

Thinking about space in and around the home

The case studies include examples of how the planning of internal space integrally with external space can produce and enrich the sense of quality and distinct identity both within the dwelling and of the neighbourhood as a whole. Equally, when these relationships between internal and external spaces are not given adequate consideration, characteristics which undermine the overall quality of the development can emerge, for example:

- living rooms lacking privacy;
- external spaces without surveillance;
- inadequate treatment of threshold areas;
- lost opportunities to benefit from orientation and views.

The lack of distinctiveness and quality which characterises so many modern housing schemes can often be attributed to the design of layout forms and the application of standard housing types in a manner which fails to consider the relationships between internal and external spaces.

This chapter is not intended to be a guide to internal space planning or standards (because pointers can be found in a number of existing publications¹) but aims instead to stimulate thinking about the issues involved. The need for this thinking also arises in relation to other factors, including:

- greater interest in flexible internal space, as exemplified by loft developments and live/work units;
- recognition of the benefits of housing which can adapt to the changing requirements of residents
- greater emphasis on orientation to low energy solutions.

Density and space

It is a common misunderstanding that higher housing densities need to result in lower standards of space around and within the home. While large detached houses will tend to be more spacious than town centre apartments, the case studies suggest that it is possible to provide generous living space and, at the same time, achieve higher development densities.

The case study developments completed within the last decade (for example, at: Thorley Lane, Bishops Stortford; Rolls Crescent, Hulme; Greenland Passage, Southwark; Poundbury, Dorchester; and Deansgate Quay, Manchester) provide space standards which match or better those commonly found in the private sector, or those currently recommended for public sector development².



Spacious town houses arranged on four floors, close to Norwich City Centre. This scheme achieves a net density of 34 dwellings per hectare. Friars Quay, Norwich



These Victorian town houses (as originally built) provide a density of 41 dwellings per hectare while still achieving a generous amount of internal space by today's standards. Canning Street, Liverpool



Generously-sized back gardens provide space for children's play and ecology. In this case a mix of three and five bedroom houses was developed at a density of 31 dwellings per hectare. Stanstead Road, Lewisham

The earlier and historic case study areas such as: Canning Street, Liverpool, Jesmond, Newcastle, and Stanstead Road, Lewisham also provide space standards which would be considered generous by today's norms at densities in the range of 30 to 50 dwellings per hectare and above.

A key factor in making this possible is the efficient provision of space for vehicle movement and car parking. The design principles relating to these issues are considered in more detail in Chapters 3 and 5.

Whatever the scale of the dwelling or form of development, maximising utility and creating a sense of space are likely to depend upon such factors as:

- the potential for daylight penetration;
- the relationship to outdoor space, whether that is provided by a balcony, garden, street or park;
- the ability to provide multi-use rather than single-use spaces;
- the efficiency of planning internal circulation and locating kitchens, utility rooms, toilets and bathrooms.

The advantages and disadvantages of the 'wet core' uses (for example, kitchens, bathrooms and utility rooms) being to the front, to the rear or in the centre of the dwelling need to be carefully considered in terms of functionality, lighting and visual impact. Ground floor street side windows generally need to be small and elevated. Large 'picture' windows on the street side of the house will tend to result in a public facade dominated by drawn blinds and curtains, with a loss of natural light to the dwelling and a loss of surveillance of the street.

It is important to analyse the relationship between the block size and frontage width in relation to internal and external space issues. The potential frequently exists to explore housing and apartment forms which use well planned and natural lighting devices to create quality solutions for deep-plan and narrow-frontage dwellings. Equally, the use of either single or double aspect apartments needs particular attention in relation to the quality of space to be enjoyed. Promising opportunities to enhance the quality of external and internal space tend to emerge at corners and street block ends.



Potential for daylight penetration fully exploited through orientation, glazing, with supporting kitchen, bathroom and circulation space located away from the main elevations. St Mary's Square, Bury St Edmonds



Here the planning and use of internal space are well related to external space. Millennium Village, Greenwich



Multi-use space linking hall, kitchen, dining and living areas. Millennium Village, Greenwich



Compact circulation and kitchen space planning maximise living space. Prince of Wales Road, London

Relating indoor and outdoor space

In seeking to relate indoor and outdoor space, the starting point needs to be an analysis of orientation and potential sources of light and views. Rooflights, open stairwells, mezzanine sections, varying ceiling heights, or steps and corners in the plan, can all help to bring daylight into the core of the dwellings.

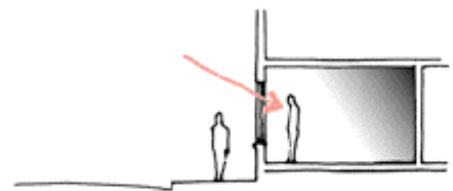


A mezzanine level exploits light for two levels of habitable space. Homes for Change, Hulme

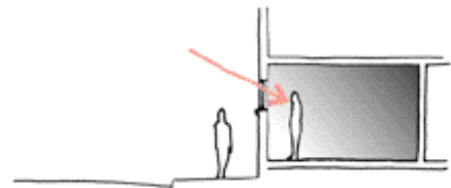
As well as this 'inside-to-outside' analysis, an 'outside-to-inside' analysis is also desirable. How will the street impact on the dwelling in terms of its privacy and security, light and sunlight and the definition of the public realm and the private external and internal space? How will street planting affect the dwelling and what factors need to be considered in defining the scale, form and treatment of the 'threshold space' and windows?



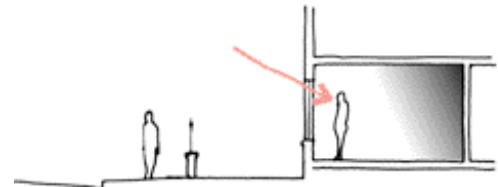
The consequence of failing to consider the relationships between outdoor and indoor space. Here car parking on a raised deck compromises the privacy (and potentially the security) of first floor apartments resulting in permanently drawn blinds. Deansgate Quay, Manchester



Large windows provide good daylight penetration, but also create a feeling of vulnerability with little privacy from the street



Small windows provide a greater feeling of security in the home, but also reduce the potential for daylight penetration



Large windows together with small garden setbacks can provide a solution. The use of this room is a further consideration, because kitchens and living rooms have different functional and privacy requirements

A successful balance between an active street frontage and privacy can be aided by making the ground floor level significantly higher than the pavement level. However, this poses difficulties for wheelchair access, and carefully considered solutions are needed. These may involve well designed ramps, level rear access at a higher level, or well tailored solutions to specific circumstances. Some developments have addressed the issues through the street-side ground floor being given over to the 'front' door, lobby, storage and parking space.

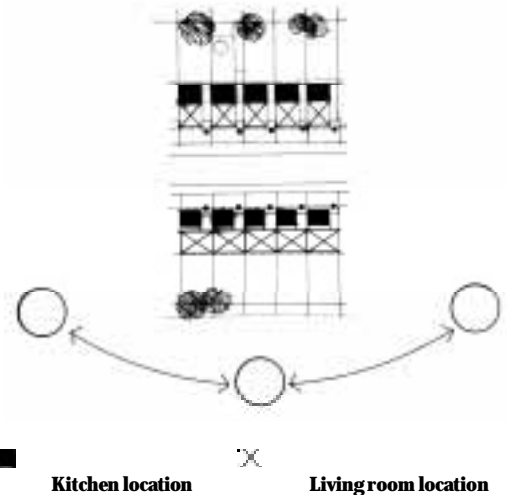


This wheelchair ramp has blurred the distinction between public and private space with the unintended consequence of providing a place for children to cycle and skateboard, causing nuisance to residents. Rolls Crescent, Hulme

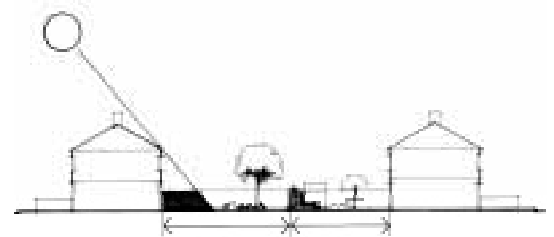
External space to the rear requires similar analysis, whether this is private, communal or a mix of both. At ground floor level, the best solutions will provide a sharing of space, from the garden into the house and from the house into the garden, allowing for different patterns of living during the summer and winter months. Above this, the potential for balconies and roof gardens, both projected and recessed, should be explored. A key consideration is that balconies should be useable and not merely decorative. This raises specific issues, not only about size but also involves thinking about orientation, views, the circulation patterns of the internal space, massing forms such as stepped structures as well as construction methods.

In the design of any urban housing block, the optimum internal planning of each unit is likely to vary according to which side of the street the unit faces. For example, a north or east-facing kitchen facing the street has merit in terms of an active frontage, ease of access for deliveries, comfort in use and goes hand in hand with the potential for solar gain to the living and other habitable rooms on the south and west sides.

Conversely, on the opposite side of the street, living rooms, deeper gardens and balconies facing the street may be appropriate, with the 'wet core' of the house to the rear. Longer rear gardens may also be appropriate here to avoid their being excessively shaded. Other factors will inevitably come into play, such as views and access to open space, the adverse impact of a very busy road or pavement on the edge of the development, sloping sites, existing trees to be retained or the potential for new tree planting. It is important to analyse, weigh and balance all these issues before arriving at a fully considered design resolution.



Solar orientation is an important consideration in the location of the principal habitable rooms. In this example, dwellings on different sides of the street have their living rooms arranged for optimum solar orientation



Lengthening rear gardens to take account of solar orientation can ensure that each garden receives an equal amount of sunlight

Flexibility, adaptability and change

Many homes are still sold in terms of the number of bedrooms, reception rooms and bathrooms, but modern construction methods (including the prefabrication of wide-span floors) can provide larger, multi-purpose spaces or space which residents can then subdivide to meet their own particular requirements.

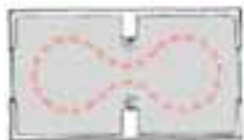
Open plan and cellular forms imply different trade-offs and lifestyle choices. These include:

Open Plan	Cellular
May reduce market acceptability	Market norm
Flexible	Fixed
Spatially efficient	Spatially inefficient
Acoustic problems	Acoustic separation
Improves daylight penetration	Reduces daylight penetration

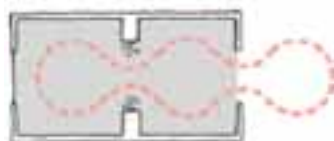
The use of partition doors between habitable rooms can provide some of the benefits of a large flexible space combined with the ability to form two smaller and separate rooms. Closing down a room can, for example, form a temporary guest bedroom or a quiet area for home-working or open it up to create a more generous space for entertaining or children's play. Careful planning of circulation spaces such as landing areas can also ensure that they perform more than their strictly utilitarian function of providing access to habitable rooms, and become multi-use spaces in their own right.



Space broken into small cells to separate out uses



Merged space joins uses together



Borrowed garden space provides an extension to a habitable room

Adaptability

History suggests that the demand for different types of housing and for different uses in an area will evolve over time, both in response to changing socio-economic circumstances and to changing perceptions of an area. Both the Jesmond, Newcastle and the Stanstead Road, Lewisham case study areas have taken on a richer mix of housing types over time through the conversion of some dwellings to apartments, while Canning Street, Liverpool has seen some of its dwellings converted first to apartments, then to commercial use and finally back to single family houses.



Certain historic housing forms have proved very adaptable to changing requirements. Here, large town houses built for wealthy merchants have been converted to apartments and offices. Canning Street, Liverpool

The important design principle which flows from this is that dwellings and residential neighbourhoods which are designed to be adaptable will prove more robust over time than those which have been tailored tightly to a particular need. For example:

- steel and concrete frame construction can create broader spans which make the reconfiguration of internal space easier than where dwellings are built in a cellular form with loadbearing walls;
- vertical stacking of kitchens and bathrooms can simplify the provision of additional services;
- compact vertical circulation with ready means of escape can make larger houses more suitable for sub-division into apartments or commercial use;
- the use of solid floors can reduce noise transmission.

These considerations may be particularly relevant in town centre and edge-of-centre locations where the demand for different uses is likely to change over time.

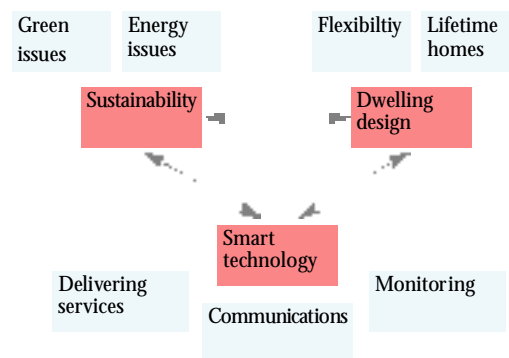
Meeting the changing needs of residents

The needs of a household will evolve as a result of changing circumstances as well as a consequence of evolving social and workplace trends. These changes may result in the need for more, less or different domestic space, or in using the available space for different purposes.

'Lifetime homes' are designed to be adaptable to residents changing requirements and, particularly, in terms of providing for reduced personal mobility³. Taking the implications of reduced mobility into account in the initial design of the dwelling can ensure that the home can be adapted, for example, to provide:

- a stair lift;
- a room downstairs which could be used as a bedroom;
- access to a downstairs toilet which can be adapted to include a shower.

'Smart' technology is increasingly being used within the home, especially to provide support to older, less mobile people. For example, to foster contact with wardens and carers, to detect falls or lack of movement within the home or simply to cut off the water before a bath overflows. Once again, the installation of such technology in existing homes can be made easier and cheaper if it is provided for in the initial design. Skirting ducts, for example, which are easily accessible, can allow new cabling to be installed with minimal disruption.

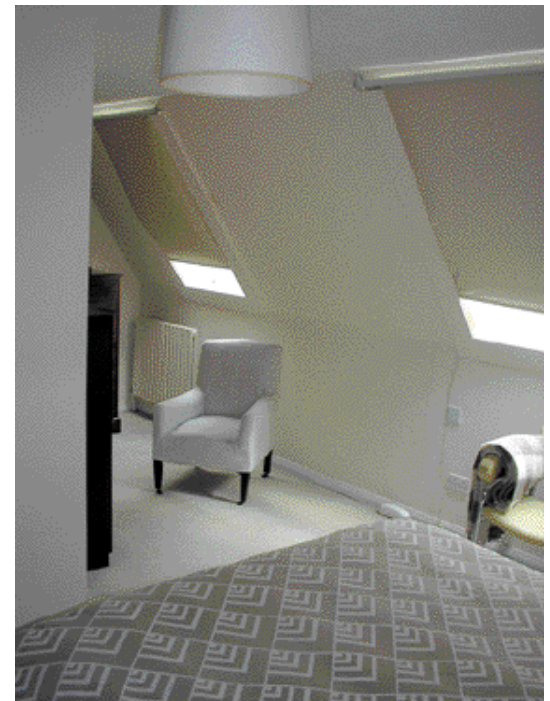


Smart technology can play an important role in supporting residents and reducing resource consumption

The option of creating additional living space or of making existing space meet needs better can enable a household to adapt to changing circumstances without its occupants having to move home by:

- extending the dwelling to the rear or side (but also possibly upwards);
- converting loft space into living space;
- reconfiguring existing space to form differently sized rooms.

Initial design and choices of construction method can have an important bearing on this potential. At a broader level, the provision of a wide range of housing opportunities across a neighbourhood can enable people to move to more suitable housing while maintaining family and friendship ties or retaining continuity in children's education or childcare.



Using loft spaces can be an effective way of meeting the need for more living space within the home. The potential for loft conversion can be as enhanced by careful attention to roof truss design as well the potential to modify the internal layout to satisfy fire regulations

Designing to maximise flexibility and choice in the use of internal and external space

The floor plans illustrated below show the potential for housing to be designed which is adaptable to changing occupier requirements. This particular housing was designed as part of an experimental scheme for Birmingham City Council by Shillam+Smith Architecture, and Urbanism.

The design approach emerged from a programme of consultation with the local community, a large proportion of which is of South Asian origin. This identified the first priorities for new homes as being affordability and space. To accommodate this, the houses were designed to be 20% larger than comparable new housing, but built for the same price, which meant a simple, no-frills layout. However, the houses were designed to be extendable so that residents could stamp their own identity on their homes.

The structure selected was a concrete frame, and extensions were intended to be within the capability of a local builder or a DIY enthusiast. In this way, housing could be provided which could accommodate the diversity of family types we find today. For example, people could decide whether they wanted a single living room or two, and exactly how they wanted bedroom arrangements. As families grow, and as residents become more affluent, the house could be extended to meet changing needs.

The basic shell, although simple, was robust, and satisfied the needs of building regulations and lifetime homes. Houses were also designed so that people can carry out a business from the 'front room' or even convert it into a shop.

Circulation	•
Kitchens & bathrooms	■
Bedrooms	■
Living rooms & dining rooms	■
Balcony or terrace	■





Design thinking, building technology and residents' aspirations are continually evolving. Murray Grove, Hackney

Innovation

Current practice can prove restrictive in terms of flexibility in space planning, both internally and externally.

However, there is an emerging body of new practice and some local authorities are proving far more open to change and innovation than others. It is important to remain in touch with the 'leading edge' exemplars of practice and regulation. The potential for re-thinking of terrace and deep-plan housing and apartment design, of light wells, roof gardens and balconies, overlooking distances and rear garden lengths and quality communal gardens through imaginative design should be encouraged rather than falling on the tried, tested and readily permissible. This process can go hand in hand with initiatives optimising solar gain, energy efficiency and 'life time homes'.

Some key points

In thinking about space within and around the home, the following key aspects need to be considered:

Internal / External Relationships

- Has an analysis been made of the relationships between internal and external space and has this informed the development of the scheme?

Places and Spaces

- Have external spaces – to the front and rear of dwellings, and those common to more than one dwelling – been thoroughly planned as quality spaces and as an integral part of the development?

Adaptability

- Do the layout and design of dwellings allow for future adaptation to meet changing needs?
- Have dwellings been designed so as to provide viable opportunities for future extension?

End notes:

¹ See, for example, Part C of Standards and Quality in Development: a Good Practice Guide (National Housing Federation 1998) and Chapters 5-9 of the Housing Quality Indicators (DETR and the Housing Corporation 2000).

² See, for example, Standards and Quality in Development: A Good Practice Guide, (National Housing Federation 1998).

³ Designing Lifetime Homes (Joseph Rowntree Foundation 1997) provides a detailed explanation of the concept of lifetime homes and provides guidance on appropriate design standards.

