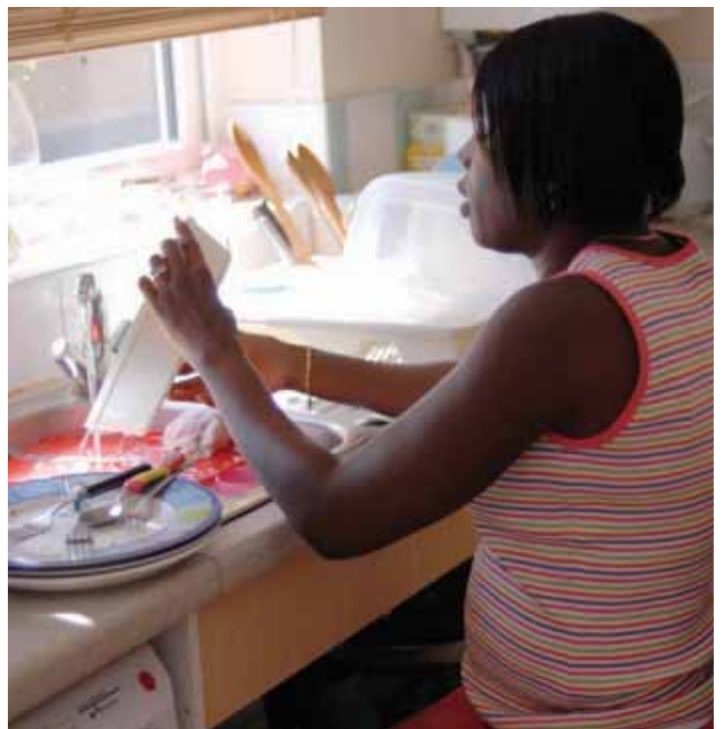


Wheelchair accessible housing

Designing homes that can be easily adapted for residents who are wheelchair users

Best Practice Guidance



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Authors

David Bonnett and Rachael Marshall. David Bonnett Associates believes that the principles of 'Inclusive Design' are an expression of good architecture. DBA seeks to achieve 'Inclusive Design' by constant reference to current best practice standards. This process underpins the assessment and evaluation methods that form the basis of DBA's work.

Habinteg Housing Association, as well as a housing provider, Habinteg Housing Association is recognised as the UK's leading expert in accessible housing and disability and is co-author of the Wheelchair Housing Design Guide. It applies its expertise to challenge negative social attitudes, promote the rights of disabled people and improve the accessibility standards within housing.

Sabrina Aaronovitch has many years experience in developing policy on accessible housing and working in a local authority putting policy into practice. She is also a freelance photographer.

Edited by

Julie Fleck Greater London Authority
Chris Goodman Habinteg Housing Association

Steering Group

With thanks to the following Steering Group members:

David Petherick Communities and Local Government
Isabel Robertson Greater London Authority
Julie Lane London Borough of Islington
Jacqueline Runnalls London Borough of Waltham Forest
Matthew Lusty Projects Developer, Stanhope
Rae Fether Retired Interior Designer
Adam Thomas Design Matters
Stephen Thorpe Threshold Architects and co-author of the Wheelchair
Housing Design Guide

Illustrations

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Contents

Foreword by Ken Livingstone, Mayor of London	v
Foreword by Manny Lewis, Chief Executive of the London Development Agency	vi
1 Introduction - the London context	1
2 Purpose of the guide	3
3 Inclusive design principles	4
4 Wheelchair accessible housing in context	5
5 Access Statements	7
6 Basic design considerations	8
7 Checklist of key features	12
8 Two wheelchair users' experiences of design	36
9 References	40

Foreword by Ken Livingstone, Mayor of London

My vision for housing in London is to improve the housing opportunities available to Londoners by driving up the supply of new homes, providing more family homes and more affordable homes; by better design and greener homes; by providing more choice and opportunity, less homelessness and overcrowding and more sustainable communities. I want to ensure that the delivery of housing in London promotes social inclusion and tackles deprivation and discrimination.

However, many disabled and older people still live in unsuitable homes that prevent them living independent and dignified lives. In 2005 I published a report on the housing needs of Londoners, which included the needs of disabled people. The London and Sub-Regional Strategy Support Studies¹ provide detailed information about the barriers experienced by different groups of disabled people both inside and outside their homes and highlights that disabled people are twice as likely to be living in unsuitable housing as non-disabled people.

It is therefore imperative that the 30,500 new homes that are needed in London every year, as identified in the London Plan, are designed to be accessible and easily adaptable if disabled and older people are to have the same opportunity to live in these new homes as non-disabled Londoners. As many of these new homes will be built by the private sector this guide provides an essential tool for developers and planners to ensure that new homes are built with the flexibility and adaptability that disabled people need.



Ken Livingstone
Mayor of London



Foreword by Manny Lewis, Chief Executive of the London Development Agency



The London Development Agency (LDA) is the Mayor's agency responsible for driving London's sustainable economic growth - it's our job to ensure that London remains a global success story - in the next year, the next decade and the next century. We work to deliver the Mayor's vision for London to be a sustainable world city with strong, long-term economic growth, social inclusion and active environmental improvement. The first objective of our Economic Development Strategy is to support the delivery of the London Plan, and to promote sustainable growth and economic development. The LDA has a Corporate Plan housing target and plays a key role in facilitating the delivery of more housing in London, particularly more affordable housing.

Our Disability Equality Scheme recognises our role in actively promoting disability equality in London and acknowledges the difficulties that many disabled Londoners face as a result of living in unsuitable housing. We therefore welcomed the opportunity to fund the production of this guide. Along with the case study examples of Lifetime Homes², it will help our development partners to understand and implement wheelchair accessible standards, and will help all involved in the development of new homes in London to recognise the benefits of housing designed, built and managed to be accessible, adaptable and flexible - a benefit to us all.

A handwritten signature in black ink, appearing to read 'Manny Lewis'. The signature is fluid and cursive, with a large, stylized 'L' at the end.

Manny Lewis

Chief Executive London Development Agency

1 Introduction - the London context

Many older and disabled people still live in unsuitable housing, and many must make expensive adaptations to their homes when their needs change. The London and Sub-Regional Strategy Support Studies demonstrate the need for more accessible and adapted housing in the capital. The Studies estimated that 13 per cent of London's 3.1 million households (412,400 households) contain at least one person who is in an identified 'special needs' group. These groups include people who are frail, older people, people with physical impairments, those that have learning difficulties, people who use mental health services, and people with severe sensory impairments. The Study found that nearly one third of these households (130,000 households) live in unsuitable housing, of which 32 per cent (41,057) need to move to alternative housing with specialist adaptations, 20 per cent (26,341 households) require wheelchair access, 19 per cent (25,268 households) need a lift or stair lift, 20 per cent (26,461 households) need additional handrails inside the home and 20 per cent (25,543 households) need other alterations or adaptations.



Until recently there was no requirement for developers of market housing to build homes suitable for people who use wheelchairs, even though there is an increasing demand from disabled people to buy their own homes. This is reflected by the number of web sites now dedicated to advertising accessible and adapted property for sale.

The London Plan seeks to ensure that 10 per cent of all new housing is wheelchair accessible or easily adaptable for residents who are wheelchair users (see Policy 3A.4 Housing Choice). Supplementary Planning Guidance (SPG) 'Accessible London: achieving an inclusive environment'³ published in April 2004 provides detail on implementation. SPG Implementation Point 13: Wheelchair Housing, states that:

"In all housing developments, including conversions and change of use, the Mayor will, and boroughs should, seek to ensure that 10 per cent of the units are designed to be wheelchair accessible, or easily adaptable, for residents who are wheelchair users. This percentage should be applied to both market and affordable housing, should be evenly distributed throughout the development, and cater for a varying number of occupants."

Homes required to be fully fitted out for a wheelchair user, particularly those provided for RSLs (Registered Social Landlords) will need to comply with the Housing Corporation Design and Quality Standards⁴, which references the requirements set out in the Wheelchair Housing Design Guide⁵ (WHDG). Some London boroughs (for example Greenwich and Waltham Forest) have their own wheelchair user housing standards, which

i It is acknowledged that the use of the term 'special needs' and the definitions used which focus on impairment are at odds with the social model of disability but they are of necessity drawn from the categories used in the borough housing needs surveys.

in some instances go beyond the requirements in the WHDG and will need to be complied with within these boroughs.

Not all new homes, particularly in the private sector, will necessarily be occupied by a wheelchair user from the outset. The aim of the London Plan policy is however, to ensure that at least 10 per cent of all new homes are designed from the outset to be easily adaptable for occupation by a wheelchair user at a later date. New homes that are capable of being easily adapted at a later date to full wheelchair standards should have a structure that incorporates the features in section 7 of this document. This will ensure that fittings and fixtures that may be required by an individual can be added at a later date without enlarging or structurally modifying their home, enabling an effective and quick response to a family's changing circumstances with minimum cost and disruption.

Appendix five of the SPG outlines the key features of wheelchair accessible homes based on the standards in the Wheelchair Housing Design Guide⁵. The aim of this guide is to provide more detailed information on these key features so that developers of general needs housing can see more easily what to incorporate in the designs of new homes at the planning application stage.

None of the features in this guide will make wheelchair accessible homes look different from inaccessibly designed homes. In fact it is important that they do not differ aesthetically. The flexibility of an easily adaptable home should reassure potential buyers, and the slightly more generous space in circulation areas will make all residents' lives easier.

As a rule-of-thumb, suitable spatial and structural arrangements are essential at the outset and so too are some service arrangements. Understanding the distinction between fitting out a home for immediate occupation by a wheelchair user and ensuring that the home is easily adaptable is especially critical in the design of market housing, where the home may not be occupied initially by a wheelchair user, but the ability to easily adapt the home at a later date is made possible by ensuring that the key features as outlined in this guide are included from the outset.

These features need to be established at the outset of the design process and clearly articulated in planning application drawings and in the Design and Access Statement.

2 Purpose of the guide

The purpose of the guide is to clarify which of the requirements of the Wheelchair Housing Design Guide should be incorporated into the design of the 10 per cent of homes identified as wheelchair accessible at the planning application stage and described in the Design and Access Statement submitted with the planning application.

It is anticipated that this guide will contribute to a more thorough understanding of what is meant by the term 'housing that is capable of easy adaptation for residents who are wheelchair users'. It should assist in the development of precise design briefs and result in more straightforward planning approval. Many housing professionals will also find the guide useful.

This document explains which of the standards of the Wheelchair Housing Design Guide (WHDG), need to be established at the outset, (and clearly indicated at the planning application stage), with particular emphasis on issues of relevance to high-density housing. Fixtures, fittings and other adjustments in the WHDG are not therefore covered by this document, but may be applicable at later stages in the design process where the fit out is for immediate occupation by a wheelchair user.

At present a home that is designed to be easily adaptable for later occupation by a wheelchair user is likely to exceed the minimum spatial requirements of Part M of the Building Regulations and the Lifetime Home standards (see Meeting Part M and designing Lifetime Homes (1999)⁶, and will appeal to many families with small children, older people who have mobility equipment and people who benefit from more spacious, efficient and conveniently planned homes.

The essential features for a new home that is capable of being easily adapted at a later date to the full wheelchair standard are illustrated in section seven, and are reproduced along with further information and technical guidance without changes from the WHDG. These essential features are requirements for developers abiding by the Housing Corporation Design and Quality Standards for wheelchair accessible homes.

Two case studies are illustrated in section eight. They demonstrate how important accessibility is within the home by showing successful and not-so successful design. Rather than dictate minimum room sizes it should be noted that no space standards are set out in this guide or in the WHDG. Functional space requirements, as detailed, will determine the overall footprint.



3 Inclusive design principles

Access for disabled people has in the past been dealt with as an adjunct to the grand design. As a result, access issues have in the past been considered far too late in the planning process to be successfully integrated into the design process. Recent government legislation and planning guidance reflects the changes in public attitude and the efforts to challenge and eradicate disability discrimination, hence the importance of designing from the outset for a diverse community.

In recent years, legislation and policy concerning access for disabled people has shifted away from ‘designing for disabled people’, a ‘special needs’ approach, and towards ‘inclusive design’, a mainstream approach. ‘Special needs’ design draws a distinction between the requirements of disabled people and others and is based on the medical model of disabilityⁱⁱ. The design that follows, though well intentioned, often maintains separation and restricts choice. Inclusive design, based on the social model of disabilityⁱⁱⁱ, sets out to avoid these restrictions by aligning with mainstream standards and designing out barriers to inclusion from the outset, thereby widening accessibility, choice and independence.

The principles of inclusive design, as defined by CABE⁷, call for places to be:

Inclusive so everyone can use them safely, easily and with dignity.

Responsive taking account of what people say they need and want.

Flexible so different people can use them in different ways.

Convenient so everyone can use them without too much effort or separation.

Accommodating for all people, regardless of their age, gender, mobility, ethnicity or circumstances.

Welcoming with no disabling barriers that might exclude some people.

Realistic offering more than one solution to help balance everyone’s needs and recognising that one solution may not work for all.

This guide acknowledges the importance of the shift from ‘special needs’ to inclusive design by embedding the need for wheelchair accessible homes in mainstream provision. It also acknowledges the learning curve involved in the process for designers, planners and other professionals. Part of this understanding involves the scope for adaptability and flexibility that enables ordinary housing to respond to changing needs.

ii The medical model of disability defines people by their individual medical condition and puts labels on people which can marginalise and fundamentally affect their life chances, for example knowing someone’s medical condition does not necessarily tell a housing provider whether someone needs wheelchair access or just the ability to install a grabrail.

iii The social model defines disability as the disadvantage experienced by people with impairments or ill health resulting from barriers to independent living, housing and employment opportunities. Barriers can be attitudinal, result from policy design or delivery, physical through the design of the built environment, or linked to lack of empowerment where disabled people are not listened to, consulted or involved. Removing these barriers gives disabled people the opportunity to participate in the mainstream of society and makes disability a civil rights issue.

4 Wheelchair accessible housing in context

Approved Document Part M (2004)⁸ sets out the minimum requirements for accessibility that all new homes are statutorily obliged to meet. However, it makes only a basic provision for inclusive design, with its focus on ensuring disabled people can visit new homes and does not facilitate full independent living for all disabled people.

Lifetime Homes standards go further than Part M with the idea that, by careful design, homes can be adapted in response to the changing needs of their occupants. This flexibility benefits parents with small children, older people and many but not all disabled people. The Joseph Rowntree Foundation first introduced the standards in 1991. Local authorities in London are incorporating them into their planning policies following the introduction of the London Plan in 2004 and policy 3A.4 Housing Choice which seeks to ensure that all new housing is built to Lifetime Home standards. Lifetime Home standards have been included as one of the criteria in the Code for Sustainable Homes⁹ and are currently under review by the British Standards Institution for eventual incorporation into BS 8300:2001¹⁰ so are likely to be incorporated into any future revisions to Part M.

Wheelchair accessible homes, built to the standards detailed in The Wheelchair Housing Design Guide, 2nd edition, 2006 (the key spatial features of which are detailed in this document), are different to Lifetime Homes, although they have some features in common. Wheelchair accessible homes allow either immediate occupation by a wheelchair user or easy adaptation when the need arises.

It is anticipated that the distinction between these three sets of standards will reduce over time, as accessibility is now a criterion of sustainability and social justice. It is expected that the benefits of homes that are capable of easy adaptation for occupation by a wheelchair user will also find wider application.

Over time, through better understanding of use, design innovation or building economics, this distinction between the different standards is expected to close.

Whilst Lifetime Homes and wheelchair accessible housing have some features in common, there are important differences that will almost certainly make the footprint of a unit designed to be wheelchair accessible different to other residential units. This is why it is so important to consider the distribution, location, number and size of the wheelchair units from the beginning of the planning process. Distribution should also



take account of the wish of older and disabled people to feel safe and secure, but also to be fully integrated within the residential community.

Designing wheelchair accessible housing is not simply a matter of drawing turning circles on plans in the right places. This guide and the WHDG provide designers with the technical information necessary to ensure that wheelchair users and other disabled people can comfortably access and use all parts of their home. However, care should be taken to use this information holistically. One of the case studies at the end of this guide presents an apartment that limits the independence of its owner through poor design.



5 Access Statements

Planning Policy Statement 1 (PPS1)¹¹ is the government's statement setting out the over-arching principles for sustainable development within which all planning authorities should be operating. PPS1 places inclusive design as a key element in the policies for achieving sustainable development. Section 42 of the Planning and Compulsory Purchase Act 2004¹² provides the means to ensure that design and access are considered at the earliest stage of development, by means of the Design and Access Statement.

With the exception of the development of an existing dwelling house, or development within the curtilage of a dwelling house for any purpose incidental to the enjoyment of the dwelling house, which is not within a conservation or other 'Designated Area', all planning applications for housing should now be accompanied by a Design and Access Statement. This is the vehicle for demonstrating how wheelchair accessible housing will be provided in both the market and social sectors, as well as addressing the wider objectives of national, regional and local policies for sustainable inclusive design. A statement must be provided for outline and full (detailed) planning applications.

"Design and Access Statements help to ensure development proposals are based on a thoughtful design process and a sustainable approach to access; they allow the applicant to explain and justify their proposals; and they help all those assessing the application to understand the design and access rationale that underpins them. Statements should improve the quality of proposals."¹³

Planning authorities must have regard to the statement when considering a planning application, must place the statement on the public register and may use it for consulting relevant parties. Planning authorities can specify, through conditions, the part of the Design and Access Statement that must be adhered to. This is an important point for applications that include wheelchair user housing, as issues such as the structural and floorspace arrangements that affect access to services, and the internal layout of units will need to be planned from the outset to ensure that any planning permission conditions can be met at the detailed design stage. The Design and Access Statement for any residential development should inform the planning authority of how the proposals will meet London's strategic and the local planning objectives for wheelchair user housing provision. A helpful way to illustrate the provision of accessible housing at planning application stage is to include within the Design and Access Statement typical plans of the proposed flats that demonstrate that the Lifetime Home standards can be met, that 10 per cent are fully wheelchair accessible and ready for immediate occupation by a wheelchair user and/or can be easily adapted for occupation by a wheelchair user at a later date.

6 Basic design considerations

The following basic design considerations, based on the WHDG (2006), should enable designers and planners to make the appropriate early decisions which ensure that the detailed design can follow the guidance set out in the Wheelchair Housing Design Guide. These design considerations could be used as an Access Statement checklist to ensure that all issues have been covered, although clearly not everything listed will be relevant to all applications.

Inclusion

- As an overriding principle, aim at inclusive solutions, avoid differentiating by location, form and detailing, and in multi-storey developments provide a choice of size, aspect and floor level.

Siting

- Explain how wheelchair users and others with limited mobility will gain access to facilities beyond the site and the transport options available to them. If there are difficulties relating to the site's topography, draw attention to these, and indicate how they may be overcome. Where appropriate, necessary works might be included in a Section 106 Agreement.
- Show how good inclusive and convenient access for wheelchair users will be achieved throughout the development, linking the entrance to the site, all entrances to dwellings and site facilities, and resolving differences in level so that detailed design guidance concerning gradients, widths, crossings, cross falls and surfaces can subsequently be followed. The Department of Transport's publication 'Inclusive Mobility'¹⁴ provides the standards and guidance for the external built environment, and should be referenced.
- Outline the parking strategy by illustrating access by car for residents and visitors, the approach to entrances from car parking and the pedestrian network, with regard to distance between parking and dwelling, the need for nominally level parking, and for covered transfer between car and wheelchair where required. Local authority planning policy on residential parking will influence the location and amount of parking. Generally one blue badge parking space will be required for each wheelchair accessible unit, including those developments that would otherwise be car-free. Where the proposal is for blue badge parking to be on the public highway, ensure that local parking rules allow for these to be restricted for use of disabled residents only. The parking strategy should include a management plan for the enforcement of designated bays and how fluctuating demand and supply for blue badge bays will be dealt with in the future.



- Show scooter storage, charging and covered transfer area adjacent to entrance.
- Illustrate how covered transfer space for car or scooter blends with the overall design of the scheme.
- Show that covered spaces at communal or individual unit entrances are functional porches or canopies rather than decorative ones.

Communal Internal areas

- Demonstrate accessible circulation (widths and turning spaces) throughout the communal areas on ground floor and other floors served by lifts. BS 8300 provides guidance for communal areas inside apartment blocks.
- Indicate how easy access will be achieved to communal facilities such as rubbish disposal, gardens, gyms and play areas.
- Indicate efficient circulation that will enable a wheelchair user to turn 180° at the front door, and approach and turn through all doorways and around corners.
- Where wheelchair accessible units are planned on the upper storeys of apartment blocks, show how access will be achieved. As a guide, there should be a minimum of one, preferably two, 1400mm deep x 1100mm wide sized lifts in multi-storey developments. A 1400mm deep x 2000mm wide lift will be easier for a wheelchair user as it has sufficient space to turn around.

Internal planning of wheelchair accessible units

- Show how efficient circulation will enable a wheelchair user to turn 180° at the front door, and approach and turn through all doorways and around corners and approach built-in cupboards.
- Where a wheelchair accessible unit is on more than one level, indicate where space will be allowed for domestic lifts that link circulation areas at each level, and how provision for a wheelchair-accessible WC on the entrance level storey will be made.
- Show how dedicated space within the dwelling will enable a wheelchair user to manoeuvre and transfer to a second wheelchair, leaving the other wheelchair on charge without interfering with circulation space.
- Indicate that all doors open beyond 90° where practicable to achieve effective clear width of opening without excessive door width.

Kitchens and living rooms

- Demonstrate the relationship or differentiation of living and dining areas, kitchen and circulation, taking account of household type, dwelling size and likely living patterns, ensuring ease of wheelchair movement and providing some flexibility of use.
- Ensure that living areas can be satisfactorily furnished, and accommodate wheelchair movement, including access to windows and external doors.
- Show how wheelchair users can conveniently use kitchens without major adaptation; minimise the need for excessive movement between kitchen functions, i.e. L- or U-shaped (rather than linear) layouts and with convenient access to dining area.

Bedrooms

- Indicate a direct connection between a main bedroom and bathroom.
- A furniture layout should show how a wheelchair user can enter and leave bedrooms easily, access both sides of a double bed or one side of a single bed, turn and manoeuvre to approach all furniture and operate window controls.

Bathrooms and WCs

- Bathroom layouts should show how a level-access shower area of at least 1000mm x 1000mm, without an approach ramp, could be accommodated. This could overlap a 1700mm bath area to allow either to be installed; allow space for side, oblique and front transfer to the WC, a 1500mm manoeuvring space clear of all fittings, 1100mm in front of the WC clear of all obstructions.
- Larger dwellings should show a 2nd wheelchair accessible WC (which could be in an ensuite bathroom); possibly with provision for a shower in the side transfer space. The 2nd WC should have the side transfer space on the other side to the 1st WC.

Windows, balconies and storage

- Indicate storage space throughout and how this will be accessed.
- Ensure unhindered access to operate windows and approach secondary doors where practicable.
- Show level access through to balconies, patios and gardens.
- In the main living space show where a clear sightline through a window or glazed door for a seated person will be provided.

Management

- Clarify and resolve issues such as delivery and refuse arrangements for residents, management of future supply of, demand for and enforcement of designated Blue Badge parking and lift breakdown and maintenance arrangements.

Adaptability

- Plan for the life of the building not just initial occupants, and aim for a degree of built-in adaptability.



7 Checklist of key features

The features listed in the shaded boxes in this section below are reproduced from the Wheelchair Housing Design Guide 2006 (WHDG). They have the same references as in the WHDG, which can be referred to when using this document.

- 1 Moving around outside
- 2 Using the outdoor spaces
- 3 Approaching the home
- 4 Negotiating the entrance door
- 5 Entering and leaving; dealing with callers
- 6 Negotiating the secondary door
- 7 Moving around inside; storing things
- 8 Moving between levels within the building
- 9 Using living spaces
- 10 Using the kitchen
- 11 Using the bathroom
- 12 Using bedrooms
- 13 Internal doors
- 14 Windows



7.1 Moving around outside

Ensure a high degree of accessibility within the development.

The features listed below are concerned with the immediate approach to individual dwellings. In addition to these, planners will want to know how the development connects with local transport and other community facilities.

It probably goes without saying that wheelchair accessible units will be the housing best suited for residents with the most limited mobility. Therefore close proximity to local public transport, car parking and taxi drop-off points, as well as communal facilities such as gardens, gyms and play space should be planned early.

Footpaths	Ensure that footpaths are smooth but slip resistant, of 1200mm minimum width and with adequate space to negotiate obstacles, turn and pass. (WHDG 1.2.1)
Gradients	Ensure that length: gradient ratios to footpaths or routes within a development do not exceed 2000mm at 1 in 12 or 5000mm at 1 in 15, with top and bottom and, where required, intermediate level landings, at least 1200mm long. (WHDG 1.2.3) Routes to entrances must not be steeper than 1 in 15. (WHDG 3.2.5)
Cross falls	Ensure that these do not exceed 1 in 50 on paving, whether dedicated to pedestrian use or shared with vehicles. (WHDG 1.2.4)
Crossings	Ensure that these have flush junctions or shallow gradients and avoid gratings or channels that could trap wheels or footrests. (WHDG 1.2.5)

Figure 1 Footpaths

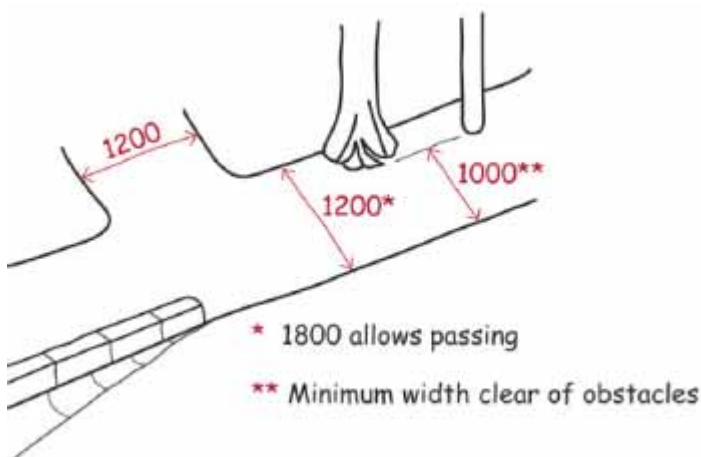
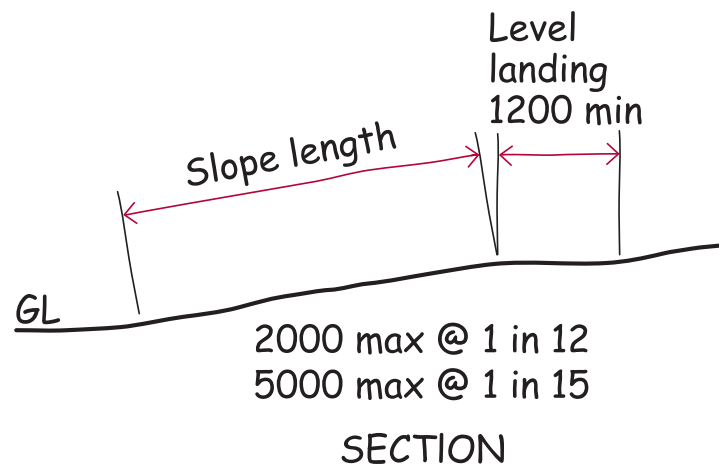
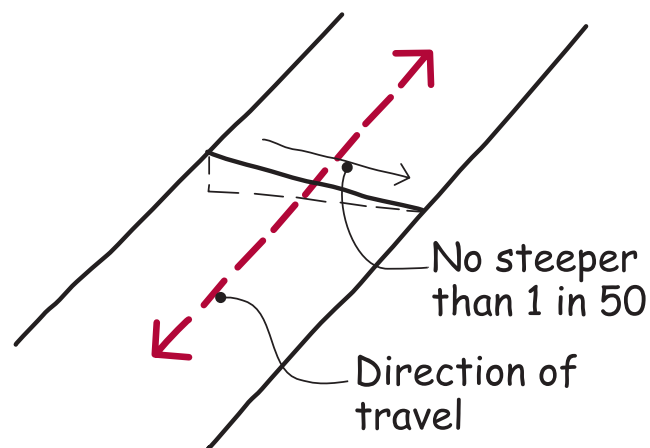


Figure 2 Maximum slope length: gradient ratio**Figure 3 Maximum crossfall**

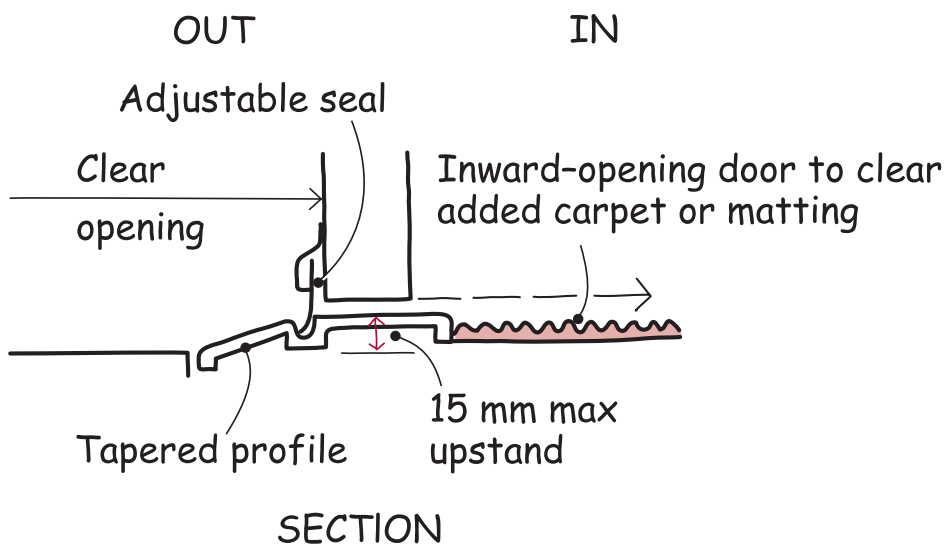
7.2 Using outdoor spaces

Ensure that spaces within the curtilage of the home are accessible, usable and, where appropriate, secure.

High-density schemes often feature communal gardens and other open spaces. All such areas should be fully accessible to residents and visitors who use wheelchairs.

Gardens [gates]	Where private back or side gardens are provided, ensure that gates have 850mm clear opening, and can be operated from each side by a wheelchair user, with reachable and easily manipulated fittings. (WHDG 2.2.1)
Balconies	Provide nominally level access to balcony and useable space clear of any door swings, (see figure 4). (WHDG 2.2.2)
Garden	Lay out garden to provide accessible route from external door, external storage and external gate. (WHDG 2.2.3)
Refuse	Make suitable refuse provision, i.e. to deposit refuse in a container(s) for collection, within a short distance of an external door, or ensure appropriate management provision. (WHDG 2.2.4)

Figure 4 Level threshold



Note The 15mm maximum upstand must have a tapered profile with no single unchamfered vertical upstand exceeding 5mm.

7.3 Approaching the home

Ensure ease of approach to the home by car, wheelchair or mobility scooter with good cover at the point of transfer and good protection from the elements at the individual or common entrance.

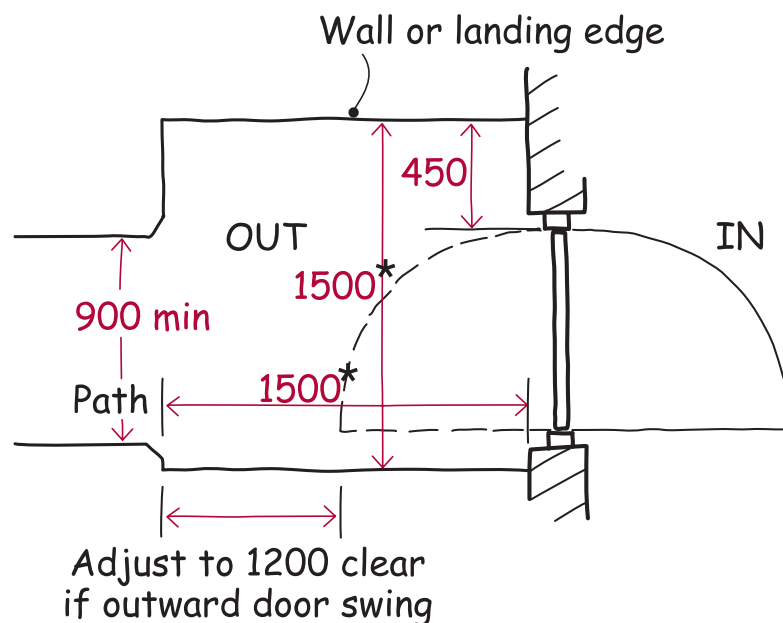
Refer to BS8300:2001⁸ for guidance about common areas of multi-storey developments, including circulation areas, doors, and lifts.

Designated parking for Blue Badge holders should be as close as possible to wheelchair accessible units, and under cover.

Wider parking bays should be available for wheelchair users. The parking strategy, including the provision and dimensions of bays, the management of the supply and future demand for bays and how their use will be enforced should be made clear in the Design and Access Statement.

Parking provision tends to be in the basements of high-density developments, which, being undercover is particularly suitable for wheelchair users, provided that spaces designated for Blue Badge holders are near to lifts and car park entrance barriers / security arrangements are accessible to a wheelchair user.

Figure 5 Entrance landing

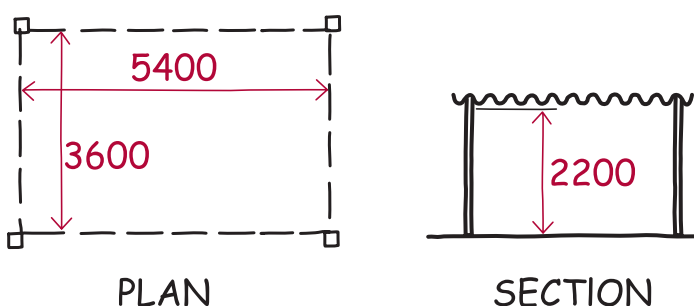


Note Paths to communal entrances require minimum 1200mm width (see 7.1)
*1800 preferred

Dwellings with a direct external entrance	Provide a covered parking space for every ground-floor level wheelchair user dwelling. (WHDG 3.2.1)
Covered area [for parking]	Ensure that minimum clear area and height are as indicated (see figure 6) with slip resistant, smooth and nominally level paved surface below. (WHDG 3.2.2)
Dwellings with a communal external entrance	Where there is no direct external ground-floor entrance, ensure parking provision in the form of designated parking space for each wheelchair user dwelling, off-street or kerbside, nominally level that can enable transfer to and from vehicle. (WHDG 3.2.3)
Route to entrance	Smooth slip resistant route. Ramps, where unavoidable, are not steeper than 1 in 15 and not longer than 5000mm. (WHDG 3.2.5)
Entrance landing	Level landing 1500mm x 1500mm minimum, (1800mm by 1800mm preferred) but ensure 1200mm depth clear of any door swing. Provide side protection where ground level is below path or landing level. (See figure 3) (WHDG 3.2.6)
Canopy at entrance	Minimum 1200 x 1500mm extending beyond door on lock side and at a max height of 2300mm, (see figure 7) (WHDG 3.2.7)
Lifts	Where wheelchair dwellings are above the ground floor, lifts should be as detailed in BS 8300 (i.e. internal car dimensions of 1100 wide x 1400mm deep). A second lift should be accessible to and from wheelchair user dwellings for use when the first or core lift is undergoing maintenance. (WHDG 3.2.9)

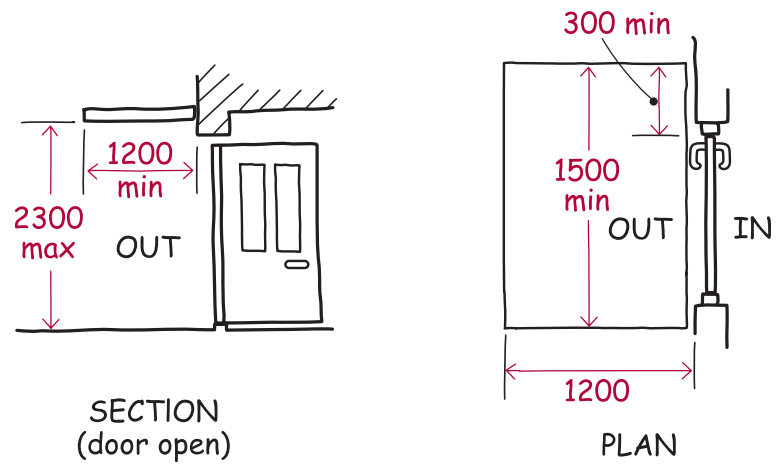


Figure 6 Covered area for parking



Note Height should be increased to 2.6m in enclosed car parks to comply with BS 8300 (to accommodate high-top conversion vehicles and the use of a wheelchair hoist)

Figure 7 Canopy at entrance



7.4 Negotiating the entrance door

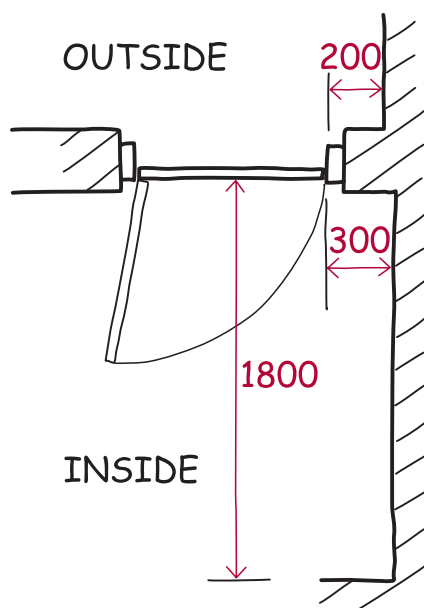
Ensure that the clear opening, approach space and threshold are suitable for use by a person using a wheelchair.

Try to limit the number of communal internal doors (e.g. fire doors) that a wheelchair user must negotiate in order to reach their flat.

The effective clear width for the door as detailed below is a minimum standard. Designers should consider increasing this to 900mm, or wider, particularly in relation to communal doors.

Door	Provide effective clear width of at least 800mm. (WHDG 4.2.1)
Approach space	Provide space beside leading edge of door. 200mm minimum for a door opening away from the wheelchair user, 300mm minimum for a door opening towards them, extending 1800mm from face of door. (See figure 8) (WHDG 4.2.2)
Threshold	Provide weathertight accessible detail with total upstand clear of internal or external finishes not exceeding 15mm. (WHDG 4.2.3) (See Figure 4)

Figure 8 Interior approach space



7.5 Entering and leaving; dealing with callers

Ensure that the wheelchair user in their own home can:

- *enter, manoeuvre outdoor chair to transfer to indoor chair, and reverse the process when leaving*
- *leave outdoor or indoor chair on charge*
- *approach door to receive deliveries, retrieve post, open door to visitors, manoeuvre and return into living areas.*

The WHDG recommends that the space in which to store/charge a wheelchair is in the hall, however it may be located anywhere in the home. The flexibility that this extra space gives makes the home more flexible, and can be used for storage space, provided any built in cupboards can be easily removed.

Hallways are not always necessary, especially as they increase the number of doors that a wheelchair user must negotiate. Sometimes space used for hallways may be better used in the main part of the dwelling.

Lobby	Where entrance lobby incorporated or provision made for added inner door, ensure adequate space to manoeuvre between doors.(WHDG 5.2.5)
Turning space	1800mm x 1500mm behind closed door, clear of fittings and obstructions, plus 300mm clear space to the side of the leading edge of the door. (See figure 9) (WHDG 5.2.2)
Transfer space	Provide a space within the home of 1100mm x 1700mm to manoeuvre wheelchair to transfer to a second chair, to store the first, and if necessary to leave it on charge, clear of circulation routes and the required approach to furniture and doors (see figure 10). (WHDG 5.2.1)

Figure 9 Turning space behind entrance door

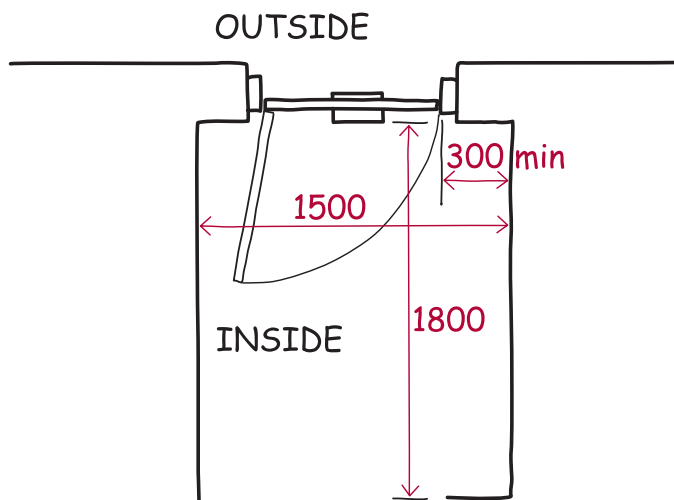
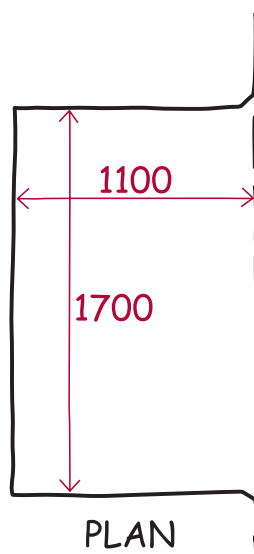


Figure 10 Extra space required for storing and charging a second wheelchair, or for additional storage



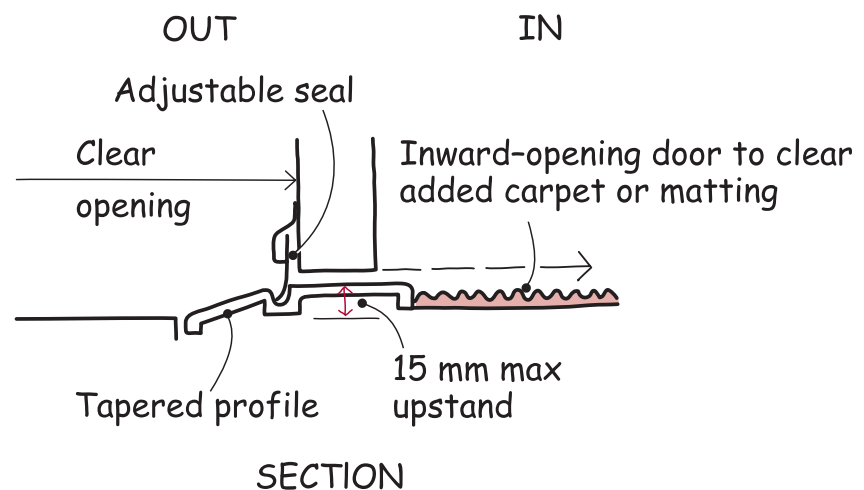
7.6 Negotiating the secondary door

Ensure direct connection to external spaces by an easily operated but secure door, as access to private or shared gardens, balconies, and as escape in an emergency.

Also see section 7.2 'Using outdoor spaces' for consideration of balconies. A level threshold for any secondary door, including those to balconies, is essential. Many sliding doors that are currently available are not suitable as the upstand of the unit is excessive.

[Exterior] Landing	Provide nominally level landing 1500mm wide x 1500mm deep with 1200mm clear of door swing. (WHDG 6.2.1)
Door	Provide effective clear width of 800mm to single or main leaf. (WHDG 6.2.2)
Approach space	Ensure space to approach, manoeuvre and pass through the door on line. (WHDG 6.2.3)
Threshold	Provide weather-tight, accessible detail. (See figure 11) (WHDG 6.2.4)

Figure 11 Level threshold to garden or balcony



7.7 Moving around inside; storing things

Ensure that wheelchair users can:

- conveniently manoeuvre, approach and negotiate all doors within circulation areas
- approach and use storage off circulation areas.

Consider fitting doors that can be easily re-hung (to open inwards rather than outwards and vice-versa) to suit different users. If this is done make sure that there is 300mm clear space on both sides of a door.

Some wheelchair users find open plan living and kitchen areas more convenient due to the reduction in the number of doors to negotiate. However, open plan arrangements need to have regard for, and where possible mitigate against, noise from appliances often located in the kitchen.

Straight passages	Ensure that passage widths or approaches where no turning or door approach is required are no less than 900mm wide clear of all obstructions except skirtings. (WHDG 7.2.1)
Head-on approach to doors in passages	Ensure space beside latch edge of door, minimum 200mm on push side and minimum 300mm on pull side. (WHDG 7.2.2)
Turning 90°	Ensure at right angles that passage width clear of all obstructions (except skirtings) for the extent the turn is no less than 1200mm width in one direction, and 900mm in the other; or 900mm in each direction in combination with an angle splayed by 300mm. (See figure 12). (WHDG 7.2.5)
Turning 180°	Ensure that passage widths or approaches to turn through 180° are no less than 1500mm clear of all obstructions (except skirtings) for extent of manoeuvring space. (WHDG 7.2.4)
Effective clear widths for doors	Ensure 775mm minimum effective clear width. Increase where approach is at an angle. (See figure 13) (WHDG 7.2.6). Effective clear width of doors refers to the width between the face of the door or projecting fitting in the open position and the nearest point on the opposite frame or second door.

Doors at angles	Provide space to turn between doors at an angle to each other. (At least 400mm from door to corner). (See figure 14) (WHDG 7.2.8)
Sliding doors	Provide space beyond doorway at latch side for sideways approach and operation (300mm minimum). (WHDG 7.2.9)
Storage	Ensure that the depth and width of storage space, in combination with any shelving layout, provides optimum access to space and other stored items. Ensure that opening width of doors suits angled or head-on approach. (WHDG 7.2.10)

Figure 12 Space to turn around an interior corner

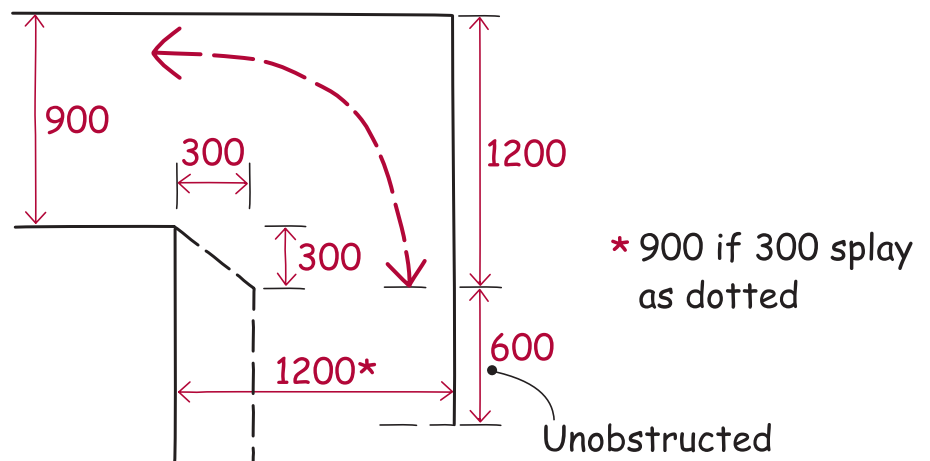


Figure 13 Effective clear width of doors

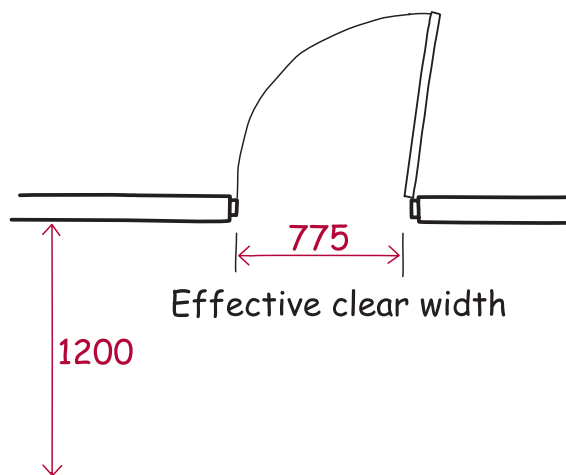
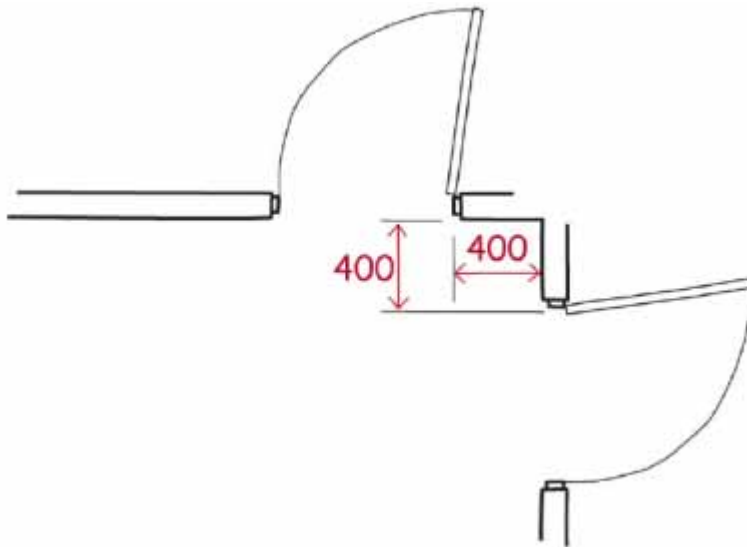


Figure 14 Doors at angles



7.8 Moving between levels within the dwelling

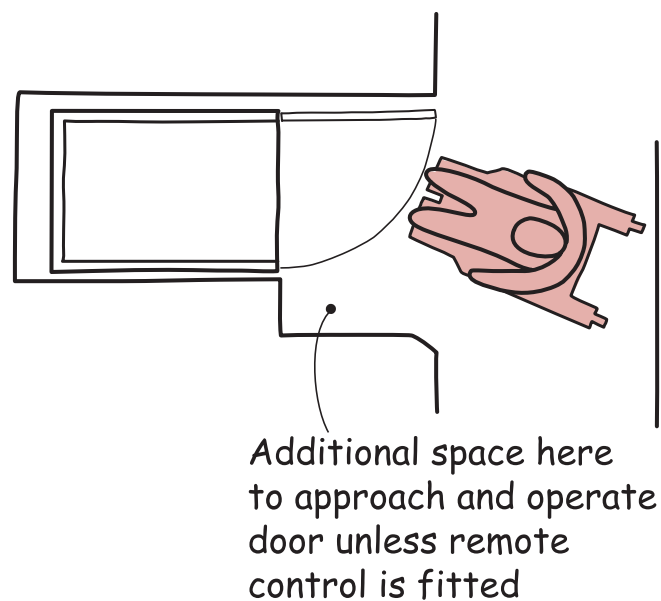
Where dwellings are designed with more than one floor level, ensure that there is provision for independent movement between floor levels in a wheelchair without the need to transfer, without compromise of circulation or living space, and with all the rooms remaining accessible.

Flats and houses on more than one level that are designed to be capable of easy adaptation to wheelchair standards should have provision for the installation of a through-the-floor lift connecting circulation spaces. A suitable location, with adequate circulation space should be identified, and a soft-pocket (or structural opening) should be built in. This should be identified clearly on the floor surface beneath the floor covering.

The space for the through-the-floor lift could be used for storage until the need for a lift arises, provided any built in cupboards could be easily removed.

Circulation	Provide adequate circulation space at each level to manoeuvre, call lift, approach and open its door to use it. (See figure 15) (WHDG 8.2.3)
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Figure 15 Space to approach through-the-floor lift

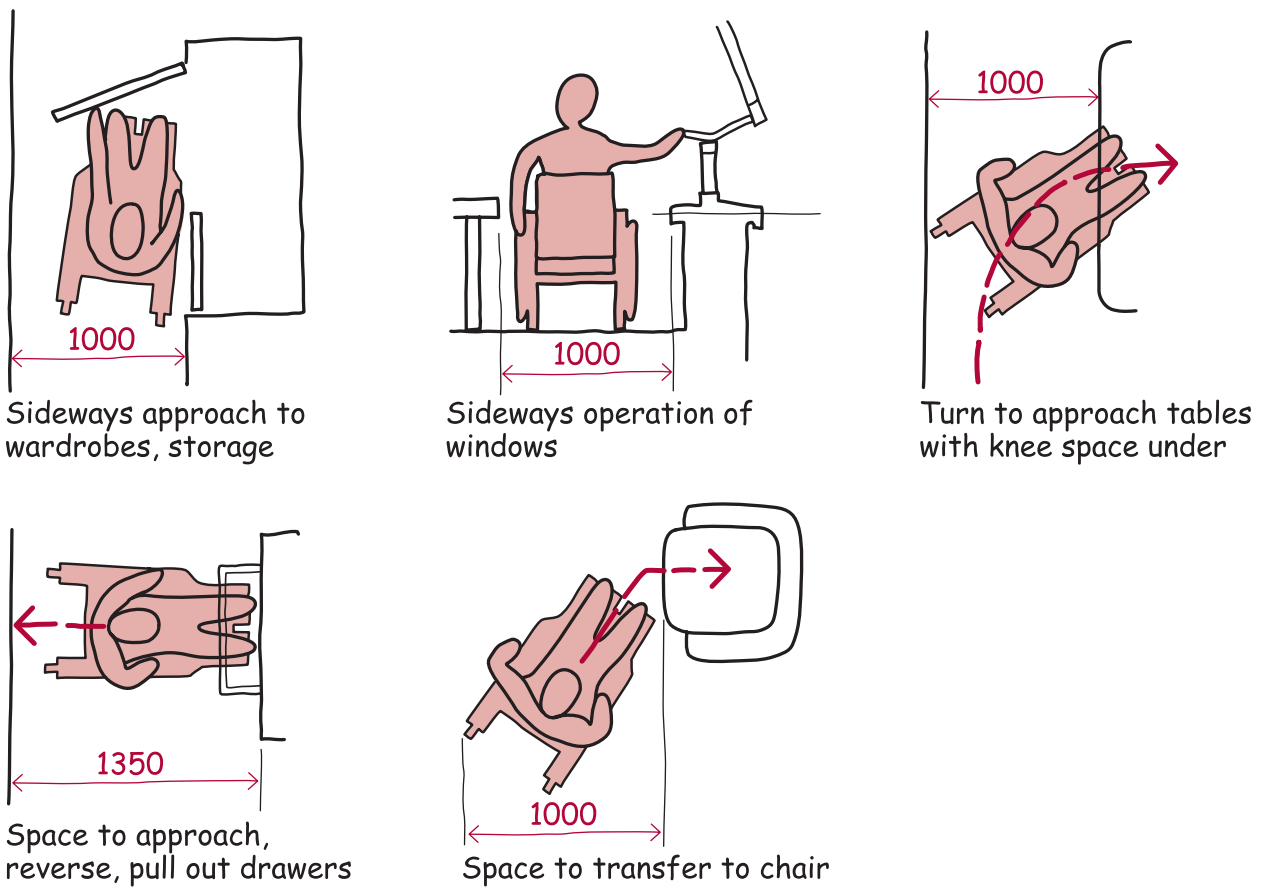


7.9 Using living spaces

Ensure that a room can accommodate the usual range of furniture with space for a wheelchair-using member of the household to circulate and transfer from wheelchair to seating.

Room layout	Provide space for wheelchair users to approach furniture, circulate around it, transfer to seating and approach and operate doors, windows, equipment and control. (See figure 16) (WHDG 9.2.1)
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Figure 16 Space required to use furniture



7.10 Using the kitchen

Ensure ease of approach to and use, from a wheelchair, of the sink, worktops, equipment, all appliances and controls and all storage essential to kitchen operations.

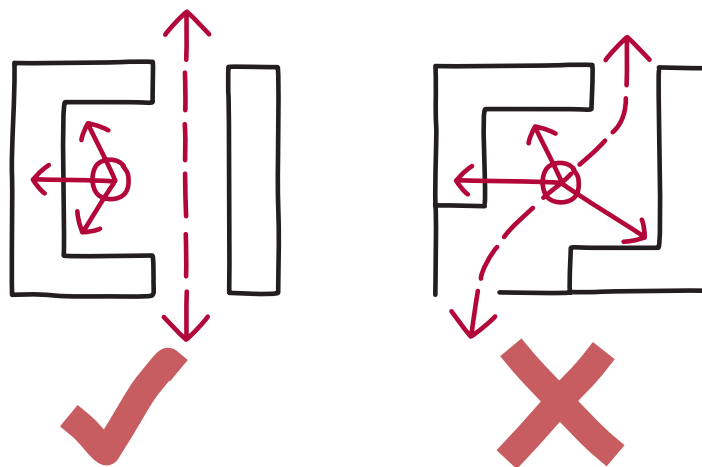
Second to the bathroom, the design of the kitchen has the greatest impact on whether a wheelchair user can live independently at home. Individual requirements in the kitchen vary greatly but the key requirement for an adaptable kitchen is that it is large enough, and with sufficient space between the units, to enable a wheelchair user to manoeuvre freely and safely.

The hob, stove and sink should ideally be positioned on the same run of kitchen units, uninterrupted by doors, windows and main circulation routes. The windows should be accessible and operable by a person in a wheelchair. Ensure that the kitchen is designed so that adequate wheelchair accessible storage capacity can be retained following any future changes to provide clear knee space underneath the sink, hob or oven.

Layout	Clear manoeuvring space not less than 1800mm x 1500mm. (See figure 17) (WHDG 10.2.1)
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Figure 17 Practical and impractical kitchen layout



7.11 Using the bathroom

In housing design terms the design of the bathroom is the key to enabling independence and dignity for disabled people. The ability to manage most if not all toileting and bathing functions without assistance is highly desirable and is the foundation of 'independent living'.

Ensure that there is scope for independent approach and safe transfer to all bathroom fittings, and for independent use of them.

The extra space in the bathroom of a wheelchair accessible dwelling will be beneficial to other household residents as well as wheelchair users. An accessible bathroom should be attractive as well as functional.

The economic, qualitative and timesaving factors of modular construction make it particularly appropriate for today's housing developments. Modular bathrooms are frequently specified and have given rise to another example of how inclusive design can happen for economic reasons. Rather than specifying a standard modular bathroom and 'fully accessible' bathroom for a proportion of dwellings, some developers find it more economic to install fully accessible bathrooms in every dwelling of a development. This means that with a little further consideration, but not necessarily more space, homes on that development could be made wheelchair accessible, and capable of being adapted to full wheelchair standards easily and without structural modification.

Providing effective drainage via falls in the floor for level access showers in concrete floor slabs can be assisted, where required, by using a side-pump.

Many wheelchair users consider the shower area of 1000 x 1000mm described in the WHDG too small; 1200 x 1200mm is more convenient.

Under-floor heating in a bathroom with a level access shower dries the floor more quickly thereby improving safety.

Corner taps (on outer side) of baths are most desirable according to BS 8300:2001, Approved Document Part M and the WHDG.

Figure 18 below demonstrates the range of necessary dimensions for whatever bathroom facility is being considered.





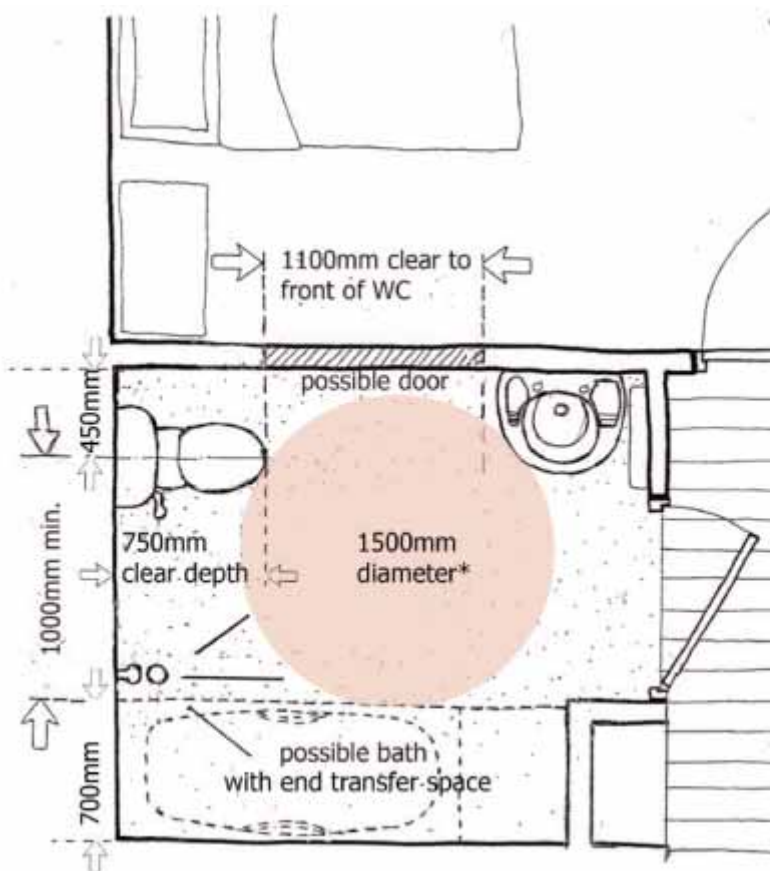
An en-suite arrangement or a full-height knock-out panel between the rooms may provide provision for direct access from the main bedroom into the bathroom. This is for installation of a ceiling-mounted hoist if needed.

To ensure independent use of the WC, enough space should be available to approach it head-on, obliquely or to make a side-transfer. See figures 19 and 20, below.

Bathroom	In all dwellings provide fully accessible bathroom with WC, basin, and installed level-access shower with provision for bath in place of shower if needed according to the table below, with flexible or easily adapted services. (WHDG 11.2.1)
Access from bedroom	Ensure provision for direct access from main bedroom. (WHDG 11.2.2)
Second WC	In dwellings of four or more persons, provide fully accessible second WC with basin, and hand the transfer space opposite to the handing of the main WC to provide both left-handed and right-handed transfer options within the dwelling. (WHDG 11.2.3)
Layout	Ensure independent approach/transfer to and use of all fittings, including manoeuvring space clear of fittings. (See figure 18) (WHDG 11.2.4)
Shower	Where fully installed, detail to be fully accessible comprising drained floor, reachable and usable controls and scope for suitable water containment or suitable enclosure. (WHDG 11.2.6)
Bath	Where provided select bath and taps, position and detail to allow a range of transfers, access to and operation of taps. (WHDG 11.2.7)
Supports	Ensure that walls and ceiling are adequate for adjustable height basins and subsequent fixing of hoists, seats, supports and other fittings. (WHDG 11.2.10)

Figure 18 Illustrative bathroom layout showing:

- Required clear dimensions for transfer space to WC
- Potential direct access from bedroom
- Level access shower and floor drain
- Circulation space clear of all obstacles
- Space for possible installation of bath with end transfer space, in lieu of shower, whilst maintaining required transfer and circulation spaces



*Note 1500mm turning circle may overlap with the basin provided the basin is wall hung with clear space for feet and footrests to pass beneath.

Figure 19 Transfer options to WC

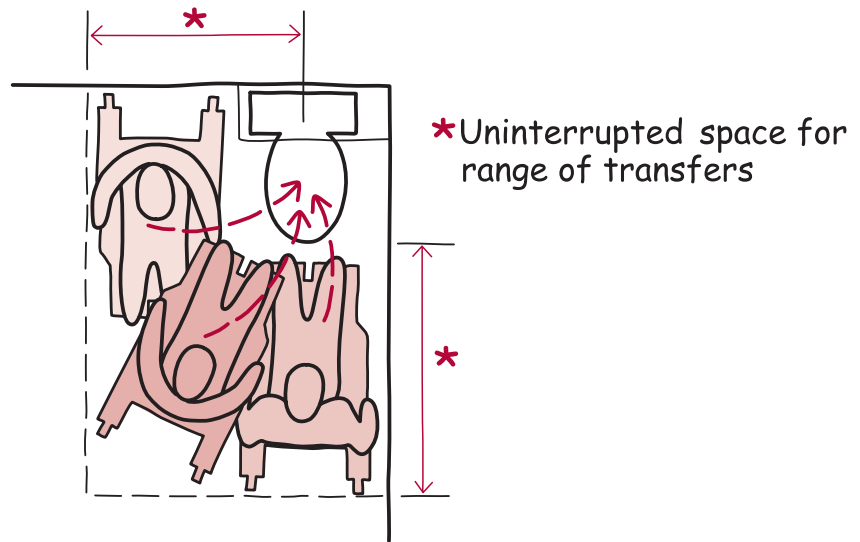
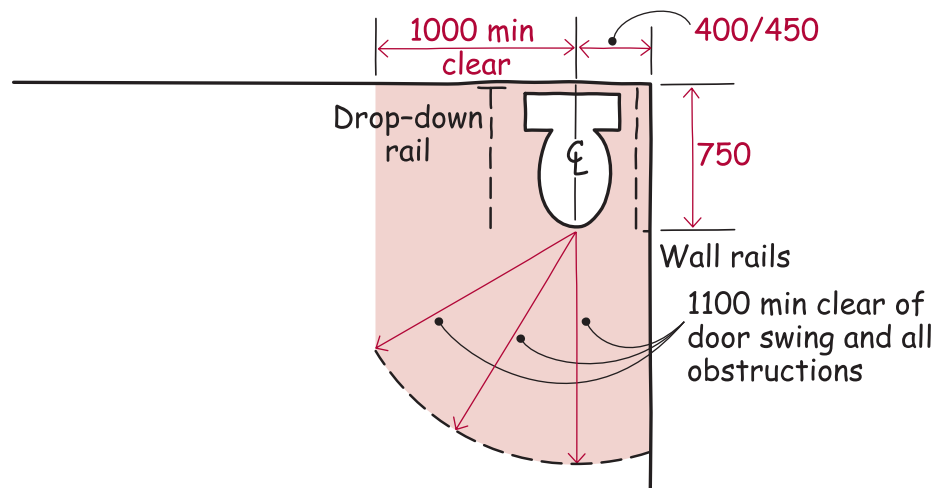


Figure 20 Transfer space to WC



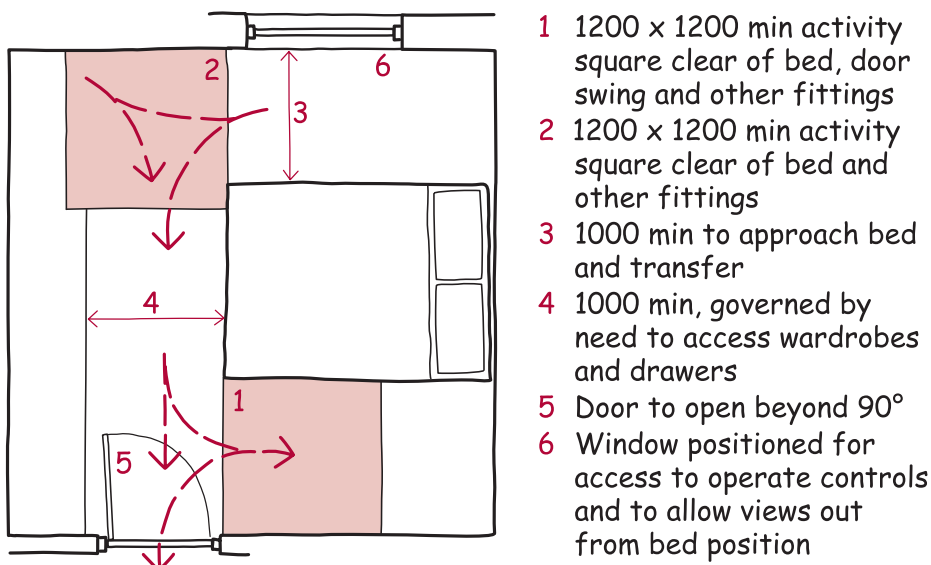
7.12 Using bedrooms

Ensure that there is space in all bedrooms to accommodate the normal range of bedroom furniture, and for the wheelchair-using member of the household to enter, approach and transfer to beds, approach and use other furniture and operate windows.

Market housing that is capable of being adapted to meet all of the requirements of the WHDG may be under-occupied for use by a wheelchair user. For example, a small bedroom may be used as a store for a wheelchair and other equipment, or a twin bedroom may be used as a single bedroom to provide adequate space around the furniture. This 'under-occupancy' approach to creating adaptable homes must be made clear at the planning stage. However, in a one-bedroom apartment the related spatial requirements for two persons must be included.

Layouts	Provide bedroom layouts to ensure access to both sides of beds in double bedrooms and outer side of beds in single bedrooms, access to other furniture and to window. (See figure 21) (WHDG 12.2.1)
Door	Make provision for connection between main bedroom and bathroom by means of full-height knock-out panel, a door with panel over in full-height frame or fully detailed door. (WHDG 12.2.3)
Hoist	Make provision for future ceiling track hoist installation in main bedroom - strengthen ceiling to allow run into bathroom. (WHDG 12.2.4)

Figure 21 Bedroom layout



7.13 Internal doors

The WHDG requires that 'All internal doors, including those to storage spaces, can be operated conveniently.' This means the door construction should allow for large pull handles and other fittings that can be added to suit individual requirements as needed.

See 7.7 for effective clear widths.

Construction	Ensure that door construction permits subsequent fixing of pulls or other fittings. (WHDG 13.2.1)
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7.14 Windows

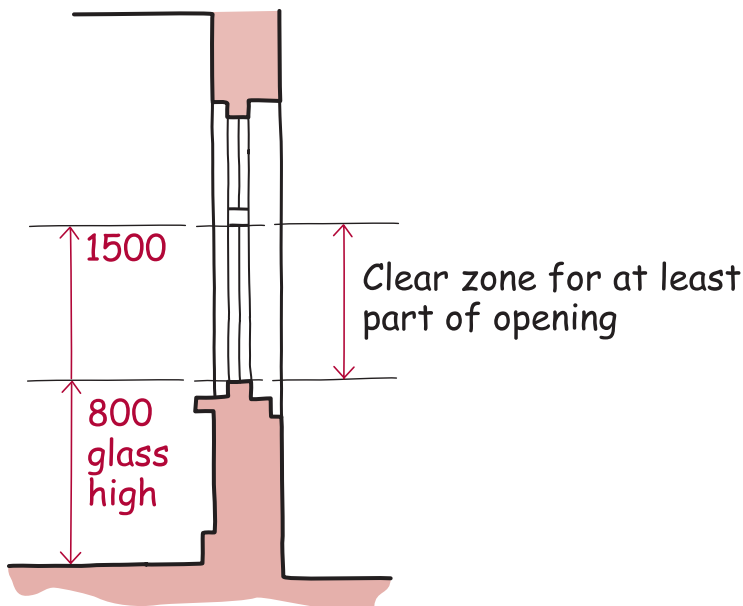
Ensure independent control of opening windows, passive and mechanical ventilation to requirements of Building Regulations and to reasonable level of comfort. Ensure balance of daylight, views out, privacy and security.

Some high-rise developments do not feature operable windows but alternatives such as vents. For such arrangements the same access requirements apply as for windows where remote controls are installed as an alternative.

Approach	Ensure that wheelchair user can approach window to operate controls for opening and ventilation. (WHDG 14.2.1)
Safety	Ensure that windows opening out over paths do not create hazards. (WHDG 14.2.4)
Glazing	Ensure that glazing line to windows in living, dining and bedrooms is no higher than 800mm. (WHDG 14.2.5)
Transoms	Avoid full-width transoms (horizontal divisions) between 800 and 1500mm high. (See figure 22) (WHDG 14.2.6)



Figure 22 Ensure wheelchair users will be able to see out of windows



8 Two wheelchair users' experiences of design

The guide concludes with two case studies; a discussion with residents who live in housing built within the last few years. They illustrate some of the checklist features listed in Part 7, but more importantly, the difficulties when design standards have been overlooked. Although not all of these issues need to be considered at the time of submitting a planning application they may demonstrate how some attention to detail can make a big difference to comfort and liveability of a home for any resident. The design will be enhanced by inclusion of such features and their consideration at an early stage in the planning process will help to ensure follow-through at the detailed design stage.

This section includes referencing back to the Checklist in Section 7 for correct design of key features.

8.1 Trish

Trish bought into a new shared-ownership two-bedroom house two years ago. It is one of the 10 per cent of homes in the development that are designed to be wheelchair accessible. Trish's home is a terraced house in a quiet close, part of a much larger development comprising a mix of private and social housing; redevelopment of old listed buildings and new housing. Trish shares the house with her two teenage children and two dogs.

"The developer is committed to providing well-designed wheelchair accessible homes, such as my house, but there are a few things in it that have made life difficult for me. In terms of design they are not major things, but they are not easy to put right now. I hope that developers, planners and architects will learn from my experience."

Car parking

"My home is quite far from the main road so I tend to use my car to go everywhere. Street crossings within the development do not make pedestrian access easy, as the crossings and dropped kerbs are made of uneven granite sets." [See Ref 7.1 Moving around outside]

"My car is very important to me. I like to be able to see it and have it near; and it needs to be dry and safe. The covered carport provides all of those things, but it does make the front of the house dark. Ideally the carport would be to the side of the house." [See Ref 7.3 Approaching the home]

Entrances

The front and back doors have perfectly level thresholds, but they are made of uPVC and are too light for automatic openers or grab bars to be fixed to.



“I can’t pull the doors closed behind me, and the back door is a particular problem, as I have to turn all the way round and go back outside to reach the handle, after coming in, and then go backwards into the house. It doesn’t happen; the door stays open!” [See Ref 7.4 negotiating the entrance door, and 7.6 Negotiating the secondary door]



Internal circulation

The hall is spacious, providing enough room for the through-floor lift (see photograph), and Trish’s powered wheelchair while the batteries are charged. [See Ref 7.5 Entering and leaving, 7.8 Moving between levels]



Kitchen

“I have to turn circles in the hall to manoeuvre myself into the kitchen, which is annoying, and stops me using the kitchen as much as I would otherwise.”

“The kitchen units are fully adapted to my needs, but not being able to see out of my kitchen window irritates me. I cannot reach the electrical sockets as they are on the kitchen wall, above the work surface. In my last home there were fascia plugs, which were easy to use.” [See Ref 7.10 Using the kitchen, 7.14 operating windows]



“The raised threshold between the kitchen and living room is annoying. If I try to take food or drink through to the living room everything goes flying, so when I’m on my own, I just eat toast. I’d like to knock through the wall between the kitchen and living room, but the room layout does not make this possible.”

“The rooms are very small and almost too small with the furniture in.” [See Ref 7.7 Moving around inside]



Bath and shower rooms

“There is a toilet and shower in the fair-sized downstairs bathroom. I cannot use the room after my two children have used the shower because the floor gets so wet. I cannot use the loo because I need a support rail, but the wall is recessed behind the loo so there’s no place to fix one. Also, there is not room to turn the wheelchair around.” [See Ref 7.11 using the bathroom]



“There is a similar problem in the upstairs bathroom: the wall isn’t strong enough to take a grab rail, so I use the basin for support. The basin is set low, which is OK for me, but ideally it would be height-adjustable so that we can all use it easily.”



“The upstairs bathroom is positioned between the two bedrooms, which is awkward. I have to wheel to the end of the hall and turn round before I can go in.” [See Ref 7.11 Using the bathroom]

Utilities

“Meters for utilities for are outside the house, beside the front door. I like that, as I don’t have to open the door to strangers.”

Storage

“Storage is always a problem in new houses. Everything goes into this airing cupboard, including my second wheelchair. The controls for the boiler are at the back, which nobody can reach.” [See Ref 7.7 Moving around inside; storing things].

“Unless I am ever wealthy enough to design my own home from scratch I will always depend on others. That is why it is so important to get the design of wheelchair accessible housing right.”

8.2 Joyce

Joyce moved into a newly built apartment block in Islington in 1998, after a serious arthritic condition led to her to becoming a wheelchair user when she could no longer manage steps and stairs. Joyce lives in an area with exceptionally good wheelchair-accessible public transport, the borough’s main shopping centre and local shops and cafes. Since she moved, Joyce’s strength and mobility have deteriorated considerably. Her previously busy and active lifestyle has been severely curtailed because it is so hard to get out of her home.

Communal entrance

“The communal front door is so difficult for me to open from outside that I often ask people walking along the street to open it for me. The reason for this is the pavement is sloping directly outside the door and it’s a heavy door. Also, the keyhole is so high I have to stretch and strain to unlock the door.” [See Ref 7.3 Approaching the home]

“Going out of the front door is easier, but the latch is high and the chair sinks into the mat. Some days when I’m in a lot of pain I don’t go out because it’s too hard to get back in.” [See Ref 7.4 Negotiating the entrance door]

Internal circulation

“The hall in my flat is too narrow and I have to turn the chair through 90 degrees to get out of the front door, which is very difficult. Once out, the passage is too narrow for me to turn round to close and double lock the



door.” [See Ref 7.3 Approaching the home, 7.4 Negotiating the entrance door, 7.6 Entering and leaving]

Access

“I can get out of the rear entrance of the building, but it isn’t safe. The neighbours know me and watch out for me. My patio fence is low so that I can see who’s out there. There is a parking area at the back, but no parking bays are marked out. Cars are often parked in front of the dropped kerb, and then I can’t get out.”



“I’m glad I have a ground floor flat. If I were upstairs I’d feel trapped. I’m scared to go in the lift because it breaks down so often. I can go in and out of my back door by myself, without any assistance from anyone else. If I didn’t have the back door it would be a nightmare!” [See Ref 7.1 Moving around outside, 7.3 Approaching the home, 7.6 Negotiating the secondary door]

Car parking

“I have a car, but no parking space is allocated to me. The management said it was first come, first served, and there are no on-street parking spaces. I rarely use my car because I never know if there will be a space when I get back. I’ve had so many parking tickets.” [See Ref 7.3 Approaching the home]



Security

Joyce’s back door has been jemmied open on several occasions and she now has a metal security gate, supplied by Victim Support. This allows her to work in the kitchen with the back door open in the summer, with a view of her patio garden.

The communal front door has a remote control intercom entry system. Joyce asks all contractors to telephone in advance of their visit. If she is unsure of the identity of the caller, she doesn’t let them in. It would help if the intercom included a video camera, and if there was better lighting at the entrance at night.

Utilities

Both gas and electricity supplies and meters are in communal areas. Electricity is housed in a narrow cupboard, with a step, in the communal hall. Gas is in a ground-level box in the back yard area. Joyce cannot reach either the gas or electricity meters.

Joyce says of her situation - “It makes me feel old”.

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- 14 Inclusive Mobility: A guide to best practice on access to pedestrian and transport infrastructure Department for Transport 2002



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Αν θέλετε να αποκτήσετε αντίγραφο του παρόντος εγγράφου στη δική σας γλώσσα, παρακαλείστε να επικοινωνήσετε τηλεφωνικά στον αριθμό αυτό ή ταχυδρομικά στην παρακάτω διεύθυνση.

Turkish

Bu belgenin kendi dilinizde hazırlanmış bir nüshasını edinmek için, lütfen aşağıdaki telefon numarasını arayınız veya adrese başvurunuz.

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਸ ਦਸਤਾਵੇਜ਼ ਦੀ ਕਾਪੀ ਤੁਹਾਡੀ ਆਪਣੀ ਭਾਸ਼ਾ ਵਿਚ ਚਾਹੀਦੀ ਹੈ, ਤਾਂ ਹੇਠ ਲਿਖੇ ਨੰਬਰ 'ਤੇ ਫ਼ੋਨ ਕਰੋ ਜਾਂ ਹੇਠ ਲਿਖੇ ਪਤੇ 'ਤੇ ਰਾਬਤਾ ਕਰੋ:

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यदि आप इस दस्तावेज़ की प्रती अपनी भाषा में चाहते हैं, तो कृपया निम्नलिखित नंबर पर फोन करें अथवा नीचे दिये गये पते पर संपर्क करें

Bengali

আপনি যদি আপনার ভাষায় এই মলিলের প্রতিলিপি (কপি) চান, তা হলে নীচের ফোন নম্বরে বা ঠিকানায় অনুগ্রহ করে যোগাযোগ করুন।

Urdu

اگر آپ اس دستاویز کی نقل اپنی زبان میں چاہتے ہیں، تو براہ کرم نیچے دئے گئے نمبر پر فون کریں یا دیئے گئے پتے پر رابطہ کریں

Arabic

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Gujarati

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City Hall
The Queen's Walk
London SE1 2AA

www.london.gov.uk
Enquiries **020 7983 4100**
Minicom **020 7983 4458**