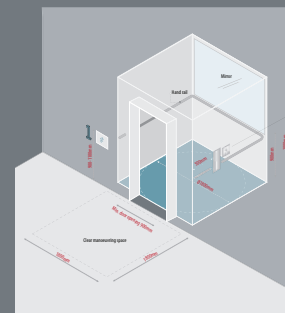
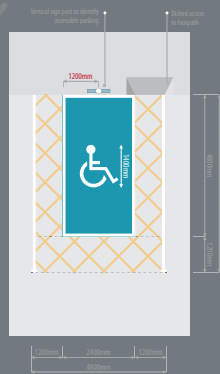
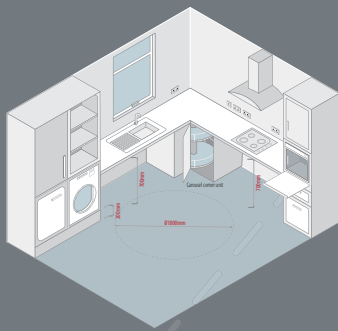


Best Practice  
**Access  
Guidelines**  
Designing Accessible Environments





**Best Practice Access Guidelines**  
**Designing Accessible Environments**  
Edition 3, July 2014

**Access to Independence**

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# 1 Introduction

This publication (2014) is the third edition of Irish Wheelchair Association's *'Best Practice Access Guidelines – Designing Accessible Environments'* and follows the first edition which was published in May 2009 and the second edition published in July 2010.

Irish Wheelchair Association (IWA) is a national organisation dedicated to the achievement of the full social, economic and educational integration of people with disabilities as equal, independent and participative members of the community. IWA is made up of a vibrant network of 20,000 members and over 2,000 staff, as well as many dedicated volunteers. Together we work to achieve greater independence, freedom and choice for people living with a disability.

IWA provides a wide range of services including Resource and Outreach Centres in 57 locations, Holiday Centres in Dublin, Kilkenny and Roscommon, and Assisted Living Services (ie Personal Assistant supports for individuals), in every county in Ireland. Since the Association was founded in 1960, access to the built environment has been high on our members' agenda. This was evident in the consultation process for IWA's strategic plans of 2008-2011 *'Your Life – Your Way'* and of 2013-2015 *'Driving On – Determining Our Future'*. These consultation processes also highlighted that access issues have a direct impact on other priorities such as employment, housing, community participation and transport.

## 1.1 The Use of Irish Wheelchair Association's *Best Practice Access Guidelines*

In the period since the publication of the first edition of Irish Wheelchair Association's *Best Practice Access Guidelines* in 2009, the guidelines have been used in a number of ways to further

IWA's objective of improving the accessibility of the built environment for its members and for all individuals with limited mobility. The most notable uses were:

- As part of a formal review process, IWA developed an organisational submission to improve the minimum accessibility standards detailed in the Technical Guidance Document accompanying Part M of the Building Regulations (2000). Additionally, IWA worked with a number of local authorities and other disability organisations to ensure that the IWA *Best Practice Access Guidelines* were used as a basis for their submissions for improved standards. As a result, advances in accessibility standards were observed in the Technical Guidance Document accompanying Part M of the Building Regulations (2010). IWA's *Best Practice Access Guidelines* is recorded as a reference document within the Building Regulations; an endorsement of the professional standing of our guidelines.
- Croke Park sought advice from IWA when developing its new wheelchair accessible 'Etihad Skyline' tour.
- Lansdowne Road's extensive consultation process, which included reference to IWA's *Best Practice Access Guidelines*, resulted in a stadium which demonstrates best practice in accessibility. Sight lines give an uninterrupted view to the seated spectator, even when other spectators stand with the excitement of the match.
- Marks & Spencer worked with IWA members and used the IWA *Best Practice Access Guidelines* in a review of accessibility within their Dublin stores.

- Dublin City Council is working with IWA on the redesign of the South Inner City streetscape.
- IWA and other Housing Association Project Plans have been informed by the Wheelchair Accessible Housing design guidance in Section 10.2 of the IWA *Best Practice Access Guidelines*.
- The National Gallery of Ireland refurbishment will include a 'Changing Places' room, the design of which has been based on the information given in the IWA *Best Practice Access Guidelines*.
- Terminal 2 at Dublin Airport included WC design as recommended in the IWA *Best Practice Access Guidelines*.
- IWA has advised on the organisation of many regional outdoor events and festivals using the information in the IWA *Best Practice Access Guidelines*.
- IWA members and staff have contributed to local consultations on urban design referencing the IWA *Best Practice Access Guidelines*.

At this point, IWA is seen as an expert in accessible design by local authorities, builders, architects and all involved in the construction industry and the statutory sector. A key objective of the third edition of IWA's *Best Practice Access Guidelines* is to build upon the success of this initiative and to put in place formal Access Supports for any individual or business within the private or statutory sectors.

## 1.2 Developing an Access Resource

Since the publication of IWA's *Best Practice Access Guidelines*, a range of measures have been put in place to support the application of the guidelines. These include:

- The training of IWA staff and members on the University of Ulster's 'Access Auditing' course.

- The developing of an Access Auditing software programme, based upon the guidelines, for use when undertaking access audits of buildings or the wider built environment.
- The purchase of appropriate ICT tablets for use in carrying out access audits.
- The planning of an Access Audit function for IWA facilities and external buildings on a consultancy basis.

Following the publication of the third edition of IWA's *Best Practice Access Guidelines*, IWA plans to develop an 'Access Resource' on a social enterprise basis. This Access Resource can be utilised internally in IWA; by members who require advice and support on all matters relating to accessibility, by private companies and businesses in the catering, hospitality, tourism and other sectors; and by the statutory sector including local authorities and the HSE.

This objective and action is in accordance with IWA's organisational strategy for 2013-2015, *Driving On – Determining Our Future*.

## 1.3 Consultation for the Development of the Third Edition of IWA's Best Practice Access Guidelines

The development of this edition of IWA's *Best Practice Access Guidelines* is underpinned by extensive consultation with IWA members and external organisations and individuals. This consultation process included the work undertaken during the review of Part M of the Building Regulations (2000) and the consultation completed in developing IWA's organisational strategy 2013-2015 *Driving On – Determining Our Future*. A number of additional steps were taken to ensure an effective consultation process supported the development of these guidelines, including:

- The national IWA access working group was re-established, consisting of IWA access experts, both with and without disability. This working group reviewed the second edition of IWA's *Best Practice Access Guidelines* to identify changes and additions required in the guidelines.
- Contact and consultation was undertaken with a number of external organisations including Deaf Hear and National Council for the Blind Ireland (NCBI); their comments are reflected in this edition of the *IWA Best Practice Access Guidelines*.
- In 80 consultations across the country over 1,000 IWA members and staff in 40 IWA Resource and Outreach Centres (including members of IWA's Youth Service) shared their experiences and opinions to inform the content of this edition of the *IWA Best Practice Access Guidelines*.
- IWA members and staff reviewed and commented on the guidelines at draft stage.
- Contact was made with local authorities during the development process and feedback was incorporated in the final guidelines.
- All National Disability Authority (NDA) publications on access were taken into account during the preparation of this edition of the *IWA Best Practice Access Guidelines*.
- The Senior Management Team and Board of Directors of IWA were consulted at both draft and final guideline stage. This edition of the *IWA Best Practice Access Guidelines* was formally endorsed at IWA board and management meetings in 2014.

## 1.4 The Purpose of the *IWA Best Practice Access Guidelines*

The third edition of IWA's *Best Practice Access Guidelines* will be used by IWA to influence and advocate for future legislation and the development of new regulations on improved access standards.

These guidelines recognise and respond to societal changes. People with disabilities are leading fully independent lives, and rightfully expect to be able to participate in all aspects of society. The guidelines also respond to technological changes such as the more widespread use of powered wheelchairs, which are larger than manual wheelchairs. Increased use of powered wheelchairs means the physical space requirements for wheelchair users in many areas, including door entry, turning circle space, and the size of WC facilities, have substantially increased.

During the development of these guidelines, national and international regulations, best practice guidelines and standards, and evidence-based reviews were evaluated. As a result, the guidelines published in this document are a compendium of the best practice guidelines and standards in place across the world. The sources for IWA's *Best Practice Access Guidelines* include:

- *Design of buildings and their approaches to meet the needs of disabled people – Code of Practice*, British Standards: 8300:2009 (UK)
- *Design of accessible and adaptable general needs housing – Code of Practice*, British Standards: 9266:2013 (UK)
- Publications from the Centre for Accessible Environments (UK)
- Publications from the Joseph Rowntree Foundation (UK)
- Accessibility guidelines as related to the Americans with Disabilities Act (1990)

- *International Best Practice in Universal Design – A Global Review (Revised 2007)*, Canadian Human Rights Commission
- *Australian Network for Universal House Design Submission to the Productivity Commission on Building Regulation Reform (2012)*
- *Buildings for Everyone*, (2012), National Disability Authority (Ireland)

A full list of reference publications is listed in Section 12 on page 144

In a small number of instances, where the existing guidelines and standards were not adequate to meet the needs of IWA membership, the working group devised a guideline appropriate to the situation. Examples include the guidelines for WCs incorporating changing facilities, parking spaces for multi-purpose vehicles, and Wheelchair Accessible Housing design. In each of these cases, the recommendations given draw on the extensive experience of IWA members.

IWA recognises that many of our recommendations go beyond the minimum requirements outlined in Irish building regulations, and also exceed many international standards. We can confidently and legitimately advocate for this because our guidelines reflect the first-hand experiences of our members and aspire to create a built environment that accommodates all people.

### 1.5 Using IWA's Best Practice Access Guidelines

IWA's *Best Practice Access Guidelines* should be used to inform plans for the development of new facilities or for the upgrading of existing facilities. By following these guidelines, developers, local authorities and individuals will be building to the highest possible standards, thereby ensuring that the needs and requirements of people with a physical disability are met fully. In the case of new

builds, the present and future needs of all individuals will be met by the initial build, negating the need for future building modification.

IWA suggests that a pragmatic approach be adopted when using the *IWA Best Practice Access Guidelines*. In certain situations, when retrofitting or developing small buildings, it may not be possible to achieve best practice. In these situations, careful consultation with persons with disabilities, and/or access consultants should make it possible to work out a compromise solution.

### 1.6 IWA's Best Practice Access Guidelines – Making a Difference

There are a number of 'next steps' in regard to the development and promotion of the *IWA Best Practice Access Guidelines*. These steps include:

#### The development of an Access Resource

As mentioned in 1.2 above, IWA plans to develop an Access Resource which includes an auditing capacity and an advisory service.

#### The promotion of the IWA Best Practice Access Guidelines

The guidelines will be promoted through a number of methods including:

- The IWA website: [www.iwa.ie](http://www.iwa.ie)
- The development of appropriate literature
- Liaison with the statutory and policy-making sector; communication with other disability organisations; and consultation with architectural representative and training organisations or bodies.

#### Further consultation

While every effort has been made to ensure that these *IWA Best Practice Access Guidelines* are the

best guidelines available, and that the consultation process was as comprehensive as possible, it is also recognised that they will remain a 'work in progress'. Further guidelines and standards may become available, and there may be individuals or organisations with whom we have not consulted. Therefore, once these guidelines are published, there will be an ongoing review process whereby any interested individual can register their views, comments and suggestions by contacting IWA at [access@iwa.ie](mailto:access@iwa.ie) or by visiting the IWA website: [www.iwa.ie](http://www.iwa.ie)

All views, comments and suggestions received will be reviewed and possibly incorporated into a fourth edition of IWA's *Best Practice Access Guidelines*, which will be developed during 2016/2017.

#### **The improvement of access in IWA facilities**

Since the publication of the first edition of IWA's *Best Practice Access Guidelines* in 2009, the Association has been working towards meeting these best practice guidelines in our own centres,

office and facilities. Despite funding challenges, many of our premises have been refurbished or upgraded in line with our guidelines. We will continue to make improvements in the coming years, until we are certain that every IWA space is a model accessible environment.

## **1.7 Summary**

The publication of the third edition of IWA's *Best Practice Access Guidelines* is the culmination of considerable research, review and analysis. We hope that the guidelines will provide a useful roadmap for everyone involved in planning and improving the built environment. It is with pleasure that IWA endorses these guidelines for use by individuals, groups, organisations, companies, builders, architects, and everyone in society. We also look forward to receiving any comments on the guidelines through the mechanisms highlighted.

“ My social life can be neglected as I cannot get to places. ”

– IWA member, Sligo



## 2 The Design Base of IWA's *Best Practice Access Guidelines*

### 2.1 Principle of Universal Design

The IWA *Best Practice Access Guidelines* are based on the principle of 'Universal Design'.

Universal Design means designing products, buildings, services, facilities and exterior spaces to allow the maximum number of people to use them without the need for adaptation or specialised design. Physical, sensory, cognitive and language needs are taken into account during the initial design phase. Universal Design eliminates the necessity for specific disabled access provision, while at the same time reducing barriers and promoting the inclusion of people with disabilities.

The concept of Universal Design is echoed by the National Disability Authority's Centre for Excellence in Universal Design, which states that Universal Design creates "an environment that can be used by all people, regardless of their age, size or ability".<sup>1</sup>

Universal Design is intended to facilitate optimum use of the built environment by all people, and optimum access to the services and facilities within that environment. For example, wider doors and corridors will make access more comfortable for a broad range of people, including parents with buggies, elderly people, people who use wheelchairs, etc. This same principle applies to hotel guest rooms, lifts, and approaches and entrances to buildings.

Universal Design is recommended because it reduces the need for costly future adaptations to accommodate accessibility needs. As Universal Design encompasses the needs of all people, it is not exclusive or discriminatory in its application.

### 2.2 IWA's Definition of Access in the Built Environment

The principle of Universal Design can be applied to many situations, including product design and access to goods and services. However, these guidelines focus on access to the built environment in line with the priorities identified by IWA members, staff and volunteers. For the purposes of this document, IWA defines access as:

*"Free and unimpeded access to and from, and the use of all areas and functions of the buildings, facilities and physical features that make up the built environment".<sup>2</sup>*

### 2.3 Space Requirements

The IWA *Best Practice Access Guidelines* are based on the space requirements set out in Figures 1 and 2. These space requirements are intended to accommodate all people with limited mobility, including users of large powered wheelchairs.

See Figure 1 and Figure 2 on pages 17 and 18

### 2.4 Jurisdiction

IWA is a national organisation that works with and on behalf of people with disabilities living in Ireland. However, we are confident that the guidelines and recommendations included in this document could be implemented outside of Ireland by any organisation, group or company. IWA would be happy to assist this process in any way possible.

<sup>1</sup> NDA Centre for Excellence in Universal Design website (April 2014).

<sup>2</sup> IWA Position Paper on Access (April 2007).

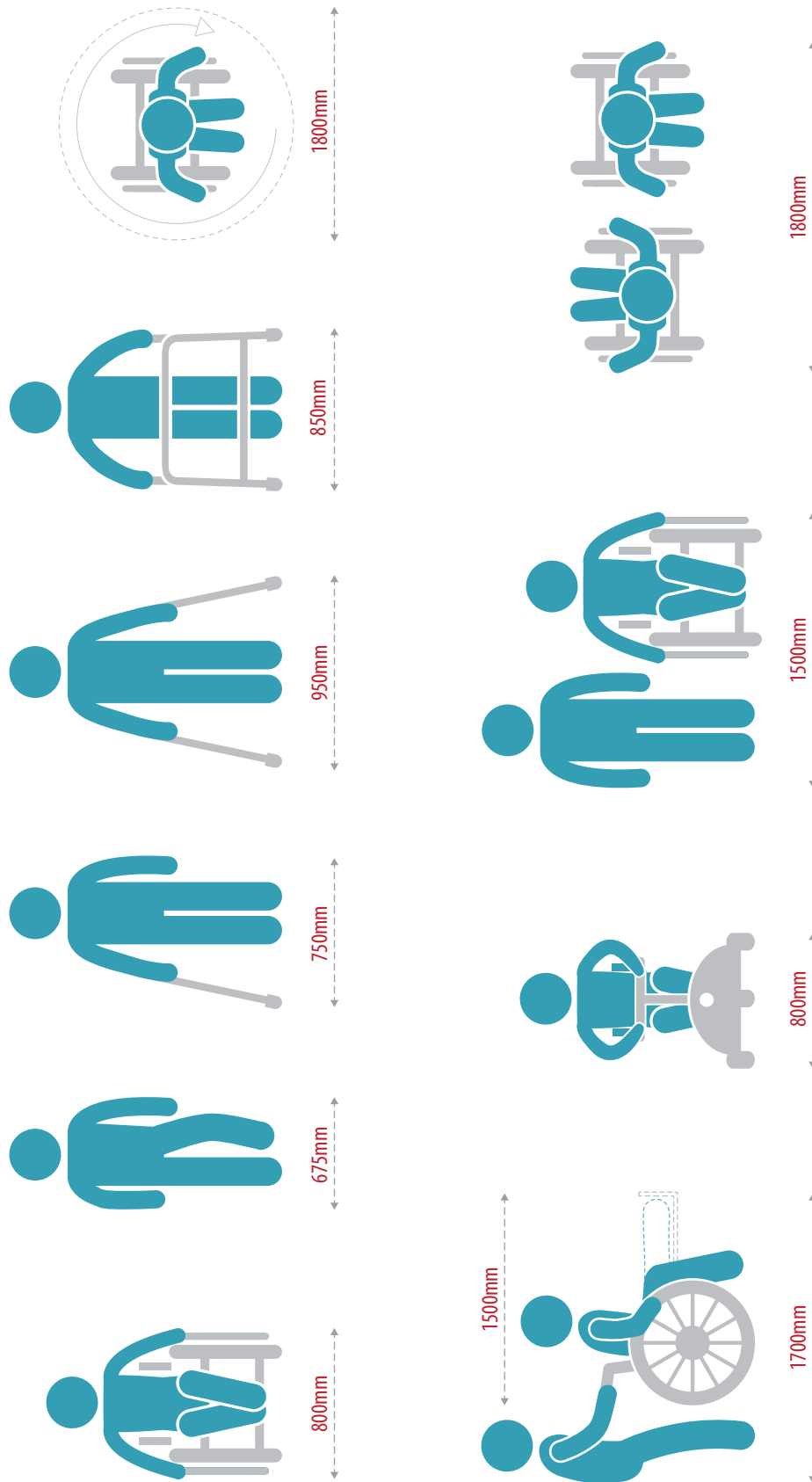


Figure 1 – Space requirements

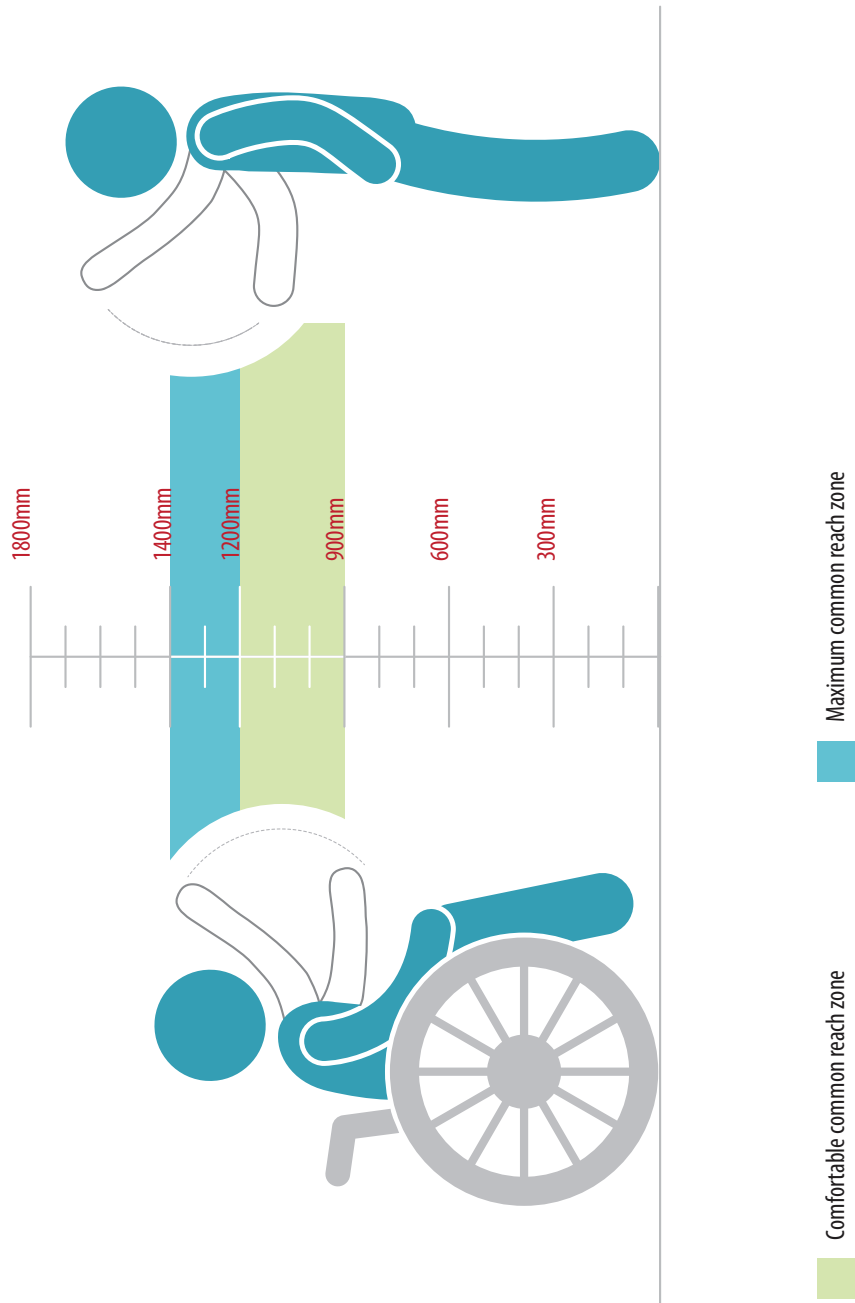


Figure 2 – Common reach zone

## 3 Policy and Legislative Background

### **The Building Control (Amendment)**

**Regulations (2013)** are to be read in conjunction with pre-existing building control legislation, and came into effect on 1st March 2014, bringing significant changes to the building control regime in Ireland. The new features include three certificates that must be in place:

1. Certificate of Compliance (Design): This Design certificate is to be completed by the building designer (a registered architect, builder, surveyor or chartered engineer) giving confirmation that the plans have been prepared to demonstrate compliance with the applicable requirements of the Building Regulations.
2. Certificate of Compliance by an Assigned Certifier: A professional such as a chartered engineer, building surveyor or registered architect will be appointed by the owner from a register, using the statutory form of appointment in the Regulations to inspect the works and ensure compliance with Regulations.
3. Certificate of Compliance on Completion: On completion of the project, the assigned certifier and the builder will each certify on different parts of the Certificate of Compliance that a finished building complies with the requirements of the Regulation.

According to the legislation, these mandatory Certificates of Compliance are intended to be “clear, unambiguous statements on statutory forms stating that each of the key parties to a project certifies that the works comply with the building regulations and they accept legal responsibility for their work”.

The Building Control Department in each local authority has a monitoring and enforcement role in relation to Building Control Regulations compliance.

### **The National Disability Strategy**

**Implementation Plan 2013-2015**, linked to the Disability Act (2005), calls to action individuals, organisations, and local and national Government. It asks them to think positively about disability. It addresses accessible transport, buildings and streets as key factors in enabling people with disabilities to participate in work, as well as cultural and social activities.

### **The National Positive Aging Strategy (2013)**

was launched by Kathleen Lynch TD, Minister of State for Disability, Equality, Mental Health and Older People, on 23rd April 2013. It provides the blueprint for planning – for what we can and must do, individually and collectively – to make Ireland a good country in which to grow older. This strategy seeks to highlight that ageing is not just a health issue – it requires a whole of Government response to address a range of interconnected social, economic and environmental factors that affect health and wellbeing.

**The Department of the Environment, Community and Local Government’s ‘National Housing Strategy for People with a Disability 2011-2016’** and its associated **National Implementation Framework** sets out the housing and related support needs of people with disabilities and strategically plans for an integrated response to those needs. The strategy places a particular emphasis on the circumstances of people with disabilities who are living in congregated settings and people with mental health illness.

**The Building Regulations, Part M ‘Access and Use’ (2010) and Part B ‘Fire Safety’ (2006), with accompanying Technical Guidance Documents**, set out the statutory minimum design features required in making provision for access to and egress from a building for all people, including those with a disability. These regulations are reviewed periodically. A Disability Access

Certificate (DAC) is required to show compliance with Part M, 'Access and Use' (2010).

**Towards 2016**, the social partnership agreement, sets out a vision for a society in which people with disabilities have the opportunity to work and to live a full life with family and as part of their community. The agreement suggests that this should be achieved through a long-term goal of ensuring access to public spaces, buildings, transport, information, advocacy and other public services, and appropriate housing.

**The Roads Acts (1993 and 2010)** require road authorities to consider the needs of all road users when constructing and maintaining public roads. People with disabilities require specific consideration and provision to ensure they are not disadvantaged by road schemes and that their requirements are planned for.

**The Safety, Health and Welfare at Work (General Application) Regulations (2007)** contain many of the provisions that apply to almost all workplaces. Included are regulations dealing with the physical environment at the place of work, welfare facilities, and suitability of workplaces for employees with disabilities, as well as regulations requiring that employers consider specific risk groups when assessing certain tasks.

**The United Nations Convention on the Rights of Persons with Disabilities (2007)**, to which Ireland has signed up but has not yet ratified, aims to ensure that persons with disabilities enjoy human rights on an equal basis to others.

**The Housing Act (1966)** is the principal legislation on local authority housing. It has been amended on numerous occasions and a number of other relevant Acts have been passed. The most recent legislation, the Housing (Miscellaneous Provisions) Act (2009) amends or replaces sections of a large number of Acts as well as introducing totally new provisions. This Act also amends the

Residential Tenancies Act (2004) which sets out the rules in relation to the private rental sector.

**The Disability Act (2005)** is part of a framework of Government legislative measures which promote and support equality and social inclusion of people with disabilities. The Act requires six named Government Departments to create equitable and integrated access to all premises and services within their remit. The stated aims, objectives and accompanying work plans are set out within Departmental Sectoral Plans.

**The Department of the Environment, Community and Local Government's Sectoral Plan** under the Disability Act (2005), aims to promote and pro-actively encourage equal opportunities for persons with disabilities to participate in the economic, social and cultural life of the community.

**The Safety, Health and Welfare at Work Act (2005)** places responsibility for occupational health and safety on all stakeholders. The Act develops the role of employers, employees and Government in framing and implementing occupational safety and health policy in Ireland.

**The Equal Status Act (2000)** prohibits discrimination on nine specific grounds and requires service providers to provide reasonable accommodation of people with disabilities in the provision of goods and services.

**The Barcelona Declaration (1995)** supports the right of people with disabilities to participate as equal citizens and was endorsed by many local authorities with accompanying consultation procedures and implementation plans.

## 4.1 Accessible Parking

### 4.1.1 Background

People with limited mobility who travel to buildings by car need to be able to park, have sufficient space to enter and leave their vehicle, on occasion move to the rear of their vehicle, then walk or travel in a wheelchair to the main entrance. Accessible car parking involves the appropriate designation and location of both car and multi-purpose vehicle parking bays and the provision of set-down/pick-up bays.

If people need to obtain tickets for pay and display parking, the ticket dispensing machines should be located in a way that allows a person in a wheelchair to gain close access to the machine and reach the payment and ticket dispensing functions.

### 4.1.2 Design Criteria

Parking bays designated for people with limited mobility should be provided as close as possible to the building entrance, with a maximum travel distance of 25m. The bays should be clearly signposted with an upright sign sited out of the circulation space. The signage should be designed using a white international symbol of accessibility on a blue background. The bays should be on firm and level surfaces with a maximum crossfall of 1:50. Avoid the use of inappropriate materials such as gravel, sand, cobbles, etc.

The design of the parking bay should also plan for the safe transfer (dished kerbs, level approach routes, adequate lighting, etc) from the bay to the access route to the building without undue effort, barriers to wheelchair users, or hazards that could cause tripping.

The size of the bay should allow for the safe transfer of a passenger or driver to a wheelchair, including a space allowance or accessibility zone for the use of a transfer hoist or ramp which may be attached to some vehicles.

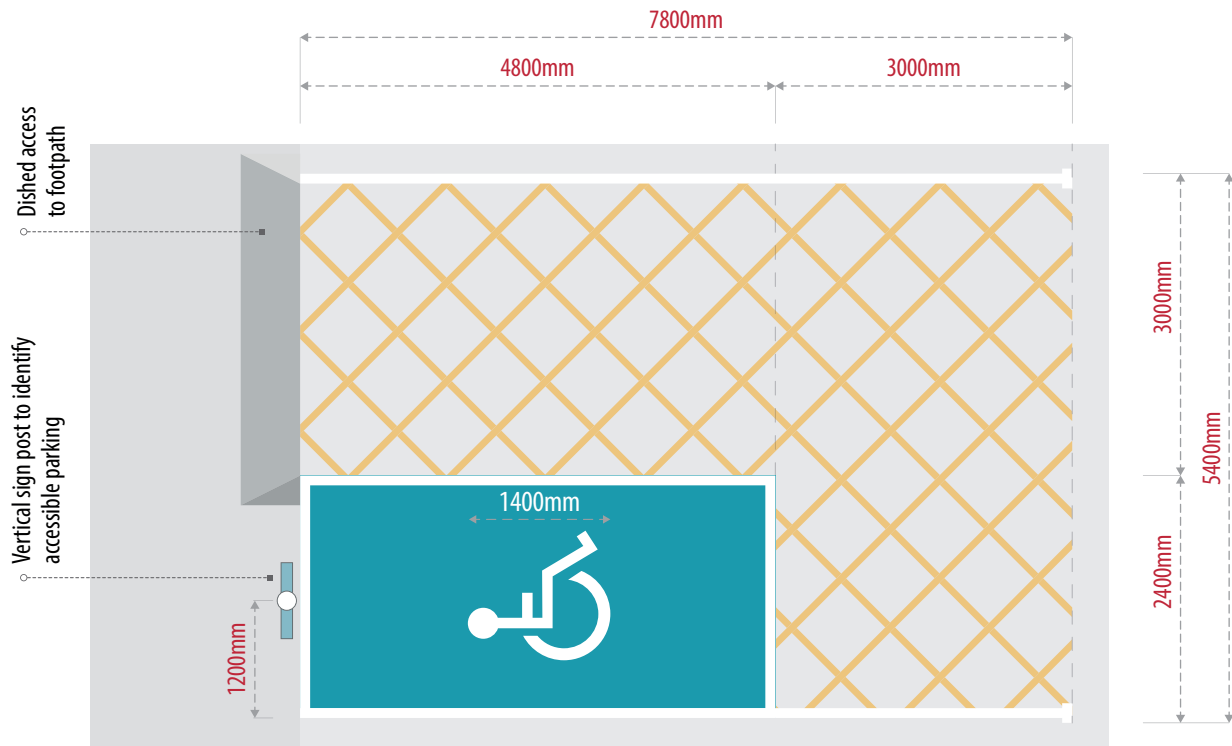
#### 4.1.2.1 Surface and Markings

The surface of the bay and adjacent accessibility zone should be firm, durable and slip-resistant. Examples of inappropriate materials are loose sand, cobbles or gravel.

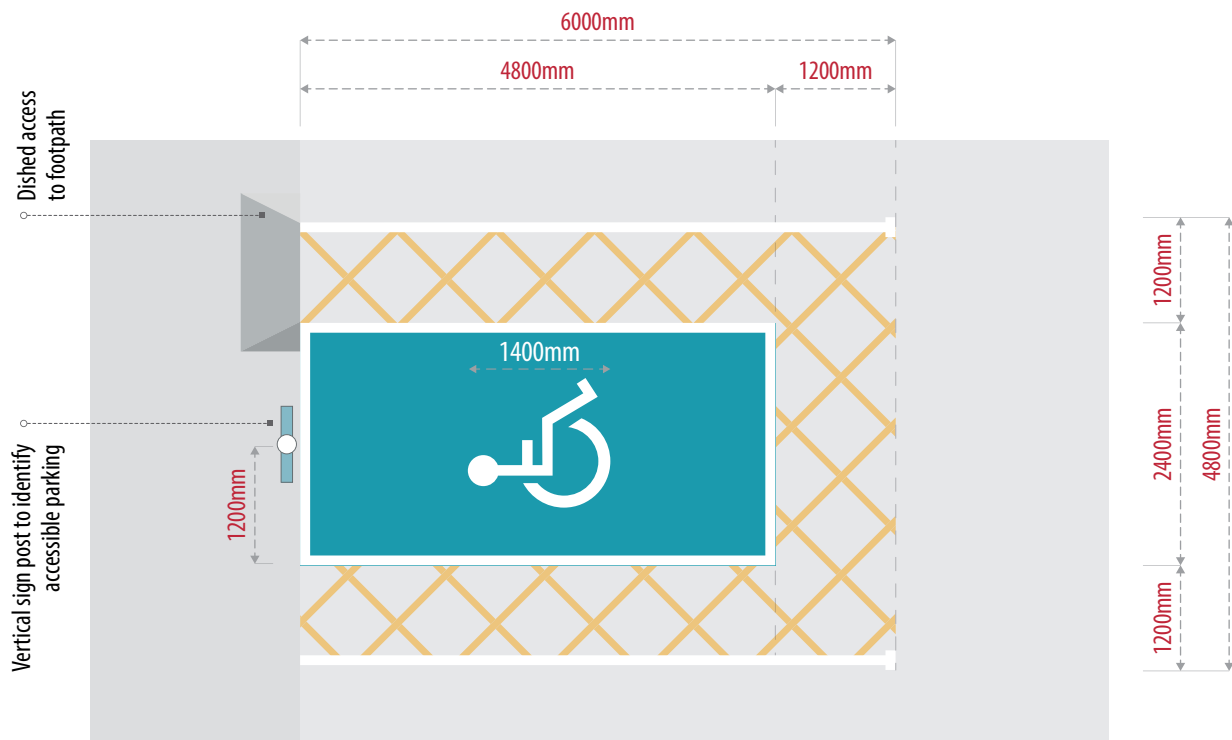
The colouring used for accessible parking bays should be white markings on a slip-resistant blue surface. The adjacent accessibility zone should be cross-hatched in yellow.

See Figure 3 on page 22 and Figure 4 on page 23

The accessible parking bay should be indicated by a vertical sign with its lower edge at 1000mm from the ground and located out of the access zone. This sign should display a white wheelchair symbol on a blue background.



**Multi-purpose vehicle with ramps or hoist**



**Cars and small vans**

Figure 3 – Accessible parking showing different size bays

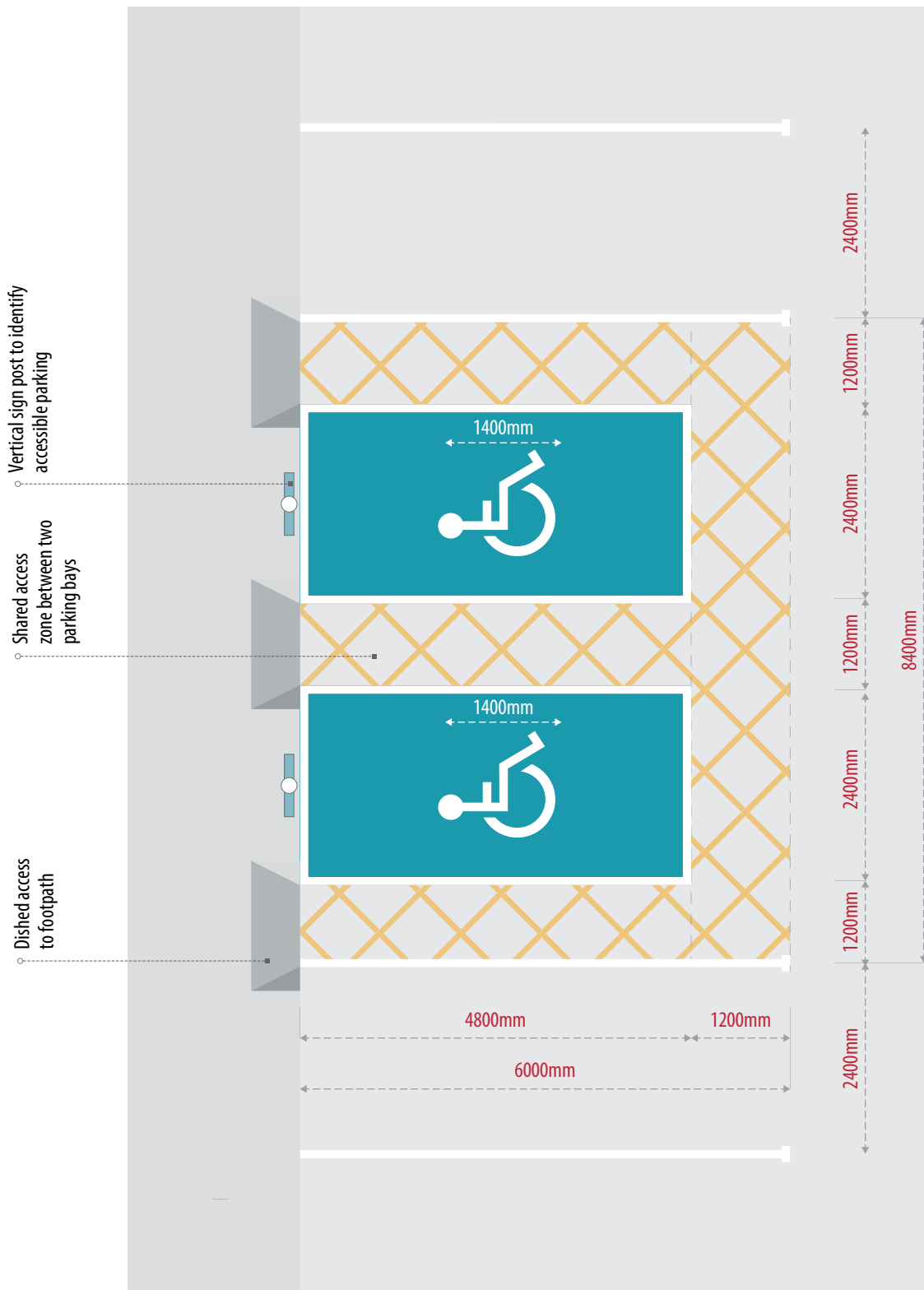


Figure 4 – Accessible parking showing shared access zone



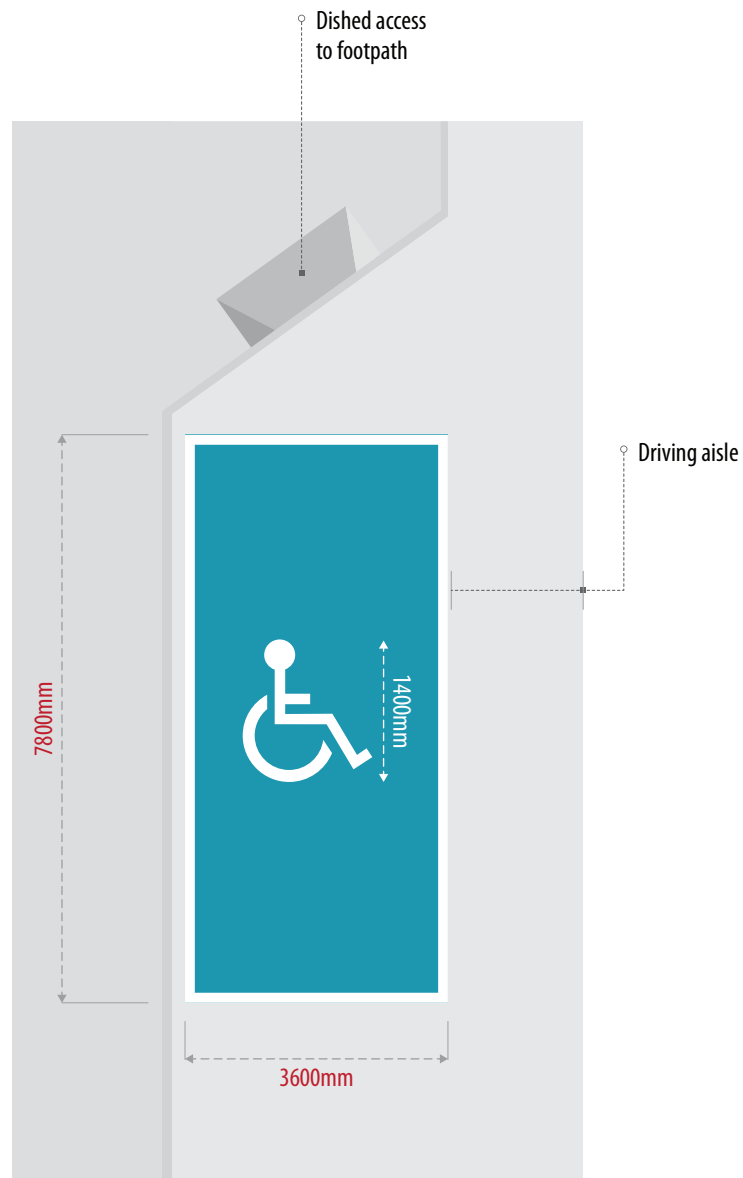


Figure 5 – Accessible parallel parking bay

#### 4.1.2.2 Accessible Car Parking Bays

The recommended dimensions of the designated parking bays for cars and small vans are 4800mm width x 6000mm length, which includes a 1200mm hatched accessibility zone to both sides and at the end of designated parking bays. There should be adjacent dished access to the footpath. The kerb dish should have a slip-resistant surface with a minimum width of 1200mm and minimum gradient of 1:12.

See Figure 3 and Figure 4 on pages 22 and 23

#### 4.1.2.3 Accessible Multi-Purpose Vehicle Bays

The recommended dimensions of designated parking bays for larger vans and multi-purpose vehicles with an attached hoist/lift/ramp are 5400mm in width x 7800mm in length. This size includes a 3000mm accessibility zone to one side and to the rear of the vehicle for the use of hoist/lift/ramp. A bay of this size is designed to accommodate adapted personal use vans or small eight seater adapted vehicles. These multi-purpose vehicle bays are not designed for bus parking.

See Figure 3 on page 22

#### 4.1.2.4 On-Street Parallel Parking

The recommended dimensions for an on-street parallel parking bay are 3600mm width x 7800mm length including a standard 1200mm access zone to the side and a 3000mm access zone to the rear. This bay is suitable for adapted cars, adapted personal use vans and small eight-seater adapted vehicles. The carriageway should be 'cut in' to facilitate the required bay width. A dished kerb should be provided to facilitate access to the footpath. Blister-type tactile paving is not required on the dish as this is not a designated crossing point.

See Figure 5 on page 24

#### 4.1.3 Number of Accessible Car Parking Bays Required

Where public parking is provided, eg on streets and at shopping areas, recreation and leisure facilities, hospitals and public transport parking facilities, a minimum of one, and then one in 15 spaces should be designated for drivers and passengers with disabilities. Of these designated spaces, one in four should be designed to accommodate large multi-purpose vehicles. The recommendation is that these 1:4 bays would be of the largest size (5400mm x 7800mm) to accommodate vehicles using all entry/exit options ie hoist/lift/ramp.

For example, where 60 parking spaces are provided, three spaces should be designated for standard cars used by disabled drivers/passengers and one space designated for larger multi-purpose vehicle use. Premises with high usage by people with disability may require a larger than average number of designated spaces.

In addition to the above provision, spaces should be provided for employees who require accessible parking.

Separate spaces should accommodate women who are pregnant and parents with young children. All spaces are to be clearly designated with the appropriate signage.

#### 4.1.4 Location of Car and Multi-Purpose Vehicle Bays

The designated accessible parking spaces should be located at the same level as and no more than 25m from the principal entrance to the building or buildings served by the car park. Approach routes to the building should be level and accessible in their design with dished kerbs and adequate lighting. In multi-storey car parks, the route to accessible parking bays should be signposted at the entrance and on all levels. Ideally accessible bays should be at the same level as the principal entrance. A suitable passenger lift or ramp should be installed to facilitate access from the parked vehicle to any level where facilities are located.

### 4.1.5 Controlled Parking Facilities

Controlled car parks must include appropriately located and well-designed parking bays with all the accessibility features required to ensure safe passage from the car to the entrance of the building. In addition, particular attention must be given to the height clearance of the car park and ticket machine systems used to give entry and exit to the premises and for automatic payment machines.

#### 4.1.5.1 Height Clearance

To ensure access to all vehicles, a public car park should consistently provide a height clearance of 2600mm. This height clearance should be maintained from the vehicular entrance to the car park, to any designated accessible parking spaces and to the vehicular exit from the car park. The height designation should be clearly displayed at the entrance.

#### 4.1.5.2 Ticket Entry System

On entering and exiting a car parking facility, the ticket entry/exit system should incorporate a voice or proximity activation control which can be used if the person cannot stretch to manually take the ticket dispensed.

*For more guidance on public access terminals, see the National Disability Authority's 'IT Accessibility Guidelines' at [www.universaldesign.ie/it-accessibleguidelines](http://www.universaldesign.ie/it-accessibleguidelines)*

#### 4.1.5.3 Payment Machines

Car parking payment machines should be adjacent to designated disabled parking bays. The controls on the payment machine should be between 750mm and 1200mm above ground level. The plinth or base should not project in front of the face of the machine in a way that prevents its convenient use or causes an obstacle for people with vision impairment. The approach aisles to the machines should have a width of not less than 1500mm. The immediate space in front of the machine should be level and unobstructed

for not less than 1850mm x 2100mm to give a wheelchair user clear side access to the machine and room to turn. The provision of hazard-warning tactile paving may be necessary in certain circumstances but, ideally, the machines should be located off circulation routes so that they are not hazardous to people who are blind or have a visual impairment.

### 4.1.6 Design of Setting-Down and Picking-Up Points

In addition to the public parking, 'setting down' and 'picking up' points should be provided adjacent to high use public buildings and places of interest such as bus/train terminals, hospitals, busy shopping areas and tourists sites, etc. These should be clearly sign-posted and should be located on firm and level ground. The setting-down point should be as close as practicable and within sight line of the principal building entrance. The surface of the setting-down point should be level with the carriageway or provide dished access (gradient no steeper than 1:12) to the adjacent path. This will allow for convenient access to and from the building entrance for people with walking difficulties or people using a wheelchair. Seating and shelter should be provided within the setting-down point. A level access route which is weather protected should be provided from the setting-down area to the main building entrance.

The setting-down point should include both side and rear access zones with provision for the use of passenger lift/hoist/ramp at the rear and to the side of all vehicles. The required additional rear and side space for the use of passenger hoist/lift/ramp is 3000mm.

Wherever a kerb adjacent to a drop-off bay is dished in the direct line of pedestrian travel allowing flush access between footpath and road, corduroy-type tactile paving (hazard warning) must be installed for the safety of people who are blind or have a visual impairment.

## 4.2 Pavements, Crossings and Approach Routes

### 4.2.1 Background

Pavements and approach routes to buildings should be designed to give easy and safe access to all. The pathway should be sufficiently wide for all users to move freely and to pass each other. The surface of the pathway should be level, smooth and slip-resistant, with no obstacles located within the circulation route.

### 4.2.2 Pavement Widths and Gradients

The recommended clear pavement width is 2000mm. This width will allow two wheelchair users to safely pass each other going in opposite directions. Where this pathway width is not possible, the pathway or approach route should have a clear minimum width of 1500mm with passing places provided at intervals for wheelchair users. A width of 1500mm will accommodate a wheelchair user and a person walking alongside.

See Figure 1 on page 17

The surface of the pavement should be smooth and slip-resistant. Loose surface finishes are to be avoided, eg sand or gravel. A gap of any more than 10mm in the surfacing of the pathway is not acceptable.

The direction of any ridges or drainage grills in the pathway should be set at right angles to the direction of travel. Gaps between drainage grills should be no wider than 10mm.

If a gradient is needed, eg for drainage of surface water, it should be equal to or less than 1:50. If drainage grills are present and are dished, a flat

plate should be installed across the drainage channel.

#### 4.2.2.1 Dished Kerbs

Dished kerbs should be provided at pedestrian crossing points and at designated parking bays. These dished kerbs should be painted white/yellow for the benefit of people with vision impairment. The central kerb dishing should be flush with the road/carriageway and have a width of 1200mm. The gradient on the dished kerb should be no steeper than 1:12. The kerb dishing should be located away from corners and always at opposing sides of the street. The dished crossing should also be located away from any drainage gratings/manholes. The colour and layout of tactile paving at dished kerbs is determined by whether the crossing is controlled or uncontrolled. The correct tactile paving must be laid along the full width of any dished kerb. The depth of the tactile paving into the footpath will depend on whether the crossing is in line with the pedestrian travel route or not.

For further information please visit The National Council for the Blind of Ireland (NCBI)'s website: [www.ncbi.ie](http://www.ncbi.ie)

#### 4.2.2.2 Tactile Paving

The colour and layout of tactile paving is determined by the type of crossing or to give a hazard warning. Red coloured blister paving is only used at controlled crossings where the pedestrian can establish priority over vehicular traffic, ie traffic signal junctions, zebra crossings and pelican crossings. Buff, yellow or grey coloured blister paving is used at uncontrolled crossings.

Corduroy paving, which consists of round bars running transversely across the direction of travel,

“What is the point in having wider footpaths when they are blocked?”

– IWA member, Co Cork

is used (with the exception of pedestrian crossings) to warn people who are blind or have visual impairment of any approaching hazard. The corduroy paving should be in a contrasting colour to the surrounding pavement, but not in red which is only used at controlled crossings. Partially sighted people will be assisted by a strong colour contrast which can be enhanced by marking the kerb edge white.

Tactile paving should contrast as strongly as possible with the background pavement. Therefore red brick paving should not surround the red tactile paving used at light-controlled road crossings, and grey tactile paving should not be installed on grey pavements.

Smooth, shiny metal tactile paving is not acceptable, as it is slippery when wet. People with vision impairment also report that in bright sunlight shiny metal paving creates a very unhelpful dazzling effect

*For further information please visit NCBI's website: [www.ncbi.ie](http://www.ncbi.ie)*

#### **4.2.2.3 Passing Spaces**

Passing spaces that allow two wheelchair users to pass each other should be provided on routes that are less than 2000mm in width and where the overall route length is greater than 25m. Passing spaces in the external environment should be 2000mm in depth and 2000mm in width and located within direct sight of another passing place.

#### **4.2.2.4 Clear Headroom**

The circulation route of any pathway and building approach should not present any headroom hazards. A door or window should not open onto a main thoroughfare. A clear headroom height of at least 2300mm must be maintained throughout the circulation route.

#### **4.2.2.5 Street Furniture**

The careful positioning of street furniture provides good access and reduces potential hazards. Street

furniture and signage should always be located either close to, or recessed into, the inner shoreline (that is, a wall, fence or building), or alternatively, on the kerb edge, leaving the middle of the pavement clear. A clear path width of preferably 2000mm should be maintained along the circulation route. Temporary street furniture on pavements, such as shop displays, sandwich boards and utility bins should be placed out of the way of the pedestrian route and maintained in that position.

If freestanding posts or columns are unavoidably located within access routes these should incorporate a band of contrasting colour at a height of 1500–1650mm. An additional band at a height of 850–1000mm is recommended. However, as a continuous clear path width of 2000mm is required, this situation ought not to occur. Cycle parking must be kept clear of pedestrian routes.

#### **4.2.2.6 Hazard Protection**

The swing of doors, windows and the location of vending machines, public telephones, etc should not extend into any access route. If this intrusion is unavoidable, then hazard protection should be provided where objects project more than 100mm into an access route and their lower edge is more than 300mm above ground. Hazard protection on the ground can be provided by a solid kerb or fixed element between 100–300mm above floor level under the protruding obstacle so that it is detectable by a cane. The hazard protection should not extend beyond the front edge of the object, nor should it be set back more than 100mm from its front edge.

#### **4.2.2.7 Seating**

Seating should be located within sheltered areas. Seats should be placed 600mm back from the line of movement so that the pathway is not blocked. The surface on which the seating is located should be firm, stable and flush with the surrounding path level. A clear level space on firm paving of

1400mm in depth and 900mm in width should be provided beside a seat to allow a wheelchair user/buggy to position adjacent to the seat. The seat height should be no less than 450mm, with a minimum of 450mm depth and with a heel space of 100mm to allow for easier rising from the seat. Back and arm rests are useful to provide additional support. Seating should be provided at regular intervals on long and sloping routes, no more than 25m apart. Signage should be provided to indicate distance to next seating area.

#### 4.2.2.8 Bollards

Bollards should only be installed where absolutely necessary, eg to prevent cars parking on pavements. Bollards, if used, should be a minimum of 1000mm in height, 250mm in width and contrast in colour and tone with the background. Adjacent bollards should not be linked with a chain or rope, and should be a minimum of 1200mm apart.

#### 4.2.2.9 Route Finding

Clearly defined logical routes can be identified with the use of colour contrasts and textural changes in paving. Planting can assist in defining routes or identifying hazards through scent and colour, but should not obstruct or present an overhead hazard.

### 4.2.3 Controlled and Uncontrolled Crossings

All kerbs at pedestrian crossings should be flush with the roadway and have appropriate tactile paving in place.

*For more information please see Section 4.2.2.2. on page 27*

At controlled crossings the pedestrian signals must allow adequate time for all pedestrians to

cross safely. The minimum recommended time is 20 seconds. On a wide and/or busy roadway, a longer crossing period will be required. The pedestrian signals should be both audible and pulsating, and located at a height of 900–1000mm. Road markings at crossings should prevent vehicles from blocking sight lines and from blocking dished kerbing.

*For more detailed design information see the Local Government Management Services Board's 'Good Practice Guidelines on Accessibility of Streetscapes'. Website: [www.lgmsb.ie/ga/node/26](http://www.lgmsb.ie/ga/node/26)*

### 4.2.4 Shared Space, Shared Surfaces

'Shared Space, Shared Surfaces' is a developing European urban design approach which seeks to establish pedestrian priority within the urban environment. This design approach reduces the traditional demarcation between pedestrians and traffic by removing or limiting features such as kerbs, crossing points, traffic signs etc. Such an approach can be used to regenerate urban/town centres by seeking to reduce the dominance of vehicles in discouraging and slowing the passage of vehicular traffic. A 2012 report carried out by the NDA reviewed this approach and noted that people with disabilities experienced concern about the uncertainty created by this approach and recommended the provision of 'Comfort Zones' within the Shared Spaces, Shared Surfaces approach ie designated pedestrian routes and crossing points. Clearly, the inclusion of a Shared Space, Shared Surfaces approach in an urban design project requires careful consultation with people with disabilities and their representative organisations to ensure that the environment is safely and confidently usable by everyone.

“Cobbled areas in the town are hard to access for wheelchairs.”

– IWA member, Co Clare

For more information see 'Shared Space, Shared Surfaces and Home Zones from a Universal Design Approach for the Urban Environment in Ireland' on the NDA's website: [www.nda.ie](http://www.nda.ie)

### 4.2.5 Building Approach

The route to the principal entrance of a building, from all areas, including the car parking area, should be clearly identified and well-lit with non-glare minimum illumination of 150 lux. <sup>3</sup>

The danger of inadvertently walking into a vehicular access route should be minimised by providing a separate pedestrian route which is at least 1500mm in width (2000mm where the approach is a busy thoroughfare). Where there is an uncontrolled crossing point across the vehicular route, this crossing point should be identified by coloured blister surfacing. This blister surfacing should contrast strongly with the background pavement. Red blister paving should not be used at crossings which are not signal-controlled.

The approach to the main building entrance from an adjacent road, car park or other area accessible to motor vehicles should be level and have a smooth, non-slip surface. Where it is not possible to provide a level approach, ie where there is a gradient of more than 1:50, both steps and ramps should be provided. The steps and ramps should be as close as possible to each other.

## 4.3 External Ramps

### 4.3.1 Background

Ramps are necessary for wheelchair users and beneficial for people pushing prams, pushchairs and bicycles. Gradients should be as shallow as practicable. Steep gradients create difficulties for some wheelchair users who lack the strength to propel themselves up a slope or have difficulty in

slowing down or stopping when descending. However, there may be circumstances, eg in retrofits, where a steeper gradient than the minimum recommended may be necessary for a short distance.

Ramps should always be accompanied by steps where the rise of the ramp is greater than 300mm and by alternative means of access eg a lift, when the total rise is greater than 2m.

See Figure 6 on page 33

### 4.3.2 Gradient

If site constraints necessitate an approach of 1:20 or steeper, an approach incorporating ramped access must be provided. The preferred gradient of a ramp is 1:20 and the length of individual sections should be no more than 10m with a maximum rise of 500mm. Intermediate landings should be provided after each 10m slope.

In very exceptional circumstances, where site constraints require it, slopes no steeper than 1:12 may be provided. Individual sections in these circumstances should be no longer than 2m. These measurements change with the different ramp gradients as follows:

- When the ramp gradient is 1:20, there should be a maximum rise of 500mm and a maximum length of 10m between landings.
- When the ramp gradient is 1:15, there should be a maximum rise of 333mm and a maximum length of 5m between landings.
- When the ramp gradient is 1:12, there should be a maximum rise of 166mm and a maximum length of 2m between landings.

### 4.3.3 Widths of Flights and Landings

Flights and landings should have a clear unobstructed width of at least 1500mm. Where it is expected that there will be high usage of the

<sup>3</sup> Lux is the measurement of intensity of light on a surface. An illumination of 250 lux is suitable for reading purposes.

ramp, provision of a wider ramp should be considered. Intermediate landings, where provided, should have a minimum length of 1800mm. If there is a change of direction in the ramp and no clear view of the top/bottom of the ramp possible, there should be a larger intermediate landing.

A clear flat unobstructed turning circle of 1800mm diameter is required at the top and at the bottom landings of a ramp. Where a door opens onto the landing, additional space is required, so that the door swing does not compromise the turning circle.

Unless the ramp is under cover, there should be a cross fall of 1:50 to aid drainage.

#### 4.3.4 Tactile Provisions

It is not recommended to use tactile warnings to indicate ramps, as these are properly used to indicate the start of a flight of steps or stairs.

#### 4.3.5 Surface Finish

The approach to the ramp should be highlighted by the use of colour contrast, tone and texture change, to facilitate use by people with vision impairment.

The surface of the ramp should be non-slip. Rainwater lodgement must be avoided by ensuring appropriate drainage cross-fall of 1:50. The floor surface of the ramp should be flush at the top and bottom of the ramp where the level begins to change. Where there are different materials along the access route, they must have similar frictional characteristics.

The difference in level at joints between paving units should be no greater than 5mm and the gap between paving units should be no wider than 10mm, with the joints filled flush. If unfilled then the gap should be no wider than 5mm.

#### 4.3.6 Edge Protection

In addition to the handrails, a raised kerb of at least 150mm in height should be provided on any open side of a ramp.

*For information on handrails see Section 4.5. on page 32*

#### 4.3.7 Lighting

Lighting for ramps should come from the sides to avoid shadow. Lighting should be consistent along the length of the ramp and have non-glare illumination of 200 lux.

### 4.4 External Steps

#### 4.4.1 Background

Ramps are not necessarily safe and convenient for ambulant disabled people. For example, some people who can walk but have restricted mobility find it more difficult to negotiate a ramp than a staircase or steps. In addition, adverse weather conditions can increase the risk of slipping on a ramp. It is therefore necessary to have steps provided as well as a ramp.

The width of the stairways should be determined by the nature and use of the building. Flights and landings of stairways should preferably have an unobstructed width of 1500mm. This width of 1500mm is recommended to facilitate the assisted egress and evacuation of people with disabilities and to accommodate contra flow in circulation spaces during emergency evacuation. Where a stairway is a secondary egress route a minimum unobstructed stair width of 1200mm is acceptable.

A central handrail should be provided when the width of the stairs exceeds 2000mm.

“ I had to go back home as there are no ramps. ”

– IWA member, Co Wexford



#### 4.4.2 External Step and Stair Design

Level landings with at least a 1500mm length free from any door swings should be provided at the top and bottom of each flight of steps. Single steps should be avoided as they present a tripping hazard even if there is visual contrast provided.

In the design of stairs, the rise of each step should be consistent and between 150–180mm. The going of each step should be consistent and between 300–450mm. Tapered treads and open risers should not be used.

Nosings should be integral with the step and distinguishable in tone and colour. Projecting nosings should be avoided. The surface material of the steps should be non-slip.

The outer edges of all steps in each flight must provide a permanent visual contrast with the rest of the steps, known as 'edge stair marking'. The edge stair marking should be 50–65mm on the tread and 30–55mm is recommended on the riser, running the entire width of the step.

#### 4.4.3 Tactile Provisions

Top and bottom landings should be provided with a corduroy-type hazard-warning tactile surface in a ridged pattern to give advanced tactile warning of the change in level. This tactile surface should comprise rounded bars running transversely to the direction of pedestrian travel. The bars should be 6mm (+/- 0.5 mm) in height, 20mm in width, and spaced 50mm from the centre of one bar to the centre of the next.

This ridged surface should extend the full width of the stairs at both the top and bottom of the flight. This surface should be of a contrasting colour to the surrounding area, but should not be red.

The ridged surface should start 400mm from the first step nosing, where possible. When steps are

in the direct line of travel, a depth of 800mm for the tactile surface is needed. This depth can be reduced to 400mm if a pedestrian has to make a conscious turn to encounter the stairs.

Where one flight of stairs is followed immediately by a second flight, there is no need for additional tactile surface areas, as the handrails should give warning of another flight. However, if the stairs are accessed by a landing, then tactile warning will also be required on that level.

#### 4.4.4 Headroom Provision

Where the headroom on the underside of the stairs is less than 2100mm, this area should be guarded to eliminate hazard. This could be done by fencing the area off with railings, building a solid wall, or creating an area of planting.

#### 4.4.5 Lighting

Lighting for steps should come from the sides to avoid shadow. Lighting should be consistent along the full flight and adjoining landings and have non-glare minimum illumination of 200 lux.

### 4.5 Handrails to Ramped and Stepped Access Routes

#### 4.5.1 Background

People using wheelchairs do not normally use handrails while using ramps but they may find handrails useful to steady themselves on a long/steep ramp. People with disability who are ambulant and people who have visual impairment find it easier to negotiate steps and ramps with a handrail. Therefore handrails should be provided on both sides of every ramped and stepped access route.

“ My social life can be neglected as I can't get into places. ”

– IWA member, Co Galway

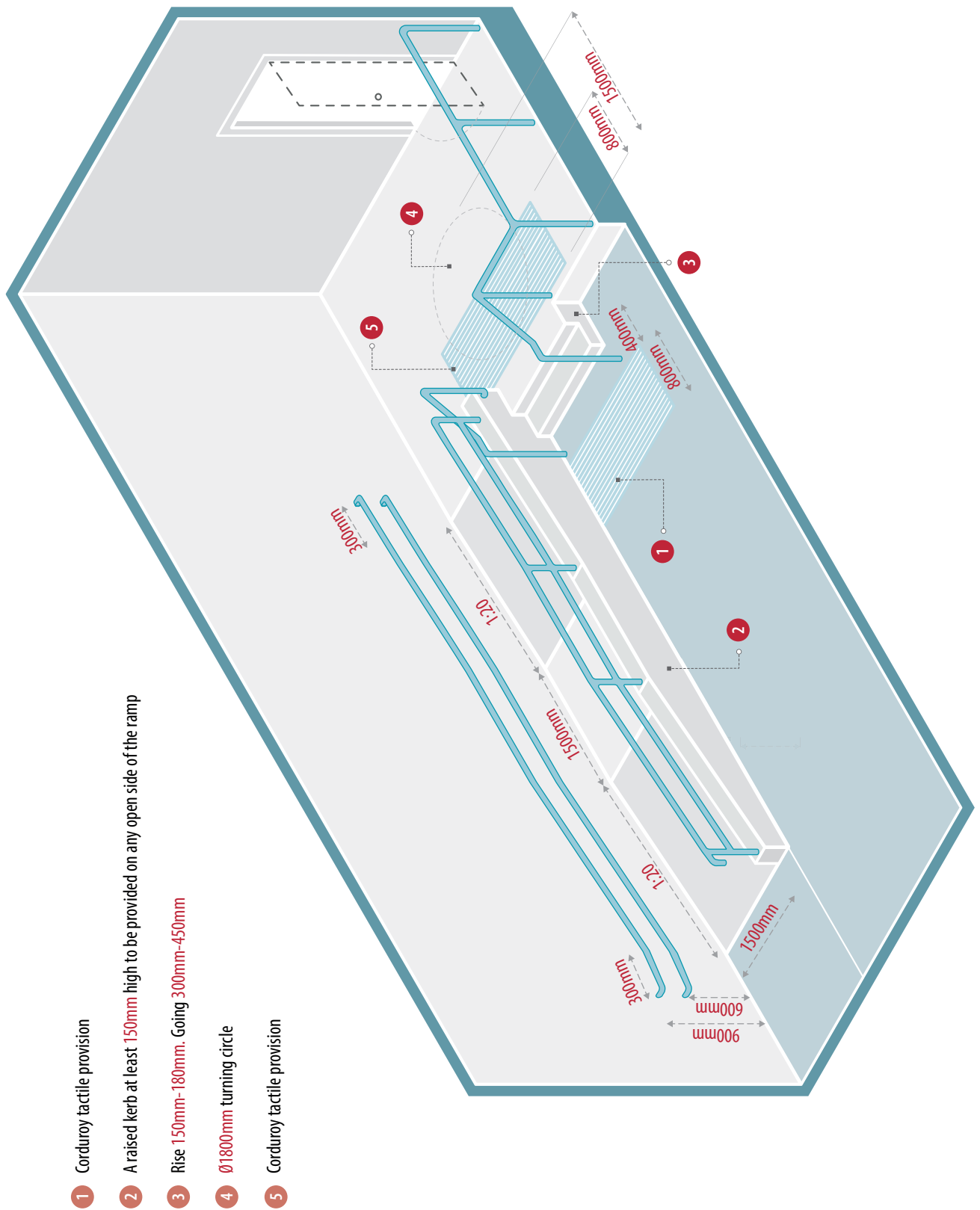


Figure 6 – Ramp and steps

### 4.5.2 Location of Handrails

There should be a continuous handrail on each side of the ramp and steps including landings. The top of the handrail should be 900–1000mm above the pitch line of the stair flight/ramp and 900–1100mm above the surface of any landings. To accommodate people of different stature, provision of a second handrail should be considered on each side at 600mm height from the pitch line of steps/ramp surface. Both handrails should extend at least 300mm beyond the outer edge of the top and bottom steps/ramp, and terminate in a closed end which does not project into a route of travel.

Handrails on intermediate landings should be continuous, to guide people who are blind or have a visual impairment.

When the width of the steps/ramps exceeds 2000mm, a central handrail should be provided. This allows users to be within easy reach of a support especially when many people are using a wide ramp/steps.

### 4.5.3 Design of Handrails

The handrail should follow the exact pitch line or contour of the steps/ramp. In this way, information about the steps/level change is communicated through the person's hand. Handrails should be distinguished from the background environment in contrasting colour and/or tone.

A round or oval profile of handrail is preferred. Round handrails should be 32–45mm in diameter, and oval handrails should be 38mm in depth and 50mm in width. Any wall-mounted handrail should have a clearance of 60–75mm from the wall. A support connection located at the bottom of the handrail permits uninterrupted use.

The materials used for the handrail can include wood and nylon-sleeved steel tubing and should have a smooth finish with no sharp edges.

### Accessible Parking

- ▶ Locate as close as possible to main entrance – maximum distance 25m. Signage for easy identification.
- ▶ Minimum one accessible bay, then one accessible bay for every 15 parking bays.
- ▶ Firm level surface with white markings on blue background. Dished kerb to access pavements.
- ▶ Size of standard accessible bays should be 4800 x 6000mm. This includes 1200mm wide access zone on both side and rear.
- ▶ Size of bay for multi-purpose vehicles should be 5400 x 7800mm. This includes 3000mm access zone to one side and rear.
- ▶ On-street parallel parking bay should be 3600 x 7800mm. This includes an access zone of 1200mm to one side and 3000mm to the rear.
- ▶ Minimum 2600mm height clearance to be maintained throughout.

### Pavements, Crossings and Approach Routes

- ▶ A 2000mm pavement width allows two wheelchair users to pass each other safely.
- ▶ Create a firm and level surface, with no gaps of more than 10mm and paired dishing at all pedestrian crossing points.
- ▶ Provide 2300mm headroom clearance.
- ▶ Use tactile paving as follows: red blister-type for controlled crossings; buff, yellow or grey blister-type for uncontrolled crossings; and corduroy type for hazard warning.
- ▶ Provide seats for long and sloping routes. Circulation route must be kept clear of any shop displays, bins, seats, etc.

### External Ramps

- ▶ Shallowest possible gradient for any sloped approach.
- ▶ Gradient 1:20, maximum rise 500mm and maximum length 10m.
- ▶ Ramp width 1500mm, with a 1800 x 1800mm level landing at top and bottom.
- ▶ Non-slip surface, with 1:50 cross-fall to ensure drainage, and 150mm high edge protection.
- ▶ Provide a continuous handrail on both sides at a height between 900–1000mm, extending 300mm beyond the ramp and terminating in a close end.

### External Steps

- ▶ Steps should be provided in conjunction with a ramp. Avoid single steps.
- ▶ 1500mm stairway width recommended. Tapered treads and open risers to be avoided.
- ▶ Consistent step design is critical. Risers to be between 150–180mm and goings between 300–450mm.
- ▶ Provide corduroy tactile warning on top and at bottom of the staircase running across full width of steps.
- ▶ Provide a continuous handrail on both sides, at a height between 900–1000mm, extending 300mm beyond the last step and terminating in a close end. Central handrail required when stair width more than 2000mm.
- ▶ Step edges should contrast with the rest of the surface. Provide adequate lighting. Avoid confusing shadows.



## 5 Access to and Circulation Within a Building

### 5.1 Main Entrance Doors

#### 5.1.1 Background

The main entrance design to a building should give accessible entry to all people including wheelchair users, people with limited mobility, people who are blind, people with a visual or hearing impairment and people pushing prams. The entrance to a building should be easy to locate, safe and convenient to use. The lighting level at the main entrance to a building should be 150 lux.

The main building entrance/s should contrast with the surroundings, have level access, be clearly signposted and preferably have self-activating doors. The method and direction of opening of the main entrance door/s should be clearly indicated.

In order to provide shelter for those having to pause before entering a building, the main entrance should incorporate some form of weather protection.

#### 5.1.2 Door Dimensions and Design

Main entrance doorways should provide a minimum clear opening width of not less than 1000mm. Double doors should include at least one leaf which provides a minimum clear opening of 1000mm.

Doors opening into a building should be hung so that they open against an adjoining wall. A nib of wall at the door hinge allows the door to open beyond 90° which will increase the effective clear width. There should be an unobstructed space of at least 500mm on the side next to the leading

edge of a single leaf door. This space will allow a wheelchair user to reach the door handle easily and keep clear of the door swing. The entrance threshold should be level, which may require innovative design. To give level access, flush thresholds should be used. Door saddles or lips are not acceptable.

See Figure 7 on page 39

In front of the door opening into the building there should be a minimum clear and level manoeuvring space of at least 1800mm x 1800mm. All outward opening doors, eg escape doors should not project into circulation areas and should have an unimpeded area outside of at least 1800mm x 2300mm.

#### 5.1.2.1 Door Frames and Glazed Panels

Except where it is necessary to maintain security or privacy, an entrance door should be designed to permit visual awareness of the layout of the building immediately beyond. Each door leaf should incorporate a glazed vision panel extending from 500mm to 1500mm above the finished floor level.

See Figure 8 on page 40

If a door requires an intermediate horizontal section for strength or to accommodate door furniture, the door should have two vision panels, one between 500–800mm from the floor and the other between 1150–1500mm from the floor. The glazed vision panels should be flush with the door so as not to compromise use of the door handles.

See Figure 9 on page 41

“It really annoys me to have to ask people to open doors for me.”

– IWA member, Co Kilkenny

### 5.1.2.2 Door Furniture

Door ironmongery which is situated between 900–1000mm from floor level should have a push/pull down lever-type handle and be clearly identifiable by use of contrasting materials, colour and/or design. The handle/door lock should be easily used and manipulated by all including someone with restricted hand movement and/or limited strength.

If the door handle is vertical, then it should be more than 300mm long with the lower end sited between 700–1000mm from the floor and the top between 900–1300mm from the floor.

Self-closing devices on manually operated non-powered swing doors are a disadvantage for many people who have limited upper body strength, are pushing prams, or are carrying heavy objects. If self-closing devices are unavoidable, the opening force of the door should be as low as possible and no greater than 20 newton at the leading edge of the door.

### 5.1.2.3 Pull Handles

Doors that do not have a self-closing device should have a 300mm pull handle located on the push side. This pull handle will assist a wheelchair user in pulling the door closed behind them. The upper end of the pull handle should be centred on the door at 900mm from floor level with the lower end sloped towards the hinged side of the door at 800mm from floor level.

### 5.1.2.4 Kick Plates

Kick plates to protect the door surface should be provided on the base of the door. The kick plate should extend across the full width of the base of the door to a height of 400mm. Typically, a kick plate would be made of aluminum sheet.

### 5.1.2.5 Glass Door Design

A glass door that is adjacent to or is incorporated within a fully glazed wall should be clearly differentiated from the wall, with the door more prominent. Any single-pane fully glazed door or

fixed panels should be marked permanently at 850–1000mm and 1400–1600mm above floor level. The markings should contrast visually with the background when seen through the door from both directions, in all lighting conditions, and at all times of day.

### 5.1.3 Revolving Doors

Revolving doors of any size are not suitable for use by all people, eg parents with prams or buggies and people with limited mobility. An alternative accessible entrance must be provided adjacent to a revolving door.

### 5.1.4 Powered and Automatic Doors

Automated door systems are generally recommended for ease of use rather than manually operated doors. Clear instructions for any door fitted with a self-closing and opening or push button device are required in visual and tactile format.

A change of floor surface texture should be provided at the approach to self-activating doors. Automatic doors should take at least three seconds to fully open from a closed position and should remain open for at least five seconds to allow safe entry and exit. Doors should incorporate a safety stop which is activated if doors start to close as a person is passing through. Doors should revert to manual control or failsafe in the open position in the event of a power failure. Automatic doors should ideally slide aside (like lift doors) rather than swing in or out.

With doors that swing open towards the user, both audible and visual warnings should be given. When in an open position, doors should not project into any adjacent access route. A door lock release should be situated at a height of between 900–1000mm and be clearly identifiable.

Entrance devices, eg push pads and card swipes, for automatic doors, should be located 900–1050mm above the finished floor level. Provision of an additional foot-activated push pad will facilitate people with restricted hand functions.

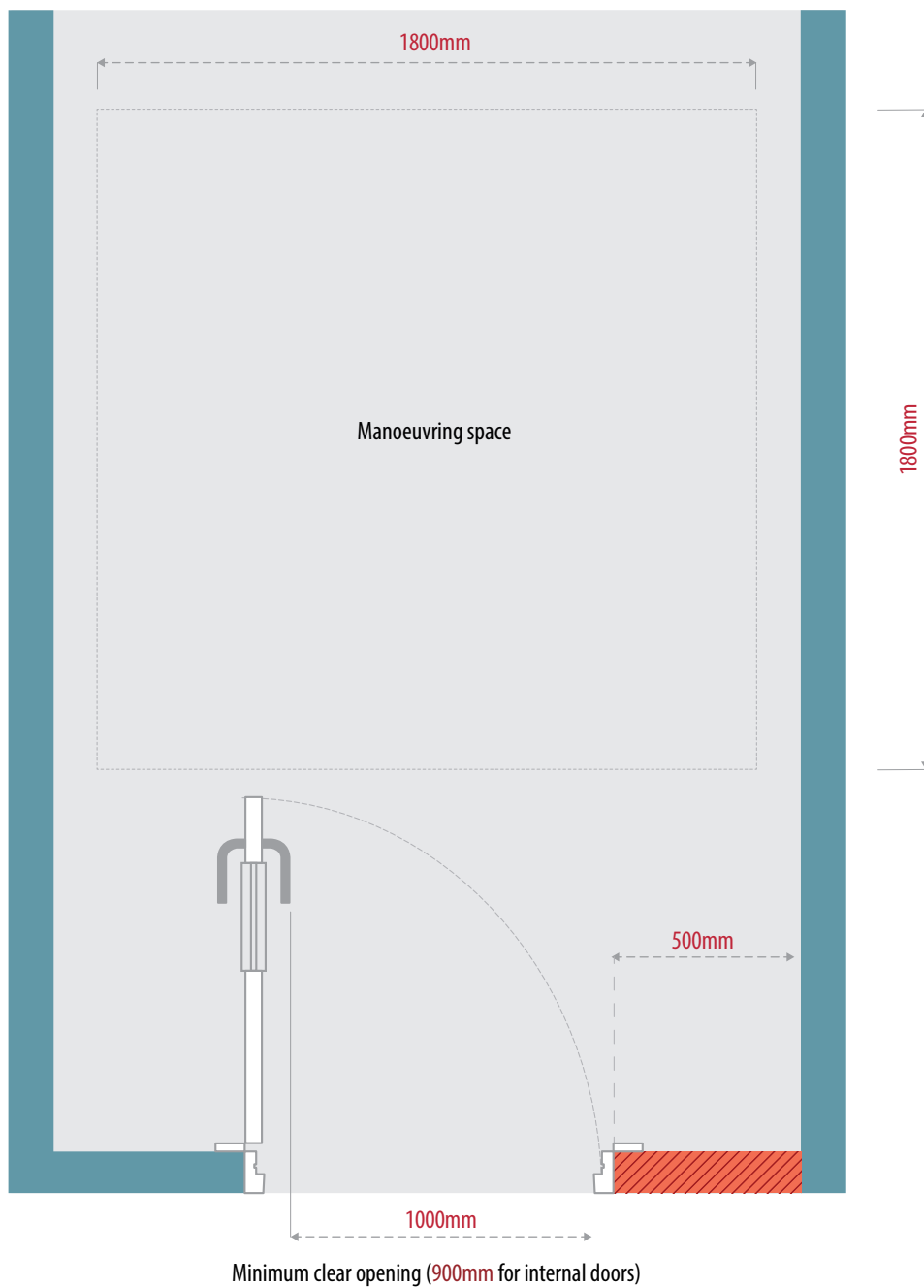


Figure 7 – Building entrance (plan view)



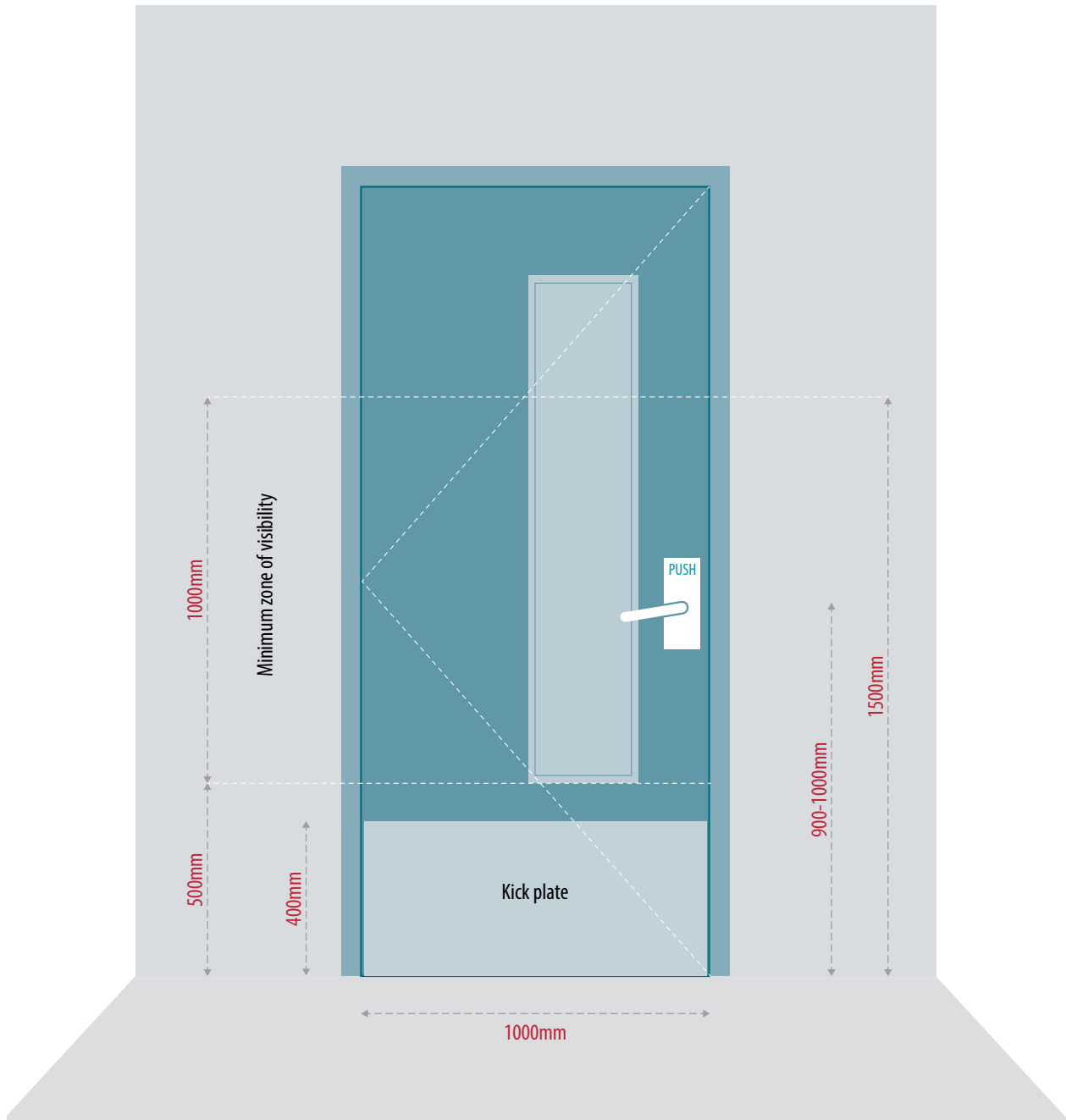


Figure 8 – Entrance with single vision panel

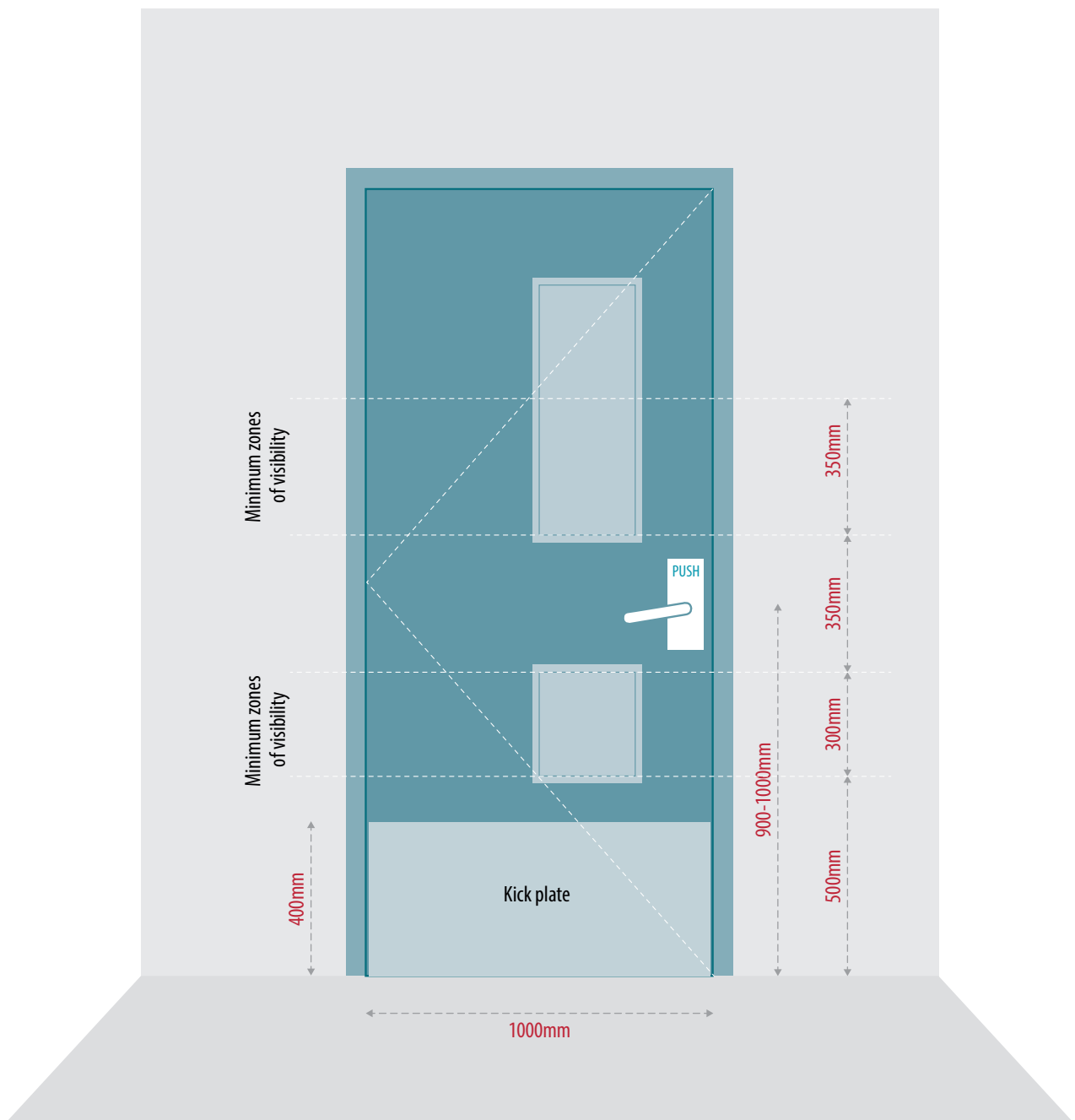


Figure 9 – Entrance with intermediate horizontal section

These low level pads can be operated by foot/wheelchair foot rests and should be mounted with the centre of the pad at 200mm height from floor level.

Where the control pad and door are located on the same wall, the controls should be clearly identified on the latch side and placed within 200mm of the door. Where the control pad is placed on the return wall, it should be located at least 1400mm from the leading edge of the door so as to avoid collision with the door on opening. The door operating controls should be clearly distinguishable from the background in tone and colour contrast.

### 5.1.5 Intercom Systems

Any intercom/door entry system should be provided at a height between 900 and 1050 mm from the floor level and located at least 500mm from any corner. Where the intercom/entry system and the door are located on the same wall, they should be placed at 200 mm from the latch side of the door. Where the intercom system is placed on the return wall, it should be located 1400mm from the door. The system provided should have a visual display to facilitate people who are deaf or hard of hearing. The door release indicator should be both visual and audible.

## 5.2 Entrance Foyers

### 5.2.1 Background

Entrance foyers and lobbies should be designed and constructed in such a way that there is sufficient space to enable all people, including a wheelchair user and a person assisting the wheelchair user, to move clear of one door before using the next door. In addition, there should be a sufficient space allowance for a person to pass in the opposite direction.

### 5.2.2 Lobby Design

The minimum clear door widths leading into and from a lobby/foyer area should be 900mm, with a clear space of preferably 500mm, but a minimum of 300mm, next to the leading edge side of the door. The clear space enclosed by a lobby area must be at least 1700mm in depth x 900mm in width, free of door swing into that space.

The overall size of the lobby/foyer area will then be determined by the size of the door/s opening into and from the lobby area and by whether any doors are opening in the same or opposite directions. The recommended lobby width is 1800mm; the minimum acceptable lobby width is 1500mm.

See Figure 10 and Figure 11 on pages 44 and 45

### 5.2.3 Internal Doors

Internal doors should provide a minimum clear opening width of 900mm. Doors opening into a room should be hung so that they open against an adjoining wall. A nib of wall at the door hinge allows the door to open beyond 90° which will increase the effective clear width. Double doors should include one leaf that provides a clear minimum opening of 900mm. Ideally there should be an unobstructed space of 500mm on the side next to the leading edge of the door. A minimum acceptable space on the side next to the leading edge is 300mm.

The doors should open inwards from circulation areas and from busy to less busy areas. Internal doors should be designed and constructed in such a way that the doors and frames are clearly identified by colour and tonal contrast from the adjacent walls.

See Section 5.1.2.2 on page 38 regarding door furniture

“Many doors in public buildings are not wide enough for powered chairs.”

– IWA member, Tralee, Co Kerry

### 5.2.3.1 Glazed Vision Panels

Each leaf of a door should incorporate a glazed vision panel extending at least from 500mm to 1500mm above the finished floor level. If a door requires an intermediate horizontal section for strength or to accommodate door furniture, the door should have two viewing panels: one 500–800mm from the floor and the other 1150–1500mm from the floor. The glazed vision panels should be flush with the door so as not to compromise use of the door handles.

Any single pane fully glazed door leaf or fixed panel should have a permanent marking as a means of identifying the glass at heights of 850–1000mm and 1400–1600mm. This must contrast visually with the background and be visible through the door in all lighting conditions and at all times of day.

## 5.3 Corridor Design

### 5.3.1 Background

Corridor design should facilitate safe and convenient circulation through a building. A corridor must give easy access to rooms located within the corridor as well as space to turn and retrace a route. With careful and considered use of signage and colour, a corridor route can assist in giving a sense of location within a building by signposting and tracing travel routes.

### 5.3.2 General Design of Corridors

The line of travel in a corridor should be clear and distinctive. Careful use of colour can aid navigation. Floor surfaces should not be reflective and should avoid busy patterns. The lighting level along the length of a corridor should be 150 lux and located where it does not create glare or silhouettes.

Ideally, a corridor or passageway should have a clear unobstructed width of 1800mm along its length. Any corridors less than 1800mm in width should have a turning space of 1800mm x 1800mm

at the end of the corridor and at corridor junctions. This turning space should be repeated at intervals of 25 metres as the length of the corridor continues. Any corners on a corridor should be rounded.

A minimum acceptable clear unobstructed corridor width is 1500mm, with a width of 1200mm acceptable only when there is no alternative possible.

To facilitate horizontal movement in emergency evacuation, designated escape routes should always have minimum corridor widths of 1800mm.

The provision of seating areas and handrails should be considered in corridors which are 20 metres or longer.

### 5.3.2.1 Doors in Corridors

All doors that open outward into a corridor should be recessed. If it is not possible to recess doors, then the corridor width should allow a minimum clear space of 1500mm within the corridor at the door opening points. The doors should open in the direction of the escape route.

### 5.3.2.2 Objects Fitted to Walls Along Circulation Routes

Wall-mounted objects within a corridor space should be recessed so as not to protrude into the circulation space. If it is not possible to recess wall-mounted objects, these objects should then be fixed at 700mm or more above the floor level and provision should be made to warn people who are blind or have a visual impairment of the presence of such obstacles by providing hazard protection. Hazard protection can include guardrails, provision of a solid kerb, hazard warning flooring or an audible warning signal of some kind.

### 5.3.3 Floor Levels

Floors within a building should be level or predominantly level. Where minor changes of floor levels occur, these should be graded no steeper than 1:60. Where grading occurs, the floor

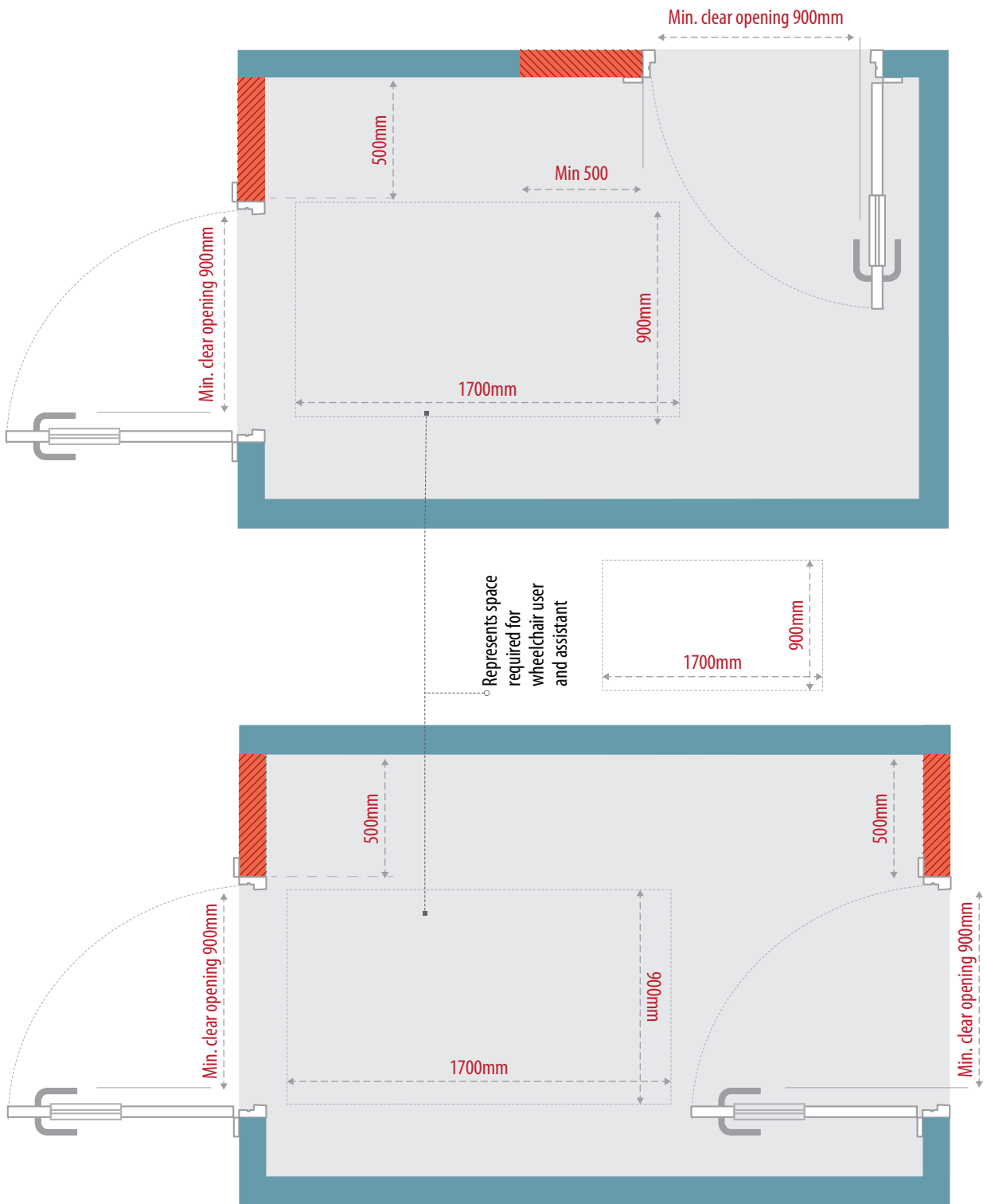


Figure 10 – Internal lobbies with doors opening in the same direction

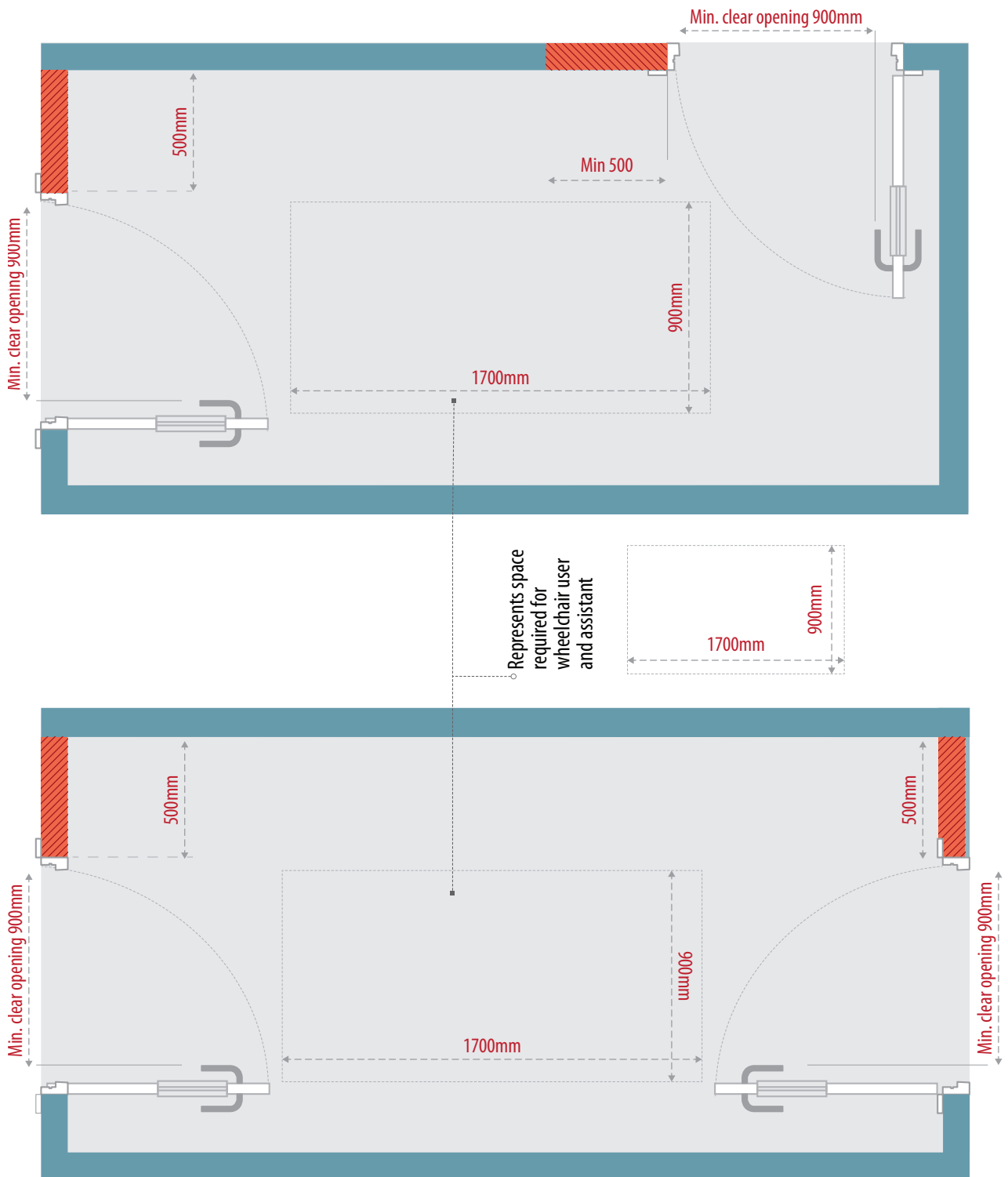


Figure 11 – Internal lobbies with doors opening in the opposite direction

should have a maximum rise of 500mm without a level landing rest. A landing rest should be 1800mm in length. Any changes of floor level should be accented with texture and highlighted with colour.

## 5.4 Signage and Wayfinding

### 5.4.1 Background

Signage is a way of giving information about a building and facilities as well as aiding navigation around a building. Signage should be easily detectable, readily understandable and easy to use for all people.

### 5.4.2 Signage Lettering and Character Style

Directional signage should only be placed on fixed parts of the building such as walls, posts and floors. In spaces where signs would not be visible, for example where there may be large crowds, they should be projected or suspended from the ceiling. Signs that are projected or suspended from the ceiling must be positioned at a height to allow for a 2300mm clearance from floor level.

Character or letter heights of minimum 150mm are suitable for long-distance reading, eg building signs; 50–100mm for medium-distance reading, eg directional signs; and 15–25 mm for short-distance reading, eg room signs.

Characters on all signs should be raised by 1.5mm. Text and symbols should be consistent in design and use conventional colours and symbols. Legibility should be ensured by using a contrasting coloured background. In general, white lettering on a dark background gives good legibility. A matt finish should be used. San serif typefaces are more easily legible eg Ariel, Verdana, Gill sans MT, etc. A mixture of both capital and lower case letters that are aligned to the left is recommended.

The use of easily recognised symbols, pictograms and directional arrows can simplify the interpretation of signage and also aid wayfinding.

Signs that are to be read from a relatively short distance should be sited with the centreline of the sign located at 1400mm from floor level. Safety instruction signage, which requires reading detailed instructions, should be duplicated at 1000mm–1100mm and 1600mm–1700mm to suit people at a range of eye levels.

*For further information refer to the 'Sign Design Guide' (2004), published by JMU Access Partnership/The Sign Design Society and the Royal National Institute of Blind People (RNIB)*

### 5.4.3 Wayfinding

Careful consideration must be given to the visual access of facilities in a building and to wayfinding. All routes leading from the reception area should incorporate a wayfinding system and be clearly signed and unobstructed. Long distances between frequently used services should be avoided. The easiest access route to services and facilities should be clearly signposted. All public buildings should have an integrated system of wayfinding, public address and hearing enhancement.

Wayfinding can be achieved by the careful and considered use of pictorial signage and colour to indicate travel routes. Information on wayfinding should be visual and tactile and low enough to touch. Detectable directional indicators may be used to highlight information points and access routes. Contrasting coloured floor covering in circulation and movement areas aids orientation and wayfinding.

All buildings should be equipped with a wheelchair if long distances need to be travelled.

## 5.5 Internal Changes in Floor Level

### 5.5.1 Background

Vertical circulation or changes in floor levels can pose challenges to both designers and users of a building. Changes of levels are usually accommodated by the provision of stairs, ramps, escalators, travelators, platform and car lifts. The provisions made must ensure safety, ease of use and access for all people to all levels above and below the entrance level of the building.

Where steps are provided, these should be accompanied by an adjacent ramp. Ramps and stairs can be effective means of moving vertically within a building. However a ramp slope that is too steep or a ramp that is too long can create difficulties for potential users. Equally, spiral stairways and stairways with open and/or tapered threads are potentially hazardous.

Car and platform lifts and, very occasionally stair lifts can provide access where ramps and stairways are not practicable. The design of the approach route, the lift car and the lift controls must accommodate all potential users.

Travelators and escalators are not suitable for use by wheelchair users. Wherever an escalator or passenger conveyor is installed between floors, clearly signed alternative access by lift should also be provided.

The number of stairwells, ramps, escalators, car and platform lifts will be determined by the user profile and the services available within the building.

### 5.5.2 Internal Step and Stair Design

In general, single steps should be avoided as they can be hazardous.

Straight flights are easier to negotiate than curved.

Ideally, flights and landings of stairways should have an unobstructed width of at least 1500mm.

This stair width is recommended to facilitate the assisted evacuation of people with disabilities and accommodate contra-flow traffic in circulation spaces and to facilitate egress and evacuation in the event of an emergency. If the desirable width of 1500mm cannot be achieved, a minimum acceptable width is 1200mm on a stairs that is not part of an evacuation route.

A central handrail should be provided when the width of the stairs exceeds 2000mm. Lighting should be even and consistent along the flight and should not cause anyone to negotiate stairs in their own shadow. A lighting level of 200 lux is recommended at the top and bottom landings and along the length of the stairs.

#### 5.5.2.1 Step Profile and Design

The rise of each step on a flight of stairs should be consistent, and between 150–180mm. The going of each step should be consistent and between 300–450mm. Nosings should be integral with the step and distinguishable in colour and tone. Nosings should be used on the front face and the top of each step so as to be visible while ascending or descending the stairs.

Flights should contain no more than 12 risers between landings. The number of risers in successive flights should be uniform. Open risers should not be used.

Tactile hazard warning surfaces should be installed at the top and the bottom of each flight to assist people who are blind or have a visual impairment, as well as at intermediate landings where there is access onto a landing other than from the steps themselves.

*For more information see Section 4.4.3 on page 32*

Where it may not be possible to use a tactile hazard warning surface indoors (which can be problematic with different frictional qualities of indoor surfaces) then floor finishes that contrast visually and in texture and sound should be used to highlight and to warn of the top and bottom of the stairs.



Level landings of at least 1500mm in length should be provided at the top and bottom of each flight of stairs, and this space must be free of any door swing across it.

See Figure 6 on page 33

### 5.5.2.2 Handrails

Handrails should be provided in conjunction with changes in floor level, flights of stairs, ramps or steps. The height of handrails should be 900mm above floor level.

Handrails should continue without interruption across flights and landings and should be easily distinguishable from the background without being highly reflective.

Consideration should be given to the provision of a second handrail set at 600mm above the pitch line on stairs, especially in buildings used by children. Handrails should be available on both sides of a flight of stairs to facilitate people who favour the use of left/right hand.

Each handrail should extend 300mm beyond the first and last nosing and be rounded at the end. The surface of a handrail should be covered with easy-grip non-slip material.

For more information see Section 4.5 on page 32

### 5.5.3 Internal Ramp Design

Ramps can be an effective way of moving from storey to storey within a building. However, as internal ramps require considerable space, they are normally only used in buildings with large open spaces. It is more common to use lifts internally to move from one storey to another.

The use of internal ramps is most likely to arise within an existing building where access provisions are being retrofitted. In new building design, changes of level within a storey should not occur and therefore short ramps should not be required. Wherever ramps are provided, there must also be the adjacent provision of steps

and/or a lift as an alternative. A lighting level of 200 lux is recommended at top and bottom landings and along the length of the ramp.

The design of an internal ramp will be the same as that of an external ramp.

For more information see Section 4.3 on page 30

Also see Figure 6 on page 33

### 5.5.4 Passenger Lift

Internal passenger lifts are the usual means of moving from one storey to another within a building. Single door lifts should ideally provide sufficient internal cabin space to accommodate a turning circle with a diameter of 1800mm.

See Figure 12 on page 51

In smaller buildings, it may not be possible to provide a lift with the above internal dimensions. In such situations, a Class 3 lift, 2000mm in depth and 1400mm in width, is recommended in order to comfortably accommodate a wheelchair user and another person.

In lifts where an alternative exit door is located directly opposite the entry door, an internal turning circle with a diameter of 1800mm is not necessary. In this situation, a minimum clear space of 1700mm in depth and 1200mm in width within the lift car is required.

Where a lift car is not square it is always preferable that it be deeper (rather than wider) to facilitate the entrance and exit of mobility scooters.

#### 5.5.4.1 Lift Use for Emergency Evacuation

Lifts in new buildings should be fire protected and capable of being used for evacuation purposes; this is the most effective means of emergency evacuation for people with disabilities. Existing lifts can be upgraded to be usable as the means of emergency evacuation.

The use of evacuation chairs require planning and training and are not an option for everyone.

*For more information see Section 8 on page 107*

#### **5.5.4.2 Lift Door Design**

The lift door or doors should preferably have a minimum clear opening width of 900mm. The lift doors should be clearly distinguishable from the background by tone and colour contrast. They should be fitted with a reacting device which relies on infrared or photo-eye systems to ensure no person can become trapped in the doors. Lift doors should stay open for a minimum of eight seconds. A control button to keep the door/s open should be situated on both the inside and outside of the lift. Both visual and auditory warning should be given before the lift doors open and close.

#### **5.5.4.3 Lift Controls, Fixtures and Fittings**

In the lift, the controls should be situated on the side wall with the centre line of the control panel at a height of 1000mm and 500mm from the corner. Control pad buttons should be tactile, well spread and accessible to wheelchair users by parallel approach. Audible and visual notification of the floor level, and notice of door opening/closing, should be provided at each lift landing. Braille identification of control buttons should also be present and, ideally, be situated as close as possible to each button, rather than on it. If situated on the button, a person with vision impairment might accidentally push the button while trying to read the Braille information. Braille and control pad buttons should contrast with the background design of the lift car. In larger lifts ie 2000mm wide x 1400mm deep and above, a duplicate set of controls should be provided on the opposite side of the lift car.

The internal lighting within the lift car should be uniformly distributed at approximately 150 lux at floor level. The internal walls of the lift car should be covered with a non-reflective matt material.

Light coloured walls should provide contrast with a darker floor shade. The floor should have frictional qualities similar to, or higher than, the floor of the landing. A rounded handrail should be situated 900mm above floor level and along both the side and back walls of the lift car.

In lifts with one entry/exit door, a mirror at the rear of the lift cabin is required to assist wheelchair users reversing out of the lift. This mirror should not extend the full height of the cabin but start at 900mm above floor level and extend to the top of the lift car, to avoid causing confusion to people with visual impairment.

#### **5.5.4.4 Lift Landings**

Lifts should be conveniently located in relation to the entrance/lobby area and be clearly signposted. There should be a clear unobstructed space of 1800mm x 1800mm in front of the lift entrance and this area should be well lit with a minimum illumination of 200 lux. A change of floor surface and texture should be present to indicate the approach to the lift. Lift call controls at each landing should be tactile, contrast in colour/tone with their background and be situated at a height of not less than 900mm and not more than 1100mm. Braille identification of control buttons should also be present and ideally be situated as close as possible beside each button, rather than on it.

Audible and visual notification of the floor level reached, and notice of door opening/closing, should be provided at each lift landing.

If a stairwell is situated in proximity to the lift car door, the distance to the stairwell should be at least two metres to allow for safe manoeuvring.

#### **5.5.4.5 Lift Emergency Service Notification**

Passenger lifts should be fitted with emergency instructions in visual and tactile format at a height between 900mm and 1100mm. A push button control with tactile indicator should activate an emergency communication system situated

within the lift car. A visual and auditory response indicator should also be fitted. The function of this response indicator is to confirm receipt of an emergency call, to detail the expected response action and time, and to allow ongoing communication. The communication system should incorporate an induction coupler for the benefit of people who use hearing aids, and signage alerting people to the presence of the induction coupler should be displayed.

### 5.5.5 Platform Lifts

Platform lifts are used by wheelchair users and people with limited mobility to transfer on a guarded platform from one level to another. Platform lifts should be designed for independent use with clear instructions given for their use, and they should also be fitted with an emergency alarm system. Non-enclosed platform lifts should rise no more than 2000mm. Where the vertical travel distance is more than 2000mm, or the lift penetrates a floor, there should be a lift enclosure.

The entry and exit to the platform lift should be flush with the surrounding surface and flooring should be non-slip. The preferred size of a platform lift is 1100mm x 1400mm, with a clear door opening width of 900mm.

The lift controls should be conveniently located for independent use at a height of 800–1050mm, and controls should be designed to prevent unauthorised use. The minimum illumination level within the platform lift and surrounding areas should be 150 lux.

### 5.5.6 Platform Stair Lifts

Platform stair lifts can accommodate a wheelchair user but are not recommended and should not be installed in new public buildings. They should only be used as a last resort in an existing situation where no other solution is feasible. The platform stair lift, when folded and out of use, must not impact on the clear stair width and must not present any hazards to people using the stairs.

Platform stair lifts are not to be confused with seated stair lifts which are intended for use only in domestic circumstances, and which accommodate people who can transfer to sit on the lift seat.

### 5.5.7 Conveyors and Escalators

Travelators and escalators are not suitable for use by wheelchair users. Where a passenger escalator/conveyor is within a pedestrian access route, guarding should be provided along and at both ends of the conveyor for the safety of people who are blind or have a visual impairment.

Handrails should be provided, contrast in colour and luminance with the surroundings for the benefit of people who are visually impaired. Clearly highlighted alternative accessible routes should be provided.

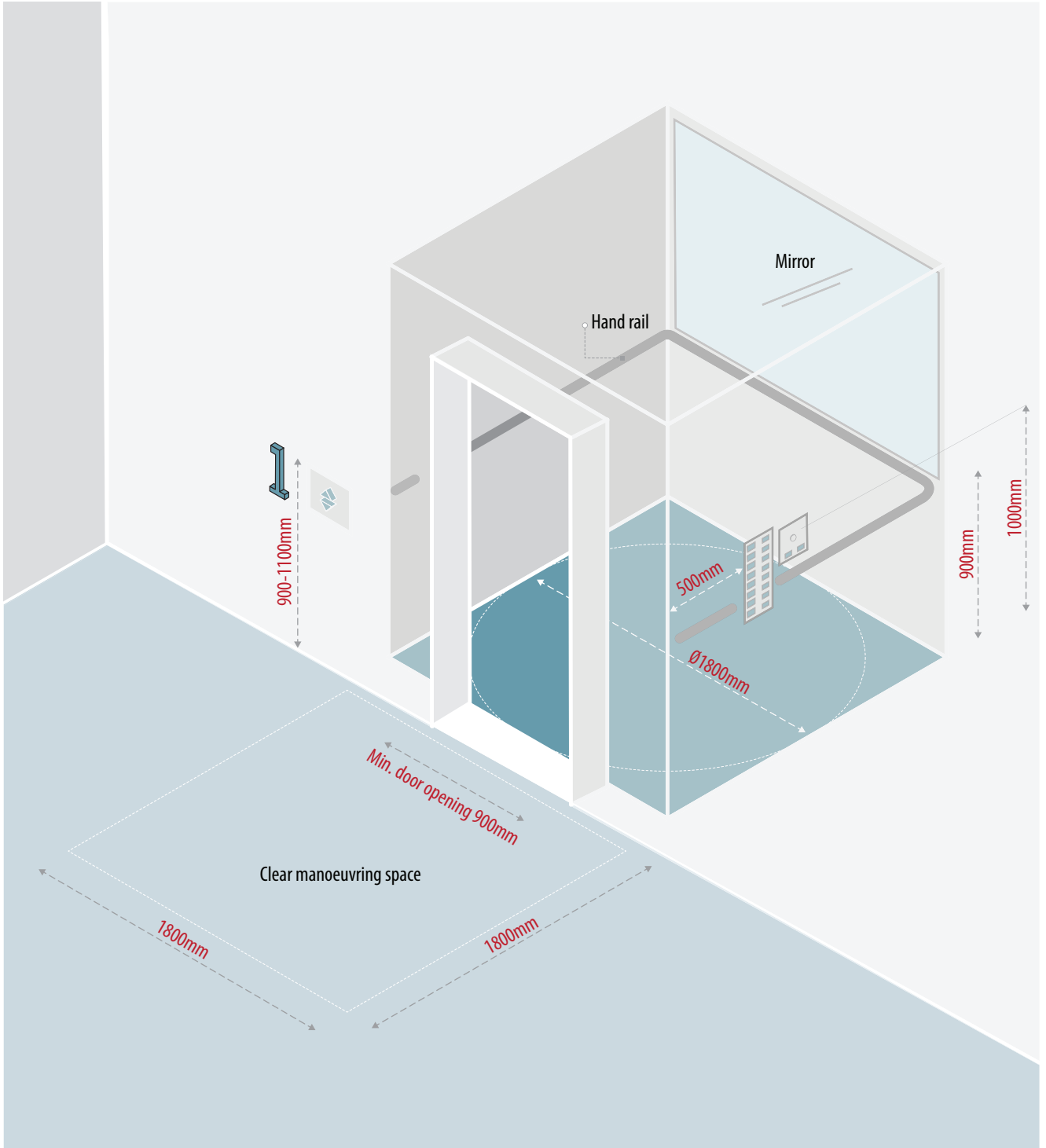


Figure 12 – Passenger lift

### Entrance/Doors

- ▶ Main entrance should be easily identifiable and well signposted. Revolving doors not suitable.
- ▶ Provide 1800 x 1800mm level manoeuvring space outside the main entrance, with weather protection.
- ▶ Minimum clear door width 1000mm for main entrance, 900mm for all other doors.
- ▶ 500mm clear space on leading edge of single leaf door. Heavy door springs not recommended.
- ▶ Vision panels extending between 500–1500mm. Door handles between 900–1000mm from floor.
- ▶ Fully glazed panels marked between 850–1000mm and between 1400–1600mm from floor.

### Foyers/Lobbies

- ▶ Overall size of lobby should be determined by location and opening direction of the lobby doors.
- ▶ Lobby size should allow 1700 x 900mm clear space within a lobby free from any door swing.
- ▶ Door widths to be minimum 900mm, with 500mm clear space on leading edge side of the door.
- ▶ Recommended lobby width 1800mm.

### Corridors

- ▶ Recommended corridor width 1800mm. Wall-mounted objects should not cause obstruction.
- ▶ Doors opening into a corridor should be recessed.
- ▶ Design and colour scheme should aid wayfinding.
- ▶ Magnetic catches should be used to hold the doors in the open position to facilitate accessibility.

### Signage

- ▶ Signage should be easily detectable, consistent and readily understandable.
- ▶ Suspended signs to allow minimum 2300mm height clearance.
- ▶ Close distance signs should be mounted with centreline at 1400mm height from floor. Safety instruction signage to be duplicated at height between 1000–1100mm and between 1600–1700mm.
- ▶ Use sans serif typefaces, white lettering on dark background, recognised symbols and pictograms.
- ▶ Suitable letter height is a minimum of 150mm for long distance signs, 50–100mm for medium distance signs, and 15–25mm for short distance signs.

### Lifts

- ▶ Ideally, new buildings should have lifts that can be used for emergency evacuation.
- ▶ Lift car to preferably accommodate 1800mm turning diameter. For smaller buildings 2000mm deep x 1400mm width is acceptable.
- ▶ Lift door clear opening width of 900mm. Door should stay open for at least eight seconds.
- ▶ Provide 1800 x 1800mm clear space in front of lift on each landing. Lift call button should be between 900–1100mm.
- ▶ In the lift car, centreline of lift control panel to be at 1000mm height. Lighting level 150 lux.
- ▶ Provide audible and visual notification of the floor level and notice of door opening/closing.

## 6.1 Facilities, Fixtures and Fittings

### 6.1.1 Background

From the reception area, right through all parts of the building, all services and facilities should be easily identifiable and readily available to all potential users. The range of services and facilities includes reception areas, WC facilities, lighting, window coverings, telephones, fire equipment, counter tops, public access terminals, cash desks, etc. The internal design of a building, signage, lighting and acoustic properties should all combine to enable users to identify and interpret the space and facilities within the building.

### 6.1.2 Reception Areas

The reception area should be strategically located to minimise external and internal noise. It should be easily identifiable from the main building entrance, with a direct and unobstructed approach.

The lighting between the entrance and reception areas must be evenly dispersed, with minimum recommended illumination of 150 lux. The lighting level at reception counter top level should be 250 lux.

Reception areas should facilitate all users. Reception counter areas should provide sufficient space and access on both sides to facilitate employees and members of the public, including wheelchair users. A minimum 1800mm diameter of clear manoeuvring space should be provided on both sides of the reception area.

A section of the reception counter should be a minimum of 700mm deep, a minimum of 1500mm (preferably 1800mm) long, and 760mm high from the floor level. This will accommodate wheelchair users on both sides of the counter. There should be knee clearance height of 700mm

underneath the counter with a minimum knee depth of 650mm to facilitate wheelchair users. This provision is in addition to the conventional counter section at a height of 1050mm to suit people who are standing.

See Figure 13 on page 55

Where a counter or hatch is used, it should be of an open design to give optimum acoustics and view. If a screen has to be used, it should be a clear glass screen with non-glare properties. Loop systems and text phones should be installed and clearly identified at reception areas.

#### 6.1.2.1 Queuing Systems

Where queuing systems are provided they should be suitable for all users. The controls on ticket machines should be positioned 750–1200mm above the floor, with a clear approach aisle of not less than 1500mm. The base of the machine should not protrude in front of the face of the machine. The immediate space in front of the machine should be level and unobstructed for not less than 1850mm x 2100mm, to give a wheelchair user clear side access to the machine and room to turn.

Careful consideration should be given to the use of queuing barriers in terms of location and height. If not correctly located and designed, they can be a hazard to people who are blind and people with visual impairment.

#### 6.1.2.2 Information Provision

Information at reception areas and other locations should be available in a variety of formats to accommodate the needs of as wide a range of users as possible. The variety of formats required include: all written documents available in large or clear print and Braille (on request); information on email or audiotape; accessible websites; audio description services; touch facilities; a facility for

exchanging written notes; verbatim speech-to-text transcription service; induction loop systems, including portable loop systems; sign interpretation (on request); information displayed on a computer screen; text phones; telephone amplifiers; minicom; inductive couplers; lip speaking interpretation; and fax machine and text facility.

*For further information, please refer to The National Council for the Blind of Ireland (NCBI) at [www.ncbi.ie](http://www.ncbi.ie) and Deaf Hear at [www.deafhear.ie](http://www.deafhear.ie)*

### 6.1.2.3 Seating

Seating should be provided in reception areas, and along routes and where waiting is likely. Seating provided should be stable, some with and some without arm rests, and at a height between 450–520 mm. Minimum backrest height of 455mm should be provided on all seating.

Perch seats at 650–800mm in height can be provided for long routes or short stay areas.

The seating provided should include suitable spaces for wheelchair users to position themselves alongside the seating. Waiting areas should provide a minimum of two spaces for wheelchair users to sit side by side, or for a wheelchair user to position him/herself beside a companion. This space should be a minimum of 900mm in width

by 1400mm in depth, with clear access from the approach routes.

A space should be provided for a guide dog to rest.

### 6.1.2.4 Switches and Controls

Switches, sockets, TV points and all controls should be located at heights of 400–1000mm. Electrical wall sockets should be located at a minimum of 400mm above floor level. Socket outlets that are in frequent use should be placed higher, between 750–1000mm. Light switches should be placed between 750–1000mm.

Switch and socket outlets should clearly indicate whether they are on or off.

Tactile buttons, where used, should be embossed rather than engraved. Flushed or recessed controls should be avoided. All switches and control pads should be operational with the use of one hand.

Switches or controls should be located at a minimum of 500mm from a corner.

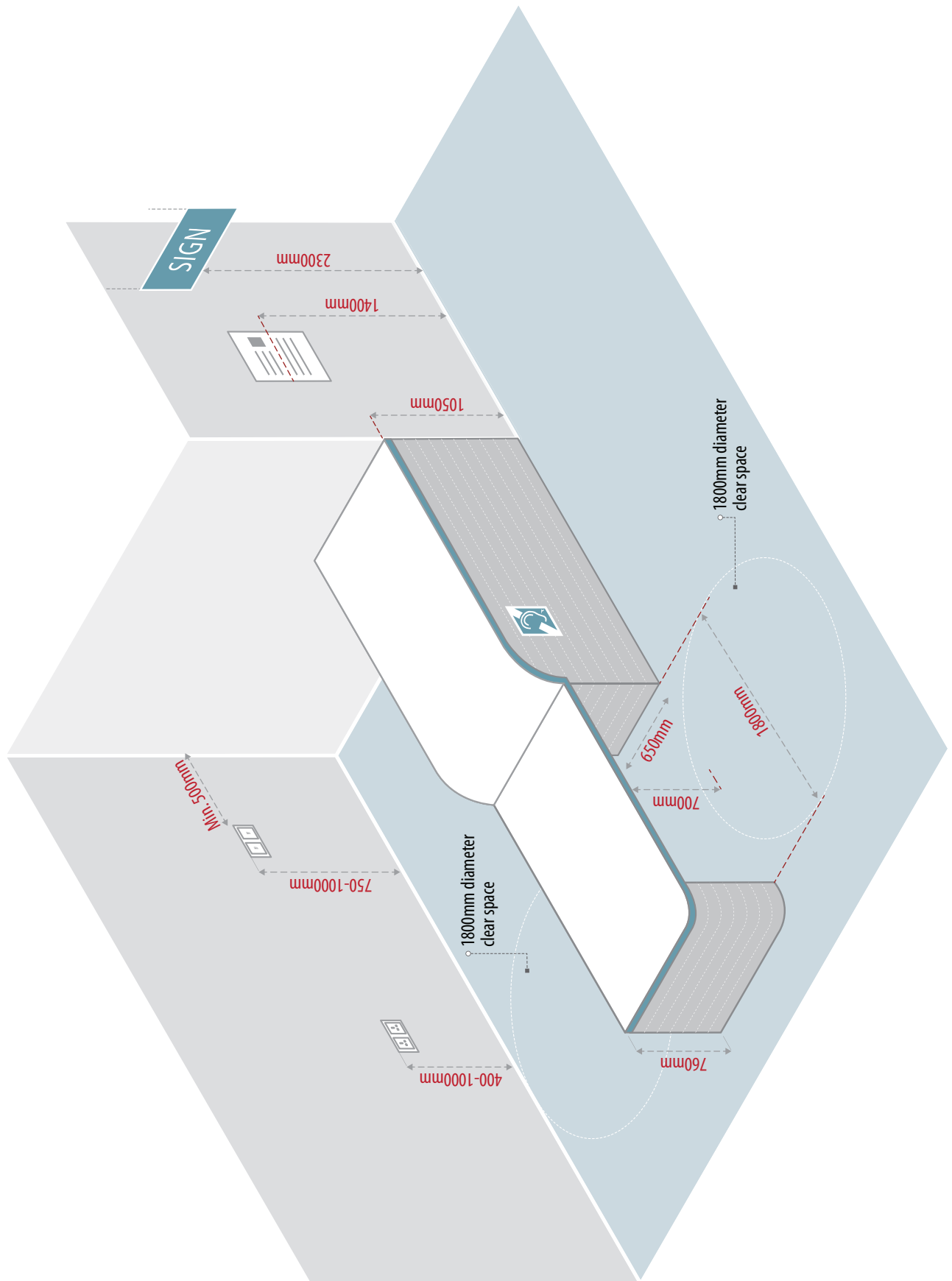


Figure 13 – Reception desk



## 6.2 Interior Design

### 6.2.1 Background

Consistent design throughout a building is essential to support people in understanding the building layout, to aid orientation, and to enable access to facilities. Colour and lighting schemes can assist in differentiating utilities and areas within a building. The choice of surface type and colour with regards to floor surfaces can give ease of movement and guidance throughout a building.

### 6.2.2 Environmental Colour and Tonal Contrast

A combination of colour, tonal and textural contrast helps people who are blind or have a visual impairment to distinguish between doorways, surfaces or objects placed on surfaces (eg light switches). Tonal contrast is more important than colour contrast as some people may have difficulty distinguishing colours.

### 6.2.3 Surface Finishes

Shiny surfaces and large repeating patterns should be avoided in the design of reception/enquiry desks or speaker rostrums, as they can create glare and reflections. Designs which cause excessive shadow on walls and floors should also be avoided.

#### 6.2.3.1 Floor Surfaces

Appropriate selection of floor surfaces can aid orientation, acoustic conditions and ease of passage for wheelchair users. Floor surfaces should be firm and non-directional to allow for easy passage. Floor surfaces should be slip-resistant and not cause reflection or glare. Large repeat floor patterns should be avoided. For example, polished floorboards or tiles are easier for wheelchair users to negotiate than deep pile carpets. Carpets, where used, should be of shallow dense pile. Thresholds and junctions

between surfaces should be flush, so as not to create a hazard for wheelchair users and people who are blind or have a visual impairment.

Floor areas that may become wet, such as inside a main entrance door, should not be of a type that becomes slippery. Consideration should be given to the safe provision of mats which should be recessed into the floor.

### 6.2.4 Windows

Windows should be positioned to distribute light evenly. The window sills should be positioned at a height of 850mm. No transoms should be placed between 850–1200mm to allow a clear view through the window.

The window opening device should be easy to operate and be located in an accessible position. For manually operated windows, lever handles should be used as they require less dexterity.

The use of automated window openers can eliminate the need to reach. Any window opening handle/switch should be located at a height between 750–1000mm. They should contrast in colour and tone with the surrounding background, so as to be easily identifiable.

Avoid having windows located at the end of a corridor as this can cause glare. In existing buildings, where windows are located at the end of corridors, they can be fitted with curtains and/or blinds to control strong daylight.

### 6.2.5 Lighting

All lighting within a building, including natural light, should be controllable and adjustable. Lighting should not cause reflections or glare, and flash lighting should be avoided. Lighting levels should be stronger at task areas and along stairs and ramps.

Lighting controls should be accessible to all with rocker-type switches placed at a height between 750–1000mm and at a minimum of 500mm from any corner.

### 6.2.5.1 Variations in Lighting Levels

Even lighting levels should be present throughout a building, with task lighting available where it is likely to be needed, for instance, at desks where people may wish to read or write. Task area lighting should be 250 lux. General lighting should be 150 lux, with an increase to 200 lux on stairs and ramps. An illumination of 250 lux is suitable for reading purposes. (Lux is the measurement of intensity of light on a surface.)

### 6.2.5.2 Glare Shadows and Reflections

Good balanced lighting, combined with the use of matt finishes on surfaces, will prevent glare and shadows occurring.

Where there are large areas of glass, care should be taken with the positioning of mirrors and in how lighting is provided. This prevents confusing and disorientating reflections for people with vision impairment.

*For further information on lighting levels, refer to NCBI's website: [www.ncbi.ie](http://www.ncbi.ie)*

## 6.2.6 Hearing and Visual Enhancement Systems

Communication points such as reception desks should be located away from potentially noisy areas. Adequate sound insulation should minimise any external noise. Consideration should be given to minimisation of magnetic fields which can be generated by the installation of systems such as heating units, air conditioning units, extractor fans, and the main power supply cable to the building.

Enhancement systems for people with a hearing/visual impairment should be installed as standard in spaces designed for activities such as meetings, lectures, performances, films and spectator sports. Enhancement systems include:

- **Loop or infra-red hearing systems** which transmit sound to hearing aids and cochlear implants to enhance hearing for people who use these devices.
- **Captioned performance and speech-to-text** subtitles and on-screen display to give people who are deaf or hard of hearing access to a live performance or presentation. The speaker's words appear on display units placed within a set or next to a stage, at the same time as they are spoken or sung.
- **Audio Described Performances** which provide a verbal commentary that tells a person who is visually impaired what is happening on a stage during the parts of the performance where there is no dialogue. Visually impaired audience members are equipped with a headset or earpiece to hear the information.
- **Irish Sign Language (ISL)** interpretation for individual or group settings can be made available on request.

The availability of these facilities should be clearly signposted, with procedures in place for distribution and reclamation of audio description and portable loop packs.

## 6.3 Public Facilities

### 6.3.1 Background

Facilities that are provided and available to the general public should be universally accessible. The design, location and access to facilities requires careful consideration to ensure that all people can independently avail of all facilities provided. In some circumstances, there may be a requirement for alternative provisions and/or supports in using facilities, where meeting all needs within the one provision is not possible.

### 6.3.2 Automated Teller Machines (ATMs) and other Public Access Terminals

The approach aisles to ATM machines and other public access terminals should have a minimum width of 1200mm. Externally located machines should have a protective canopy extending not less than 1200mm and should be recessed into the building line or set into the grass verge. The immediate space in front of the machine should be level and unobstructed for not less than 1800mm x 1800mm. This area should be a clearly identified privacy space. To provide foot-rest clearance for a wheelchair user, a clear space with a minimum of 300mm in height and 200mm in depth should be provided.

An ATM and any public access terminal should be situated no more than 1200mm above floor level with the key pad at a height of 900mm. The screen and keypad should be tilted towards the user. There should be a small raised dot on the figure five on the key pad, to aid people who are blind or have a visual impairment. A privacy flap should be provided over the ATM key pad.

The area surrounding an ATM should be well-lit, with an illumination of at least 200 lux in the interactive area and 50 lux at background level, with non-glare properties. An ATM can be

hearing-enabled with a provision made for headphone connections and use. This will be of assistance to people who are blind and people with visual impairment.

See Figure 14 on page 59

Public access terminals other than external ATMs, such as information kiosks, interactive panels, self-service points, and weigh scales, should provide the knee clearance space of 700mm high and 500mm deep. Immediate space in front of these public access terminals should be level and unobstructed for not less than 1800mm x 1800mm.

### 6.3.3 Public Telephones

Where there are public telephones, at least one accessible phone should be provided. An accessible telephone should be positioned with the telephone controls between 750–1000mm above a level, unobstructed floor space of 1800mm x 1800mm, with a clear knee recess of 700mm in height x 500mm in depth.

A fold-down seat, 450–520mm in height, or perch seat, 650–800mm in height, should be provided adjacent to the phone. Clear written instructions for the use of the phone should be provided at a height 750–1000mm.

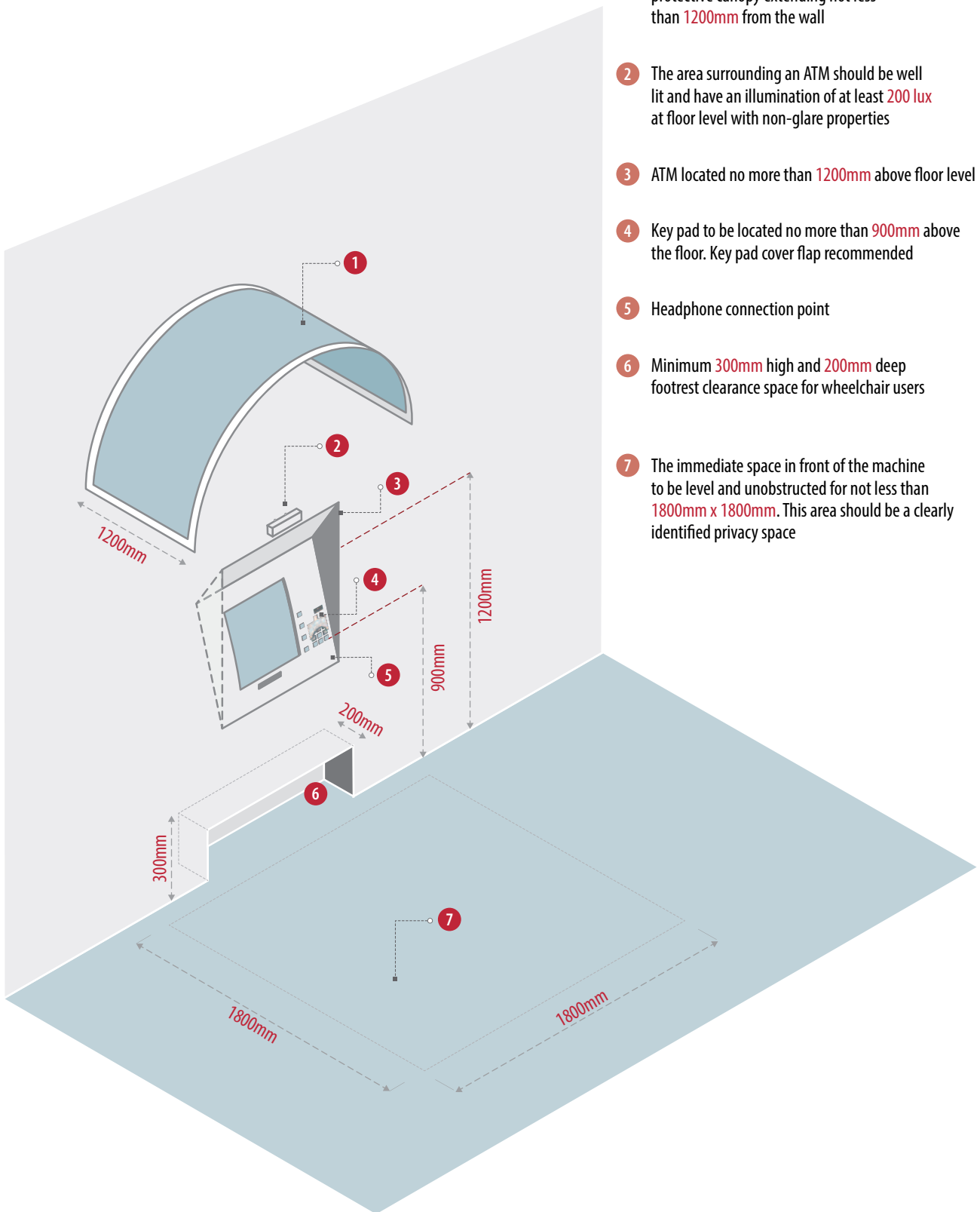
See Figure 15 on page 60

All telephones should have an induction coupler in the handset and a text display. The volume control should be adjustable to provide sound 12–18dB (A) above normal.

Phones situated in lifts or emergency refuges should be run in protective trunking. The phone should be of a contrasting colour to the background and be connected to the main entrance or switchboard operator.

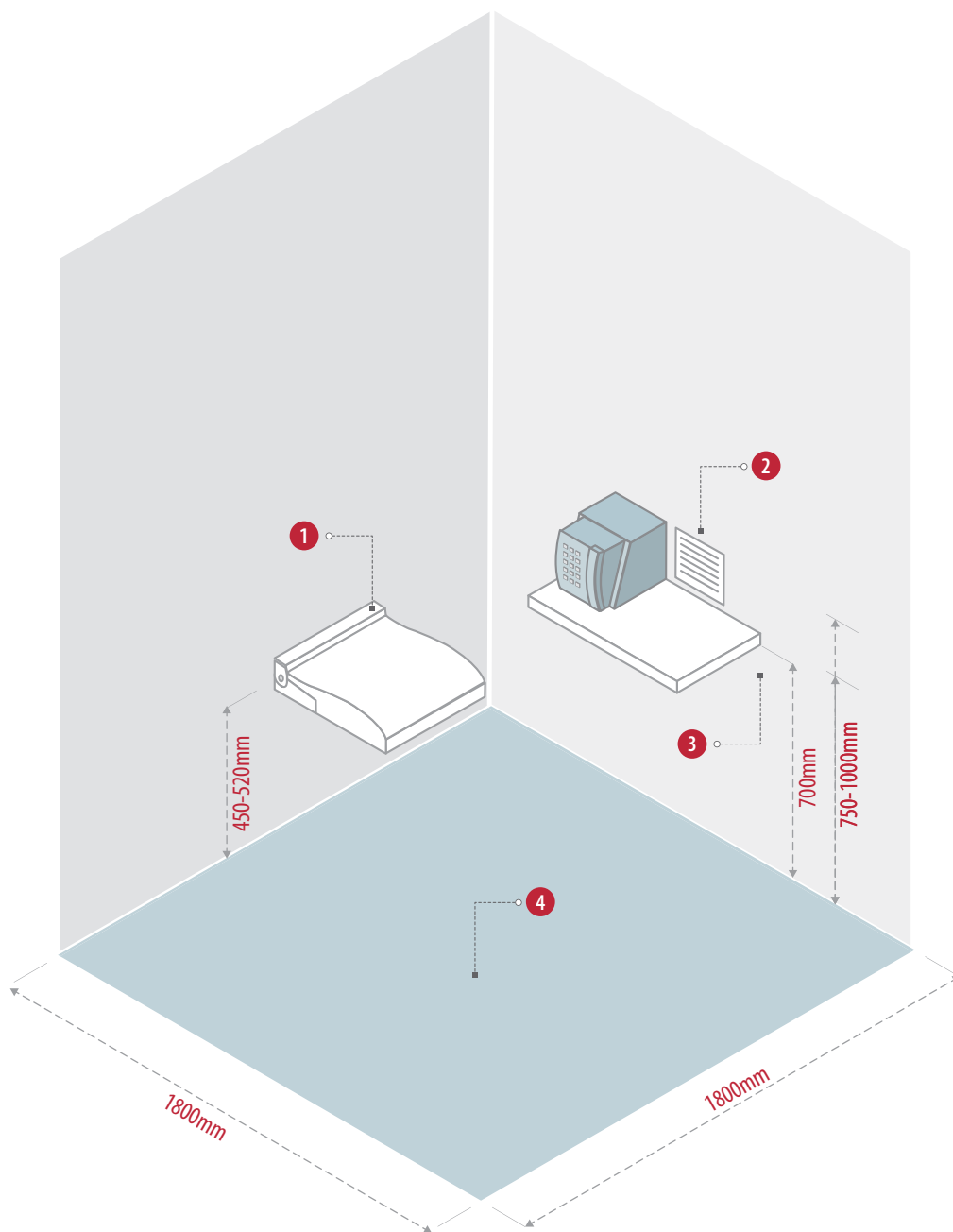
“ATMs are often too high for wheelchair users.”

– IWA member, Co Carlow



- 1 Externally located machines to have a protective canopy extending not less than 1200mm from the wall
- 2 The area surrounding an ATM should be well lit and have an illumination of at least 200 lux at floor level with non-glare properties
- 3 ATM located no more than 1200mm above floor level
- 4 Key pad to be located no more than 900mm above the floor. Key pad cover flap recommended
- 5 Headphone connection point
- 6 Minimum 300mm high and 200mm deep footrest clearance space for wheelchair users
- 7 The immediate space in front of the machine to be level and unobstructed for not less than 1800mm x 1800mm. This area should be a clearly identified privacy space

Figure 14 – ATM



- 1 Fold-down seat
- 2 Controls and instructions between 750-1000mm
- 3 700mm knee clearance height
- 4 Level unobstructed floor space of 1800mm x 1800mm

Figure 15 – Public telephone

### 6.3.4 Storage Lockers

Where storage facilities are available for use by the general public, provision should also be included for fully accessible storage units. Some storage units should include knee access space to allow the option of either frontal or side access from a seated position for a wheelchair user.

Accessible lockers should be a minimum of 300mm in width and not more than 600mm in depth. Storage accessible from the front, from a seated position, is best placed with the bottom end height no lower than 750mm and the top end height no higher than 1250mm. The bottom end height of 750 mm allows for a half locker with knee recess of 700 mm high, so a wheelchair user can gain frontal access to the locker.

Storage accessible from the side, from a seated position, should have the bottom end height of the locker no lower than 665mm and the top end height no higher than 1060mm.

Accessible storage units should have a 900mm x 1400mm clear floor area to the front. The distance between opposing banks of storage lockers should be 1800mm.

Provide seating adjacent to lockers for use by people with restricted mobility.

### 6.3.5 Communal Kitchen Facilities

A kitchen area should have an unobstructed minimum floor space of at least 1800mm x 1800mm between units and facing walls.

See Figure 16 on page 62

#### 6.3.5.1 Work Surfaces

The depth of a kitchen work surface should be a minimum of 600mm. Key task areas such as hobs, sinks and food preparation areas should have knee clearance provided below them. The dimensions required for knee clearance are a height of 700mm and a width of 800mm.

Work surfaces should be continuous and designed to minimise travel. Dual height work surfaces may be considered for kitchens servicing both people who are ambulant and wheelchair users. In this situation, work surfaces, sinks and hobs should be provided at different levels as follows:

- 900mm for people standing
- 760mm for wheelchair users

An electronically height-adjustable worktop avoids compromise and facilitates a range of users including wheelchair users and people of different heights.

Consideration should be given to the use of drop-down baskets in wall-mounted storage presses and easy-access pull-out baskets/carousels in lower storage units.

#### 6.3.5.2 Cooker

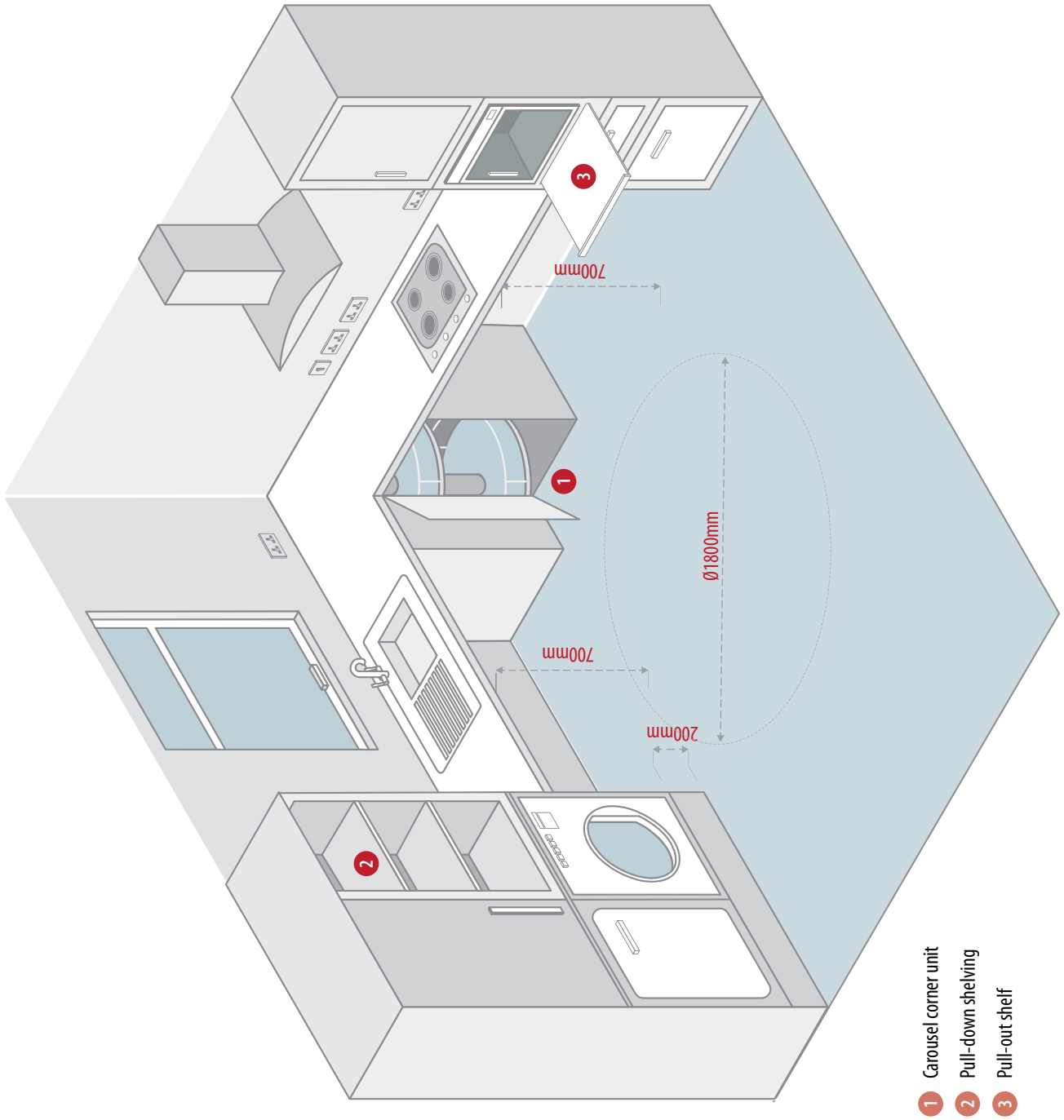
The controls of a cooker and hob should be positioned to the front of the appliance and should not require reaching across burners to operate. The controls should be no higher than 1050mm and no lower than 700mm. The hob should be situated preferably within the worktop at a height of 760mm and with an insulated clear knee space of 700mm in height beneath.

A ceramic hob is preferable as heavy pots can be moved by sliding them across the hob. The hob/cooker top should have an adjacent work surface of minimum 600mm in width.

The oven should be located so that the level of the drop-down door or the pull-out oven board is at 760mm in height.

The oven door can be side-hung or drop-down type. Where a side-hung door is used, a pull-out board minimum 250mm in depth should be provided directly beneath the oven. This pull-out board should be strong enough to support a heavy cooking vessel.

A side-hung door must open away from the approach route.



- 1 Carousel corner unit
- 2 Pull-down shelving
- 3 Pull-out shelf

Figure 16 – Kitchen

### 6.3.5.3 Fixtures, Fittings and Appliances

Sinks should be fitted with a swivel-head tap, operational by one hand and with clear indications of hot and cold. Sinks should be no more than 150mm deep to maximise reach.

Appliances such as washing machines, dishwashers and refrigerators should be installed on a 200mm high plinth. Refrigerators and freezers of 'over and under type' are difficult to access for wheelchair users. Consideration should be given to the use of separate refrigerator and freezer units fitted on a 200mm high plinth.

Where knee recess is provided, switches and controls should be positioned on the back wall of the worktop at 1000mm in height. Where no knee space is provided beneath worktops, controls should be positioned on the return wall at the end of the work top. These should be positioned 150mm back from the front edge of the worktop and within 100mm in height from the worktop surface.

Hot surfaces such as exposed pipes and the underside of hobs should be insulated to prevent burning and injury.

## 6.4 WC Provisions

### 6.4.1 Background

The design of WC facilities should incorporate ease of access and use for all people. If sanitary conveniences are provided in a building, provision should be made for universal access, and so facilitate the needs of as wide a range of users as possible. A correctly designed wheelchair accessible WC requires adequate turning space to accommodate a wheelchair user, and space for an assistant and a hoist, as required. Particular attention to the correct location of fixtures and fittings is also required.

### 6.4.2 Provision of Accessible WCs – Type and Number

The number and location of toilet facilities required in a building should be determined by the size and usage of the building.

### 6.4.2.1 Minimum Provision

The minimum recommended provision of WCs to accommodate people with disabilities is as follows:

**Ambulant WC Cubicle** In each male and female toilet block, there should be one WC for people with a disability who are ambulant. This WC is not designed to accommodate a wheelchair user. The size of this WC should be 1500mm x 900mm, with the door opening outward.

See Figure 17 on page 67

**Enlarged WC Cubicle** Where four or more WC cubicles are provided, there should be at least one enlarged WC cubicle in each male and female toilet block. Enlarged cubicle size should be 1500mm length x 1200mm wide, with the door opening outwards. This WC cubicle is designed to accommodate people with assistance dogs, people carrying luggage and parents with children.

See Figure 18 on page 68

**Urinals** In each male toilet block, there should be one or more urinals positioned at a lower height, with the lower edge of the urinal at 380mm. The rim of the urinal should be tapered, elongated and protrude at least 360mm from the wall, so that the foot plates of a wheelchair will fit beneath. There should be no steps up to urinals. There should be a clear area of 900mm in width x 1400mm in depth in front of the urinal. A pair of vertical grab rails (600mm long) should be placed at a height of 800mm from floor level on both sides and at 450mm from the centreline of the urinal. Provision of a horizontal grab rail just above the urinal is recommended.

See Figure 20 on page 70



For standard height urinals, it is recommended that at least one urinal should have a pair of vertical grab rails placed at a height of 800mm from floor level on both sides and at 380mm from the centreline of the urinal. Also a horizontal grab rail above the urinal is recommended.

**Unisex Accessible WCs** One unisex accessible WC should be provided wherever sanitary conveniences are located and on each floor to which there is public access. In addition, where there is a WC provision for employees, this should include an unisex accessible WC. The unisex accessible WC provides for independent use by a wheelchair user. The size of the WC cubicle should be 1800mm x 2500mm with the door opening outwards, or 1800mm x 2800mm when the door opens inwards. These sizes will enable a wheelchair user, including a powerchair user, to manoeuvre and to turn the wheelchair. Where there is more than one WC of this type, the WC bowls should be located on alternate sides of the cubicles to allow a choice of transfer side.

See Figure 19 on page 69

If there is only one WC in a building, it should be sufficiently large to accommodate all users including wheelchair users. This can be achieved by increasing the width of the accessible WC size to 2300mm and including an additional standing height wash-hand basin (no pedestal) with a rim height of 780–800mm above floor level.

Note: Baby changing facilities should not be located in an accessible WC.

#### 6.4.2.2 Best Practice

In addition to the minimum WC provisions, best practice in large public facilities would also include the provision of:

**One Accessible WC** Both the male and female toilet blocks should include an accessible WC, sized 1800mm x 2500mm with the door opening outwards, or 1800mm x 2800mm when the door opens inwards.

**One ‘Changing Places’ WC** In large public facilities such as airports, shopping centres, bus stations, recreational facilities, etc, there should also be a minimum of one unisex WC with a peninsular WC layout designed for assisted use, in addition to the provision of unisex accessible WCs. In a peninsular WC layout, the WC pan is placed at the centre of the back wall.

This WC cubicle should incorporate an adult changing bench facility. It should provide sufficient space for personal assistance and the use of a hoist while using the WC and/or the changing bench. The size of this unisex WC with a changing bench facility should be 2500mm in depth x 3500mm in width to allow for use of both a tracking hoist and attendant-operated mobile hoist.

See Figure 21 on page 71

A height-adjustable wall-mounted or free standing changing bench should be provided with clear space beneath. The changing bench facility should be 1000mm in width and 1950mm in length, with a height-adjustable range between 450–900mm. For hygiene purposes a wide tear-off paper towel roll should be provided over the changing bench.

This facility would include the provision of either a tracking hoist, which is attached to the ceiling and operated electronically, or alternatively a mobile hoist would be available on site. The ceiling should be reinforced to accommodate a ceiling hoist and a power point provision for the hoist to recharge.

For further information on hoists see Section 6.4.11 on page 73

“It drives me crazy when I cannot turn my chair in the toilet.”

– IWA member, Co Kilkenny

The inclusion of a shower facility within the Changing Places WC may be required.

See Figure 28 on page 91

Consultation on the user profile should inform the detail design of the room.

*For additional information on Changing Places WCs, please visit: [www.changing-places.org](http://www.changing-places.org)*

### 6.4.3 Location of WCs

The shortest accessible route to WC facilities should be clearly signposted. The travel distance from anywhere in the building to the nearest accessible WC should be no more than 25m.

Clearly distinguishable tactile signs on a contrasting background should be provided to indicate ladies, gents, etc. These tactile signs should be used on the door, where they will be located by people with vision impairment. As well as tactile lettering, Braille should be provided.

*For further information please refer to NCBI: [www.ncbi.ie](http://www.ncbi.ie)*

In large establishments, such as hotels and shopping centres, accessible toilets should be conveniently located and close to restaurant/bar areas.

### 6.4.4 Doors to WCs

Where the approach route to the accessible WC is through a lobby area, the lobby should enclose an area that provides a 1800mm turning space, free of any door swing. This space will allow a wheelchair user to turn around or two wheelchair users to pass each other.

Doors to wheelchair accessible WCs should have a clear opening width of 900mm. Doors to Changing Places WCs should have a clear opening width of 1000mm. WC signage to be placed on the WC door with the centreline of the sign 1400mm from floor level.

Doors should open outwards wherever possible. If the door opens inwards, the door configuration

should be arranged according to the location of the WC bowl (eg if the WC bowl is located at the bottom left of the cubicle, then the door should be located on the top right). A single entrance door is preferable to two doors in a series.

The door handle and lock should be a lever-operated type for ease of use. Bolts used should be of a large and light-action type. A pull handle should also be provided on the door to facilitate closing.

A spring on the WC door will also facilitate closing, but this should not be heavily sprung. The opening force at the leading edge of the door should not be more than 20 newton.

The door locking system and hinges should allow the door to be opened/removed in an emergency situation.

*For further information on door furniture see Sections 5.1.2.2 and 5.1.2.3 on page 38*

### 6.4.5 WC Cistern and Pan – Location and Design

For unisex accessible WCs, the centreline of the toilet cistern or pan should be situated at 500mm from the adjacent side wall. A clear unobstructed space of 900mm is required on the transfer side of the WC bowl. This space should not be compromised by either open or boxed-in piping.

A distance of 750mm from the back wall to the front of the WC bowl is required. The height of the toilet seat should be between 460–480mm from floor level. The toilet seat should be strong, fitted with stabilisers, and fixed rigidly to the bowl. The cistern should have a fixed lid. If the cistern is high, then a back rest should be provided. If the cistern is low level and comfortable to lean against, a backrest may not be required.

In WCs with a changing room facility, the WC bowl should be situated in the centre of the back wall. In this situation, a clear transfer space of 900mm is required on either side of the bowl.

### 6.4.5.1 WC Fixtures and Fittings

The flush handle on the WC should be spatula-shaped and should be located on the side near to the person, ie the transfer side. The location and type of economic flush, if provided, must be convenient and easy to use for a person with limited hand function and strength, for example, a large push pad. Toilets with automatic flushers should provide sufficient time to prevent premature activation while the toilet is still in use. Toilet roll dispensers should be located within easy reach of the WC (seated position), and this should preferably be an automatic paper dispenser operated by proximity control.

### 6.4.5.2 WC Grab Rails

All grab rails should be 35mm in diameter and 600mm in length. The distance between the grab rail and wall should be between 50–60 mm. The grab rails should be located on solid or reinforced walls and should be installed to resist a force of at least 1.3 kN from any direction. All grab rails should contrast in colour against the background and should be slip-resistant. The grab rails are located within the different WC cubicles as follows:

**Ambulant WC cubicle** A pair of horizontal and a pair of vertical grab rails should be provided on both side walls. Horizontal grab rails should be at a height of 700mm, and be positioned so that the near end of the grab rail is protruding 150mm from the front edge of the WC bowl. The lower end of the vertical grab rails should be at 800mm from floor level and should be placed at 150mm from the front edge of WC bowl.

**Enlarged WC cubicle** On the wall adjacent to the WC bowl, a horizontal and a vertical grab rail should be provided. Location of these should be similar to the Ambulant WC cubicle grab rails. On the rear walls, there should be an additional grab

rail placed on the open side at 470mm from the WC centreline, with its lower end mounted at 700mm in height from floor level.

**Unisex Accessible WC** On the transfer side of the rear wall, a drop-down horizontal grab rail and a vertical grab rail should be provided at a 320mm and 470mm distance respectively from the centreline of the toilet bowl, both at 700mm above the floor level. Two grab rails should also be provided on the side wall. The first rail should be horizontal, 700mm above the floor level, and positioned so that the near end of the grab rail is 150mm forward from the front edge of the WC bowl. The other should be vertical, with its lower end at 800mm above the floor level and placed at 150mm from the front edge of the WC bowl.

**Changing Places WC** Two drop-down grab rails should be provided on both sides of the WC bowl. They should be placed on the back wall of the WC cubicle at 320mm from the centreline of the WC bowl and at 700mm in height. In addition, there should be two vertical grab rails placed at 470mm from the centreline of the WC bowl with the lower ends at 700mm in height. There should be a grab rail placed at the changing bench. This should be vertical, with its lower end at 800mm high from floor level, and positioned at 150mm from the front edge of the changing bench on the available side wall.

See Figures 17, 18, 19, 20 and 21 on pages 67, 68, 69, 70 and 71

“In most buildings, the toilets are too small to facilitate a wheelchair user and a PA.”

– IWA member, Co Donegal

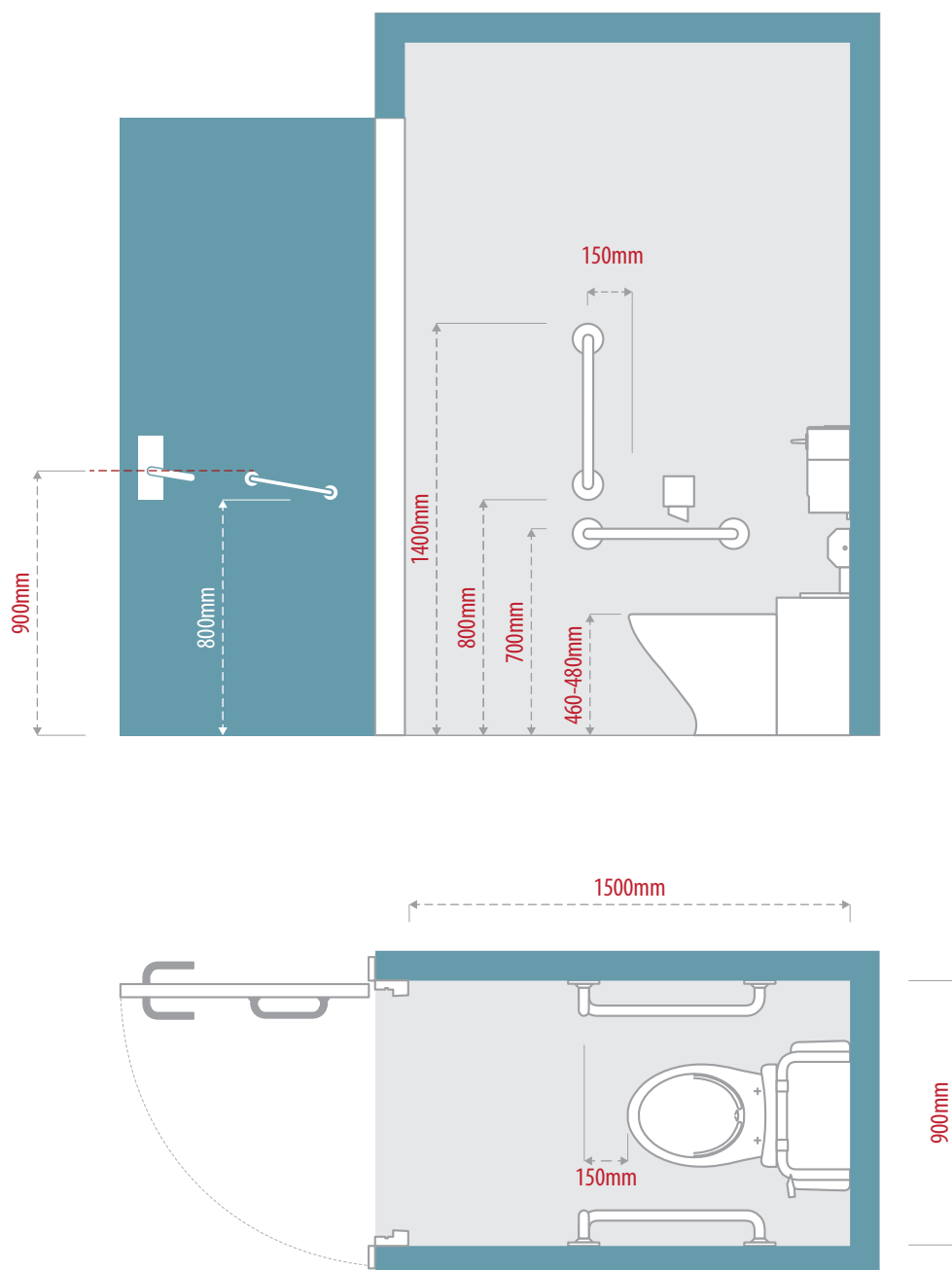


Figure 17 – Ambulant WC Cubicle

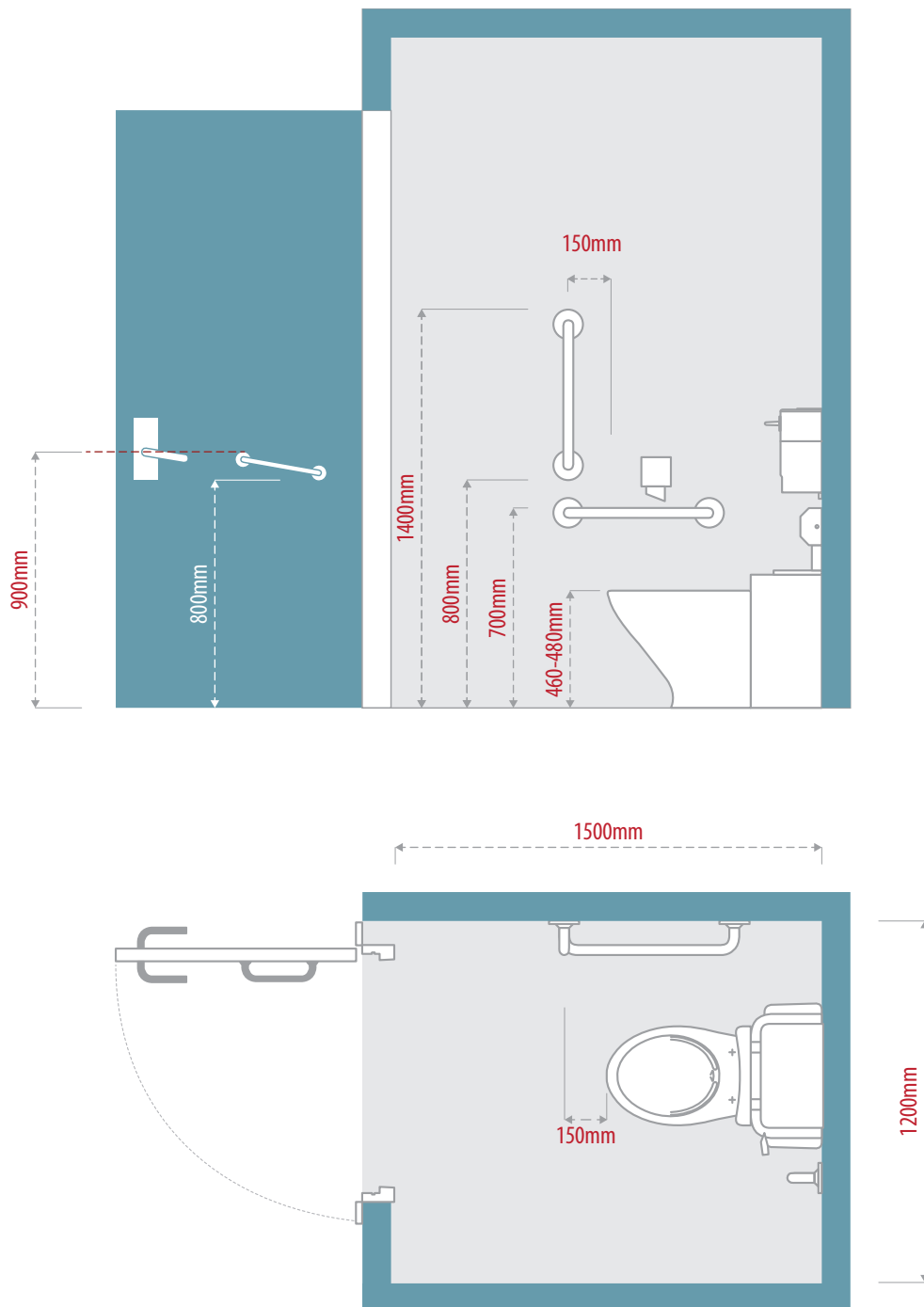
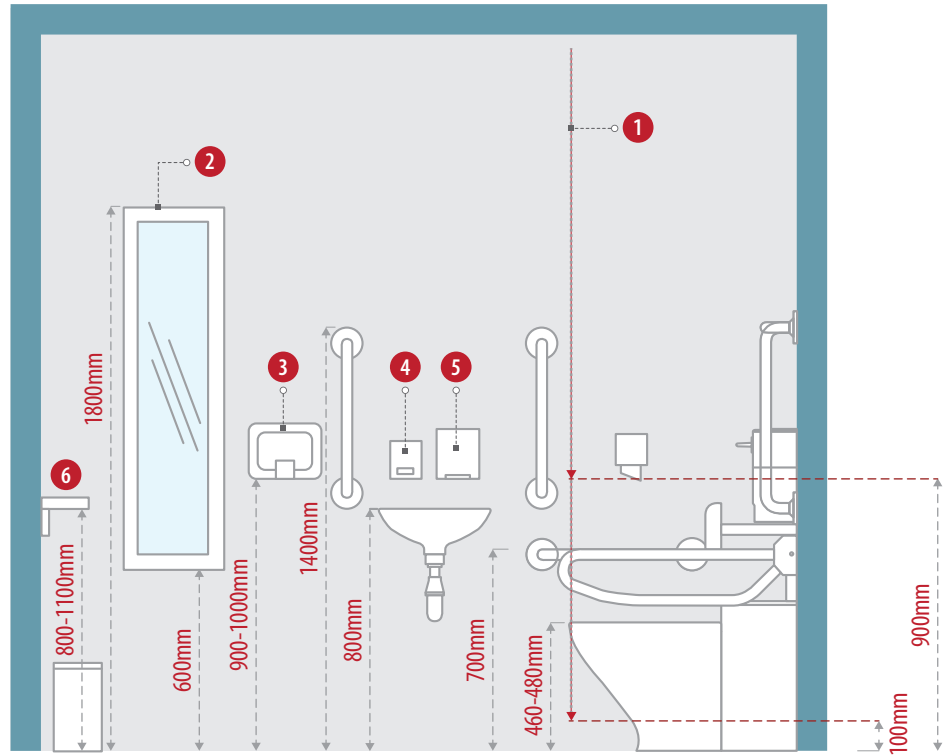


Figure 18 – Enlarged Ambulant WC Cubicle



- 1 Alarm cord
- 2 Mirror
- 3 Hand dryer
- 4 Soap dispenser
- 5 Paper towel dispenser
- 6 Shelf

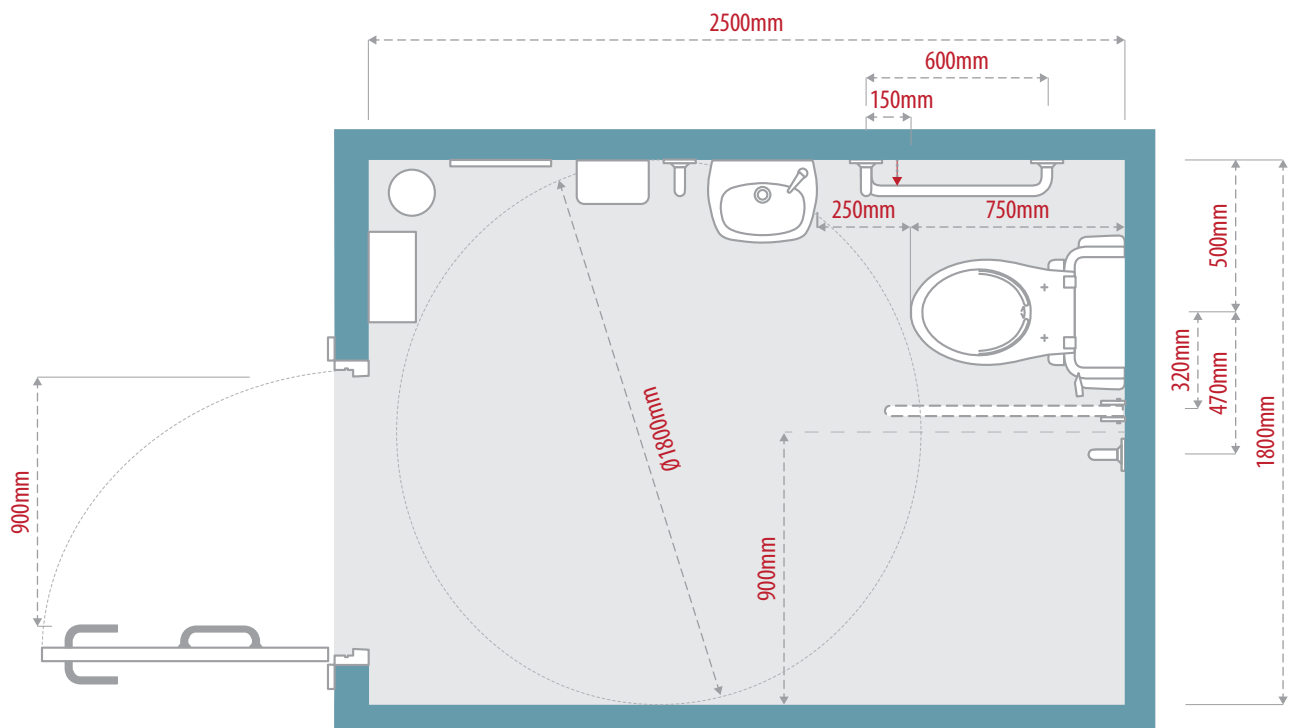


Figure 19 – Unisex Accessible WC

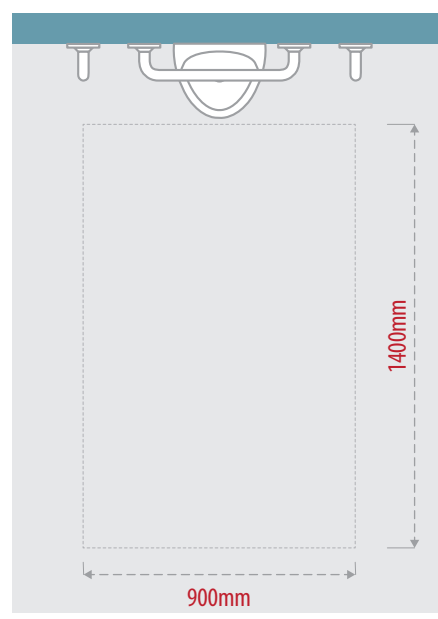
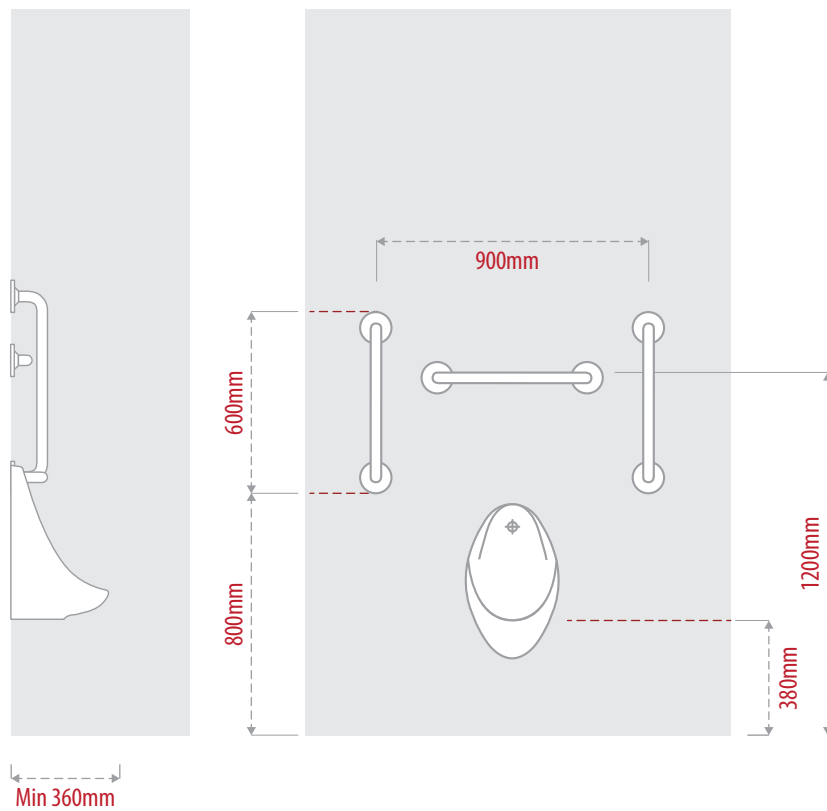
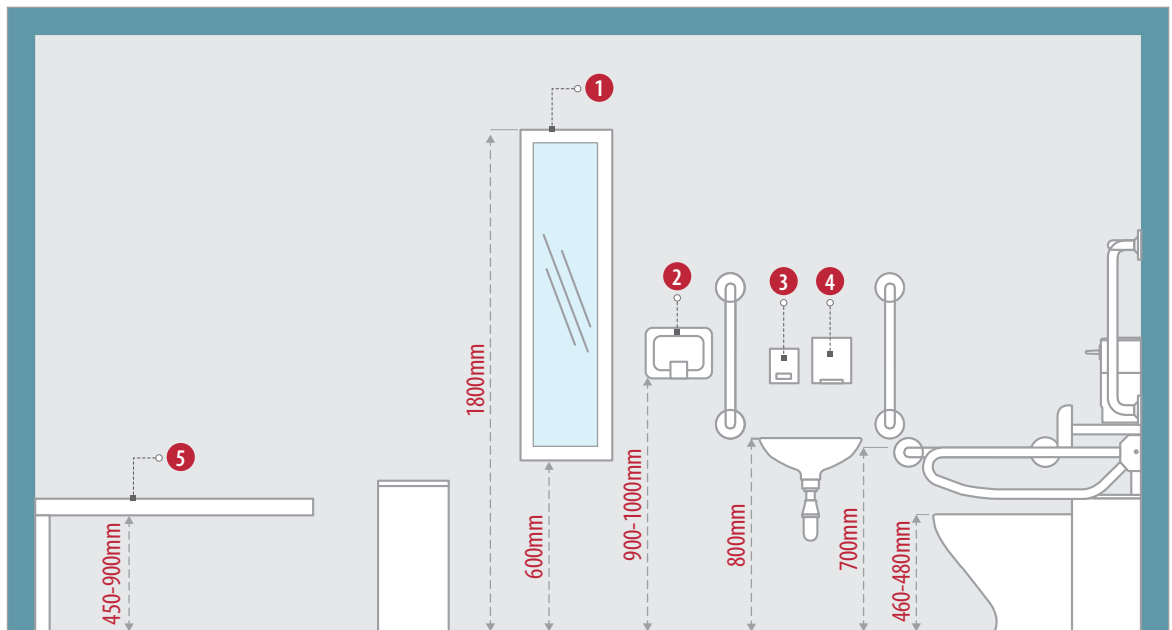


Figure 20 – Urinals



1 Mirror 2 Hand dryer 3 Soap dispenser 4 Paper towel dispenser 5 Height-adjustable changing bench

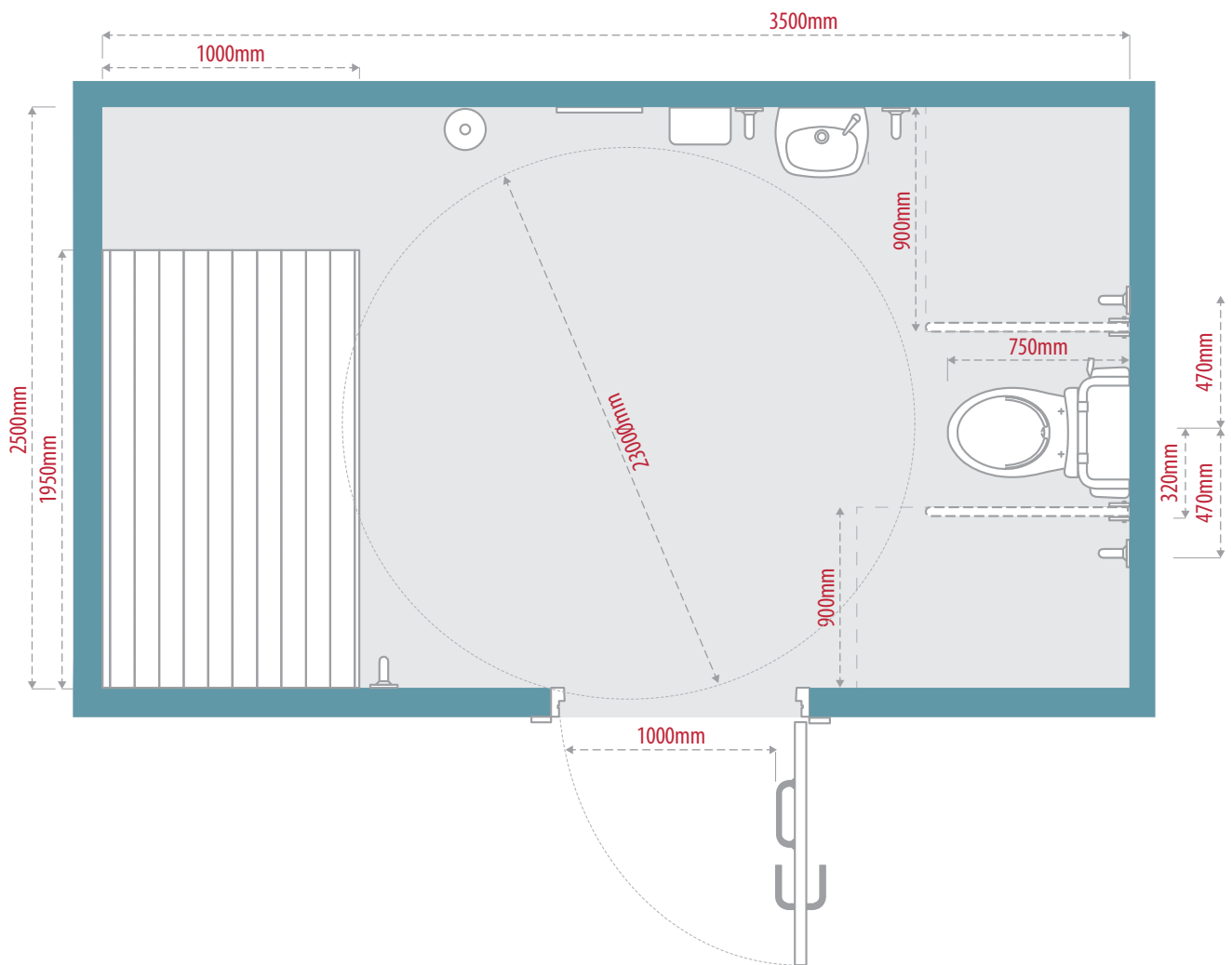


Figure 21 – Changing Places WC



#### 6.4.6 Wash-Hand Basin

The top rim of the wash-hand basin should be situated at a height of 800mm from floor level. The basin edge should be 250mm from the leading edge of the WC bowl in the wheelchair accessible toilet for independent use. The basin should provide a clear internal basin space of 450mm in length x 300mm in depth, with no surplus space on the basin surround. (A 'finger basin' is not suitable). The edges on the wash-hand basin should be rounded. The basin should be fixed to the wall with no pedestal.

Lever-type mixer taps or automatically controlled taps should be used on basins. The mixer tap should be located on the side of the basin close to the WC bowl.

Vertical grab rails, set at 100mm from the basin edges, should be situated on both sides of the basin with their lower ends at a height of 800mm.

Wash-hand basins provided in the male and female area of the toilet block should include at least one basin with the rim height at 800mm above floor and knee clearance of 700mm underneath.

The lower edge of the paper towel/soap dispenser and hand dryer should be located between 900–1000mm from floor level. Where an electric hand dryer is provided, it should operate by movement rather than a push button.

#### 6.4.7 Mirrors, Hooks, Shelving and Switches

Mirrors should be situated away from a wash basin to allow access to hand dryers and paper towel/soap dispensers. A mirror should be at least 400mm wide and should be positioned with its lower edge at 600mm from the floor, extending to 1800mm from floor level. There must be a minimum gap of 300mm between the mirror and the corner of the room. Careful placing of the mirror should be considered to avoid glare for people with a visual impairment.

Coat hooks should be provided at both at 1200mm and 1700mm above the floor level.

Where a high or low level cistern is used, a colostomy changing shelf (125mm deep x 400mm wide) should be located close to the WC bowl at 950mm above floor level. Additional shelving should be provided for personal belongings at a height of 800mm.

#### 6.4.8 Disposal Bins

Slim-line easy-to-operate push-button (not pedal) rubbish and sanitary disposal bins that have large openings to accommodate disposable items should be provided. In a Changing Places WC, a large disposal bin is required. These bins should be located out of the transfer space and not beside the WC bowl.

#### 6.4.9 Surface Finish in WCs

The general finish of all surfaces in WCs should be matt. Floors should be non-slip with anti-slip grading of R11 (DIN) or equivalent. WC pans, basins, and other fixtures should have colour and tonal contrast with the surrounding wall and floor surfaces.

#### 6.4.10 Emergency Alarms

Emergency cords should be provided in accessible WCs and should be easily distinguishable, eg with a bold triangle/bell/ball attached to a red pull cord. It is recommended that two red bangles be sited on the cord. One should be set at the bottom of the cord, and the other at 800–1000mm above floor level. The emergency cord should be situated so that it can be reached from the WC bowl and from the floor. The cord should extend 100mm from finished floor level. A clearly marked reset button, installed between 750–1000mm, should be reachable from the WC bowl and from a seated position in a wheelchair. A reset button cancels an activated alarm.

Cords must have a connection to a security desk or information point. Alarms should have a visual

and auditory alert system that shows the alarm has been activated. Considerations should be given to the location of the activated alarm (outside the WC cubicle) to ensure that it can be seen and heard by the people who will provide the assistance.

Both visual and audible fire alarms should be installed in an accessible WC, with clearly written procedures should the alarm be activated.

#### 6.4.11 Hoists and Slings

Hoists are mechanical lifting devices designed to move an individual from one position to another. These eliminate the need to lift a person manually, thereby minimising the risk of injury to the person or the assistant.

An overhead tracking hoist, preferably with full room cover, should be provided where possible as these are easy to charge, maximize transfer space, and reduce the need for an extra assistant.

A mobile hoist should only be used where it is not possible to install an overhead tracking hoist. A mobile hoist is a moveable piece of equipment designed to transfer a person between two points using fabric slings. The lifting mechanism is usually battery operated; however, moving the hoist with the person – for example, across the room between a changing bench and toilet – requires manual effort.

Clear and concise instructions on proper use of this equipment, including instructions to leave the hoist charging when the task is completed, should be provided. These instructions should be prominently displayed for all users. Through various means of information (signage, website, etc) potential users should be clearly advised to bring their own slings for health and safety reasons.

“Business owners are of the opinion that once there are hand rails in toilets they are accessible.”

– IWA member, Navan, Co Meath

### Reception Area – Fixtures/Fittings

- ▶ Reception area should be easily identifiable from the main building entrance, with a direct and unobstructed approach.
- ▶ Provide 1800mm diameter clear turning space on both sides of reception counter.
- ▶ Lower section counter height should be 760mm, with 700mm high clear space underneath. Higher section 1050mm.
- ▶ Lighting level 250 lux. Install loop system and signage to indicate its presence.
- ▶ Seating should allow suitable wheelchair spaces alongside fixed seating.
- ▶ Information should be available in alternative formats (large print, Braille on request, audiotape, sign interpreter on request, accessible website, etc).
- ▶ Light switches and commonly used sockets to be mounted between 750–1000mm.

### Interior Design

- ▶ Create colour, tonal and textural contrast between surfaces (flooring, doorways, light switches, etc).
- ▶ Avoid shiny surfaces to minimise glare and reflection. Create good lighting levels, and avoid shadows.
- ▶ Floor surfaces should be non-slip. Avoid deep pile carpet flooring. No door saddles or thresholds.
- ▶ Window sills 850mm. No transoms between 850–1200mm. Window opening mechanism between 750–1000mm.

### Public Facilities

- ▶ ATM/Public access terminal control to be between 900–1200mm high, with a 1800 x 1800mm space in front.
- ▶ Accessible public telephone controls between 750–1000mm. Induction coupler and text display.
- ▶ Storage locker height between 750–1250mm, with a 900 x 1400mm clear area in front.
- ▶ Split worktop in a communal kitchen: 760mm high for seated users; 900mm for standing users; 700mm high ‘knee clearance’ under preparation area, sink etc, and accessible storage options.

### Toilet Provision

- ▶ In each male and female block, provide at least one Ambulant WC Cubicle, size 1500 x 900mm.
- ▶ In male and female blocks with four or more cubicles, provide at least one Enlarged WC Cubicle, size 1500 x 1200mm.
- ▶ In male block, provide low urinal at 380mm height, with clear space in front and grab rails on the wall.
- ▶ Provide at least one Unisex Accessible WC, size 1800 x 2500mm with door opening out.
- ▶ In large public facilities, provide at least one Changing Places WC with hoist and adult changing bench.
- ▶ Toilet seat height between 460–480mm, with 900mm clear transfer space beside toilet bowl. Spatula-shaped flush handle on the transfer side.
- ▶ Wash-hand basin height 800mm. ‘Finger Rinse Basin’ not recommended. Lever-type mixer tap.
- ▶ Anti-slip flooring – Grading R11 (DIN) recommended.
- ▶ Install a mirror at least 400mm wide, extending between 600–1800mm height. Provide dual height coat hooks.
- ▶ Emergency alarm system to be installed and connected to the security desk or information point.

## 7 Specific Building and Site Types

The instructions given in this section cover the critical access dimensions specific to the named building and site types not covered in the earlier sections of this document. In some instances, the information given is general – intended as guidance only – and further research and consultation is advised. There will be no repetition of instruction for parking, reception areas, internal circulation and design, acoustics, WCs, etc. For information on these and other areas, please refer back to earlier sections of this book.

### 7.1 Hotels

#### 7.1.1 Background

Accommodation in hotels and guest houses should be universally accessible to all potential guests. Ideally, all guest rooms should follow the principles of universal design, ie doors with a 900mm clear opening and 1800mm diameter turning spaces in bedrooms and bathrooms. In the absence of universal design principles, a number of rooms should be designed to accommodate the differing access requirements of guests who have limited mobility and who are wheelchair users.

#### 7.1.2 Provision of Accessible Rooms

The bedroom provision in hotel and other guest facilities should accommodate both use by an individual wheelchair user and assisted use where the individual requires personal assistance with the tasks of daily living. Accessible guest rooms should be located close to the lift and reception areas to minimise the travel distance and the number of doors to be negotiated in order to reach the rooms.

#### 7.1.3 Independent Use Bedroom

One guest bedroom/bathroom in every 15 guest bedrooms should be suitable in size, layout and facilities for independent use by a wheelchair user. The space within the bedroom should incorporate a 900mm access zone around the bed and two 1800mm diameter turning circles, one adjacent to the bedside. A clear space of 300mm height is required under the bed to allow space for wheelchair footrests and hoist feet.

Sufficient storage space should be provided for equipment, eg wheelchairs, shower chairs, walkers, etc.

##### 7.1.3.1 Shower/Bathroom Provision

The shower/bathroom dimensions in independent use bedrooms should be a minimum of 2500mm x 2500mm with a level deck shower, or 2700mm x 3000mm with a bath tub.

See Figure 22 and Figure 23 on pages 77 and 78

#### 7.1.4 Assisted Use Bedroom

One guestroom out of every 20 should be suitable for a guest receiving personal assistance and for the use of lifting equipment, if required. This assisted use room should be fitted with a ceiling tracking hoist which runs in a line from the guest bedroom to the shower/bath area. The space within the bedroom should incorporate a 900mm access zone around the bed and two turning circles, one 1800mm turning circle adjacent to the bed and one larger turning circle of 2300mm. This larger size turning circle will also allow the use of a manual hoist, if preferred.

See Figure 24 and Figure 25 on pages 79 and 80

A clear space of 300mm is required beneath all beds to allow space for hoist feet and/or wheelchair footrests.

Sufficient storage space should be provided for equipment, eg wheelchairs, shower chairs, commode, walkers, etc.

This room should interconnect with an adjoining room which could be available to a personal assistant, if required. A portable intercom system should be available between the rooms.

#### 7.1.4.1 Shower/Bathroom Provision

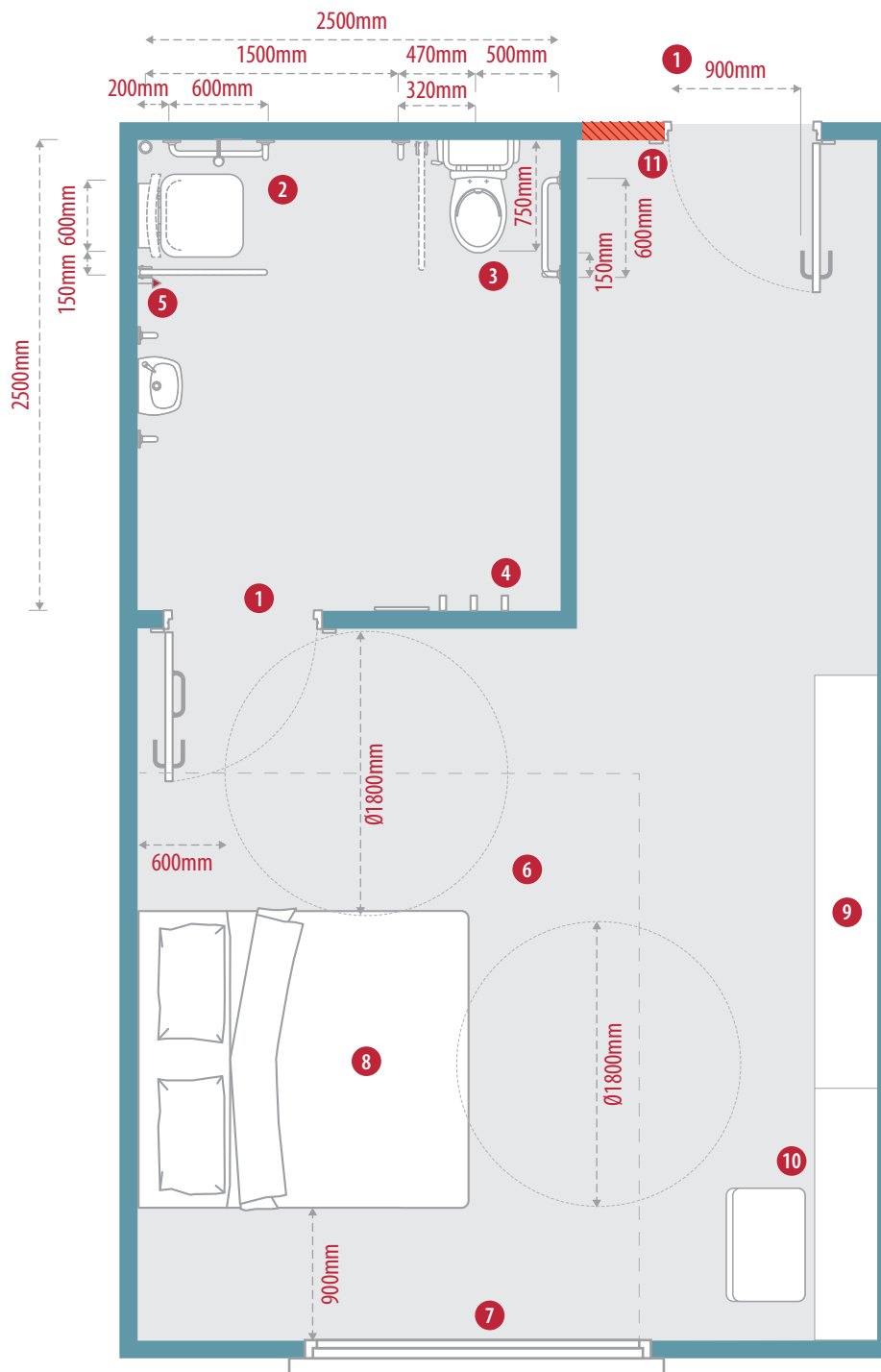
The size of the bathroom in an assisted use bedroom should be 2700mm x 3000mm. There should be a tracking ceiling hoist fitted, giving access from the bedroom into the bathroom and over the toilet bowl and bath/shower. This larger size shower/bathroom will also allow a 2300mm turning circle for an attendant-operated mobile hoist if that is the guest's preference.

A 150mm clear gap is required under the bath tub to accommodate the hoist feet.

See Figure 24 and Figure 25 on pages 79 and 80

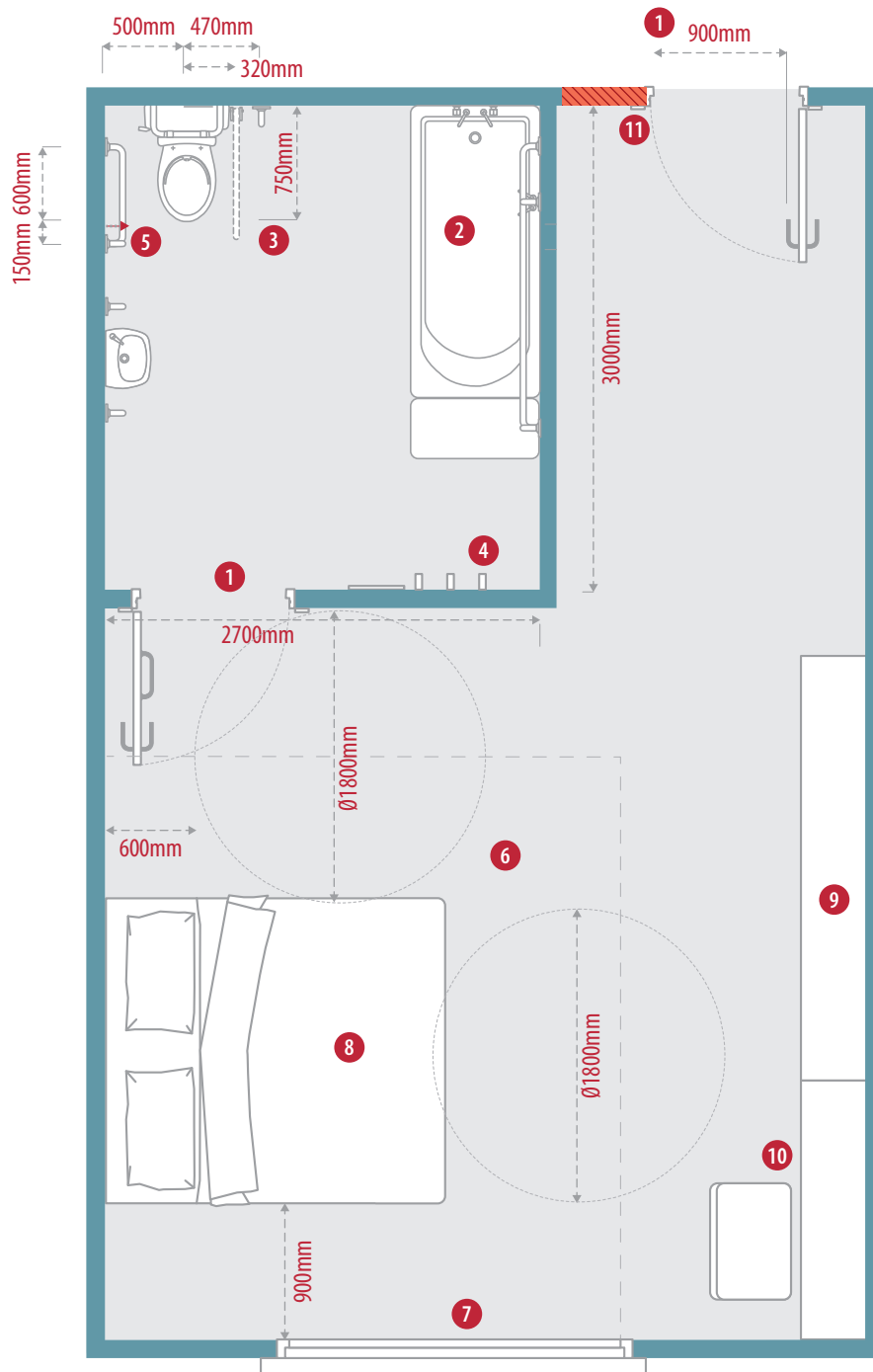
“Many hotels advertise themselves as accessible, but in reality they are far from it! The general social areas may be accessible, however the bedrooms are often a disappointment.”

– IWA member, Co Waterford



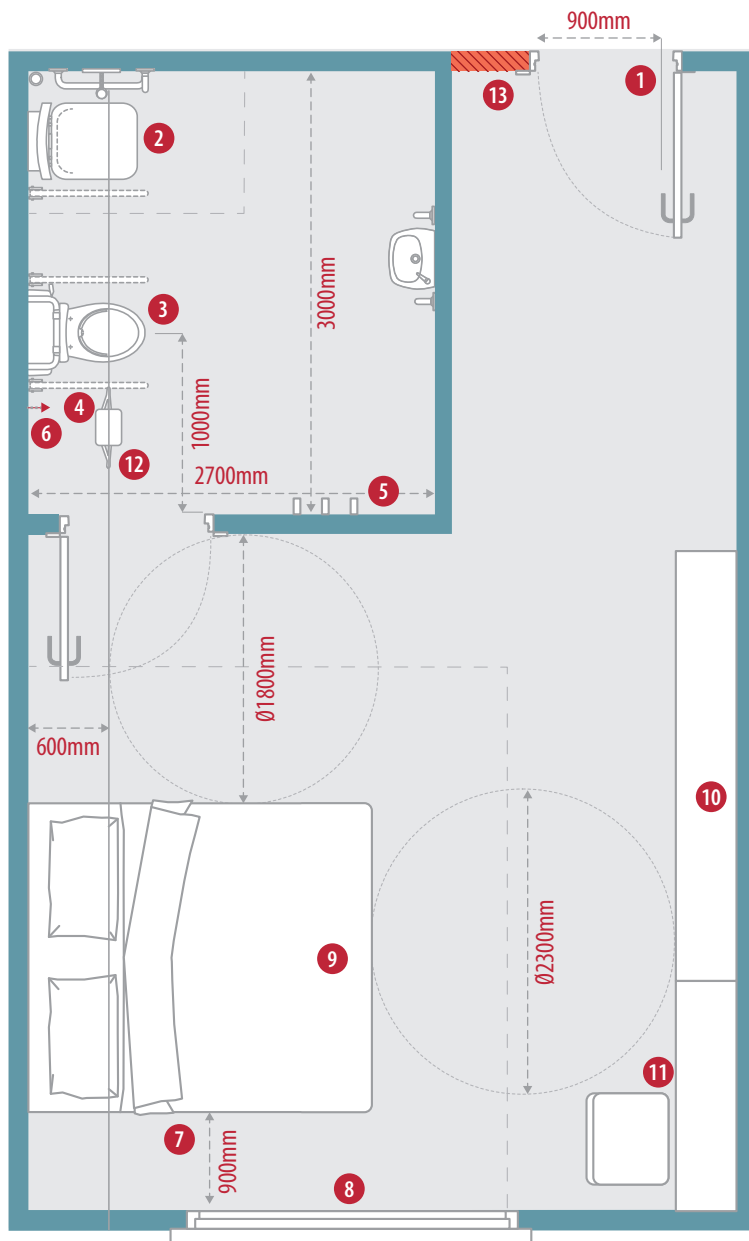
- 1 Doors with 900mm clear opening. An 1800mm diameter turning space in the bedroom area and in the bathroom
- 2 Shower
- 3 The front of the toilet bowl 750mm from the back wall
- 4 Provide coat hooks both at 1200mm and 1700mm over floor level
- 5 Pull-cord with two red rings placed at 100mm and 900mm over floor level. It should be activated in the event of emergency
- 6 Space in the bedroom to incorporate 900mm access zone around the bed and 1800mm turning circle on each side of the bed
- 7 Windows to be easily opened with one hand and with the lower end between 800mm and 1000mm
- 8 Bed height to be between 450mm and 500mm and a clearance of 300mm beneath all beds. At least one sleeping area shall provide a clear floor space of 900mm x 1400mm positioned for parallel approach to the side of the bed
- 9 Wardrobe
- 10 Work desk
- 11 Clear space of preferably 500mm (minimum 300mm) on the leading edge of the door

Figure 22 – Hotel room with toilet and shower for independent use



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1 Doors with 900mm clear opening. An 1800mm diameter turning space in the bedroom area and in the bathroom</li> <li>2 Bath tub height to be 480mm</li> <li>3 The front of the toilet bowl 750mm from the back wall</li> <li>4 Provide coat hooks both at 1200mm and 1700mm over floor level</li> <li>5 Pull-cord with two red rings placed at 100mm and 900mm over floor level. It should be activated in the event of emergency</li> <li>6 Space in the bedroom to incorporate 900mm access zone around the bed and 1800mm turning circle on each side of the bed</li> </ul> | <ul style="list-style-type: none"> <li>7 Windows to be easily opened with one hand and with the lower end between 800mm and 1000mm</li> <li>8 Bed height to be between 450mm and 500mm and a clearance of 300mm beneath all beds. At least one sleeping area shall provide a clear floor space of 900mm x 1400mm positioned for parallel approach to the side of the bed</li> <li>9 Wardrobe</li> <li>10 Work desk</li> <li>11 Clear space of preferably 500mm (minimum 300mm) on the leading edge of the door</li> </ul> |
|--|---|

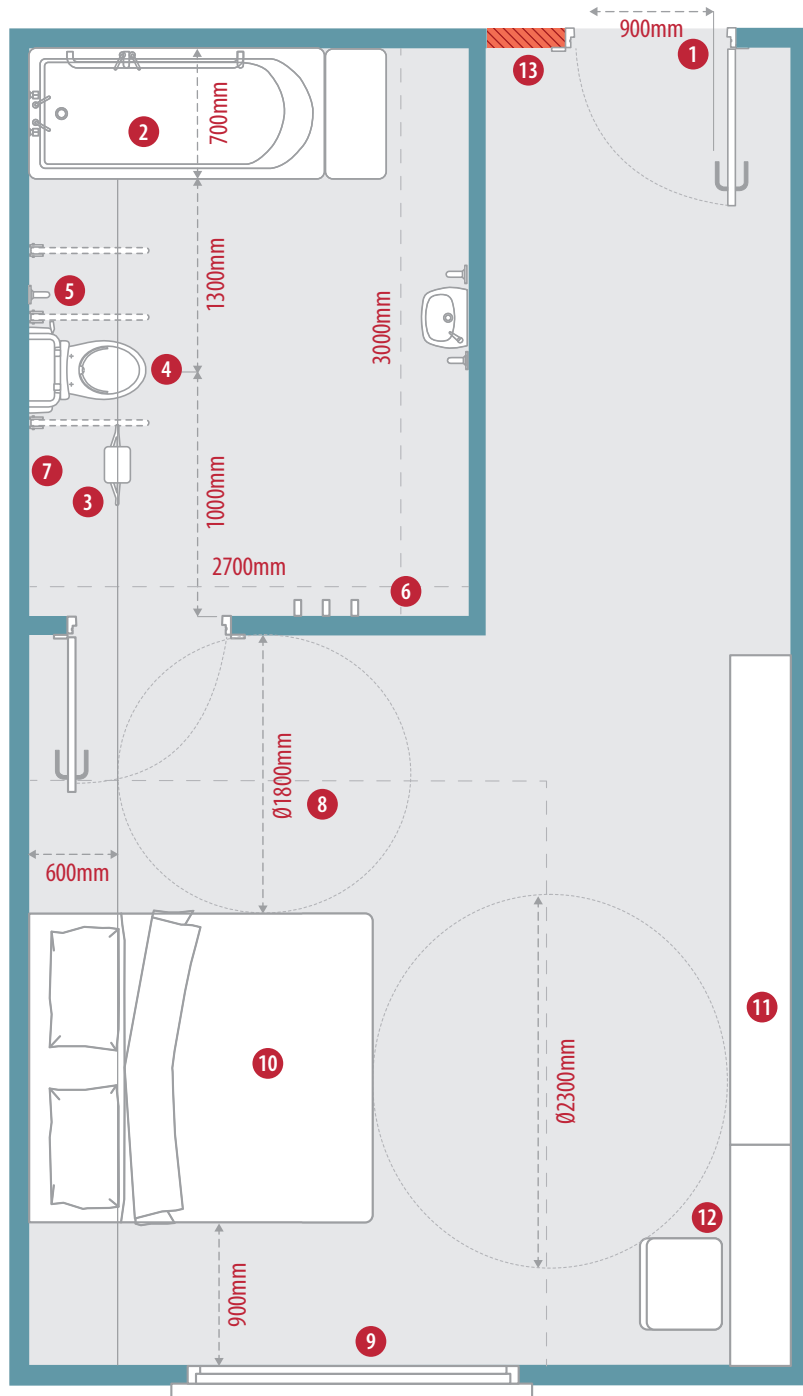
Figure 23 – Hotel room with toilet and bath for independent use



- 1 Doors with 900mm clear opening. An 1800mm diameter turning space in the bedroom area and in the bathroom
- 2 Shower
- 3 The front of the toilet bowl 750mm from the back wall
- 4 On the rear wall, a folding horizontal grab rail and a vertical grab rail, 320mm and 470mm respectively from the centreline of the toilet bowl, both at 700mm from floor level should be provided
- 5 Provide coat hooks both at 1200mm and 1700mm over floor level
- 6 Pull-cord with two red rings placed at 100mm and 900mm over floor level. It should be activated in the event of emergency
- 7 Space in the bedroom to incorporate 900mm access zone around the bed and 1800mm turning circle on each side of the bed
- 8 Windows to be easily opened with one hand and lower end between 800mm and 1000mm
- 9 Bed height to be between 450mm and 500mm and a clearance of 300mm beneath all beds. At least one sleeping area shall provide a clear floor space of 900mm x 1400mm positioned for parallel approach to the side of the bed
- 10 Wardrobe
- 11 Work desk
- 12 Hoist
- 13 Clear space of preferably 500mm (minimum 300mm) on the leading edge of the door

Figure 24 – Hotel room with toilet and shower for assisted use





- 1 Doors with 900mm clear opening. An 1800mm diameter turning space in the bedroom area and in the bathroom
- 2 Height of bath tub 480mm
- 3 Hoist
- 4 The front of the toilet bowl 750mm from the back wall
- 5 On the rear wall, a folding horizontal grab rail and a vertical grab rail, 320mm and 470mm respectively from the centreline of the toilet bowl, both at 700mm from floor level should be provided
- 6 Provide coat hooks both at 1200mm and 1700mm over floor level
- 7 Pull-cord with two red rings placed at 100mm and 900mm over floor level. It should be activated in the event of emergency
- 8 Space in the bedroom to incorporate 900mm access zone around the bed and 1800mm turning circle on each side of the bed
- 9 Windows to be easily opened with one hand and with lower end between 800mm and 1000mm
- 10 Bed height to be between 450mm and 500mm and a clearance of 300mm beneath all beds. At least one sleeping area shall provide a clear floor space of 900mm x 1400mm positioned for parallel approach to the side of the bed
- 11 Wardrobe
- 12 Work desk
- 13 Clear space of preferably 500mm (minimum 300mm) on the leading edge of the door

Figure 25 – Hotel room with toilet and bath for assisted use

## 7.1.5 Shower Room and Bathroom – Common Provisions

In all new or substantially renovated hotels and guest houses, there should be provision of an equal number of ensuite shower rooms and ensuite bathrooms installed in the accessible guestrooms.

### 7.1.5.1 Shower Fixtures and Fittings

The shower floor area should have minimum dimensions of 1500mm x 1500mm. The slope of the floor in the shower recess should have a gradient of between 1:50 and 1:60. The outside area of the shower floor should have a gradient between 1:70 and 1:80, draining into the shower recess. Transition into the shower recess should be level without a step down, a raised step or kerb at the entry to the recess. The waste outlet should be located in the corner.

The shower head should be adjustable and detachable and within the height range of 1200–2200mm above the floor level. A flexible hose, 1500mm long, is required for the shower head. Lever controls for temperature and flow should be placed at 900mm from the floor. The shower head and controls should be placed at 500mm from the corner.

A flip-up seat should be located on the wall adjoining the wall with the shower controls. The width of this seat should be 500mm, finishing at a height of 480mm from the floor level. The centreline of the seat should be 500mm from the corner and the front edge of the seat should be 650mm from the back wall.

A drop-down grab bar should be placed at 320mm from the centreline of the seat at a height of 700mm from the floor on the open side of the seat. On the side wall, where the shower controls are located, a 600mm long horizontal grab rail should be located, starting at 200mm from the corner and at a height of 700mm. A 600mm long vertical grab rail should be placed at 800mm from the corner with its lower end fixed at 800mm height from floor level.

### 7.1.5.2 Bath Fixtures and Fittings

The height of the bath tub should be 480mm. The bathtub should maintain a lip on the side adjacent to the wall to facilitate the use of a bath seat. A 400mm ledge at the end of the bath should also be provided. The taps used on the bath should be lever-type and easy to operate for people with limited dexterity and strength. If a bath is provided in the assisted use bathroom, there should be a space allowance of 150mm to allow for a clear gap under the bath tub to accommodate the hoist feet.

There should be a 35mm diameter horizontal grab rail fitted at 100mm height from the top level of the bath. It should start at 200mm from the corner, and should continue 250mm beyond the head end of the bath. In addition to this, there should be a 600mm long vertical grab rail placed at 600mm from the corner, with its lower end at 200mm from the top level of the bath.

### 7.1.5.3 Flooring

Flooring material in the bathrooms should be non-slip and should have anti-slip grading of R11 (DIN) or equivalent. A slope in the flooring should facilitate effective drainage of water and should allow no accumulation.

### 7.1.5.4 WC Fixtures and Fittings

The toilet seat should finish between 460–480mm in height from floor level.

A clear space of 900mm is required on one side adjacent to the toilet bowl to accommodate the wheelchair space for transfers. The front of the toilet bowl should be 750mm from the back wall. The centreline of the toilet bowl should be 500mm from the side wall.

A spatula-shaped flush handle should be placed on the transfer side of the toilet bowl. A toilet paper dispenser should be within easy reach while sitting on the toilet seat.

### 7.1.5.5 WC Grab Rails

All grab rails should be 35mm in diameter and 600mm in length. The distance between the grab rail and wall should be between 50–60mm. The grab rails should be located on a solid or reinforced walls and should be installed to resist a force of at least 1.3 kN from any direction.

On the rear wall, a drop-down horizontal grab rail and a vertical grab rail should be provided on the transfer side of the WC. These should be positioned at 320mm and 470mm respectively from the centreline of the toilet bowl, both at 700mm from floor level.

Two grab rails should also be provided on the side wall. The first one should be horizontal, 700mm above the floor level, with its near edge protruding 150mm from the front edge of the WC bowl. The other should be vertical, with its lower end at 800mm above floor level and placed at 150mm from the front edge of the WC bowl.

### 7.1.5.6 Wash-Hand Basins

The wash-hand basin should be located on the wall adjacent to the door opening. The wash-hand basin should be of a standard size with rounded edges and with knee clearance space beneath. The taps should be lever-type and easily operated with minimum dexterity and strength.

The wash basin height should be 800mm from floor to wash basin rim. A pedestal-style wash basin is not acceptable.

Vertical grab rails, at 100mm from the wash basin edges, should be situated on both sides of the wash basin with their lower ends situated at a height of 800mm.

The wall mirror should start at 600mm and finish at 1800mm above floor level.

### 7.1.5.7 Emergency Alarms

Emergency cords should be provided in accessible bathrooms and should be easily distinguishable, with a bold triangle/bell/ball attached to a red pull-cord. It is recommended

that two red bangles be sited on the cord, one set at the bottom of the cord and the other at 800–1000mm above floor level. The emergency cord should be situated so that it can be reached from the WC bowl and from the floor. The cord should extend 100mm from finished floor level. A clearly marked reset button should be reachable from the WC bowl and from a seated position in a wheelchair.

Cords must have a connection to a security desk or information point. Alarms should have a visual and auditory alert system that shows the alarm has been activated. Considerations should be given to the location of the activated alarm (outside the guest room) to ensure that it can be seen and heard by the people who will provide the assistance.

Both visual and audible fire alarms (with vibrating alarms also available to guests) should be installed in accessible guest rooms with clearly written procedures should the alarm be activated.

## 7.1.6 Guest Rooms – Common Provision

### 7.1.6.1 Signage

Room numbers, signs and names should be raised 1.5m and consistently placed at a height of 1400mm, 25mm from the door frame on the wall nearest the door handle. Signs should contrast in colour with the background and have tactile information.

### 7.1.6.2 Door Entry

The door entry to the room should provide a clear door width of 900mm, with 500mm (minimum 300mm) clear space on the leading edge of the door. Powered opening of entrance doors is desirable. Door locking should be operated by key or card device. A key card holder, which activates the door lock and electricity, should be installed between 800–1050 mm above floor level. If there is a door bell or intercom system that is connected to a security release door opener, there should be a visual and audible signal at the entrance to indicate 'go ahead'.

Where wide angle viewers are provided in the entrance door, these should be situated at 1050mm and 1500mm above the floor level to enable viewing by persons in a seated or standing position.

### 7.1.6.3 Fixtures and Fittings

All door handles should be easily gripped and visually contrasting with the door surface. The windows in the guest rooms should be easily opened with one hand and with the lower sills sited at 850mm in height.

The telephone and television should be situated at a height of between 400–1000mm. To facilitate the use of a minicom, telephones should be served by an electrical outlet located within 1200mm of the telephone. Extra electrical points should be provided close to the bed on both sides to facilitate charging battery-powered wheelchairs.

Permanently wired electrical equipment should be situated at a height of between 400–1200mm. Switches and power points in frequent use should contrast with the background and be located at a height of between 750–1000mm and 500mm from any corner.

Two-way switches are recommended so that one does not have to cross the room in the dark to turn the light on or off. Night lights should be provided in circulation areas. Rooms should have visual indication of telephone ringing, door knocking, etc.

Bedroom heating, ventilation, light, curtains, TV, radio controls are all to be situated at a height of 750–1000mm, and 500mm from any corner. Controls should contrast with the background in tone and colour.

### 7.1.6.4 Furnishings and Floor Coverings

Clothing and storage closets provided should have an 800mm x 1300mm clear floor area to the front. The height of a clothes rail in a closet should not be more than 1200mm from floor level. A

drop-down powered clothes rail is recommended. Sliding doors on wardrobes and storage presses are recommended. Alternatively, swing doors that open through 180 degrees can also be used on wardrobes and storage presses.

The bed/mattress height should be between 450mm and 500mm, with a firm mattress surface. A clear space of 300mm is required beneath all beds. Carpets, where used, should be of a shallow and dense pile to facilitate a wheelchair user moving throughout the room.

### 7.1.6.5 Support Services

Support services should be available to guests on request. Suggested services include:

- Text phone
- Induction loop coupler system for all phones
- Video caption reader
- Visual auditory and vibrating alert system for emergency notification
- Self-propelling shower chair, as preferred by some wheelchair users
- Mobile hoist, if a tracking hoist is not installed in the assisted use bedroom
- A choice of bed size and heights
- Information on facilities in rooms in guest houses and hotels should be available in both written and auditory format.

## 7.2 Shops

### 7.2.1 Background

The design of retail outlets should provide for ease of use by all people as customers or as staff. The counter design, the aisle widths, the positioning and maintaining of merchandise, the use and type of display cabinets, and the customer facilities provided should accommodate all users including those with limited mobility.

### 7.2.2 Counter Provision

Counter provisions should accommodate both people who are standing and also wheelchair users. A section of counter 900mm deep by 900mm long at a height of 760mm from the floor with a clearance of 700mm underneath is necessary to facilitate wheelchair users. This should be provided in addition to the conventional shop counter height at 1050 mm, to suit people who are standing. The counter should have a clear approach route of at least 1200mm and an 1800mm diameter clear turning circle on both sides of the counter. Consider including an induction loop system at the sales counter, to facilitate customers who are hard of hearing.

See also Section 6.1.2 on page 53

### 7.2.3 Access to Products

A vertical stacking approach to displaying goods, whereby a proportion of every item for sale is placed on a number of shelves at different heights, is desirable. Supermarket aisles should be at least 1800mm in width. In supermarkets, one checkout with a 900mm wide aisle should be placed close to the exit.

Self-service weighing facilities should be situated at a height of 760mm and be 750mm wide x 400mm deep with underside knee clearance of 700mm to facilitate access. Key pads should have both tactile and visual symbols.

Freezer and fridge units with front door openings provide better access than chest-type units.

### 7.2.4 Changing Rooms

In clothes shops, there should be a minimum of one designated changing room with dimensions of 2000mm in width and 2500mm in depth, with the door opening out. The changing room should have a seat with armrests that can be raised at 480mm in height from floor level, with its centreline 500mm from the corner. The seat should project 650mm from the wall.

On the rear wall, a drop-down horizontal grab rail and a vertical grab rail should be provided on the transfer side of the changing seat at 320mm and 470mm respectively from the centreline of the changing seat, both at a height of 700mm from floor level.

Two grab rails should also be provided on the side wall. The first should be horizontal, 700mm above the floor level, starting 200mm from the rear wall. The second should be vertical, with its lower end at 800mm above the floor level and placed at 150mm from the front edge of the seat. All grab rails should be 35mm in diameter, 600mm long, slip-resistant and contrast in colour against the background.

Clothes hooks should be situated at heights of 1400mm and 1050mm from floor level.

A mirror should be placed on the wall opposite to the changing seat with its top and bottom end at 1800mm and 450mm respectively.

## 7.3 Restaurants

### 7.3.1 Background

Restaurant types include cafes, snack bars, canteens, etc. The access provided should accommodate all people, and particular attention should be given to the type and layout of seating used, as well as to access routes to the facilities provided.

### 7.3.2 Seating

Choice of seating areas should be provided in order to give full accessibility in all refreshment and dining areas frequented by the general public. Fixed seating can be difficult to access, and where used it should not impede access to services within a building. Where seating is provided on different levels, ideally it should be accessible to all customers. This access can be achieved by means of a ramp or platform lift. Where access to all levels cannot be achieved, there must be a level access section of seating with full access to all facilities ie counter area and WCs.

An area free of fixed seating should always be provided with a table height of 760mm and a knee space clearance of 700mm to enable access for wheelchair users.

A minimum clear access route of 900mm should be maintained throughout all seating areas, giving clear access to individual tables and to facilities, such as WCs and the pay point.

Where counter provisions are made for eating purposes, a section of counter 900mm in depth, at a height of 760mm from floor level, with a knee height clearance of 700mm, is required.

### 7.3.3 Self-Service Counters

Wheelchair access should be provided the full length of all self-service counters at a height of 850mm, with 700mm knee height clearance from the floor along the length of the counter. This height of 850mm is a compromise height suited to both a seated and a standing person. Clear space on the countertop should be maintained to allow the customer slide their tray the full length of the counter. Queuing lines at self-service counters should be at least 1200mm wide.

### 7.3.4 Outdoor Smoking Area

Where provided, outdoor smoking areas should have level access, clear door width of 900mm and a clear manoeuvring space of 1800 x 1800mm.

## 7.4 Auditorium and Stadium Facilities

### 7.4.1 Background

Provision should be made for all people to avail of performance, audience and spectator facilities as performers and/or as audience members. As audience members, everyone should have a choice of seating location. Consideration should be given at the design stage to the different needs of people with disabilities. A choice of wheelchair-accessible seating should be provided on all levels and at all vantage points where standard seating is provided. This should include access to and within private boxes, where these are provided.

Front row seating is often considered a suitable location for wheelchair users. However this is not the case as front row positioning is problematic and generally uncomfortable for all, including wheelchair users.

### 7.4.2 Number of Spaces Required

The number of wheelchair spaces provided should be:

- At least 10 or one for every 50 spaces of the seating capacity (whichever is the greater), where the seating capacity is not more than 1,000.
- At least 40 or one for every 100 spaces, (whichever is the greater), where the seating capacity is more than 1,000.
- Where a building contains several auditoria, eg a multi-screen cinema, the minimum requirement applies to each auditorium.

“Counter heights in shops are a real problem, as well as internal ramps and toilets which do not meet the criteria for good access.”

– IWA member, Roscrea, Co Tipperary

### 7.4.3 Dimensions of Seating Space Required by a Wheelchair User

Wheelchair spaces should always be provided on a level surface. A wheelchair space must have a minimum dimension of 900mm in width x 1400mm in depth, with clear unobstructed access from the aisle or access route that is a minimum of 1200mm in width. The use of fixed but removable seating allows for wheelchair spaces that can be either permanent or created as required.

Designated wheelchair spaces should be paired to allow a wheelchair user be accompanied by another wheelchair user. Spaces should also be located next to standard seating to allow a companion who is not a wheelchair user to sit beside a wheelchair user.

See Figure 26 on page 87

Seating with removable armrests and increased leg room should be provided at the edge of aisles to accommodate ambulant disabled people and to allow wheelchair users the choice to transfer from their wheelchair to the seat provided.

Space beside some seats should be large enough to accommodate an assistance dog seated away from the main access route.

The use of stepped or raked floors can impede full access by wheelchair users. Where stepped or raked floors are unavoidable, wheelchair spaces should have handrails and a crash-bar located at a change of level if no other barrier is provided. The height of the guardrail should be 700mm from floor level. Steps and changes in level should be highlighted by the use of colour contrast and illumination at floor level. Where retractable seating is provided in a theatre, the seating should incorporate a 'built in' recess to create an accessible space or spaces in the front row.

#### 7.4.3.1 Entry Point to Accessible Seating

Where there are internal steps within the auditorium/cinema/hall, the entry point to the accessible seating should be located away from the stairs/raked floor. This will minimise the risk of the front wheels of a wheelchair accidentally tipping over the edge of the steps while the person is manoeuvring the wheelchair into the designated space.

#### 7.4.4 Sight Lines

Special consideration should be given to sight lines for wheelchair users. People standing during an event should not obstruct the clear view of a wheelchair user, nor should pillars or columns obstruct clear sight lines. Staggered seating offers more opportunity for positions with better sight lines.

Wheelchair seating areas should be designed so that wheelchair users have a clear line of sight when situated behind standing accommodation or where people in front may stand up. During a concert or a sports event, people may remain seated for the majority of the event, but stand up during exciting times, eg when a goal is being scored, and thereby block the sight lines of the wheelchair users.

See Figure 27 on page 88

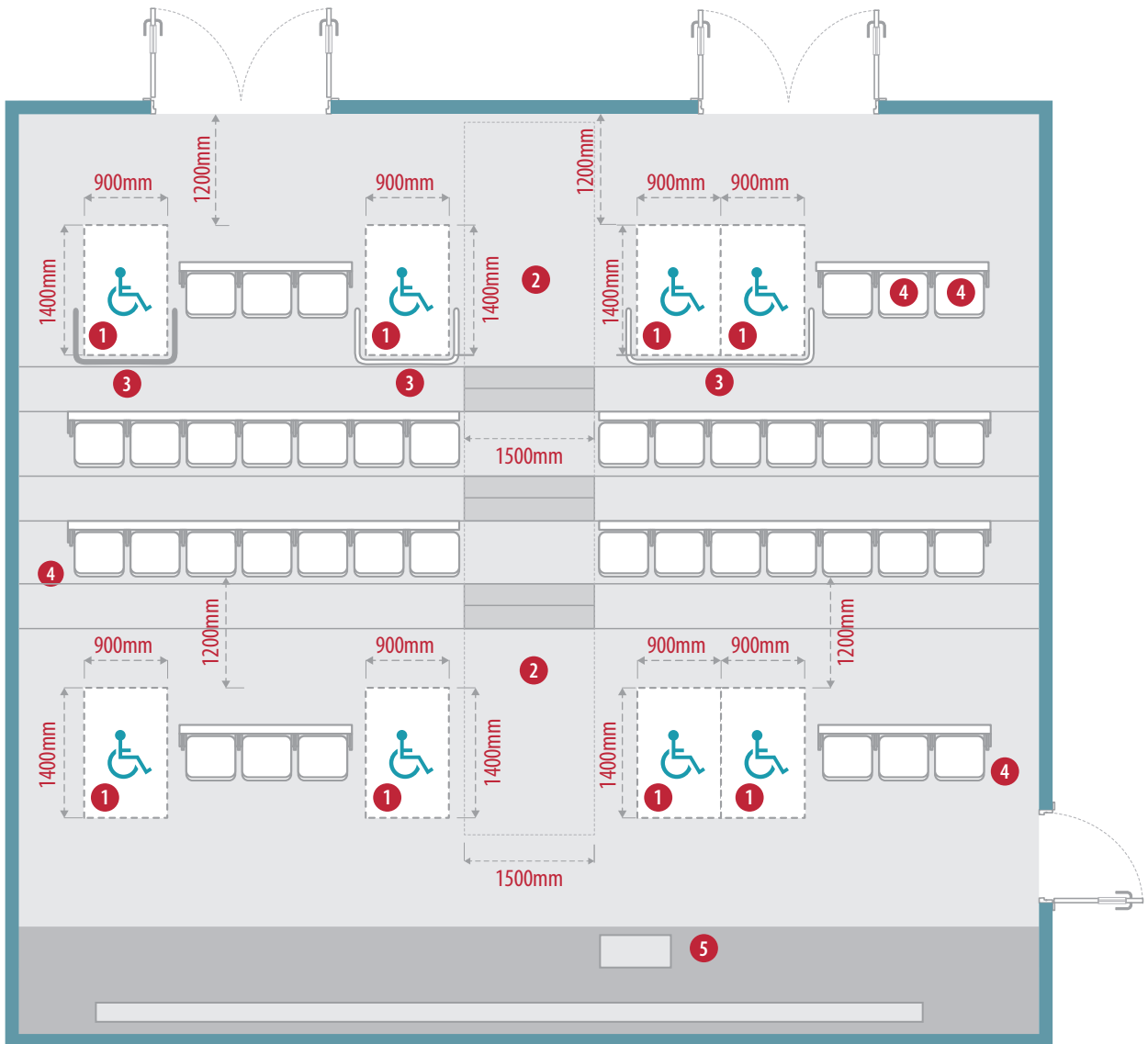
#### 7.4.5 Acoustic and Audio Provisions

For people with hearing and sight loss, these enhancement systems should be considered:

- **Loop or infra-red hearing systems** which transmit sound to hearing aids and cochlear implants to enhance hearing for people who use these devices.

“Some churches have no loop system for those with hearing difficulties.”

– IWA member, Co Limerick



- ① Dedicated wheelchair spaces
- ② Unobstructed access from aisles and access routes minimum 1500mm wide
- ③ Guardrails
- ④ Seating with additional space for people using walking aids, assistance dogs, etc
- ⑤ Lectern

Figure 26 – Wheelchair spaces in spectator facility



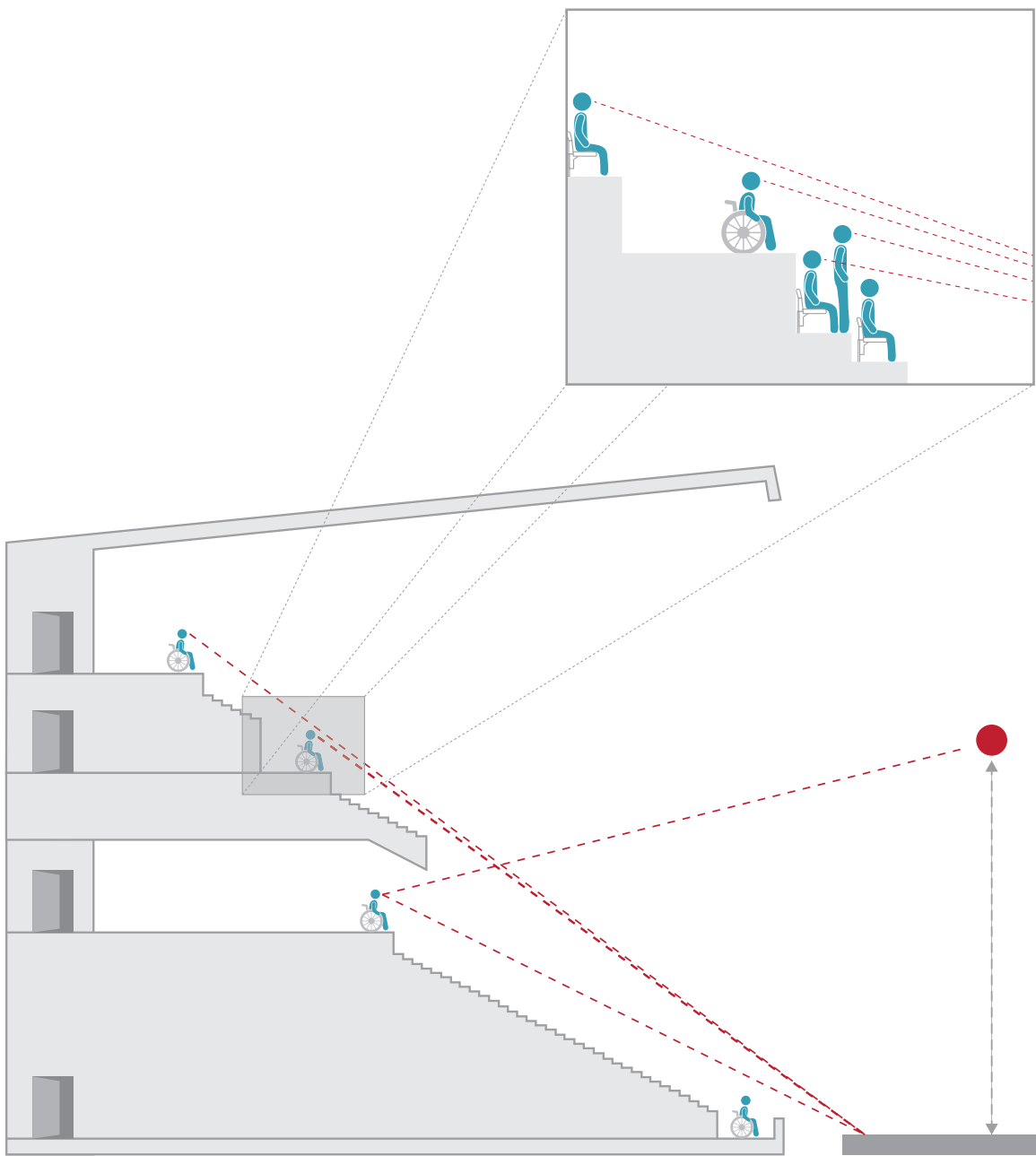


Figure 27 – Sight lines in stadium facility

- **Captioned performance and speech-to-text** subtitles and on-screen display to give people who are deaf or hard of hearing access to a live performance or presentation. The speaker's words appear on display units placed within a set or next to a stage, at the same time as they are spoken or sung.
- **Audio Described Performances** which provide a verbal commentary that tells a person who is visually impaired what is happening on a stage during the parts of the performance where there is no dialogue. Visually impaired audience members are equipped with a headset or earpiece to hear the information.
- **Irish Sign Language (ISL)** interpretation for individual or group settings can be made available on request.

The availability of these facilities should be clearly signposted with procedures in place for distribution and reclamation of audio description and portable loop packs.

#### 7.4.6 Stage Access

Access to a raised stage should be considered early in the design process as this may require an innovative design or installation of a platform lift.

The stage should be accessible from both the auditorium and backstage, to accommodate both performers and audience members.

All backstage facilities, such as circulation areas, dressing rooms and WCs, should be fully accessible to all people.

#### 7.4.7 Speaker Facilities

Speaker facilities should accommodate people standing and seated. Lecterns should have a height-adjustable inclined reading surface with a range between 800–1100mm at the speaker side.

<sup>4</sup> BS 8300:2009 British Building Standards.

A table for laptops and overhead projectors should be no higher than 760mm from the floor with 700 mm height clearance underneath the table.

#### 7.4.8 Additional Reading

For further information on performance, audience and spectator facilities, refer to:

*Accessible Stadia – Sports Ground and Stadia Guide No1* (2003), The Football Stadia Improvement Fund and Football Licensing Authority.

*The Green Guide to Safety at Sports Grounds (1979-2008)*, Football Licensing Authority and the UK Department of Culture, Media and Sport.

*Accessible Sports Facility Design Guide (2010)*, Sport England.

For further information on sports and leisure facilities please refer to *Accessible Sports Facilities* (2012), published by Sport England and available on its website: [www.sportengland.org](http://www.sportengland.org)

## 7.5 Sports and Leisure Facilities

### 7.5.1 Background

'Disabled people need to be able to access and use sports related buildings, whether large or small, as participants, coaches, officials or part of a management team'.<sup>4</sup>

Everyone can benefit from physical activity and recreation, either as participants or as spectators. In order to provide equal opportunity for people with disabilities to take part in sporting and recreational activities, sports and leisure facilities must have policies and practices in place that create and develop opportunities for everyone to participate at their level of choice. The design of sports and leisure facilities should give particular attention to the size of sports wheelchairs, some of which require a clear door width of 1200mm.

## 7.5.2 Shower Provision

People with disability have different access needs with regard to showering facilities. To ensure shower access for all potential users of a leisure facility, the provision of the following type of shower facilities is recommended:

**Assisted Use WC/Shower Room** A minimum of one unisex wheelchair accessible WC cum shower room with a changing bench facility and a tracking hoist should be provided. The size of an assisted use WC cum shower room should be 3500mm in width x 3000mm in depth. This size room will also allow for the use of a mobile or tracking hoist. The changing bench facility should be 1000mm in width and 1950mm in length, with a height-adjustable range between 450–900mm. The changing bench should be wall-mounted or free-standing with free space underneath. There should be a vertical grab rail placed close to the changing bench with its lower end at 800mm in height from floor level, placed at 150mm from the front edge of the changing bench on the available side wall.

See Figure 28 on page 91

**Independent Use Shower Cubicle** One in four cubicles within the shower cubicle run should be designed to accommodate a wheelchair user or a person with limited mobility. The shower cubicle size should be at least 1000mm deep x 1500mm wide, with a 1200mm x 1500mm clear area for manoeuvring right in front of the cubicle. This cubicle should be planned in such a way that this manoeuvring space does not interfere with the circulation route.

See Figure 29 on page 92

These dimensions are suitable for the use of shower curtains. If shower doors are installed, a bigger cubicle area would be required.

**Communal Shower Bank** The showers at either

end of the row within the shower bank should have flip-up shower seats installed.

See Figure 30 on page 93

### 7.5.2.1 Dimensions of a Shower Area

The shower area should be designed so that a wheelchair user can transfer to a seat within the wet area, without getting the wheelchair wet, and so that the wheelchair remains within reach. Consider the use of a shower curtain to enclose the shower area for privacy and also for water containment.

The shower area should have minimum dimensions of 1500mm x 1500mm. The slope of the floor in the shower recess should have a gradient of between 1:50 and 1:60. The outside area of the shower floor should have a gradient between 1:70 and 1:80, draining into the shower recess. Transition into the shower recess should be level without a step down, a raised step, or kerb at the entry to the recess. The waste outlet should be located in the corner.

### 7.5.2.2 Floor Covering

Flooring material in the shower room should be non-slip and should have anti-slip grading of R11 (DIN) or equivalent. The slope in the flooring should facilitate effective drainage of water and should allow no accumulation.

### 7.5.2.3 Shower Fixtures and Fittings

The shower head should be detachable and adjustable within the height range of 1200–2200mm from the floor level. A 1500mm long flexible hose is required for the shower head. The lever controls for temperature and flow should be situated at 900mm from the floor level on the wall adjacent to the shower seat. The water temperature should not exceed 40° Celsius.

A flip-up seat, 500mm x 500mm in size, should be situated on the wall adjoining the wall where the

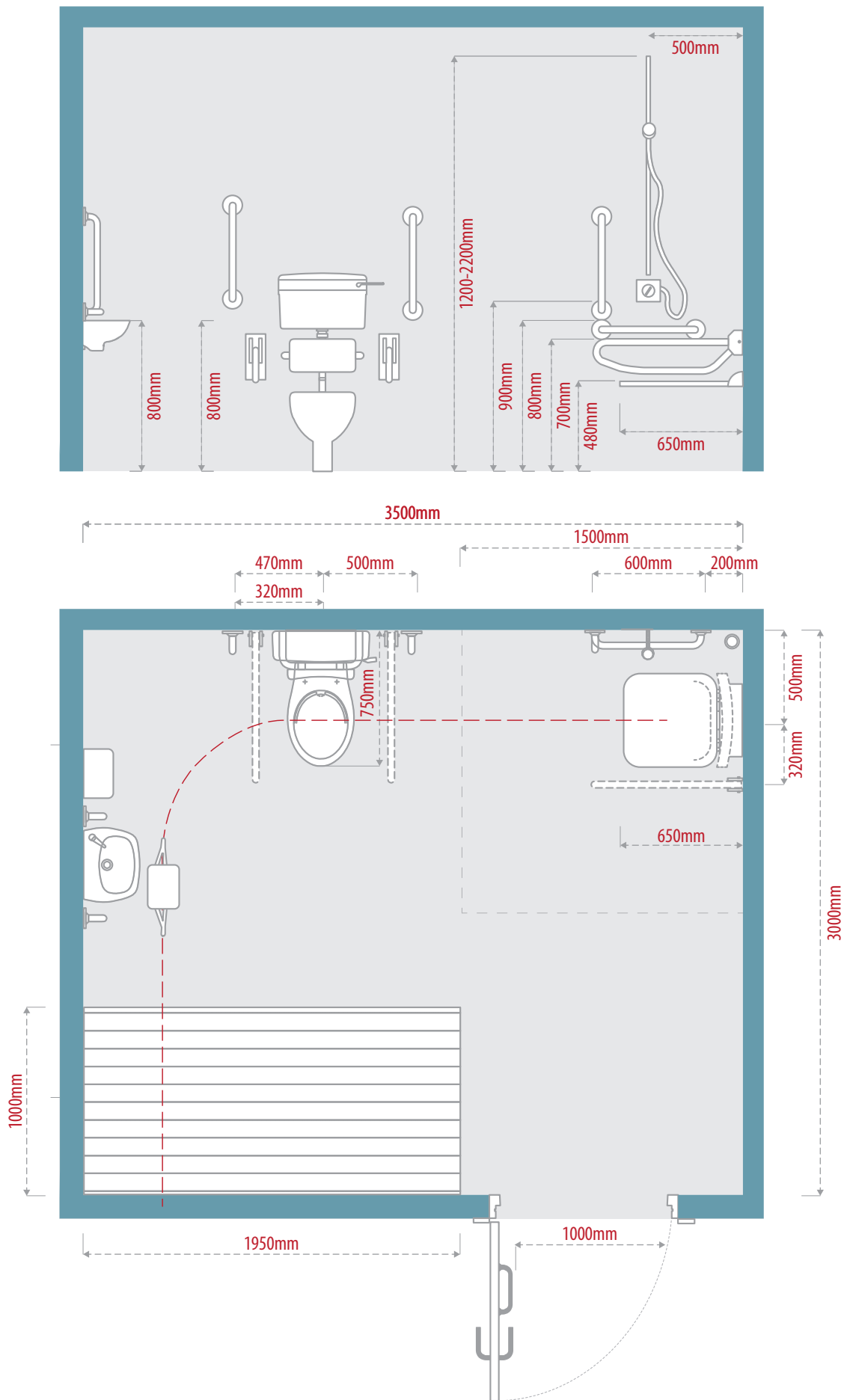
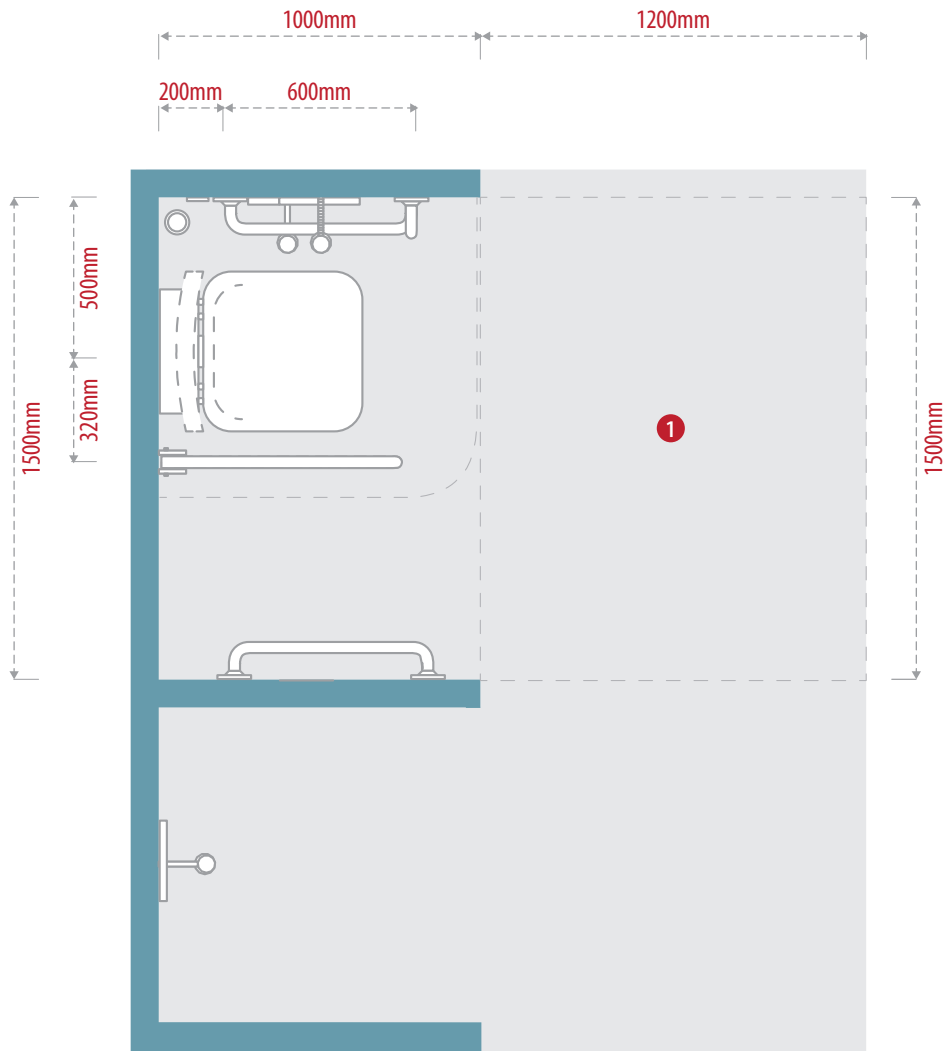


Figure 28 – Wheelchair accessible toilet with shower and changing facility



① 1200mm x 1500mm manoeuvring space directly in front of cubicle

Figure 29 – Accessible shower cubicle

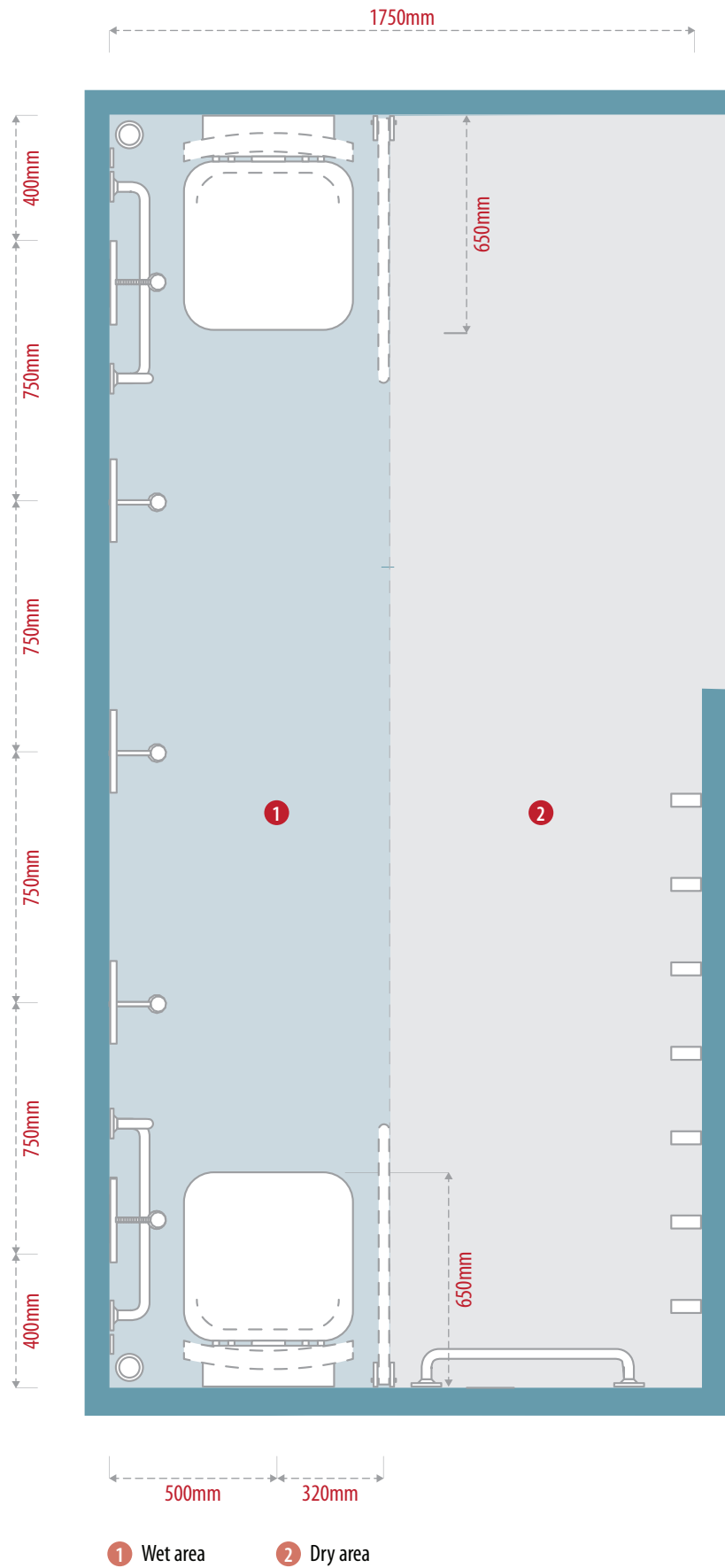


Figure 30 – Wheelchair accessible shower bank

shower controls are positioned. The height of the shower seat should be 480mm from floor level. The centreline of the seat should be 500mm from the corner and the front edge of the seat should be 650mm from the back wall.

Drop-down grab rails should be placed at 320mm from the centreline of the seat at a height of 700mm from the floor on the open side of the seat. On the side wall, where the shower fixtures are located, a 600mm-long horizontal grab bar should be placed, starting at 200mm from the corner and at a height of 700mm. A second 600mm long vertical grab rail should be placed at 800mm from the corner with its lower end fixed at a height of 800mm from floor level.

### 7.5.3 Changing Facilities

People with disability have different changing room needs depending upon their individual situation. Changing facilities provided in leisure and sporting facilities should accommodate people with disabilities in using communal areas and also provide privacy within a designated WC cum shower changing room as recommended above.

See Figure 28 on page 91

#### 7.5.3.1 Communal Changing Areas

All communal changing areas must be designed so that people with disability can easily move around the area, safely use the changing bench and access storage facilities.

At least one changing bench should be a minimum 1950mm in length and 600mm in depth, with a waterproof cushion provided.

Within the designated WC cum shower changing room some people will require use of a hoist.

See Section 6.4.11 on page 73

#### 7.5.3.2 Lockers

Where storage facilities are available for use by the

general public, provision should also be included for fully accessible storage units. Some storage units should include knee access space to allow either frontal or side access from a seated position for a wheelchair user.

Lockers should be provided close to the toilets, shower and changing facilities.

Accessible lockers should be a minimum of 300mm in width and not more than 600mm in depth. Storage units accessible from the front from a seated position are best positioned with their bottom end height no lower than 750mm and their top end height no more than 1250mm. This bottom end height of 750mm allows for a half locker with knee recess provided at a height of 700mm so a wheelchair user can gain frontal access to the locker.

Storage accessible from the side from a seated position should have the bottom end height of the locker no lower than 665mm and the top end height of the locker no more than 1060mm.

There should also be at least four full-height lockers provided for storing crutches, calipers, artificial limbs, etc.

Accessible storage units should have a 900mm x 1400mm clear floor area to the front.

Aisle width between lockers should be a minimum of 1200mm.

Provide seating adjacent to the lockers for use by people with restricted mobility.

### 7.5.4 Swimming Pools

There should be level access from changing areas to the pool side. If doors into the swimming pool area are present, electronic doors with a touch button control located on the adjacent wall are recommended. If the doors are manual, push-bars or lever-type handles are recommended on the doors. The door width should provide a minimum of 900mm clear entrance.

Handrails should be provided between the changing rooms and the pool side to assist ambulant disabled people and people who are blind or have a visual impairment.

The width of the walkway around the pool should be no less than 3000mm and be distinguished in colour and tone from the surrounding areas. Wet floor areas should have a non-slip surface.

#### **7.5.4.1 Access into the Swimming Pool**

Whatever the type and scale of the swimming pool, there should be a variety of means of access to the water to accommodate all users. Access to the water can be provided by means of ramp, steps, ladder, portable slide and hoist. A common misconception is that a shelving 'beach', often incorporated in leisure pools, is the best solution. This arrangement means that the swimmer has to wade into the pool for a considerable distance without the support of the water. As a result, some users will require assistance, although for others a handrail will suffice.

A fully integrated ramp and steps can provide good access to the water. The gradient of the ramp should be no steeper than 1:15.

Steps should be fitted with handrails with good grip. The maximum height of the risers should be 140mm and the treads should be a minimum of 300mm deep. The steps should be located at the shallow end of the pool with high definition at the edge of steps to facilitate people who are blind or have a visual impairment.

Poolside hoists must be available to provide access to the water at various depths in the pool and also to the Jacuzzi.

A minimum of two waterproof self-propelling wheelchairs (suitable for pre and post swim showering) should be provided.

#### **7.5.5 Sauna/Steam Room**

If a sauna/steam room is provided in a sports and leisure facility, consideration should be given to including access for wheelchair users.

The sauna/steam room should have level access and it should be large enough to have a 1800mm diameter clear floor area, with additional space to fold and store a wheelchair. Potentially there would also be sufficient space for a wheelchair user to remain seated in an appropriate wheelchair. This could be achieved by providing a cut out area of 900 x 1400mm within the lower level seating. The layout of the seating bench should be designed in such a way that it facilitates transfer from a wheelchair to the seat. The height of the lowest level seat in the sauna room should be between 450–500mm. The seat depth should be a minimum of 500mm. Consideration should be given for a two-way communication system between the sauna room and reception area.

#### **7.5.6 Fitness/Gym Suite**

Designers and gym operators are encouraged to select dual-purpose exercise equipment that provides fitness opportunities that can be used by all people.

Gym equipment should be placed evenly around the gym area. A clear aisle width of minimum 1200mm is required to provide access routes for easy circulation between pieces of gym equipment. Colour contrast should be provided between the access routes and the equipment areas.

A clear floor space must be positioned adjacent to pieces of gym equipment to allow a person to transfer from a wheelchair or to use the equipment while seated in a wheelchair. For example, to make a shoulder press accessible, the clear floor space should be next to the seat. However, the clear floor space for a bench press designed for use by a person using a wheelchair would be centered on the operating mechanisms. This is because with dual purpose equipment the person remains seated in their wheelchair while using this piece of equipment.

Clear floor spaces for more than one piece of equipment may overlap. For example, where different types of exercise equipment and



machines are located next to other pieces of equipment, the clear space may be shared.

### 7.5.7 Bowling Lanes

At least five percent of each type of bowling lane, but not less than one lane, must be accessible for all users, including wheelchair users. There should be accessible routes from the reception and communal areas to the accessible bowling lanes. Spectator seating in bowling facilities will require wheelchair spaces, companion seating, and designated aisle seats. The rolling ball equipment preferred by some wheelchair users should be easily available on site.

### 7.5.8 Additional Reading

For further information on sports and leisure facilities please refer to *Accessible Sports Facilities* (2012), published by Sport England and available on its website: [www.sportengland.org](http://www.sportengland.org)

## 7.6 Health Facilities and Treatment Rooms

### 7.6.1 Background

People with disabilities represent a large sector of the population requiring healthcare services (The Census 2011 recorded 13 percent of the population as having a disability). Everyone, regardless of ability, benefits from universal design. Meeting the needs of people with disabilities means the provision of enhanced facilities and services for all. It is often the case that healthcare facilities are not accessible or do not have the equipment needed to serve people with disabilities. Good access includes accessible parking, set-down facilities, weather-protected level entry, accessible paths of travel into and throughout the building, open-plan waiting and treatment areas with sufficient space for a wheelchair user to position and turn with ease, as well as the availability of any required equipment to effect a successful consultation.

### 7.6.2 Treatment Rooms and Equipment

Treatment rooms should be of sufficient size to accommodate the use of a lifting hoist. This hoist would be used by an individual wheelchair user and personal assistant to transfer a person from a wheelchair to a treatment table or examination chair. The space required for the use of a hoist is a clear turning circle area of 2300mm adjacent to the treatment table. An automated height-adjustable barrier-free treatment and examination table located centrally is recommended in order to accommodate access from either the right or left sides. A movable screen can accommodate individual space requirements while affording privacy.

Height-adjustable equipment is recommended so that examinations may be carried out on people in a seated position as well as in a standing position. Scales with handgrips are recommended to accommodate those who need support while standing, as well as scales that allow individuals to be weighed while seated in a wheelchair.

The provision of differing height chairs in waiting and treatment rooms that may be used by children and adults is recommended. Some chairs should have arm rests to accommodate those who require them.

The ability to produce key documents in different formats, if required by people with visual and other impairments, should be available.

#### 7.6.2.1 Dental Practices and Equipment

Access to dental care can be especially difficult for wheelchair users and consequently is often an area of health care that is neglected. Difficulties associated with treating individuals seated in wheelchairs can be overcome through the use of specialised adapted chair equipment which holds and appropriately positions an individual while they remain seated in their wheelchair. These adapted dental chairs are mobile and eliminate all manual handling, lifting and hoisting.

An adapted dental chair allows the dentist to attain the correct working position while ensuring a more dignified experience for the patient, and it can be used alongside traditional dental chairs, sharing equipment and supplies. The chairs can be stored when not in use, and can be used in existing surgeries without the need for refurbishment work.

A number of models of adapted chair are available and individual practices are advised to research the type of dental chair that would most suit their patients' needs.

### 7.6.3 Dressing Room Provisions

Dressing room provisions in health and treatment facilities should include at least one room that is accessible to wheelchair users and people with limited mobility. This designated changing room should have a clear door width of 900mm with dimensions of 2000mm in width by 2500mm in depth, with the door opening outwards. The changing room should have a seat at 480mm in height, with its centreline 500mm from the corner. The seat should project 650mm from the wall.

On the rear wall, a drop-down horizontal grab rail and a vertical grab rail should be provided on the transfer side of the changing seat at 320mm and 470mm respectively from the centreline of the changing seat, both at 700mm in height above the floor level.

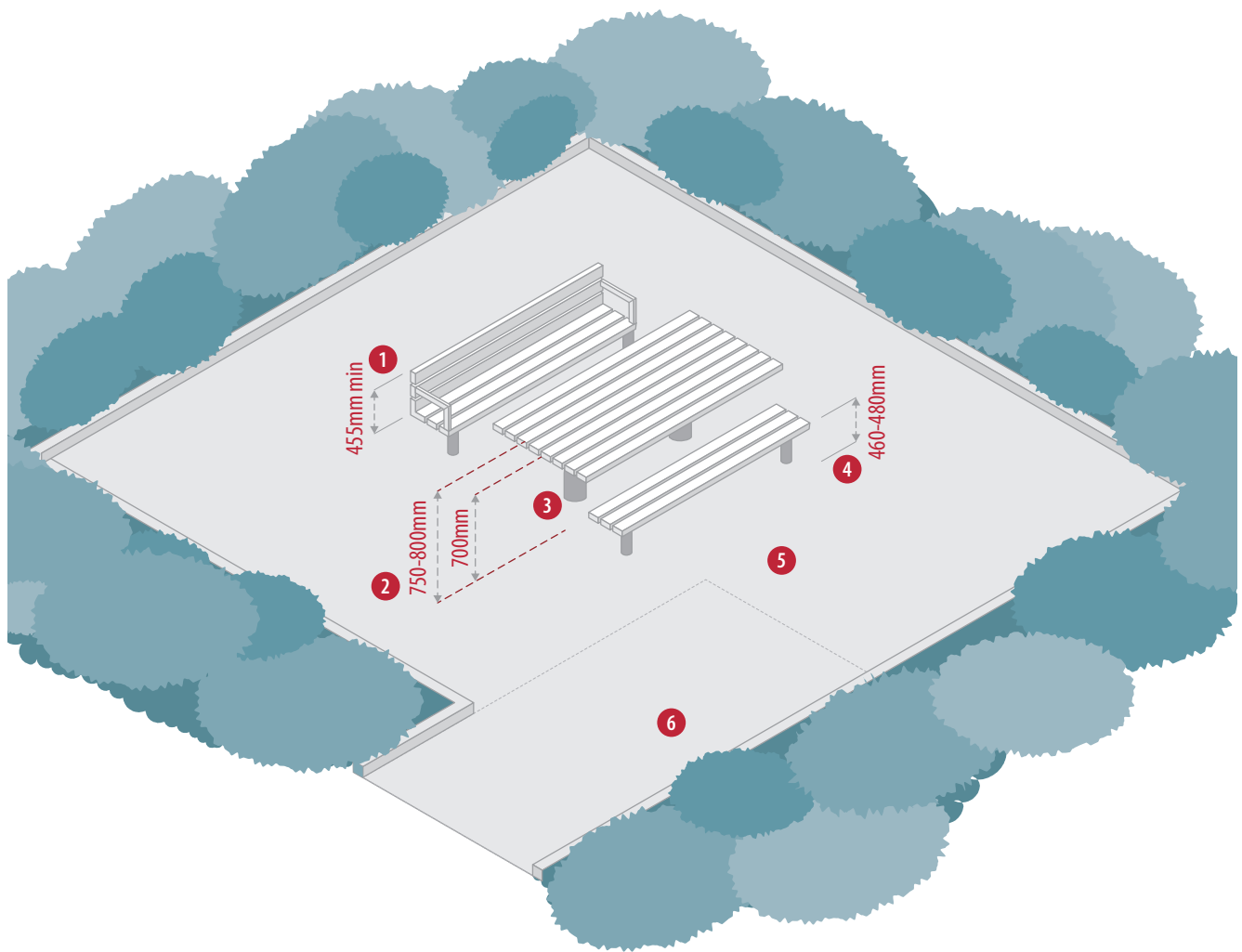
Two grab rails should also be provided on the side wall. The first should be horizontal, 700mm above the floor level, starting 200mm from the rear wall;

the other, vertical, with its lower end at 800mm above the floor level and placed at 150mm from the front edge of the changing seat. All grab rails should be 35mm in diameter, 600mm long, slip-resistant and contrast in colour with the background.

Clothes hooks should be situated at 1200 mm and 1700mm from the floor level. A mirror should be placed on the wall opposite to the changing seat with its top and bottom end at 1800mm and 450mm respectively.

“ There was no changing bench in swimming pool area - it made it impossible for me to participate. ”

– IWA member, Dublin Youth Group



- 1 Back support minimum 455mm
- 2 Height of picnic table 750-800mm with 700mm clearance beneath
- 3 Cantilevered table legs
- 4 460-480mm seat height
- 5 Firm level surface
- 6 Accessibility zone of 1800mm around all sides of the table/bench unit

Figure 31 – Picnic area

## 7.7 Outdoor Environments

### 7.7.1 Background

Consider safety and access for all potential visitors with different level of abilities.

### 7.7.2 Entry to Parks, Gardens and Playgrounds

The access gates and entrances to parks, gardens and playgrounds should provide a clear entry route of 1000mm. The use of 'kissing gates' is not recommended as they can be complicated to negotiate for people with limited mobility. However, if used, the design should allow access for people using mobility scooters.

Accessible routes from the entry/car parking area to various locations and facilities should be clearly signposted at the appropriate levels.

*For information on signage please see Section 5.4 on page 46*

An information map should include details in different formats of optional routes, details of pathway surfacing, widths, gradients, cross slopes, locations of bench/picnic facilities and accessible toilets. Clear visibility of signs and walkways, especially from overhanging vegetation, must be maintained, with a clear headroom height of 2300mm.

### 7.7.3 Picnic Areas

Picnic benches and resting areas should be adjacent to accessible routes with access from these routes to the picnic/resting areas.

The picnic table/bench should be located on a firm and level surface and have a clear, smooth non-slip accessibility zone of 1800mm around all sides of the table/bench unit. Unsuitable surfaces such as cobbles or loose gravel should be avoided. The height of the picnic table should be between 750–800mm with a clear knee space area of 700mm in height, 800mm in width and 480mm in depth. Cantilevered ends on tables facilitate wheelchair users.

The seat height should be within 460–480mm from the ground level and the minimum depth of the seat should be 450mm. The seating areas should provide a mix of seating options, eg some with back rests, some with arm rests and some with both. The back support of the seat should be a minimum 455mm in height.

**See Figure 31 on page 98**

### 7.7.4 Pathways

Paths and pavements in a park should have smooth, regular, firm, non-slip surfaces. Loose gravel is difficult to navigate for a wheelchair user. A 75mm raised edge helps to keep the path clear from soil wash-off. It also guides people who are blind or have a visual impairment, when using a cane, and prevents wheelchair users from going off the path. Level surface and guard rails should be provided at viewing points. Where viewing equipment/telescopes are provided, at least one should be provided at a height of 1100mm from the surface level.

Recommended pathway widths area as follows:

- 1200mm pathway accommodates a wheelchair user
- 1500mm pathway accommodates a wheelchair user and a person walking alongside
- 2000mm pathway accommodates two wheelchair users passing safely in an external environment.

*For information on pathways, routes, seating and crossings see Section 4.2 on page 27*

**See Figure 1 on page 17**

### 7.7.5 Play Areas

Playgrounds provide all children with an opportunity to engage in safe risk-taking. The challenge and thrill factor of playground experience is crucial for motivating all children, including children with disability.

Playground equipment should be chosen with due regard to children with different abilities and should provide various options of swinging, climbing, rocking, sliding and balancing as well as sensory activities. Supported swing seats with harnesses, wheelchair accessible roundabouts, wide/embankment slides, basket hoops, sand and water tables, etc are some good examples of ways in which a playground can be made inclusive for children with different abilities.

The surface of the playground must be soft enough to limit injury from falls, but firm and stable enough for a wheelchair user or person using a walking aid to manoeuvre. A minimum access zone of 900mm in width is required to move around any playground structure.

Recommended reach ranges for a person seated in a wheelchair are:

- 500–910mm for 3–4 year-olds
- 460–1010mm for 5–8 year-olds
- 400–1115mm for 9–12 year-olds

For further information please refer to: *'Accessibility Guidelines for Playgrounds' (2010)*, published by the United States Access Board and available on its website: [www.access-board.gov/play](http://www.access-board.gov/play)  
Refer also to *'Manual of Best Practice – A Guide to including Disabled Children in Childcare and Play Settings'*, published by the Disability Equality Specialist Support Agency and available on its website: [www.dessa.ie](http://www.dessa.ie)

## 7.8 Outdoor Events and Festivals

### 7.8.1 Background

This section covers unique, one-off entertainment events, such as concerts, festivals, fairs, markets, shows, etc. These are events taking place at a temporary location such as parklands, sports stadia, public and private parks.

### 7.8.2 Arriving at the Event

People with limited mobility who travel to events and festivals by car need to be able to park, have sufficient space to enter and leave their vehicle, on occasions move to the rear of their vehicle, then walk or travel in a wheelchair to the main entrance. Accessible car parking involves the appropriate designation and location of both car and multi-purpose vehicle parking bays and the provision of set-down/pick-up points.

The design of the parking bay should also plan for the safe transfer (dished kerbs, level approach routes, adequate lighting, etc) from the bay to the access route to the event without undue effort, barriers to wheelchairs or hazards that could cause tripping. The size of the bay should allow for the safe transfer of a passenger or driver to a wheelchair, including a space allowance or accessibility zone for the use of a transfer hoist or ramp which may be attached to some vehicles.

If using a temporary car park area, the bays should be clearly signposted with an upright sign sited out of the circulation space. It is important that the car park attendants responsible for this area receive disability awareness training and understand the importance of maintaining adequate space between cars. The accessible route from the car park to the outdoor event should be clearly marked.

Set-down points should be positioned as close as possible to the main entrances and should be clearly identified in an online Accessibility Guide to

any event. If it is not possible to provide a set-down/pick-up point within close proximity to the main entrance then accessible transport should be provided to 'ferry' people with limited mobility from this point to the main entrance.

Provision should also be made for people with limited mobility arriving by public transport. Please check with your local transport provider to ensure that accessible transport is available on this route (eg Dublin Bus). This information should be included in an online an Accessibility Guide.

### 7.8.3 Wayfinding and Signage at the Event

Accessible routes from the entry/car parking area to various locations and facilities should be clearly signposted at the appropriate levels. Clearly defined logical routes can be identified with the use of colour contrasts and textural changes in paving. Planting can assist in defining routes or identifying hazards through scent and colour, but should not obstruct or present an overhead hazard.

An information map should include details in different formats of optional routes; pathway surfacing, widths, gradients and cross slopes; locations of bench/picnic facilities; and accessible toilets. This information should be included in an online Accessibility Guide for the event. Clear visibility of signs and walkways, especially from overhanging vegetation, must be maintained, with a clear headroom height of 2300mm.

### 7.8.4 Circulation at the Event

Pavements and approach routes to the main event areas should be designed to give easy and safe access to all. The pathway should be sufficiently wide for all users to move freely and to pass each other. The surface of the pathway should be level, smooth and slip-resistant, with no obstacles located within the circulation route. We recommend providing a tracking route throughout the site that can be independently used by a wheelchair user. This route should provide a flush surface with no breaks or joins to pathways and ramps leading to marquees and service areas.

All of the major routes to the entertainment, food, and services areas should be linked with a level pathway.

### 7.8.5 Marquees and Exhibition Tents

Marquees and tents are used for a variety of purposes at outdoor events. We recommend the following:

- Marquees and tents should be sited at lower levels
- Ramps into marquees and tents should have gentle slopes
- There should be no upstands at the end of ramps where ramps transition to another surface
- There should be handrails on ramps
- Doors into marquees and tents should be held open to provide level landing platforms
- Metal ramps can be slippery when wet; providing a covering on ramps works well
- Level flooring should be provided inside the marquees.

### 7.8.6 Raised Platforms

Often at outdoor concerts, a temporary raised platform is constructed in the main 'standing' spectator area. Great care must be taken in the positioning of this platform. It should be placed at a reasonable and safe distance from the main stage and should be at a height that allows an uninterrupted view. Special consideration should be given to sight lines for wheelchair users. People standing during an event should not obstruct the clear view of a wheelchair user, nor should pillars or columns obstruct clear sightlines. Staggered seating offers more opportunity for positions with better sight lines.

It is recommended that at least one companion/personal assistant should be allowed to sit beside the person with limited mobility and a chair should be provided for them.

### 7.8.7 Facilities – Toilets, Showers and Camping

Accessible WC cubicles should be provided. Where portaloos are required, they should be of the larger size to accommodate a 1800mm diameter turning space. There should be an accessible toilet provided at all toilet locations. An accessible toilet should be provided within close proximity to the main wheelchair spectator stand if one is provided.

For events and festivals where overnight camping facilities are provided, there should also be accessible showering facilities. We recommend a size of 2500 mm x 2500 mm for WC and shower room combined.

A designated area should be reserved for people with limited mobility who are camping. It is recommended that this area should be located close to the services area. A level pathway should link this area with the main entrance, all the services areas and the entertainment stages and venues.

### 7.8.8 Departing from the Event

In the case of a large concert where the entertainment finishes at a scheduled time, it may be advisable to request people with limited mobility to wait until the main part of the audience has departed to allow for a safer exit.

### 7.8.9 Disability Awareness and Staff Training

Disability Awareness training for staff should be carried out for any outdoor event.

A Disability Liaison Officer should be appointed to the event. Prior to the event the Event Promoter should conduct an audit to determine the accessibility requirements.

<sup>5</sup> Under the Disability Act (2005) the Government aims to “ensure that heritage sites in its ownership are, as far as practicable, accessible to people with disabilities, subject to the National Monuments Act and in compliance with the terms of Part V of the Planning and Development Act”.

### 7.8.10 Accessibility Guide for the Event

An Accessibility Guide to the event, in both a printed version and an online version should be made available. This should include information about the following:

- Pre-event ticket sales, including information on concessionary pricing
- Choice of seating areas and tickets prices
- Travelling to the event
- Set-down and pick-up areas
- Accessible entrances
- Parking facilities
- Services map
- Accessible routes
- Accessible toilets
- Accessible services
- Disability Liaison contact information
- Accessible showers
- Accessible camping
- Departing from the event
- Contact telephone numbers and emails for queries and for on-site support staff and services.

## 7.9 Built and Natural Heritage Sites

### 7.9.1 Background

The Irish Government made a commitment in the Disability Act (2005) to make built and natural heritage sites visitable with ease and dignity by people with disabilities.<sup>5</sup> While the goal of improving access to the built and natural environments is to give independent access to all, there is an innate tension to be managed between improving access and maintaining the essential and unique fabric of a heritage site and/or building. The policy of universal, equal and integrated access for all has to be balanced with the conservation and preservation policy requiring minimum intervention and reversible solutions. An ideal solution would give physical access while minimising any adaptation or

alteration to the original structure. Within this context, and in order to devise a solution which meets minimum intervention policy while improving physical access, bespoke solutions are required for each individual situation. Such solutions would typically be developed through in-depth consultation between conservationists, heritage architects, access consultants and people with disabilities.

The National Disability Authority has developed a Code of Practice to provide access to built and natural heritage sites. Compliance with this NDA Code of Practice <sup>6</sup> implies compliance with the Disability Act (2005). Refer also to the Department of Environment, Community and Local Government's guidance document 'Access Improving the Accessibility of Historic Building and Places'.

### 7.9.2 Devising Access Solutions

Access solutions should be devised through access auditing, consultation with people with disabilities and access planning. Ideally, a bespoke solution to providing full and easy access for all to a historic building or site would commence with pre-visitor information at the site entrance. It would then progress to create greater access to the building, within the building, and to any public facilities provided. Where architectural barriers to equal and integrated access are identified, the principles of removal, alteration, addition, avoidance or alternative provisions will apply as appropriate. In developing plans to provide access, the ability of the building and site to incorporate the required access provisions with minimum intervention to the historic fabric must be carefully considered. Solutions that are in keeping with the existing design, incorporated within existing structures, or reversible are ideal; though permanent integrated adaptations or additions of a sympathetic design are also possible. Each individual aspect of access provision may require its own considered and unique solution.

<sup>6</sup> NDA Code of Practice on Accessible Heritage Sites.

#### 7.9.2.1 Pre-Visit Information

Pre-visit information should be provided in alternative formats, ie brochure, webpage, audio etc. The information given should include specifics on the level of access provisions throughout the visiting experience and any areas where access is not possible for people with different impairments. Contact numbers for information and assistance in planning a visit should be easily available.

#### 7.9.2.2 Car Parking

Ideally, public car parking should be provided at a location adjacent to the main site/building entrance. If this is not possible due to the character and setting of a protected structure, it is recommended that there should be dedicated parking for drivers and passengers with disabilities close to the entrance. If this is also not possible, set-down areas or accessible mini-bus transport from the main car park area may be a solution.

*For further information on car parking please refer to Section 4.1 on page 21*

#### 7.9.2.3 Walkways

Walkways must avoid surfaces which are difficult to walk on or impede wheelchair movement. Slip-resistant hard surfaces such as brick or stone paving are more suitable than gravel, chippings, cobbles and decking. Careful consideration is required to ensure that the surface is in keeping with the colour and texture of the site.

*For further information on paths, routes and seating please refer to Section 4.2 on page 27 and Section 7.7.4 on page 99*

#### 7.9.2.4 Building Entrance

The principal entrance should be accessible to everyone. If a barrier exists, solutions can be devised involving the use of:

- **Well-designed ramps, steps and handrails**, which respect the existing ambience of the building, can be used at the



main entrance. Ramps which use existing ground slopes and planting can be less obtrusive. New walls should be constructed with materials that harmonise with the existing walls and buildings.

- **Platform lifts**, which when positioned at the main entrance may sometimes be incorporated within an existing porch and in this way be visually less intrusive.
- **Temporary ramps**, where all other options have failed. Though not compatible with independent access, temporary ramps can occasionally be a necessary solution.
- **Alternative entrances**, where a ramp or platform lift is not an option. It may be possible to create an alternative entrance by reorganisation of the internal space. It is important that this new point of entry is available to all, and not exclusive to visitors with limited mobility.
- **Doors** which, where heavy, are fitted with automatic door-opening devices.

#### 7.9.2.5 Vertical Internal Circulation

Access to changes of level within a historic building must be managed sensitively and the solutions must be in keeping with the historic fabric of the building. Minor changes of level can be overcome by sensitive design in the location of steps, ramps and handrails. Other solutions include:

- **Platform Lifts.** Positioned in a sensitive manner with minimal structural disturbance, platform lifts can be a solution where the level change is relatively large or where a ramp is not possible. Consideration should be given to the use of platform lifts that are built into steps to maintain the character of a building.
- **Passenger Lifts.** The installation of a passenger lift provides the most effective means of vertical movement. The installation of internal lifts that meet evacuation

standards is recommended, ie with fire-resistant properties and suitable for use in an emergency evacuation. These lifts reduce reliance on assisted evacuation for people with disabilities.

- **Platform Stair Lifts.** Where the installation of a passenger lift is not possible, the installation of a platform stair lift on a secondary staircase may be an option.

The location of a lift shaft will require special individual consideration. Options include:

- Locating the lift shaft in an existing structure within the building
- Locating the lift shaft externally on the building
- Using a hydraulic lift which can provide a solution where it is not possible to use a conventional lift. Hydraulic lifts do not require the location of lift gears above the roof line, which is often a problem in historic buildings.

#### 7.9.2.6 Alternative Experiences

Where it is genuinely impossible to provide access to all or some parts of a building or site due to special historic features, an alternative experience of that part of the site or building should be provided. Alternative experiences could include:

- Audio visual presentation
- Viewing points
- Reconstructions
- Virtual representative tours, mock-ups, etc.

All presentations and experiential mock-ups should be accessible to all people.

#### 7.9.2.7 Access to Public Facilities

Access to public facilities includes access to reception areas and desks, WCs, restaurant and shop facilities, etc. Preferably, these facilities should be located close to the main thoroughfare of the site/building. See the relevant sections on WCs and use of restaurant and other public facilities in the earlier sections of this book.

### Hotels

- ▶ Provision of one in every 15 guest bedrooms for independent use and one in every 20 for assisted use by a wheelchair user.
- ▶ Doors should have a clear opening width of 900mm with 1800mm diameter turning space in bedrooms.
- ▶ Bedroom to incorporate 900mm access zone around bed.
- ▶ Clear space of 300mm required underneath bed for footrests and hoist feet.
- ▶ Level deck shower room dimensions are 2500mm x 2500mm (for independent use).
- ▶ Assisted bedroom should have a turning circle of 2300mm adjacent to bed.
- ▶ Bathroom for assisted use should be 2700mm x 3000mm.
- ▶ Clear space of 900mm required on transfer side of WC.

### Restaurants

- ▶ Seating provided on different levels should be accessible to all.
- ▶ Table height of 760mm with knee clearance of 700mm.
- ▶ Clear access route of 900mm maintained throughout all seating areas.
- ▶ Access to self-service counters should be 850mm high, with 700mm knee clearance.
- ▶ Queuing lines should be at least 1200mm wide.

### Auditoriums and Stadiums

- ▶ A choice of wheelchair accessible seating on all levels and vantage points.
- ▶ One in every 50 spaces should be provided for wheelchair users where a capacity is not more than 1000.
- ▶ Dimensions for a wheelchair space are 900mm wide by 1400mm deep.
- ▶ Access aisles/routes should have a minimum width of 1200mm.
- ▶ Entry point to accessible seating should be located away from stairs/raked floor.
- ▶ Acoustic and audio systems should be provided.
- ▶ Consideration should be given to sight lines for wheelchair users.

### Sports and Leisure Facilities

- ▶ Assisted use WC cum shower room should be 3500mm wide by 3000mm deep and include a height-adjustable changing bench, 1000mm wide x 1950mm long.
- ▶ One in four shower cubicles (open type cubicle with no door) should be 1000mm deep x 1500mm wide to accommodate a wheelchair user.
- ▶ Floor material in shower area should be non-slip with anti-slip grading of R11 (DIN).
- ▶ Width of walkway around a swimming pool area should be no less than 3000mm.
- ▶ Sauna/Steam room should have a clear floor area of 1800mm in diameter.
- ▶ Dual purpose exercise equipment should be provided with a clear access route of 1200mm between each piece of equipment.

### Health Facilities and Treatment Rooms

- ▶ Treatment rooms should be of sufficient size to accommodate the use of a hoist with a clear turning circle area of 2300mm.
- ▶ A height-adjustable examination table should be provided.
- ▶ Provide at least one accessible dressing room, 2000mm wide x 2500mm deep, and with a door width of 900mm.

### Outdoor Events

- ▶ All event accessibility information to be available both in print and online.
- ▶ Accessible car parking, setting-down points and public transport options should be available for arrival at the event.
- ▶ Level pathways to all event facilities. Accessible marquees and exhibition tents.
- ▶ Provide large size accessible WC cubicles (sized 1800mm x 2500mm with door opening out).
- ▶ Provide raised viewing platforms.
- ▶ Disability awareness training should be provided for staff and volunteers.

### Heritage Sites

- ▶ Car parking should be provided adjacent to the main site/building entrance.
- ▶ Ramps or platform lifts should be in place if the principal entrance is not accessible.
- ▶ Doors that are heavy should be fitted with automatic door opening devices.
- ▶ Where access to a building is not possible, an alternative experience such as audio visual presentation, viewing points or virtual tours should be provided.
- ▶ Access to public facilities such as reception, WCs, restaurant, and shop should be provided.

## 8 Emergency Evacuation

### 8.1 The Requirements

#### 8.1.1 Background

The matter of building evacuation is a key element to be addressed in any organisational health and safety management plan. Organisations using and managing a building are required by various pieces of Irish legislation <sup>7</sup> to ensure that all users of a building, including people with disabilities, can escape safely from the building in the event of an emergency.

Part B of the Irish Building Regulations requires that,

“a building shall be so designed and constructed that there are adequate means of escape in case of fire from the building to a place of safety outside the building, capable of being safely and effectively used”.

The design provisions set out in the Building Regulations (2006) *Technical Guidance Document Part B* are provided as a guide to **minimum standards** required for compliance with these regulations. They are largely based on the assumption that all people evacuating from the building will be fit and well, moving at the same speed and independently of each other. The guidance in Part B in relation to the safe evacuation of people with disabilities is extremely limited, and refers the reader to a British Standards document *BS: 9999* for further guidance. This British Standards document considers the concepts of horizontal and vertical escape. It advises that people with disabilities escape, either independently or with assistance to a place of safety outside the building, or by moving to a

designated fire protected ‘refuge space’ on the same level. This refuge space should be on, or close to, the escape stairs on any level of the building where the egress is not level with the external environment. The person can then be evacuated vertically from this designated refuge space. Escape assistance can be provided either by designated staff or others, as outlined in the building emergency evacuation plan, developed by the management of the building.

The achievement of an effective emergency evacuation plan from a building for people with disabilities requires planning, management and regular review as part of an overall evacuation policy and plan. Good practice would dictate that an evacuation policy and plan be developed that includes consideration of both structural and management provisions.

#### 8.1.2 Structural Provisions

At the design stage of the building, structural and fire-resistant decisions will have been made that determine or influence the evacuation strategy for that building.

Principal evacuation strategies include:

- **Total Evacuation** – When everyone in a building leaves at the same time.
- **Phased Evacuation** – When a pre-alarm stage in remote areas of a building is activated shortly before a general alarm.
- **Zoned Evacuation** – When the building is evacuated progressively as the emergency develops and people are moved progressively away from the area of danger.

<sup>7</sup> 1989 Workplace Directive, 89/654; EEC Safety, Health and Welfare at Work Act (2005/2007); Fire Services Act (1981); The Building Regulations (2000); Indoor Events Act (2003); The Equal Status Acts (2000–2004); Employment Equality Act (1998/2004); Disability Act (2005).

Knowledge of the structural and fire-resistant properties of a particular building, including those of any internal lifts, and the ensuing evacuation strategies will be essential in developing any evacuation plan. This knowledge can be obtained by consultation with the designers and management of a particular building.

#### **8.1.2.1 Evacuation Plans**

At lobbies and reception areas on all floors of a building, location plans showing the direct route for exit should be replicated at heights of 1000–1100mm, and 1600–1700mm from the floor. The plans should be colour contrasted with the background and include Braille. It should also be provided in the form of a tactile map, which is capable of being read by touch by people who are blind or have a visual impairment, but are not Braille readers.

These plans should be accompanied by operational procedures for fire safety evacuation, including details of refuge spaces and signposting of their locations. Alongside text, consideration should be given to the use of pictograms which can give information in a simple, coherent and consistent manner. Pictograms should include clear information relating to people with disabilities.

#### **8.1.2.2 Provision of Fire Alarms**

It is important that people who have a visual or hearing impairment or who are blind, can be alerted in case of emergency. Fire alarms therefore need to be in both visual and auditory format. Visual alarms which use strobe lighting should operate at a frequency of 2-4 hertz and should be placed so that the signal is visible throughout the enclosed space. Visual alarms should also be installed in washrooms where someone who has a hearing impairment may be alone. Consideration should also be given to vibrating pager systems as a means of alerting people who have a hearing impairment, particularly in buildings where there is sleeping

accommodation and/or where people are isolated or remote from others.

#### **8.1.2.3 Signage and Wayfinding**

The presence of suitable escape and refuge signage and aids to wayfinding, is essential to the quick and safe evacuation of a building. Evacuation routes should have consistent layouts and be easy to locate and follow intuitively.

Signage needs to be simple, short, consistent and easily understood. Alongside text, consideration should be given to the use of pictograms which give information in a simple, coherent and consistent manner. Pictograms should include clear information relating to people with disabilities. Additional wayfinding aids on corridors and staircases can include the use of colour contrasted handrails on horizontal circulation routes, emergency escape lighting and the use of photo-luminescent wayfinding guidance systems which become visible in low light conditions.

*For further information on signage please see Section 5.4 on page 46*

#### **8.1.2.4 Doors and Door Fittings**

The total force required to open a door in a pressurised escape route should not exceed 1.6kg at the handle. All doors for use as exits in case of emergency should open outwards. Internal fire doors should have magnets which usually hold the doors open and are connected to the fire alarm system. When the alarm is activated these magnets should automatically release the doors.

#### **8.1.2.5 Internal Corridor Dimensions**

To facilitate horizontal movement, escape routes should have minimum corridor widths of 1800mm. Ramps, if required, should comply with recommendations.

*For further information on corridor design please see Section 5.3 on page 43*

Fire exits should have level thresholds to the outside and outward-opening doors. Final fire exit doors should be easy and intuitive to operate. The pavement outside the fire door should be level with the surrounding area or dished to give access down from the pavement.

#### 8.1.2.6 Stairwell Design

Flights and landings of stairways should have an unobstructed minimum width of 1500mm. A central handrail should be provided when the width of the stairs exceeds two metres.

This stair width of 1500mm is recommended to facilitate the assisted escape of people with disabilities and accommodate contra flow in circulation spaces during emergency evacuation.

*For further information please see Section 4.4 on page 31*

#### 8.1.2.7 Refuges or Areas of Rescue Assistance

Many people with disabilities cannot use stairs unassisted, so it is necessary to ensure that they can remain in a place of relative safety until help arrives. This provision must be forward-planned and provided. One solution is to provide a refuge space or area of rescue assistance. The refuge space should be provided within a designated fire-protected area of a building, on any floor where the egress from the building is not level with the external environment.

**See Figure 32 on page 111**

A refuge area as a minimum requirement should be constructed as indicated in the Building Regulations (2006) *Technical Guidance Document Part B*.

“Refuge areas are within a building, separated by fire resisting construction and provided with a safe route to a storey exit where people with disabilities can await assistance for evacuation. Refuge areas may be within the enclosure of an escape stairway, within a protected lobby or corridor leading to an escape stairway or in a compartmented part of a storey which contains an escape stairway.”

The refuge area/s should:

- Be clearly and consistently signposted.
- Be sized 900mm x 1400mm for a single refuge space and be situated clear of the escape route.
- Be located either within, or be a space with direct access to, each protected stairway or internal fire-protected lift provided for means of escape.
- Be equipped with a two-way communications system linked to a management control point and situated 900–1100mm above floor level.
- Contain instructions as to the procedures to be followed in the event of an emergency and the expected response.
- Contain a manually operated evacuation lift/chair to assist in the egress of people for whom such a lift/chair is advised. As most evacuation equipment requires a wheelchair user to transfer from their wheelchair, there must be another wheelchair available in the area to where the person is evacuated.

The number of refuge spaces required in a building will be determined by an assessment of the number of people likely to require the use of such a space. A minimum of two spaces on each level in any building is desirable.

### 8.1.2.8 Lifts

The installation of internal lifts that meet evacuation standards is recommended, ie with fire-resistant properties and suitable for use in an emergency evacuation. Existing lifts can be upgraded to be usable for evacuation purposes. Fire-protected lifts reduce reliance on assisted evacuation from the building for people with disabilities and are the most effective means of evacuation. Manual handling of wheelchair users in a fire evacuation staircase, even with training, is hazardous for the person in the wheelchair and for those people giving assistance.

Where lifts with fire-resistant properties are installed, there is still the need for manual evacuation equipment to be present in the event of internal lift failure.

### 8.1.3 Evacuation Aids/Equipment

At each refuge location there should be manual evacuation equipment conveniently located with clear instruction as to its use. Evacuation equipment is used to transport people with limited mobility up/down the stairwell by people who are trained in its use and in manual handling techniques. Not all evacuation equipment can go both up and down stairs. Careful research and consultation is required to ensure the choice of the most effective equipment for a particular situation.

As most evacuation equipment requires a wheelchair user to transfer from their wheelchair, there must be another wheelchair available in the area to where the person is escaping.

Not all wheelchair users will be able to transfer or be transferred onto standard evacuation equipment in order for the building to be evacuated. If it is not possible to evacuate a

person from a building using standard evacuation equipment, then careful research is required to determine alternative provisions. There is manual evacuation equipment available onto which a wheelchair user can manoeuvre while remaining seated in their wheelchair. The use of this type of equipment may have design implications and should be considered at planning stage. However, reliance on self-evacuation from a building using a fire-protected lift is by far preferable.

Where a fire-protected lift is installed there is still the requirement for manually operated evacuation equipment to be present in the event of unforeseen difficulty with, or failure of, the lift.

## 8.2 Management Provisions

### 8.2.1 Background

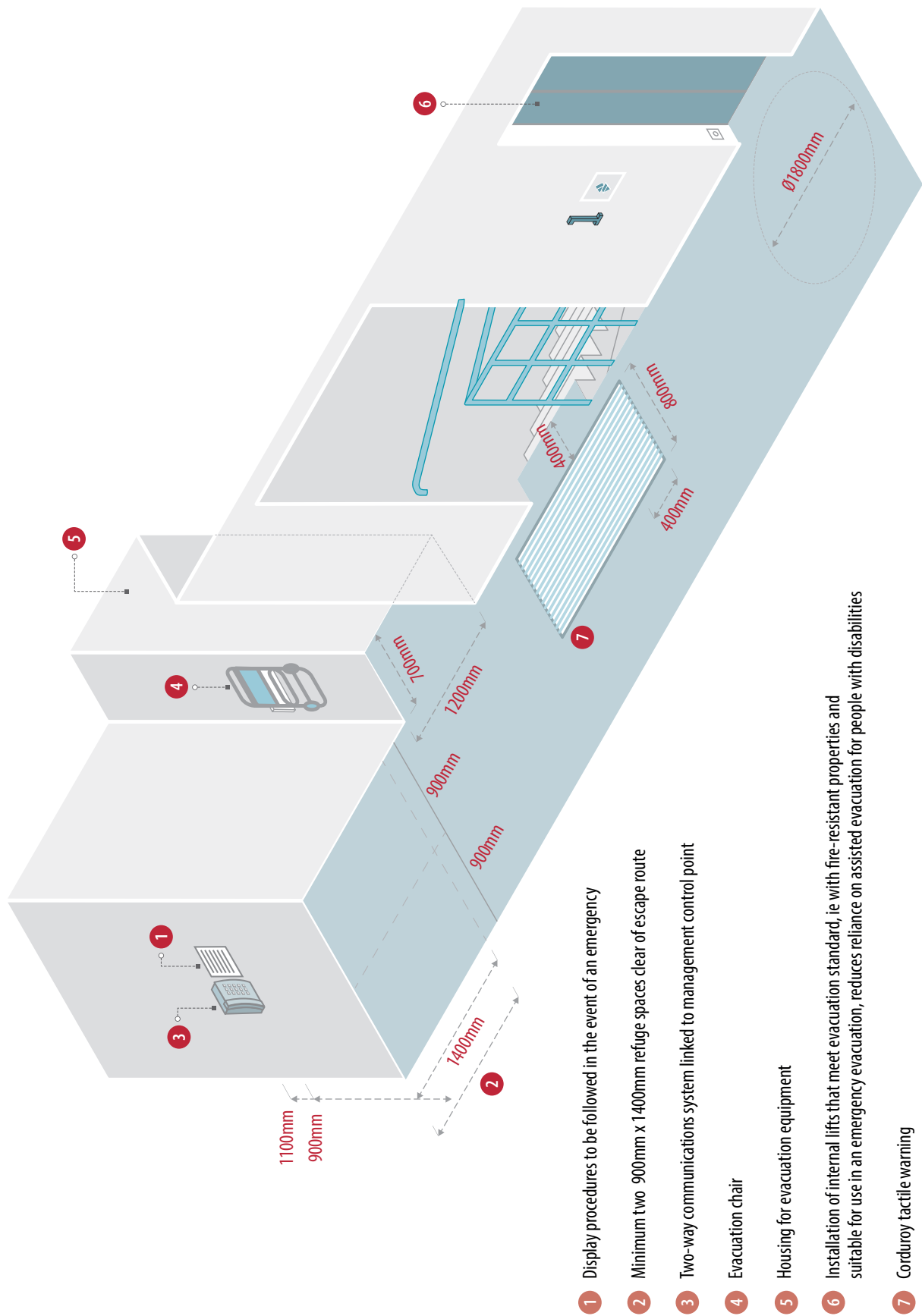
It is the responsibility of the building management to ensure that in the event of emergency all people can safely escape to a designated place of safety. Good management procedures, staff knowledge and training are essential for the safe evacuation of a building in the event of an emergency. Building management should develop an egress policy and action plan which is recorded in a building evacuation handbook.

### 8.2.2 Evacuation Plan

The development of a building evacuation plan for both users and visitors to a building is essential to the safe evacuation of all people in the event of an emergency. The needs of all people will have to be anticipated in planning for emergencies. Consultation with disability organisations is advised in relation to the needs of people with disabilities. Where appropriate,

“ Unless a person can get out of a building in an emergency, ”  
then it is not truly accessible at all.

– IWA member, Dublin



- 1 Display procedures to be followed in the event of an emergency
- 2 Minimum two 900mm x 1400mm refuge spaces clear of escape route
- 3 Two-way communications system linked to management control point
- 4 Evacuation chair
- 5 Housing for evacuation equipment
- 6 Installation of internal lifts that meet evacuation standard, ie with fire-resistant properties and suitable for use in an emergency evacuation, reduces reliance on assisted evacuation for people with disabilities
- 7 Corduroy tactile warning

Figure 32 – Refuge area



signing in and out procedures for visitors are recommended. The essential elements of an evacuation plan are as follows:

- Knowledge of the fire safety features of a building and the ensuing evacuation strategy indicated.
- The identification of staff members with responsibility for ensuring the safe evacuation of all from the building, including one single person with ultimate responsibility.
- Regular staff training in: manual handling; fire safety and evacuation procedures (eg total, phased or zoned, horizontal and vertical); and the use of any equipment provided eg evacuation lift/chair.
- The identification of persons regularly using the building and requiring assistance to evacuate from the building in the event of an emergency.
- The development of Personal Emergency Evacuation Plans (PEEPs), with persons who are regularly using the building and requiring assistance to escape.
- The identification of persons using the building and requiring the use of vibrating pager/alarm systems, and the development of a distribution and return system.
- The development of a system to ensure that, in the event of an emergency, should some people not have been able to escape or be evacuated from the building, there is a system to ensure immediate and clear identification to the fire services of the locations and numbers of these people.
- Clear communication of the emergency evacuation plan to all those who have a role to play, including outside agencies eg the fire services.
- Regular practice and review of the emergency evacuation plan and procedure.

- Regular maintenance and good management of fire-resistant building properties, equipment and egress areas of the building.

### 8.2.2.1 PEEPs – Personal Emergency Evacuation Plans

It is essential to develop Personal Emergency Evacuation Plans (PEEPs), in consultation with regular users of a building who have an impairment that would impede their egress (either horizontally or vertically), from the building. The PEEP essentially matches the needs of the person with a disability to the capabilities of the egress design and should be regularly reviewed and updated. A PEEP may involve:

- The use of a buddy system, whereby other staff members will, moving horizontally, accompany the individual to the outside.
- Where vertical or horizontal movement poses a difficulty, accompanying the person to a refuge area.
- Using a lift/chair evacuation system to transport the person vertically to the outside.
- Staying with the person within a refuge area until the fire services have been alerted and arrive to lift the person to safety.

In all of the above matters, consultation with relevant local authority fire officers, fire consultants, users of a building and disability organisations is critical to the development and implementation of an evacuation policy and plan that is effective and gives confidence to the users of a building.

### 8.2.3 Additional Reading

For further information please refer to *Safe Evacuation for All*, published by the National Disability Authority and available on its website: [www.nda.ie](http://www.nda.ie). Refer also to the Building Regulations (2006), *Technical Guidance Document Part B – Fire Safety*, published by the Department of the Environment, Community and Local Government.

- ▶ Building evacuation is a key element in any organisational health and safety management plan.
- ▶ Part B of the Irish Building Regulations and British Standards BS: 9999 relate to the safe evacuation of people with disabilities.
- ▶ Principal evacuation strategies include: Total Evacuation, Phased Evacuation and Zoned Evacuation.
- ▶ Evacuation plans should be displayed at heights of 1000–1100mm and 1600–1700mm from floor level.
- ▶ Fire alarms should be both visual and audible.
- ▶ Suitable escape and refuge signage is essential to safe evacuation of a building.
- ▶ Signage should be easily understood and use of pictograms can be helpful.
- ▶ Escape routes should have minimum corridor widths of 1800mm.
- ▶ All doors for use as emergency exits should open outwards.
- ▶ Stair width of 1500mm is recommended to facilitate the assisted evacuation of people with disabilities.
- ▶ Refuge areas should be clearly signposted, and sized 900mm x 1400mm for a single refuge space.
- ▶ A refuge area should be located within a protected stairway, equipped with a two-way communications system with controls at 900–1100mm from floor level, and contain an evacuation chair.
- ▶ Internal lifts should be fire-resistant. Existing lifts can be upgraded to be usable in an emergency evacuation.
- ▶ Good management procedures and staff training are essential for safe evacuation of a building in an emergency.
- ▶ Develop an Egress Policy and Action Plan which is recorded in a building evacuation handbook.
- ▶ Develop a Personal Emergency Evacuation Plan (PEEP) for people needing assistance to evacuate the building.
- ▶ Identify trained staff members with responsibility for ensuring the safe evacuation of all.
- ▶ Regular practice and review of emergency evacuation plan is required.
- ▶ Maintenance of fire equipment and egress areas of the building is essential.



## 9.1 Maintaining High Levels of Access

### 9.1.1 Background

Access to the built environment and to services and facilities cannot be guaranteed by good design alone. An integral part of ensuring good access for all involves the constant and ongoing maintenance and management of the building, the surrounding areas and the services and facilities provided within.

In order to achieve good practice in maintaining high levels of access, both management and maintenance issues should be addressed.

### 9.1.2 Access Management Programme

An effective management programme will:

- Provide regular staff training in all matters pertaining to understanding access provisions, and in maintaining high levels of access.
- Establish and manage the provision of a high standard and efficient maintenance programme.
- Ensure that any refit/refurbishment does not diminish existing levels of access, but builds on what is present, and improves access for all.
- Plan strategically, whereby regular reviews of access provisions take place in consultation with people with disabilities. These reviews should identify areas where access may be poor, and where opportunities exist for change and improvement.

#### 9.1.2.1 Access Audits

An access audit is a useful way of taking stock of access provisions within the built environment at

a point in time. An access audit rates the access provided against given access standards. An access audit will review and comment on the levels of access provided and any upgrading required to bring access provisions up to the required legislative and/or design standards. An access audit should also include assessment of issues such as communications, information, customer service and staff training. An access audit should be carried out by a trained access consultant prior to any building work being undertaken. It is recommended that people with disabilities be directly involved in any access auditing process.

#### 9.1.2.2 Building Manual

It is recommended that the management and occupiers of a building develop and maintain a Building Manual which would combine information handbooks containing the required information on pertinent areas, ie evacuation, health and safety and access provisions.

A Building Manual is a simple way of listing and explaining the features and facilities of a building, which must be maintained in order to ensure proper access, evacuation and safety for everyone. It should include a set of plans of the building, indicating all the locations where clear dimensions and equipment must be maintained for access, evacuation and safety purposes. The manual should be readily available to staff and be promoted through training within the organisation.

#### 9.1.2.3 Alternative Provision of Service

An easily available and alternative method of service provision should be in place in situations where self-service is the usual operational mode. This provision should be clearly signposted with instruction as to how this service can be accessed.

### 9.1.3 Access Maintenance Programme

An efficient and high standard maintenance programme will establish procedures to address the following issues on a regular basis:

- The regular maintenance of parking bays and approach routes to ensure that they are unobstructed, free of debris and that non-disabled drivers do not occupy disabled parking bays.
- Keeping circulation areas within buildings clear of all obstruction and, where there is movable furniture, as in restaurants/refreshment areas, maintaining the required width of an access route.
- The regular maintenance of doors and door entry systems, including intercom facilities, to ensure that they remain in good working order and that the opening force at the leading edge of a door remains no more than 20 newton.
- Ensuring that WCs, refuge areas and lifts are never used as storage areas for supplies or furniture, and that transfer spaces adjacent to the toilet are kept clear of refuse bins.
- Ensuring that all facilities are kept clean and well stocked, as in the case of WCs.
- Maintaining alarm systems regularly to ensure systems in WCs, lifts, etc, are always in working order.
- Ensuring regularly that the required alarm response is provided swiftly, as outlined in the building emergency protocol document.
- Maintaining floor surfaces that are level, unobstructed and not made slippery by the use of unsuitable cleaning and polishing products.
- Ensure that redecoration of a building, or part of a building, does not compromise or diminish a colour scheme designed to assist people with a visual impairment to orient themselves and identify fixtures and fittings.
- The swift replacement of blown light bulbs, at the appropriate lux or illuminations level, along circulation routes, in lobbies, in WC compartments, etc.
- Signage replacement that ensures new signage is consistent with access specifications, that it integrates with existing signage, and that signs are replaced correctly following removal.
- Regular review of the efficiency of the systems in place to distribute and recall any equipment available to users of the building, eg vibrating fire alarms, audio description units, hoists, etc.
- The clear advertisement of the availability of communication enhancement equipment within the building, eg loop systems, text phone, etc.
- The clear advertisement of the availability of supports to users of a building in relation to access to the building and services and facilities within, eg use of a mobility aids, personal assistance to and from the car parking facilities, sign language interpreter, etc.

### 9.1.4 Additional Reading

For further information please refer to the National Disability Authority *Guidelines for Access Auditing of the Built Environment*, available at [www.nda.ie](http://www.nda.ie)

Refer also to the Building Regulations (2006), *Technical Guidance Document Part B – Fire Safety*, published by Department of the Environment, Community and Local Government.

### **Access Management**

- ▶ Constant maintenance of buildings and approach areas is required.
- ▶ Provide regular staff training regarding access provision.
- ▶ Maintain high levels of accessibility.
- ▶ Any refurbishment/refit should not reduce existing access levels.
- ▶ Carry out access reviews in consultation with people with disabilities.

### **Access Audits**

- ▶ An access audit rates access provision against stated access standards.
- ▶ Access audits review and provide suggestions on upgrades needed to meet legislation and best practice.
- ▶ An access audit also includes assessment of issues such as communications, information, customer service and staff training.
- ▶ Access audits should be carried out by a trained access consultant prior to any building work being undertaken.

### **Access Maintenance Programme**

- ▶ Ensure regular maintenance of parking bays and approach routes.
- ▶ Keep circulation areas within the building clear of obstruction and maintain clear access routes.
- ▶ Ensure regular maintenance of all fittings and equipment throughout the building.
- ▶ Ensure WCs are not used for storage and are free of clutter.
- ▶ Maintain alarm systems.
- ▶ Keep all floor surfaces clean and ensure they are non-slip.
- ▶ All signage should be consistent throughout the building.
- ▶ There should be clear advertisement of the availability of communication enhancement equipment within the building.



## 10 Housing

### 10.1 IWA Housing Support Services

Irish Wheelchair Association (IWA) regards the availability of accommodation of a suitable design and type, in a fitting location, with the required personal supports, as a basic right. The availability of such accommodation directly supports people with a disability to participate in and to contribute to the life of the community in which they live.

The UN Convention on the Rights of Persons with Disabilities <sup>8</sup> states that people with disabilities should have the opportunity to choose their place of residence and where and with whom they live on an equal basis with others, and not be obliged to live in a particular living arrangement. In addition, people with disabilities should have access to a range of in-home, residential and other community support services, including the personal assistance necessary to support them to live and be included in their community, and to prevent their isolation or segregation from the community (United Nations, 2008).

This section of the *IWA Best Practice Access Guidelines* publication describes the various housing supports that IWA has developed to support people towards independent living, including a section on housing design. The section on housing design sets out requirements for both 'Wheelchair Accessible Housing' and 'Life Time Adaptable Housing'.

#### 10.1.1 Background

People with disabilities often have very specific housing and accommodation requirements and can find it difficult to gain access to their preferred living situation. Irish Wheelchair Association represents the specific housing interests of its members through a range of initiatives which

include direct provision of housing, information and advice, lobbying, advocacy and individual support to members.

The housing needs of people with disabilities can include housing adaptation, independent living, supported housing, and transitional housing. IWA responds to these housing needs through a number of initiatives.

##### 10.1.1.1 IWA Operation Sign-Up

'Operation Sign-Up' is an IWA initiative, which encourages and supports people with disabilities who wish to live in their own homes, but are unable to do so from their own resources, to apply for social housing through local authorities. Being registered on a local authority social housing list can act as a gateway to a variety of social housing opportunities. By hosting events in partnership with local authorities, through various local and national media outlets, by viral email, through community and youth groups, in IWA's *SpokeOut* magazine, and in various other ways, IWA has publicised Operation Sign-Up and encouraged people with disabilities to make contact with the Housing Department of their local authority. Operation Sign-Up supports people with disabilities through the process of a social housing application with online information and personal support if required, with the aim of achieving a successful housing outcome.

##### 10.1.1.2 Information and Advice

The IWA Operation Sign-Up initiative includes a housing website [www.iwa.ie/house](http://www.iwa.ie/house) which provides a step-by-step guide to applying for social housing. IWA has broken down the ten steps involved in the housing application process and has also listed on the website all the relevant housing-related information an individual will

<sup>8</sup> Convention on the Rights of Persons with Disabilities and Optional Protocol.



require during and subsequent to the application process. This includes contact details for local authorities, information links to local health centres, information on housing adaptation grants and also details of all local IWA centres. Staff in local IWA Resource and Outreach Centres can be available to support people through a social housing application or in seeking to resolve other housing-related matters.

#### **10.1.1.3 Lobbying and Advocacy**

IWA actively lobbies and works with the Department of the Environment, local authorities, other disability representative groups and voluntary housing providers to promote good wheelchair accessible design and the delivery of a supply of accessible housing suitable to the requirements of IWA members. IWA is a member of Housing Advisory Groups in the Department of the Environment, the Disability Federation of Ireland and the Irish Council for Social Housing.

#### **10.1.1.4 IWA as a Voluntary Housing Association**

Driven by its mission to support and promote independence, dignity and enhanced quality of life for people with disabilities, Irish Wheelchair Association (IWA) provides accessible and affordable housing units to its members in various locations throughout Ireland. Approved Housing Body (AHB) Status was granted to IWA by the Department of the Environment on 17<sup>th</sup> September 1984 under Section 12 of the Housing Act (1966). As an Approved Housing Body the IWA can avail of funding, when available, from the Department of the Environment to provide social housing. The majority of IWA's housing units are purchased through the Department of the Environment, Community and Local Government Capital Assistance Scheme (CAS) which currently provides AHB's with 100% funding to either purchase existing properties or build new properties, depending on the conditions of the funding from year to year.

IWA has a long history of delivering quality housing and services to people with physical and sensory disabilities. Currently IWA provides a range of accessible and affordable social housing units to people who cannot afford to build or purchase a house of their own from their personal resources. Tenants lease the housing units at affordable rates, relative to the private rental market. In many cases the houses are designed or adapted to meet the varying and complex needs of individual tenants to support them to live more independent lives in their local community. The installation of specific aids and appliances at design stage supports the tenant's independence.

As of 2014, IWA has a housing stock of approximately 60 accessible and affordable one and two bedroom housing units available to its members.

IWA's Accessible Housing models include:

- **Transitional Housing**

These units provide a level of on-site assistance and support to tenants who wish to take the first steps towards independent living and to gain the confidence and skills to progress to their own long term housing in the community of their choice.

This model supports individuals and their families in addressing the natural anxieties and fears associated with living independently for the first time and to take the steps towards a more independent lifestyle.

This is usually a time limited tenancy with an independent living skills development plan which links with and avails of existing community resources such as Money Advice & Budgeting Service (MABS), IWA driving lessons, Home Help, Personal Assistance, Training and Employment opportunities, public transport, and other personal development opportunities.

- **Independent Living Housing**

Tenants in these housing units may or may not require formal or informal supports in order to live independently in the community. The units do not provide personal assistance supports, however many tenants avail of visiting services specific to their needs and delivered on an agreed basis either by the IWA or other service providers. Services may include Personal Assistance, HSE Home Help, Public Health Nursing and/or informal personal supports like family and friends.

- **Supported Independent Living Housing**

This model of service facilitates individuals who wish to live independently in the community and require a higher level of support to do so. Tenants, supported by staff, maximise their independence and live active and participative lives in their local community.

Support services vary according to the needs of tenants and may include personal assistance, meals and other supports.

These different housing models offer individuals with disabilities a greater range of support options as they progress to independent living.

## 10.2 Design Guidelines for Wheelchair Accessible Housing

### 10.2.1 Background

Wheelchair accessible houses are purpose-designed considering the specific space and access requirements of a person using a wheelchair. These houses are larger in floor area than standard housing to provide sufficient circulation space and to accommodate personal assistance if required. Every area of the house, the

household facilities, and the equipment therein, is specifically designed to be accessible for the wheelchair user. Forward planning which considers internal design and also the siting of wheelchair accessible units both within a development and within an apartment building is critical to a successful outcome for the occupant.

The housing design guidelines in this document, while informed by many recent publications,<sup>9</sup> have been devised by IWA to meet the access requirements of its members. The room sizes required will depend on the accessible space requirements, in conjunction with the furnishings to be placed within the room. The guidance specifications given in this document relate to accessible space requirements. These specifications are general and intended to accommodate the majority of wheelchair users.

The space requirements and interior design of a unit of accommodation may need to be customised to the individual home occupant's needs. When the individual housing occupant is known then his/her specific access requirements must be designed into the plans from the outset. This inclusive design process is generally achieved by direct consultation with the person with a disability, their advising access consultant, (often an occupational therapist), and the architect.

IWA recommends that four percent of houses in new housing developments should be fully wheelchair accessible.

The guidance given in this section concerning 'Wheelchair Accessible Housing' is for both apartments and for individual houses. The guidance for the approach to, for car parking, for entry and circulation to apartment buildings and to individual houses is dealt with under these separate headings.

<sup>9</sup> *Wheelchair Homes Design Guidelines (The South East London Housing Partnership); Wheelchair Accessible Housing – Best Practice Guidelines (Mayor of London); The UK Housing Standards Review; BS 9266:2013 'Design of Accessible and Adaptable General Needs Housing – Code of Practice'; Universal Design Guidelines for Homes in Ireland NDA/CEUD.*

To achieve good wheelchair accessibility the design of approach routes, entry points and internal circulation is as critical as the interior design of the living space.

## 10.2.2 Apartment Buildings

### 10.2.2.1 Approach Route to an Apartment Building

Any external call buttons/intercom systems situated on approach routes and at the apartment building entry gates at the public path/roadway, should have both auditory and visual displays and be situated at a height between 900-1050mm above ground level and at least 500mm from any corner.

The connection points between the public path/roadway and the environs of the apartment building should be seamless, with level access joining these connections points. Any approach route to an apartment building from a public path/roadway, from a boundary wall, from a set-down location, or from a car parking area should be sufficiently wide and be on firm, level non-slip ground to give ease of access to all. Any external gates, doorways, or openings on the approach route should have a clear width of 1000mm, with 500mm clear space to the leading edge side of the gate/doorway. Any latches or opening mechanisms on the gate/doorway should be easily usable with minimum strength and dexterity, preferably using only one hand in a closed fist position. The latch or opening mechanism should be no higher than 1000mm from ground level.

All approach routes should be level or have a slope of not more than 1:50. Where the plot gradient does not allow a level approach, both stepped and ramp access must be provided. A ramp should be gently sloping with a gradient not exceeding 1:20 (1:15 is a minimum acceptable slope in exceptional circumstances).

A stepped approach should be suitable for use by ambulant disabled persons.

*For further information on external ramps and steps see Section 4.3 on page 30 and Section 4.4 on page 31*

All pedestrian approach routes/footpaths should be free of projecting hazards and preferably have a clear width of 2000mm. Localised obstructions should be set back so that they do not narrow the route or occur within 1200mm either side of a doorway or change of direction. In exceptional circumstances where there is known to be low usage of the footpath, a minimum acceptable approach route width is 1500mm. Where the pathway reduces to 1500mm in width, passing spaces of 2000mm in depth x 2000mm in width should be provided at intervals of 25m.

Where there are road crossing points on the approach routes/footpaths, these should be dished flush with the roadway, always on opposing sides, and the appropriate tactile paving should be provided at the crossing points.

*For further information on tactile paving see Section 4.2.2.2 on page 27*

Sensory activated lighting should be provided on approach routes, at car parking areas and at the entry points to the apartment building. The illumination should be 150 lux on the general grounds and 200 lux on ramps/ steps.

### 10.2.2.2 Car Parking and Setting Down Points – Apartment Buildings

Where car parking for both residents and visitors is provided, it should include a proportion of accessible parking bays.

*For design guidance, dimensions and recommended number of accessible parking bays, see Section 4.1 on page 21*

**See also Figures 3 and 4 on pages 22 and 23**

As the demand for accessible parking from residents in apartment buildings is likely to change over time the management company should devise a system of monitoring need and allocating accessible bays as the demand changes. Each wheelchair accessible house should have the option of a designated accessible parking bay. In addition, there should also be a priority accessible parking bay allocation given to holders of disabled parking badges. The design of standard parking bays could include the future option of some standard bays being increased in size, should additional accessible parking bays be required.

Accessible parking bays should be situated close to the apartment building entry points, preferably within a distance of 25m. Access from the car parking areas to approach routes and to building entry points should be level and seamless and should comply with the general guidance on approach routes in the referenced sections above.

If parking is provided within an enclosed area there is a height requirement of 2.6m to accommodate high top adapted vehicles and vehicles with roof-top boxes that store a wheelchair.

A drop-off or setting-down point should be provided close to the communal entrance to an apartment building.

*For design of setting-down points see Section 4.1.6 on page 26*

### 10.2.2.3 Main Entrance to Apartment Buildings

There should be sensor-activated lighting and level entry at all apartment building entry points. The entrance should have a level external landing

area of 1800x1800 that is weather protected. Weather protection can be achieved either by enclosing the space within a recessed area or by the provision of a canopy or a combination of both. Any canopy should extend 700mm either side of the entrance.

The main entrance door to an apartment building should provide a 1000mm clear width with 500mm clear space to the leading edge side of the door. The main entry door should have a door-release intercom communication system and power-assisted or automated doors. The entry and locking system on the main door should be usable with minimum strength and dexterity. Lever-type handles are recommended and should be placed at a height of 900–1000mm from the floor level. Doors that are automated can have a choice of entry systems including use of a coded key pad, push pad and proximity card/fob.

The door call/entry systems should be located on the latch side of the door on the adjacent wall at a height between 900mm and 1050 from floor level. The system provided should contain an LED (Light Emitting Diode) display to facilitate people who are deaf or hard of hearing. The communication system and door release indicator should be both visual and audible.

There should be a level space of 1800x1800mm inside the entrance door that is clear of the door swing.

### 10.2.2.4 Lobbies and Internal Doors within Apartment Buildings

Lobbies within apartment buildings should be designed and constructed so there is sufficient space to enable a wheelchair user and a person assisting the wheelchair user to move clear of one

“ I built my house in 1988 and never noticed the steps at the back door until I got sick. ”

– IWA member, Co Mayo

door before using the next door, while also allowing space for a person to pass in the opposite direction.

The minimum clear door widths leading into and from a lobby/foyer area and throughout the apartment building should be 900mm, with preferably 500mm (min 300mm) clear space to the leading edge side of the door. The size of the lobby/foyer area will be determined by the size of the door opening into and from the lobby area, and by whether the doors are opening in the same or opposite directions. The clear space enclosed by the lobby area must be maintained at a clear internal footprint of 900mm in width x 1700mm in depth. This area must remain free of door swing. Ideally the recommended lobby width is 1800mm; however, a minimum lobby width of 1500mm is acceptable.

Negotiation of heavy doors presents a barrier to many people (wheelchair users, people carrying parcels, people with buggies, etc.) Doors leading into and from lobbies and all internal doors within communal areas of an apartment building should be power-assisted or automated. Fire doors should be held open with a magnetised release system that will automatically close the doors in the event of a fire alarm.

At the entrance doors to individual apartments there should be a clear external space of 1800x1800mm. The individual apartment number/name should be large, in strong contrast with the background and located in a prominent place for ease of identification.

The entry and locking system on the individual apartment door should be usable with minimum strength and dexterity. Lever-type handles are recommended and should be placed at a height of 900–1000mm from the floor level.

A view of callers for all people, including children and people in a seated position, can be achieved from within the apartment with the use of wide angle viewers located in the door. Where wide angle viewers are provided in the entrance door,

these should be situated at 1050mm and 1500mm above floor level to enable viewing by persons in a seated or standing position.

#### 10.2.2.5 Communal Corridors

Communal corridors should ideally have a clear unobstructed width of 1800mm. Any corridors less than 1800mm in width should have a turning space of 1800mm x 1800mm at the end of the corridor and at corridor junctions. This turning space should be repeated at intervals of 25 metres as the length of the corridor continues. Any corners on a corridor should be rounded.

The minimum acceptable clear unobstructed corridor width is 1500mm. Where the communal corridor is reduced in width to 1500mm there should be a clear space of 1800x1800mm provided external to each individual apartment entry point. To facilitate horizontal movement in emergency evacuation, designated escape routes should always have minimum corridor widths of 1800mm.

#### 10.2.2.6 Vertical Circulation within Apartment Buildings – Stairs

Straight flights of stairs are recommended as they are easier to negotiate than curved ones. Ideally, the unobstructed width of the flights of steps should be no less than 1500mm. A stair width of 1200mm is acceptable where the stairs is not part of an evacuation route. Handrails should be continuous and provided at a height of 900mm from the pitch line on both sides of the steps, and they should extend 300mm beyond the top and bottom step and finish in a closed end. The handrail should contrast with the background in tone and colour. Flights should contain no more than 12 risers between landings and the number of risers in successive flights should be uniform. Level landings, at least 1500mm in length and free of cross door swings, should be provided.

When the stairs forms part of an evacuation route the unobstructed clear width should always be 1500mm.

### 10.2.2.6.1 Steps

The rise of each step should be consistent and between 150–180mm. The going of each step should be consistent and between 300mm–450mm. Nosings should be integral with the step, and distinguishable in colour and tone. Nosings should be used on the front face and the top of each step so as to be visible while ascending or descending.

Open risers should not be used and single steps are also to be avoided.

*For further information on the design of external and internal steps and stairs see Section 4.4 on page 31 and Section 5.5 on page 47*

### 10.2.2.6.2 Tactile Surfaces

Top and bottom landings should be provided with a tactile surface in a ridged pattern to give advanced tactile warning of the change in level. This tactile surface should comprise of rounded bars running transversely to the direction of pedestrian travel. The ridged surface should start 400mm from the nosing of the first step. When steps are in the direct line of travel, a depth of 800mm is required for the tactile surface. The tactile bars should be 6mm (+/- 0.5 mm) high, 20mm wide and spaced 50mm from the centre of one bar to the centre of the next.

Hazard warning surfaces must also be installed at intermediate landings where there is access onto the landing other than from the steps themselves.

Where it may not be possible to use a tactile hazard warning surface indoors – which can be problematic with different frictional qualities of indoor surfaces – then floor finishes that contrast visually and in texture and sound should be used to highlight and to warn of the top and bottom of the stairs.

### 10.2.2.6.3 Lighting

Lighting should be even and consistent along the

flight of stairs and should not cause anyone to negotiate the stairs in their own shadow, with a non-glare minimum illuminate of 200 lux.

### 10.2.2.7 Vertical Circulation within Apartment Buildings – Lifts

Lift access is required in all apartment buildings. Lifts should be conveniently located in relation to the lobby, be clearly signposted and be seen from the entrance. The landing in front of a lift should be a minimum of 1800mm x 1800mm.

Where wheelchair accessible units are above ground floor these should ideally be accessed by two lifts in different locations to create alternative evacuation routes.

As the use of lifts is the most effective means of evacuation for people with disabilities, all lifts in apartment buildings should be fire-protected and capable of being used for evacuation purposes.

*For further information on evacuation see Section 8 on page 107*

#### 10.2.2.7.1 Lift Landings

There should be a clear unobstructed space of 1800mm x 1800mm in front of the lift entrance, and this area should be well lit with a minimum illumination of 150 lux. A change of floor surface and texture should be present to indicate the approach to the lift. Lift controls at each landing should be embossed to enable tactile reading as well as visual, and at a height of not less than 900mm and not more than 1100mm. The controls should be visually contrasting with the colour of the surrounding face plate.

#### 10.2.2.7.2 Lift Door Design

The lift doors should have a minimum clear opening width of 900mm. The lift doors should be clearly distinguishable from the background by tone and colour contrast. The lift doors should be fitted with a reacting device which relies on infra-red or photo-eye systems to ensure no person can become trapped in the doors. The lift door should

stay open for a minimum of 20 seconds. A control button to keep the doors open should be situated on both the inside and outside of the lift. Both visual and auditory warning should be given, before the lift doors open and close.

#### 10.2.2.7.3 Lift Car Design

Single door lifts should provide sufficient internal cabin space to accommodate a turning circle of 1800mm x 1800mm. In lifts where a front-on alternative exit door is present, an internal turning circle of 1800mm x 1800mm is not necessary. In this situation, a minimum clear space of 1200mm in width and 1700mm in depth within the lift car is required.

In smaller buildings it may not be possible to provide a lift with the above internal dimensions. In such situations, a Class 3 lift, 1400mm in width x 2000mm in depth, is recommended in order to comfortably accommodate a wheelchair user and other person.

Where a lift car is not square, it is always preferable that the lift car be deeper rather than wider, to facilitate the entrance and exit of mobility scooters.

See Figure 12 on page 51

#### 10.2.2.7.4 Lift Controls and Fixtures and Fittings

In the lift, the control pad should be situated at a height of between 900–1100mm and located 750mm from the door opening. Control pad buttons should be well spread, and accessible to wheelchair users by parallel approach. Lift control buttons should not be flush with the surrounding panel. Control buttons should contrast in tone/colour with their background. It is helpful for people with vision impairment if buttons light up when pushed. Braille as well as tactile letters/numbers should be provided beside each of the control buttons, to enable people with impaired vision to identify them. Tactile indicators should contrast with the background design of the lift car.

Audible, visual and tactile notification of the floor level reached and notice of door opening/closing should be provided at each lift landing.

The internal lighting within the lift car should be uniformly distributed at approx. 150 lux at floor level. The internal walls of the lift car should be covered with a non-reflective matt material. Light coloured walls provide contrast with a darker floor shade. The floor should have frictional qualities similar to or higher than the floor of the landing. A handrail should be situated at a height of 900mm above the floor level, and along both the side and back walls.

In lifts with one door, a mirror at the rear of the lift cabin is required to assist wheelchair users to reverse out of the lift. To avoid causing confusion to people with a visual impairment, this mirror should not extend the full height of the cabin but should start at 900mm above floor level and continue to the top of the lift car.

#### 10.2.2.7.5 Lift Emergency Service Notification

Passenger lifts should be fitted with emergency instructions in visual and tactile format at a height between 900–1100mm. A push-button control with tactile indicator should activate an emergency communication system situated within the lift car. A visual and auditory response indicator should also be fitted. The function of this response indicator is to confirm receipt of an emergency call, to detail the expected response action and time, and to allow on-going communication. The communication system should incorporate an induction coupler for the benefit of people who use hearing aids.

#### 10.2.2.7.6 Refuge Areas in Apartment Buildings

As many people with a disability cannot use stairs unassisted it is necessary to ensure that people can remain in a place of relative safety until help arrives. One solution is to provide a refuge space or area of rescue assistance. The refuge space or spaces should be provided within a designated fire protected area and on any above or below

ground floor level where there is not level access to an external place of safety. The refuge area should contain a two-way communication system linked with a management control point, clear instructions on procedures to be followed, and evacuation equipment.

*For more information please see Section 8 on page 107*

### 10.2.3 Houses

#### 10.2.3.1 Approach to the House

At least one point of access at the boundary of the house site should have a minimum clear opening width of 1000mm.

The approach to the main house entrance from the site boundary and from the car parking space should have a clear unobstructed minimum width of 1200mm and have a firm surface, suitable for wheelchair users, which minimises the risk of slipping.

Both the approach from the exterior pathway to the site boundary access point and the approach to the house entrance from the plot boundary should be level or have a slope of not more than 1:50. Where the plot gradient does not allow a level approach, both stepped and ramped access must be provided. A ramp should be gently sloping with a gradient not exceeding 1:20.

A stepped approach should be suitable for use by ambulant disabled persons.

*For further information on external ramps and steps see Section 4.3 on page 30 and Section 4.4 on page 31*

#### 10.2.3.2 Car Parking

A car parking space should be provided adjacent to or within the boundaries of the house, and should be 3600mm in width and 6000mm in length. This size will allow a 1200mm 'Access Zone' to the rear and to one side of the vehicle. The car parking space will need to be larger if a multi-

purpose vehicle is to be accommodated. The car parking space should be on level and firm ground and preferably have covered access to the main house entry.

Where car parking is required for a high top adapted vehicle or a vehicle with a roof-top box used for storing a wheelchair, a clear height of 2600mm is required.

*For more information on accessible car parking see also Section 4.1 on page 21*

#### 10.2.3.3 Main Entrance

There should be level entry to the house. The main house entrance should have an inward opening door with a clear width of 900mm and with an unobstructed space of at least 500mm on the side next to the leading edge of the door. The entrance should be protected by the provision of a canopy or recess. The recessed area or area enclosed by the canopy should be a minimum size of 1800mm x 1800mm, extending beyond the door on the lock side by 550mm, with a maximum height of 2300mm.

Lighting should be provided to/from the entrance and along the route to/from the car parking space. Passive Infra-Red (PIR) sensor and internal switching is recommended.

Ideally, there should be no thresholds at any doors. This may require innovative design. A place to put packages while opening the main entrance door is useful. This could be provided by the use of a built-in shelf, bench or table with knee space below, located preferably on the leading edge side of the door.

An additional level access entrance/exit should be provided at the rear of a ground level house – consideration should also be given here to a patio entrance/exit door within the ground level accessible bedroom. Where the house is located above ground level the access to an outside/external location can be achieved with the provision of balcony space.



#### 10.2.3.3.1 Door Fixtures

The house number/name should be large, in strong contrast with the background, and located in a prominent place for ease of identification.

The entry and locking system on the main door should be usable with minimum strength and dexterity. Lever-type handles are recommended and should be placed at a height of 900–1000mm from the floor level.

Where the main entrance door has a letter box for delivering letters, the letter box should be situated between 700–1200mm from the floor level. The door design should be such that if a letter catch basket is used on the rear of the door, it should not affect the clear door opening width of 900mm.

#### 10.2.3.3.2 Door Entry System

The doorbell or intercom system, if connected to a security release door opener, should have a visual and audible signal at the entrance to indicate that the door has opened. In addition, the doorbell should have a visual indicator inside each area of the house. The various provisions for visitors to communicate with residents, such as a lighted doorbell, an intercom with portable telephone link, and/or a hardwired intercom should all be situated at a height between 900–1000mm. A view of callers for all people, including children and people in a seated position, can be achieved with the use of wide angle viewers, TV monitors, windows in doors, and/or windows placed nearby. Where wide angle viewers are provided in the entrance door, these should be situated at 1050mm and 1500mm above floor level to enable viewing by persons in a seated or standing position.

Automated or power-assisted doors are recommended. A push and go power assist door will swing fully open from a closed position when the user begins opening it, taking at least three seconds to open and remaining open for a minimum of five seconds. Automated doors are operated by a variety of means including a coded key pad, a push pad and proximity card or fob.

#### 10.2.3.3.3 Smart Homes and Environmental Controls

Environmental controls can enable a person to live more independently and safely by using technology to manage and control activities and equipment within the home environment. Technology can be wired into living spaces and used to control and manage such activities as: opening and closing doors/windows/curtains, and turning on and controlling TV, radio, music systems, heating, etc.

In the design of a new wheelchair accessible house it is advisable to install any necessary wiring to allow for present or future use of such home technologies. While these technologies can be retrofitted into a house it is preferable to forward plan for such eventualities when a new house is being designed. For full information on the range of SMART home technology, a consultation with an expert in the area is recommended. Such expertise can be accessed in consultation with an occupational therapist or other accessible design advisory service.

#### 10.2.3.4 Interior Circulation and Design of Houses and Apartments

An open-plan interior design that minimises hall and doorways while maximising sight lines is recommended. Corridors, passageways and doors to habitable rooms, on every level, should be sufficiently wide and free of any stepped changes so as to allow for convenient circulation by all. Consideration should be given to the provision of storage space for additional equipment such as exercise equipment, an additional wheelchair, a powered wheelchair charging location, etc. One large storage area capable of being accessed by a wheelchair user is preferable to several smaller areas.

A space of 1100mmx1700mm in length, outside of any access route and supplied with power sockets, is required for a wheelchair charging location. This space should be fire-protected and could be incorporated into the hallway or provided elsewhere within the house.

See Figure 33 on page 131

An 1800mm clear turning circle is required in the hallway. The minimum acceptable hall width is 1200mm with an 1800mm turning circle at both the main entrance door, and at the far end of a long hallway.

Where two doors are positioned on adjacent walls in an internal corner situation, the combined length of the two nibs between doors should be at least 800mm to allow for turning from room to room.

#### 10.2.3.5 Internal Doors

The doors to all rooms should have a minimum clear opening width of 900mm, and an unobstructed space of 500mm on the side next to the leading edge of a single leaf door. All door handles should be easily gripped, and visually contrast with door surfaces. Lever-type door handles that are easy to use, requiring little strength and flexibility, are recommended. Doors should open into a room and against the internal wall.

Consideration should be given to the use of electronically operated or internal swing doors which can be useful to persons who have limited manual dexterity.

The use of pull handles and kick plates could be considered, depending on individual need and preference.

*For more information please see Section 5.1.2.3 and 5.1.2.4 page 38*

#### 10.2.3.6 Windows

Window glazing should begin at 800mm from floor level and should have lever-type low level catches and handles that are easy to operate with one hand and with limited strength. Window catches or handles should be situated at or below 1000mm from floor level.

No transoms should be placed between 850–1200mm to allow a clear view through the window. Environmental control devices to operate windows, curtains, blinds and doors may be useful for some individuals. Relevant professional advice

should be sought beforehand, as the installation of these controls may have design implications.

#### 10.2.3.7 Living Room Design

Circulation space within each room should be large enough to accommodate access to all facilities in that room when furnished. At least two turning circles of 1800mm diameter should be provided in all living areas. These turning circles should not be overlapping. There should be a clear access route at least 900mm wide from the door to the windows.

There should be space provision for a work station within the living areas, placed at a height of 760mm from the floor level, with a clear knee space underneath of 700mm in height and 800mm in width. There should be electrical points serving this area.

Plug sockets should be located between 400–1000mm above floor level. Plug sockets that are in frequent use and large rocker-type light switches should be situated between 750–1000mm. Easy visual identification of switches, power points and heating or other controls should be achieved by having a visual contrast with the background and surroundings.

See Figure 33 on page 131

### 10.2.3.8 Kitchens

Kitchens should have a minimum unobstructed floor space of 1800mm x 1800mm between facing units and between any units and an opposing wall. All appliances, work surfaces and electrical sockets should be easily accessible to the wheelchair user. A split level oven and hob is recommended. A knee clearance space of 700mm in height and 800mm in width, under the sink, hob and preparation areas allows easy access from a seated position. The sink and hob should be insulated on the underside to avoid the possibility of a burn injury.

A 600mm work top depth is recommended. The worktop height should be 760mm from floor level. A height-adjustable worktop area incorporating the sink, hob and preparation area can also accommodate different users over the life time of the house.

See Figure 34 page 132

**Note:** When the individual housing occupant is known, his/her needs must be incorporated into the kitchen plans from the outset. An inclusive design process is generally achieved by direct consultation with the occupant with a disability, the architect, and an access consultant, eg an Occupational Therapist (OT).

#### 10.2.3.8.1 Cooker

The controls of the cooker and hob should be positioned to the front of the appliance and should not require over reaching across burners to operate. The controls should be no higher than 1050mm and no lower than 700mm. The hob should be situated preferably within the worktop at a height of 760mm and with an insulated clear knee space of 700mm beneath.

A ceramic hob is preferable as heavy pots can be moved by sliding them across the hob. The hob/cooker top should have an adjacent work surface of at least 400mm wide.

The oven should be located so that the level of the

drop-down door or the pull-out oven board is at 760mm in height. There should be a worktop area adjacent to the oven.

The oven door can be side-hung or drop-down type. Where a side-hung door is used, a pull-out board of a minimum 250mm in depth should be provided directly beneath the oven. This pull-out board should be strong enough to support a heavy cooking vessel. The side-hung door must open away from the approach route.

#### 10.2.3.8.2 Storage Presses

The depth of the shelves in storage presses should not be more than 250mm. Any shelving above the worktop should be no higher than 1150mm from floor level. Pull-out and drop-down wire baskets or preferably drop-down shelving units serve a wide range of users. Consideration should be given to the use of deep drawers for storage and carousels, to access goods stored in corner presses.

Additional storage can be achieved with the use of portable trolleys on wheels that are stored beneath open work top surfaces and they can be moved around as required.

#### 10.2.3.8.3 Kitchen Appliances

Dishwashers and washing machines should be installed on a plinth with their base set at 200mm from floor level.

Refrigerators and freezers of 'over and under type' are difficult to access for wheelchair users.

Separate refrigerator and freezer units should be fitted on a 200mm high plinth. The doors of the refrigerators and freezers must open away from the approach route.

#### 10.2.3.8.4 Location of Electrical Sockets and Switches

All switches and sockets, including those for appliances, (ie cooker hoods, kettles), should be accessible for a wheelchair user, and placed between 900–1000mm from the floor level. Where



- |                     |   |
|---------------------|---|
| 1 Hall              | 7 Living room   |
| 2 Storage           | 8 Kitchen   |
| 3 Toilet and shower | 9 Bedroom 2   |
| 4 Hot press         | 10 750mm: distance of front of WC bowl from back wall |
| 5 Guest toilet      | 11 600mm: Worktop depth with 700mm clearance beneath  |
| 6 Bedroom 1         | 12 Work station                                       |

Figure 33 – Floor plan for a typical wheelchair accessible dwelling

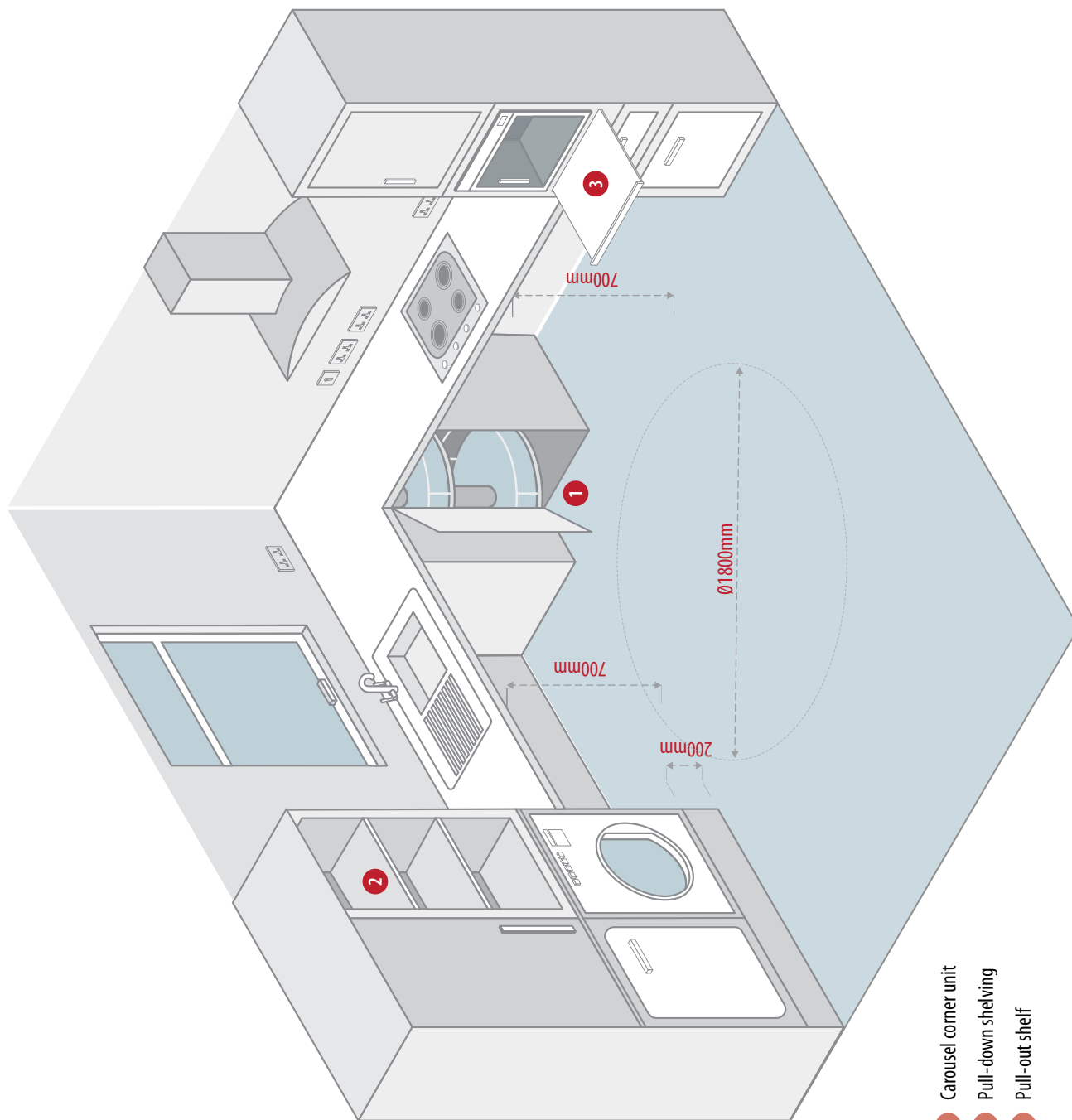


Figure 34 – Kitchen

a clear space is provided under the worktop, switches and sockets should be on the wall at the back of the worktop at 1000mm from floor level and positioned 500mm from any corner. Where there is no clear space under the worktop, switches should be positioned on a return wall at the end of the worktop, at 100mm above and 150mm back from the front edge of the worktop.

#### 10.2.3.8.5 Kitchen Sinks

Sinks should be fitted with a swivel neck mixer tap that can be used by one hand. Sinks should have 700mm in height for knee clearance, should not be more than 150mm deep, and should have heat protection on the underside.

Note: Windows positioned above worktops should be fitted with remote control window openers.

#### 10.2.3.9 Bedroom Design

The bedroom design should incorporate an en-suite bathroom. The bedroom size should be large enough to accommodate parking spaces for any equipment used eg wheelchairs, shower chairs, hoist, walkers, etc. There should be an 1800mm diameter clear manoeuvring space within the bedroom clear of the door swing, a 900mm clear access zone around the bed, and a clear access route at least 900mm wide from the door to the window.

If a manual hoist is to be used within the bedroom, then the turning circle on one side of the bed, most likely the bathroom side, will need to be 2300mm.

The ceiling of the bed room should be sufficiently strong to hold a ceiling hoist, if presently required, or to allow for future installation.

##### 10.2.3.9.1 Fixtures and Fittings

Extra electrical points may need to be provided close to the bed for charging a battery-powered wheelchair. In addition, light, heating, ventilation, TV, internet, phone, door entry, curtain and all other controls, could be grouped

and situated adjacent to the bed head at a height of 900mm. The controls should contrast with the background colour.

Storage closets should have an 800mm x 1300mm clear floor area in front of them. Use pull handles (not knobs) on drawers and cabinet doors. Sliding-type doors are recommended for the wardrobes, as they save space within a room. Power-operated or pull-down clothing carousels are also recommended.

#### 10.2.3.10 Bathrooms

There should be a wheelchair accessible toilet and shower room on the level used by the wheelchair user, and preferably en suite to their bedroom. The provision of a second bathroom or WC for other family members, visitors or personal assistants may require consideration.

See Figure 35 and Figure 36 on pages 134 and 135

The ceiling in the bathroom should be sufficiently strong to hold a ceiling hoist if presently required, or to allow for future installation. The walls in the bathroom should be capable of holding adaptations, such as grab rails and shower seats. Where walls are not solid the wall reinforcements for grab rails should be located between 300–1500mm from the floor level. Flooring material in the bathroom should be non-slip with R 11 (DIN) anti-slip rating.

**Note:** When the individual housing occupant is known, his/her needs must be incorporated into the bathroom plans from the outset. An inclusive design process is generally achieved by direct consultation with the occupant with a disability, the architect, and an access consultant, eg Occupational Therapist (OT).

##### 10.2.3.10.1 Room Size

The size of toilet/shower room should be a minimum of 2500mm x 2500mm. If a bath is provided, the room size should be 2700mm x 3000mm. These dimensions will allow for an 1800mm turning circle.

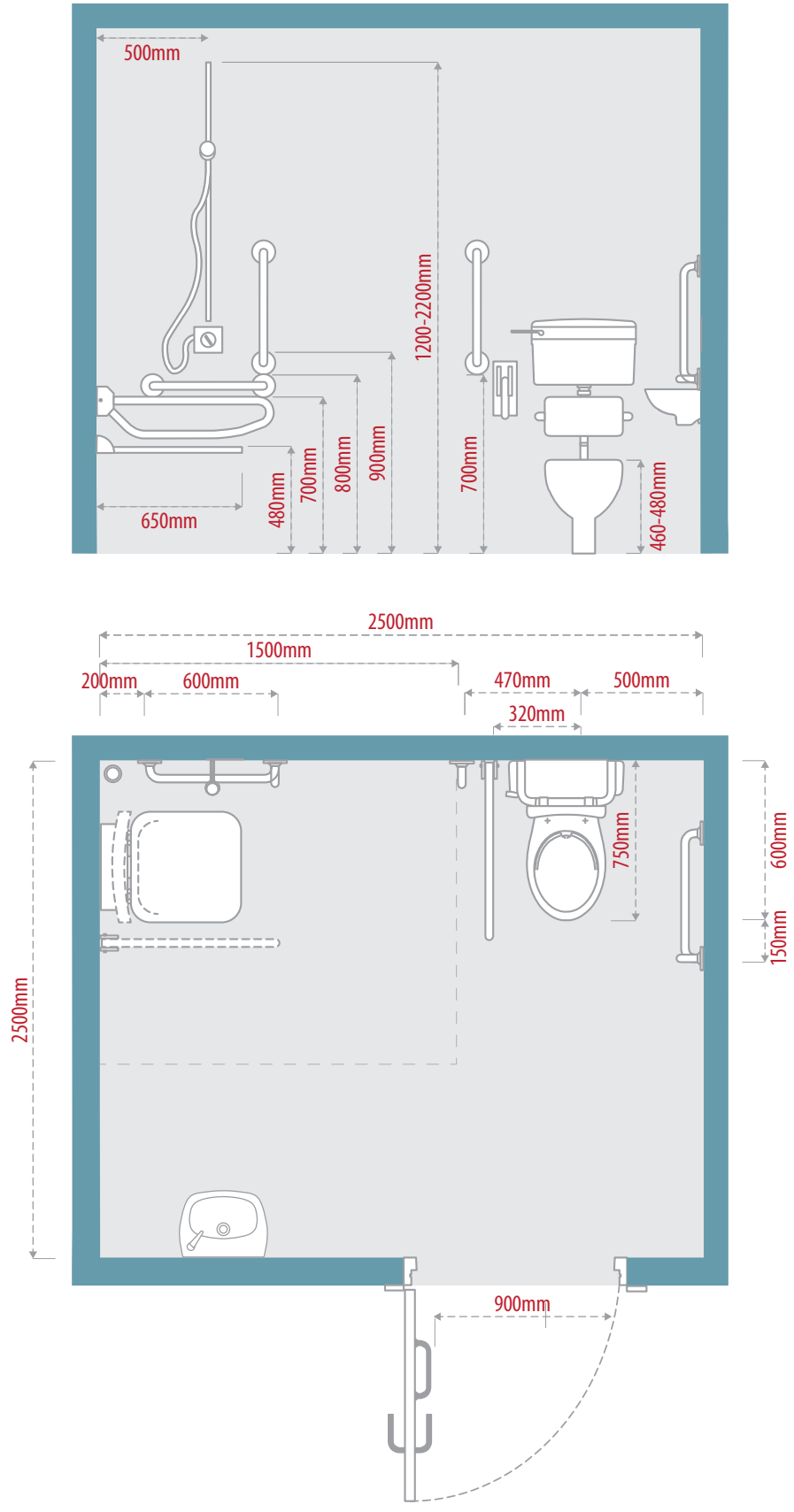


Figure 35 – Accessible shower room with toilet for independent use

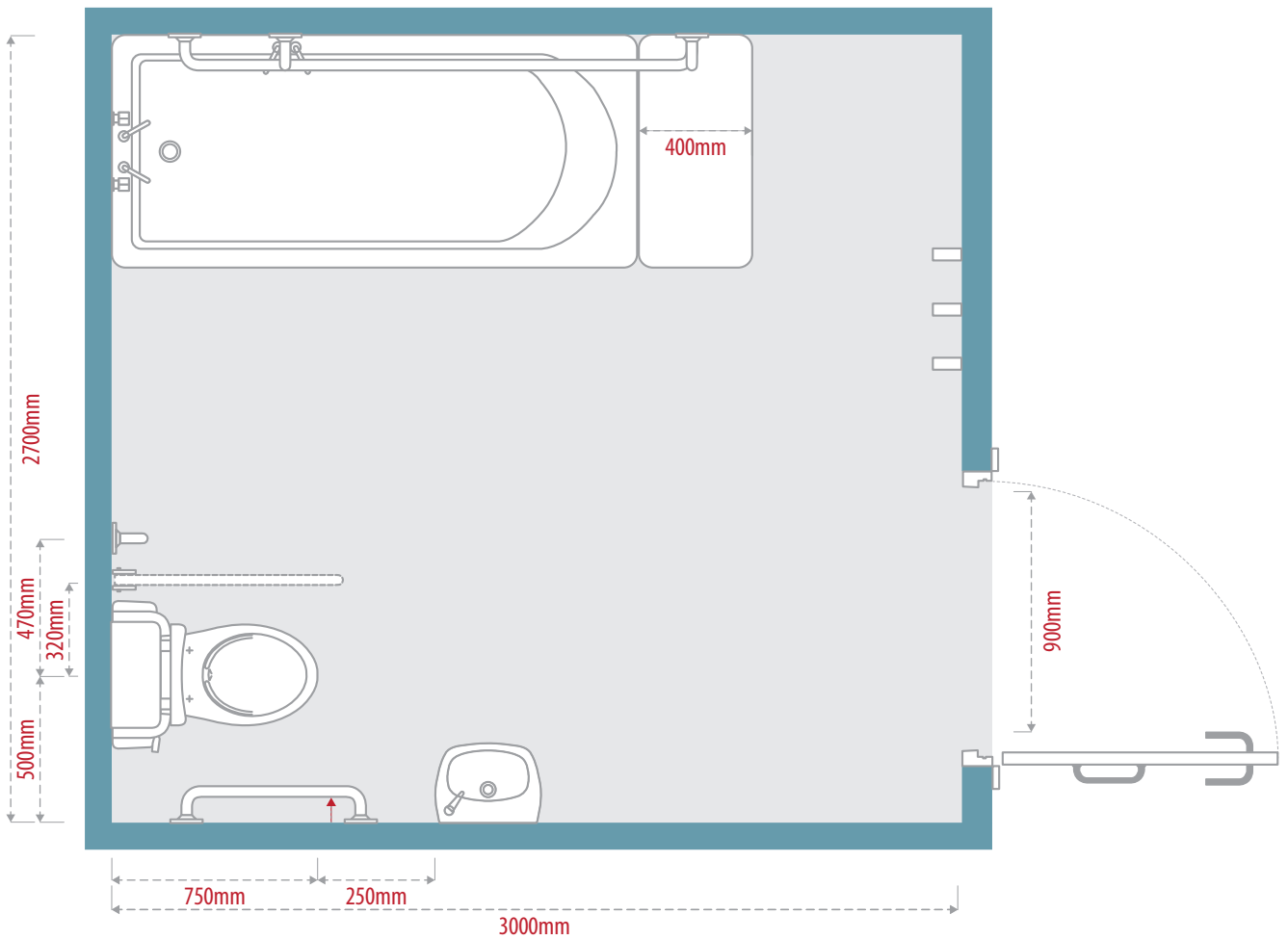
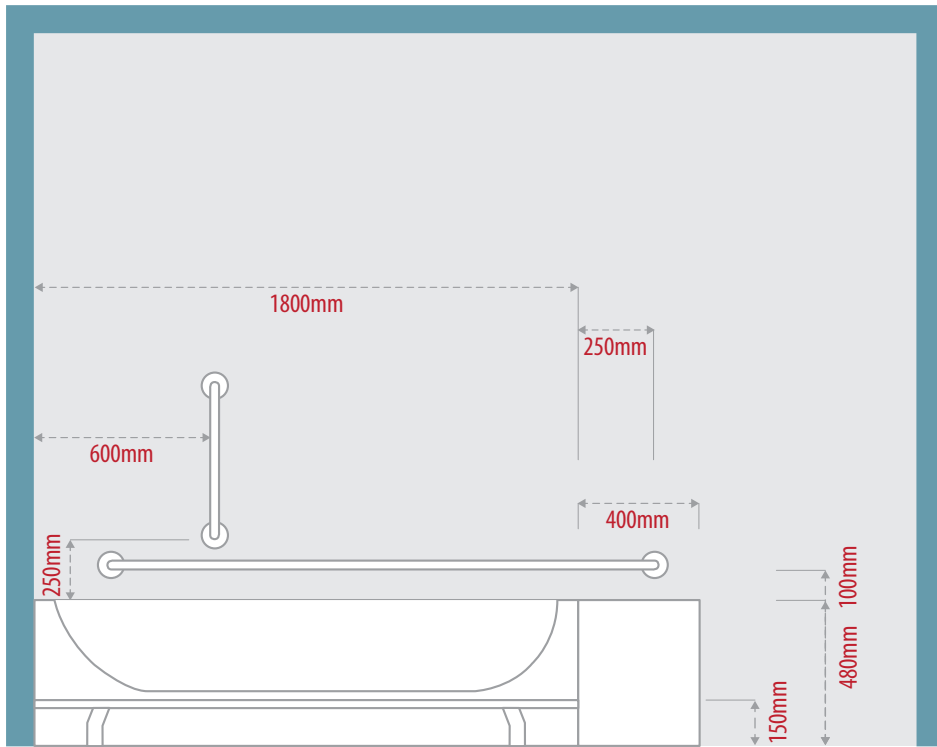


Figure 36 – Accessible bathroom with toilet for independent use



If the person uses an assistant-operated mobile hoist for transfers, then the bath/shower room size should be 2700mm x 3000mm, which will allow for a 2300mm turning circle. This size will also accommodate the use of a shower trolley.

#### 10.2.3.10.2 Shower Area

The shower area should have minimum floor area dimensions of 1500mm x 1500mm. The slope of the floor in the shower recess should have a gradient of between 1:50–1:60. The outside area of the shower floor should have a gradient of between 1:70–1:80, draining into the shower recess. Transition into the shower recess should be level without a step down, a raised step or kerb at the entry to the recess. The waste outlet should be located in the corner.

The shower head should be detachable and adjustable within the height range of 1200–2200mm above the floor level. A 1500mm long flexible hose is required for the shower head. Lever controls for temperature and flow should be placed at 900mm from the floor.

Consideration should be given to the use of a flip-up seat (with legs), located on the shower wall, or the use of a self-propelling shower chair, depending on individual preference.

If a flip-up seat is to be used, it should be located on the wall adjoining the wall with the shower controls. The width of this seat should be 500mm, finishing at a height of 480mm from the floor level. The centreline of the seat should be 500mm from the corner, and the front edge of the seat should be 650mm from the back wall.

A drop-down grab rail should be placed at 320mm from the centreline of the seat, at a height of 700mm from the floor on the open side of the seat. On the side wall, where the shower controls are located, a 600mm long horizontal grab rail should be located, starting at 200mm from the corner and at a height of 700mm. A second 600mm long vertical grab rail should be placed at 800mm from the corner with its lower end fixed at 800mm in height from floor level.

#### 10.2.3.10.3 Bath Provision

When a bath is the preferred option, the height of the bath tub should be 480mm. The bathtub should maintain a lip on the side adjacent to the wall to facilitate the use of a bath seat. A 400mm ledge at the end of the bath should also be maintained. The taps used on the bath should be lever-type and easy to operate for people with limited dexterity and strength. In order to facilitate the use of a hoist, a space allowance of 150mm under the bath tub is required.

#### 10.2.3.10.4 WC Provision

The centreline of the toilet bowl should be 500mm from the adjacent side wall and finish at between 460mm to 480mm height from the floor level. The height should be suited to the individual user and will require discussion. The front of the toilet bowl should be 750mm from the back wall.

A clear space of 900mm is required on the transfer side of the toilet bowl to accommodate space for the wheelchair to be positioned. The decision as to whether this transfer space will be to the right or the left will require discussion as individual users may have a preference.

A spatula-shaped flush handle should be placed on the transfer side of the toilet bowl. A toilet paper dispenser should be within easy reach while sitting on the toilet seat.

The need for grab rails may be specific to the individual and will require individual consultation with the existing or intended resident. There may not be the need for the usual grab rails that are commonly seen in public WCs.

Individual consultation with the occupant and their advising access consultant is advised regarding the type and location of any grab rails.

Note: It is not correct to use the 'DOC M Kit' within the home environment. This kit, which contains a high toilet bowl, finger rinse basin and grab rails, is used by many building professionals while fitting public WCs.

#### 10.2.3.10.5 Wash-Hand Basin

The wash basin should be fixed to the wall with no pedestal underneath. The rim of the wash basin should be 800mm from floor level. The wash basin should be of the usual domestic type. The wash basin does not need to be located in close proximity to the WC bowl. The wash-hand basin should be situated on the wall adjacent to the door opening or adjacent to the level-floor shower, so long as it does not block access to the shower or WC transfer areas. The tap/s should be lever type and easily operated with minimum dexterity and strength.

A bathroom mirror should start at a height of 600mm and finish at 1800mm above floor level.

#### 10.2.3.11 Vertical Circulation Within a House

Handrails should be provided on both sides of the stairs at a height of 900mm from the pitch line. A minimum 900mm clear distance should be maintained between the stair wall and the edge of the opposite handrail, to allow for the present/future installation of a stair lift.

In a two-storey house, the design should also give consideration to the provision of a stair lift or through-floor lift as an alternative to ground floor bed/bathroom accommodation. The through-floor lift would go from ground floor to a bedroom on the first floor, with an adjacent ensuite bathroom.

#### 10.2.3.12 Outdoor Spaces

There should be level access provided to and from all outdoor spaces including balconies, gardens and refuse collection points. A balcony should incorporate a 1800mm x 1800mm turning space that is clear of any door swing. Door swing ought not to obstruct the general approach to entry/exit points. Turning spaces of 1800mm x 1800mm should be located at internal and external entry points and at the endings of any pathways. A patio area 2m deep and not less than 8m<sup>2</sup> will suffice as a seating area. Pathways should be minimum 1200mm in width with protected edges. All gates

and entrances should provide 900mm clear opening width with 500mm (min 300mm) clear space to the leading edge side, and be easily operated with limited strength and dexterity.

## 10.3 Lifetime Adaptable Housing

### 10.3.1 Background

The concept of Lifetime Adaptable Housing design is about making the home environment more suited to the needs of a wide range of people. It is also about making the home more readily adaptable to the changing needs of its residents over the lifetime of the house. When a house is designed with level access, wide hallways, good door widths, a generously sized main bathroom and expandable space adjacent to the ground floor WC, then the house will be able to accommodate many of the accessibility requirements that occur as people age and acquire some level of mobility impairment.

A Lifetime Adaptable House can safely and easily accommodate or potentially accommodate the space, access and bathroom requirements of a variety of people including young children, people with short-term limited mobility, elderly people with age-related limited mobility, and some people with a minimal long-term limited mobility.

Lifetime adaptable houses are designed and constructed so that all people, **including some, but not all wheelchair users**, can:

- Safely and conveniently approach a house
- Gain access to and use the rooms provided at entry level
- Safely use the WC provided at entry level
- Safely use the main bathroom
- Whether provided at entry level or on a storey above entry level, have adaptations done to increase access and space at minimum cost and with minimum disruption.

Significant home adaptation and extension will only be required in a minority of situations. The design and layout of a Lifetime Adaptable home will be capable of accommodating the changing space and access requirements of a majority of people over their lifetimes.

The design guidelines given here have been informed by other guidance documents, particularly the *Lifetime Homes Standards* of the Joseph Rowntree Foundation, the *UK Housing Standards Review* and the *BS: 9266:2013 'Design of Accessible and Adaptable General Needs Housing – Code of Practice'*. However given the increased prevalence of apartment living, where space is not expandable, IWA has expanded somewhat on the Joseph Rowntree Standards, particularly regarding bathroom provision.

To provide the full diversity of space and access requirements, as required by people with varying levels of limited mobility, IWA recommends that 4% of all houses should be built to be fully wheelchair accessible, while the remaining 96% of new houses should be designed and constructed so that they follow and apply Lifetime Adaptable design criteria.

### 10.3.2 Lifetime Adaptable Housing Criteria

Lifetime Adaptable Housing design as recommended by IWA will incorporate the following 14 design criteria:

#### 1 Car Parking

Where there is car parking adjacent to the home, it should be capable of enlargement to attain 3600mm x 6000mm. This size will allow a 1200mm access zone to the rear and to one side of vehicle. The distance from the car parking space to the home should be kept to a minimum, and it should be level or gently sloping, and preferably covered.

#### 2 Approach and Entrance

The approach to the main house entrance should be level or gently sloping, with a slope of not more than 1:50 gradient. The provision of a level

approach and level threshold access eliminates the need for any ramp provision.

Where the plot gradient does not allow a level approach, both stepped and ramped access must be provided. A ramp gradient should be gently sloping with a gradient not exceeding 1:20. A stepped approach should be suitable for use by ambulant disabled persons.

*For information on external ramps and steps for detail see Section 4.3 on page 30 and Section 4.4 on page 31*

All entrances should provide a minimum clear entrance width of 900mm. There should be an unobstructed space of 300mm to the side of the leading edge of the door. The entrance should be illuminated, covered, and have level access across the threshold.

#### 3 Communal Approach Routes, Car Parking, Entrances and Circulation within Apartment Buildings

All approach routes to apartment buildings, communal car parking, entrances to apartment buildings, internal doors, and circulation within apartment buildings should comply with the guidance set out in Section 10.2.2.1 of this book.

#### 4 Communal Lifts and Stairs within Apartment Buildings

Where homes are above ground level, lift access in addition to communal stairs should be provided. The stairs and lift should provide safe and easy access to all homes above ground level. All lifts should be fire-protected and capable of being used for evacuation purposes.

*For further information see Section 10.2.2.6 on page 124 and Section 10.2.2.7 on page 125*

#### 5 Internal Hallways

Inside the house, the minimum hall/corridor width should be 1200mm with clear door widths of

850mm where the door is approached head on, or 900mm clear door width when the door is approached side on. There should be 300mm clear space on the leading edge side of any door.

## **6 Interior Design**

Open plan type interior design layouts provide easy circulation and are easy to modify. The living, kitchen, bathroom and bedroom layout should all be sufficiently large to accommodate a minimum of one 1500mm turning circle. The bedroom design should preferably allow for a direct access route for the future use of a ceiling hoist from the bedroom to any en-suite bathroom. Where all bedrooms are situated above ground floor level there should be an identifiable bed space on the ground floor. In houses of two or more storeys, the living room should be on the entrance level.

## **7 Windows**

Livingroom window glazing should begin at 800mm or lower, and the windows should be easy to open and operate. The controls for opening the windows should be located at or below 1000mm from ground level.

## **8 Door Ironmongery**

Door handles and fittings should be lever-type, easily used and manipulated by all, including someone with restricted hand movement and/or limited strength.

## **9 Switches and Plug Sockets**

All plug sockets should be located at a minimum of 400mm above floor level. All frequently used plug sockets, switches, fuse boxes and other electrical controls should be placed at a height between 750–1000mm from the floor level, and a minimum of 500mm from internal corners.

## **10 Ground Floor WC**

There should be a drainage provision in place in the ground floor toilet room for the future installation of a shower. The entry level WC room should be

1500mm x 2000mm with an outward opening door. The WC room should be adjacent to the required space to expand the room to a full shower room size of 2500mm x 2500mm size. This space could serve as valuable storage until required.

## **11 WC and Bathroom Wall Reinforcement**

Where walls are not solid, wall reinforcements should be placed in both the ground floor WC and main bathroom, between 300mm and 1500mm from the floor, giving an option to place grab rails at desired heights in the future.

## **12 Vertical Circulation**

A minimum clear distance of 900mm between the stair wall and the edge of the opposite handrail should be maintained to allow for the future installation of a stair lift.

The house design should also make provision for the future installation of a through-floor lift from the ground floor to an en-suite bedroom on the first floor.

## **13 Main Bathroom**

The main bathroom should be en suite or adjacent to the main bedroom, with possibly a second entrance door from the hallway if ensuite. The en suite door to the bathroom should be in line with the positioning of the bed to allow for the possible future use of a tracking hoist.

The bathroom size should be a minimum of 2500mm x 2500mm and designed to incorporate ease of access to the bath/shower, WC and wash-hand basin. The bathroom should be plumbed for both shower and bath.

## **14 External Access to Bins and Drying Facilities**

External access to bins and drying facilities should be accessible through a level threshold doorway that is not obstructed by door swing and with a minimum 1500mmx1500mm turning space at the end of any pathway.

### **IWA Housing Support Services**

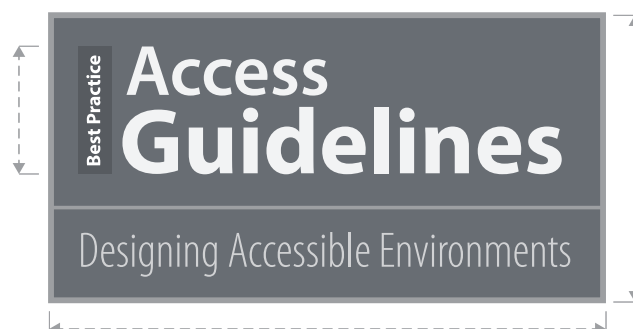
- ▶ IWA is a Voluntary Housing Association with 60 housing units across the country.
- ▶ IWA housing tenancies can be short term/transitional or long term.
- ▶ Operation Sign-Up sets out a ten-step guide to applying for social housing. For further information visit: [www.iwa.ie/house](http://www.iwa.ie/house).
- ▶ Staff in local IWA centres will support people with social housing applications.
- ▶ IWA is a member of Housing Advisory groups including: Disability Federation of Ireland (DFI); Irish Council for Social Housing (ICSH); and the Department of the Environment, Community and Local Government.

### **Wheelchair Accessible Housing**

- ▶ When the person who will live in the house is known, the best design will be worked out between the person, the architect and the access advisor (often an Occupational Therapist).
- ▶ Design for both the present and future needs.
- ▶ Provide 500mm clear space to the leading edge side of any door.
- ▶ Ensure clear door widths of 900mm.
- ▶ Provide 1800mm turning space at both ends of any hallway. Minimum hall width is 1200mm.
- ▶ Minimum shower room size is 2500 x 2500mm.
- ▶ Provide sufficient accessible storage for mobility aids, including a charging point for powerchairs.
- ▶ Consider including SMART technologies or wiring for their future installation.
- ▶ The parking, approach routes, entrances, internal doors, lifts and circulation routes in apartment buildings should all be designed to be accessible to wheelchair users.

### **Lifetime Adaptable Housing**

- ▶ Lifetime Adaptable Housing is designed to suit many needs.
- ▶ The interior is designed so it can be altered as access requirements change.
- ▶ IWA sets out 14 design criteria for Lifetime Adaptable Housing.
- ▶ It is potentially suitable for some but not all wheelchair users.



## Additional Information

**Access to Independence**

For further information or enquiries please  
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## 13 Useful Links

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National Disability Authority, [www.nda.ie](http://www.nda.ie)

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## 15 Glossary

**Access:**

Ability to approach, enter, use any facilities provided, and safely leave a building.

**Accessible:**

Able to be used by people with disability.

**Cantilever:**

A horizontal structure which is supported only at one end. This design allows for overhanging surfaces without any supporting structure beneath. Cantilevered tables allow wheelchair users to get closer to the table easily without any obstruction caused by structures underneath.

**Clear opening door width:**

Available width measured at 90° to the plane of the door-way for passage through a door opening, clear of all obstructions such as door handles, pull handles and weather boards on the face of a hinged door, when a door is opened through 90° or more, or when a sliding or folding door is opened to its fullest extent. It is NOT the distance between two sides of the door frame.

**Cross fall:**

The gradient across the width of the ramp, perpendicular to the usual direction of travel.

**DIN:**

German standard (DIN 51130: 2004) to test anti-slip properties of a floor covering. This is used by many European flooring manufacturers for anti-slip rating.

**Disability Access Certificate (DAC):**

A certificate of compliance issued by the Building Control section of local authorities with respect to requirements under Part M of the Building Regulations.

**Dished kerbs:**

Lowered road side kerbs which bring pedestrian way down to the same height as carriage way,

with a view to providing easy access to people using wheelchairs, prams and bicycles.

**Flight:**

Ramp or a continuous series of steps between two landings.

**Going:**

Horizontal distance between two consecutive nosings of a step measured on the walk-line, or the horizontal distance between the start and finish of a flight of a ramp.

**Handrail:**

Component of stairs, steps or ramps that provides guidance and support at hand level.

**Kissing gates:**

Half-round, rectangular, trapezoidal or V-shaped enclosure with a hinged gate trapped between its arms. The gate can be pushed to give access to the small enclosure, then moved in the opposite direction to close the first opening and allow exit from the enclosure to the other side.

**Landings:**

Platform or part of a floor structure at the end of a flight or ramp, or to give access to a lift.

**Leading edge of door:**

The edge of a swing door which is away from the door hinges and nearer to the door handle/door lock side.

**Lux:**

Unit of measurement of the intensity of light. It is equal to the illumination of a surface one metre away from a single candle or equal to one lumen per square metre.

**Newton:**

Unit of force which is equal to the force that produces an acceleration of one metre per second on a mass of one kilogram.

**Nib wall:**

A short section of a wall jutting out at 90° and designed like a pillar that sticks out of a wall.

**Nosing:**

Projecting front edge of a tread or landing that may be rounded, chamfered or otherwise shaped.

**Minicom:**

An electronic device for text communication over a line. This is designed to be used by persons with hearing or speech difficulties. This is also known as Teletypewriter (TTY) or Textphone.

**Pitch line:**

The notional line connecting the nosings of all treads in a flight of stairs.

**Platform lift:**

Lift with a platform and low walls, which travels vertically between two levels, and is intended for use standing up or seated on a chair or a wheelchair.

**Platform stair lift:**

Lift with a horizontal platform which accommodates a wheelchair user and travels from one level to another along a line parallel with the pitch line of the stair.

**Ramp:**

Construction, in the form of an inclined plane 1:20 or steeper from the horizontal, or a series of such planes and an intermediate landing or intermediate landings, that makes it possible to pass from one level to another without encountering a step.

**Rise:**

Vertical distance between the upper horizontal surface of two consecutive treads, or of a landing and the next tread above or below it, or of a flight between two consecutive landings.

**Riser:**

Vertical component of a step between tread or landing above or below it.

**Tactile paving:**

Surface/paving material with specific tactile properties which can warn, guide or inform a person with visual impairment about the immediate environment.

**Transoms:**

A transverse horizontal beam or bar in a window frame.

**Tread:**

Horizontal component of a step.

**Unisex:**

A facility designed for use by a person of either sex, with or without an assistant of either sex.











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