

Accessibility

By Design

2007 Edition



A Standard Guide

Foreword

This design guide seeks to present the requirements of the Building Regulations 2000 and the Building Regulations (Amendment) 2003 Approved Document M Access to and Use of Buildings (2004 edition) in terms of good building design.

This guide does not cover everything or have all the answers, but covers the main design considerations. We hope this guide will prove especially useful as a practical introduction to provide a basic understanding of what accessibility means.

This document has been produced by the Buckinghamshire and Milton Keynes Building Control Managers:
Aylesbury Vale District Council
Chiltern District Council
Milton Keynes Council
South Bucks District Council
Wycombe District Council

Whilst every care has been taken to compile the information in this guide, the publishers and promoters cannot accept any responsibility for incorrect information. Building Regulations are subject to change and if in doubt you should contact your Local Authority Building Control office to check if the information is still current.

Material from the Building Regulations 2000 (Approved Document M).

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**Designed and published by
Ten Alps Publishing Ltd**

Formerly McMillan-Scott

Trelawney House, Chestergate

Macclesfield, Cheshire

SK11 6DW

www.tenalppublishing.com

Tel: 01625 613000

Also available as an ebook:

www.accessibilitybydesign.co.uk/buckinghamshire

Ref: BGG (September 2007)

 **TEN ALPS
PUBLISHING**

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BUCKINGHAMSHIRE AND MILTON KEYNES BUILDING CONTROL

The Vision

To ensure that Local Authority Building Control is at the forefront of securing healthy, safe, sustainable and accessible buildings.

How do we achieve this?

One Voice

- Working in partnership within the County and at National level
- A National service with local delivery

Part of the Development Team

- Early involvement in the project reduces the potential for design problems arising during construction
- Provision of good and timely advice on technical and procedural matters
- One stop shop for access to other Council services and the Fire Authority

Partnerships

- Partner agreements with developers, architects etc to provide a consistent approach in plan checking across the country

Customer Focus

- Inspection regimes to suit customers with same day inspections available in most cases
- Advice on the changes to Regulations
- Technical guidance sheets, design guides and other related information
- Customer panel meetings
- Help and advice is available "on call"

Staff Development

- Qualified staff to deal with all types of buildings and projects
- Continuing Professional Development for staff to ensure they keep up to date with changes

Building Control in the 21st Century

- On-line advice
- Working towards e-enabled services
- Not forgetting that traditional ways are still favoured by many.

Value for Money

- Free advice
- Not for profit charging for Building Control applications

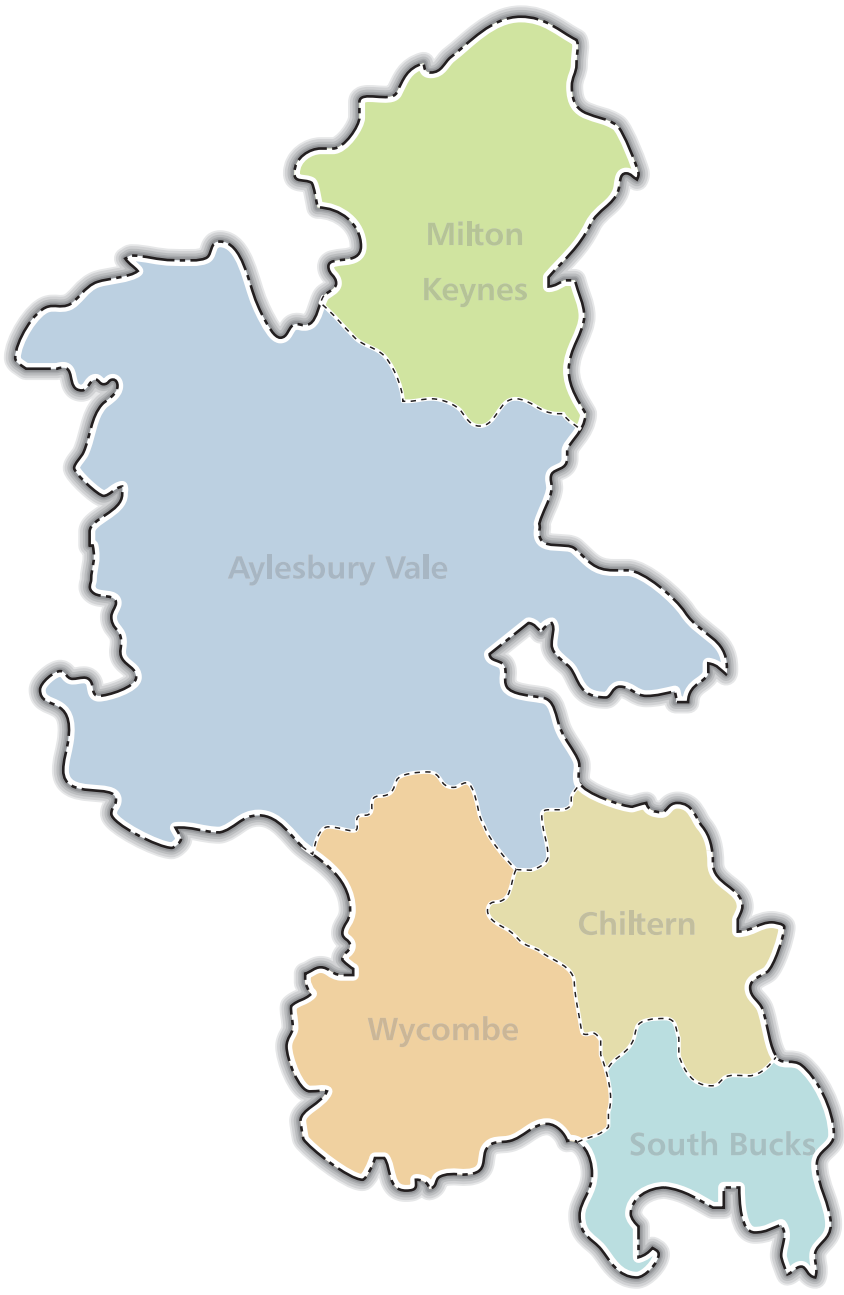
The Building Regulations

The Building Regulations, when first introduced, were very prescriptive. This made enforcement of the Regulations easier for Building Control Professionals, however it stifled the design of buildings.

Modern Building Regulations are non- prescriptive and allow for more innovative design. Although methods of complying with the requirements are detailed in the Approved Documents, they demonstrate only one or a limited number of ways of compliance.

This style of Regulations has increased the role of Building Control. We are no longer enforcers of the Regulations but contributors to the overall design of buildings.

BUILDING CONTROL CONTACTS



To help us work more effectively with designers and developers, we produce a number of publications that are free of charge that explain what the Regulations require.

These include general basic advice through to technical solutions and design guides for the more technically minded customers.

If you wish to find out more about Building Control in your area, please contact us below.

We look forward to working with you.

- | | |
|------------------------------|--------------|
| Aylesbury District Council | 01296 585460 |
| Chiltern District Council | 01494 732249 |
| Milton Keynes Council | 01908 252721 |
| South Bucks District Council | 01895 837296 |
| Wycombe District Council | 01494 421403 |

Full contact details can be found at the back of this document.

ACCESS STATEMENTS

An Access Statement is an explanation of 'how access and facilities for people with disabilities and others has been addressed in a particular scheme'.

The statement will allow Building Control Surveyors to assess whether reasonable and/or suitable provision has been achieved. The statement will vary in size dependent on the type and scale of the development but should generally include the following elements wherever relevant:

- Description of proposed works and the intended use of the building
- Access design philosophy on the scheme
- Sources of advice and guidance
- Evidence of any consultation with the Council's Access Officer or the Local Access Group
- Description of the building
- Key issues of the scheme
- Current access provisions
- Proposed areas for improvement
- Areas not proposed for improvement and/or reasons why an alternative approach has been adopted



ACCESS STATEMENTS

When is an Access Statement required?

Applications requiring a full Access Statement include new and substantially extended buildings or changes of use where the intended use is:

- Shops and commercial uses, Restaurants, Public Houses and Bars, Offices, Banks, Public Buildings, Leisure, Assembly and Recreation facilities, Mixed Use developments, Churches, Schools/Colleges, Hotels, Industrial, Storage and General, Listed Buildings etc.
- Residential purposes such as flats, houses and bungalows, nursing or old people's homes, student accommodation etc.

Applications will not generally require an Access Statement if the works are for altered or extended dwellings, i.e. houses, bungalows and flats.

Similarly, minor alterations or extensions to other uses may not require a statement where it can clearly be seen that the accessibility of the building is not affected.

Matters for consideration

These include but are not exclusively:

- Disabled parking provision or setting down points or garaging
- Approach routes to building – way finding signage, gradient, width, surface finish
- External hazards/features – hard landscaping, projections, furniture
- External steps/ramps – gradient, width, guarding and heights
- Entrances – primary and secondary
- Doors – operation, size, level threshold, automatic, controls

- Entrance lobbies – size, manoeuvrability
- Reception – counter height
- Aids for hearing impaired people – induction loop
- Visibility of signage – size and contrast for people with impaired vision
- Interpretation and Braille facilities
- Internal corridors – widths, obstructions, gradients
- Internal steps/ramps – height, width, guarding, rise and going
- Lifts – size, height of controls
- WC accommodation – size, layout, number
- Spectator seating – number of spaces, choice of viewing point, other facilities
- Access to special facilities – meeting rooms, swimming pools, sports equipment, etc.
- Usability of the building/facilities – to meet the DDA
- Management arrangements – for assisted access and means of escape
- Special considerations need to be given to Listed Buildings, development in Conservation Areas and other buildings or spaces of special interest.

Ongoing obligations for owners/occupiers

The Access Statement should be amended to reflect any subsequent decisions reached on site so that any new owner or occupier can be aware of the rationale used in making decisions which impact on accessibility and their ongoing obligations under the DDA. An up to date Access Statement can form part of the "Seller's Pack" which will help to inform future owner/occupiers of the access provision in the building.

In an attempt to offer some further direction, an Access Statement Template has been prepared and incorporated purely for guidance.

Access / Egress Statement

Site Address:	Date:
----------------------	--------------

Contact details

Applicant	Agent
Name:	Name:
Address:	Address:
Postcode:	Postcode:
Telephone:	Telephone:
E Mail:	Fax No:
	E Mail:

Description of Development

To include description of proposed works. Size of proposed works, building use, number of occupiers, perceived modes of transport etc. This should include the whole site from its boundaries.

Design standard followed:

Approved Document M (2004):		CAE Designing for Accessibility (2004)	
BS 8300 (2001):		CAE Good Loo Design Guide (2004)	
Building Bulletin 91 (Schools)		Other (Please elaborate)	
Sport England (Sports Facilities)			

Philosophy and approach

Overview of the developer's philosophy regarding access for disabled people and inclusive design. This section must include specific examples of individual design processes.

Key access issues of the design

Include direct guidance references to key design attributes in relation to:

- Approach
- Parking
- Entrances
- Horizontal circulation

- Vertical circulation
- Access to services
- Emergency egress etc
- Position of WC

Sources of advice and consultation

Include references to British Standards
 Consultation with planners, conservation officers, access officers etc.
 Evidence of consultation with existing/planned building users (where appropriate)
 The extent of input from local access groups or local organisations reflecting the views of disabled people

Nature and impact of environmental and/or other constraints

Where environmental factors act to constrain compliance with the relevant design guidance, an explanation of the individual constraints should be included. These may include constraints imposed by an existing structure during an extension, or geographical constraints on new or existing developments.
 The responsibility will be on the developer to explain why the relevant design guidance cannot be achieved in any particular situation and to provide material evidence to this effect.
 One alternative solution that has been considered should also be described for each instance in which the design is felt to deviate from the relevant design guidance.

Proposed solutions for overcoming identified constraints

Where deviation from the relevant design guidance is proposed as a solution of how the relevant barrier can be reasonably overcome should be explained

What steps have been taken to ensure this information is made available to building occupiers?

Explain the steps taken by designers to ensure the above access philosophy and information particular to the building is fully integrated into the long term management of the building

Additional material information

Any additional information in support of the proposed development

ACCESS TO BUILDINGS

Car Parking Spaces

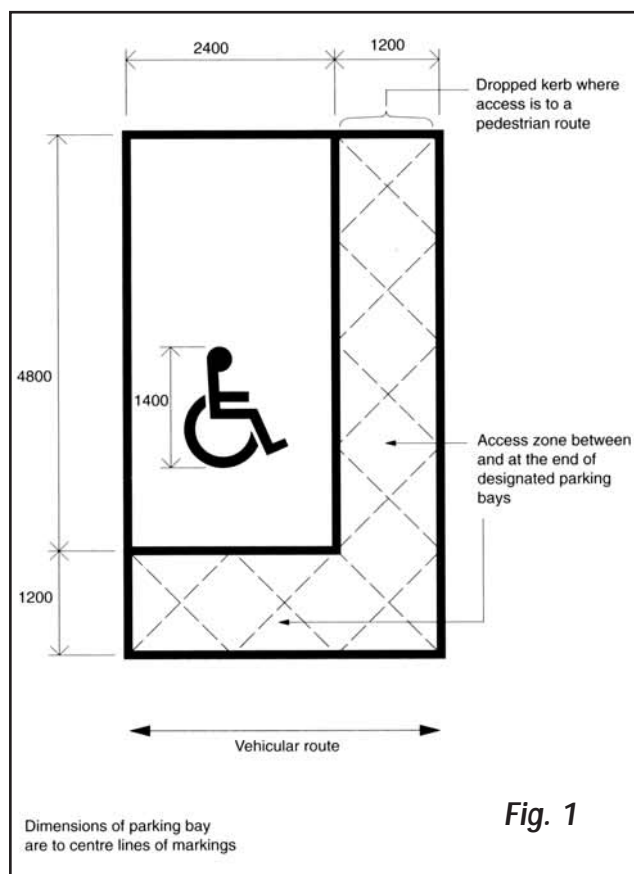
- For disabled people, car access is vital. In car parks, provision should be made for disabled drivers and cars carrying disabled passengers. Parking should be provided as near to the principal entrance as possible and under cover is desirable. If payment is required, provide level and unobstructed access to pay and display units.
- The surface of a designated parking bay should be firm and level, slip resistant and have a 1200mm transfer zone alongside and at the rear of the vehicle.
- If people need to obtain tickets for pay and display parking, the ticket dispensing machines need to be accessible to wheelchair users and people of short stature. They should be adjacent to the designated parking and have controls between 750mm and 1200mm from ground level.
- Guidance on designated parking, ticket dispensing machines, vehicular control barriers and multi-storey car parks can be found in BS 8300.
- The recommended numbers of reserved spaces vary in accordance with the type and capacity of car parks as follows:

Car parks associated with employment premises and provided for employees and visitors.

- 5% of the total parking capacity should be designated for disabled motorists.

Car parks associated with shopping areas, leisure or recreational facilities.

- One space for each disabled employee plus 6% of the total capacity for visiting disabled motorists.
- Car parking spaces for the disabled should be signposted using the international symbol of the disabled, which can also be painted on the ground with the legend "Disabled Drivers Only."

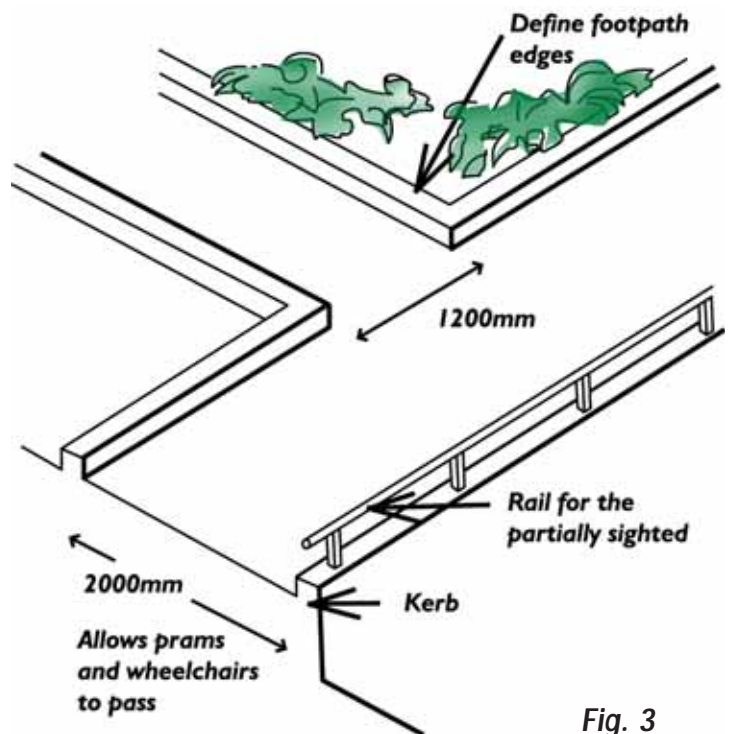
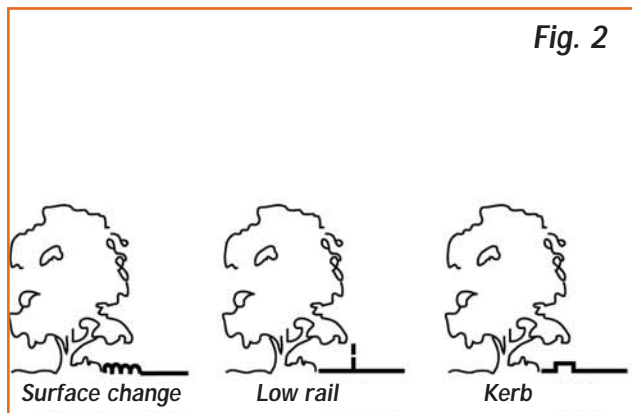


ACCESS TO BUILDINGS

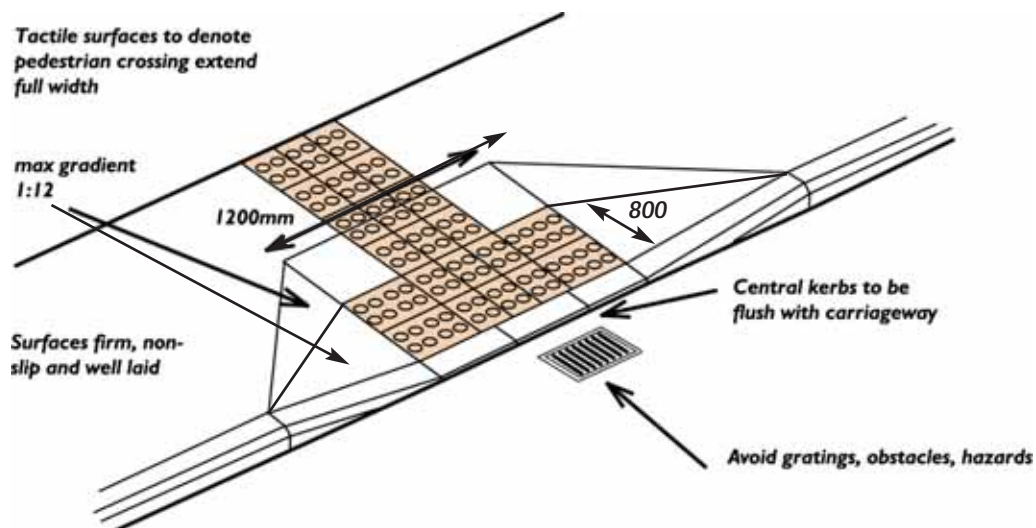
External Travel

- Routes of travel across grass or paved areas should be highlighted. This can be achieved by contrasting colour, texture or by directional paving.
- Covers and gratings should be flush with pavings, the maximum gap being 18mm.
- Define footpath edges with either kerb, low rail or a surface change.

- At changes in level and to slopes steeper than 1:15 a handrail and kerb should be provided. A lower rail and kerb should be provided as a guide for partially sighted people using canes.



- Pedestrian crossing points require special attention.
- Red tactiles should be used at controlled crossings and buff coloured tactiles at uncontrolled crossings.



This layout is a general detail only. Further advice on exact layouts should be sought from the local Highway Authority.

Fig. 4

ACCESS TO BUILDINGS

External Hazards

LANDSCAPE FURNITURE

- The provision of landscape furniture requires careful thought. It needs to be made distinguishable from the background, i.e. by colour contrast and should be detectable at low level for people with impaired vision.

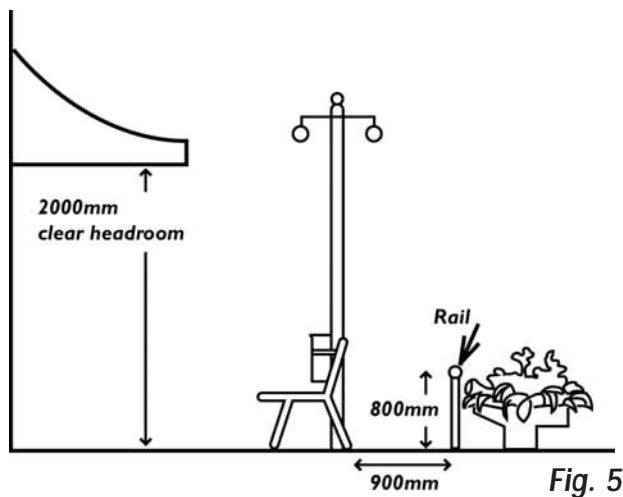


Fig. 5

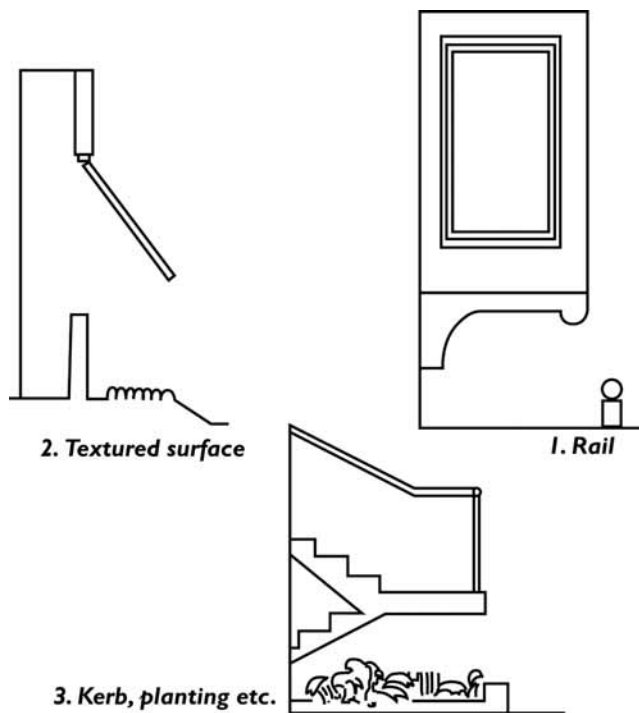
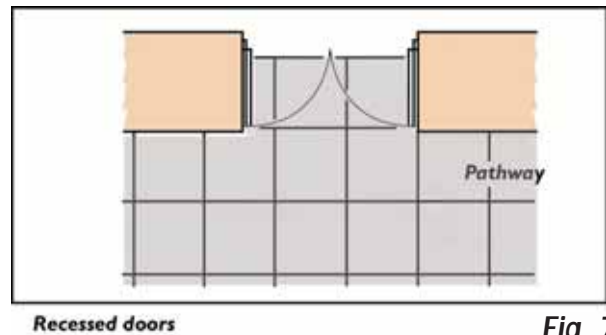


Fig. 6

- Avoid overhangs, especially at ground level.
- Guard against building projections by the use of (1) rails, (2) textured surfaces, (3) kerbs and planting, etc.

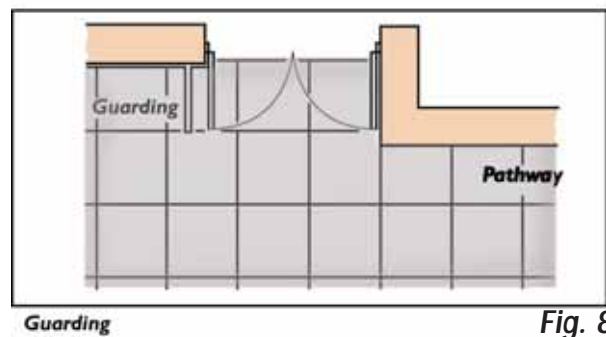
DOORS

- Doors which open outwards should not cause an obstruction on a path which runs along the face of a building, i.e. recess the doors or provide suitable guarding.



Recessed doors

Fig. 7



Guarding

Fig. 8

ACCESS TO BUILDINGS

Approach to the Building

- There should be a convenient access into the building for disabled people, whether they are visitors to the building or work in it and whether they arrive on foot or in a wheelchair.
- If space outside the principal entrance is restrictive, an alternative accessible entrance in common use should be provided.
- Car parking spaces should be provided adjacent to the principal entrance or the accessible entrance in common use.
- Clearly signposted steps should be provided when the rise of the ramp exceeds 300mm. The surface of the ramp should be slip resistant and of a colour that contrasts visually with that of the landings.

Table 1 Limits for ramp gradients

Going of a flight	Maximum gradient	Maximum rise
10 m	1:20	500mm
5 m	1:15	333mm
2 m	1:12	166mm

Notes:
For goings between 2m and 10m, it is acceptable to interpolate between the maximum gradients, i.e. 1:14 for a 4m going or 1:19 for a 9m going (see Fig. 9).

Fig. 9 Relationship of ramp gradient to the going of a flight

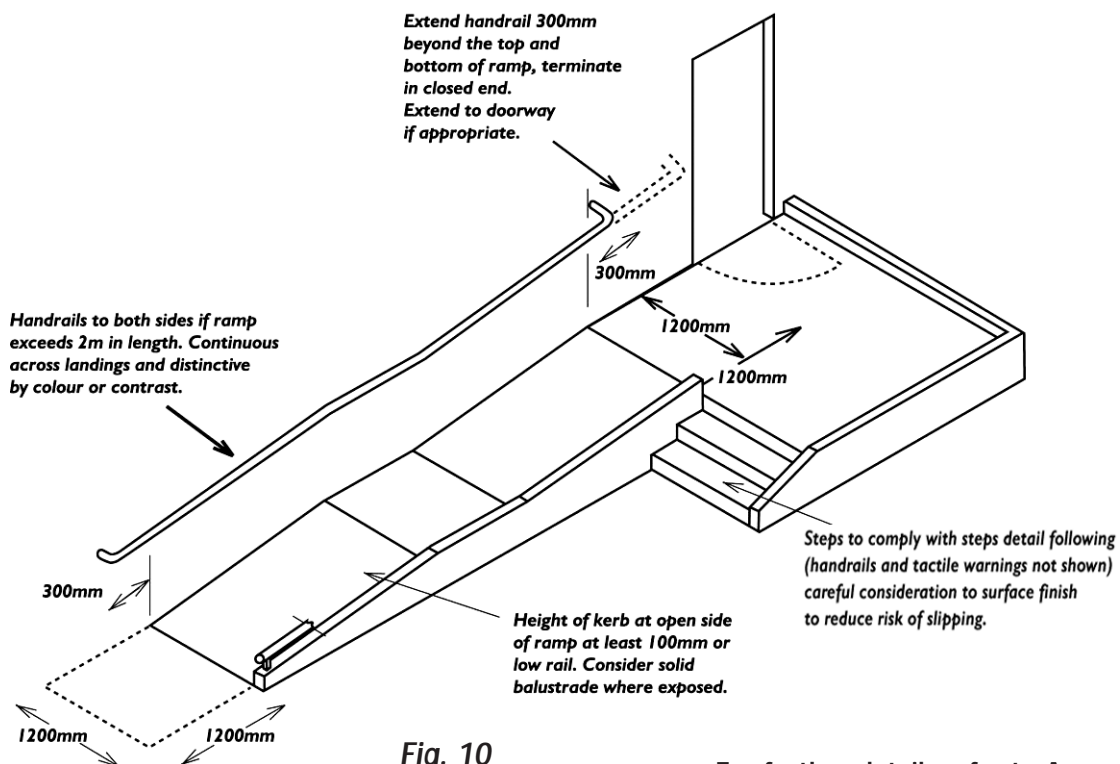
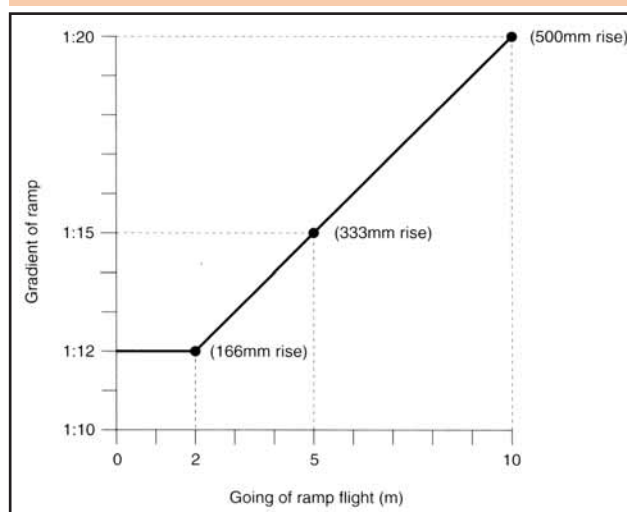


Fig. 10

For further details refer to Approved Document M of the Building Regulations

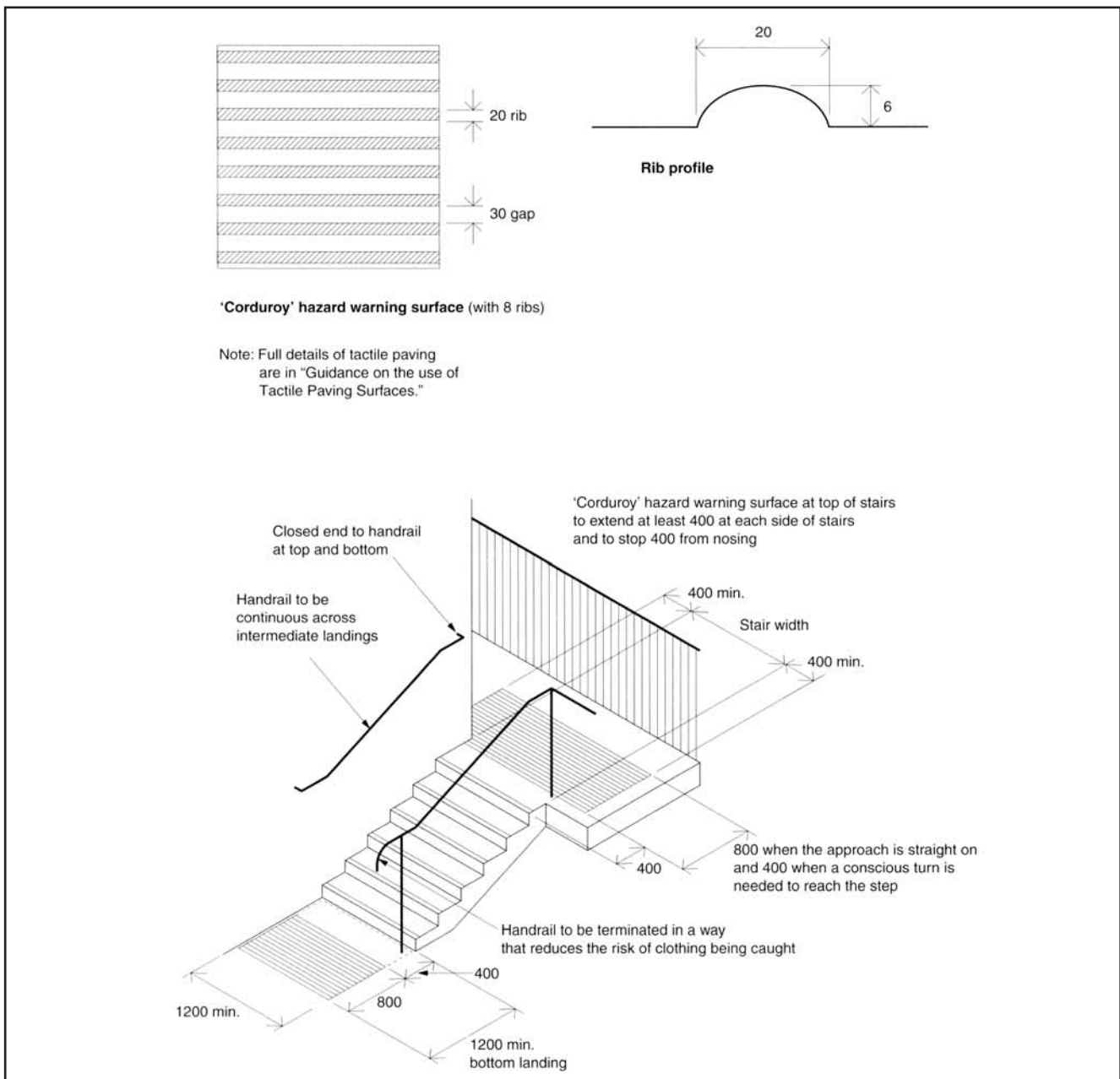
ACCESS TO BUILDINGS

Stepped Access

- A corduroy hazard warning surface should be provided at top and bottom landings of a series of flights to give advance warning of a change in level.
- Rise of each step should be between 150mm and 170mm.
- Going of each step should be between 280mm and 425mm.
- Rise and going of each step should be consistent throughout the flight.
- Width of the flight should not be less than 1.2m.

For schools the preferred dimensions are 150mm rise and 280mm going

Fig. 11 Stepped access – key dimensions and use of hazard warning surface



ACCESS TO BUILDINGS

Stepped Access

Fig. 12 External steps and stairs – key dimensions

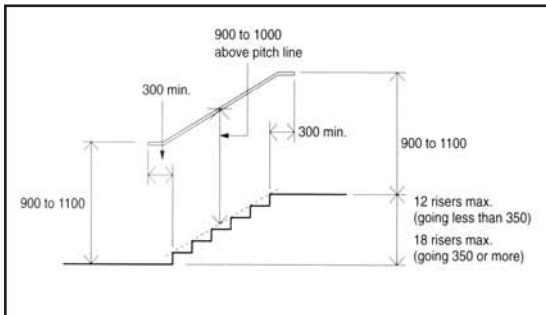
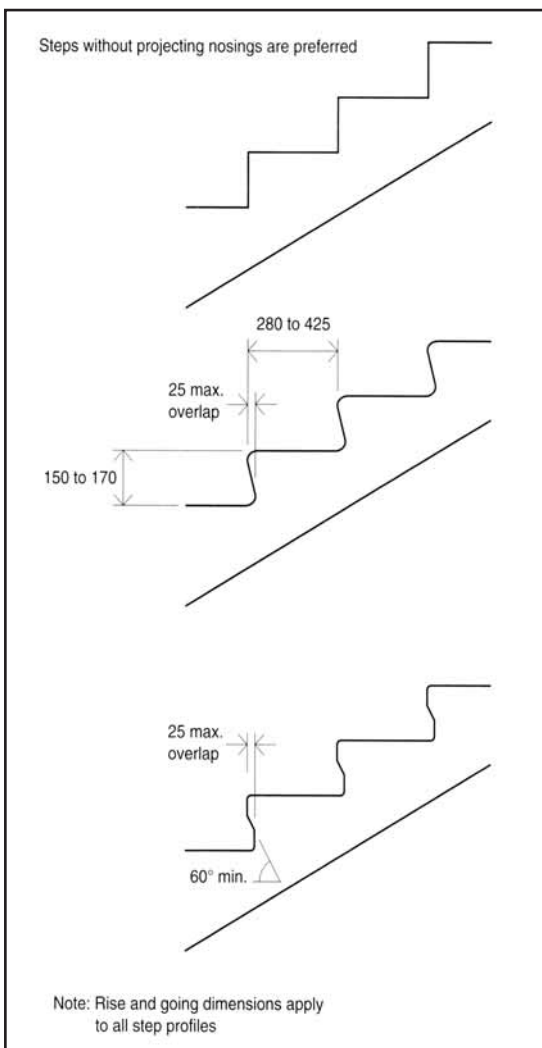


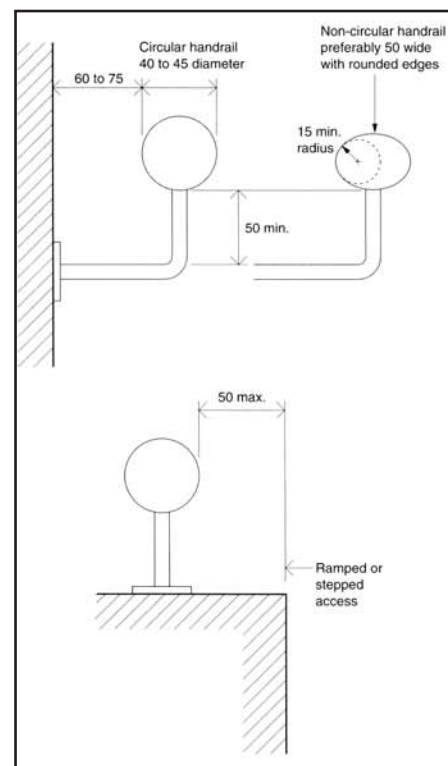
Fig. 13 Examples of acceptable step profiles and key dimensions for external stairs



HANDRAILS

- Should be between 900mm and 1000mm above the surface of the ramp.
- Should be continuous along the flights and landings of steps and ramps.
- Should extend at least 300mm beyond the top and bottom of ramps and a flight or flights of steps whilst not projecting onto an access route.
- Should contrast visually from the background without being reflective.
- The surface should be slip resistant and not cold to the touch.
- The profile should be circular with a diameter of between 40mm and 45mm or oval, preferably with a diameter of 50mm.
- Should protrude no more than 100mm into the surface width of ramp or stairs where this would impinge on the stair width requirement of Approved Document B (Fire Safety).
- Should have a clearance of between 60mm and 75mm between the handrail and any adjacent wall surface.

Fig. 14 Handrail design



ACCESS TO BUILDINGS

Accessible Entrances

ACCESSIBLE ENTRANCES

- Should be clearly signposted and should include the international symbol of access, from the edge of the site, and the principal entrance if this is not the accessible entrance. (Guidance on sign posting can be found in BS 8300).
- Any structural supports at the entrance should not be a hazard to the visually impaired.
- Should have a level landing at least 1500mm by 1500mm clear of any door swings immediately in front of the entrance and be of a material that does not impede wheelchair users.
- Door entry systems should be accessible to deaf and hard of hearing and people who cannot speak. (LED display) fitted between 750mm and 1000mm from floor level.
- The surface of any entrance matting should be level with the floor and should not impede wheelchair movement. Avoid coir matting, and changes in floor surfaces which are potential trip hazards.

DOORS TO ACCESSIBLE ENTRANCES

- Entrance doors can be manually operated, or power operated under manual or automatic control.
- Vision panels should comply with the minimum zone of visibility of between 500mm and 1500mm from floor level, if necessary interrupted between 800mm and 1150mm from floor level to accommodate a horizontal grab-rail.

Table 2 Minimum effective clear widths of doors

Direction and width of approach	New buildings (mm)	Existing buildings (mm)
Straight-on (without a turn or oblique approach)	800	750
At right angles to an access route at least 1500mm wide	800	750
At right angles to an access route at least 1200mm wide	825	775
External doors to buildings used by the general public	1000	775

Note:

The effective clear width is the width of the opening measured at right angles to the wall in which the door is situated from the outside of the door stop on the door closing side to any obstruction on the hinge side, whether this be projecting door opening furniture, a weather board, the door, or the door stop (see Fig. 15). For specific guidance on the effective clear widths of doors in sports accommodation, refer to 'Access for Disabled People'.

MANUALLY OPERATED NON-POWERED ENTRANCE DOORS

- A non-powered door fitted with a self-closing device capable of closing the door against wind forces and the resistance of draught seals is unlikely to be openable by a wheelchair user or someone with limited strength.
- The opening force at the leading edge should be no greater than 20N.

It should be noted that double buggies are wider than wheelchairs and this should be borne in mind when designing certain types of buildings.

ACCESS TO BUILDINGS

Accessible Entrances

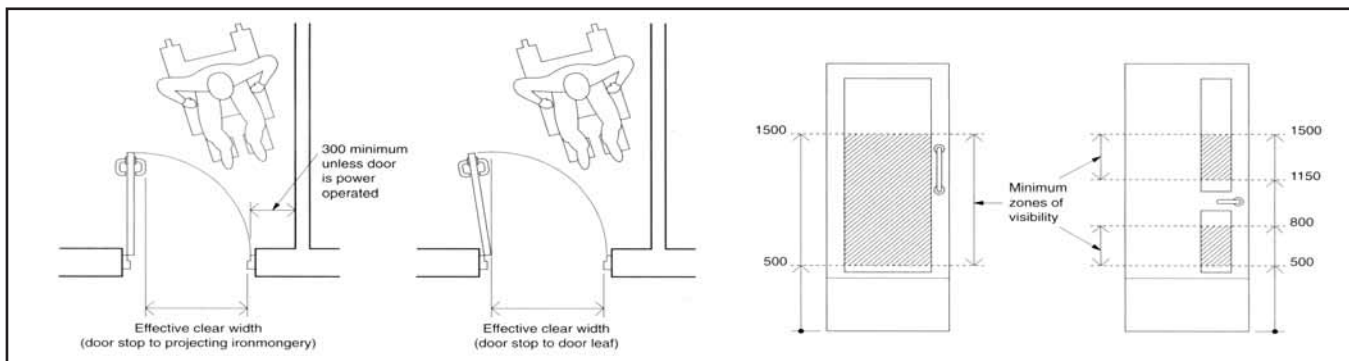
POWERED ENTRANCE DOORS

- Manual control for powered entrance doors should be clearly distinguishable from the background, and located between 750mm and 1000mm from the ground level (to include swipe cards etc).
- Where the doors swing towards people approaching them visual and audible warnings should be provided. They should incorporate a safety stop if someone is passing through and revert to manual control or stay open in a power failure.

GLASS ENTRANCE DOORS AND GLAZED SCREENS

- Should be clearly defined with manifestation on the glass at two levels 850mm to 1000mm and 1400mm to 1600mm. Manifestation is a sign or a logo at least 150mm high.

Fig. 15 Effective clear width and visibility requirements of doors



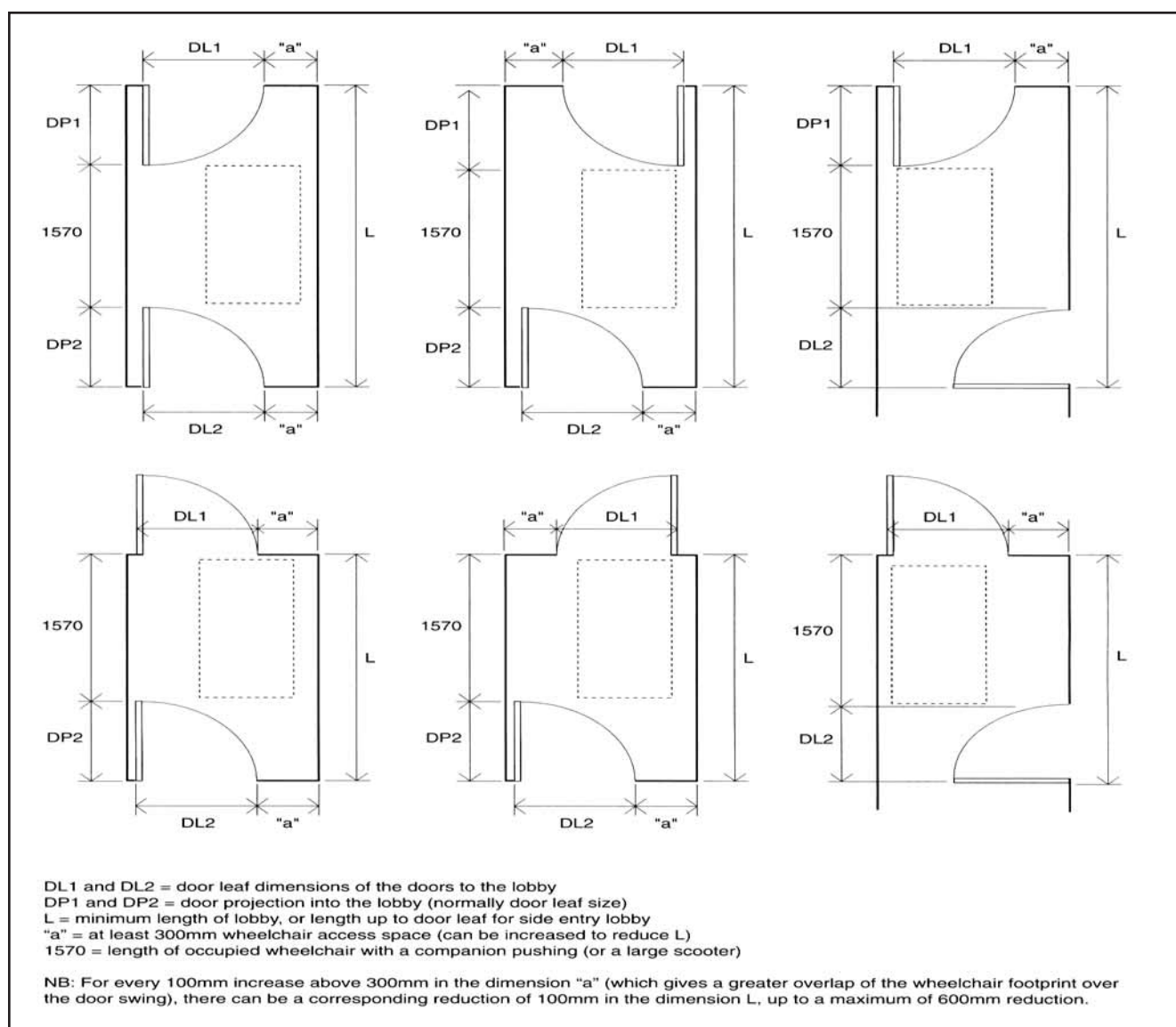
- Consideration should be given to ensure adequate contrast for partially sighted people for their safe passage into and around the building. Refer to section on contrast under Design Considerations for Sensory Impairments.

ACCESS WITHIN BUILDINGS

Entrance Lobbies

- Where entrance lobbies are incorporated in buildings, adequate space must be provided between doors. There should also be space for someone assisting the wheelchair user and for someone passing in the opposite direction.
- Thresholds should be flush, 15mm maximum, at both doorsets.
- Mat wells should be flush (including the surrounds), firm and contrast with the floor.
- The door opening widths should apply to the inner doors as well as the outer doors.
- Lighting to reduce the contrast between the outside and the building's interior should be considered.
- The floor surface should be level, slip resistant and not impede the movement of wheelchairs or crutch users. Avoid coir matting and ensure any changes in floor materials do not create potential trip hazards.

Fig. 16 Key dimensions for lobbies with single leaf doors



ACCESS WITHIN BUILDINGS

Entrance Hall and Reception Area

- Any reception point should be easily identifiable from the entrance doors or lobby and have a direct approach and be free from obstructions.
- Should be designed to accommodate both seating and standing visitors. At least one section of the counter should be at least 1500mm wide, no higher than 760mm with a knee recess not less than 700mm from floor level.
- Reception points should be provided with a hearing enhancement system.

Guidance on aids to communication can be found in BS 8300



Reception desk showing lowered section for wheelchair users

ACCESS WITHIN BUILDINGS

Internal Doors

Design considerations similar to those for entrance doors apply to internal doors
 Refer to Table 2 and Fig. 15.

- The force needed to open the door manually should not exceed 20N.
- Doors should contrast with the adjacent facades, as should be ironmongery (i.e. pull handles) from the actual door itself.
- Lever handles are preferable to knob sets.
- Doors should have a zone of visibility between 500mm and 1500mm from the floor, if necessary interrupted between 800mm and 1150mm from the floor, to accommodate an intermediate horizontal rail.
- Incorporate low-level protection from wheelchairs. Thresholds should be level with adjacent floor finishes.
- Fire doors particularly those in corridors should be held open with an electro-magnetic device, but self-close when:
 - Activated by a smoke alarm or fire alarm
 - Power supply fails
 - Activated by a hand operated switch.
- Fire doors to individual rooms should be fitted with swing-free devices that close when activated by smoke detectors, fire alarms and power failure.

For guidance on fire doors and self-closers see Approved document M and BS 8300

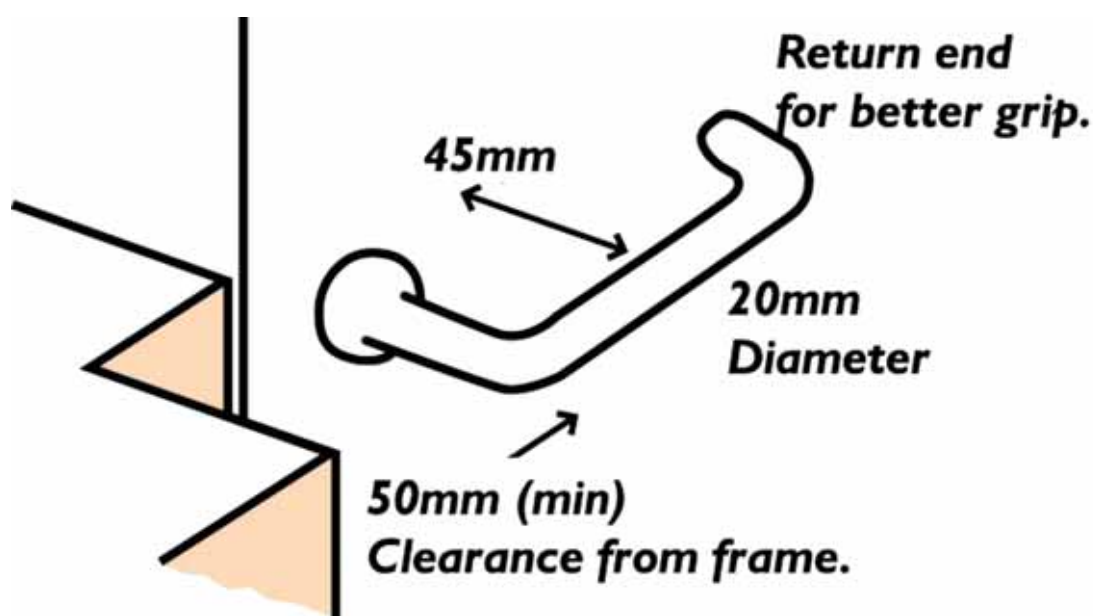
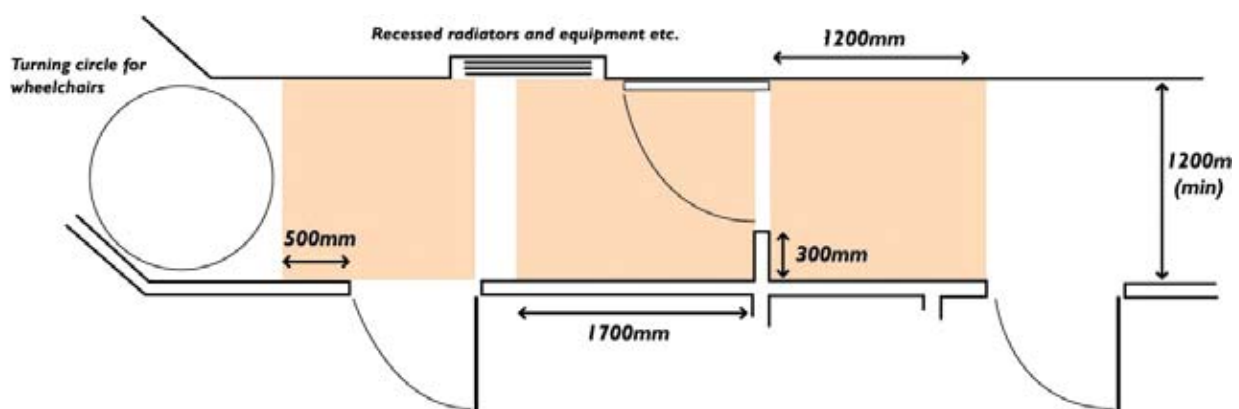


Fig. 17

ACCESS WITHIN BUILDINGS

Corridors and Passageways

- In locations required to be accessible to wheelchair users, corridors and passageways need to be wide enough to allow for wheelchair manoeuvre and for other people to pass.
- Elements such as columns, radiators and fire hoses should not protrude into the corridor, or where this is unavoidable a means of directing people around them, such as a visually contrasting guardrail should be provided.
- Unobstructed width should be at least 1200mm excluding any projections into the corridor.
- Where the unobstructed width of the corridor is less than 1800mm, passing places should be at least 1800mm long and 1800mm wide at reasonable intervals to allow wheelchairs to pass at corridor junctions and similar.
- A floor is classed as level if the gradient is no steeper than 1:60.
- Corridors of gradient between 1:20 and 1:60 should have rise no more than 500mm without a level rest area at least 1500mm long.
- If the corridor is 1:20 or steeper, refer to ramp details.
- Any door opening towards a corridor which is a major access route, should be recessed so that when fully open it does not project into the corridor.
- On a major access or escape route the wider leaf of a series of double doors with leaves of unequal widths is on the same side along the length of the corridor.
- Floor finishes should be slip resistant.
- Glass screens should have suitable manifestation.



Shaded areas show required unobstructed space requirements for approaching doors. All dimensions are clear widths.

Fig. 18

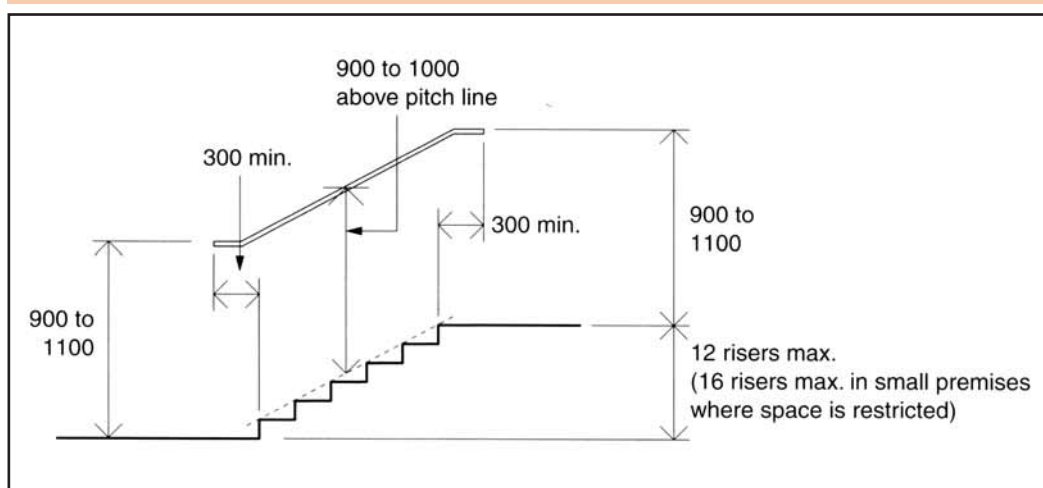
ACCESS WITHIN BUILDINGS

Internal Stairs

Guidance as for stepped access except:

- It is not reasonable to require a hazard warning surface at the head of internal stairs (since there is no recognised warning surface for use internally, which can be guaranteed not to constitute a trip hazard when used alongside flooring surfaces with different frictional resistance characteristics).
- A flight between landings normally contains no more than 12 risers, but in very exceptional circumstances 16 risers in small premises may be provided where the plan area is restricted.
- The rise of each step should be between 150mm and 170mm.
- The going of each step should be at least 250mm.
- The provision for handrails is the same as for stepped access.
- Landings should be of an adequate size to allow persons to rest between flights whilst not causing obstruction to other people (the width and length should be as great as the smallest width of the flight).
- Landings should be clear of permanent obstructions.

Fig. 19 Internal stairs – key dimensions



ACCESS WITHIN BUILDINGS

Vertical Circulation within the Building

A passenger lift is the most suitable means of vertical access and should be provided wherever possible.

However given the space constraints in some buildings it may not always be possible to provide a full passenger lift.

- Signs indicating the location of a lifting device accessible by mobility-impaired people should be clearly visible from the building entrance. Additionally a sign indicating the floor reached should be provided on each landing that can easily be seen from the lifting device and is visually contrasting.
- Whatever lifting device is chosen, internal stairs should always be provided, designed to suit the ambulant disabled and the visually impaired.

Provision of Lifting Devices

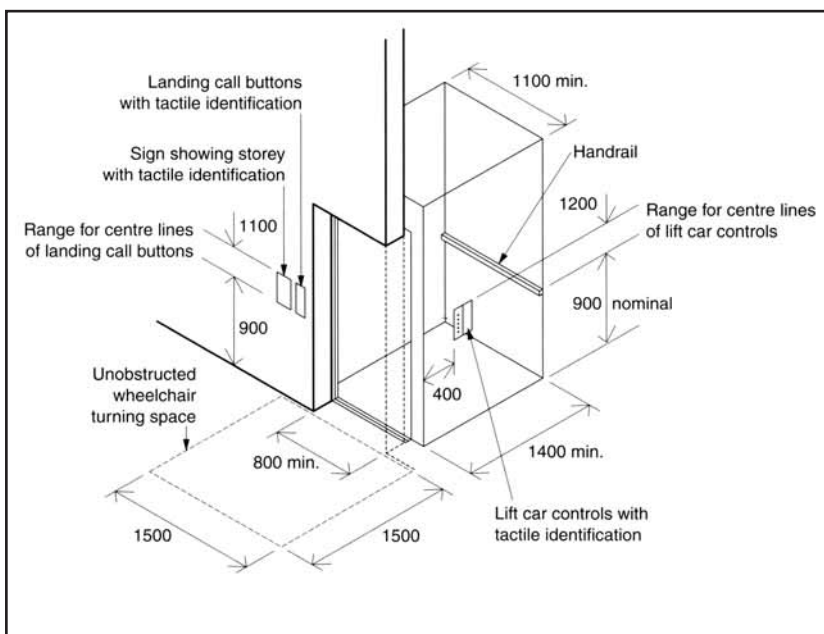
- New developments should have a full passenger lift serving all storeys.

- For new developments where due to site constraints a full passenger lift cannot be provided, a lifting platform may be acceptable.
- Existing buildings may in exceptional circumstances have a wheelchair platform stairlift.

Passenger Lifts

- Minimum dimensions of the car should be 1100mm wide and 1400mm deep.
- For a lift that does not have room for a wheelchair user to turn around, a mirror should be provided to allow the user to see the space behind the wheelchair.
- Power operated sliding doors should provide a minimum clear opening of 800mm and be fitted with timing and re-opening activators to allow time for people and assistance dogs to enter or exit.
- Controls should be located between 900mm and 1200mm from the car floor and be at least 400mm from any return wall.

Fig. 20 Key dimensions associated with passenger lifts



- Landing call buttons should be located between 900mm and 1100mm from the floor and at least 500mm from any return wall.
- Lift landing and car doors should contrast visually from adjoining walls.
- Audible and visual indication of lift arrival and location should be provided in the lift car and lift lobby. If the lift is to be used in an emergency it should conform with the relevant recommendations of BS 5588 part 8 (Code of Practice for Means of Escape for Disabled People).

ACCESS WITHIN BUILDINGS

Vertical Circulation within the Building

Lifting Platforms

- Vertical travel distance should be no more than 2m where there is no liftway enclosure and no floor penetration.
- Controls should be located between 800mm and 1100mm from the floor of the lifting platform and be at least 400mm from any return wall.
- Continuous pressure controls should be provided, with landing call buttons the same as for a passenger lift.

Minimum dimensions should be

- 800mm wide and 1250mm wide where the platform is not enclosed and provision is being made for an unaccompanied wheelchair user.
- 900mm wide and 1400mm deep if the platform is enclosed and provision is made for unaccompanied wheelchair users.
- 1100mm wide and 1400mm deep where two doors are located at 90 degrees relative to each other and where the platform is enclosed, or where provision is made for unaccompanied wheelchair users.
- Doors should have clear opening of 900mm for a 100mm x 1400mm platform and 800mm clear opening in other cases. Audio and visual announcements should be provided for platform arrival and location indication.

Wheelchair Platform Lifts

- In a building with a single stairway required width for means of escape should be maintained when the platform is in the parked position (see Approved Document B).
- Continuous pressure controls should be provided. The minimum dimensions are 800mm wide and 1250mm deep.
- Access with an effective clear width of at least 800mm should be provided.

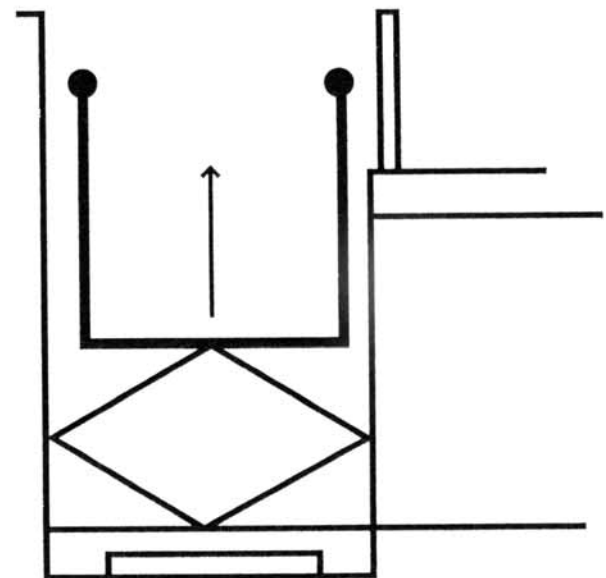
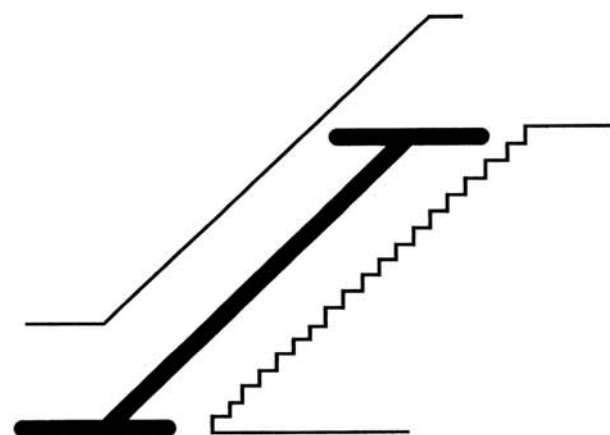


Fig. 21

Platform lift



Wheelchair stairlift

Fig. 22

ACCESS WITHIN BUILDINGS

Guide to the Provision of Lifts

It is clearly the intention of Part M of the Building Regulations to make as much of the built environment as possible accessible to all. Therefore, the provision of lifts must be seen as the obvious solution for vertical travel.

As there is no floor area rule to be guided by, it is important to recognise that whilst the provision of a passenger lift (or, in certain situations a lifting platform) is the preferred option, each application should be looked at individually, as each situation will differ in some way.

This is why the concept of Access Statements has been introduced. It is an opportunity for a designer to give a reasoned argument as to why full compliance is not possible in a particular case or where new technologies or alternative solutions are to be used. The obligations of employers and service providers under the DDA should be pointed out to designers wishing to submit Access Statements.

In new buildings, it is hoped that designers will not try to put forward an argument for not fully complying. It is more likely that problems in making a building fully accessible will be put forward for an existing building. This is why, whilst ascertaining what is reasonable in the circumstances of each case must be looked at, it must be remembered that it is the intention of the Building Regulations that all new buildings and existing non-domestic buildings that are materially altered or extended are accessible to all.

Inevitably there will be occasions when reduced standards that are supported by Access Statements will be considered reasonable. These projects may relate to small-scale developments for example, where there may not be adequate space for a full size lift, and a platform lift or some other alternative solution may be suggested.

In such circumstances, consideration should be given to special design for landings etc. and refuges if necessary.

The government has inferred that it is not their intention to prevent small development through the additional financial burden of providing a lift, but this is a difficult reason to substantiate the acceptance of reduced standards.

When deciding if a scheme is reasonable, the use of the building must be taken into consideration. If no public access is required on upper floors and it can be demonstrated that work activity precludes persons with disability through a reasoned Access Statement, this may be satisfactory. However, these types of decision cannot be made without knowing the building occupier and usage.

Useful checklist of considerations

- Access is to one floor only and the area is limited in comparison with the floor below
- The cost of a passenger lift if the overall project cost is modest
- Floor space does not contain a unique facility
- Layout of the building, particularly if it is of historical interest
- Means of escape provision may not be achieved due to floor space/layout constraints
- Members of the public are not permitted on the floor

Remember

Whatever form of access to floors above the ground floor is provided, an ambulant disabled stair should be provided.

The above list is not conclusive, nor is it authoritative in that in those situations a passenger lift is not required. It merely gives guidance for consideration of particular situations.

MEANS OF ESCAPE

Means of Escape/Egress

This publication deals primarily with access into and around a building, and the use of facilities within the building but the safe evacuation of all potential users of the building is also vitally important.

When considering means of escape in case of fire, the ultimate consideration is the amount of time it will take for a person(s) to travel from a place threatened by fire to a place of safety.

It is worth noting that disability is not an absolute measure of mobility, for instance, evacuation tests have shown that wheelchair users were able to evacuate premises before ambulant people with walking aids. The wheelchair users did not generally impede or impose any delay on the able-bodied people. It was the ambulant person using a walking frame who was the source of the most serious impediment to the process of the evacuation.

General

Routes of travel should be free from any obstacles which may impede a person with disabilities, e.g. thresholds or steps.

Ramps that are designed as shown on page 21, are suitable for changes in level.

The width of escape routes and exits should be sufficient to accommodate the evacuation of mixed-ability occupancies.

Refuges

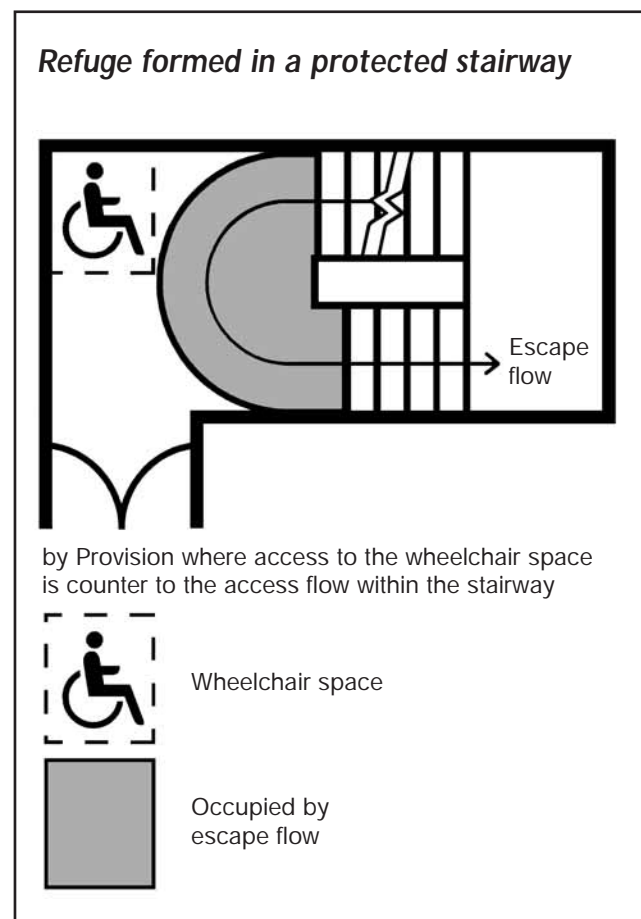
Most people with disabilities should be able to reach the safety of a protected escape route, or a final exit independently due to the limitations of travel. It is when stairways are encountered that some people with disabilities will rely on assistance. It is for this reason a waiting area should be provided in a safe area, so a person requiring assistance can wait in safety until assisted by a trained colleague or fire rescue personnel.

Refuges should be provided for each protected stairway affording egress from each storey. The refuge need not be located within the stair enclosure but should enable direct access to the stair.

A refuge should be located in either:

- Protected lobby, or
- Protected corridor, or
- Protected stairway
- A refuge should not encroach into the escape flow space
- A refuge should have dimensions of at least 1400mm x 900mm
- Refuges should be provided for each stairway on each storey

Fig. 23



MEANS OF ESCAPE

Means of Escape/Egress

LIFTS

There are 3 main types of lift

- Passenger Lift
- Evacuation Lift
- Firefighting Lift

Passenger Lift

Generally to gain access to the upper floors, a passenger lift is required by the Building Regulations. These lifts should not be used as a means of escape in case of fire.

Evacuation Lift

Such lifts are often provided in buildings where there is a high proportion of less mobile occupants. For example, retirement homes, hospitals and modern shopping centres.

Their use in case of emergency should be strictly to well managed procedures (see page 38).

Features of an evacuation lift include:

- Lift well is a fire protecting structure
- There should be a protected lobby at each storey
- There should be a protected route from exit level to a final exit
- To override car and landing controls, there should be a switch marked "Evacuation Lift" at exit level
- There should be a separate primary electrical supply, and an alternative secondary supply

Firefighting Lift

Similar in design to an Evacuation Lift but with additional fittings which are generally to aid firefighters in their operations. Firefighting lifts should not be used by occupants of the building in case of fire.

Stairlifts

Stairlifts should not be used in an emergency evacuation; they should be fitted with a battery back up system, which will take the lift to the ground floor if the power fails.

Evacuation Chairs

Commonly known as Evac Chairs, these are often used in office buildings where occupants are familiar with evacuation procedures. It is essential that operators are fully trained and the use of the evac chairs are integral to the management procedures for evacuation in case of emergency.



Fire Alarms

The typical fire alarm consists of a bell or siren. Consideration must be given to alerting occupants with hearing difficulties.

Audible Alarms

An audible alarm is the most usual way of alerting people to an alarm, and is the best way of alerting someone with a visual impairment.

MEANS OF ESCAPE

Means of Escape/Egress

Vibrating Alarms

Vibrating pillow pads are very useful for owners of hotels, guesthouses, or anywhere that provides accommodation to alert a hearing impaired person in the event of an alarm. Vibrating pagers are useful for office workers. There should also be a visual alarm, so the hearing impaired person realises it is not just a malfunction of the vibrating alarm.

Visual Alarms

Fire alarms come in several different types that warn us of impending danger with horns, sirens, bells, chimes, beeping, and now even voice fire alarms. According to whether you are a large building such as a school, or a private home, having some type of fire alarm in the area is essential for saving lives in case of a fire.

A visual alarm is a useful addition to the usual audio alarm system to warn those with hearing impairments of an emergency.

Management Procedures

It is important that the building management have a procedure in place, for the safe evacuation of employees and visitors including those with disabilities.

Management procedures, whilst following general guidelines, are specific to the building, management structure, size and occupancy.

Employers should ensure that staff with disabilities are fully aware of the emergency evacuation procedures for the building. Staff with disabilities should also be consulted about what assistance they may require to exit the building safely in an emergency.

Visitors should also be aware of the evacuation procedure. Members of staff should be responsible for ensuring all visitors are escorted out of the building, or to a place of safety.

Under new Fire Safety legislation, the building owners or occupier have a responsibility to carry out a risk assessment of the building. This must include evacuation procedures in case of emergency.

For further information on this responsibility, please contact your local Fire Service.

Training

An essential part of the management procedures is to ensure all staff, including new members of staff, are prepared for an emergency situation.

FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Audience and Spectator Facilities

Audience and spectator facilities fall into 3 categories

- Entertainment facilities, eg. Cinemas and theatres
- Sports Stadiums
- Lecture & Conference Facilities

General

- People with mobility or sensory impairments may need to view from a particular side or sit in the front to lip read or see sign interpreters.
- Care needs to be taken so that poor lighting or very bright natural light does not make it difficult to see the interpreter.
- Wheelchair users, people who have difficulty using chairs with fixed arms and those with assistance dogs should have the choice of sitting next to a seated companion or a companion wheelchair user.
- Consideration should be given to providing space by certain seats for assistance dogs to rest.
- Greater spacing between rows of seats at the rear of a block or at the end of rows may provide extra legroom for people of large stature.

Table 3 Provision of wheelchair spaces in audience seating

Seating capacity	Minimum provision of spaces for wheelchairs	
	Permanent	Removable
Up to 600	1% of total seating capacity (rounded up)	Remainder to make a total of 6
Over 600 but less than 10,000	1% of total seating capacity (rounded up)	Additional provision, if desired

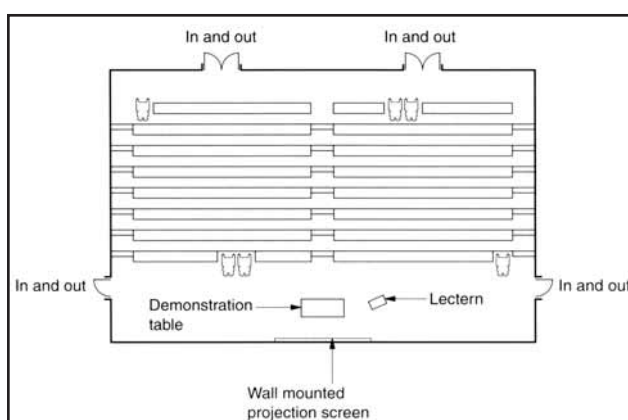
Note:
For seating capacities of 10,000 or more, guidance is given in 'Accessible stadia: a good practice guide to the design of facilities to meet the needs of disabled spectators and other users'.

LECTURE AND CONFERENCE FACILITIES

- Where a podium or stage is provided wheelchair users should have access to it by means of a ramp or a lifting platform.
- A hearing enhancement system should be provided for the hearing impaired.

Guidance on hearing enhancement systems can be found in BS 8300.

Fig. 24 An example of wheelchair spaces in a lecture theatre



FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Audience and Spectator Facilities

Fig. 25 Possible location of wheelchair spaces in front of a rear aisle

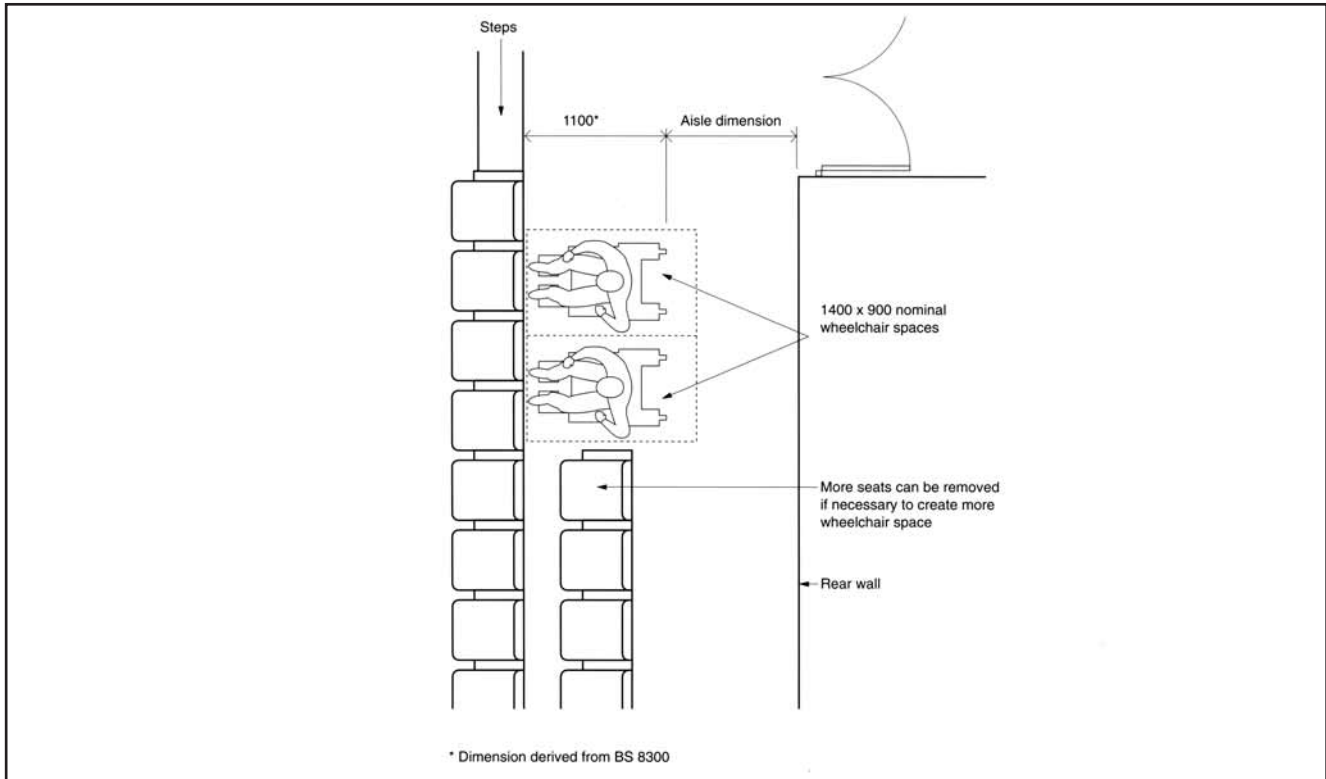
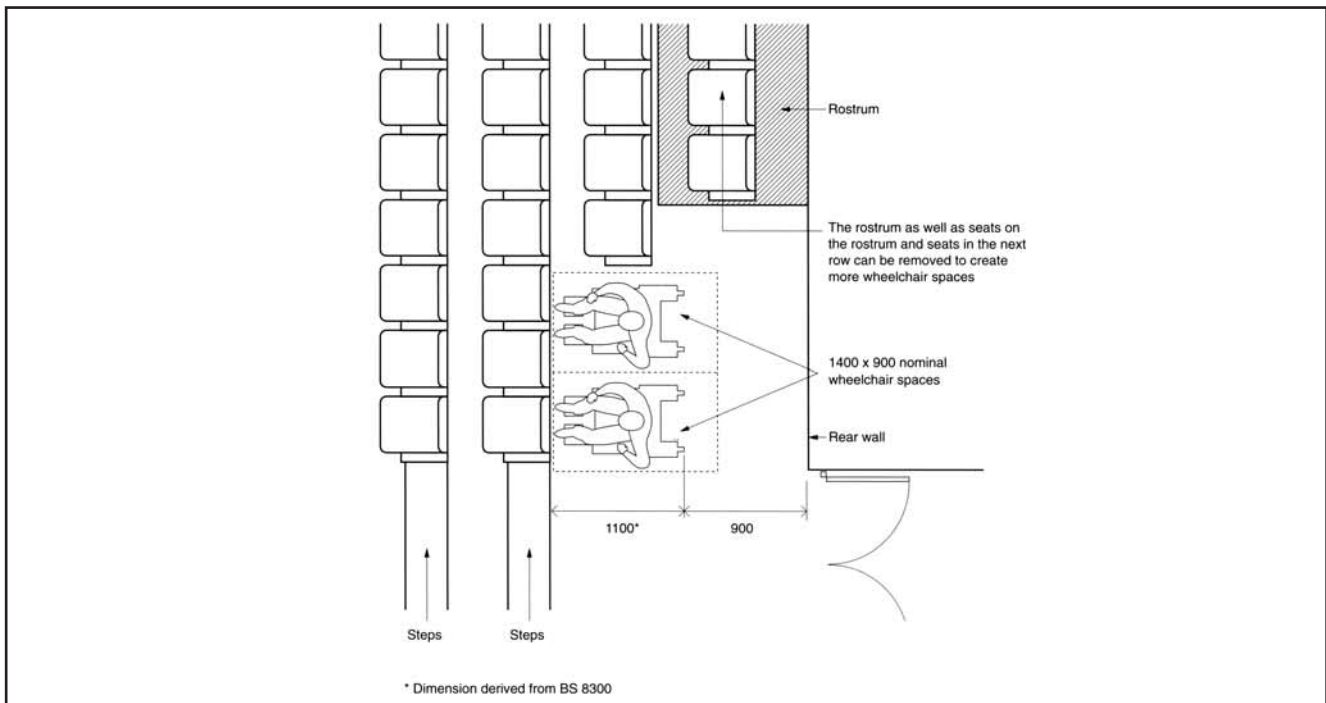


Fig. 26 An example of wheelchair space provision in a cinema or theatre



FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Refreshment Facilities

All bars and restaurants should be designed so all potential customers have full and independent access.

- In many restaurants, changes in level are used to differentiate between functions or to create atmosphere.

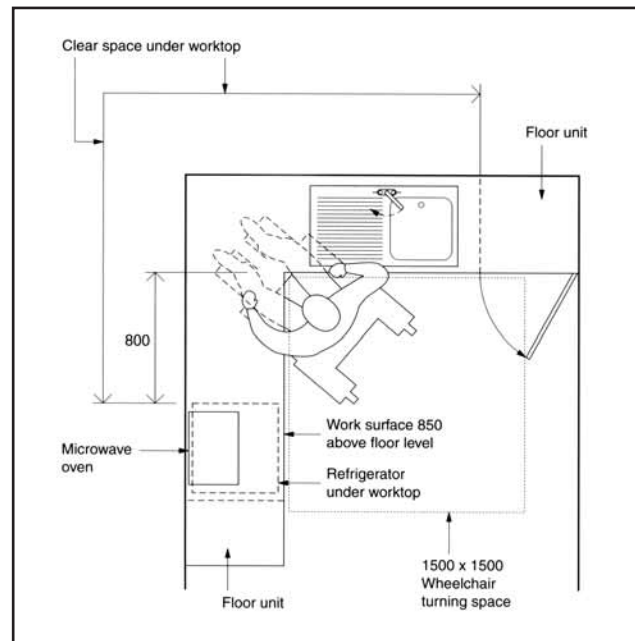
Changes in level are only allowed if they are fully accessible by a ramp or lifting platform.

- Consideration should be given to the layout of tables and seating to allow the less mobile to negotiate their route with minimal disturbance to other patrons.
- Family restaurants in particular should consider adequate spacing for pushchairs and prams.
- Routes to lavatories and fire exits must always be kept clear of obstructions.
- Part of the bar should be accessible to wheelchair users and be no higher than 850mm from the floor level.
- Self service and payment points should be accessible to wheelchair users.

Many offices provide communal refreshment making facilities for staff. The design and layout should be suitable for all users.

- Worktops should be accessible and no higher than 850mm from the floor with a clear space beneath at least 700mm above the floor.

Fig. 27 An example of a shared refreshment facility



FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Sleeping Accommodation

Sleeping accommodation where provided for a significant number of people such as hotels, motels and student accommodation, should be convenient for everyone.

- In student accommodation it is beneficial to provide a wheelchair accessible toilet for visitors.

This guidance should be followed for all bedrooms:

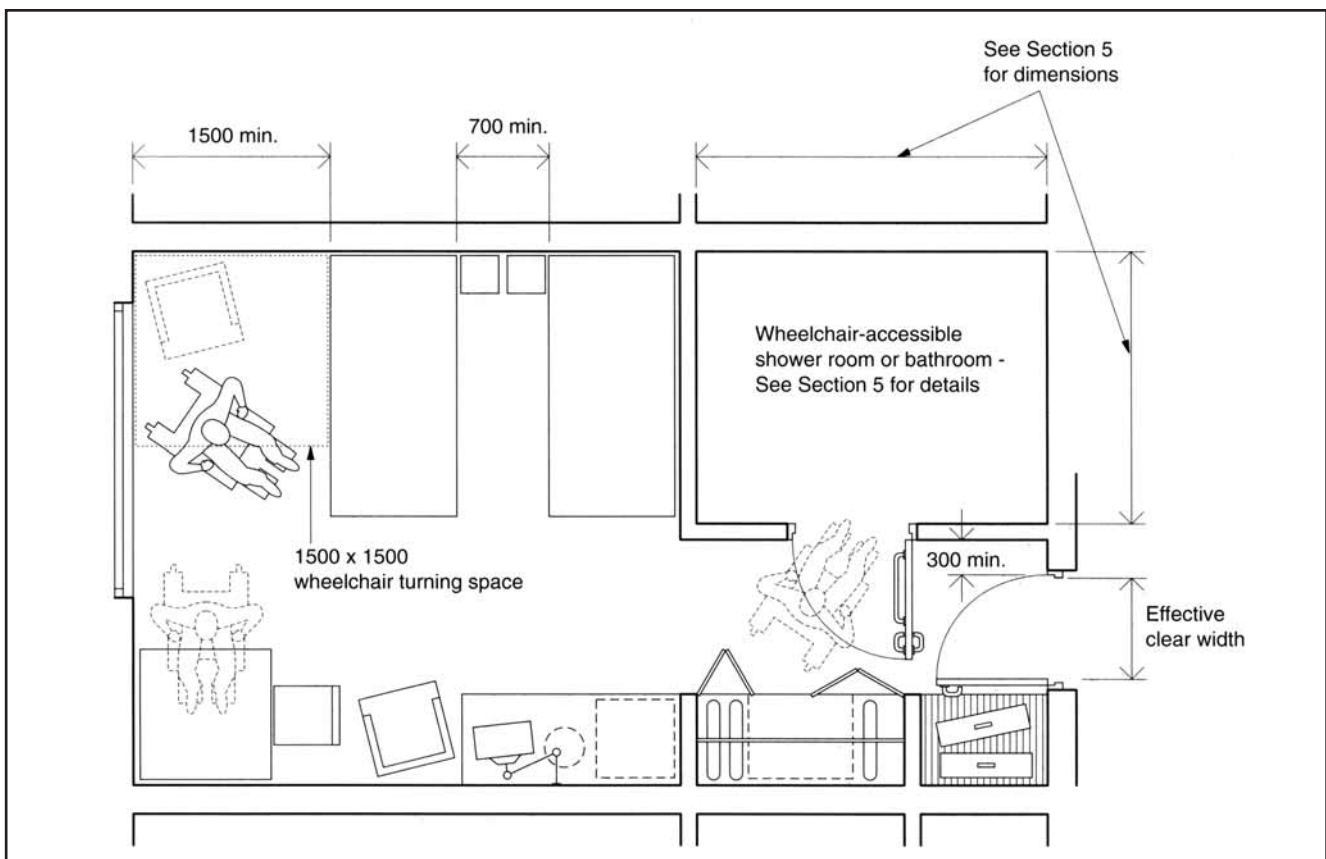
- Effective clear width of the door from the access corridor should comply with Table 2 (page 25).
- Swing doors on wardrobes etc should open through 180 degrees.
- Handles on hinged and sliding doors should be easy to grip and operate and contrast visually from the door.

- All bedrooms should have a visual fire alarm signal in addition to the requirements of Approved Document B.
- Room numbers should be indicated in embossed characters.

WHEELCHAIR ACCESSIBLE BEDROOMS

- At least 1 in 20 bedrooms should be wheelchair accessible.
- The wheelchair accessible bedrooms should be located to provide a choice of location and be on accessible routes to all the facilities.
- They should be of the same standard as all other bedrooms.

Fig. 28 One example of a wheelchair-accessible hotel bedroom with en-suite sanitary facilities



FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Sleeping Accommodation

- The entrance door to the bedroom and to the en suite facility should comply with Table 2 (page 25) and have a maximum opening pressure of 20N.
- En suite facilities should comply with the provisions for wheelchair accessible bath and shower facilities.
- The size of the room should allow a wheelchair user to manoeuvre at the side of the bed and transfer independently.
- An emergency assistance alarm and reset button should be located in the bedroom and be activated by a pull-cord that can be operated from the bed or the floor.
- Openable windows and window controls should be located between 800mm and 1000mm above the floor and be easy to operate without the need to use both hands simultaneously.
- On the outside of the room the call signal should be easily seen and heard and linked to a central control point.

Switches, Outlets and Controls

- Wall mounted socket outlets, telephone points and television sockets should be located between 400mm and 1000mm above the floor with a preference for the lower end of the range.
- Switches for permanently wired appliances should be located between 400mm and 1200mm above the floor.
- All switches and controls that require precise hand movements should be located between 750mm and 1200mm above the floor.
- Controls that need close vision should be located between 1200mm and 1400mm from the floor, so readings can be taken from a seated or standing position.
- Sockets should be at least 350mm from any room corners.
- Light switches for use by the general public should be large push pads and align horizontally with the door handles within the range between 900mm to 1100mm from the floor. Where this cannot be achieved pull cords should be provided in the same height range.
- The front plates of sockets should contrast visually from the background and have a clear indication that they are ON.

FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

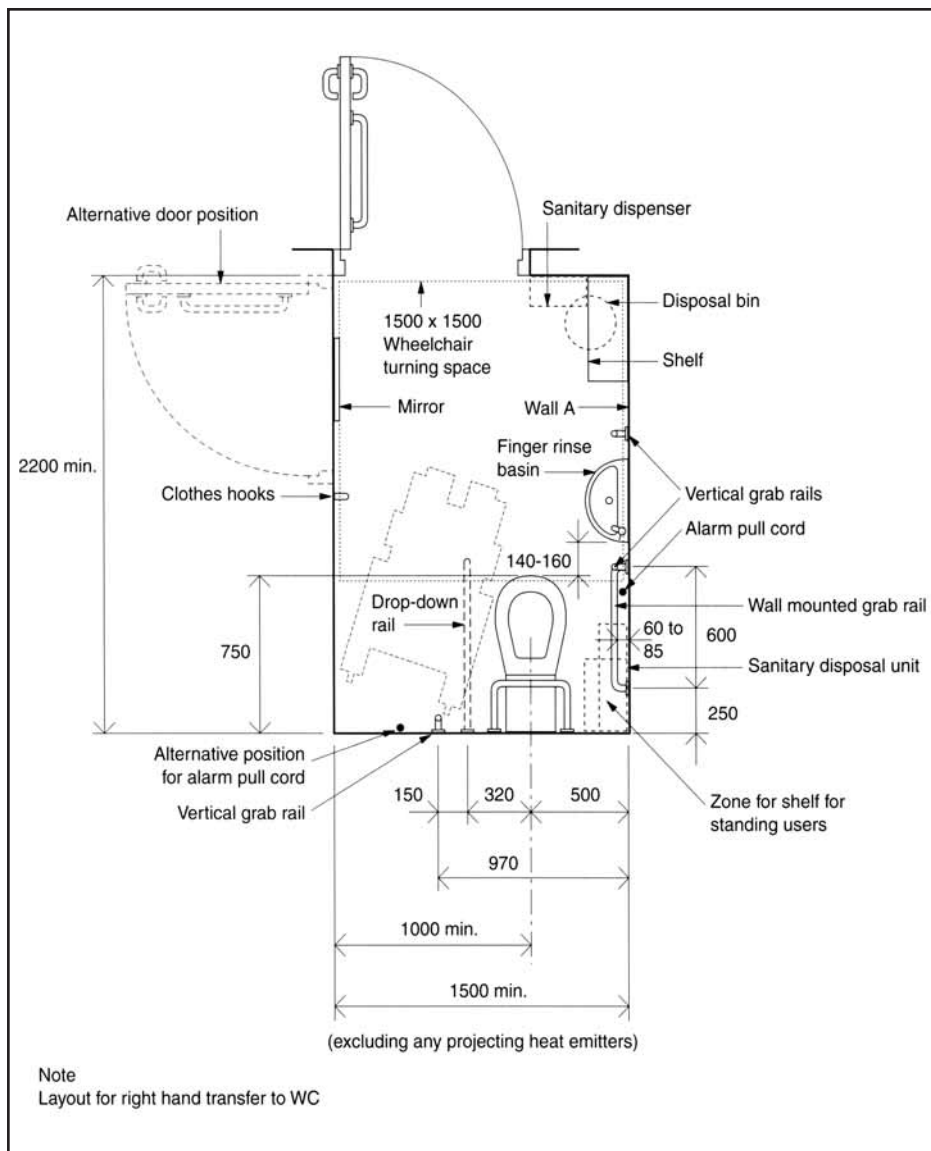
Sanitary Conveniences

UNISEX WHEELCHAIR ACCESSIBLE TOILETS

- Where there is space for only one toilet in a building, it must be a unisex wheelchair accessible toilet but of greater width to accommodate an additional wash basin at standing height. At least one unisex wheelchair accessible WC should be located where toilets are provided for customers, visitors or staff.

- One should be located as close as possible to the entrance or waiting area of a building and be located in a similar position on each floor of a multi storey building. There should be right and left handed transfer on alternate floors.
- If two unisex facilities are provided side by side, left and right hand transfer should be accommodated.

Fig. 31 Unisex wheelchair-accessible toilet with corner WC



- Doors should be outward opening with a horizontal closing bar on the inside face.
- A wheelchair user should not have to travel more than 40m on the same floor or more than 40m combined horizontal travel if the toilet is on another floor of the building and is accessible by passenger lift. In buildings with a lifting platform vertical travel to the toilet should be limited to one storey.
- Heat emitters should be screened or their surface temperature kept below 43 degrees centigrade.
- All fittings and grab-rails should contrast visually with the background wall and floor finish, and there should be contrast between the walls and floor.

FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Sanitary Conveniences

Fig. 32 Heights and arrangement of fittings in a unisex wheelchair-accessible toilet (looking towards wall A in Fig. 31)

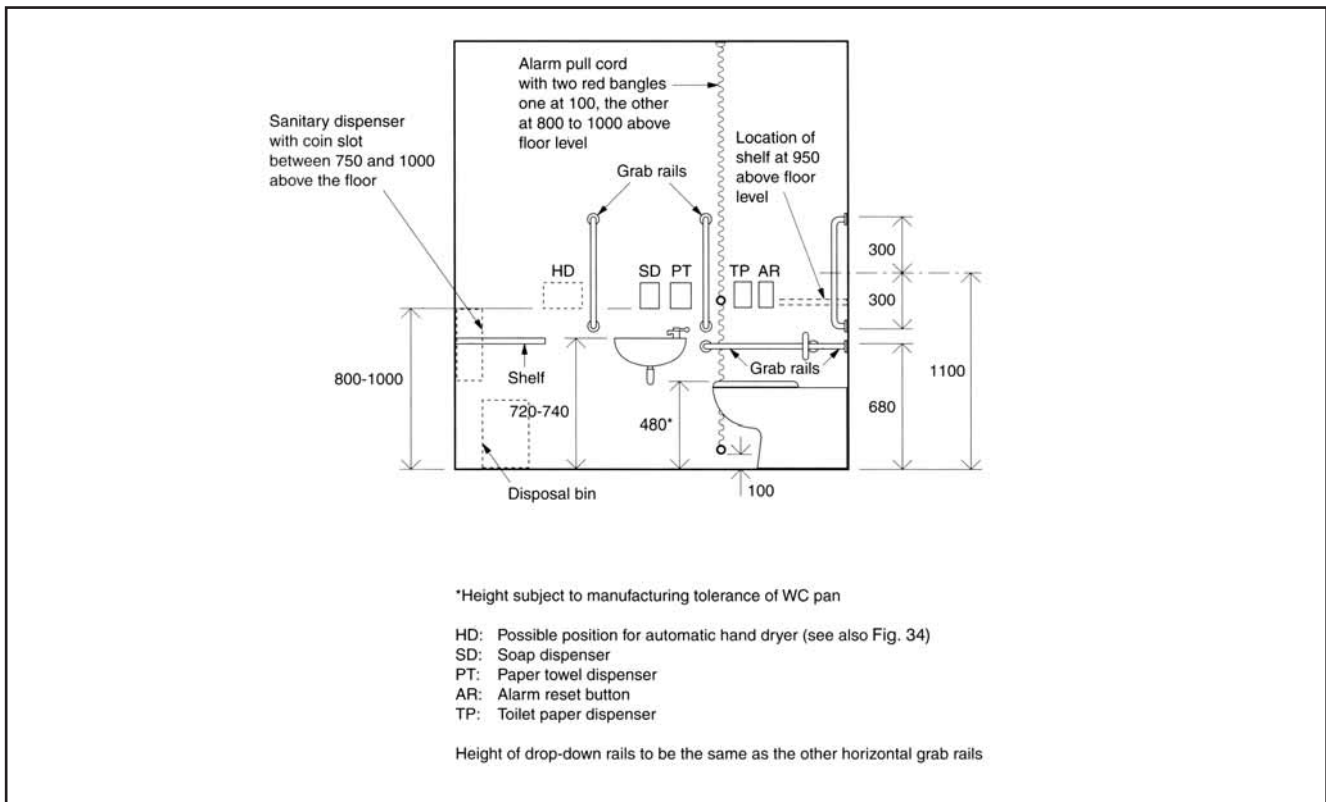
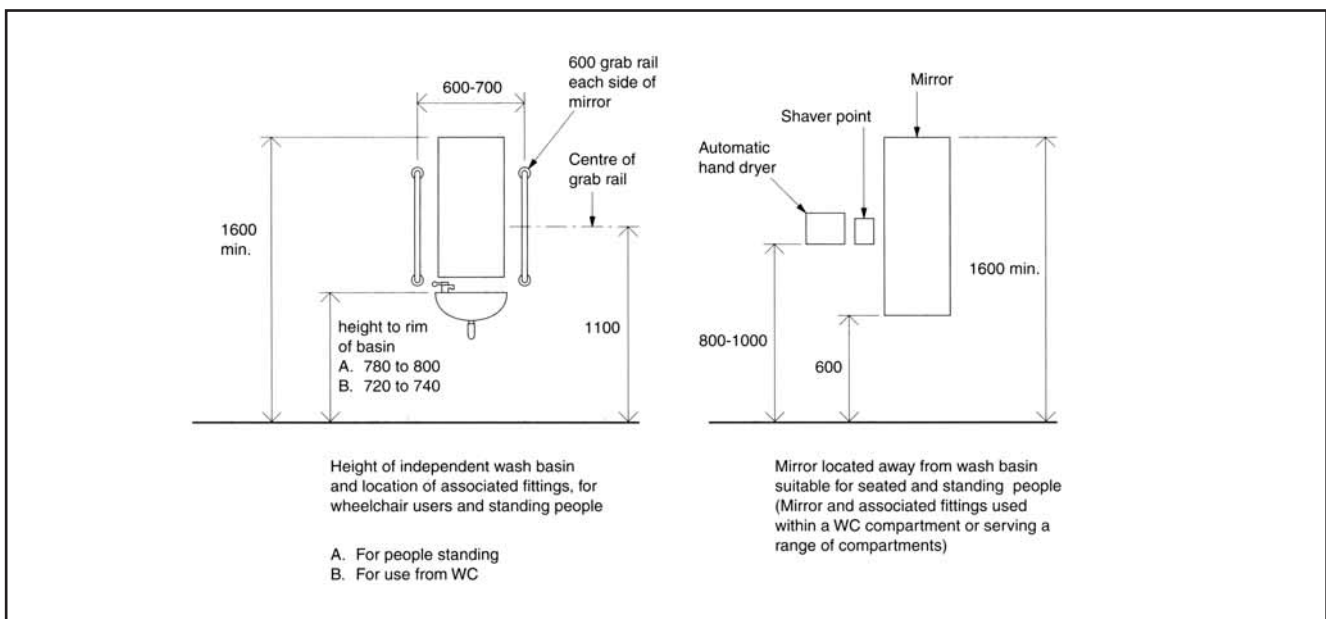


Fig. 33 Heights of various fittings in toilet accommodation



FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Sanitary Conveniences

GENERAL ADVICE

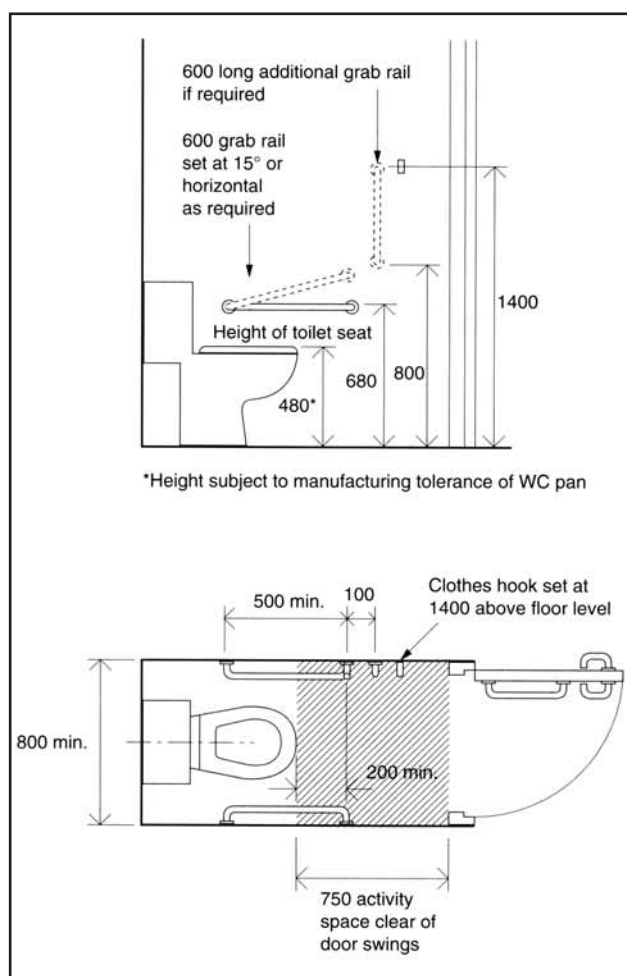
- At least one cubicle in same sex toilets should be designed for the ambulant disabled, as shown in Fig. 34.
- Where there are four or more cubicles in a same sex toilet one of these should be enlarged for use by people who need extra space, like parents with young children or people with shopping or luggage. Minimum width of these toilets should be 1200mm.

Baby change units should wherever possible be provided in these units.

- Taps on baths or wash basins should be controlled automatically or can be operated using a closed fist, eg lever action.
- Door handles and other ironmongery should comply with the provisions for internal doors.
- Doors to WC compartments, and wheelchair accessible unisex toilets, changing or shower rooms should be fitted with light action privacy bolts so they can be operated by people with limited dexterity. If required to self-close, they should be openable with a force no greater than 20N.
- Any fire alarm should emit a visual and audible signal.
- Emergency assistance alarms should have:

- Visual and audible indicators to confirm an emergency call has been received.
- A signal which is different from the fire alarm.
- A re-set control reachable from the wheelchair or shower or changing seat.
- Lighting controls to conform with the provisions for switches and controls.

Fig. 34 WC cubicle for ambulant disabled people



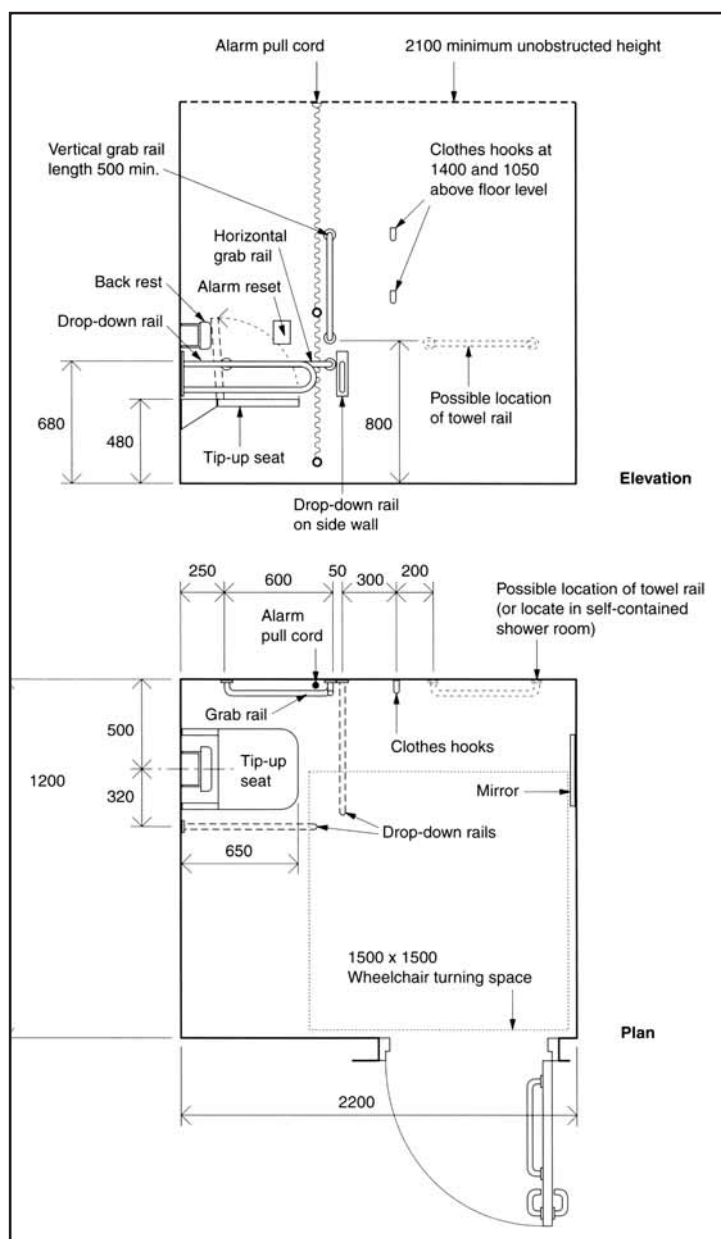
- Heat emitters are screened or their surface temperature is kept below 43 degrees centigrade.
- All fittings and grab-rails should contrast visually with the background wall and floor finish and there should be contrast between the walls and floor.

FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Wheelchair Accessible Changing and Shower Facilities

- Where more than one unit is provided provision for left or right handed transfer should be made.

Fig. 35 An example of a self-contained changing room for individual use



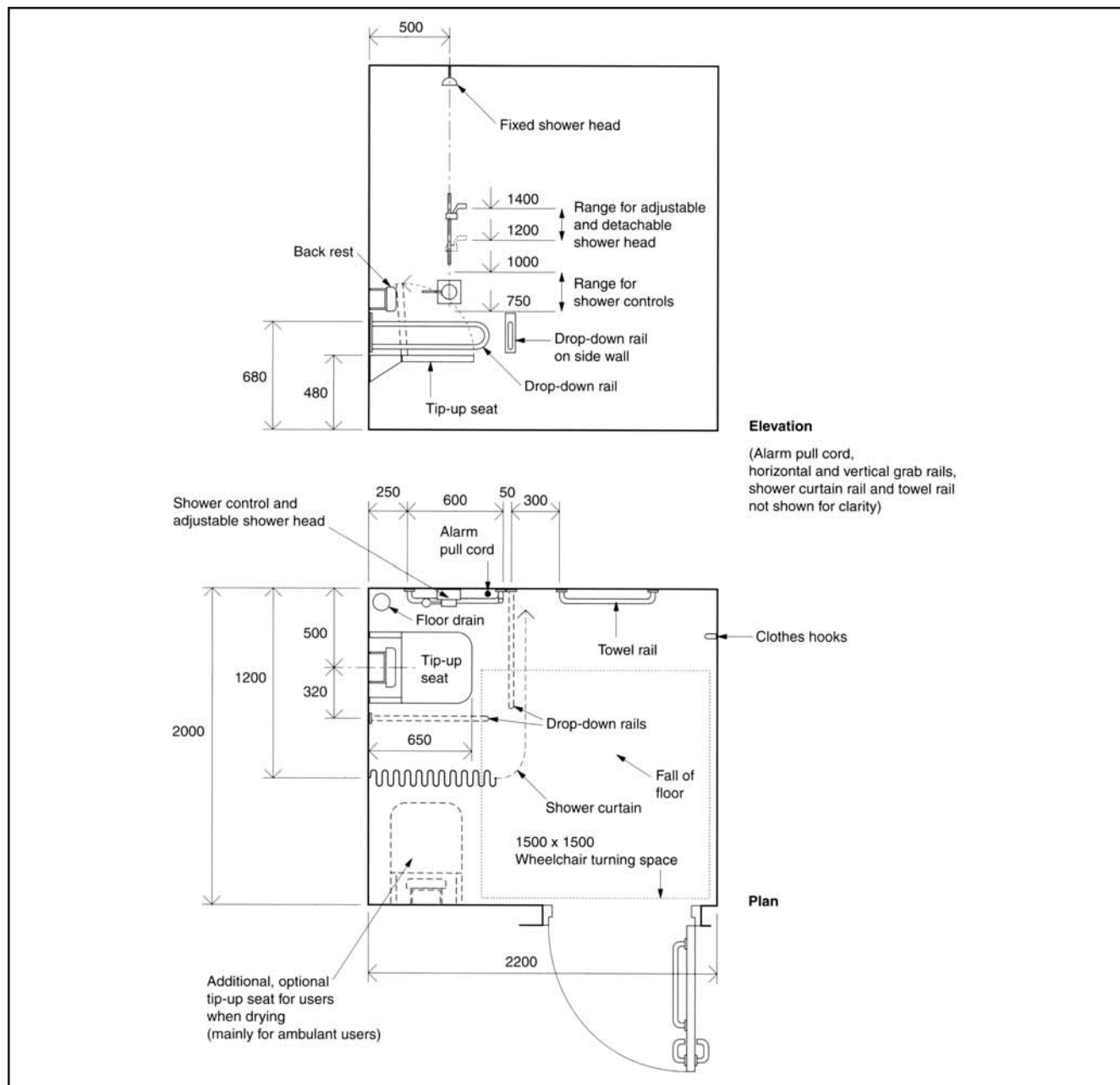
- Should provide wall mounted drop down support rails and wall mounted, slip resistant tip up seats (not spring loaded).
- In sports facilities individual self-contained shower facilities should be provided in addition to communal separate sex facilities.
- A shower curtain should be provided that covers the seat and rails when in the horizontal position and can be opened and closed from the shower seat.
- A shelf that can be reached from the seat or wheelchair should be provided for toiletries.
- An emergency assistance pull cord should be easily identifiable and can be reached from the seat or the floor, the assistance alarm should be as for sanitary accommodation.
- Facilities for limb storage should be included for the benefit of amputees.
- When associated with shower facilities the floor should be level and slip resistant when dry or wet.
- There should be a manoeuvring space of at least 1500mm deep in front of lockers.

FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Wheelchair Accessible Changing and Shower Facilities

- Where showers are provided in commercial developments for the benefit of staff, at least one wheelchair accessible shower compartment should be provided.
- Shower controls in communal showers should be positioned between 750mm and 1000mm above the floor.

Fig. 36 An example of a self-contained shower room for individual use



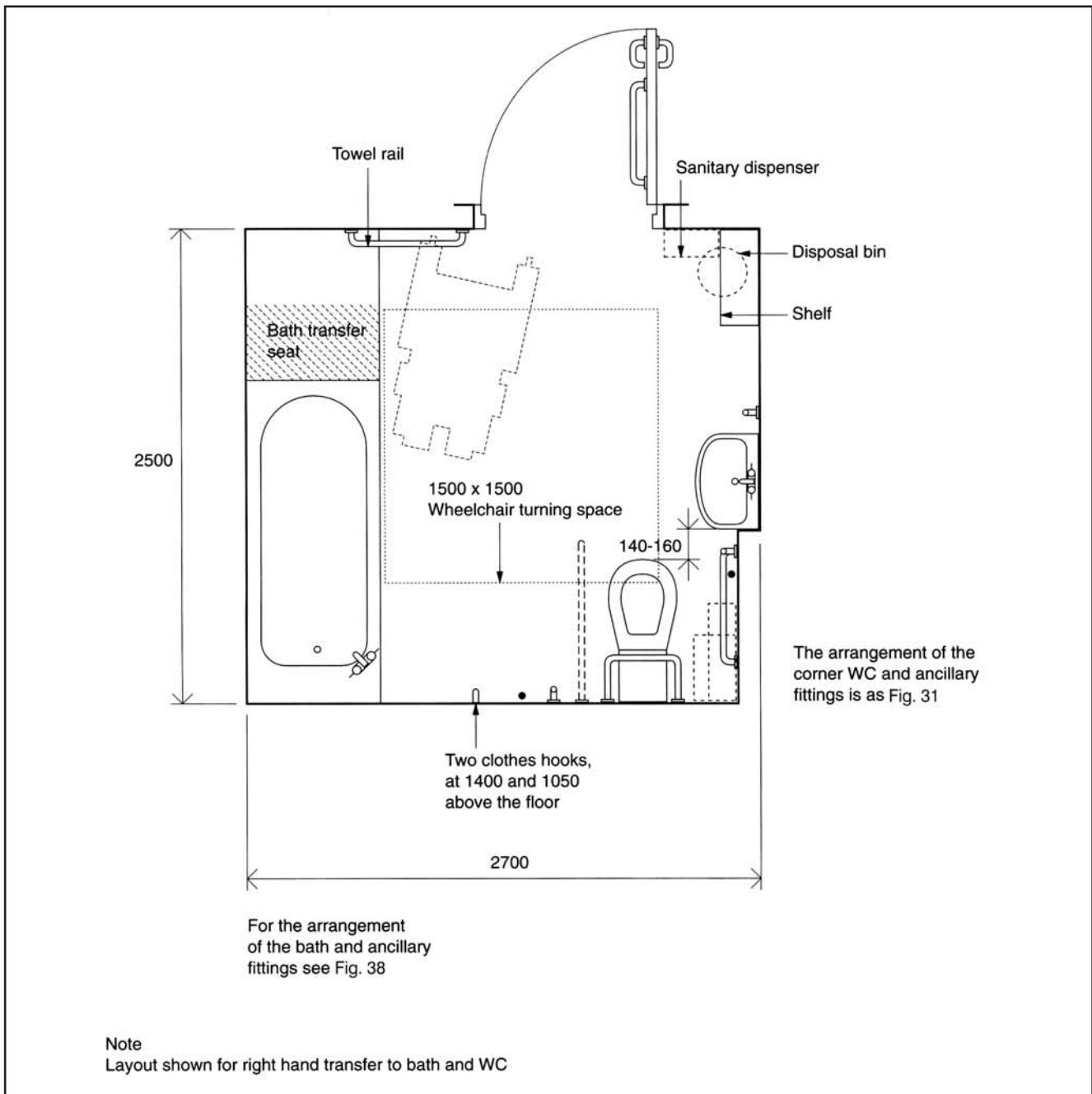
FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Wheelchair Accessible Bathrooms

This guidance covers wheelchair accessible bathing facilities in hotels, motels, student accommodation and relatives' accommodation in hospitals.

- A choice of left or right handed transfer should be provided where more than one accessible bathroom is provided.
- The bath should be provided with a transfer seat 400mm deep and equal to the width of a bath.

Fig. 37 An example of a bathroom incorporating a corner WC

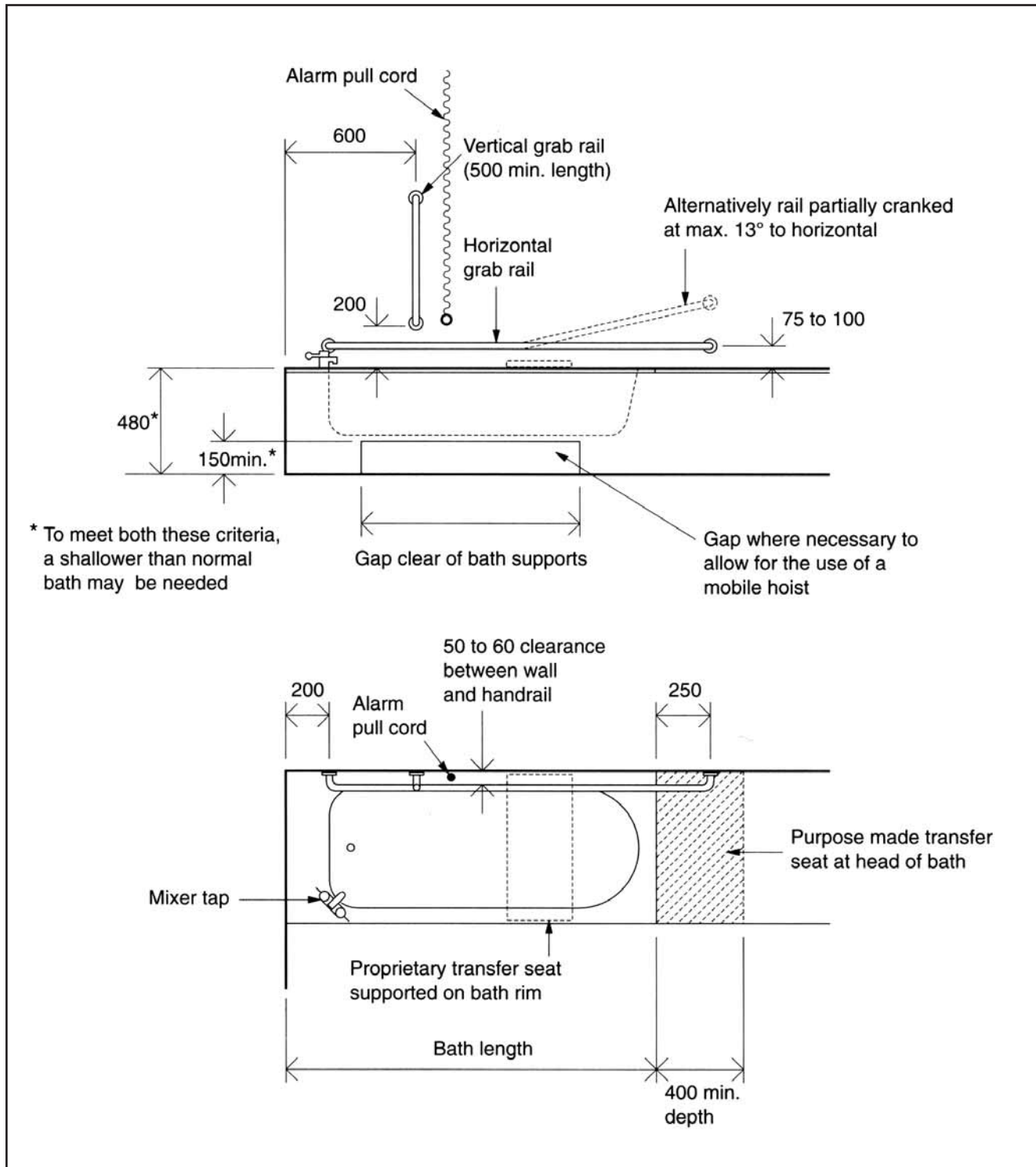


FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Wheelchair Accessible Bathrooms

- Doors should open outwards and be fitted with a horizontal closing bar fixed to the inside face.
- The room should be fitted with a pull cord and assistance alarm.

Fig. 38 Grab rails and fittings associated with a bath



FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Design Considerations for Sensory Impairments

A high proportion of the population have sensory impairments such as poor sight and hearing loss.

Whilst these impairments are not immediately visible, they need to be considered when designing the internal finishes and environment, in and around buildings.

CONTRAST

To allow people with visual impairments the opportunity to negotiate their environment, there must be the best possible contrast between all surfaces.

Doors

- Door frames to contrast visually with the door and wall
- Door handles to contrast with the door
- Manifestations on glazed doors to be as per Approved Document M

Lifts

- A lift door should contrast visually with the adjoining wall
- Call buttons should contrast visually with the surrounding face plate and the face plate should contrast with the wall on which it's mounted

Changes in Level

- The surface of a ramp should contrast visually with that of the landing
- Nosings to steps and stairs should have contrasting strips
- Handrails to ramps and stairs from the wall/background



Visual contrast between door and frame
Note also contrast between door and door furniture. The difference between floor and wall is also well highlighted

Floors

High gloss finishes should be avoided due to problems with glare and the fact they are perceived as being slippery.

Walls

- Contrast skirting to define where the floor stops and the wall starts
- Consider also a suitable contrast at the junction between walls and ceiling

Switches

- Service outlets, light switches and other functional elements on the surface of walls should be distinguishable from the wall, using visual and textural contrast

FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Design Considerations for Sensory Impairments

Sanitary Fittings

- Quite often accessible WC compartments are fitted out with white walls, white fittings and grab-rails. This not only looks clinical, but causes glare and difficulty due to lack of contrast



*Good visual contrast between WC pan and seat.
Note also the contrasting colour of the grab-rails from the wall*

- Toilet seats should contrast visually with the pan
- Grab-rails should contrast visually with the background
- Other fittings such as soap dispensers, towel holders etc... should be distinguishable from the wall they are fitted on
- Emergency pull-cords should be red

External Landscape Furniture

- Consideration must be given to providing good contrast for benches, planters and other furniture outside the building

NOTE

- Whilst high gloss and polished metal looks good, its reflective nature is detrimental to achieving suitable contrast

FACILITIES IN BUILDINGS OTHER THAN DWELLINGS

Design Considerations for Sensory Impairments

HEARING ENHANCEMENT SYSTEMS

Provision for a hearing enhancement system should be installed in rooms and spaces designed for meetings, lectures, classes, spectator sport or films, and at service or reception counters particularly in noisy areas or where they are behind glass screens.

- It is essential staff are fully trained in how to use the systems
- All facilities should be indicated with the appropriate symbol and signage
- Portable systems are a flexible alternative for smaller rooms or where cost is an issue
- Detailed guidance on surface finishes, visual, audible and tactile signs as well as the characteristics and appropriate choice of hearing enhancement is given in BS8300



Induction Loop Available



Facilities for blind and visually impaired persons

LIGHTING LEVELS

- Someone with a visual impairment needs between 50 and 100 per cent more light than a fully sighted person. (RNIB)
- Walls, ceilings, floors and work benches etc should have matt finishes to avoid glare
- Where one to one communication is important, lighting should provide sufficient illumination to aid lip reading.

Table 4
Lux recommendations for lighting

Area To Be Lit	Recommendation
Entrances; Halls, Lobbies, Waiting Rooms	300 Lux
Enquiry Desks	600 Lux
Circulation;Corridors, Lifts, Stairs	150 Lux
Communal Areas; Lounges, Staff Rooms	300 Lux
Kitchens	300 Lux
Bedrooms	150 Lux
Offices	500 Lux
Computer Work Stations	500 Lux

DWELLINGS

Accessibility

On 25th October 1999, Part M of the Building Regulations was amended to improve accessibility for visitors to all new dwellings. It is not intended to create lifetime homes. Reasonable access is required into the dwelling within the boundaries of the plot. Generally, a level or ramped approach is required to the principal entrance, with a gradient not exceeding 1:20 and not less than 900mm wide.

If site topography prevents this, and the plot gradient exceeds 1:20, a ramp may be required. This requires a firm and even surface, a minimum width of 900mm, 1.2m top, bottom and intermediate landings, and a gradient no steeper than 1:12, broken into 5m lengths.

If the plot gradient exceeds 1:15, a stepped approach will be acceptable, providing the steps are designed to meet the needs of an ambulant disabled person (see below).

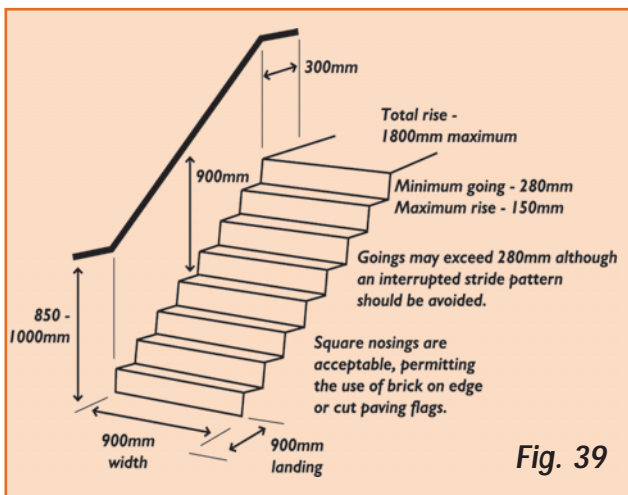


Fig. 39

- The approach cannot be made of loose laid materials such as gravel or shingle.
- The presence of a driveway might provide a better opportunity for creating a level or ramped approach, either from the pavement or footpath or from a car parking space.

- The width of the approach, excluding the space for parked vehicles (approximately 2.1 metres) should not be less than 900mm.
- Access to the dwelling or block of flats must be via an accessible threshold. This should be designed to take into account the requirements of other parts of the Building Regulations including resistance to weather and ground moisture.

Timber sill and external concrete slab paving

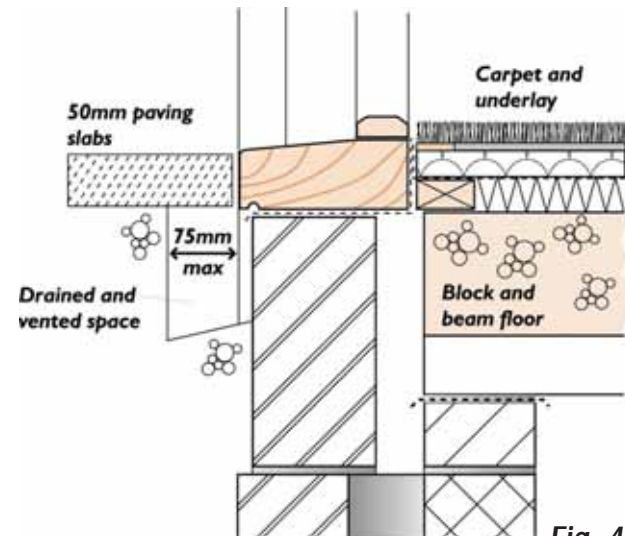


Fig. 40

Concrete sill and internal transition unit

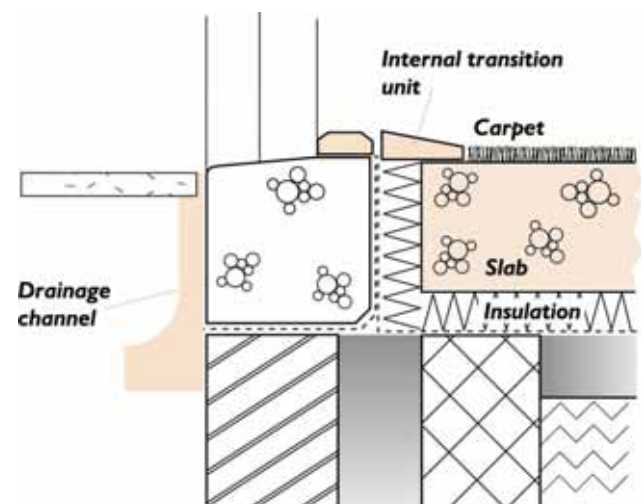


Fig. 41

DWELLINGS

Circulation

The DETR published a design guide for accessible thresholds in new housing, which is available from The Stationery Office (ISBN 011 702333 7). This document provides design solutions for suitable thresholds in many situations which minimise the risk of moisture ingress. Guidance is provided on suitable sill and threshold profiles, provision of drainage channels, treatment of internal floor finishes and external hard landscaping.

Table 5 – Minimum widths of corridors and passageways for a range of doorway widths

Door clear opening width (mm)	Corridor / passageway width (mm)
750 or wider	900 (when approach is head-on)
750	1200 (when approach not head-on)
775	1050 (when approach not head-on)
800	900 (when approach not head-on)

- Circulation within the entrance storey of the building must be possible for wheelchair users, providing access via doorways, corridors and passageways to the kitchen, habitable rooms and a room containing a w.c.
- An obstruction free zone of 900mm wide must be maintained outside the w.c. and opposite door openings in general. This zone should extend 200mm both sides of the projected edges of the clear opening.
- On steeply sloping sites a change in level within the entrance storey may be unavoidable. A 900mm wide staircase complying with Part K with handrails on each side if there are three or more risers would suffice.
- Switches and sockets on all levels within the dwelling should be located within an accessible zone. This is to assist people whose reach is limited to use the dwelling more easily.
- If a building contains flats, provision must be made for disabled people to visit occupants on

any storey. This may be via the installation of a suitably dimensioned and designed lift or via common stairways designed for use by ambulant disabled and visually impaired people. See Section Vertical Circulation within the Building.

Internal doors, passages and corridors

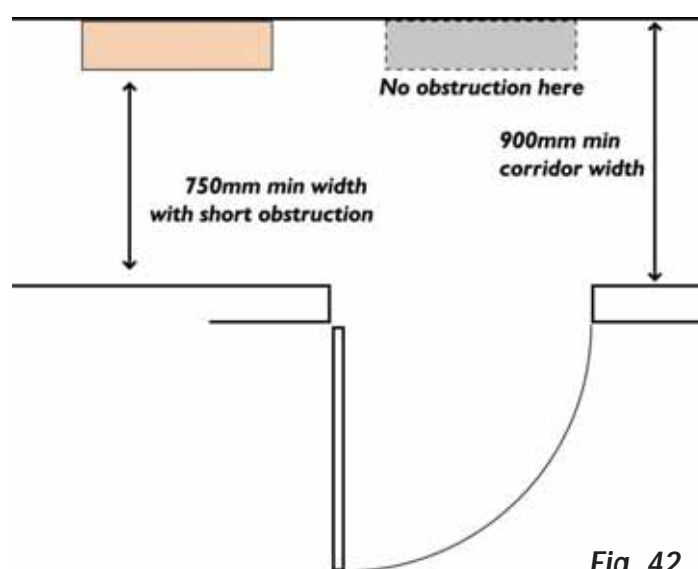


Fig. 42

Location of switches, sockets, etc for accessibility

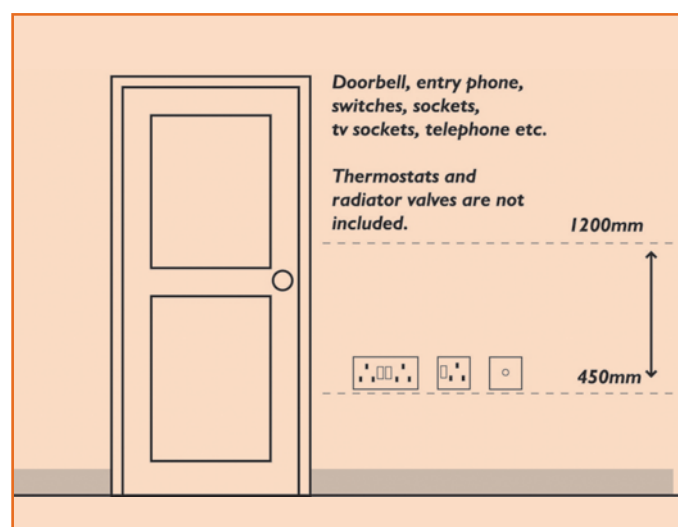


Fig. 43

DWELLINGS

WCs within Dwellings

A WC should be provided in the entrance storey of the dwelling. This should be located such that it can be reached from the habitable rooms in that storey without using stairs. (If the entrance storey contains no habitable rooms the WC may be provided in the principal storey.)

The door to the WC should

- open outwards
- have a clear opening width as described previously
- be positioned to enable wheelchair users to access the WC

N.B. The compartment does not have to fully accommodate a wheelchair, and handrails are not required.

The minimum width of the compartment is 900mm, but prescriptive layouts have not been imposed. Consideration should be given to the location of the wash basin, particularly in very small rooms.

Clear space for frontal access to WC

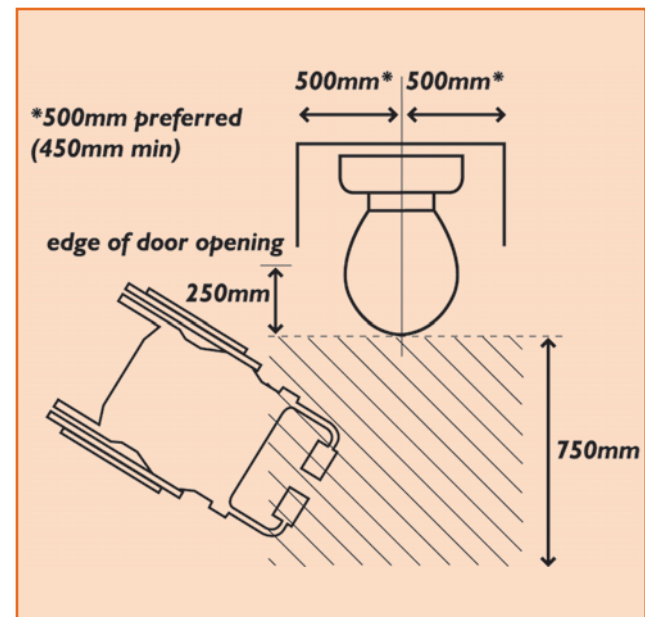


Fig. 45

Clear space for frontal access to WC

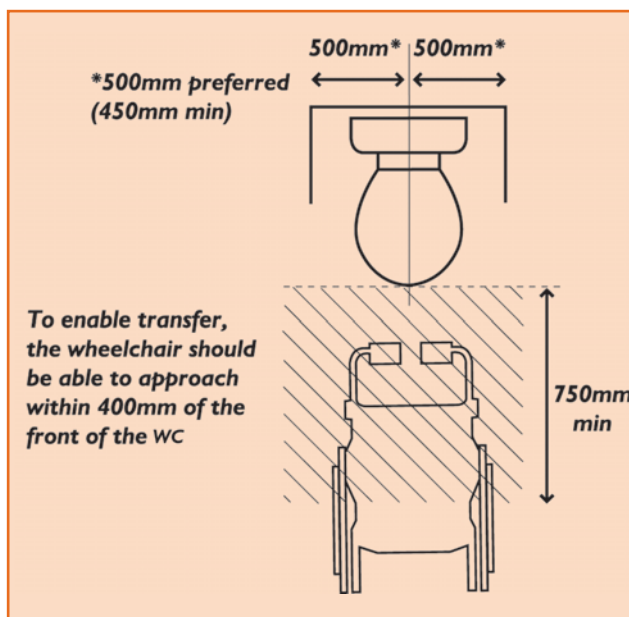


Fig. 44

It is intended that these improved standards will not only help disabled people to visit other homes more easily, but will also enable more people to remain in their homes for longer as they become less mobile with age.

INTERIOR ERGONOMICS

Signs and Symbols



Fig. 46

- The international symbol of accessibility; the setting out of the symbol should be based on a square tile as shown.

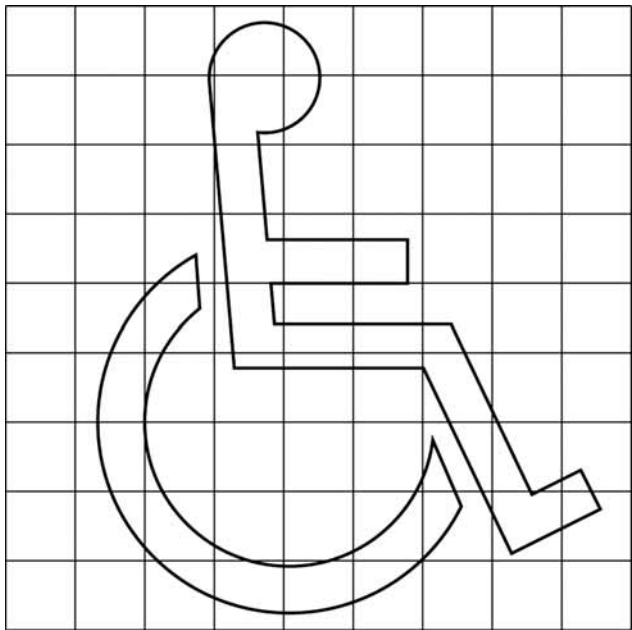


Fig. 47

- Signs should be consistent, thorough and continuous along routes and should take account of the need for reassurance.

- Ensure legibility of signs and lettering by attention to size and style and by use of strong colours, good immediate background and non-distracting general background and by good lighting without glare.
- Lettering should be within visual range and provide good contrast against the background.

Waiting room

- Raised letters are helpful to blind people particularly. They should be within hand reach at a reasonable level. Ensure the background surface is comfortable to touch. Confine to single letters, numerals, symbols and keep to standard positions in a building.
- Symbols should be as near pictorial as possible. Standard symbols should indicate specific facilities, i.e. induction loop information, communications, assistance available if required.



Fig. 48

INTERIOR ERGONOMICS

Anthropometric Data

- The formulation of design criteria for buildings depends to a considerable extent on the dimensional characteristics of people at rest and moving and on their range of physical capabilities. In the case of people with disabilities, these criteria may be modified by the use of aids such as sticks, artificial limbs and wheelchairs.
- To determine appropriate limits for the range of the population to be accommodated, the statistical technique of percentile distribution is used.
- For example, for the head-height of chairbound men, the value of 1:235 for the fifth percentile means that five per cent of chairbound men's head height when in a wheelchair is at 1:235 or less; the value 1:435 for the 95th percentile means that 95 per cent is at 1:435 high or shorter.

The figures below show the relevant dimensions.

MEN

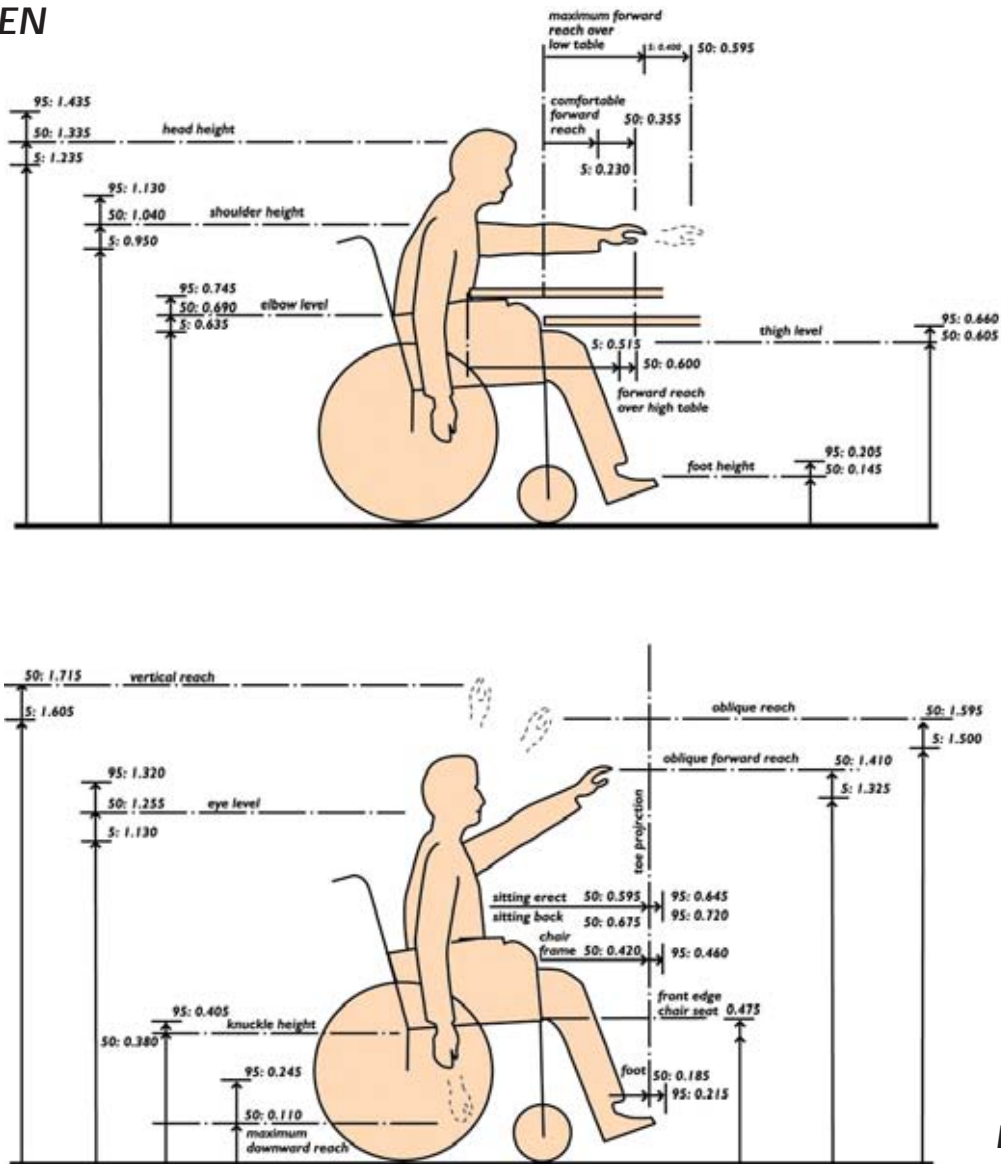


Fig. 49

INTERIOR ERGONOMICS

Anthropometric Data

- Although in certain situations, it is appropriate to use the average as a criteria, it must be emphasised that averages should be treated with caution. It is hazardous to make decisions on the basis of catering for the average man or woman. In a representative sample of

population, 50 per cent of measurements will be greater than the average and 50 per cent will be less. Dimensions based on the average will therefore at best satisfy only 50 per cent of potential users.

WOMEN

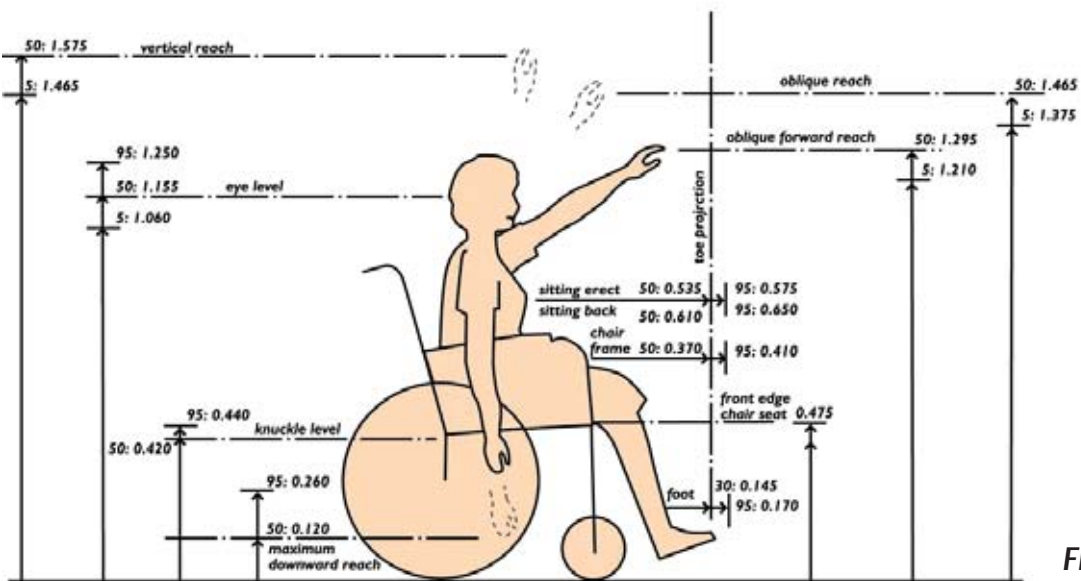
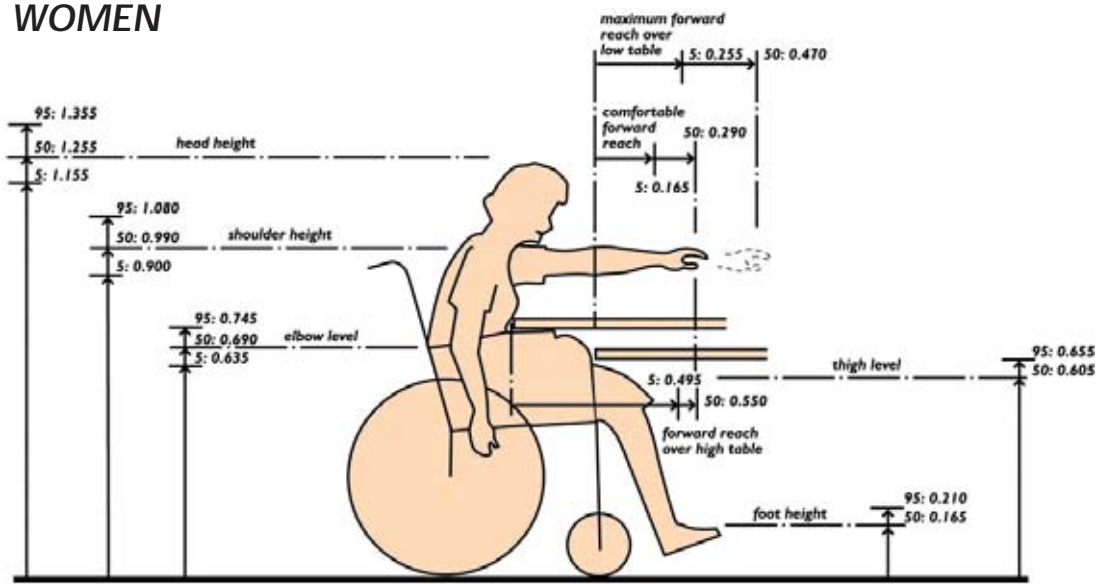


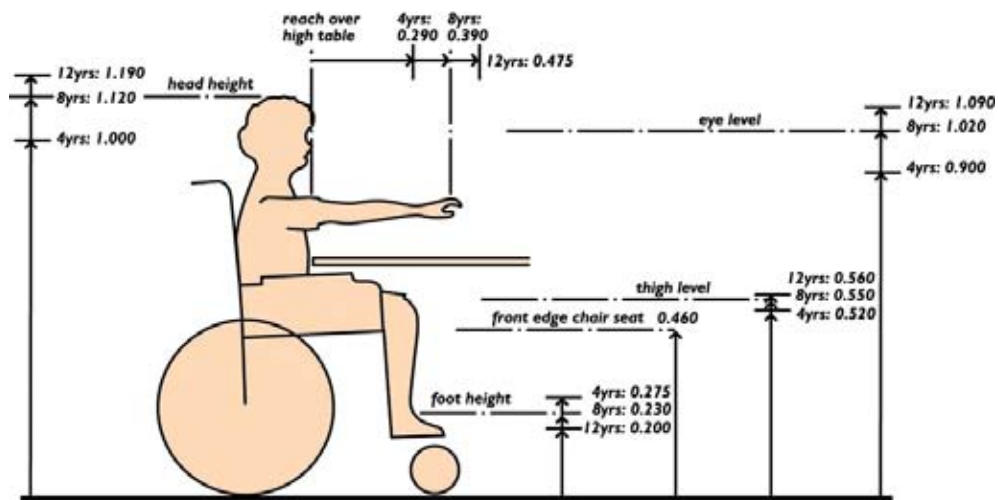
Fig. 50

INTERIOR ERGONOMICS

Anthropometric Data

- When data is applied to design problems, it is usually found that there is a limiting factor in one direction only, e.g. if the problem relates to obstructions at head-height, the measures of short people are not significant. In applying data, the designer should enquire which dimension is critical.
- It is not the case that whenever the value for the 95th percentile is observed, 95 per cent of the population will be accommodated; if the critical dimension is in the opposite direction, only five per cent will be accommodated and the correct course is to apply the 5th percentile instead.

GIRLS AGED 4, 8 AND 12



BOYS AGED 4, 8 AND 12

2

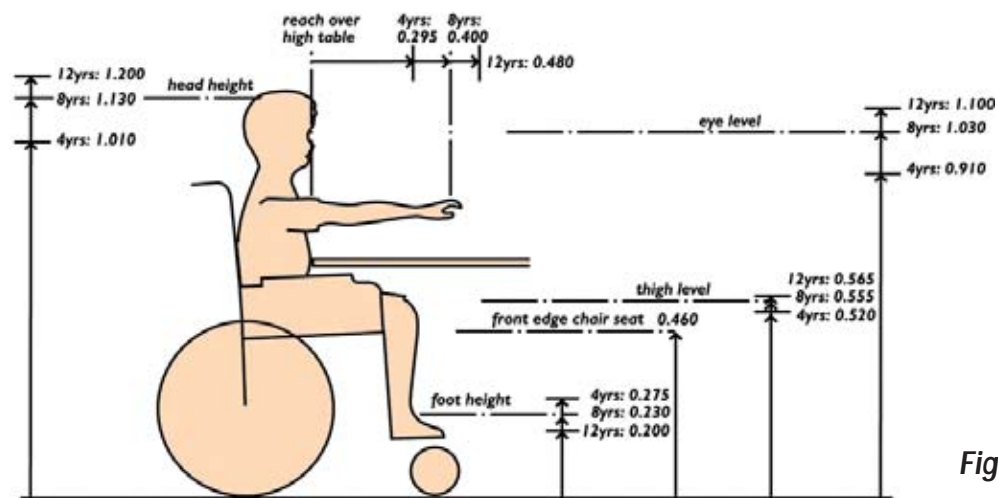


Fig. 51

INTERIOR ERGONOMICS

Anthropometric Data

AMBULANT PEOPLE

- It is not always economic or practicable to cover 100 per cent of the population by catering for people at the extremes. It may not be possible to obtain a solution to a specific design problem, which is equally efficient for a typical ambulant person and a person in a wheelchair.

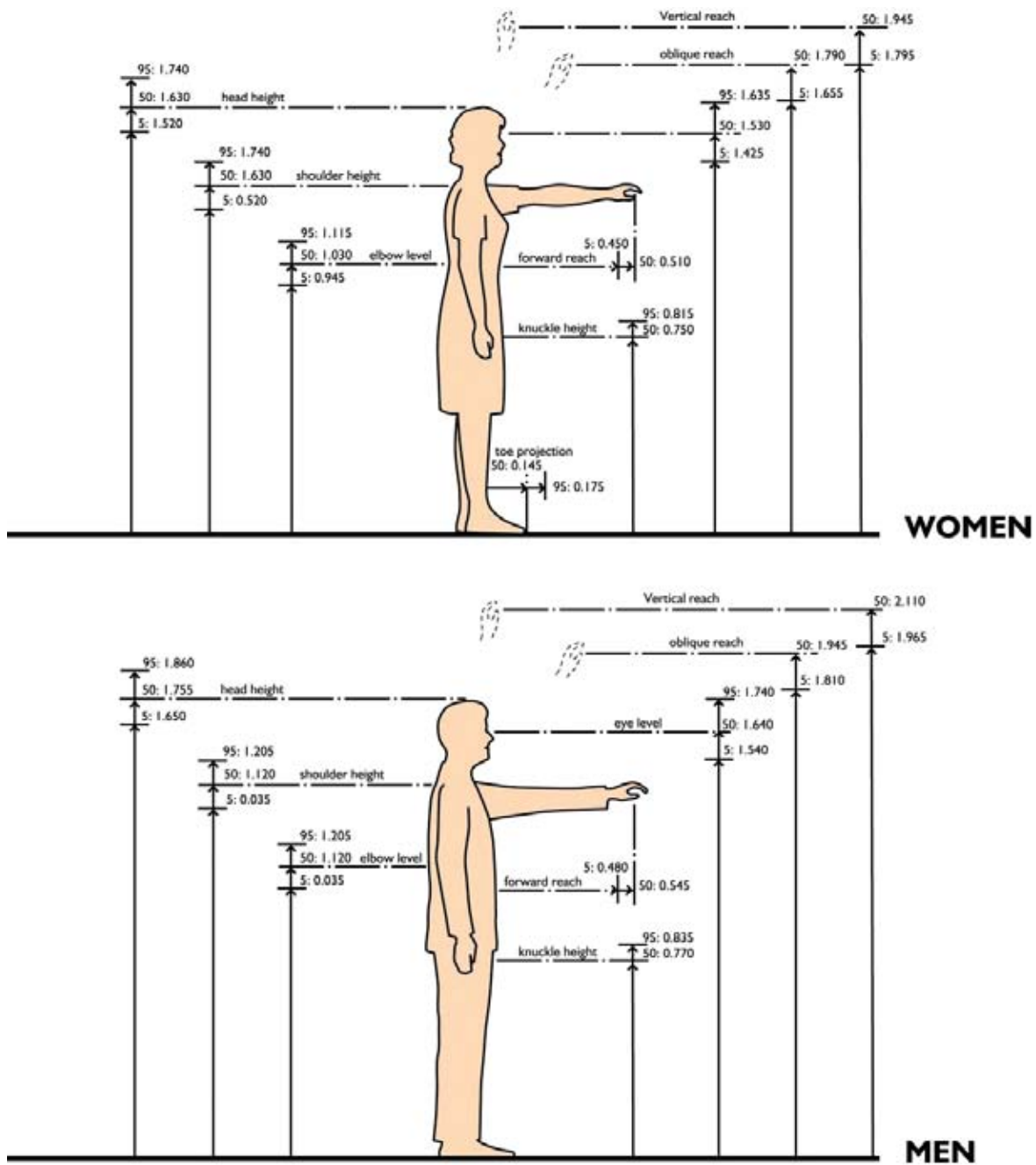


Fig. 52

INTERIOR ERGONOMICS

Ergonomic Data

AMBULANT PEOPLE

- The convenient positioning of fittings and equipment is governed by body and reach dimensions. The general application of the recommendations should ensure that fittings and equipment are suitably located.

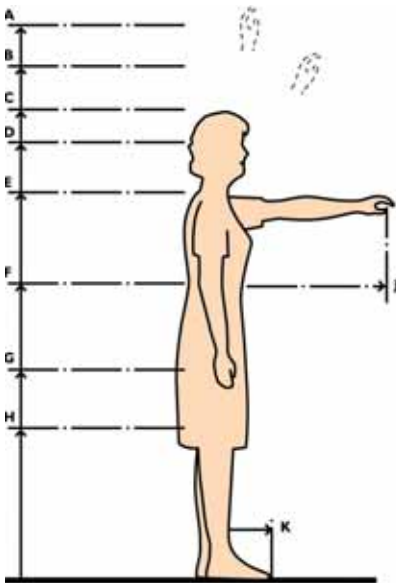


Fig. 53

MEASUREMENTS OF STANDING PERSON

A. Comfortable vertical reach

A: minus 0.070: maximum height of storage shelves, allowing access to front of shelf.

A: minus 0.150: maximum height of 0.300 deep storage shelves over 0.600 floor units, allowing access to front of shelf.

B. Oblique vertical reach

B: maximum height of window and blind controls.

B: minus 0.060: maximum height of 0.200 deep storage shelves over 0.600 floor units, allowing access to front of shelf.

B: minus 0.080: maximum height of unobstructed storage shelves, allowing reach to back of shelf.

C. Head height

C: relate to fixed mirror heights and position of shower fittings.

D. Eye level

D: avoid window transomes at this level.

D: related to fixed mirror heights.

E. Shoulder level

E: preferred maximum height of switches and controls.

F. Elbow level

F: minus 0.130: preferred level of kitchen surfaces where sink rim and general work surfaces are at the same height.

F: minus 0.100: preferred level of sink rim.

F: minus 0.150: preferred level of general work surfaces.

F: minus 0.100: preferred level of wash basin rim.

F: minus 0.250: preferred level of fixed ironing board.

G. Knuckle height (comfortable downward reach)

G: lower level of preferred zone for most-used articles stored in kitchen.

G: preferred minimum height of socket outlets and other controls.

G: preferred height of letter basket and delivery shelves adjacent to entrance door.

H. Effective downward reach

H: minimum height of storage shelves, socket outlets, heater controls and oven floor.

J. Comfortable forward reach

J: plus 0.100: maximum depth of kitchen work surfaces.

J: preferred maximum dimension, sink fascia to sink tops.

K. Toe projection

K: preferred minimum depth, toe recesses to kitchen units.

INTERIOR ERGONOMICS

Ergonomic Data

WHEELCHAIR USERS

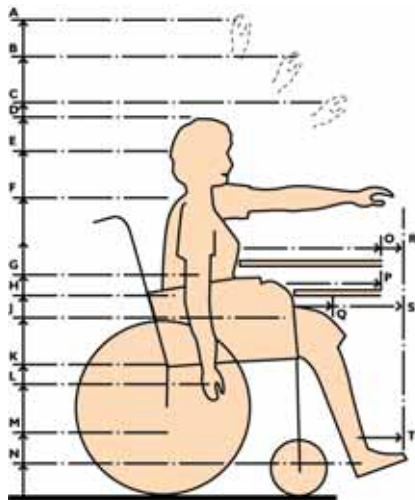


Fig. 54

MEASUREMENTS

A. Comfortable vertical reach

A: minus 0.070: maximum height of unobstructed storage shelves with lateral approach, reach to front of shelf.

B. Oblique vertical reach

B: maximum height of window and blind controls.
 B: minus 0.120: maximum height of 0.300 deep storage shelves over 0.600 floor units, allowing reach to front of shelf.
 B: minus 0.160: maximum height of unobstructed storage shelves with frontal approach, allowing reach to back of shelves.

C. Comfortable forward vertical reach

C: preferred maximum height of window and other controls.
 C: maximum height of electric switches.

D. Head height

D: related to height of shower fittings.

E. Eye level

E: avoid window transoms at this level; relate to sill heights.
 E: relate to fixed mirror heights.

F. Shoulder level

F: plus 0.100: upper level of preferred zone for most-used articles stored in kitchen.
 F: preferred maximum height of electric switches.

G. Chair armrest level

G: maximum unobstructed dimension below work surfaces or tables to permit close approach.

H. Elbow level

H: plus 0.020: preferred height of letter basket and delivery shelves adjacent to entrance door.
 H: minus 0.030: preferred height of pull-out for food preparation.
 H: minus 0.040: preferred height of fixed ironing board.

J. Thigh level

J: minimum unobstructed vertical dimension for knee recesses to tables, desks, kitchen sink, preparation centre and wash hand basin.
 J: plus 0.160: preferred height of kitchen work surfaces at consistent level assuming 0.150 deep sink bowl.

K. Chair seat level, centre front edge (with cushion if used)

K: preferred level of WC seat, platform at head end of bath and shower seat.

L. Knuckle height

L: plus 0.100: minimum height of heater controls.
 L: plus 0.050: lower level of preferred zone for most-used articles stored in kitchen.
 L: minimum level of oven floor.

M. Comfortable downward reach

M: minimum height of storage shelves.

N. Foot height

N: minimum height of toe recesses to kitchen units.

O. Effective forward reach

O: maximum depth of kitchen work surfaces.

P. Forward reach beyond face of chair arm

P: comfortable reach over low-level tables, etc.
 P: preferred maximum dimension, sink fascia to sink taps.

Q. Knee projection beyond face of chair arm

Q: minimum dimension sink fascia to waste pipe and wash basin fascia to waste pipe.

R. Toe projection from front to waist

R: preferred minimum depth of tables and knee recesses to permit close approach.

S. Toe projection beyond face of chair arm

S: minimum depth of knee recesses to kitchen sink, preparation centre, wash basin, etc.

T. Toe projection at lower leg level

T: minimum depth of toe recesses to kitchen units.

LEGISLATION AND BIBLIOGRAPHY

LEGISLATION

The following are the most significant Acts of Parliament which affect disabled people.

Building Act 1984

Building Regulations 2000

Chronically Sick and Disabled Persons Act 1970

Cinematograph Acts 1909 and 1952

Companies (Employment of Disabled Persons) Regulations 1980

Disabled Persons Act 1981

Disabled Persons Employment Act 1944 (amended 1958)

Disability Discrimination Act 2005

Education Act 1944

Education Act 1980

Regulatory Reform (Fire Safety) Order 2005

Health and Safety at Work, etc Act 1974

Highways Act 1980

Housing Act 2004

Licensing Acts 1961, 1964 and 2003

Theatres Acts 1843 and 1968

Town and Country Planning Act 1990

BIBLIOGRAPHY

The Building Regulations 2000 as amended

The Building Regulations (Amendment) Regulations 1998

Approved Document B Fire Safety

Approved Document K Protection from falling, collision and impact

Approved Document M Access to and Use of Buildings

Approved Document N Glazing Materials and Protection

BRITISH STANDARDS

BS 4787 Internal and External Wood Doorsets, Door Leaves and Frames B.S.I.

BS 5395 Stairs, Ladders and Walkways B.S.I.

BS 5588 Part 8: Code of Practice for Means of Escape for Disabled People B.S.I.

BS 5655 Lifts and Service Lifts B.S.I.

BS 6180 Code of Practice for Protective Barriers In and About Buildings B.S.I.

BS 8300 Design of Buildings and the Approaches to meet the needs of Disabled People B.S.I.

Designing for the Disabled – Selwyn Goldsmith

Building Bulletin 91 Access for Disabled People to School Buildings – Department of Education and Involvement

New Metric Handbook – Architectural Press

THE DISABILITY DISCRIMINATION ACT (DDA) 1995

The DDA creates rights for any individual, defined by the Act as a disabled person, not to be discriminated against in:

- Employment
- Provision of goods, facilities and services
- The management, buying or renting of land or property
- Education and training
- Provision of transport

The original provisions on education in schools, colleges and universities were significantly amended by the Special Educational Needs and Disability Rights Act 2001, which have become Part IV of the DDA. All training provision is already covered by Part III of the DDA.

From December 1996, employers have had to make reasonable adjustments for employees, based upon their specific requirements and the nature of the job. This includes adjustments to policies, procedures and practices and to buildings and the environment.

From October 1999, all service providers, including community and voluntary organisations providing any service to the public, including information, advice, training and the involvement of members and volunteers, should be making reasonable adjustments to all policies, procedures and practices to make their services accessible. This applies to all sizes of service providers and organisations.

From October 2004, all service providers are required to alter, remove or provide means of avoiding physical barriers that make it impossible or

unreasonably difficult for disabled people, including any volunteers and members, to access their services by making reasonable adjustments to all their buildings and the environment.

The Disability Equality Duty

This duty came into force on 4th December 2006.

This legal duty requires all public bodies to actively look at ways of ensuring that disabled people are treated equally. All of those covered by the specific duties must also have produced a Disability Equality Scheme, which they must now implement.

Most public authorities are also covered by the specific duties, which set out a framework to assist authorities in meeting their general duty. All public authorities covered by the specific duties must:

- Publish a Disability Equality Scheme (including within it an Action Plan)
- Involve disabled people in producing the Scheme and Action Plan
- Demonstrate they have taken actions in the Scheme and achieved appropriate outcomes
- Report on progress
- Review and revise the Scheme

Further information and guidance on the Disability Discrimination Act can be obtained from the Disability Rights Commission (see useful contacts page).

USEFUL CONTACTS

The Access Group Milton Keynes (TAG MK)

c/o building control MK
 PO Box 105
 Civic Offices
 1 Saxon Gate East
 Central Milton Keynes
 MK9 3HH
www.mkweb.co.uk/building_control

(Milton Keynes)

Broughton Fire Station
 H6 Childs Way
 Northfields
 Broughton
 Milton Keynes
 MK10 9AP
 Tel: 01908 236413
 Fax: 01908 236412

Aylesbury and District Access for All

Tel: 01296 613787

(South Bucks and Wycombe)

Aylesbury Vale District Council Building Control Division

Department of Environment and Planning
 66 High Street
 Aylesbury
 Bucks
 HP20 1SD
 Tel: 01296 585460
 Email: bcontrol@aylesburyvaledc.gov.uk
www.aylesburyvale.gov.uk

Marlow Fire Station
 Parkway
 Marlow
 Bucks
 SL7 1RA
 Tel: 01628 470641
 Fax: 01628 470649

Bucks Disability Information Network

Tel: 01296 487924

British Council of Disabled People

Tel: 01332 295551

Centre for Accessible Environments

Tel/textphone: 0207 357 8182
www.cae.org.uk

Bucks Fire and Rescue Service

Email: enquiries@bucksfire.gov.uk

Chiltern District Council Building Control Division

Department of Planning and Environment
 Council Offices
 King George V Road
 Amersham
 Bucks
 HP6 5AW
 Tel: 01494 732249
 Email: buildingcontrol@chiltern.gov.uk
www.chiltern.gov.uk/building

See below for area details

(Aylesbury and Chiltern)

Brigade Headquarters
 Stocklake
 Aylesbury
 Bucks
 HP20 1BD
 Tel: 01296 744473
 Fax: 01296 744489

Disability Rights Commission

Tel: 08457 622633
www.drc_gb.org.uk

USEFUL CONTACTS

Disability Unit Department for Work and Pensions

Level 6
Adelphi Building
John Adams Street
London
WC2N 6HT
www.disability.gov.uk

Milton Keynes Council building control MK

PO Box 105
Civic Offices
1 Saxon Gate East
Central Milton Keynes
MK9 3HH
Tel: 01908 252721
Email: buildingcontrol@milton-keynes.gov.uk
www.mkweb.co.uk/building_control

The National Federation of Shopmobility UK

Tel: 08456 442446
www.justmobility.co.uk/shop

Royal Association of Disability and Rehabilitation (RADAR)

Tel: 020 7250 3222
www.radar.org.uk

Royal National Institute of the Blind

Tel: 0207 388 1266
www.rnib.org.uk

Royal National Institute of the Deaf

Tel: 0808 8080123 (freephone)
www.rnid.org.uk

South Bucks & Chiltern Access Group

Tel: 01753 886109
www.sbuckschilternaccess.org.uk

South Bucks District Council Building Control Service

Council Offices
Capswood
Oxford Road
Denham
Bucks
UB9 4LH
Tel: 01895 837296
Email: buildingcontrol@southbucks.gov.uk
www.southbucks.gov.uk

Wycombe Area Access for All (WAAFA)

Tel: 01494 421438

Wycombe District Council Building Control Service

Planning and Sustainability
Queen Victoria Road
High Wycombe
Bucks
HP11 1BB
Tel: 01494 421403
Email: building-control@wycombe.gov.uk
www.wycombe.gov.uk/building

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