings



4 bedroom dwellings



5 bedroom dwellings



Appendix 3: Endnotes and references

1 CUBE, 2002. *The value of good design [pdf]* London: CUBE. www.cabeurl.com/5r

2 Ipsos MORI, 2002. *Architectural Superstars Leave English Cold*. London: Ipsos MORI for CUBE. www.cabeurl.com/e3 Public attitudes towards architecture and the built environment. Research by the MORI Social Research Institute for CUBE.

3 CUBE, 2000. *The value of urban design*. Tonbridge, Kent: (UCL) Thomas Telford.

4 A survey of 600 households on a large suburban housing estate with little or no distinctive design quality, found that these residents experienced more difficulties in selling their properties and experienced more negative equity than those living on more distinctively designed developments. Source: Forrest R., Kennett T. and Leather P., (1997.) *Home owners on new estates in the 1990s*. Bristol: The Policy Press.

Extensive international research in the 1970s and 1980s using post-occupancy surveys showed that the overall impression of the exterior of a house and its surrounding dwellings had an impact on how people felt about their homes and also in many cases those residents' personal sense of worth. Source: Cooper, M.C., 1982. "The aesthetics of family housing: the residents' viewpoint." *Landscape Research*, Vol 7 (3), pp 9–13.

5 Roys, M., Davidson, M., Nicol, S., Ormandy, D. and Ambrose, P., 2010. *The real cost of poor housing*. Bracknell, Berkshire: IHS BRE press proposes a detailed cost model of health and safety hazards derived using data from the EHCS and illustrates the scale of saving that might accrue to the NHS. This excludes costs to other services such as the police, arising from the impact of poor housing from crime.

A study in 1997 estimated that more money – as much as £2 billion per year – is spent on treating illnesses arising from poor housing conditions than is spent by local authorities on their own housing stock. National annual estimates of the increased costs associated with the 7.6% of public sector homes considered unfit for habitation are £3 billion due to poor health, £1.8 billion due to increased crime and £120 million for the cost of fire services. Although not definitive figures, they showed the extent of the problem at the time. Source: Barrow, M. and Bachan, R., 1997. *The real cost of poor homes: footing the bill*. London: RICS

6 In *Value of Housing Design and Layout*, Savills and Davis Langdon Everest, assessed the value of eight suburban residential schemes, with four pairs of exemplar and conventional schemes. The objective of the research was to analyse the value to the developer in terms of residual land value per hectare and whether exemplar schemes produced a higher value. The research showed that in three out of the four cases, this was the case. Savills and Davis Langdon Everest, 2003. *Value of Housing Design and Layout*. London: CUBE. www.cabeurl.com/c7

7 A survey of 600 households on a large suburban housing estate with little or no distinctive design quality, found that these residents exhibited more difficulties in selling their properties and experienced more negative equity than those living on more distinctively designed developments. Source: Forrest R., Kennett T. and Leather P., (1997.) *Home owners on new estates in the 1990s*. Bristol: The Policy Press.

8 An exploratory study carried out by international property consultants FPD Savills in 2002 indicated that volume house builders who had invested in higher quality design in residential schemes could expect to yield a residual value per hectare of up to 15% more than conventionally designed schemes Savills and Davis Langdon Everest, 2003. *Value of Housing Design and Layout*. London: CUBE. www.cabeurl.com/c7

9 Carmona, M., Gallent, N. and Sarkar, R., 2010. *Space standards: the benefits*. London: CUBE. www.cabeurl.com/e4

10 CUBE, 2007. *A sense of place – what residents think of their new homes*. London: CUBE, 2007, www.cabeurl.com/e5 based on a survey of 643 residents in autumn 2006 by IPSOS/ MORI

11 2007 Occupier Demand Survey by Savills, quoted in Drury, A., 2009. *Resident satisfaction with space in the home*. London: CUBE. www.cabeurl.com/bm

12 Gallent et al., (2010) *Internal Housing Space Standards in Italy and England: Comparing the 'Conditions' of Regulation*. www.cabeurl.com/cb London: RICS (p3)

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17 CUBE, 2005. *What Home Buyers Want – attitudes and decision making among consumers* London: CUBE. www.cubeurl.com/bn

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21 CUBE and Richards Partington Architects, 2010. *Applying housing standards: London case studies*. London: CUBE. www.cubeurl.com/ea

22 CLG 2009 *Zero Carbon Homes: Impact Assessment* CLG www.cubeurl.com/eb

23 GVA Grimley, Cellomruk, Davis Langdon, Sheppard Robson 2010 *Draft London Housing Design Guide: Cost and Delivery Impact Assessment Pre Publication Draft* London: HCA, LDA, GLA. www.cubeurl.com/ec

This paper provides the evidence supporting CABE's position that a new, simpler framework for housing design standards can help ensure new housing makes a positive contribution to residents' quality of life, and help developers generate greater value from their schemes. The material in this document can be used by councils and developers to support the case for creating better-designed housing. The paper should be read alongside *Improving the design of new housing - what role for standards?*

1 Kemble Street
London WC2B 4AN
T 020 7070 6700
F 020 7070 6777
E enquiries@cabe.org.uk
www.cabe.org.uk

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