Housing standards:
evidence and research

Space standards: the benefits

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Contents

1.0 The lessons from history

It is easy to think that housing space standards (or a lack of them) are a uniquely contemporary problem, stemming from a neo-liberal withdrawal of the state as a direct provider of social housing or from 'stifling' the market through perceived over-regulation. In fact there has been periodic concern for floor space standards in new housing for the past one hundred years, and many of the reasons mooted over this period for the state to be concerned about housing space standards are equally valid today.

1.1 Moral and health concerns

This concern was initially rooted in the experience of low standards during the Industrial Revolution and the later Victorian period. The production of housing for the 'labouring classes' was largely unregulated, except by bylaws governing the layout and spacing of homes from the 1840s onwards. Rapid urban growth and a concentration of population in cities resulted in some appalling housing conditions, with overcrowding resulting in the spread of disease and the 'low morals' that eventually drew the attention of Victorian philanthropy.

It was in 1919 that the question of floor space standards in council housing was first raised. Private enterprise had delivered extremely low standards for working class households during the previous century. This had been a consequence of basic economics: tenants could pay very little to landlords and so were provided with very little in return. Accommodation tended to be cramped and insanitary, with multiple families sharing the same space. Council housing was designed to correct this market failure, with adequate space paid for by the state. Therefore, it was necessary to define how much space would be needed by households: to set floor space minimums linked to levels of occupancy.

Private enterprise could not be expected to subsidise the needs of lower income families unable to pay market rents, but the state now had a duty to do so. The corollary of this was that private enterprise had been left to deliver against the needs of households with substantially higher incomes (council housing was viewed as a mass tenure, dealing with the needs of most working families), and it was supposed (though never debated at the time) that the market would be self-regulating, delivering the space that these households needed. It failure to do so has been an issue ever since.

The year 1919 is a critical date in this history: regulations were put in place to define the space needs of those occupying council housing and an implicit decision was reached not to regulate the products of private enterprise. Floor space standards for the public sector became a funding benchmark, below which homes were ineligible for exchequer subsidy. The benchmark was set in 1919 by the Tudor Walters Committee (Holmes, 2006: 8), which recommended maximum densities of 12 dwellings per acre (just under 30 per hectare) and floor space minimums of '855 square feet [79.4m²] for a three bedroom non-parlour house and 1,055 square feet [98 m²] for the parlour type, with a separate sitting room and upstairs WC' (ibid, 9).

Housing debate since the Chadwick and Shaftesbury Inquiries of the mid and late nineteenth century had implied significant benefits accruing from the regulation of housing standards. Some of these were couched in distinctively moral Victorian language (Cherry, 1979: 311): overcrowding in small dwellings could lead to persons of the opposite sex sharing the same room: for families, 'the ideal arrangement was thought to be three bedrooms, which allowed parents and children of opposite sex to sleep separately and a further room for communal daytime use' (Hole, 1965: 139-140).

1.2 Family function and wellbeing

The focus on morality, and also on basic health concerns, in the nineteenth century was replaced in the twentieth by broader concerns for the wellbeing of families and the way in which households function over the life-course. Yet, this replacement was incremental. Between 1919 and 1944, there was growing concern in housing policy for younger families with children and their particular space needs. The tone of the 1944 Dudley Report reflected opportunities arising from the use of new technologies and the significant requirement for pre-fabricated temporary accommodation to meet immediate post-war needs. The Dudley Report's recommendations were written into a 1944 Housing Manual, transforming the Tudor Walter standards into an 800 to 900 square feet norm (74.3 to 83.6 m²) for three-bedroom housing.

For the first half of the twentieth century, there was a vague sense that regulation in the public sector would prevent a return to the problems of the Victorian city, though only limited attention was given to the benefits of securing more space in homes through regulation. This changed after World War II.

Hole (1965: 142) suggests that after the war, a combination of 'anthropometric measurements and data from social surveys' supported the case for minimum space standards. Evidence revealed that housing occupants – and particularly 'families' - needed more space for storage, for cooking, for quiet study (Milner and Madigan, 2004: 730) and for the general unity of the family. Indeed, this evidence resulted in an alteration to the 1944 Housing Manual within five years, adding another 100 square feet (9.3 m²) onto the three-bedroom minimum. But the 1949 Housing Manual, like its predecessor, also displayed concern for a wider range of housing types and for layouts.

1949 is sometimes held up as a pinnacle, when 'public sector space and amenity standards reached their highest peak' (Milner and Madigan, 2004: 730). Setting high standards was seen to be the right thing to do and combined with a package of reforms, concerning education, planning, health care and the wider welfare state, designed to improve peoples' lives. But following this peak, housing space standards declined, not because of updated anthropometric measurement suggesting that less spacious homes were needed, but simply because of changing political priority: specifically, a shift in concern from housing quality to quantity, and the eclipse of public house building by private provision.

1.3 Family complexity, privacy and community

Private enterprise, which was expected to play a small part in delivering against mass housing need after World War I, became more significant in the 1950s. And because it began to deliver against the needs of less affluent customers (and also because the 1947 planning system was now more heavily restricting the supply of development land), floor space standards in private housing began to decline. In the public sector, the incoming Conservative government of 1951 'changed the emphasis from quality to quantity of output' (Milner and Madigan, 2004: 730). In order to build more quickly and more cheaply, Harold Macmillan (as Housing Minister) touted the idea of the 'People's House' which, because of reduced storage and circulation, would not need to exceed 900 square feet (83.6m²) for a three-bedroom dwelling.

Yet these shifts in the private and public sectors were contrary to evidence that more, not less, space in homes was needed. By the end of the 1950s, 'mounting concern at the steady deterioration in housing space standards' (Milner and Madigan, 2004: 731) prompted the establishment of the Parker Morris Committee.

Sir Parker Morris and his team were appointed 'to consider the standards of design and equipment applicable to family dwellings and other forms of residential accommodation, whether provided by public authorities or by private enterprise, and to make recommendations' (MHLG, 1961: iv). A concern for family housing figured prominently in the Committee's subsequent report, *Homes for Today and Tomorrow* (ibid.). Twenty-four opening paragraphs (ibid, 8-12) were dedicated to families and their needs:

> Family homes have to cater for a way of life that is much more complex than in smaller households. They have to accommodate individual and different group interests and activities involving any number, or all, of the family, with or without visitors; and the design must be such as to provide reasonable individual and group privacy as well as facilities for family life as part of a community of friends and relations (ibid, 8).

Indeed, the family itself was conceived as a 'community' occupying the space of the home, which would need to adapt to the evolution of that family: substantial halls would be necessary for receiving guests in private; open planning would not be suited to all families because it affords less privacy (though it tended to be more popular in 'private enterprise' housing); living areas would need to deliver communal and individual functionality; there would need to be space for meals, particularly 'when the family is together as a whole' (ibid, 10); children would need to have separate bedrooms (though these could be small if a shared storage space is available); and space for prams would be is critical. 'A family home should always be planned with an inside space suitable for keeping a pram and a folding push chair' and moreover, 'just as important is the need to provide for easy manoeuvring of the pram indoors, so that it can be used as a cot during the day if need be' (ibid, 11-12). The intricacies of family life were given detailed attention by the Parker Morris Committee.

1.4 Neighbourhood balance

Concern for other households – childless married couples, those living alone, and elderly people – was annexed to this central concern for the two-generation family, and so the Parker Morris standards had much in common with earlier standards and manuals. Its big departure, however, was its interest in private enterprise housing. The Commission reported a concern that 'very small private enterprise' houses would 'lead to overcrowding, and with room sizes and aggregate living areas well below local authority standards' (ibid, 14).

Goodchild and Furbey (1986: 81; quoted in Milner and Madigan, 2004: 731) noted that the Parker Morris Committee shied away from making recommendations for the 'enforcement of any changes on the private sector', but rather hinted at what should be encouraged or discouraged. The Committee's comments on small private homes illustrate this indirect approach:

> Because they offer one way of meeting the needs of small families, we do not suggest that measures should be taken to stop the building of very small houses of this kind; but of course, for reasons of neighbourhood balance, not too many of them should be built in any one place (MHLG, 1961: 15)

In the next paragraph, the Committee explains that 'neighbourhood balance and the needs of the area are considerations which can be brought to bear, within the existing powers of planning authorities, upon applications for planning permission' (ibid, 15), adding that 'limitations on numbers' (of small private homes) and 'common sense' combined with 'relative mobility' will solve the problem (i.e. families will move as need dictates).

The critical factor here is 'limitations on numbers' because without such limits, common sense will not have prevailed and growing families will not be able to find accommodation suited to their needs in that area.

1.5 Dwelling usability

Homes for Today and Tomorrow is mostly remembered for its 'recommended standards relating to floor space' (MHLG, 1961: 35) - applying to New Town housing from 1967 and all council housing from 1969 - which were later supplemented by a series of Design Bulletins. Drury (2008) notes that despite the emphasis on floor space minimums, Parker Morris's concern for 'usability' and 'usability factors' was its real contribution to thinking on internal housing space standards (ibid, 403). He notes that usability depends on 'a number of design decisions, such as layout and door and window positioning, meaning that a single bedroom of eight square metres might work well, while one of nine square metres might be inadequate' (ibid, 403).

Housing needs to be functional: to have utility or usability. Floor and living space is a large part of this functionality and hence the constant back-reference, in contemporary debate, to the Parker Morris Standards of 1961. The problem in the 1960s, however, was that the standards – intended by the Commission to be minimum areas – 'quickly became maxima for public subsidy purposes in the Government's Housing Cost Yardstick' (HATC, 2006: 23). The floor space areas became the standard requirement for local authorities, seen as the maximum required for subsidy receipt and rarely exceeded. Parker Morris had intended that they should be seen as the minimum requirement for dwelling functionality. This is a danger and truism for housing standards of all types, which need to be intelligently interpreted and applied if they are to be part of the solution to, rather than the problem of, sub-standard design (Carmona 2001).

Drury (2008: 403) adds that 'adopting a functional approach addresses the nub of the issue – usability – but does not lend itself to convenient rules of thumb such as minimum room areas or minimum dwellings areas'. It is important to understand use, as Parker Morris tried to do in the 1960s, and offer more detailed design guidance. *Homes for Today and Tomorrow* was later augmented by Design Bulletin 6 (DB6) which gave practical advice on room layout to ensure maximum usability (i.e. maximum usability of minimum acceptable space). The standards were a product of their age, and of a detailed understanding of how space in the home is used (though Milner and Madigan contend that DB6 and other bulletins 'offered idealised assumptions about family life and the use of domestic space, which were based on little substantive evidence', being instead grounded in small-scale 'ergonomic studies' that tended to focus on families with children, 2004: 732).

1.6 Looking forward

Today, at a time of apparently deteriorating internal space standards (Evans and Hartwich, 2005; RIBA, 2007; Gallent et al, 2010), there are constant references back to Parker Morris. But Drury argues that these standards cannot be reinstated, or at least not permanently, as they are 'vulnerable to attack' (ibid, 405). 'They reflect life in the 1950s': things might not have changed that much, but evidence for modern space use is weak. Today, 'we need a more up-to-date, robust evidence base about how people use space in the home', possibly as a precursor to 'a Parker Morris for the 21st century' (ibid, 405).

2.0 The evidence today

There have been intermittent attempts to understand the potential benefits of having adequate space in new homes, often with a view to making a case for additional regulation. In this section an overview of some of this evidence is presented under a number of thematic headings: general health and wellbeing, family life and children, productivity, adaptability, and anti-social behaviour. It should be acknowledged, however, that there have been few extensive anthropometric studies of space needs in recent times, so evidence needs to be drawn from a larger number of projects drawing on more partial evidence, often surveys with housing residents which focus on the 'experience' of living in homes of various types.

2.1 General health and wellbeing

The HATC Ltd (2006) study for the GLA, cited previously, drew together a range of evidence on housing space and the ways in which homes are used. Specifically, it assembled:

- an extensive literature review of the historical and current trends and practices of internal space standards for new residential developments in the UK and abroad;
- a literature review of the possible effects of internal space standards on the health, wellbeing of families and educational accomplishment of children;
- a review of studies and research by CABE, the Institute for Public Policy Research, BCIS and the University of Glasgow;
- qualitative evidence in the form of stakeholder interviews;
- quantitative evidence in the form of case studies of new developments that have already received planning permission in the London Boroughs of Newham and Greenwich, and information from the websites of two developers;
- data from anthropometric studies and furniture schedules from BRE and NHF; and
- data dealing with internal space standards, formulated by the project team at HATC based on their experience of developing new residential projects, both in the private and social sectors.

The study did not explicitly deal with the benefits of minimum floor space standards, but in arriving at recommendations for the GLA, it examined ongoing studies by the University of Glasgow (see Petticrew et al, 2009) and work from CABE that had previously highlighted how additional space in homes may result in broad health, wellbeing and quality of life benefits. Listed amongst these were reductions in family stress and commensurate improvements in familial relations, often stemming from new opportunities for privacy within the home. The London Housing Strategy (2010) repeats the general claim that 'adequate space' in new housing will bring broad health and well-being benefits, though it does not specify the nature of these benefits. Similarly, CABE's (2003) *Creating Excellent Buildings* uses the Commission's extensive best practice links to argue that attractive, light and well ventilated spaces contribute to the health and well-being of users. Again, these are qualitative insights that link good design to the positive experience of buildings.

CABE have also tried to quantify some of the space needs of residents in new housing, commissioning a survey by HATC and Ipsos MORI in 2009. *Space in New Homes: What Residents Think* (CABE, 2009) presented evidence on the satisfaction of 2,239 residents living in private homes built since 2002 in Greater London and southern England (representing a 20% response rate against 11,500 questionnaires distributed). It concluded that occupants display 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.

This would allow them the necessary flexibility and adaptability to change the internal space according to their own changing needs. The research highlighted a preference for:

- more space for accommodating more 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; and
- adequate space for waste bins and efficient waste removal

It is sometimes argued that a preoccupation with achieving higher densities, which is rarely balanced with a consideration of space needs, means that such benefits cannot be realised. Çavusoglu et al (2008) argue that policy makers are frequently ignorant of the many good examples of successful housing typologies dotted around the country. The 2004 London Plan, in particular, seemed intent on putting housing quantity ahead of quality. This paper, produced by a team from the LSE, compared recent London standards and typologies with historic examples of residential layout, particularly the Becontree Estate in the London Borough of Barking and Dagenham. Because it was a product of the Parker Morris regime, homes in the estate were built to higher space standards, but without compromising density. The basic argument offered was that re-development of the estate should not remove the benefits of building to a clear standard. Rather, this should be improved upon. Echoing CABE's 2009 study, additional space was seen to provide clear benefits in terms of quality of life and health for occupants.

A more quantitative analysis of health and housing space was undertaken by the charity Shelter (Reynolds, 2005). A survey of 505 households in accommodation deemed to be 'overcrowded' revealed the importance of space in providing personal privacy, reducing depression, anxiety and stress, giving children room to play and ensuring a good night's sleep. Three quarters of respondents (77%) in this survey saw space as playing a key role in determining the quality of family relationships.

2.2 Family life and children

The HATC Ltd (2006) study links the crowding and cramming of spaces to low educational achievement amongst children. Children may be deprived of private study space and this may impinge on their academic performance. It may also have a knock-on effect. The cramming of different activities (studying, socialising, and relaxing) into limited space may adversely affect family life, creating a difficult dynamic which may play a part in the breakdown of relationships (see also Reynolds, 2005).

The evidence base for the London Housing Strategy (2010) repeats some of the points made by HATC Ltd four years earlier. This evidence base is built on commissioned research undertaken by the Greater London Authority, the National Housing and Planning Advice Unit, Communities and Local Government, The Council of Mortgage Lenders, Ipsos MORI, London Home Ownership Group, CABE, BRE and the Department of Energy and Climate Change on housing needs, dwelling types, design and the quality of homes. On the basis of this evidence (comprising resident surveys and interviews), the London Housing Strategy is able to make a general case for minimum space standards. Specifically, it links overcrowding in dwellings to poor health and educational outcomes, and sees space standards as part of, rather than a substitute for, the better design of homes. This view is shared by Heywood (2004) who contends that minimum standards should exist only to eradicate bad housing, and that 'plentiful' space in homes (exceeding any legal minimum) should become an important measure of design quality, linking to the collective needs of families.

Unlike the London Housing Strategy, the Draft London Housing Design Guide (2009) details some of the specific benefits of additional space within homes. In terms of evidence, it brings together:

- extensive reviews of policies contained in the London Plan, Lifetime Homes as part of Code for Sustainable Homes and the London Housing Strategy;
- quantitative studies and analysis of wide-ranging design guidance on space standards published by different bodies such as the Homes and Communities Agency and English Partnerships (when it was a separate entity);
- quantitative data from design testing to understand the minimum space requirements for various activities

In its draft form, the Guide lists the capabilities that families gain from having more space in their homes. They are able to:

- socialise both with other family members and with guests (and having the privacy to do so);
- have more storage space;
- have more space for solitary activities;
- have good circulation spaces which can also act as storage spaces for outdoor items such as prams, umbrellas and shoes;
- relax, engage in private study within bedrooms;
- reorganise their rooms internally, if need be, by making openings or converting pitched roofs;
- work from home (perhaps to improve their life-work balance);
- have more space in the kitchen so that children can play under the supervision of their parents;
- more space for waste and recycling bins;
- improve day light and ventilation.

The Guide articulates the Mayor's case for minimum space standards and drew heavily on Shelter's 2004 study *Crowded House* which

> brought to light levels of overcrowding in London that are above the national average. It gave evidence of the serious long-term effects of overcrowding on families. For children, it means an increased risk of infection and a lack of space and privacy that can affect how they perform at school. For parents, it is a barrier to providing opportunities for their children as well as a constant cause of anxiety and stress (Mayor of London, 2009: 38).

It argues that only by setting a minimum floor space standard will housing be sustainable in the long term, as achieving sustainability means ensuring that London's housing stock offers flexible accommodation that can adapt to the changing needs and lifestyle of the city's population. The basic assertions of the Draft London Housing Design Guide were made a few years earlier by Eley (2004) who argued that how well the intended use of any building suits its users is a key measure of quality. Design Quality Indicators (DQI) alongside adapted Housing Quality Indicators (HQI) are frequently used to evaluate the functionality of buildings with commercial, residential or other uses in mind. Eley's point, mirroring that contained in the Housing Design Guide, is that it can be quickly revealed whether or not a building 'suits its use'. In the case of housing, it needs to afford opportunities to socialize, have privacy, store belongings, pursue leisurely activities, circulate, relax and study, prepare food, play, deal with waste and recycle. If a building fails to 'perform' against these measures (if it has a low DQI or HQI), then its design may need reconsidering, and this may also mean providing additional space.

CABE's 2009 study of resident satisfaction within private homes in southern England (2009: see above) focused on family life, emphasising that many of the benefits of larger family homes that were discussed in the 1960s are still not being delivered. Additional space in private homes will:

- Allow families to eat together and also to relax together;
- Encourage greater interaction within the home between children and adults, creation stronger familial bonds; and
- Also create opportunities for greater privacy.

The survey commissioned by CABE revealed that homes need to provide space for people to come together, and also space for people to be apart when they wish. Inadequate space offers neither of these possibilities and may not, therefore, provide an adequate setting for family life. A similar point is made by Hanson (1998) who argues that, in any type of home, embedded in any culture, '[ ] domestic space creates and structures the possibility and form of encounter among inhabitants, and between inhabitants and visitors' (ibid, 108). This is a recurring theme in academic writing: that space shapes social interaction, determining how that interaction occurs and its outcomes, positive or negative.

Many studies and commentaries reflect upon the Parker Morris standards. Whilst they often applaud the effort to understand the needs of housing occupants, they point out that the 'modern family' of the 1950s lives a very different lifestyle from the modern family of the 21st century. If there is to be some push towards universal standards, this needs to be grounded in an understanding of today's needs. Echoing the sentiments of Drury (2008), Leith (2008) argues that new patterns of behaviour mean that any update on recommended floor spaces should take account of:

- Children and adults needing space for computers;
- The need for more space in kitchens for new appliances which were not present in the 1960s, and also
- More space for equipment for children at home, as well as
- More space to eat and watch television.

The benefits here are not specified, but clearly homes need to be fit for modern purpose. If they are not, they will become a brake on family activity, on home working and on home study.

2.3 Productivity

This issue is touched upon in only a limited way, but by a large number of studies. Productivity begins with the academic performance of children. If this is hampered by limited space for private study within the home then it may have a deeper impact on educational attainment in areas where housing is of a poorer quality. It may magnify existing spatial inequalities. There have been few studies linking space in homes to educational achievement, though work by Cassen and Kingdon (2007) found that the 'home learning environment' has a significant part to play in improving or impairing performance.

But productivity is more directly associated with opportunities to work at home. Having space to install a desk and computer may allow someone to start a home business (see also, Çavusoglu et al, 2008). Or, it may allow an occupant to spend part of the working week at home, improving their life-work balance and working in a more focused way. This issue is raised in the HATC Ltd (2006) study, based on the evidence listed above.

A knock on impact of increased home working will be the space freed up in dedicated work environments, allowing such assets to be used more flexibly, and helping in the process to drive better organisational productivity (see, for example Gibson 2003).

2.4 Adaptability

The adaptability of homes, and therefore the long term utility of dwellings over the life course, has been a central theme in housing design in recent years. Milner and Madigan (2004) examine the integration of life-time homes standards into the general housing stock through the incremental raising of building standards. Additional space for storage makes for less cluttered living space, which may be better suited to people with mobility impairment. It is also the case that in homes with more floor space, corridors and doors can be widened to accommodate wheelchair users. But this is not the only life-cycle adaptation that is possible. Homes with appropriately pitched roofs, for example, can be made to accommodate an extra bedroom to cater for the needs of a growing family.

Larger floor spaces are inherently more adaptable: they offer greater potential for rearrangement. This was one suggestion of the Parker Morris Commission (1961) and also a point raised by Italian respondents in recent work by Gallent et al (2010). Imrie (2004) tries to bridge the divide between regulation that aims to assist disabled occupants and possible measures to more generally improve the design of housing. Drawing on a survey of building control officers undertaken in 2001 and 2002, he argues that there has been too much focus on 'access' and not enough on 'living conditions'. Broadening this out, Imrie suggests that future regulation, if it materialises, should have a broader concern with design benefits and future adaptability of homes, for all users.

The London Housing Strategy (2010) also takes up this point, arguing that more space within the home is part of the means of delivering a more 'sustainable' housing stock that can adapt to changing needs and also to changing lifestyles. Others, including CABE (2003) have made similar claims: that homes need to be able to adapt to different lifestyles. Such changes might include: a different life-work balance over time; more time spent preparing food within the home; a shift to home-study; more families taking on care responsibilities, especially of elderly parents. The prospect of such changes are recognised by households themselves, who are keen to live in homes with more flexible space, that can be adapted to their needs as they age, have children, or come to use their homes in different ways (CABE, 2009).

Çavusoglu et al (2008) argue that such adaptability delivers long-term accessibility as well as long-term *sustainability* as adequate space in dwellings will allow residents to adapt space to their changing needs over the life course: homes will become future proof. Indeed, long term utility and 'functionality' is seen by many as the essential argument in favour of universal space standards and the key benefit such standards would deliver for housing occupants (Hurst, 2007).

Hooper and Nicol (1999) raise almost the identical point but in relation to standardization of housing designs delivered through private enterprise. Drawing on an analysis of house building practices in the 1990s, these authors argue that one consequence of standardization is to deliver a housing stock that caters for a limited range of needs, and which cannot be easily adapted to changing circumstances. This, of course, is a more general concern about housing design and production processes in the UK. However, there are two links to internal space. First, the lack of space combined with general standardization of housing products may be seen as factors limiting flexibility and adaptability. But secondly, minimum space standards can also be viewed as a cause of standardization and therefore inflexibility in design (Schneider and Till, 2007).

Schneider and Till (2007) in *Flexible Housing* argue that regulation of floor space can deliver 'determinate spaces' within the home, restricting use and behaviour. These are contrasted with the 'soft spaces' that people actually need over the long term. The research reviews research literature published since World War I, arguing that truly flexible housing permits different physical arrangements of space and hence can adjust to the changing needs and requirements of users. In allowing different living patterns within the same space, flexible housing tends to be more adaptable and sustainable, and also cost-effective over the long term. Being adaptable, the space can be used for multiple functions rather than a single designated use. Bedrooms can become living rooms, for instance. Circulation spaces can double-up as social spaces for interaction. This, the authors argue, is not possible where circulation spaces are laid out under the guidance of minimum space standards. Soft spaces offer flexibility and choice, delivering quality of life under changing patterns of occupation.

However, that space standard eliminate these benefits is disputed by Gallent et al (2010) whose study of regulation in Italy reveals that flexible arrangements are possible where builders are able to interpret regulations, creating bigger communal spaces in family homes, and reducing bedroom sizes within a certain tolerance (ibid, 11). If there is flexibility in the arrangement of 'living spaces' for socialising, studying and sleeping, then 'soft spaces' can be created within a framework of floor space minimums.

2.5 Inclusive homes

A consequence of homes designed to lifetime standards is their suitability for a wider cross-section of society, including the ageing society. Hanson (2001) contextualises the specific needs of an aging population through a discourse on the concepts of medical disability and architectural disability. She argues that whereas medical disability is a basic human condition, architectural disability stems from conscious design and development decision-making that impedes on the choice and freedom of certain groups in the society, particularly the elderly. Although the state supports the needs of the older people through specialised provision of sheltered housing, with the private sector delivering retirement homes, neither satisfy the specific needs of many elderly people.

Drawing on evidence that encompasses an extensive literature review of the historical and current trends and practices of the public and private sector in the UK, a review of policies such as the Lifetime Homes as part of Part M of the Building Regulations, and on qualitative data in the form of semi-structured interviews with respondents living in sheltered housing and retirement homes across the country, Hanson (2001) establishes that the experience of many residents of sheltered housing and retirement homes have been more traumatic than pleasant, often exacerbated by the poor standards of space in their new homes as compared with normal family homes. In this context, the provision of family homes that are flexible and adaptable and that adopt Lifetime Homes Standards are also likely to be more inclusive over the long term, giving greater independence, freedom and choice to an aging population. This supports the argument that the regulation of floor space standards ensures that developments are more likely to deliver against a range of local housing needs, thereby avoiding the negative neighbourhood effects noted by the Parker Morris Committee in 1961 (see above).

2.6 Anti-Social Behaviour

On the basis of its extensive research base, the London Housing Strategy (2010) makes a link between space and anti-social behaviour. It does this in two ways. Firstly, poor housing (of which low space standards is a part) contributes to poor health and lower educational attainment (for the reasons set out above). This can express itself in incidences of anti-social behaviour attendant on poverty, worklessness and so on. Secondly, the design of homes can deliver a greater sense of privacy and safety. This means that minimum space standards may have a measurable effect on anti-social behaviour itself and on the 'fear' of crime. However, the London Housing Strategy infers links rather than making clear research-based connections.

Work by the University of Newcastle in 2007 focused on the behaviour of 8 to 13 year olds. Based on interviews with families, this study was able to explain some incidences of anti-social behaviour in terms of overcrowded living conditions. It found that children, especially teenagers, deprived of adequate space at home may become disruptive, aggressive, abusive and generally disobedient (DfES, 2007).

2.7 Market benefits

The UK is unique amongst the member states of the European Union. It is the only member not to set a legal floor space minimum for new all new housing, even though standards exist for social housing (as part of the 'quality standards' now administered by the Homes and Communities Agency) which act as a benchmark for grant receipt (Wren et al, 2000). There have been numerous comparative studies, looking at the average space in homes across different European countries. Evans and Hartwich (2005) for example, cite comprehensive data showing that the smallest homes in Europe are now being built in the UK. However, such studies seldom focus on why space is regulated, or what specific benefits are delivered through the setting of floor space minimums for bedrooms, kitchens, living rooms and so on. Much of this regulation is rooted in the experience of the past and it is generally assumed that legal minimums will prevent any return to the provision of insanitary housing. Regulations aim to ensure that accommodation is well ventilated, well lit and that it delivers against the basic needs of occupants. It is generally assumed to be necessary in much the same way as regulation of space in privately-built homes is deemed unnecessary in the UK.

But one recent overseas study has touched upon the broader logic of setting minimum floor space standards. Whilst accepting that standards are rooted in a basic view of the functionality of dwellings, this study sought views from regulators, builders (in the social and private sectors) and architects on the wider benefits of having more space in homes. In their study of floor space standards in Italy based on consultations with house builders, regulators and architects alongside analysis of available secondary data sources, Gallent et al (2010) found that from a regulatory and design perspective, more space in homes is viewed as one critical measure of ensuring 'liveability' especially in instances where planning authorities are pushing for higher density development, as has often been the case in the UK in recent years. In such instances, floor space minimums ensure that quality is not sacrificed in order to achieve other policy priorities.

But regulation of any type will work within the culture of the development industry it seeks to regulate. When developers engage in speculation against rising land values, and take speculative risks, they will not warm to tighter regulation. They will prefer, instead, to be able to negotiate with local authorities in the hope of lessening the burden of public tests in order to deliver bigger profits for shareholders. In Italy, development is a less speculative and more local affair.

House builders tend to be smaller, have closer relationships with local authorities, engage in less speculation (and there is no 'buy to let' or 'buy to leave' market) but in a context of less restrictive (but sometimes more bureaucratic) planning. In this context, builders:

- View standards as simply one of the game rules of the house building industry, acting as a barrier to downward pressure on space in areas of high demand. They act as a brake on companies who would otherwise 'work sites hard' to maximise profit. Rather, they create a 'market standard' that shapes the expectations of buyers and creates stability in the industry;
- Also view standards as a means of reducing the risk of market failure. If low quality homes are crammed onto sites because there are no minimum sites, these homes are likely to have limited utility and therefore a narrower market. Building for a narrower market is inherently risky, not only for builders but also for buyers, who may find it difficult to sell on in the future (and who are therefore reticent about buying in the first place).

Attitudes towards minimum space standards are specific to particular places and experiences: they come to reflect quite fundamental beliefs about the utility and purpose of homes. Where housing is seen as an investment commodity (as in the UK), standards are likely to be viewed as a threat to 'return on investment' (or that may at least be the initial reaction). Where investment is a weaker driver of the market, and the quality of homes is judged against long-term utility and adaptability then standards may even be set beneath the cultural norm. This was the experience in Italy where the 1975 legal floor space minimums were actually set lower than the average dimensions of an Italian home of the time. The standards were merely there to eradicate the potential for bad practice and they were not a shock to the system. However, where speculation and investment are important drivers of housing production, any introduced standard is likely to come up against endemic bad practice and therefore face stiffer opposition. For developers it will quickly become the maximum, rather than the minimum standard, and standards should be set appropriately as a result. The long-term benefits may be a less confrontational planning process, a more stable market, and raised consumer expectations as a result.

3.0 Conclusions

The main purpose of this paper is to review evidence on the benefits of minimum floor space standards for new homes. Typically the benefits of such regulation by the public sector are implied but not always clearly specified.

The experience in the UK had been that private enterprise has seen to be incapable of delivering decent quality homes to working class households: low rents necessitated low investment, resulting in abysmally poor housing quality for much of the nineteenth century. Quality therefore came to be seen as something requiring subsidy and a council house building programme was brought on line that promised to deliver a good standard basic product for the vast majority of working households. For everyone else it was believed that the private sector would be self-regulating in terms of floor space - delivering what was paid for by a small section of affluent society. In contrast to other countries, the need to extend legal minimums to all housing was never seriously considered in England, and the UK has come to build the smallest home sizes in Europe as a result.

Since the deletion of the 'Parker Morris Standard' as a benchmark for the public funding of council housing in 1980, there has been growing concern over the decline of space in new homes and the potential problems this creates for households. Put another way, there has been concern for the 'loss of benefits' that reduced space in homes brings.

Evidence drawn from a historical review of the evolution of standards and from contemporary research studies suggests that the following benefits are critically important:

- The general health and wellbeing benefits that accrue from living in a well-designed home that offers both privacy and sociability, and that in all respects provides adequate space to function well;
- The contribution that adequate space makes to family life and the opportunity it affords children to engage in uninterrupted private study and therefore achieve against their potential;
- The forward link from educational attainment to productivity, and also the opportunity that space provides to work from home or to address the life-work balance;
- The flexibility of homes that have adequate space, meaning that they are easier to adapt to changing needs and lifestyles, and to future living styles and habits;
- The inclusivity provided by homes that have space to respond to occupiers changing physical requirements over their life-times, and the knock-on impact this has on creating more balanced and stable neighbourhoods;
- The societal benefits stemming from reduced overcrowding and the consequential reduction in aggressive and anti-social behaviour;
- Creating a potentially more stable housing market, driven by a more complete understanding of long-term need and utility rather than by short-term investment decisions.

Over a longer period, the increased dominance of private over public provision has been a cause of concern in relation to internal space standards. The expansion of private sector provision (mirroring the contraction of public provision) combined with difficulties associated with planning procedures for bringing land forward for development, and policy driving up densities, mean that sites are often 'worked hard'. That investment, as much as owner occupation, determines standards and ultimately private enterprise may not be delivering a liveable level of space for all households.

Discussions around the benefits of having minimum floor space standards for new homes make no distinction based on tenure arrangement. The benefits are equal between the public and private sectors, suggesting the need for common standards of the type found elsewhere in Europe may now be the way to go.

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