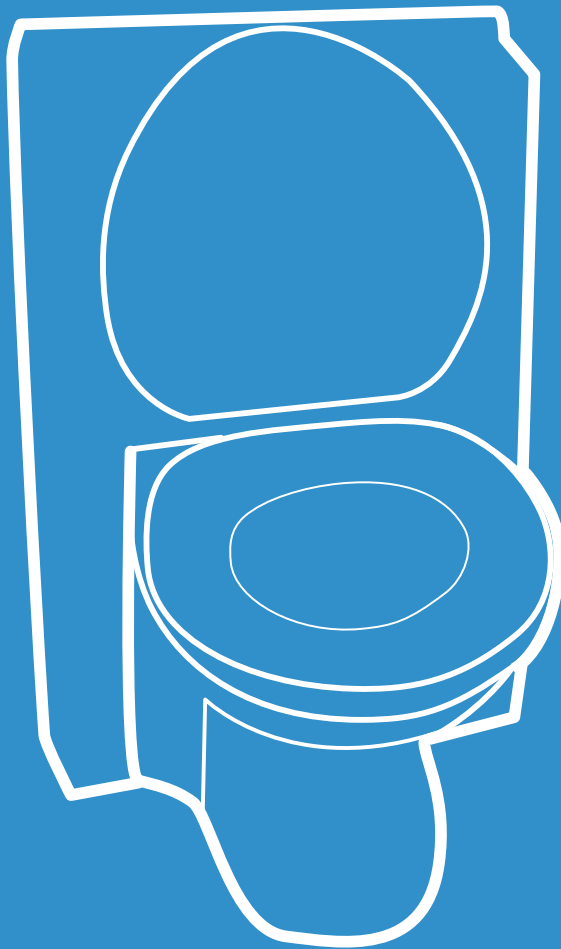


Building for Everyone:

A Universal Design Approach

Sanitary facilities

5



Centre for Excellence in Universal Design

Creating an environment that can be used by all people, regardless of their age, size, disability or ability.

The National Disability Authority's Centre for Excellence in Universal Design has a statutory role to promote the achievement of excellence in universal design in:

- the design of the built and external environment
- product/service design
- information and communications technologies (ICT)
- the development and promotion of standards
- education and professional development
- raising awareness of universal design

More information and updates on the website at: www.universaldesign.ie

Building for Everyone

Booklet 5 - Sanitary facilities

The other booklets from the Building for Everyone series:

Booklet 1 - External environment and approach

Booklet 2 - Entrances and horizontal circulation

Booklet 3 - Vertical circulation

Booklet 4 - Internal environment and services

Booklet 6 - Facilities in buildings

Booklet 7 - Building types

Booklet 8 - Building management

Booklet 9 - Planning and policy

Booklet 10 - Index and terminology

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5.0 Objectives

The guidance in this booklet promotes the concept and philosophy of universal design and encourages developers, designers, builders and building managers to be innovative and think creatively about solutions that meet the needs of all building users.

The objectives of the series of booklets are to:

- identify and promote best practice with regard to universal design of the built and external environment
- provide best practice guidelines while recognising existing regulations in Ireland
- provide guidelines that are usable by and accessible to the target audience
- promote the achievement of universal design in Ireland

This booklet aims to:

- identify and promote best practice with regard to universal design of sanitary facilities
- increase awareness of, and to encourage designers to identify, the needs of all those who will be using the sanitary facilities
- highlight the wider benefits experienced by all when accessible and usable sanitary facilities are provided
- encourage designers to provide universal design solutions for sanitary facilities that look beyond the minimum requirements of national building regulations

5.0.1 How to use this guidance

The guidance ([Sections 5.3 – 5.10](#)) in this booklet is provided at three levels:

Section 5.3

- Highlights design issues that should be considered for the building as a whole, ensuring that the overall provision is suitable for all building occupants.

Section 5.4 - 5.9

- Provides detailed design guidance for individual rooms within a building, and includes a wide range of toilet, bathroom, shower room, and changing facilities.

Section 5.10

- Focuses on the design and provision of specific accessories and services that are common to all of the sanitary facilities described in [Section 5.4 - Section 5.9](#).

5.1 Introduction

This booklet is part of the series “Building for Everyone – A Universal Design Approach,” which aims to provide practical guidance on the universal design of buildings, places and facilities.

Universal design places human diversity at the heart of the design process so that buildings and environments can be designed to meet the needs of all users. It therefore covers all persons regardless of their age or size and those who have any particular physical, sensory, mental health or intellectual ability or disability. It is about achieving good design so that people can access, use and understand the environment to the greatest extent and in the most independent and natural manner possible, without the need for adaptations or specialised solutions (see full definition in [Appendix A1](#)).

Why universal design?

People are diverse - some are left-handed and some right-handed - and people vary in their age, size and functional capacities. Illness or disability (whether

temporary or permanent) can also affect characteristics, such as a person's mobility, dexterity, reach, balance, strength, stamina, sight, hearing, speech, touch, knowledge, understanding, memory, or sense of direction. A reference list with these booklets indicates some of the key differences in human abilities that should guide design of buildings and of outdoor places. (See full description of Human Abilities in [Appendix A2](#)).

People of diverse abilities should be able to use buildings and places comfortably and safely, as far as possible without special assistance. People should be able to find their way easily, understand how to use building facilities, such as intercoms or lifts, know what is a pedestrian facility, and know where they may encounter traffic.

Given the wide diversity of the population, a universal design approach, which caters for the broadest range of users from the outset, can result in buildings and places that can be used and enjoyed by everyone. That approach eliminates or reduces the need for expensive changes or retro fits to meet the needs of particular groups at a later stage.

It is good practice to ascertain the needs of the range of expected users as early as possible, and to check the practicality and usability of emerging designs with a diverse user panel.

Designing for one group can result in solutions that address the needs of many others. For example:

- level entry (Step-free) entrances facilitate not just wheelchair users but also people with buggies; people with suitcases or shopping trolleys; people using walking or mobility aids; and people with visual difficulties
- larger toilet compartments provide easier access to wheelchair users; those with luggage or parcels; parents with pushchairs or accompanying small children; those using walking or mobility aids; and larger-sized people
- clear, well-placed signage that uses recognised symbols or pictograms helps people with reading or cognitive difficulties, and those whose first language is neither English nor Irish

Sometimes one solution will not suit all and a range of options will need to be provided, for example:

- providing both steps and a ramp where there is a change in level
- providing parking ticket machines that offer slots at different heights to facilitate use at standing height, at sitting height, and by people of small stature

This series of booklets is for architects, engineers, planners, developers, designers, building contractors, building workers, building managers, and others involved in designing, commissioning and managing buildings and their surroundings. It provides guidance on a universal design approach to all new buildings, and the use and adaptation of existing environments.

Those who commission, design, construct or manage any part of the built and made environment also have a duty of care to adhere to relevant legislation and regulations including equality legislation, building regulations and health and safety regulations.

The guidance is based on a best practice approach drawing on up-to-date international best practice, guidelines and standards; previous guidance by the National Disability Authority; and extends beyond disability access matters to incorporate a universal design approach. The series is fully compatible with Part M (2010) of the Building Regulations and associated Technical Guidance Documents related to Part M.

A disability access certificate is required for new buildings other than dwellings (including apartment buildings) and certain other works (as set out in Article 20 D (1) of SI 351 of 2009) to which the Requirements of Part M of the Building Regulations apply, which commence or take place on or after 1 January 2012. Further details on these and other relevant standards, codes of practice, and professional codes of practice are listed in [Appendix A3](#) Further Reading.

The detailed guidance provided here does not represent the only possible solution. Designers may come up with other ways to meet a diversity of users. New materials and technologies that emerge may open up further possibilities of accommodating the diversity of the population.

Checklists are provided throughout the series and while they provide a summary of main considerations and technical criteria, they should not be regarded as a substitute for the main text or an exhaustive list.

A comprehensive [index](#) is also available with the suite of booklets.

The Building for Everyone series is available online at www.nda.ie and www.universaldesign.ie. Electronic links are provided to relevant sections in the different booklets. As standards and requirements develop, the electronic versions of these booklets will be updated.

The electronic version is produced in accessible PDF format in accordance with the Web Content Access Guidelines 2.0. If you have any difficulties in this regard or require the document, or particular sections, in alternative formats, please contact the Centre for Excellence in Universal Design at the National Disability Authority, info@ceud.ie or (01) 6080400.

5.2 Terminology

Accessible – With respect to buildings, or parts of buildings, means that people, regardless of age, size, ability or disability, are able to both access and use the building and its facilities.

Bathroom – A room comprising a bath, WC, washbasin, and associated accessories.

Building - A permanent or temporary structure of any size that accommodates facilities to which people have access. A building accommodating sanitary facilities may include a toilet block in a public park or shower facilities at a campsite. A temporary building may include portable toilet facilities, such as those provided at outdoor events.

Building user – A person regardless of age, size, ability, or disability using facilities in a building or associated external environment.

Communal – An area that a group of individual people will share for a common purpose. A communal changing area will be a room for people to change and will typically comprise an open area with minimal privacy.

Family toilets – A toilet compartment or washroom designed to meet the needs of a family group or adults supervising young children, which provides a range of facilities including baby-changing area, children’s and adult WCs, in a single room.

Handed – Referring to the layout of a room, this term means the provision of both left- and right-handed arrangements in a building.

Person with mobility difficulties – A person who is able, either with or without personal assistance, and who may depend on prostheses (artificial limbs), orthoses (callipers), sticks, crutches or walking aids, to walk, provided that particular design features are installed or available.

Sanitary facilities – A collective term for toilet, shower, bathing and changing facilities in buildings.

Self-contained – A single facility, such as a shower or changing area that is enclosed by walls or cubicle partitions. A self-contained facility will provide greater privacy than communal facilities.

Shower room – A room comprising a shower, WC, washbasin, and associated accessories, such as en-suite facilities in residential accommodation.

Transfer arrangement – The technique adopted by wheelchair users to transfer from a wheelchair to a WC or shower seat and back. The technique will depend on individual preference and the layout and size of the toilet or shower compartment. Common terms for describing transfer arrangements include lateral (side) transfer, angled (oblique) transfer, frontal, or rear transfer. Transfer may be assisted or unassisted. A left-hand transfer means that a person transfers to their left when seated in a wheelchair. See **Figure 5.1**.

Unisex – Facilities that are usable by males and females. Unisex toilets or changing areas may be located adjacent to single-sex washrooms or changing areas but have an independent access. Unisex accessible toilets may be accessed by a person with an assistant, carer, or companion of the opposite sex.

Visual contrast – Colour and/or tonal contrast between surfaces and fixtures, designed to improve visual clarity.

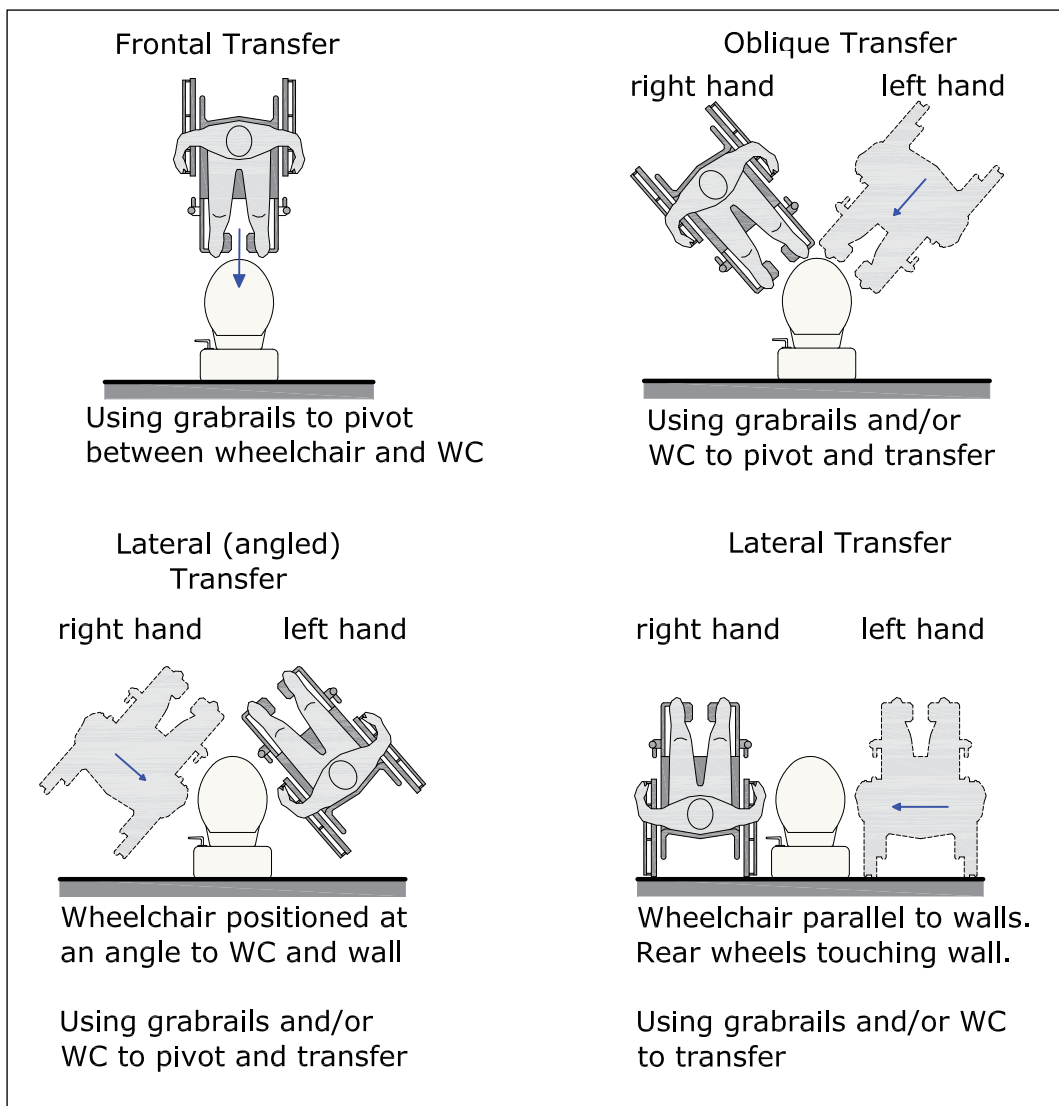
Washroom – The term for a room or area accommodating toilet cubicles and associated facilities, such as washbasins, hand dryers, and urinals (in facilities for males).

Waterless WC – A WC that does not use water to flush and is not connected to traditional water supply pipes or a waste drainage system. Waterless WCs

may be used in remote areas, such as forestry sites, fairgrounds, car parks, and construction sites.

Wet room – A shower room in which the floor and walls are all waterproof. The shower area can be accessed without crossing a threshold or stepping into a shower tray.

Figure 5.1 Transfer techniques for people moving between a wheelchair and a WC.



5.3 Design Issues

5.3.1 Building user needs

Sanitary facilities should be designed to meet the needs of all building users regardless of age, size, ability or disability – whether they are staff, residents, frequent or first-time visitors. Sanitary facilities should be designed to accommodate children and adults of all ages, all sizes and all abilities who may be independent, accompanied, or assisted. When designing a facility, consideration should be given to the diverse ways in which people interact with their surrounding environment.

Designers should also consider making their sanitary facility designs look more appealing rather than just ticking the Part M pack box, this can be easily achieved with standard off-the-shelf sanitaryware and imagination.

Adopting a universal design approach will ensure that the facilities can be accessed and used by a diverse population with an equitable level of convenience, understanding, choice, safety, and comfort.



5.3.2 Scale of provision

The scale of provision of sanitary facilities in a building will be dictated by the nature and size of the building, the overall building occupancy, gender ratio, and particular patterns of use. These factors should be considered alongside the diversity of building user needs to establish the range, location, and type of facilities that will provide access for all.

The number and range of sanitary appliances should be established at an early stage in the design process and should involve consultation with users as well as with the local planning, building control and environmental health, and relevant licensing authorities, where applicable.

The gender ratio should take account of the likely proportion of males and females, but also acknowledge the fact that, for physiological and social reasons,

females take longer to use toilet facilities than males. The expected gender ratio will vary depending on the building type. This ratio may also change over time, so the sanitary facilities should always cater for the widest range of scenarios. Where no reliable alternative data is available, the predictions set out in [Table 5.1](#) can be followed. Some building types are likely to experience considerable variation in gender ratio over time. For example, an event venue may host one event that attracts a considerable majority of one gender, while a second event could attract a ratio of 50% male and 50% females. Such scenarios should be considered at the design stage and reflected in the provision of additional permanent facilities, the flexible use of opposite-gender facilities, or the provision of an area where supplementary temporary toilet facilities can be easily located and connected to water supply and drainage connections.



Table 5.1 Predicted male and female ratios for particular building types.

Building Type	Predicted Ratio*
Assembly buildings	50% Male, 50% Female
Swimming pools	50% Male, 50% Female
Cafes, restaurants, public houses, nightclubs	50% Male, 50% Female
Theatres and concert halls	50% Male, 50% Female
Shopping centres	35% Male, 65% Female

* BS 6465-1:2006+A1:2009 Sanitary installations. Code of practice for the design of sanitary facilities and scales of provision of sanitary and associated appliances

The British Toilet Association recommends the following ratio of provision:
 Number of male cubicles plus number of male urinals x 2 = required number of female cubicles.

The pattern of use of a building will affect the demand on sanitary facilities and may influence the number, type, and location of facilities provided. In an office, for example, the toilets are likely to be accessed intermittently throughout the day. By contrast, the toilets in an assembly building, such as a theatre, cinema

or entertainment arena will be accessed by a large number of people in a very short time frame, such as immediately before or after the performance, or during the interval. In this case, the number of toilets should be based on the maximum number of people likely to require the facilities at any particular time.

5.3.3 Convenient access

Sanitary facilities should be located in an accessible part of the building and conveniently located in relation to the main entrance, any waiting areas, and other key facilities.

A unisex accessible toilet (see [Section 5.5.1](#)) should be provided at each floor level in a building and should be clearly identified. If this cannot be achieved, such a toilet should be no more than one floor away, with access to that floor via an accessible lift. In existing buildings that have no lift to their upper floors, accessible toilet facilities should be located at entrance level.

Where a building only requires one or two toilets, they should have at least one fully accessible unisex toilet incorporating an additional standing-height washbasin to suit a broad range of people (see [Section 5.5.3](#)). Where the building occupancy exceeds 100 people, a second unisex accessible toilet (see [Section 5.5.1](#) or [5.5.3](#)) should be provided. Additional provision may also be required depending on the location or the nature of the building.

All buildings or parts of buildings open to the public must have at least one unisex accessible toilet (see [Section 5.5.1](#)) that can be approached separately from other sanitary accommodation.

Routes to sanitary facilities should be free of obstructions and the travel distances as short as possible. In large public buildings, the location of toilets at each floor level and at regular intervals is critical. The horizontal travel distance to the nearest toilet facilities within a public building should not exceed 40m. In schools the maximum distance should not exceed 25m. Detailed guidance on horizontal circulation can be found in [Booklet 2: Entrances and horizontal circulation](#).

All toilets should, wherever possible, be freely accessed in order to preserve the dignity and privacy of building users. Some people need to use toilets

more frequently than others, and some with a greater sense of urgency. Having to locate a key or a member of staff will delay access to the WC, which is inconvenient and may cause unnecessary discomfort. Further guidance on management of buildings can be found in **Booklet 8: Building management**.

Door-free entrances to washrooms and communal changing areas are inherently more accessible and easy to use than single entry doors or enclosed lobbies. Lobbies should only be used where specifically required by building regulations. Where door-free arrangements are used, privacy can be safeguarded by the appropriate placement of screens or walls.

Where doors and lobbies are required at the entrance to washroom or other facilities, they should be accessible and easy to use by all building users, and follow the detailed guidance in **Booklet 2: Entrances and horizontal circulation**.

5.3.4 Easy identification

Sanitary facilities should be easily identified with well-placed, clear signage that clearly indicates which are male, female, unisex, or accessible facilities. This is particularly important in buildings accessible to members of the public where people may be unfamiliar with their surroundings or visiting for the first time. Many people need or choose to access toilet facilities as soon as they arrive in a building, and they should be able to do so discreetly and with the minimum of delay. Everybody should be able to rely on effective signage to locate suitable facilities, or to locate alternative facilities where there is a choice of provision within a building.

Refer to **Section 5.10.13** for recommendations on the design of signage. More detailed guidance on signage can be found in **Booklet 4: Internal environment and services**.

5.3.5 Particular building types

The type of sanitary facilities provided should be appropriate to the purpose of the building and designed to enable access for all potential building users.



Table 5.2 Particular building types

Building Type	Guidance
Coach, bus, train stations; ferry terminals; and airports	<p>Toilet facilities should be accessed from the main concourse level, without the need to negotiate steps.</p> <p>Cubicles should be designed to cater for luggage or shopping bags, or the fact that parents and carers need to keep children under close supervision by sharing a cubicle.</p> <p>Accessible toilets should be provided as close as possible to the point of departure and arrival so that they can be accessed immediately before boarding and on arrival. This is particularly important where on-board facilities may not be accessible to some people, such as on coaches, aircraft, ferries, and some trains.</p>
Hotels, motels, and residential accommodation, such as student halls, hostels, and visitor's accommodation in healthcare buildings	<ul style="list-style-type: none">• The provision and design of toilets, shower rooms and bathrooms should meet the needs of all potential guests and residents.• En-suite bathroom facilities and en-suite facilities should be provided for accessible bedrooms, even if they are not provided for all residents in the building.• If an en-suite arrangement is not possible, accessible bathroom or shower room facilities should be provided as close as possible to any accessible bedroom accommodation and be unisex.• A WC should always be provided in accessible bathrooms.• If only one accessible en-suite bedroom is provided in an establishment, the en-suite should contain an accessible shower and WC on the basis that accessible (wet room) showers are usable by a greater number of people than baths.



<p>Nursing homes and residential homes for older people</p>	<ul style="list-style-type: none">• En-suite bathrooms should be provided, with either bath or shower facilities, as required.• At least one shower room or bathroom design for assisted use should be provided for every eight residents and a unisex accessible toilet provided within easy reach of any lounge, dining room and visitors' facilities.• Toilet and bathroom facilities should be designed and constructed in such a way as to facilitate easy adaptation to suit the particular needs of individual residents.• Separate sanitary facilities should be provided for staff.
<p>Restaurants, cafes, and bars</p>	<ul style="list-style-type: none">• Toilet facilities should be provided wherever seating is available for people to eat and drink.• Toilet facilities should be clearly identified from the seating area, and accessible to all customers.• Where a lobby is required to separate the toilet facilities from food preparation and eating areas, it should be accessible and follow the detailed guidance in Booklet 2: Entrances and horizontal circulation.• Toilets for staff should provide convenient access from the kitchen and serving areas and, in all but the smallest of premises, should be separate to customer toilet facilities.



Schools	<ul style="list-style-type: none">• Sanitary facilities should be provided to meet the needs of pupils, staff, and visitors.• Toilet, changing room and shower facilities for staff should be separate to those provided for pupils.• Where facilities in a school are to be used by the general population, such as classrooms for adult education or the main hall for community events, the provision of sanitary facilities should meet the needs of adults and children in the expected numbers.• Urinals are not expected to be provided in nursery schools, but should be provided in primary and secondary schools.• Where urinals are provided, the ratio of WC cubicles to urinals should be 1 to 2 or greater. (That is, there may be more WC cubicles in proportion to the number of urinals.)• Sanitary disposal units should be provided in all toilets used by girls aged eight and above, and ample space should be provided to comfortably use the WC where there is an adjacent sanitary disposal unit.
Schools for nursery and primary age children	<ul style="list-style-type: none">• The provision of infant and children's WC pans should be considered. Infant WC pans are considerably smaller than conventional WCs and mounted at a lower height. Children's WC pans are similar in overall size to conventional WC pans, but mounted at a lower height and can be fitted with smaller seats.• The provision of infant and children's WCs may also be appropriate in other buildings designed specifically for children, such as children's museums or play centres.
Service stations (petrol stations)	<ul style="list-style-type: none">• At least one toilet should be provided for customer use.• The toilet should be a unisex accessible toilet (see Section 5.5.1).• The toilet may be shared with staff.



<p>Swimming pools, sport and leisure buildings</p>	<ul style="list-style-type: none">• Toilet, shower and changing areas should include facilities that offer choice, flexibility, and dignity to all people, whether as participants in a sport or activity, as a coach, trainer, official, or a member of a management team.• There should be a choice of unisex, private, and communal facilities suitable for independent use plus facilities for people who need assistance.• In larger venues such as indoor sports facilities, a changing room large enough for a team of wheelchair users should be provided.• Spectators at sports events should have access to accessible toilet facilities and every part of a sports facility, including pool, hall or field, should be no more than 40m from a unisex accessible toilet (see Section 5.5.1).• Sufficient toilets should be provided to enable a number of people to use the facilities during an interval.
<p>Theatres, cinemas, and other entertainment venues</p>	<ul style="list-style-type: none">• Toilet facilities should be conveniently accessible to all seating areas.• Each seating area designed for wheelchair users should have convenient access to accessible toilet facilities.• Sufficient toilets should be provided to enable a number of people to use the facilities during an interval.• Dressing rooms and toilets in backstage areas of theatres and other entertainment venues should be accessible to everybody who may be involved in a performance, whether as a performer, director, backstage staff, or other capacity.
<p>Workplaces, such as offices, factories, and shops</p>	<ul style="list-style-type: none">• Toilet facilities should be provided to meet the needs of all staff and should be separate from toilet facilities for customers or members of the public if the number of other users is large.• Where shower and changing facilities are provided for staff, they should be accessible and easy to use by all employees.

5.3.6 Temporary facilities

Temporary portable sanitary facilities may be required to supplement permanent facilities on occasions where the existing building occupancy is expected to be greater than normal and at outdoor events, such as festivals and concerts. Temporary facilities may also be required in situations where the permanent sanitary provision is being refurbished in an existing building.

Portable sanitary facilities should be as accessible as permanent facilities, regardless of their location (for example, a music festival located in the countryside). Accessible toilets should be provided at regular intervals within the site along with an appropriate means of access, such as a pathway and ramp suitable for wheelchair and stroller use or by those with walking aids with clear identification and with a regular programme for cleaning and maintenance.

The location of portable sanitary facilities should take into account the need for vehicle access for delivery and emptying. At sites where the frequent use of temporary sanitary facilities is expected, an area can be designated and provided with the appropriate water supply and drainage. This will enable direct connection to mains services and avoid the need for chemical-based toilets, which many people find less desirable to use.

5.3.7 Future proofing

It is acknowledged that the purpose and pattern of use of a building may change over time and that this is likely to affect the number and type of building occupants, and potentially the gender ratio. Wherever it is possible to foresee such changes, it will be advantageous for developers and designers to consider layouts and construction methods that provide a degree of flexibility and enable physical modifications to be made in a cost-effective way.

Image 5.1 Example of a bathroom designed with future proofing in mind. Future proofing elements shown in the photo are as follows: Integral drain creates wet room facility; traditional bath for hoisting/caring; bath panel with toe recess along length of bath for carer; wheelchair accessible adjustable height WC with easy flush panel; accessible basin; thermostatic controls on shower within easy reach both sitting and standing; alternative showering positions both inside and outside the bath; and slip-resistant flooring.



Design guidelines and regulations are also being continually updated as further research is undertaken and as best practice develops. Designers and developers should consider how improvements and modifications could be made over the lifetime of a building so that the facilities provided are able to continually achieve or exceed evolving best practice.

The accurate recording and updating of as-built information relating to the building, pipe routes, materials, and fixings will also make it easier to undertake cost-effective changes with minimal disruption to the building structure and its occupants.



Checklist – Future proofing

- Ensure overall provision is suitable for all building occupants.
- Accommodate particular patterns of use and gender ratio in the design and position of facilities.
- Use clear signage and identification of all facilities.
- Make sure toilets are easily accessed.
- Locate sanitary facilities on accessible routes.
- Provide toilets at regular intervals.
- Safeguard user privacy in all sanitary facilities.
- Install sanitary facilities suitable for particular building types.
- Ensure temporary sanitary facilities are as accessible as permanent facilities.
- Consider future changes and developments in the design and construction of buildings.

The sections that follow provide detailed design guidance for a wide range of toilet, bathroom, shower room and changing facilities. The best practice guidance encourages the provision of facilities that suit the broadest range of needs and that also provide choice. The guidance covers the conventional male and female (single-sex) toilet arrangement, unisex accessible toilet, bathroom and shower rooms for independent and assisted use and facilities for families and baby-changing. There is no one-size-fits-all and no single design of toilet, shower or changing compartment that will meet the needs and preferences of every building user. Designers and developers should consider providing a range of different but well-equipped and well maintained facilities, based on the guidance below. For example, toilets in all but the smallest of buildings are likely to comprise accessible single-sex and unisex compartments and to include facilities suitable for independent use, and facilities for people who need assistance.

5.4 Single-Sex Toilets

Single-sex toilets (also termed male or female toilets or washrooms) should offer choice and flexibility; be comfortable and safe to use; be easy to maintain; and should protect the privacy and dignity of every person. Adopting the principles of universal design will ensure that they are accessible, easy to use, and designed to meet the needs of all building users regardless of age, size, ability, or disability.

Washrooms should accommodate cubicles that are accessible to all, although not every cubicle will meet every individual need. A combination of the following facilities will offer choice and flexibility to building users:

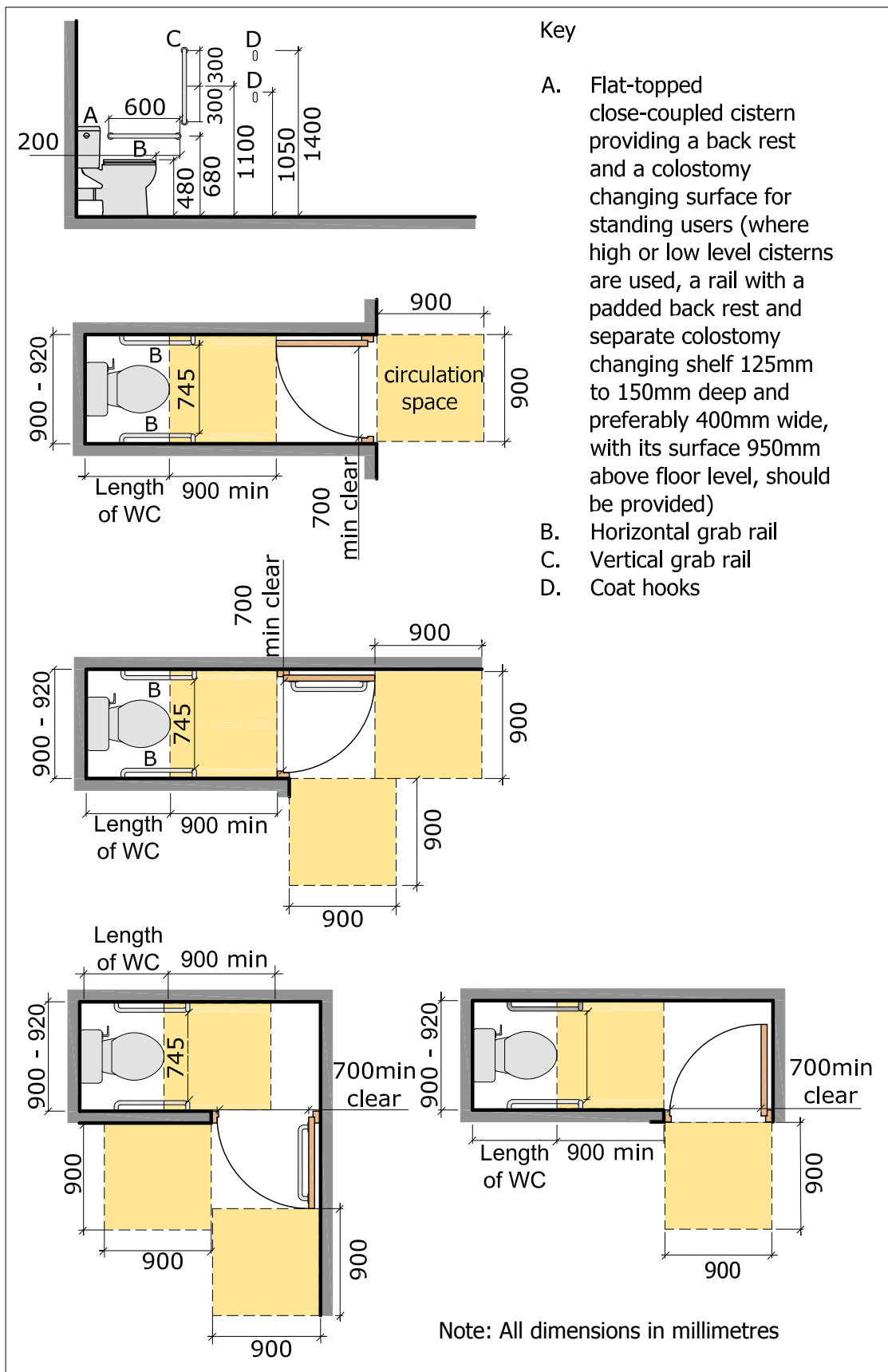
Image 5.2 Example of single-sex toilet - Male/female washroom.



5.4.1 Accessible toilet cubicles

The provision of an accessible toilet cubicle within a single-sex toilet enables an independent wheelchair user; a wheelchair user with a carer of the same sex; people who require integral hand-washing facilities; and other people who require additional space or support to use the main washroom and provides a greater choice of facilities. Detailed guidance relating to unisex accessible toilets is included in [Section 5.5.1](#)

Figure 5.2 Layout of cubicles suitable for people with mobility difficulties.



Consideration should be taken of the size of the sanitary disposal unit in the cubicle to accommodate people of larger size using the WC. Cubicles suitable for persons with mobility difficulties should be 900 to 920mm wide and provide a 900mm x 900mm circulation space clear of the WC pan and the door swing. The overall length of the cubicle depends on the projection of the WC pan from the rear wall, the door position and whether the door swings inwards or outwards.

Figure 5.2 illustrates possible cubicle arrangements and door positions. Wherever possible, all cubicles in a single-sex toilet should be equipped to this standard. If this is not possible, at least one in six cubicles should be suitable for persons with mobility difficulties .

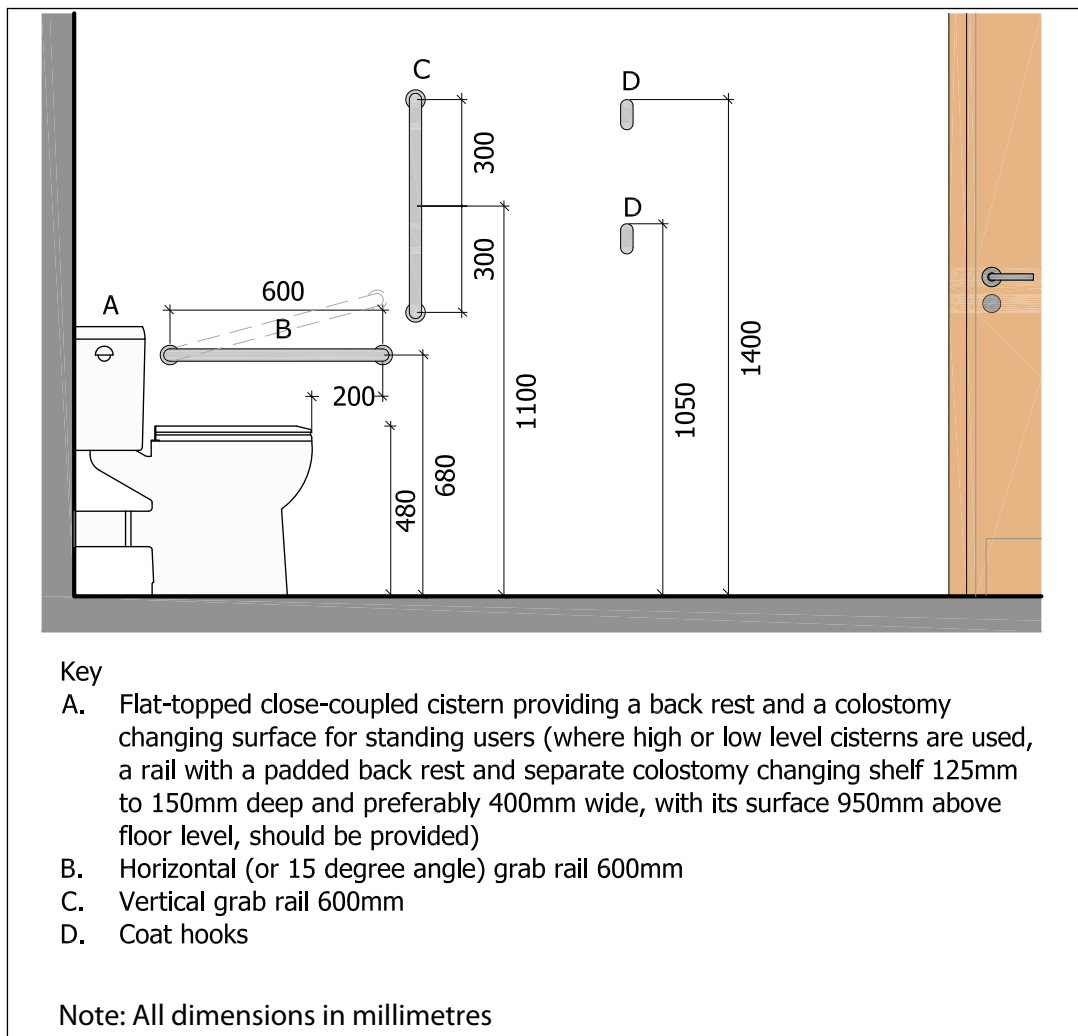
For people with limited mobility, doors opening outward from a cubicle are preferred, however for safety reasons in public buildings cubicle doors are generally recommended to open inwards.

Where inward opening doors have to be installed, they should be fitted with lift-off hinges so that the door can be removed if a person has fallen against the door inside the cubicle.

Where cubicle doors are outward opening, particular care should be taken in planning the layout of the toilet to minimise the risk of a person colliding with the door. Wherever possible, outward-opening doors should open against an adjacent wall. Outward-opening doors should be fitted with a horizontal grabrail in the inside face to assist door closing.

Grabrails should be provided to both sides of the cubicle. The position and size of grabrails is shown in **Figure 5.3**. More guidance on grabrails is provided in **Section 5.10.5**.

Figure 5.3 Position of grabrails in a cubicle suitable for people with mobility difficulties.



The WC seat should be 480mm above floor level and should accommodate a variable-height toilet seat riser.

Image 5.3 Example of door-mounted grabrail.



5.4.2 Enlarged cubicles

Enlarged cubicles benefit many people, including people with young children or pushchairs, people with luggage or shopping and people with assistance dogs.

At least one enlarged cubicle should be provided where there are four or more cubicles within a single-sex toilet.

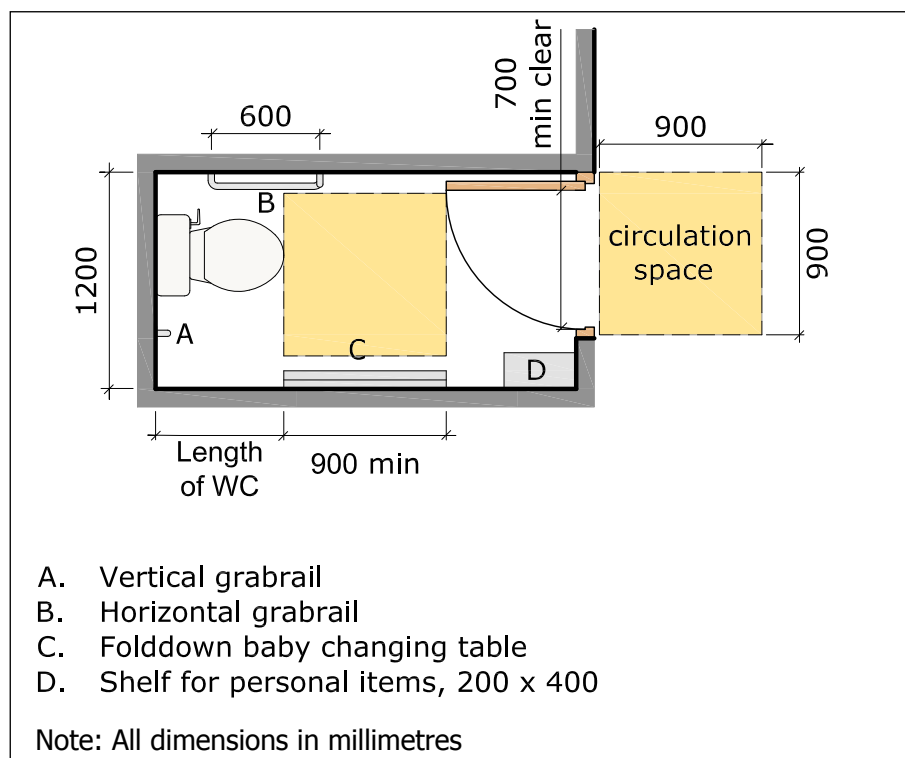
Image 5.4 Example of enlarged WC with guide dog user.



Enlarged cubicles should be 1200mm wide and provide a 900mm x 900mm circulation space clear of the WC pan and the door swing (see [Figure 5.4](#)). They should include a horizontal grabrail adjacent to the WC; vertical grabrail to the rear wall; a shelf; and fold-down baby-changing table. Where more than one enlarged cubicle is provided, the arrangement should be handed.

Enlarged cubicles are not a substitute for cubicles suitable for people with mobility difficulties, but a further alternative arrangement designed to meet the needs of a broad range of people, such as a parent with a child.

Figure 5.4 Enlarged cubicles for people who need additional space.



In single-sex toilets, washbasins should provide a choice of heights within the range 680 to 900mm to suit children and people of different heights. Either automatically operated or lever taps should be provided for ease of use. Where separate hot and cold taps are installed, washbasins should always be fitted with plugs so that water can be mixed to the desired temperature.

5.4.3 Urinals

Urinals should be stall-type or wall-hung bowls, with a level floor surface for approach. Urinal troughs should never be used as people with visual difficulties often run their hands along the walls to orientate themselves and so may encounter the unprotected surface. In a row of urinals, at least one in six should be positioned at a lower height, with the rim 380mm above floor level instead of the standard 500mm.

Grabrails should be provided between pairs of urinals to allow both left and right hand support, as illustrated in [Figure 5.5](#). A clear space 900mm wide x 1400mm deep should be provided in front of the lower height urinal to suit approach by a person using a wheelchair.

Screens or partitions may be provided between each urinal and between the urinals and adjacent washbasin or cubicle area to improve privacy (see [Figure 5.6](#)).

Figure 5.5 Accessible urinal arrangement.

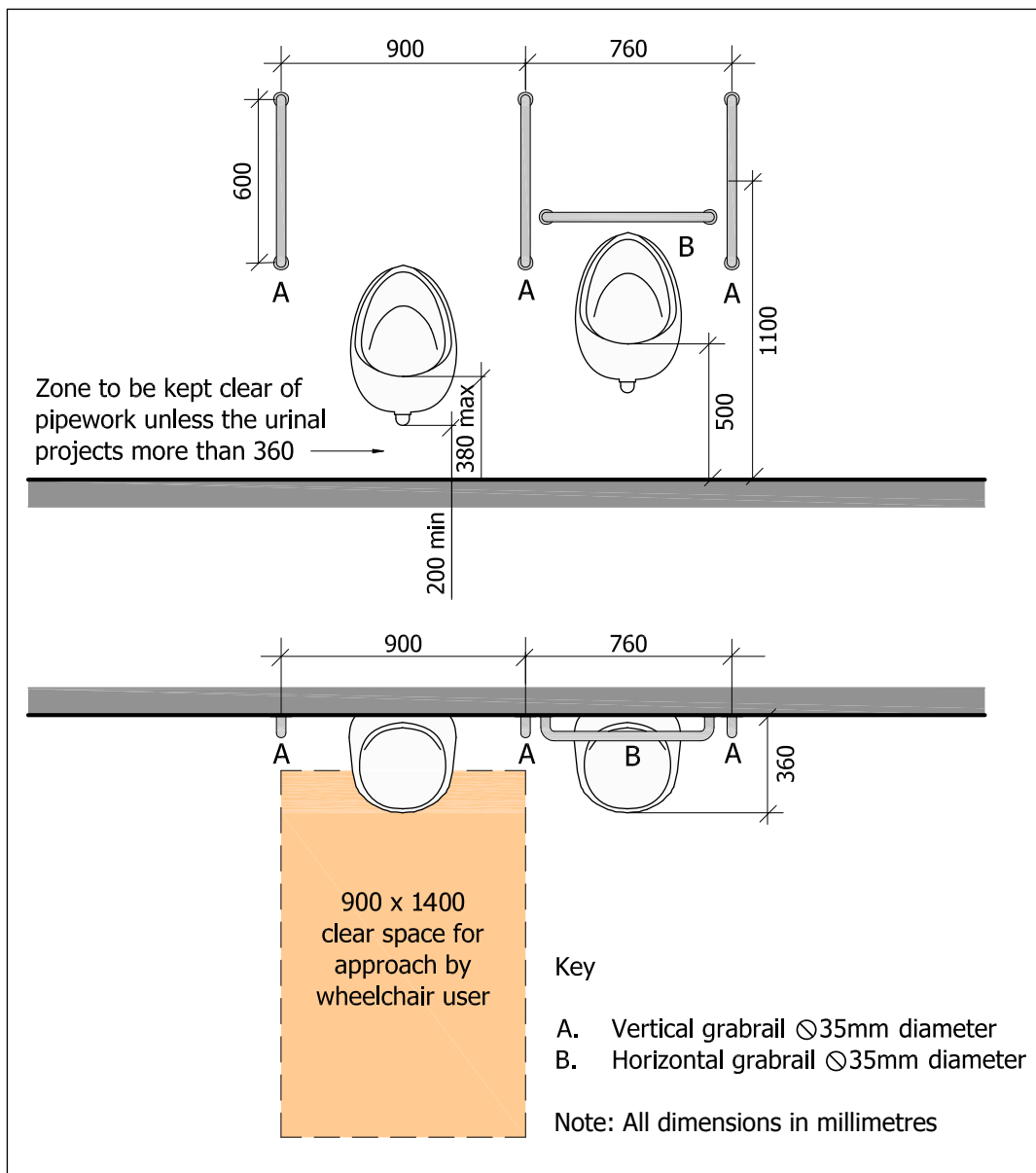
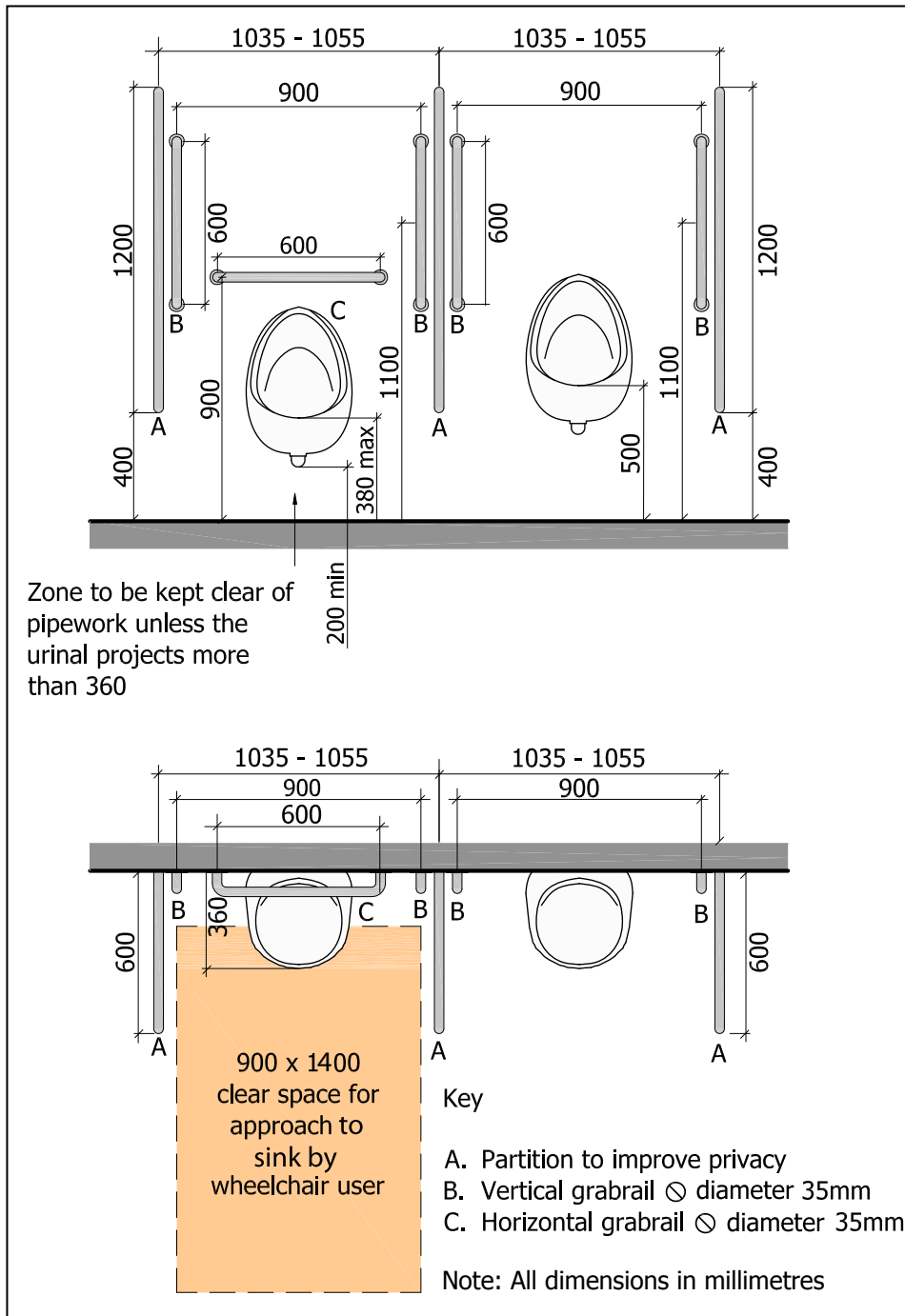


Figure 5.6 Accessible urinal arrangement with partitions.



Guidance on the design and placement of washroom accessories is included in [Section 5.10](#).

Image 5.5 Example of urinals with partitions.



Image 5.6 Example of accessible urinal with grabrails.





Checklist – Single-sex toilets

- Arrange cubicles, urinals and hand-washing facilities logically.
- Provide accessible toilet cubicle.
- Provide cubicle designed for people with mobility difficulties.
- Include enlarged cubicle for people who need extra space.
- Fit doors with lift-off hinges.
- Install washbasins at different heights.
- Incorporate lever or automatic taps and plugs in washbasins.
- Make sure one in six urinals are at lower height and provide space for approach by wheelchair users.
- Consider fitting grabrails between urinals.
- Establish adequate screening to urinals.
- Employ suitable washroom accessories (see **Section 5.10**).

5.5 Unisex Toilets

5.5.1 Unisex accessible toilet

A unisex accessible toilet (also termed a wheelchair accessible toilet) is designed to meet the needs of independent wheelchair users but is also equipped to suit persons with mobility difficulties and may be used by other people who require, for example, additional space, the support of grabrails, or integral hand-washing facilities.

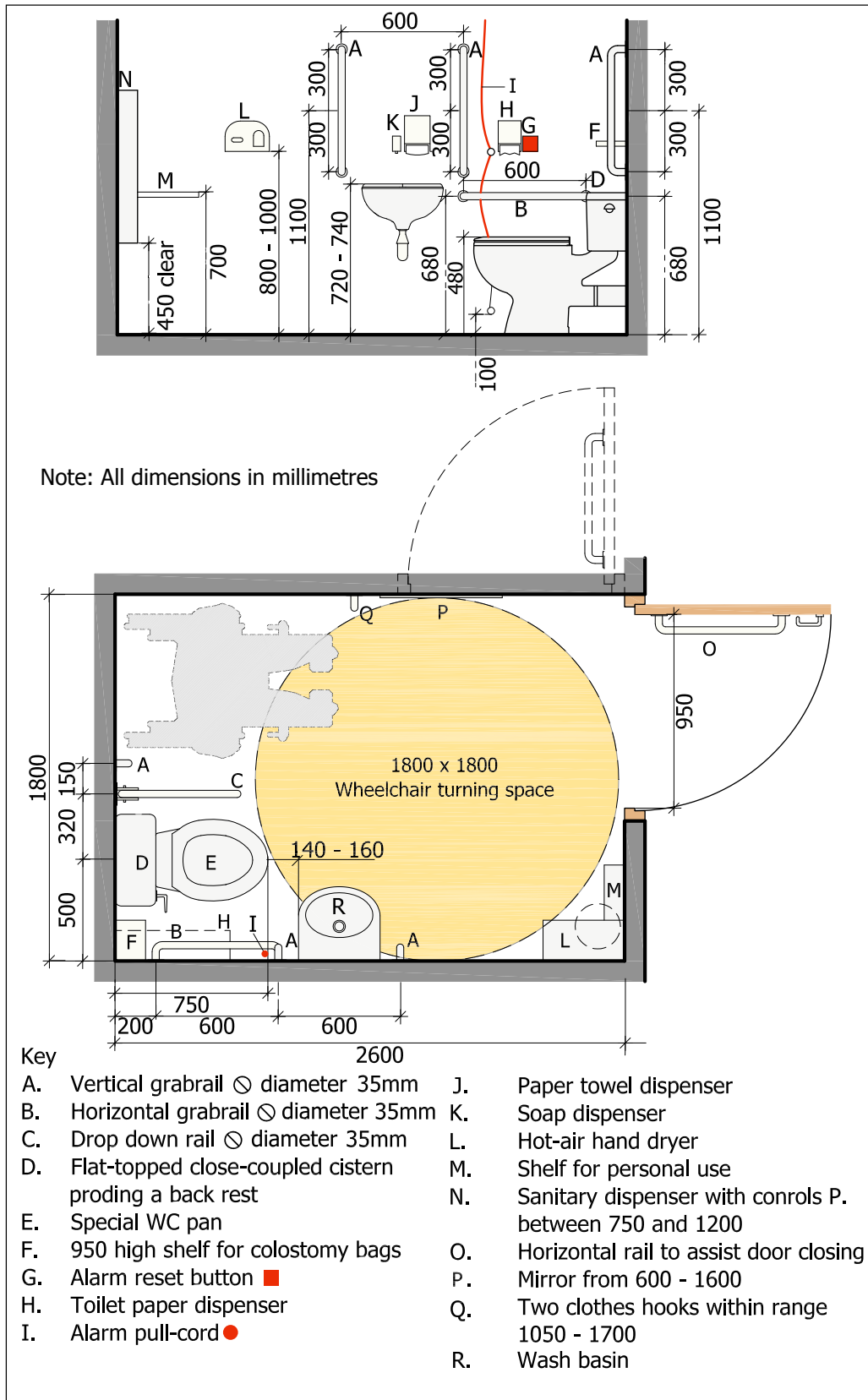
Image 5.7 Example of door to unisex accessible toilet – including signage stating it offers right-handed transfer.



Image 5.8 Example of unisex accessible toilet – left-handed transfer.



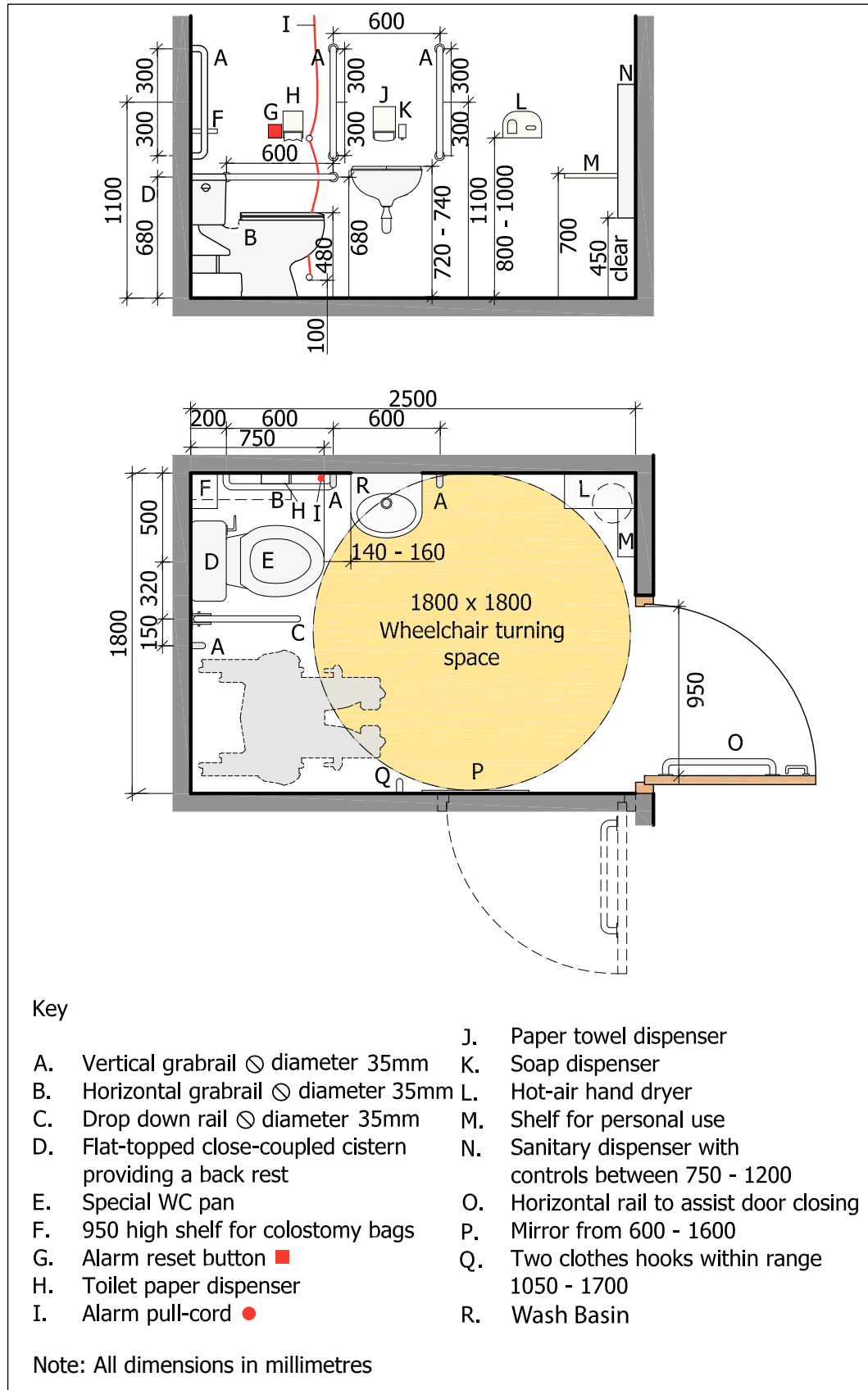
Figure 5.7 Unisex accessible toilet – right-handed transfer.



The room should be at least 1800mm wide x 2500m long, with a layout as illustrated in **Figure 5.7**. Where more than one unisex accessible toilet is

provided, the layout should be handed (see **Figure 5.8** for left-handed transfer layout).

Figure 5.8 Unisex accessible toilet – Left-handed transfer.



In an accessible toilet, the washbasin should be within reach of a person seated on the WC. The basin is typically small (approximately 450mm x 300mm) so that it does not take up too much manoeuvring space or obstruct access to the WC. If room is available a larger sink should be provided. The location of the washbasin is crucial to enable a person to wash and dry their hands before adjusting their clothes. So too is the location of the soap and paper towel dispenser, which should also be within reach of the WC. The height of the washbasin should suit people using it in both a seated and standing position, with the rim 720 to 740mm above floor level and a clear knee space beneath to enable seated approach. Water supply and waste pipes should be neatly returned to the wall to maximise clear space below the washbasin.

Image 5.9 Example of sink with single mixer tap, soap dispenser, paper towel dispenser, and grabrails. Note the position of the tap plus the lack of a lever handle. A larger sink should also be considered.



A single mixer tap should be provided and positioned on the side of the washbasin nearest the WC. The tap should have a lever handle with vertical or sideways action or be automatic, for example with a proximity sensor. Central mixer taps should be avoided as they make it difficult to wash out urine bottles.

The 750mm dimension from the front of the WC pan to the rear wall of the compartment is critical. This measurement enables a wheelchair user to position themselves in the transfer space to the side of the WC, parallel to the side walls and with the front of the wheelchair level with the front of the WC pan. Wheelchair users are then able to move sideways onto the WC, without also having to move either backwards or forwards as they transfer. See [Figure 5.1](#) for a visual description of transfer methods.

Image 5.10 Example of unisex accessible toilet – Right-handed transfer.



5.5.2 WC pans and cisterns

Where WCs with concealed cisterns are used, for example for ease of maintenance or appearance, they should be adapted so as not to reduce the 750mm dimension from the front of the WC pan to the rear wall, or the clear transfer space to the side of the WC pan. Similarly, there should be no pipes or pipe boxing projecting into this area. Any reduction in the clear transfer space will make it difficult for wheelchair users to transfer laterally and will also affect the relationship of fixed and drop-down grabrails with the WC.

The WC pan should accommodate a variable-height toilet seat riser and should be wide enough to allow a user to wipe him or herself while sitting on the bowl. It should be a robust floor-mounted pan rather than one fixed to the wall. The seat should be strong, fitted with effective stabilisers and rigidly fixed to the pan to cater for the variety of transfer techniques. The shape of the pan should allow toe space under the bowl to facilitate people adopting a frontal transfer and to suit male users.

The cistern lid of low-level or close-coupled WCs should be securely fixed, as they may be used to provide back support while a person is seated on the WC. Some lids are easily displaced or broken during use of the toilet and the potential for this should be avoided. Where mid-level or high-level cisterns are used, or where the cisterns are concealed, a padded backrest should always be provided.

A common error in the specification and installation of corner arrangement WCs is for the cistern flush-handle to be positioned on the wrong side, that is, adjacent to the side wall of the toilet compartment. If the flush-handle is on the wrong side, many people will be unable to reach or use the handle and the WC will remain unflushed, which is unhygienic and causes embarrassment to users. It is imperative that the cistern flush-handle is positioned on the transfer side of the WC so that it can be reached by a person who has transferred back into their wheelchair. The handle should be spatula-shaped so that it is easier for people with reduced manual dexterity to use.

Image 5.11 Example of wall-mounted, dual-flush system.



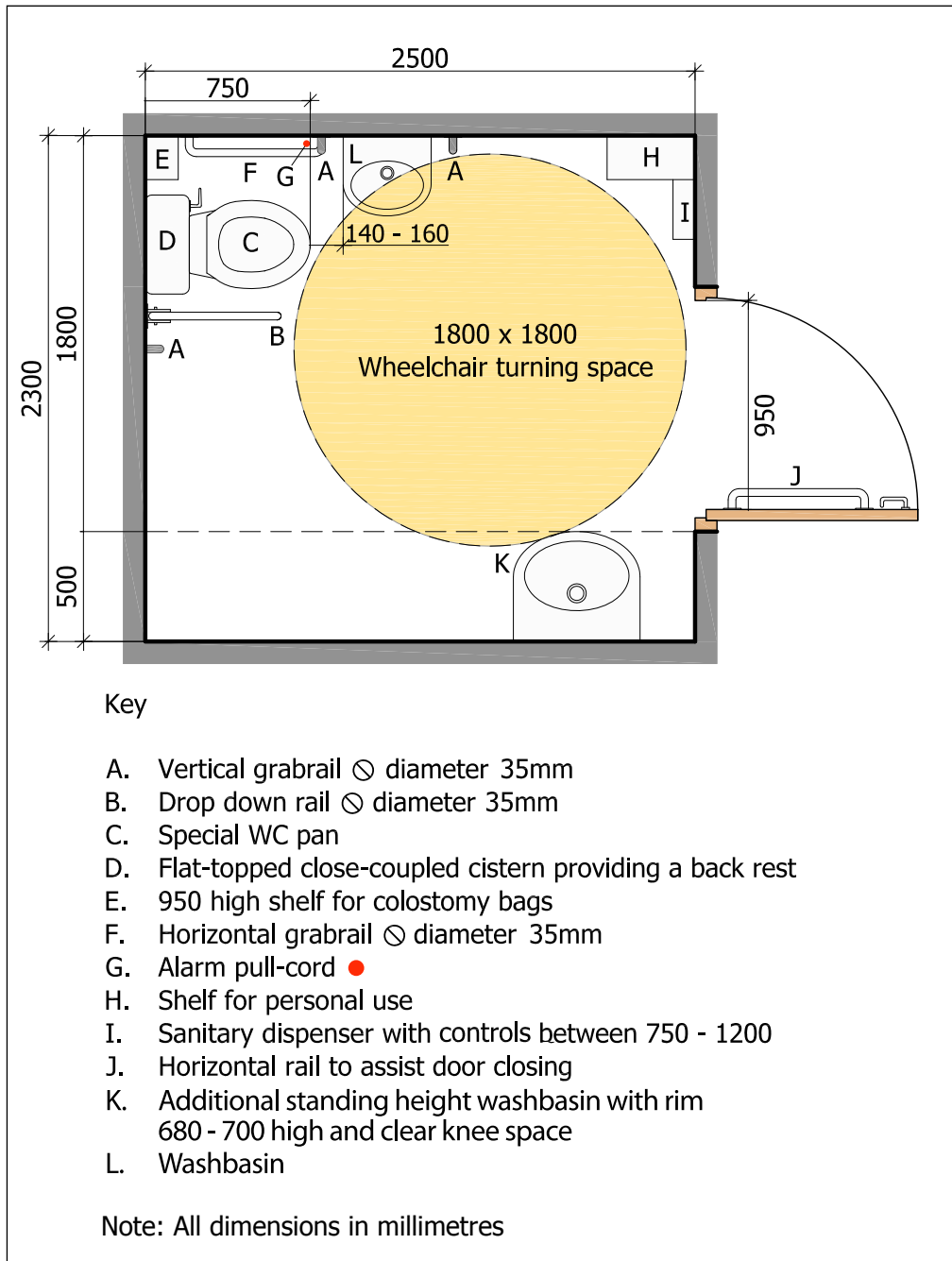
Some manufacturers now produce a cistern flush mechanism for use in accessible WCs that has a dual-flush capability. Dual-flush mechanisms that require operation with a single finger, or fine hand movement, should not be installed. The preferred

mechanism is a cistern flush that comprises a wall-mounted plate with two push buttons (one larger than the other). The push buttons are large enough to operate with a fist or elbow and only require a small depression of the button. Where these are used, the buttons should be positioned where they can be easily reached by a person who has transferred back onto their wheelchair. Also consider 'rocker' type flush controls.

5.5.3 Enlarged unisex accessible toilet with standing height washbasin

Where space allows, the provision of facilities designed for both seated and standing use will address the needs of a higher number of building users. An enlarged unisex accessible toilet with standing height washbasin should be 2300mm wide x 2500mm long, with a layout as illustrated in [Figure 5.9](#). The room layout incorporates a corner arrangement accessible WC and provides an additional standing-height washbasin. Where more than one compartment is provided, the layout should be handed. This design is a preferable alternative to the unisex accessible toilet ([Section 5.5.1](#)) in smaller buildings where space is limited and only one or two toilet compartments are provided for the entire building.

Figure 5.9 Enlarged unisex accessible toilet with standing height washbasin.



The additional standing height washbasin should be larger than the finger-rinse basin associated with the corner arrangement WC to facilitate easier hand or body washing, and rinsing of personal care equipment. It should be fitted with a plug and either a single lever mixer tap or separate hot and cold taps with lever arms. The washbasin should be positioned with a rim height of 780 to 800mm to suit standing use and be located so that it does not encroach into the wheelchair turning or transfer area. A soap dispenser and hand drying facilities should be provided adjacent to the standing height washbasin.



Checklist – Unisex toilets

- Ensure the unisex toilet is suitable for all building users, if only one is provided.
- Make sure room dimensions are at least 2300mm wide x 2500mm long.
- Include an additional standing-height washbasin, rim height 780 to 800mm, with soap and hand-drying facilities.

5.5.4 Family toilets

The needs of children and family groups should be considered when planning all sanitary facilities. In large buildings, such as visitor attractions, large retail or leisure complexes, and transport terminals, the provision of a family toilet is recommended. This will enable adults to maintain close supervision of children.

Image 5.12. Example of a family toilet.



A family toilet should be accessible and easy to use. Family toilets should comprise a large room with one or more WCs (with or without a privacy screen); hand-washing facilities at a height suitable for children and adults; a baby-changing area; and sufficient space for one or more pushchairs.

Checklist – Family toilets

- Establish a large room suitable for small group access.
- Include one or more WCs.
- Install hand-washing and drying facilities.
- Incorporate baby-changing facilities.
- Ensure the room is accessible to wheelchair users; parents with strollers / buggies; people with visual difficulties; and people using walking or mobility aids.



5.5.5 Baby-changing facilities

Facilities for baby changing should be provided in buildings used by members of the public. The facilities should be unisex and accessible so that they are available to all parents and carers of either sex. Where baby-changing facilities are provided in single-sex toilets, these should be in addition to a unisex facility. It is not acceptable for the only baby-changing table in a building to be located in a unisex accessible toilet as this will reduce the availability of the toilet facility.

Image 5.13 Two examples of baby-changing facilities.



A baby-changing room should comprise two changing benches or tables at different heights: 800mm and 1200mm, to cater for people of different heights and people in either a seated or standing position. Hand-washing and drying facilities should be provided adjacent to the changing tables, together with nappy disposal bins, and a shelf or table for personal belongings.

Wherever space permits, a room for breast-feeding should be provided. For hygiene reasons, this should be separate to the general toilet facilities. A room for

breast-feeding should be accessible and equipped with a comfortable chair, space for a large pushchair or pram, and baby-changing facilities.

Checklist – Baby-changing facilities

- Provide unisex accessible facilities for baby-changing.
- Consider supplementary baby-changing facilities in male and female toilets.
- Install changing tables at two heights.
- Include hand-washing and drying facilities.
- Provide nappy disposal bin.
- Establish separate facility for breast-feeding.



5.6 Toilets for People Who Need Assistance

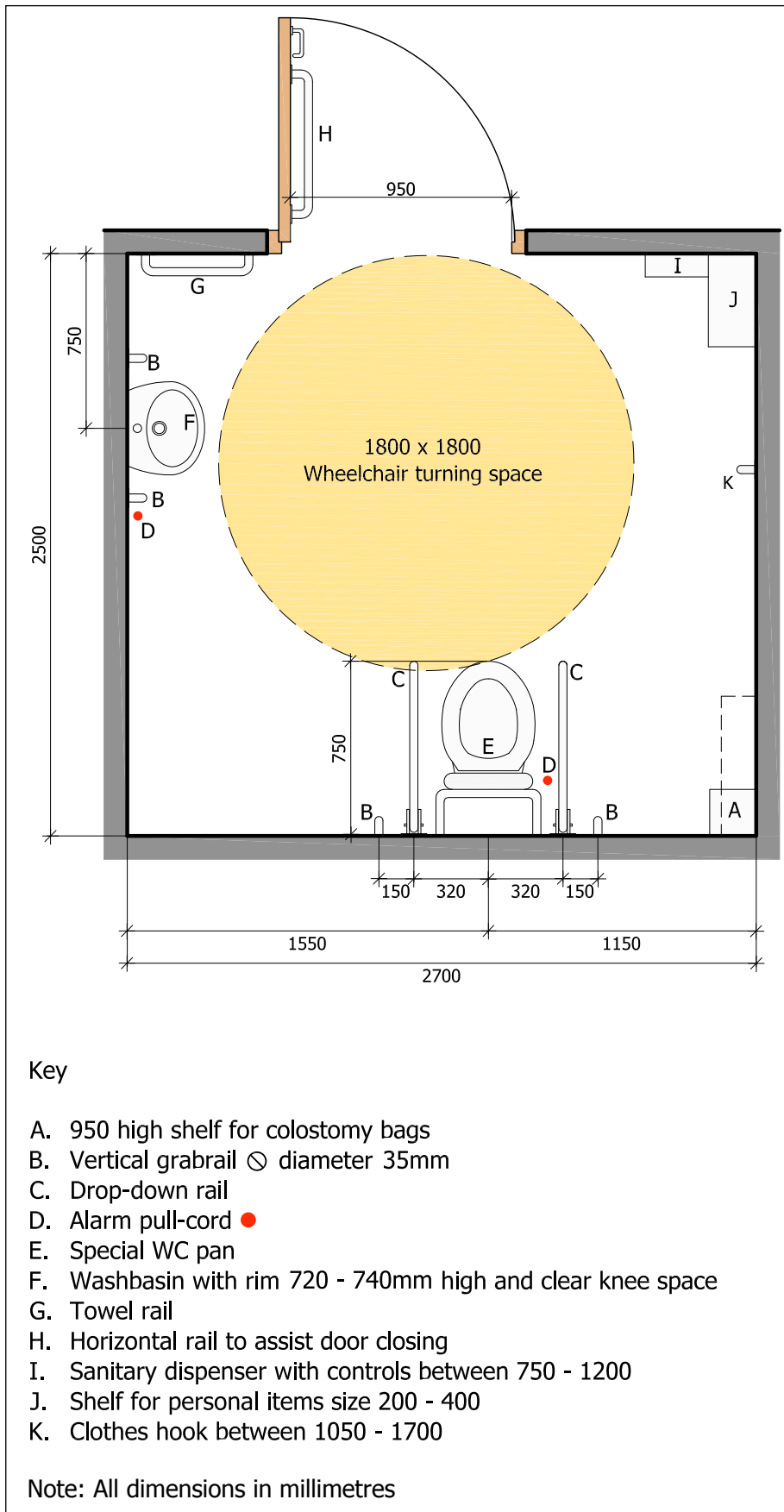
5.6.1 Unisex peninsular-arrangement toilet for assisted use

Toilets for people who need assistance are often termed peninsular-arrangement toilets, due to the central position of the WC pan and clear space on both sides. This arrangement enables a wheelchair user to transfer from either side and provides space for assistants on both sides of the WC.

The peninsular arrangement offers greater flexibility in terms of transfer technique than a corner arrangement accessible toilet, but is only suitable where trained assistance is available, such as hospitals, residential or day care accommodation, and sports or leisure centres, where users may be accompanied by an assistant. People who can use a corner arrangement accessible toilet independently may not be able to use a peninsular arrangement toilet without assistance. The absence of fixed grabrails or a solid wall immediately adjacent to the WC often means there is insufficient support for independent use.

The overall room size should be 2700mm wide x 2500mm long with a layout as illustrated in [Figure 5.10](#).

Figure 5.10 Unisex peninsular-arrangement toilet for assisted use.



A washbasin in a peninsular-arrangement toilet should be provided and positioned away from the WC, as illustrated. In a peninsular-arrangement toilet, a person is not expected to wash their hands while seated on the WC and the washbasin is positioned remotely to ensure there is sufficient space for assistants on both sides of the WC. The washbasin rim should be positioned 720 to 740mm above floor level to suit seated approach and should provide clear knee-space beneath the bowl.

The provision of a curtain that can be drawn around the WC area improves privacy both for the user and an assistant.

Image 5.14 Example of unisex peninsular-arrangement toilet for assisted use.





Checklist – Toilets for people who need assistance

- Ensure room dimensions are 2700mm wide x 2500mm long.
- Establish detailed layout as **Figure 5.10**.
- Install washbasin with clear knee space.
- Provide curtain to screen WC.
- Incorporate suitable washroom accessories (see **Section 5.10**).

5.6.2 Unisex peninsular-arrangement toilet with adjustable changing bench and hoist facilities

Some adults and children with significant mobility and coordination difficulties may need to be laid flat in order to be changed by carers. It is inappropriate for people to be laid on the floor to be changed as this is unhygienic and undignified, and carries the risk of injury to carers due to the manual lifting involved.

Toilet facilities for assisted changing should comprise an adjustable-height changing bench (a typical changing bench is minimum length 1800mm – the bench should be height adjustable, and free standing or wall mounted); a ceiling track hoist for a person to transfer between a wheelchair and either the WC or changing bench; a peninsular-arrangement WC, washbasin, and accessories including a wide tear-off paper roll to cover the bench; and large waste bin for pads and continence aids. If a ceiling track hoist cannot be installed, a mobile hoist should be provided. The WC should have a screen or curtain for privacy.

The room should be 3500mm wide x 2500mm long, with an outward-opening door. The facilities should be arranged to provide sufficient space for wheelchair manoeuvre and space around the changing bench and WC for two carers.

Image 5.15 Example of unisex peninsular-arrangement toilet with hoist.



Image 5.16 Example of unisex peninsular-arrangement toilet with assisted changing.



Image 5.17 Example of assisted changing facility.



Toilets incorporating facilities for assisted changing should be provided in large buildings that are accessed by members of the public in large numbers, such as shopping centres, leisure centres, entertainment venues, and motorway services.



Checklist – Unisex peninsular-arrangement toilet with adjustable changing bench and hoist facilities

- Ensure room dimensions are at least 3500mm wide x 2500mm long.
- Install an adjustable-height changing bench.
- Include wide, tear-off paper roll.
- Provide ceiling track hoist (or mobile hoist).
- Follow 'Toilets for people who need assistance' checklist above.
- Provide curtain or screen for privacy around WC.
- Install hand-washing and drying facilities.
- Incorporate suitable waste disposal.
- Use suitable washroom accessories (see **Section 5.10**).

5.7 Shower Rooms and Bathrooms

Bathing facilities are provided for public use in a range of building types, including residential and guest accommodation; sport and leisure buildings; healthcare premises; and some places of work. The overall provision and design of shower rooms and bathrooms should adopt the principles of universal design, and be accessible and easy to use by all people.

In general, if correctly detailed, showers are more accessible, safer to use, and may require less assistance than baths, but it is always preferable to provide a range of facilities that offer a choice. Designers should also consider making bathroom designs look more appealing, rather than just meeting recommended regulations. Where more than one facility is provided, there should be an option of left- and right-hand transfer, and the transfer arrangement should be consistent within each room. (That is, the direction of transfer to both WC and shower, or WC and bath, should be the same.) In bathrooms allocated for general use, fittings should be provided that suit the broadest range of people.

Image 5.18 Example of a well-designed accessible shower. The shower balances function with aesthetics with wall-mounted products; a folding shower seat; a level floor with an integral floor drain and coved skirting; matt-finish tiles and good tonal balance between floor and walls for visual acuity; thermostatic controls; alternative showering positions, both sitting and standing; controls within easy reach from seated position; a longer riser rail and contemporary grab rails.



All bathrooms and shower rooms should be located on accessible routes. Where facilities are en-suite, the bathroom or shower room door should be positioned to enable easy access from the bedroom or a hallway. Where shower rooms are provided in buildings, such as sports centres, they should be clearly identified and located as close as possible to the facilities they serve.

The guidance in this section may also be applied to private dwellings.

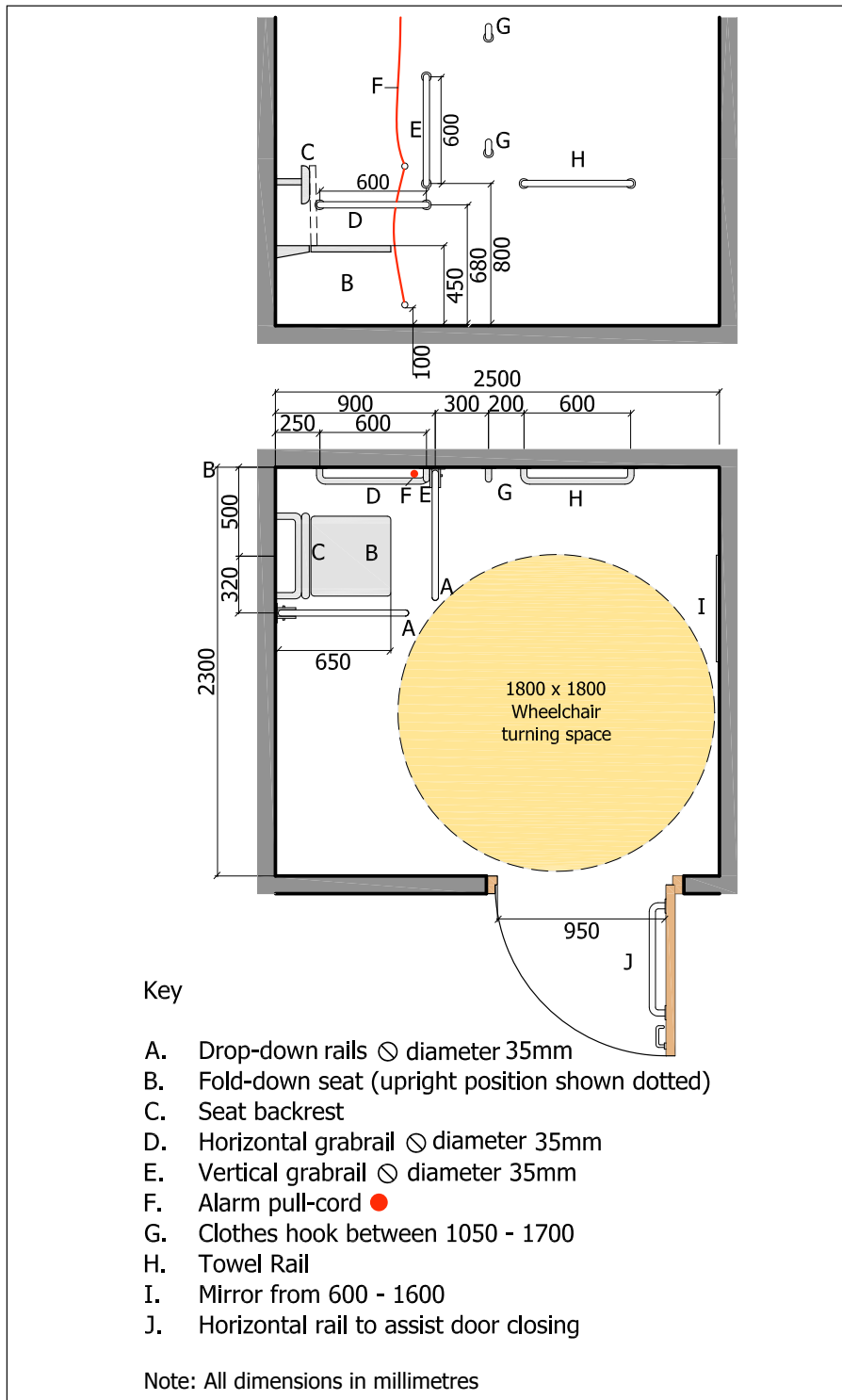
5.7.1 Self-contained accessible shower

A self-contained accessible shower, designed for independent use, should have the dimensions 2300mm x 2500mm and a layout as illustrated in [Figure 5.11](#). Where more than one accessible shower is provided, the layout should be handed.

An accessible shower should incorporate a shower tray that is flush with the surrounding floor. This can be achieved by creating a wet room, in which either the whole floor or just the shower area slopes to a drainage point. Any slope in the floor should not exceed a 1:50 gradient.

It should be clear and unambiguous how to operate the shower; what controls the volume of water; and what controls the temperature. Controls should be designed so that users, whose vision may be restricted because of steam or not wearing their glasses, are unlikely to inadvertently change the temperature instead of changing the volume of water.

Figure 5.11 Self-contained accessible shower arrangement.



The floor slope can be created within a floor screed; by using a proprietary level deck; or by using a recessed shower tray set into either a concrete or timber floor. Trays are also available that sit on top of an existing floor and incorporate a small sloping ridge to the perimeter of the tray. This type of tray is more suited

to retrofit showers, where it is not practical to create a depression within the existing floor structure.

In all shower rooms, floor tiling or a sheet-flooring material should be detailed to contain water and to avoid sharp edges or trims. The floor finish should be selected to maximise slip resistance when both wet and dry.

The shower tray area should be 1200mm x 1000mm and open on two adjoining sides. A clear transfer area should be provided to the front and side of the shower, along with a 1800mm diameter turning area clear of the seat in the folded-down position.

Image 5.19 Example of an accessible shower room. Note the WC in the extreme left side of the photo.



An adjustable-height and detachable shower head and lever-operated shower control with a thermostatic mixer valve should be provided on the wall perpendicular to the shower seat. The shower head should be adjustable within the range 1200 to 2200mm above floor level and the controls positioned between 750 and 1200mm above floor level. The water temperature should not exceed 40 degrees centigrade (C). The temperature control indicator should be clear and as easy as possible for everybody to use.

A fold-down plastic seat with integral or separate backrest should be provided for showering and be securely fixed to the wall. The front of the seat should be 650mm from the rear wall to facilitate lateral transfer from a wheelchair. The seat height should be 450 to 480mm, depth 450mm, and width 500mm.

A second fold-down seat may be provided away from the shower for people to sit whilst drying and changing. All seats should be checked and tested regularly to ensure the fixings are secure and that the seat is weight-bearing.

Image 5.20 Example of a fold-down shower seat.



Fixed and drop-down horizontal and vertical grabrails should be provided in the locations shown in **Figure 5.11** and as described above for accessible self-contained changing areas.

A shower curtain (or two, if necessary) should be provided to fully enclose the shower area and fold-down grabrails, but should not obstruct the shower controls. The shower curtain provides privacy to a person using the shower if a carer or companion is also in the room and also helps to keep belongings dry.

Accessories, including a towel rail, clothes hooks, and mirror, should be provided, as illustrated. The seat, grabrails and other accessories should all provide effective visual contrast with the background surfaces.

Checklist – Shower rooms and bathrooms

- Ensure recommended room dimensions of 2300mm x 2500mm.
- Follow detailed layout, as **Figure 5.11**.
- Install level-access shower tray.
- Use adjustable-height, detachable shower head.
- Make sure temperature controls are easy to identify.
- Incorporate fold-down plastic seat in shower area.
- Consider additional fold-down seat for drying.
- Position grabrails and drop-down rails correctly.
- Provide shower curtain for privacy.
- Use suitable accessories including towel rail, clothes hooks, and mirror.
- Provide well-drained, level, and slip-resistant floor surface.
- Consider the provision of a warm air body dryer.



5.7.2 Accessible shower with WC

The recommended dimensions for a combined accessible shower and WC, designed for independent use, are 2700mm x 2800mm. The layout should be as **Figure 5.12a** and **5.12b**. This arrangement is suitable as an en-suite shower room in

hotel and residential accommodation and also for changing facilities in sports, leisure, and other environments.

A larger washbasin is provided in this arrangement to enable people to have a full body-wash, to wash their hair and any items of personal care equipment. An overall basin size of approximately 500mm wide x 550mm deep is recommended. The provision of an adjustable-height washbasin is ideal as it can be varied in height from 750 to 900mm above floor level to suit different people.

The knee space under the washbasin should be free of obstructions and should not be boxed in. Pedestals should be avoided as they inhibit manoeuvrability. Water supply pipes should be protected if they are exposed to foot or leg contact.

The taps on the larger washbasin are likely to be beyond the reach of a person seated on the WC. In this arrangement, users are likely to fill the washbasin before transferring to the WC and it is therefore essential that the washbasin has a plug.

Image 5.21 Example of accessible shower with WC. Note lack of grabrails and the exposed pipes.



Figure 5.12a Plan of an accessible shower with WC.

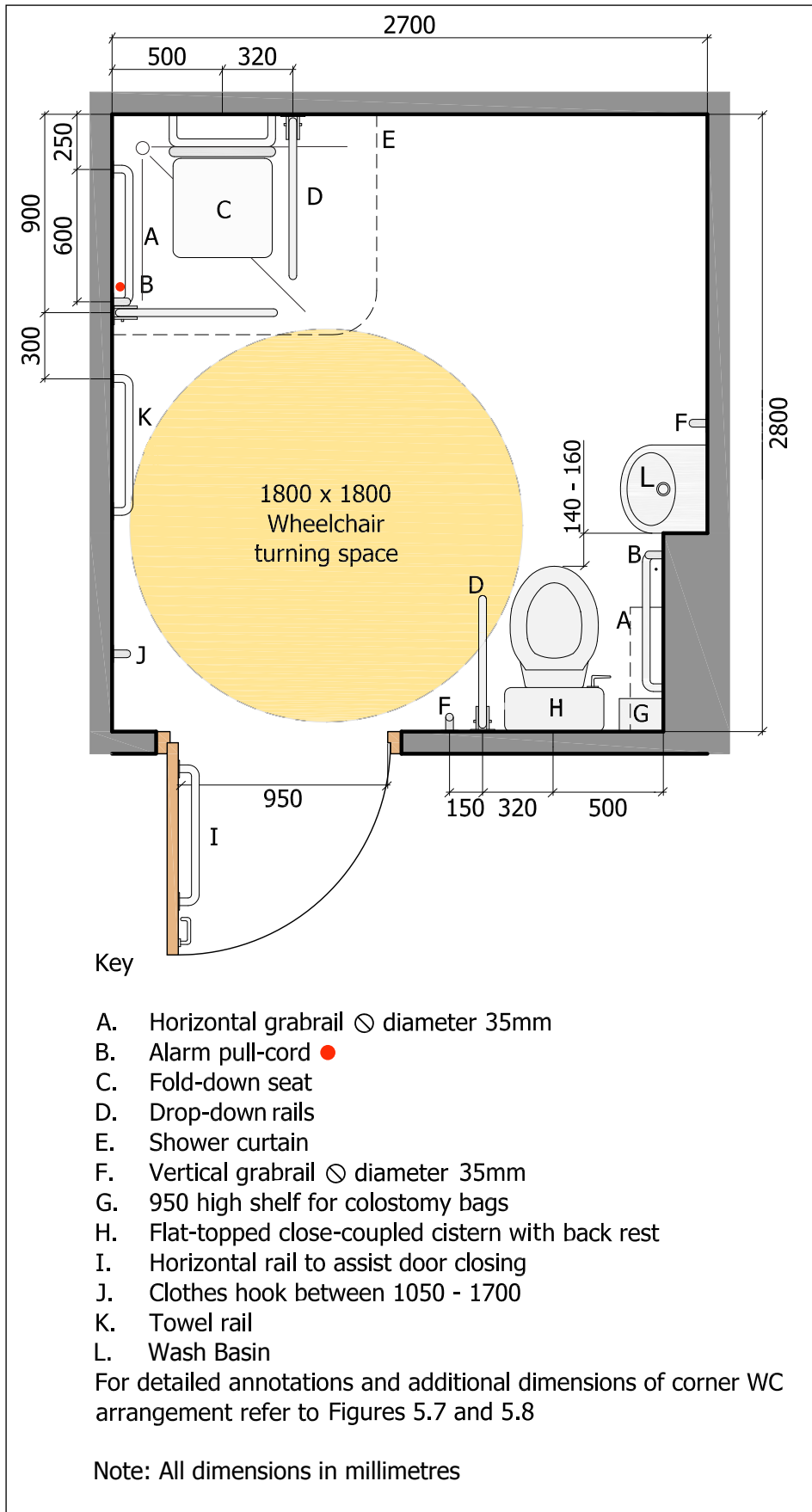
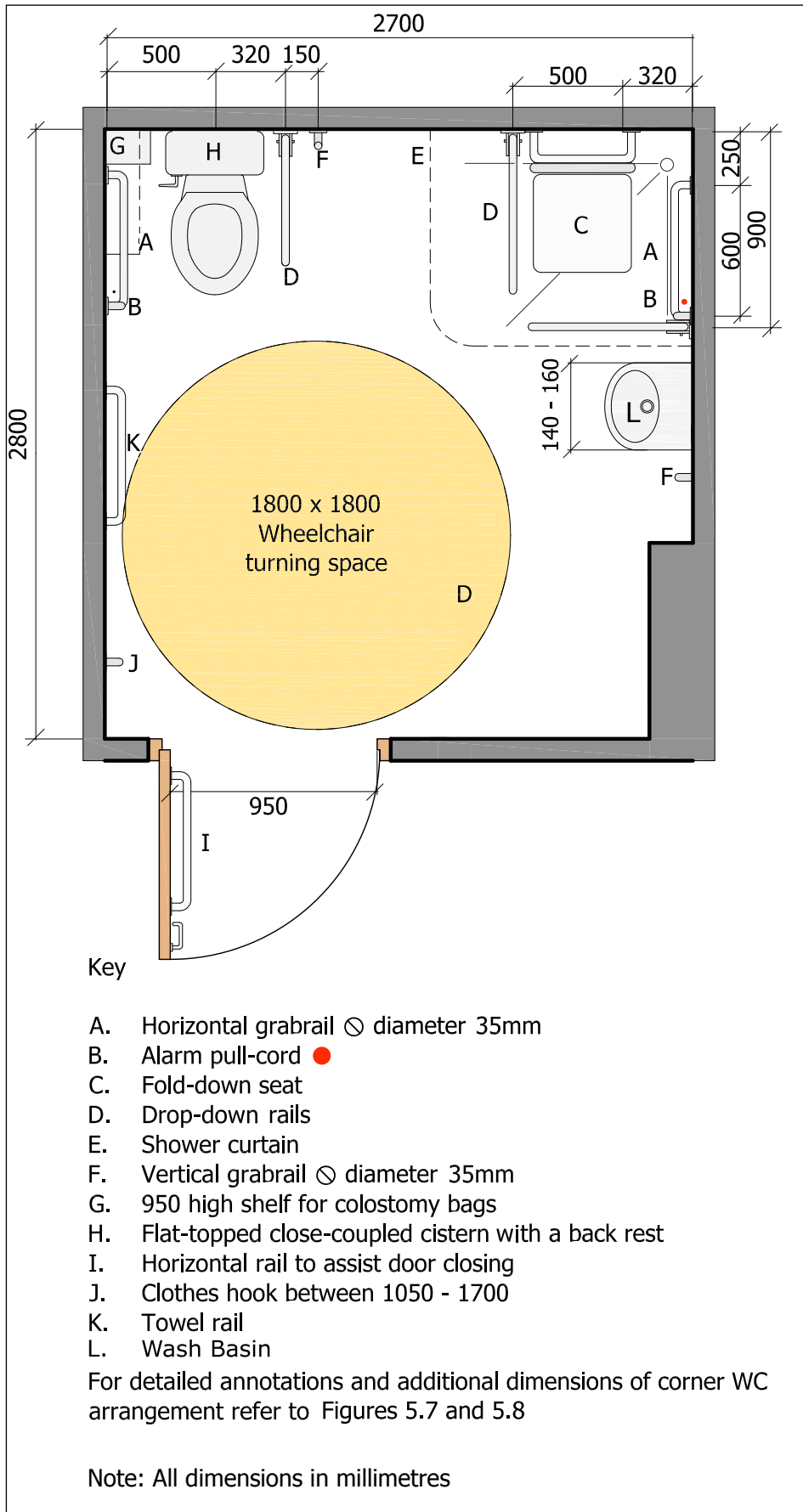


Figure 5.12b Alternative plan of self-contained shower with WC





Checklist – Accessible shower with WC

- Follow recommended room dimensions of 2700mm x 2800mm.
- Consider detailed layout in **Figure 5.12a** and **5.12b**.
- Include large washbasin with lever taps and a plug.

5.7.3 Shower and peninsular arrangement WC for assisted use

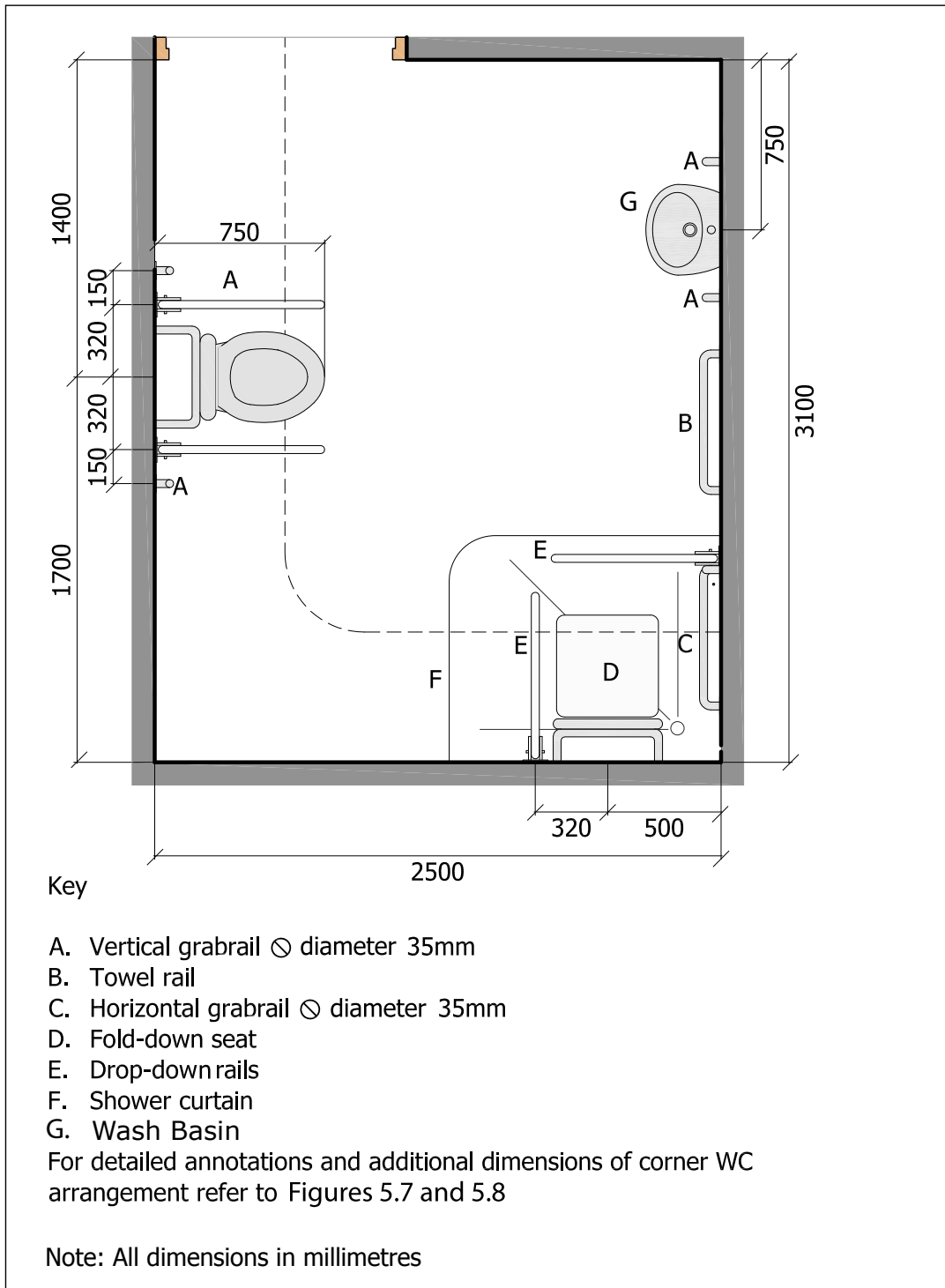
This facility should be provided, where appropriate, in addition to a combined accessible shower and WC for independent use.



Checklist – Shower and peninsular arrangement WC for assisted use

- Ensure recommended room dimensions of 2500mm x 3100mm.
- Consider detailed layout as **Figure 5.13**.

Figure 5.13 Shower and peninsular arrangement WC for assisted use.



5.7.4 Bathroom for independent use

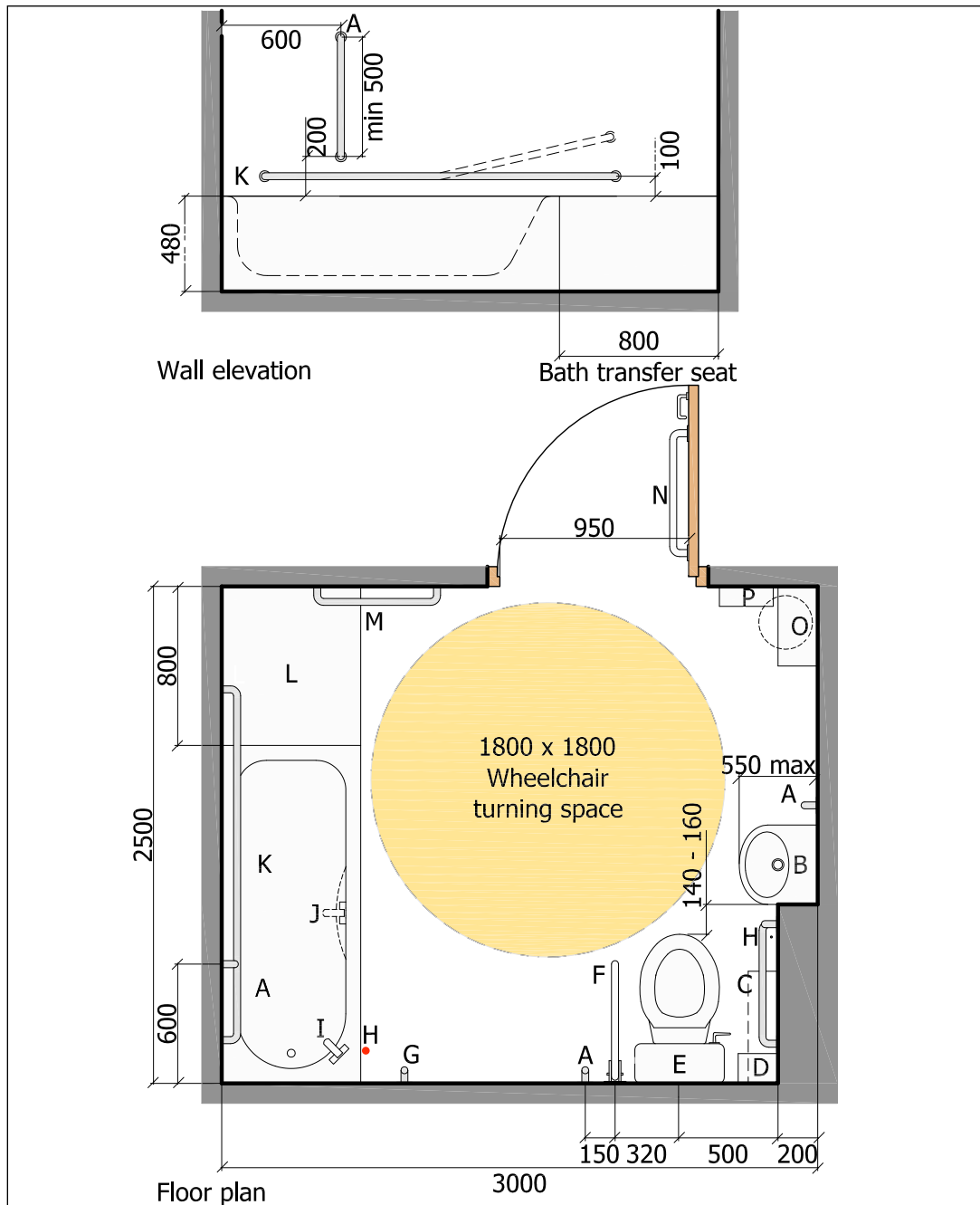
A bathroom incorporating a corner arrangement WC, washbasin, and bath, designed for independent use, should have recommended dimensions of 3000mm wide x 2500mm long. The recommended layout is illustrated in [Figures 5.14](#). This arrangement is suitable as an en-suite bathroom in hotel and residential accommodation and in buildings, such as sport and leisure centres where bathing facilities are provided as an alternative or in addition to shower rooms.

The bath should have a pop-up plug operated by a lever integral to the mixer tap, or a self-locating plug on a chain. Either type should be usable by people with limited manual dexterity.

The bathroom incorporates a corner arrangement WC with a large washbasin set back from the side wall. Details of this arrangement are described above for accessible shower rooms with a corner arrangement WC – See [Figure 5.12a](#).

Grabrails and accessories, including towel rails, mirrors, clothes hooks, soap and paper dispensers should be provided as illustrated – See [Section 5.10](#).

Figure 5.14 Bathroom for independent use – part elevation and plan.



- A. Vertical grabrail \odot diameter 35mm
 - B. Washbasin with rim 720 - 740 high and clear knee space
 - C. Horizontal grabrail \odot diameter 35mm
 - D. 950 high shelf for colostomy bag
 - E. Flat-topped close-coupled cistern with back rest
 - F. Drop-down rail \odot diameter 35mm
 - G. Two clothes hooks within range 1050 - 1700
 - H. Alarm pull-cord \bullet
 - I. Mixer tap with vertical lever arm
 - J. Alternative tap location
 - K. Bath horizontal grab rail \odot diameter 35mm, may be partially cranked at no more than 13 degrees to horizontal
 - L. Bath seat transfer
 - M. Towel rail
 - N. Horizontal rail to assist door closing
 - O. Sanitary dispenser with controls between 750-1200
 - P. Shelf for personal items, size 200-400
- Note: All dimensions in millimetres



Checklist – Bathroom for independent use

- Ensure recommended room dimensions of 3000mm x 2500mm.
- Consider detailed room layout as **Figures 5.14**.
- Install suitable bath with transfer seat.
- Ensure bath taps are within reach.
- Install plug that is easy to operate.
- Consider corner arrangement WC, as checklist above.
- Include larger washbasin with lever taps and a plug.
- Use suitable accessories, including towel rail, clothes hooks, and mirror.

5.8 Changing Areas

In buildings such as swimming pools, sports centres and pavilions, entertainment arenas, and some back-stage areas in larger theatres, shower and changing facilities should be provided. These facilities should be designed to be accessible and easy to use by all people. The overall provision and design should adopt the principles of universal design and offer choice by including both private and communal areas, and facilities suitable for family groups and children.

All facilities should be clearly identified and located on accessible routes.

Accessible shower and changing facilities should be provided in single-sex accommodation. Unisex accessible changing and shower facilities should be provided to enable a person to be accompanied or assisted by a person of the opposite sex. Unisex accessible facilities should preferably be located adjacent to single-sex changing and shower areas, subject to being easily accessed from the central reception or circulation area, and with convenient access to the sport and leisure areas they serve.

Checklist – Changing areas

- Ensure changing facilities are clearly identified.
- Locate changing areas on accessible routes.
- Provide an appropriate range of facilities to suit all building users.



5.8.1 Self-contained accessible changing area

A self-contained accessible changing area should have the recommended dimensions of 2300mm x 2500mm and a layout as illustrated in [Figure 5.15](#). Where more than one accessible changing area is provided, the layout should be reversed to provide a choice of left- or right-hand transfer.

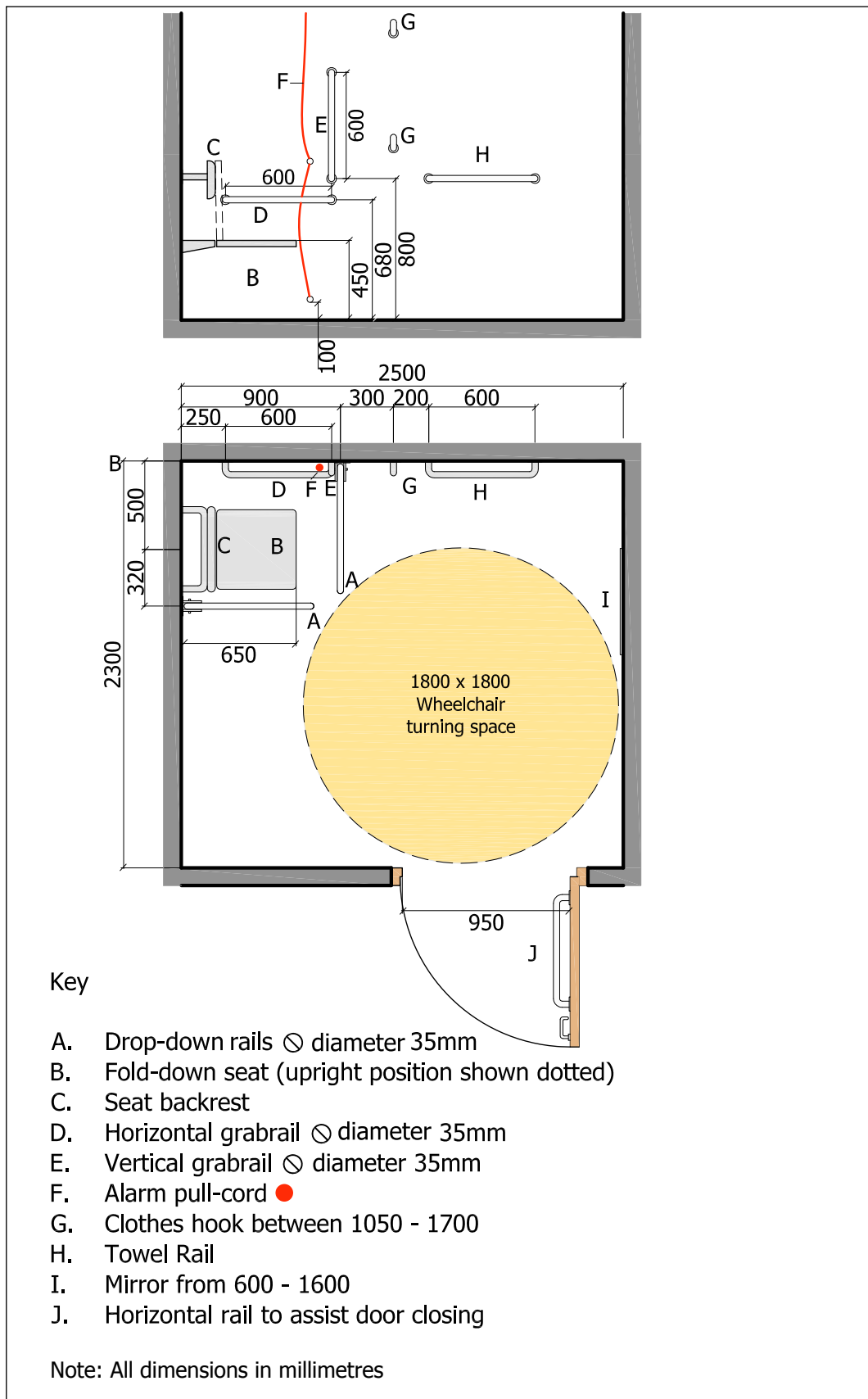
The changing area should provide sufficient space for a person to manoeuvre and transfer to and from a fold-down seat and, when required, into a waterproof wheelchair, which may be required to access shower facilities, poolside or other wet areas in a leisure complex.

Water troughs along a route (to wash the feet of swimming pool users, for hygiene reasons) are not accessible. An alternative entrance from the changing area to the poolside for wheelchair users and those with mobility difficulties should be arranged.

The fold-down seat should be padded, have an integral or separate backrest, and be securely fixed to the wall. Seats with hinged front legs should be avoided as the legs may prevent a wheelchair user from manoeuvring easily within the room. Seats should be checked and tested regularly to ensure the fixings are secure and that the seat is weight-bearing.

Fixed and drop-down horizontal and vertical grabrails should be provided to offer support, in the locations shown in [Figure 5.15](#). Drop-down rails should be designed to be held in the upright position when not in use, but be easy to release when required. Drop-down rails without vertical support struts are preferred so that the struts do not impede movement around the room. If struts are required to provide the necessary strength, they should be set back at least half the length of the grabrail when in the horizontal position.

Figure 5.15 Self-contained accessible changing area part elevation and plan.





Checklist – Self-contained accessible changing area

- Ensure recommended room or cubicle dimensions of 2500mm x 2300mm.
- Consider detailed layout as **Figures 5.15**.
- Employ handed layouts where more than one changing area is provided.
- Provide suitable fold-down seat.
- Ensure grabrails and drop-down rails are correctly positioned.
- Use suitable accessories, including towel rail, clothes hooks and mirror.

5.8.2 Communal changing and shower areas

Communal changing and shower areas are acceptable to many people, but not to all, and optional private facilities should always be available.

Open poolside shower stalls provided for showering before and after entering the pool should be accessible to all swimmers. (These showers are provided to promote good pool hygiene rather than full body-washing, hence the open arrangement.) Access to the showers should be level, with a gradient of 1:50 to ensure effective water drainage within the shower area. A 1800mm diameter turning area for wheelchair users should be accommodated, away from the main poolside circulation area. A fold-down seat and grabrails should be provided adjacent to one of the shower heads to provide support. Shower controls should be positioned between 750mm and 1200mm.

Accessible facilities should be provided within single-sex changing and shower areas to provide choice and flexibility in use. The guidelines detailed previously for self-contained accessible changing and shower facilities should be followed. For example, where individual changing or shower cubicles are provided within the male and female changing areas, these should include accessible changing and shower cubicles.

Benches, seats and clothes hooks should be provided in changing rooms for people to sit whilst changing, and to store and hang clothes. Some waterproof chairs with backs and armrests should be provided in addition to bench seats, and

there should be sufficient floor space available for people to be able to use and position chairs to meet their needs. Seats should be available for use adjacent to mirrors and hair dryers.



Checklist – Communal changing and shower areas

- Provide private areas for showering and changing in addition to communal facilities.
- Ensure poolside showers are accessible to all swimmers.
- Position shower controls within reach of all users.
- Install a well-drained, non-slip, level floor surface.
- Locate accessible shower and changing areas within single-sex facilities in addition to unisex facilities.

5.9 Dwellings

The guidance in this section applies to all new housing and to housing refurbishment wherever practicable. Housing constructed or adapted to meet the guidance in this section will provide sanitary facilities that are convenient for all householders and visitors to access and use; provide flexibility in relation to future adaptations; and offer more choice in terms of living accommodation.

The guidance does not cover housing adaptations to accommodate specific individuals with particular requirements and it may not meet the needs of people who require greater space for specialist equipment or for carers to assist with personal care needs.

5.9.1 Toilets

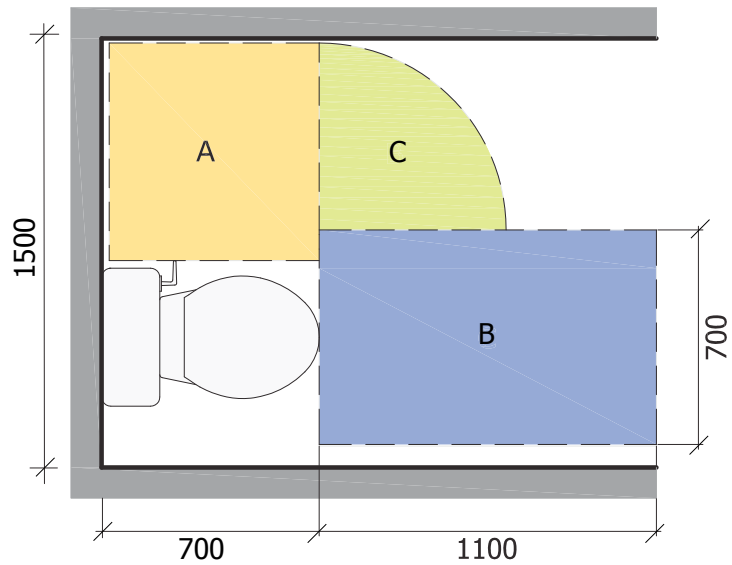
In dwellings, a toilet accessible to all occupants and visitors, including wheelchair users; parents with strollers; people with visual difficulties; and people using walking or mobility aids should be provided at the entrance level, or on a floor served by a platform lift or through-floor lift.

The toilet should incorporate an 1100mm long x 700mm wide clear space in front of the WC pan and be positioned so that the centreline of the WC is 500mm from one side wall and 1000mm from the other to facilitate a choice of transfer technique. This equates to an overall room size of 1800mm long x 1500mm wide, for WCs up to 700mm total projection from the rear wall. A washbasin should be positioned so that there is a clear zone for approach of 1100mm x 700mm. The room should have an outward-opening door so that the transfer and access zones are not obstructed by the door swing. The space allowances for toilets and possible room arrangements are illustrated in [Figures 5.16, 5.17 and 5.18](#).

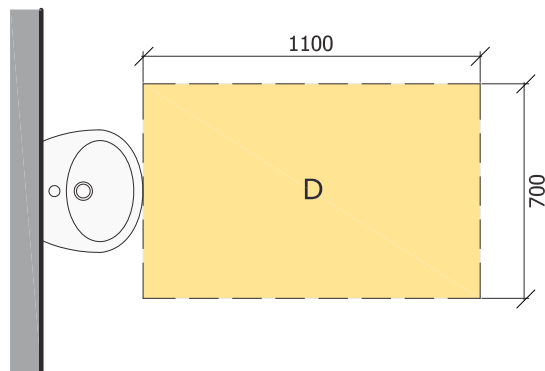
Wherever possible, outward-opening doors should open against an adjacent wall to minimise the risk of a person colliding with or being obstructed by the door.

[Figure 5.18](#) illustrates a toilet designed and equipped to facilitate the future installation of a level-access shower. This provides flexibility to occupants who may in the future be unable to use the stairs to access the principal bathroom or require level-access shower facilities in addition to a bath. The space for the shower should be at least 1000mm x 1000mm and the overall room size 1800mm wide x 2000mm long. Refer also to [section 5.9.2](#) below.

Figure 5.16 Domestic toilet space allowances.



- A. Transfer zone to side of WC to full depth of cistern and WC pan.
- B. 1100 x 700mm transfer zone to front of WC.
- C. Area to be kept clear of obstruction to allow easy access to side transfer area.
- D. 1100 x 700mm access zone to washbasin



Note: All dimensions in millimetres

Figure 5.17 Domestic toilet plan.

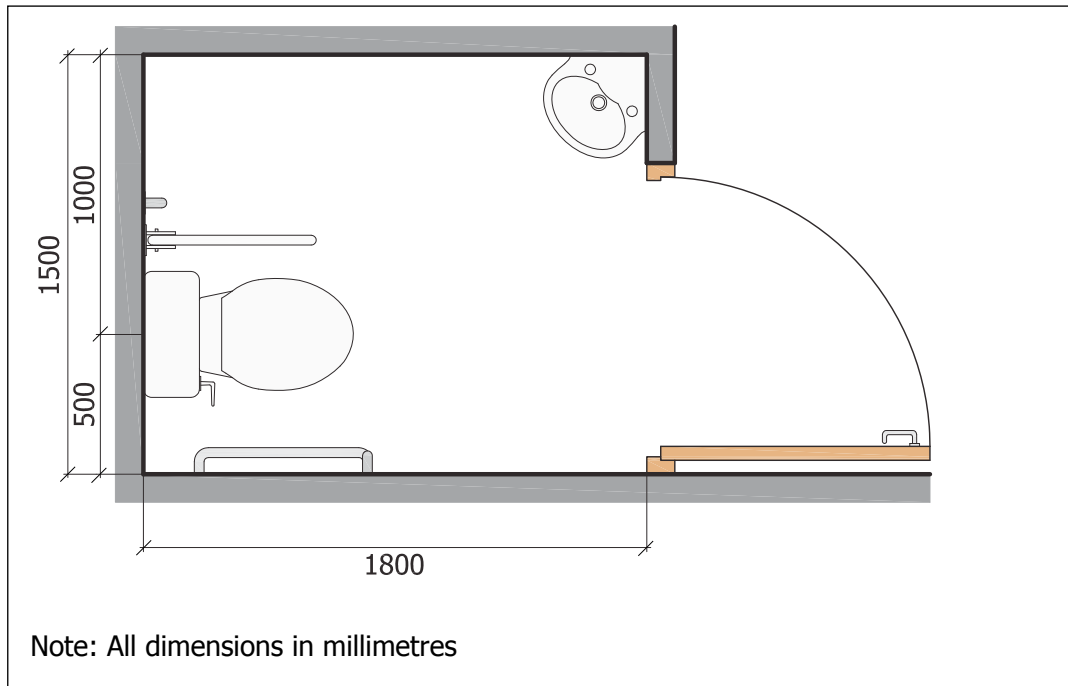
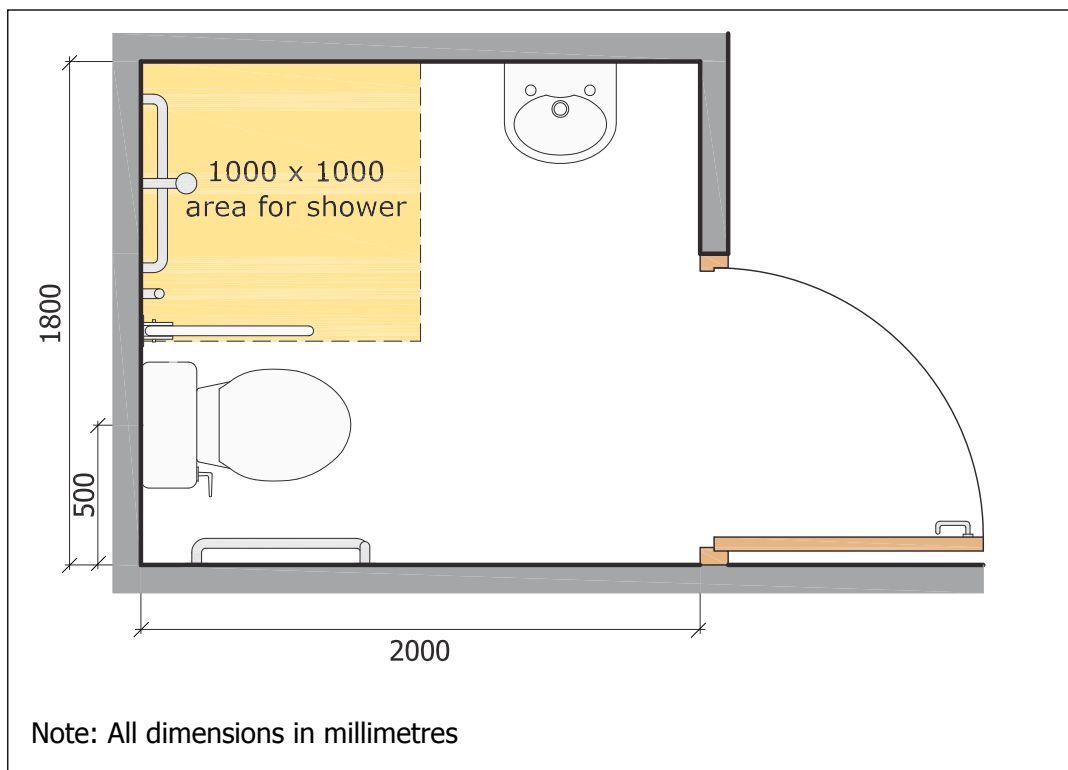


Figure 5.18 Domestic toilet and shower plan.

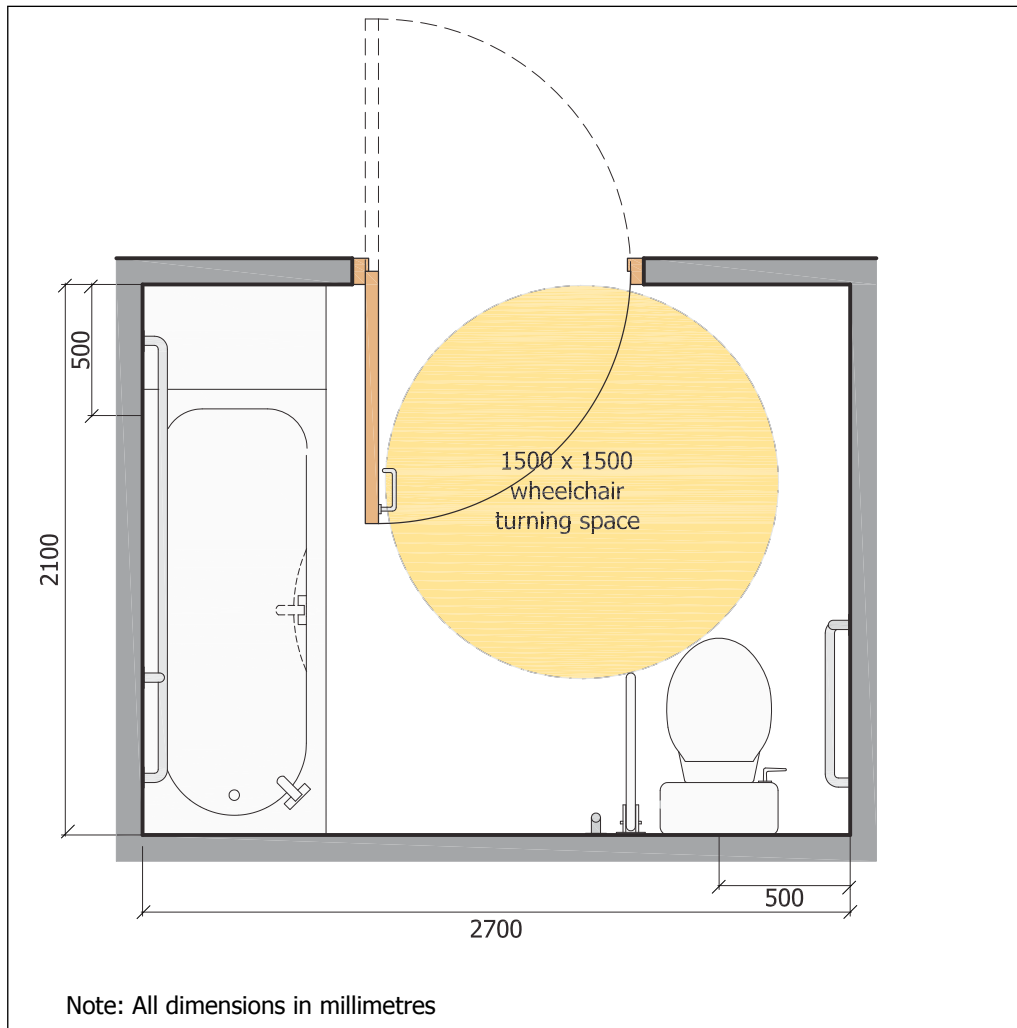


5.9.2 Bathrooms

An accessible bathroom should be provided in all new dwellings and dwellings that are being refurbished. It should not be assumed that because a bathroom is on a floor that is accessed by stairs, that access for wheelchair users can be disregarded. Some people with mobility difficulties may be able to use the stairs independently, with assistance, or following the installation of a stair lift, through-floor lift or platform lift, and then use a wheelchair or a mobility aid to move between rooms within any particular floor level. Providing a bathroom that is large enough for wheelchair users will make access easier for all occupants and visitors. The increased space afforded by an accessible bathroom will benefit many households, including families with young children.

Bathrooms should be 2100mm x 2700mm, with a layout as illustrated in [Figure 5.19](#). Where space allows, installation of both a bath and a separate shower should be considered.

Figure 5.19 Domestic bathroom.



An outward-opening door will maximise space within the bathroom. However, an inward-opening door and frame designed to facilitate easy future reversal is acceptable. The room or landing arrangement outside a bathroom should be carefully considered where outward-opening doors are proposed to reduce the risk of collision or obstruction. Sliding doors may be a suitable alternative to swing-doors. Please note further information on sliding doors in [Section 5.10.3](#).

Within the bathroom, a clear space 1100mm long x 700mm wide should be provided in front of the washbasin, to the front and side of the WC, and to the side of the bath to enable easy access and approach for a person using a wheelchair and to allow for a choice of transfer technique.

In new dwellings, provision should be made in the form of a designated area and below-floor drainage for the future installation of a level-access shower. The

shower could be installed within a toilet compartment, a bathroom, or in an adjacent storage or circulation space that can be easily converted. The space for a shower could be combined with the transfer space adjacent to the WC in a toilet compartment, as illustrated in [Figure 5.18](#), or in place of a bath in the principal bathroom. Level-access showers can be achieved by creating a wet room or by using a proprietary level-deck or recessed shower tray, as discussed in more detail in [Section 5.7.1](#) – See also [Figure 5.12a](#) and [5.12b](#).

All showers, including shower units positioned over baths, should have adjustable-height, detachable showerheads.

Controls to showers and baths may need to be offset to minimise the need for a person to stoop, bend or reach; and to ensure they are reachable by people of different heights. It should be possible to operate shower and bath controls before entering to set and test the water temperature. Controls should be easy to understand and should clearly distinguish between control of water volume and control of water temperature.

Washbasins in bathrooms should be large enough to facilitate full hand or body washing. They should provide a clear knee space underneath and be either wall-mounted or set into a vanity unit designed for seated approach. Washbasins with pedestals (including semi-pedestals) restrict access for people using wheelchairs and people who sit on a chair while using the washbasin. All pipes below washbasins should be concealed or protected where there is a potential for foot or leg contact.

All washbasins should be fitted with lever taps, with hot taps positioned on the left and cold taps on the right. The method of operation for all taps throughout a dwelling should be consistent.



Checklist – Domestic bathrooms

- Provide an accessible bathroom.
- Ensure recommended room dimensions and layout are followed, as **Figure 5.19**.
- Install inward opening doors designed for easy reversal.
- Ensure bathroom incorporates clear space requirements, as illustrated.
- Consider reinforced wall construction for installation of grabrails.
- Make provision for future installation of level access shower.
- Use detachable shower heads in all showers.
- Offset bath and shower controls.
- Install large washbasins with clear knee space.
- Use lever taps.
- Ensure consistent tap style throughout a dwelling.
- Conceal or protect all pipes.

5.10 Detailed Design

Guidelines for the design and provision of accessories and services common to all sanitary facilities are set out below. This section should be read in conjunction with guidance on the general provision and layout of sanitary facilities included in the booklet.

5.10.1 Assistance alarms

Assistance alarms provide a means of summoning assistance from outside the room and should be provided in accessible toilet, bathroom, shower room, and changing facilities designed for independent use. In unisex accessible toilets, a

pull-cord should be located where it can be reached from the WC and by a person who has fallen to the floor.

In accessible bathrooms and shower rooms, two alarm pull-cords should be provided; one positioned within reach of a person using the bath or shower and the other within reach of the WC. The cord within reach of the WC should also be reachable by a person who has fallen to the floor.

All alarm pull-cords should be coloured red and extend to within 100mm of the floor. They should have two red bangles, 50mm diameter, one at the end of the cord and one at a height of 800 to 1000mm.

Image 5.22 Example of alarm pull chord with two red bangles in a unisex accessible toilet – Left-handed transfer.



Once the alarm cord has been pulled, there should be visible and audible indication within the room that the alarm has been activated. Visible indication may be in the form of an indicator light adjacent to the reset button and audible indication in the form of a buzzer or alarm sounder. Any sounder within the room should be set at a level that will not cause discomfort.

Developments in alarm technology may introduce other methods of activating the alarm, such as continuous skirting-level bars or sensors.

Image 5.23 Example of a dado level panic strip. This may also be installed at skirting level.



Image 5.24 Example of the dado level panic strip in use.



A reset button should be provided within the room and be reachable from both a wheelchair and the WC. An additional reset button may be provided outside the room for use by the person responding to the call for assistance.

Image 5.25 Alternative view of the dado level panic strip in use.



A visual and audible indicator should be provided outside the room where it can be seen and heard by people able to respond. A remote indicator, for example, to a reception desk or warden's office, may be appropriate for some building types. The alarm indicator should be noticeably different to fire or other alarms.

Wherever assistance alarms are installed, procedures should be established to ensure that someone will respond and that the person or persons are trained in giving assistance.

5.10.2 Clothes hooks

Clothes hooks should be provided in all WC cubicles and in accessible toilets, bathrooms, shower rooms, and changing rooms. In WC cubicles, coat hooks should be positioned on the rear of the door or on the side wall behind the door when in the open position (for cubicles with inward-opening doors) where it is less likely to cause a head-height obstruction. The recommended positions for coat hooks in accessible toilets, bathrooms, shower rooms, and changing rooms are shown on the diagrams in the relevant sections.

Image 5.26 Example of door-mounted clothes hooks.



Two coat hooks should be provided in each location within the range 1050mm to 1700mm above floor level. The clothes hooks should contrast visually with the wall or door surface on which they are mounted.

5.10.3 Doors and locks

The doors to accessible toilets, shower rooms, and bathrooms should provide a clear opening of at least 950mm. Doors should generally open outwards so that the door swing does not encroach into the turning area inside the compartment, and so that the door can be opened easily in an emergency if a person has fallen against the door inside the room.

Outward-opening doors should be fitted with a horizontal grabrail on the inside to enable a person to pull the door shut behind them when entering the room. For safety reasons, it is imperative that outward-opening doors do not project into a route, in particular an emergency escape route.

If an accessible toilet, shower room or bathroom is sufficiently large, it may be acceptable to provide an inward-opening door. In this case, the door-swing should not encroach into the wheelchair turning or transfer area. An inward-opening door should be fitted with an emergency-release mechanism to enable the door to be opened outward in an emergency, for example, if a person falls against the closed door.

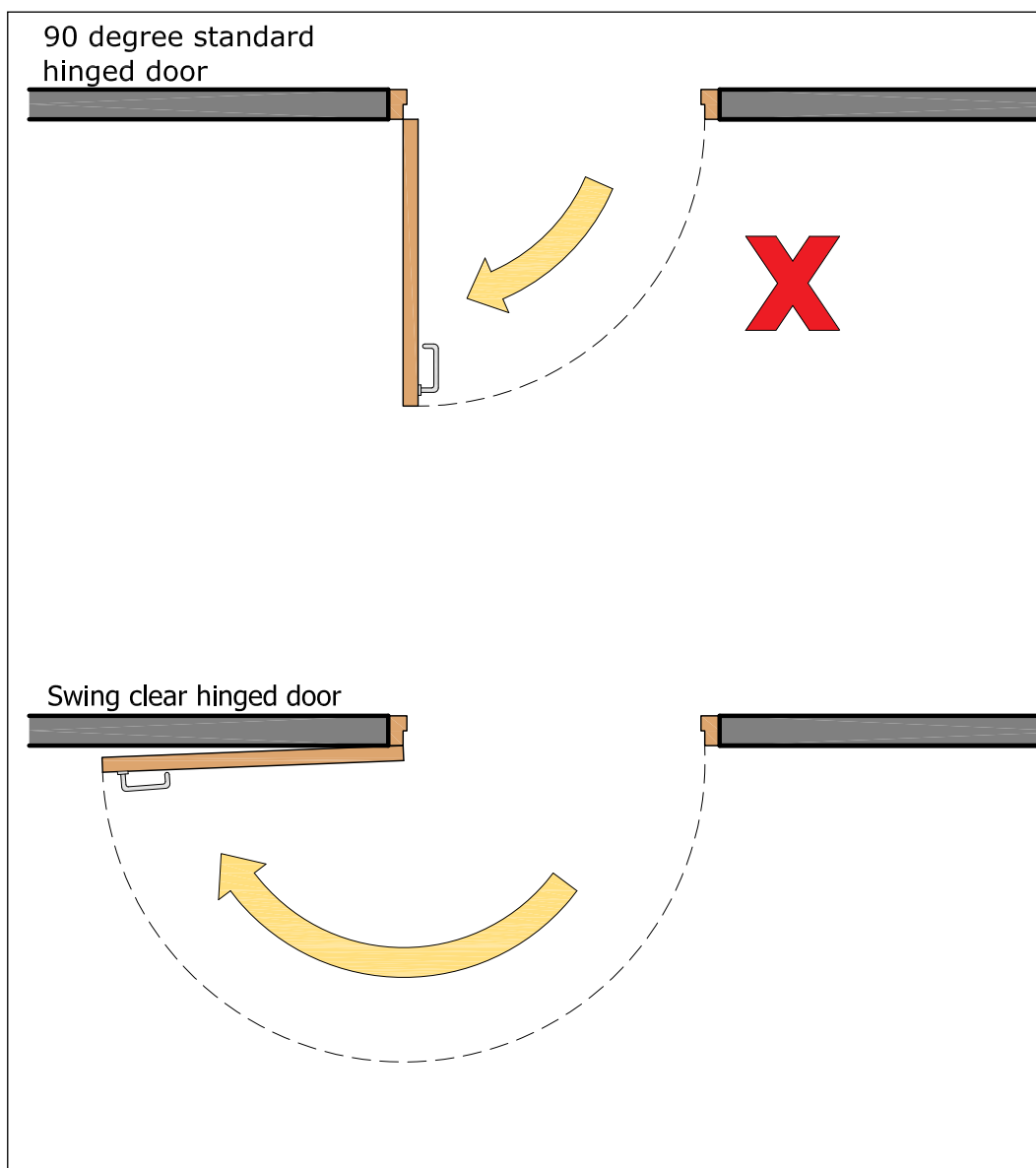
In exceptional circumstances where space is limited in existing buildings, a sliding door may be used to maintain the recommended dimensions of the accessible toilet compartment. A single-leaf, straight sliding door should be used with a recommended clear opening of 950mm. Projecting vertical pull handles should be provided to both sides of the door and the tracks should be recessed into the floor. It should be noted that sliding doors offer significantly less acoustic privacy than hinged solid core swing doors and this should be considered when considering the location of the toilet and adjacent facilities. Sliding doors are also harder to operate than swing doors due to the sideways push/pull action required.

Swing-clear hinges (also termed projection hinges; see [Figure 5.20](#)) could be considered as a means of maximising the door clear opening width. These hinges align the door leaf with the door stop when open to 90 degrees, thereby increasing the opening width by the door thickness. This type of hinge positions the door leaf, and consequently the horizontal grabrail and other handles, further away from the opening and the person operating the

door, which may be a disadvantage. In such circumstances, the horizontal grabrail may have to be positioned close to the hinge-side of the door leaf.

Swing-free hinges, due to their size and shape, project away from the door leaf and frame on the opening side of the door. They should only be considered where there is no chance of a person hitting the projecting part of the hinge, such as where the door is approached in a sideways direction.

Figure 5.20 Swing-clear hinges.



Door handles should be a lever type, as these are easier for people with reduced manual dexterity to operate. Twist type and knob handles should never be used as these are very difficult for many people to grip and operate. Pull handles

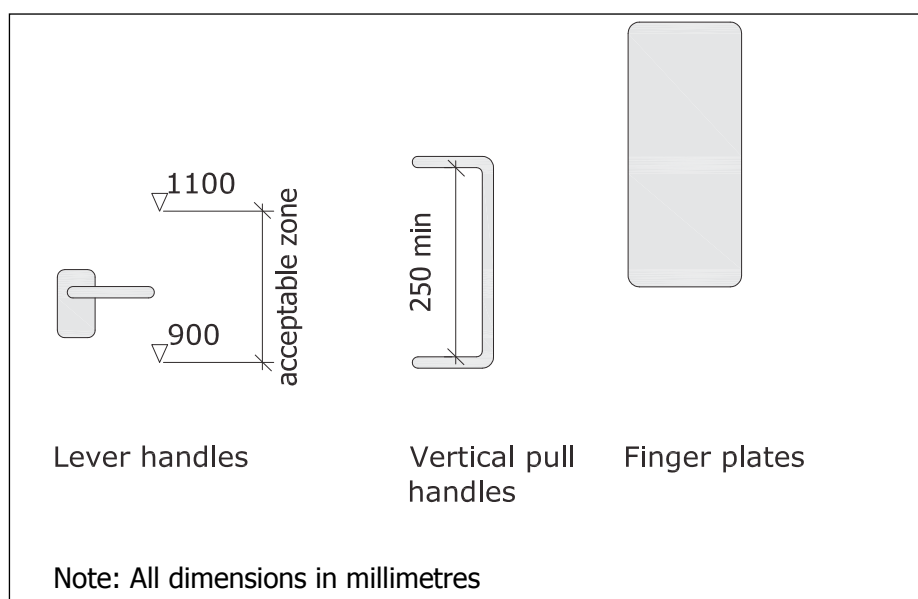
should be avoided unless they are supplementary to lever handles as they are difficult for some people to grip and pull whilst operating the locking mechanism.

Image 5.27 Example of a lever door handle.



Locks should be easy to operate with one hand and without the use of fine hand movement, and should be positioned 800 to 1000mm above floor level. Locks should be easy to operate by a person with reduced manual dexterity. Swing-lever or winged-turns are preferred. Locks should incorporate an emergency override to enable the lock to be released from outside. **Figure 5.21** shows the dimensions of door furniture.

Figure 5.21 Door furniture.



Locks should incorporate a mechanism to indicate whether the cubicle or compartment is occupied or not. This should comprise the words 'vacant' and 'occupied' and be supplemented by a change in colour. Indicators offering only a colour change should be avoided as these are difficult for some people to interpret. It is a common but simple mistake for locks to be fitted with the indicators in the opposite position, showing 'occupied' when in fact the cubicle is vacant and vice versa. This can cause confusion and unnecessary delays in busy toilets.

Image 5.28 Example of a door lock.



Further detailed guidance on doors and door ironmongery is given in **Booklet 2: Entrances and horizontal circulation**.

5.10.4 Fire alarm

In buildings fitted with fire alarms, a visible and audible indicator should be provided in all single-sex toilets, accessible toilets and self-contained bathroom, shower rooms and changing areas. Visible alarm indicators are particularly important in these areas as a means of alerting people with hearing difficulties in the event of a fire or other emergency.

Further detail on alarms is included in **Booklet 4: Internal environment and services** and in the NDA publication 'Safe evacuation for all'.

5.10.5 Grabrails

Grabrails offer support and stability to a person using sanitary facilities, for example, while sitting down and standing up, transferring to and from a wheelchair, and whilst adjusting clothes.

Grabrails should be tubular, with a diameter of 32 to 35mm, and a clearance of 50 to 60mm to the wall (see [Figure 5.22](#)). They should have a surface that provides a good grip when wet and contrast visually with the surfaces against which they are viewed. Grabrails are weight-bearing and should be firmly fixed to the wall. The wall construction should be selected or modified to adequately support the grabrails and to allow for possible future relocation in situations where the sanitary facilities are provided to meet individual needs.

Figure 5.22 Grabrails.

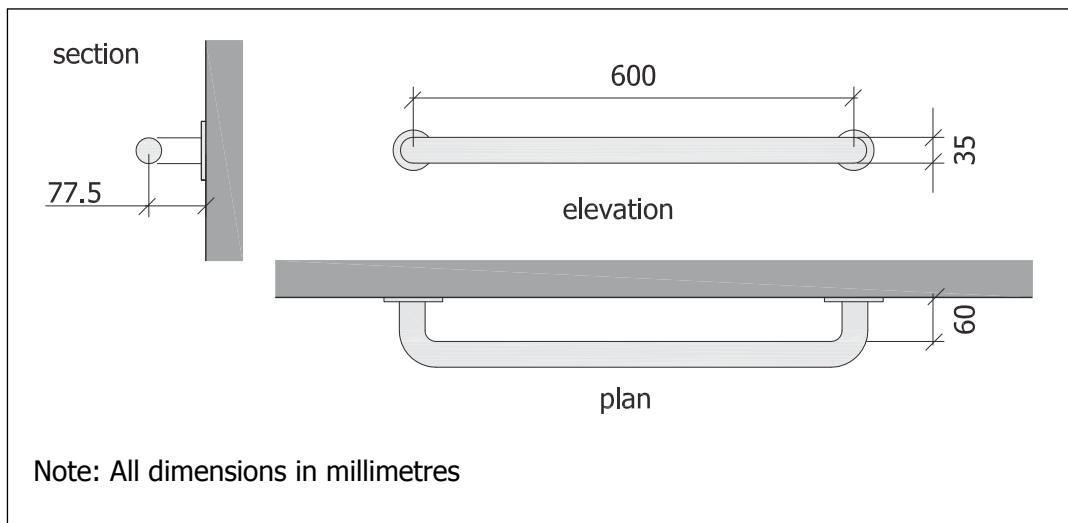


Image 5.29 Example of door-mounted grabrail.



5.10.6 Hair dryers

Hair dryers should be positioned where they can be used by people in either a seated or standing position, or, if a number of hair dryers are provided in a changing area, they should be provided at a range of heights. Any switches or controls should be easy to operate and within reach of all users. Where hair dryers are coin-operated, the coin slot and any other control should be positioned between 750mm and 1200mm above floor level. Seats should be available for use in conjunction with a hair dryer and there should also be space for approach for a wheelchair user. A suitably positioned mirror should always be provided in conjunction with each hair dryer.

5.10.7 Hand-drying facilities

Hand-drying facilities should be provided in close association with washbasins. Wherever automatic hot-air dryers are provided, it is preferable for an alternative to be available, such as paper towel dispensers.

In larger single-sex washrooms where there are multiple automatic hot-air dryers in use simultaneously, the resultant noise level can be excessive. This may cause anxiety for some people and in general terms makes the washroom less pleasant to use. Where automatic dryers are used, the number, style, and position of units should be carefully considered, together with any practical measures to minimise noise levels.

Image 5.30 Example of automatic hot-air dryers at various height levels.



In accessible toilets, and in bathroom and shower rooms with corner arrangement WCs, a paper towel dispenser should always be provided within reach of the WC. The dispenser should be easy to use with a single hand and by people with limited manual dexterity and reduced hand and arm movement. If automatic hot-air dryers are provided in these rooms, they should be supplementary to paper towels and be located on the opposite side of the washbasin to the WC.

The underside of paper towel dispensers and automatic hand dryers should be within the range 800 to 1200mm above floor level so that they are suitable for people of different heights.

5.10.8 Heating

The need for a heating device within any individual toilet, bathroom, shower or changing room will depend on the overall layout of the building and centralised heat source. If required, wall-mounted room heaters, such as radiators should be positioned where they will not obstruct the transfer or manoeuvring space.

Heaters should not be positioned on the same wall as the WC, under the washbasin or hand dryer, or on the wall opposite the washbasin. Wherever possible, radiators should be recessed into the wall or the room size increased to accommodate the depth of the radiator.

Any exposed surface of a heating device should not exceed 40 degrees (C) or should be screened to prevent the device being touched. Low-surface-temperature radiators are recommended.

5.10.9 Lighting

A general lighting level of at least 200 lux should be provided in toilet facilities. Changing and shower areas should have a lighting level of 200 to 300 lux. (The general lighting level may also be termed 'maintained illuminance'.)

For safety reasons, wall-mounted rocker switches should not be located inside toilet compartments. If individual room control is required, this should be operated by a pull cord, which should extend to between 900 and 1200mm above

floor level and be positioned 150mm from the leading edge of the door when in the closed position.

Automatically operated lights are recommended as they avoid the need for a person to identify and operate a switch and carry additional environmental benefits by ensuring lights are not left on unnecessarily. If provided, automatically operated lights should always be linked to a back-up lighting source so that people inside a toilet compartment are not left in the dark if the primary system fails. Timing devices should be set to take account of the length of time people are likely to take to use the facilities.

It should not be possible for a person to switch off a light from outside whilst the room is in use, for example, by locating a rocker switch on the wall outside the door. Again, this is to prevent people inside a toilet, shower room, or changing room from being left in the dark.

Ultraviolet lighting, which is sometimes used in toilet facilities to deter drug use, should not be used in accessible toilets. This type of lighting can present difficulties to people including those who are diabetic and those who need to change colostomy bags.

5.10.10 Lockers

Lockers should be provided in changing areas and be accessible, understandable, and useable to all sport and leisure participants. They should provide adequate security and suitable storage for clothes, bags, shoes, valuables, and other personal items, and include space to hang clothes on coat hangers. Lockers should be conveniently located in relation to changing and shower facilities and be positioned with sufficient clear space in front to enable people to approach and open the locker doors without obstructing circulation routes or being obstructed themselves.

Accessible lockers should have dimensions of 300mm wide (recommended) x 600mm deep (maximum) x 1200mm high, with the base between 400 to 800mm above floor level. Some larger lockers should be available to store items, such as sticks, walking frames, crutches, or artificial limbs.

Locker doors should be designed to swing shut after use so that they do not present an obstruction or hazard. However, any spring mechanism designed to close the door should not make it awkward for lockers to be filled.

Locks and key fobs should visually contrast with the locker door and be easy to operate. Any numbering or coding system should be easy to follow and include large tactile letters or digits.

5.10.11 Mirrors

In single-sex toilets, mirrors should be provided to suit people of different heights.

Mirrors should be positioned where they will not cause confusion by seeming to distort the size or configuration of a room. Full-height mirrors should be avoided as they may be perceived as a wall opening.

Image 5.31 Example of mirror located on opposite wall to washbasin in accessible WC.



In an accessible toilet, a mirror is recommended to be positioned on the wall opposite the washbasin and extend from 600 to 1600mm above floor level.

If the soap and paper towel dispensers are positioned correctly directly above the washbasin, it may not be possible to also provide a mirror in this location.

If a mirror is provided above the hand-wash accessories, it should extend 1600 to 1800mm above floor level and be tilted forwards so that it can be viewed by people of different heights, including children and people using wheelchairs.

5.10.12 Shelves

Two shelves should be provided in accessible toilets: one 950mm above floor level adjacent to the WC for people standing who need to change colostomy bags; and the other 700mm above floor level, size 200mm x 400mm, on the opposite side of the washbasin for personal effects. See [Figure 5.7](#), [5.8](#) and [5.9](#) for room layout illustrations for position details. In accessible shower areas – See [Figure 5.11](#), [5.12a](#) and [5.12b](#), a ‘wet’ shelf should be provided for toiletries and personal items and be positioned within reach of the fold-down shower seat and a wheelchair.

5.10.13 Signage

Sanitary facilities should be clearly identified. People who have difficulty communicating may prefer not to have to ask directions and should be able to rely on signage to identify the location of suitable toilet facilities. The location of alternative or additional facilities should be clearly identified. This is particularly relevant, for example, where alternate handed accessible toilets are available in another part of the building.

Image 5.32 Example of signage for sanitary facilities.



Image 5.33 Example of signage – Single-sex accessible toilet.



Toilets should be clearly identified using symbol signs as these are universally recognisable. Symbols should contrast visually with the background and mounting surface. Tactile signs will assist people with visual difficulties. Where more than

one accessible WC is provided, the choice of handing arrangement should be indicated with a pictogram that can be read visually and by touch (touch-legible pictogram).

Unisex accessible facilities should be identified using the international symbol for access and symbols indicating use by males and females.

Toilet facilities suitable for persons with mobility difficulties should not be identified with the international symbol for access.

5.10.14 Soap dispensers

Wall-mounted soap dispensers should be positioned directly above the washbasin, a shelf, or counter so that it does not drip on the floor where the soap may present a slip hazard. Dispensers should be operated by a large pull lever as these are easier to use by people with limited manual dexterity and reduced hand or arm movement.

In accessible toilets, the soap dispenser should be positioned so that a person can wash their hands whilst seated on the WC - See [Figure 5.7](#), [5.8](#) and [5.9](#).

5.10.15 Surfaces

Floor surfaces in all sanitary accommodation should be firm, level and slip-resistant when wet and dry. Shiny surfaces should be avoided as they are a potential source of glare and reflection which can cause discomfort and confusion to people with visual difficulties. Some people may perceive shiny floor surfaces to be wet even when they are dry and this can cause anxiety and difficulty in accessing facilities.

Floor, wall and door surfaces, sanitary appliances, grabrails and other accessories should be easily cleaned and should all contrast visually to aid identification by people with visual difficulties and people who do not have their glasses or contact lenses, which may often be the case in changing, shower room and bathroom facilities.

Further detail on surface finishes is included in **Booklet 4: Internal environment and services**.

5.10.16 Toilet paper dispensers

Toilet paper dispensers should be positioned within easy reach of the WC and usable by a person in either a seated or standing position. They should be easy to use with a single hand, and by people with limited manual dexterity and reduced hand and arm movement. If roll-type dispensers are used, they should incorporate a lock/pull mechanism to cut the roll at the required length. Alternatively, single-sheet dispensers may be used.

Large industrial dispensers should be avoided as the roll often gets trapped inside the dispenser making them difficult to use and they are difficult to position without causing an obstruction.

In WC cubicles in single-sex toilets, the toilet paper dispenser should be positioned so as not to obstruct door opening or the activity space between the WC and door-swing.

Building management may require dispensers to be lockable to avoid theft. When dispensers are refilled and locked, care should be taken to ensure the paper is not trapped or overfilled as this can make them difficult to use.

5.10.17 Vending machines

All vending machines should be easy to use and clearly visible. Controls should be usable by people with visual difficulties and incorporate effective visual contrast, along with clear and well displayed instructions including information in Braille. Machines should be mounted so that any buttons or coin slots are positioned between 750mm and 1200mm above floor level. There should be a recommended 450mm clearance from the floor to the underside of the unit.

Where facilities such as female sanitary products, condom, and other vending machines are provided in single-sex toilets, they should also be provided in unisex accessible toilets. However, care should be taken to ensure that they do not

encroach into the turning and transfer area of the WC or obstruct access to other facilities.

5.10.18 Waste disposal

General waste bins should be provided in single-sex toilets, accessible toilets, bathrooms, shower rooms, and changing areas. They should be positioned where they will not obstruct wheelchair turning and transfer areas. Bins with lids should be easy to operate, and bins should contrast visually with the surrounding surfaces.

A bin for the disposal of sanitary waste items should be provided in all toilets, including unisex accessible facilities. In female toilets, a sanitary disposal bin should be provided in each WC cubicle and should be positioned so as not to obstruct door opening or the activity space between the WC and door-swing. In accessible toilets, the sanitary disposal bin should be positioned between the WC and nearest side wall where it will not obstruct the wheelchair transfer area and not encroach on the seating area so someone can sit comfortably on the WC seat without touching the bin. The bin should be easy to operate and with an opening large enough for incontinence pads as these are larger than sanitary towels.

5.10.19 Water supply

The water supplied to washbasins should not exceed 40 degrees (C) for safety reasons. The water pressure supplied via the tap should be adjusted so that the water does not spray or splash the person or adjacent surfaces. A plug should be provided to enable the washbasin to be filled with water of the desired temperature.



Checklist – Bathroom and toilet detailed design

Assistance alarms

- Provide assistance alarms in all accessible toilets, bathrooms, shower rooms, and changing rooms designed for independent use.
- Position pull-cord in accordance with the detailed diagrams.
- Ensure use of correct cord length with two red bangles.
- Include visible and audible indication within the room that alarm has been raised.
- Include visible and audible alarm outside the room.
- Locate reset button in appropriate location.
- Ensure personnel are trained in providing assistance.

Clothes hooks

- Provide in locations and at height as indicated on detailed diagrams.
- Ensure they visually contrast with the mounting surface.

Doors and locks

- Ensure clear door opening of 950mm.
- Provide outward-opening doors to accessible facilities.
- Ensure outward-opening doors do not obstruct emergency escape routes.
- Fit horizontal rails to outward-opening doors.
- Fit inward-opening doors with emergency-release catches.
- Use lever-style door handles.
- Ensure locks are easy to operate.
- Ensure lock indicators are correctly fitted.

Fire alarm

- Provide visible and audible indicator in all sanitary facilities.



Grabrails

- Ensure grabrails are correctly positioned in accordance with detailed diagrams.
- Use tubular rails, 32 to 35mm diameter.
- Use suitable surface to provide a good grip when wet.
- Ensure all grabrails are firmly fixed to wall.

Hair dryers

- Position hair dryers for use in sitting and standing position.
- Ensure controls are within reach of all users.
- Provide seating.
- Provide space for approach by wheelchair user.
- Install mirror adjacent to each hair dryer.

Hand-drying facilities

- Position hand-drying facilities convenient to washbasins.
- In accessible WCs, shower rooms and bathrooms, position hand-drying facilities within reach of the WC.
- Install alternative paper or towel facilities to supplement hot-air dryers.
- Limit excessive noise levels generated by multiple hot-air dryers.

Heating

- Ensure room heaters are positioned away from transfer and manoeuvring space.
- Ensure surface temperature of heaters does not to exceed 40 degrees C.

Lighting

- Provide adequate lighting levels.
- Install back-up lighting source to supplement automatic lights.
- Ensure adequate timing on automatic lights.
- Make sure pull-cords are suitably positioned.
- Avoid the use of ultraviolet light in accessible toilets.



Lockers

- Position lockers in an accessible location.
- Install a range of sizes and heights.
- Ensure locker doors are easy to use.
- Ensure locks and key fobs are easy to operate.
- Use a clearly identifiable numbering system.

Mirrors

- Position mirrors in all WCs and changing areas at a suitable height.
- Avoid full-height mirrors and mirrors that may appear to cause confusion.

Shelves

- Provide shelves in accessible WCs, shower rooms, and bathrooms in accordance with the detailed diagrams.

Signage

- Ensure sanitary facilities are clearly identified.
- Use symbol and tactile signs.
- Ensure handed layouts can be identified by touch-legible pictograms.

Soap dispensers

- In single-sex toilets, position soap dispensers within reach of the user.
- In accessible WCs, position dispensers within reach of a person seated on the WC.
- Position dispensers so as not to drip on floor.
- Ensure dispensers are easily operated by a pull lever.

Surfaces

- Install firm, level, and slip-resistant floors.
- Avoid shiny surfaces.
- Employ effective visual contrast throughout.
- Ensure attractive interior design.



Vending machines

- Provide vending machines equitably in unisex facilities and single-sex toilets.
- Install at a suitable mounting height
- Follow clear operating instructions.

Waste disposal

- Provide sanitary waste disposal units in all toilets.
- In accessible toilets, position sanitary waste bins between WC and near-side wall.
- Ensure disposal units are easy to operate and large enough for incontinence pads.
- Ensure bins for general waste are suitably positioned and easy to identify.

Water supply

- Incorporate temperature control so as not to exceed 40 degrees (C).
- Ensure water supply pressure is adjusted appropriately.
- Ensure washbasins are fitted with plugs.

A1 Definition of Universal Design

Universal Design

‘Universal Design refers to the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people, regardless of their age, size, ability or disability.’

Synopsis of the Disability Act, 2005.

A2 Human Abilities and Design

The following piece of text is an extract from European Ref: CEN/CENELEC Guide 6 ‘Guidelines for standards developers to address the needs of older persons & persons with disabilities’.

It states that: Physical, sensory and mental abilities vary from person to person and for individuals as they get older. Diversity is normal. Designers need to be aware of difference across the range of human abilities, and of associated design considerations.

(a) Physical abilities

This includes walking, balance, handling, pulling, pushing, lifting and reaching. Many activities involve simultaneous use of more than one of these skills. Physical strength and stamina may also affect people’s abilities to perform these actions.

Walking

For some people walking on the level or up gradients is difficult. Some people may have a limited walking range, may have difficulty with turning movements or may use mobility devices, such as crutches or a walker. They may need to stop frequently, to regain strength or catch breath. Design considerations include provision of handrails, seats at regular intervals, convenient set-down parking and adequate time for slower pedestrians at road crossings. Designers should also consider the needs of people walking and engaging in sign language when designing access to and from buildings plus within the buildings themselves.

Balance

Balance limitations can affect someone's gait or control of hand movements. Design considerations include handrails, regular seating, and providing controls within easy reach. A surface against which a person may stumble against or walk into should be designed to limit abrasion.

Handling

A significant minority of people are left-handed. Some people may have restricted use or no use of one or both hands, or may have limits on strength or precision. Facilities and components should be designed to be suitable for use with either hand or with one hand only. Handling includes gripping, grasping and manipulation. Each of these has a different purpose with specific design considerations. For instance, components should be designed to be easily held. The circumference of the supporting structure and stability are critical. Manipulation involves the moving, turning and twisting of components with a hand or hands. For those who have limited manipulation abilities, size and shape and ease of movement are critical. Another option to consider is to design for manipulation by using a pushing, pulling or pressing action using a clenched fist, or by using the wrist or the elbow.

Strength and endurance

Strength and endurance may be required on sloping paths and floors, stairways and long travel distances, when sustained effort may be needed.

For those with limited endurance, frequent resting-places are essential.

People generally find it easier to push a component, than to pull it. This is particularly so if the individual uses a wheelchair. Self-closing devices on manual doors can be difficult for some people to operate, particularly if the doors are required to resist wind forces. For these reasons, doors that open and close automatically are preferred.

Lifting

Activities such as opening vertically sliding sash window and an upward opening access gate, should be designed to be easily operated with minimal force.

Reaching

Design has a role to play in ensuring that key components in a building or environment are in easy reach, bearing in mind the range of people's sizes and abilities. Having components within easy reach is particularly important for those with more severe limitations in mobility. The reach range is dependant on the height and arm length of the person, use of the arms, and the balance and mobility of the upper body. A 'comfortable reach range' has been defined as one that is appropriate to an activity that is likely to be frequent and in need of precise execution and that does not involve stretching or bending from the waist. Putting things within comfortable reach can ensure use by a greater number of people. An 'extended reach range' has been defined as one that is appropriate to an activity that is likely, neither to need precision nor to be frequent and that can involve stretching or bending from the waist.

(b) Sensory abilities

Speech

Some conditions affect the capacity for or quality of speech. Two-way communication can be facilitated by environments designed to minimise barriers to hearing low or indistinct speech.

Hearing

People differ in their capacity to hear sound, to determine its direction, its source, to discern pitch, frequency, volume and variation and to separate out different sounds. Hearing quality is important for communication, for information,

and for detection of hazards, such as traffic. Many people with hearing difficulties use a hearing aid which amplifies all sounds caught by the microphone, making communications very difficult in noisy environments. Keeping background noise level low is essential. The selection of structural and surface materials can make a substantial difference in audibility. Auditoriums, meeting rooms and reception areas can benefit from additional sound enhancement such as a loop system. The careful design of illumination can assist in communication such as lip reading and sign language. Provision of visual information and visual alarm systems can communicate information to those who have hearing difficulties or who cannot hear. Designers should also consider the colour and size of rooms and even the furnishing arrangement as this is very important for visually based communication. Also the use of vibration as means of sensing others should be considered.

Sight

Vision allows an individual to be aware of the luminance of surfaces, objects, form, size and colour. For people who are blind or who have visual difficulties, the provision of suitable tactile walking surface indicators and tactile or acoustic warnings at hazardous locations, should provide information on using the built environment and should limit the risk of injury. The built environment can be designed for orientation by providing sound cues and tactile cues. An easily discernible system of 'way finding' should also be considered. For people with limited, but low vision, effective visual contrast between surfaces or objects helps to identify critical locations. Warning markings on glass surfaces, and markings on the edges of stair treads, help minimise hazards.

Differences in friction between one floor surface, or one stair tread surface, and the next should be avoided. Therefore, adjacent surfaces that display different standards of slip-resistance, or that depend on raised surfaces, should be carefully considered

Touch

In selecting surfaces in the built environment that people will need to touch (such as handrails, handles, knobs and controls, tactile information), it is important to select materials that avoid distress, injury or allergies. Surfaces should be free of abrasions. Metals that may cause adverse reactions when touched should be avoided.

(c) Mental abilities

Mental abilities include cognition, intellect, interpretation, learning and memory. People differ in their knowledge, their capacity to understand, reason, or interpret information. Designing for differences in these capacities helps provide a usable environment for the population at large, from the very young to the old, and people of diverse abilities. Means of communication in the environment should be designed to be immediately and easily understood, and correctly interpreted. As people age, some experience loss of memory or find it increasingly difficult to absorb new information, so changes in the environment should be carefully considered before implementation.

Design considerations that take account of mental abilities

Aural and visual messages should be simple, clear and have immediate impact. Figures, symbols and simple words are likely to be the most effective. Symbols should be instantly recognisable as representing images seen and activities undertaken in everyday life.

Way finding should be simple, such as tactile, graphic, audible or architectural cues that are easy to follow. Signage should be large and clear. Way-finding maps should be clear, indicate the person's whereabouts in the building or facility, and be free from extraneous information.

(d) Age and size

Accommodating the developing child

It is important to create environments that are safe, accessible and useable for children. Individual components should be safe and useable as age-appropriate. Learning to manage risk is an essential part of a child's development.

Accommodating ageing adults

Life span within the human population is increasing. More and more we expect to maintain an economic and social life within both the public and private domains as we age. However, many human faculties are in decline as we age, such as mobility, dexterity, stamina, strength, hearing, sight, or memory. Familiarity with a particular environment is important.

Diversity of size

The population contains a diversity of sizes and heights, from children, to the diversity in the height of fully-grown adults. The positioning of components and the heights of building elements such as steps should recognise the diversity of height. Increased weight and girth is now also a feature of the population.

Ref: CEN/CENELEC Guide 6 'Guidelines for standards developers to address the needs of older persons & persons with disabilities'. http://www.cen.eu/cen/Sectors/Sectors/ISSS/About_ISSS/Documents/cclcgd006.pdf

A3 Further Reading

National and international standards and codes of practice

AS 1428.1-2001 Design for access and mobility. General requirements for access – New building work.

AS 1428.2-1992 Design for access and mobility. Enhanced and additional requirements – Buildings and facilities.

AS 1428.3-1992 Design for access and mobility. Requirements for children and adolescents with physical disabilities.

AS 1428.4-2002 Design for access and mobility. Tactile indicators.

BS 4800: 1989 Paint colours for building purposes (whilst the colours in this standard cannot be seen on CD-ROM or online the text can still be used).

BS 5395-1:2000 Stairs, ladders and walkways – Part 1: Code of practice for the design, construction and maintenance of straight stairs and winders.

BS 5588-8:1999 Fire precautions in the design, construction and use of buildings – Part 8: Code of practice for means of escape for disabled people.

BS 5776:1996 (incorporating amendment No.1) Specification for Powered stairlifts

BS 6440:1999 (Incorporating amendment No.1) Powered lifting platforms for use by disabled persons – Code of practice.

BS 6440:1999 Powered lifting platforms for use by disabled persons – Code of practice (partially superseded by BS EN 81-40:2008. The remainder of BS 6440:1999 will eventually be superseded by EN 81-41: 2009 Safety rules for the construction and installation of lifts – Special lifts for the transport of persons and goods – Part 41: Vertical lifting platforms intended for use by persons with impaired mobility).

BS 6465-1:2006+A1:2009 Sanitary installations. Code of practice for the design of sanitary facilities and scales of provision of sanitary and associated appliances.

BS 6571-4: 1989 Vehicle parking control equipment – Part 4: Specification for barrier type parking control equipment.

BS 7036-1:1996 Code of practice for Safety at powered doors for pedestrian use – Part 1. General.

BS 7036-4:1996 Code of practice for Safety at powered doors for pedestrian use – Part 4. Low energy swing doors.

BS 7997:2003 Products for tactile paving surface indicators – Specification.

BS 8300:2009 (Incorporating amendment No.1) Design of buildings and their approaches to meet the needs of disabled people – Code of practice.

BS 8493:2008 (+A1:2010): Light reflectance value (LRV) of a surface – Method of test.

BS 8501:2002 Graphic symbols and signs – Public information symbols (AMD 16897).

BS EN 115:1995 Safety rules for the construction and installation of escalators and moving walkways.

BS EN 15838:2009 Customer contact centres, Requirements for service provision.

BS EN81-70:2003 Safety rules for the construction and installation of lifts – Particular applications for passenger and goods lifts – Part 70: Accessibility to lifts for persons including persons with disability.

Building Regulations (Part M Amendment) Regulations 2010 (S.I. No. 513 of 2010).

Citizens Information Board – Accessible information for all (2009).

DD 266:2007 (Draft for Development) Design of accessible housing – Lifetime home – Code of practice.

I.S. EN 1991-1-1:2002 – Eurocode 1: Actions on structures Part 1-1: General actions – densities, self weight, imposed loads for buildings (including Irish National Annex: 2005).

I.S. EN 81-1: 1999 Safety rules for the construction and installation of lifts – electric lifts (Amd 1) (+A3:2009).

I.S. EN 81-2:1999 Safety rules for the construction and installation of lifts – hydraulic lifts (Amd 1) (+A3:2009).

I.S. EN 81-70:2003 Safety rules for the construction and installation of lifts – Particular applications for passenger and good passenger lifts. Accessibility to lifts for persons including persons with disability (Amd A1:2005).

I.S. EN 997:2003 (+A1:2006) WC pans and WC suites with integral trap (AMD Corrigendum 14805) (AMD 16965).

IEC 60118-4:2006 Electroacoustics. Hearing aids. Induction loop systems for hearing aid purposes. Magnetic field strength (ISBN 978 0 580 50047 3).

International standard for Induction loops. IEC 60118-4.

Irish Code of Practice on Accessibility of Public Services and Information Provided by Public Bodies [www.nda.ie/website/nda/cntmgmtnew.nsf/0/3DB134DF72E1846A8025710F0040BF3D/\\$File/finaldrcode_nda.htm](http://www.nda.ie/website/nda/cntmgmtnew.nsf/0/3DB134DF72E1846A8025710F0040BF3D/$File/finaldrcode_nda.htm)

Key cards should conform to EN 1332. For further information on key cards please see: <http://www.universaldesign.ie/useandapply/ict/itaccessibilityguidelines/smartcards/guidelines/smartcardguidelines/cards>

Lifetime Homes Standard: <http://www.lifetimehomes.org.uk>

Norwegian Universal design of building standard, 2009.

Passenger Lift Design: The Machinery Directive 2006/42/EC; Lifts should conform to BS 6440.

National and international reference documents

2020 Vision – Sustainable Travel and Transport: Public Consultation Document. Department of Transport.

Bus Based Park and Ride – A Pilot Scheme. A Report to: Dublin Transportation Office. The TAS Partnership Limited, 2002.

City of London 2006 Facility Accessibility Design Standards. London, Canada, 2006 Promoting Safe Egress and Evacuation for people with Disabilities - National Disability Authority.

Gallaudet DeafSpace Design Guidelines 2010.

Department of Transport & the National Disability Authority Guidelines for Accessible Maritime Passenger Transport <http://www.nda.ie/website/nda/cntmgmtnew.nsf/0/45AA46D1F77D7EF2802576DC005C5954?OpenDocument>

Department of Transport, UK 'Traffic Signs Manual'.

Dublin City Council (2007) Variation (No. 21) of the Dublin City Development Plan 2005 – 2011. Available from: <http://www.dublincity.ie/Planning/DublinCityDevelopmentPlan/VariationstotheDevelopmentPlan/Documents/AdoptedVariationNo21Spec.pdf>.

Guidance on the use of tactile paving surfaces. Department for Transport, UK.

Guidelines for an accessible public administration. Towards full participation and equality for people with disability. Office of the Disability Ombudsman, Sweden.

Inclusive Mobility. Department for Transport, UK.

International Best Practices in Universal Design. A Global review. Canadian Human Rights Commission, 2006.

Irish Wheelchair Association: Best Practice Access Guidelines 2010.

Joseph Rowntree Housing Trust.

Parking for disabled people. Department for Transport, UK.

Promoting Safe Egress and Evacuation for people with Disabilities - National Disability Authority.

Rail Park and Ride Strategy for the Greater Dublin Area. Dublin Transportation Office, 1994.

Regulation of Bus services outside the Greater Dublin Area. Department of Transport.

"Sign Design Guide and Inclusive mobility," Oxley, P. (2003), Inclusive Mobility. Department for Transport, UK. www.mobility-unit.dft.gov.uk

Smarter Travel 'A Sustainable Transport Future' – A New Transport Policy for Ireland 2009 – 2020. Department of Transport.

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Image 5.18 courtesy of Alison Wright, Easylivinghome.co.uk.

Image 5.23 courtesy of Tapeswitch Ltd

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