6.11 Sanitary Facilities 6.11.1 Sanitary facilities 6.11.2 Toilets

6.11 Sanitary Facilities 6.11.1 Sanitary facilities

Sanitary facilities include toilets, shower and bathrooms, baby care and ancillary facilities. Such facilities should be provided for the general public, persons with a disability, as well as the elderly and people with baby or young children.

The Design Manual Barrier Free Access provides the statutory requirements for toilets and WC cubicles, as well as bathroom and shower compartment.

Best practices are recommended for the widest spectrum of users. For instance, the provision of one unisex accessible toilet facility for each suite of male/female toilets on each floor is very useful as it facilitates the carer of the opposite sex to access the sanitary facility together with those who needed assistance. For large complexes, provide one separate unisex toilet with a maximum travel distance of 40m if feasible. Similarly, a separate unisex accessible baby caring area should be provided if feasible.

6.11.2 Toilets

The size of a toilet room (6.11.2a) should best be 2000mm x 2000mm. This will provide options for positioning the toilet pan. A clear unobstructed approach should be provided to the toilet, wash hand basin and hand dryer.

The toilet door should open outwards to provide a clear opening of at least 900mm and should include a horizontal handle. For privacy and safety, avoid the toilet door opening directly onto a public and/or circulation area.

Flushing control:

Sensor controlled flushing systems are preferred. Other options such as a lever flushing handle on the transfer side of the toilet is acceptable.

Wash hand basin:

A small wash-hand basin should be installed at a height not more than 750mm and it should allow for



6.11.2 Toilets

a knee clearance height of 550mm under the basin. A tap with a lever handle should be provided, with the tap fixed on the side of the basin nearest to the toilet pan. A mirror above the basin is recommended, with its bottom edge at a maximum height of 1020mm from the floor and a minimum top height of 1880mm. It should be slightly tilted towards the floor for use by wheelchair users.

Materials:

The flooring material should be slip resistant. All fittings and the door should contrast in colour and luminance with the walls and floors. Colour contrast in fittings is useful for the elderly (6.11.2b).

Ancillary fittings:

A counterbalanced single bar hinged support rail should be provided. All support fixings should be designed to withstand an ultimate load of 15kN.

The door fastening mechanism should be of the lever type with an integral lock which is operable from the outside in case of an emergency. It should incorporate an 'engaged' indicator. A soap dispenser should be sited over the washhand basin and should be operable with minimum pressure.

A hot air hand dryer or towel dispenser should be installed adjacent to the wash-hand basin at a height of 800mm above floor level.

Small toilet roll dispensers are preferred and should be fitted at least 600mm above floor level. Larger dispensers should be positioned 150mm above the grab rail.

High and low level coat hooks should be fitted at 1200mm and 1800mm above floor level.

A full length safety mirror should be fitted, set at maximum 300mm above floor level.

A small shelf should be fitted, set at 750mm above floor level.



6.11.2b) Seat and back rest cover in different colours for easy identification at elderly residence bathroom

6.11.3 Water closet and WC stall cubicle

6.11.3 Water closet and WC stall cubicle Water closet:

Generally the height of the water closet pan should be 455mm and the front of the pan should be 750mm from the rear wall.

Height preferences for toilet seats vary considerably among disabled people. Higher seat heights may be an advantage to some ambulatory disabled people, but are often a disadvantage for wheelchair users and others. Toilet seats 455mm high can be a reasonable compromise. In suites of toilets, different levels of pans, including one at a lower height, may be considered.

Grab bars:

Vertical and horizontal grab bars, and folding bar cum arm rest mounted on wall should be securely fixed to take the full weight of an adult (6.11.3a). Folding bar provides additional support to assist in standing up and transfer after using the closet. Grab bars shall not rotate within their fittings.

Back rest:

Back supports should be provided to closets. This can be in the form of a seat lid or an independent fixed cushion.

Clear floor space:

Clear floor space may be arranged to allow either a left-handed or right-handed approach. For a front transfer to the water closet, the minimum clear floor space at the water closet is 1220mm in width by 1680mm in length. The minimum clear floor space is a 1220mm (width) by 1420mm (length) for a diagonal transfer to the water closet. For a side transfer to the water closet, the minimum clear floor space is 1530mm (W) by 1420mm (L).

Flush controls:

A toilet seat lid can be provided if flushing valve plumbing fittings are directly behind the toilet seat. Such design reduces the chance of injury and imbalance caused by leaning back against the fittings.



6.11.3a) Provide grab bars and material finishes in contrasting colours to its surrounding

6.11.3 Water closet and WC stall cubicle 6.11.4 Urinals

WC stall cubicle:

Suites of male/female toilets should include at least one larger sized cubicle wherever feasible, minimum 1200mm wide, with grab bars. Adult and child size fittings in a cubicle are useful (6.11.3b).

Toilet stalls with a minimum depth of 1420mm and minimum width of 1525mm shall have wall-mounted water closets. If the depth of a standard toilet stall is increased to 1500mm, then a floor-mounted water closet can be used.

Door location should be in front of the clear space with a maximum stile width of 100mm or alternate door location can be on the side of the stall with a 100mm maximum stile width. Centerline of the water closet shall be 450mm from the side wall.

In 1420mm deep stalls, a toe clearance of at least 230mm above the floor at the front partition and at least one side partition is needed. Toe clearance is not required if stall depth is greater than 1525mm.

6.11.4 Urinals

Urinals shall be stall-type or wall-hung with an elongated rim at a maximum of 380mm above the finish floor.

Urinal stalls mounted on the floor provide guidance to the visually impaired as they can tap the stall to get the position (6.11.4a).

A clear floor space 760mm by 1220mm shall be provided in front of urinals to allow forward approach. This clear space shall adjoin or overlap an accessible route.

Flush controls shall be automatic. Hand operated controls shall be mounted at 1120mm above the finish floor.

Persons with disabilities who use mobility aids such as guiding sticks or crutches prefer to use two parallel grab bars to achieve a standing position. At least one urinal in a toilet should be equipped with a breast bar for supporting persons with disabilities (6.11.4b).



6.11.3b) Adult and child fittings in a toilet cubicle



6.11.4a) Urinal stalls provide guidance to the visually impaired



6.11.4b) Provide breast bar in urinal

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6.11.5 Lavatory basin 6.11.6 Shower room and bathroom

6.11.5 Lavatory basin

Lavatory basins should be mounted with the counter or rim not higher than 750mm from the floor, and with shallow depth for use by all, including wheelchair users and the elderly. The taps should be installed at the side of basin closer to the counter edge for easy reach by a child. Where high and low level basins are provided for adult and child use, the higher basin should not be more than 865mm above the floor level

The basin bowl should be a maximum of 165mm deep. A clear floor space at least 750mm by 1200mm shall be provided in front of a basin to allow forward approach. Knee clearance under basins is required (6.11.5a). Hot water and drain pipes exposed under sinks shall be insulated or protected against contact. There shall be no sharp or abrasive surfaces under sinks.

Faucet controls shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 22N. Lever-operated, touchtype, or electronically controlled mechanisms are acceptable designs.

6.11.6 Shower room and bathroom

The layout and fittings used for showers and bathrooms should aim to allow washing and bathing independently. Where it is not possible to design for specific individual requirements, showers and bathrooms should be designed to allow for the widest range of users.

Accessible shower:

A shower room should have a minimum floor dimension of 2500mm by 2500mm and should include a WC and a wash hand basin (6.11.6a). It should have:

- A wet area with a flat permeable surface.
- A shower curtain that surrounds the seat and rails. which is operable from the shower seat.
- An easily adjustable shower seat in the wet area at a maximum height of 480mm above floor level.
- A minimum depth of 430mm and be self-draining.
- An easily adjustable portable shower spray with flexible hose of 1525mm long and with a rise and fall fitting for adjusting the shower spray to different positions or used as hand-held fitting.
- A thermostatically controlled shower stream by lever controls set at 900mm above floor level.
- Recessed soap holders fitted at 650mm and 900mm above floor level.
- Horizontal and vertical grab rails provided positioned at 750mm above floor level.
- A shelf for toiletries fitted at 650mm which can be reached from the shower seat.



Grab 2500 150 mm 1150 Towel rail Layout shown is for right hand transfer

6.11.6a) Typical shower room layout



6.11.6 Shower room and bathroom

Accessible bathroom:

A bathroom should have a minimum floor dimension of 2500mm x 2700mm and should include a WC and a wash hand basin (6.11.6b) It should have:

- A bath board available for use.
- A thermostatically controlled mixer tap with a lever handle control.
- An in-tub seat or a seat at the head end of the tub. Seats shall be mounted securely.
- A bathtub enclosure that does not obstruct controls or transfer from wheelchairs onto bathtub seats or into tubs. Enclosures on bathtubs shall not have tracks mounted on their rims.
- Faucets and other control mechanisms conveniently located which shall be operable with one hand without requiring tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 22N.

Floor space at bathroom:

With seat in the bathtub, a clear floor space of minimum 1500mm by 800mm is required alongside the bathtub. If the approach is perpendicular to the bathtub, a 1220mm minimum width by 1525mm minimum length clear space is required.

With seat at the head of tub, a clear space of 760mm minimum width by 1910mm minimum length is required if the approach is parallel to the bathtub. The seat width must be 380mm and must extend the full width of the bathtub.



6.11.6b) Typical bathroom layout

6.11.6 Shower room and bathroom

Grab bars at bathtub:

Vertical and horizontal grab bars shall be provided to assist in entering and leaving the tub.

In addition to the above, each shower room or bathroom should also have the following provisions if feasible:

- Room heating should be provided. It should be designed and located so as not to cause an obstruction or hazard.
- The door should open outwards and be self-closing.
- The door fastening mechanism should be of the lever type, with an integral lock which is externally accessible in case of an emergency. It should incorporate an 'engaged' indicator.
- Apart from the emergency alarm call bell inside the room, a waterproof emergency pull cord (6.11.6c) may be provided near the shower or bath. The cord should be fitted with several pull rings at different heights. Both the cord and the ring should be in red colour.

- The floor should be slip resistant with level access and adequate floor drains (6.11.6d).
- A towel rail should be positioned at a height of 900mm above floor level.
- All fittings and the door should contrast in colour and luminance with the walls and floors.
- A full length safety mirror should be provided. It should be set at a maximum of 300mm from floor level.
- Coat hooks should be provided at heights of 900mm, 1200mm and 1800mm above floor level.

Shower Stall Cubicle:

Shower stalls that are 1500mm wide and have no curb may increase usability of a bathroom by wheelchair users because the shower area provides additional manoeuvring space.

Size and clearances:

Shower stall size and clear floor space is illustrated. (6.11.6e).



6.11.6c) Shower cubicle at elderly residence fitted with water proof emergency pull cord and grab bars Architectural Services Department



6.11.6d) Hair and debris trap in shower floor drain at elderly residence



6.11.6e) Shower size and clear floor space

6.11.6 Shower room and bathroom 6.11.7 Baby caring facilities

The clear floor space shall be a minimum of 1500mm in length by 900mm in width to allow for a parallel approach.

Shower seat:

The shower seat can be a rectangular or L-shaped seat extending the full depth of the stall. The seat should be located 38mm maximum from the wall and 400mm minimum.

Where a fixed seat is provided in a 900mm by 1500mm shower stall, it should be a folding type. The controls may be mounted on the wall adjacent to the seat for easy reach by the users.

Curbs:

If provided, curbs in shower stalls shall be no higher than 10mm. Shower stalls that do not have curbs are preferred for wheelchair users.

Shower enclosures:

Enclosures for shower stalls shall not obstruct controls or obstruct transfer from wheelchairs onto shower seats.

6.11.7 Baby caring facilities

Baby changing areas should be placed in a separate compartment if possible. If such facility is placed in a unisex disable toilet, sufficient manoeuvering space should be allowed for wheelchair users and the position of the baby changing facility must not obstruct the grab bars.

The following items require attention:

- An area of 2000mm x 2000mm baby changing facility is desirable (6.11.7a).
- The door should have a 900mm clear opening and should open outwards. It should include a horizontal or diagonal handle.
- The door fastening mechanism should be of the lever type with an integral lock which is externally accessible in case of an emergency. It should incorporate an 'engaged' indicator.
- All fittings and the door should contrast in colour and luminance with the walls and floor.
- The changing table should be a maximum of 500mm deep and be permanently fixed at 750mm above floor level.



6.11.7a) Typical baby caring room layout

6.11.7 Baby caring facilities6.11.8 Ancillary fittings and fixtures

- The table should be set against a wall (6.11.7b), and should either be purpose-designed or have a raised edge and comply with all relevant safety standards.
- A wash hand basin and hand dryer or towel holder should be installed at a height of 740mm, and a full length mirror set at maximum 300mm above floor level should be provided.
- A chair should be provided for use if required.
- Where vending machines are installed the controls should be no more than 900mm above floor level.
- Nappy bins and other facilities should be recessed if possible, and should not obstruct circulation space.
- Lighting should be even throughout with no spotlights used.

Baby seater inside toilet cubicle (6.11.7c) is very useful, as there is no need for another person to take care of the baby temporarily.

6.11.8 Ancillary fittings and fixtures Mirrors:

If mirrors are to be used by both ambulatory people and wheelchair users, then they must be at least 1880mm high at their topmost edge. A single full length mirror can accommodate all people, including children.

Mirrors shall be mounted with the bottom edge of the reflecting surface no higher than 1020mm above the finish floor (6.11.8a).

Clear floor space for a forward approach 760mm by 1220mm should be provided in front of full length mirrors. Doors should not swing into this clear floor space.

Mirrors for children should be mounted with the bottom edge not higher than 865mm above the finish floor or at the lowest mounting height permitted by fixtures and related elements.

Medicine cabinets:

If medicine cabinets are provided, at least one shall be located with a usable shelf no higher than 1120mm above the floor space. Shelves, drawers, and floormounted cabinets can be provided within the reach ranges of disabled people.



6.11.7b) Baby care table set against wall



6.11.7c) Baby seater inside toilet cubicle



6.11.8a) Titled mirror is useful for wheelchair users

6.11.9 Emergency Alarm6.12 Kitchen and Laundry6.12.1 Kitchen

6.11.9 Emergency Alarm

Visual/audible signal alarms shall be provided in facilities in areas such as toilets, bathrooms, shower rooms, and restrooms for calling for help in an emergency.

The visual and audible signals should be different from the fire alarm. The emergency call button should be located at 600mm above floor level at appropriate location within reach of the user of the facilities (6.11.9a).

Audible Alarms:

Audible emergency signals must have an intensity and frequency that can attract the attention of individuals.

If provided, audible emergency alarms shall produce a sound that exceeds the prevailing equivalent sound level in the room or space by at least 15dbA or exceeds any maximum sound level with duration of 60 seconds by 5dbA, whichever is louder.

Visual alarms:

Visual alarm signal appliances shall be integrated into the building or facility alarm system. It is preferable to have visual signals fitted at two levels for easy viewing.

6.12 Kitchen and Laundry

6.12.1 Kitchen

The design of kitchens should cater for the widest range of users. In general, the following items require attention:-

- Worktops should be a maximum of 600mm deep.
- Provide rounded edges to worktops.
- Provide handles that are easy to grasp with one hand to drawers and cupboards.
- Position controls at the front of appliances.
- Provide maximum storage space at floor level. Wall mounted cupboards are less easy to use in general; vertical reach over worktop should be 1950mm maximum.
- Consider provision of a separate oven and hob at a height of 750mm.
- Locate ventilation controls at 900mm above floor level.
- Consider unobstructed circulation space for different kitchen layouts.



6.11.9a) Provide emergency call bell

6.12.1 Kitchen

- Consider dual height worktops at 750mm and 860mm high, with knee recess spaces 900mm wide and 730mm high for wheelchair users.
- Consider knee or toe recess spaces below sink, appliances, preparation areas, etc.

Gallery Type Layout:

Allow 1050mm clearance between all opposing items in kitchens such as counters, appliances or cabinets placing on two opposite sides.

U-shaped Layout:

Allow 1500mm clearance between all opposing items in kitchens such as counters, appliances or cabinets placing on three contiguous sides.

Sink:

Locate the sink and surrounding counter at 865mm maximum above the floor.

Provide one sink with depth of sink bowl at 165mm maximum for multiple compartment sinks. Consider knee recess spaces below sink for facilities with wheelchair users. The width of the sink should be 750mm minimum (6.12.1b).

An option would be to provide adjustable height sink. All water supply and drain pipes, especially hot water pipes shall be insulated to protect the user. All sharp or abrasive surfaces under the sink should also be protected.

Range or Cooktop:

Provide knee and toe space to cooking equipment which require a forward approach. Provide insulation to underside of the range or cooktop to prevent burns or electric shock.

Locate controls so that it would not require reaching across the burners.



6.12.1a) Design for widest range of users

6.12.1b) Consider recess space for wheelchair users

50 min

knee and toe clearance

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6.12.2 Laundry Equipment6.13 Windows6.13.1 Accessible windows

6.12.2 Laundry Equipment

Position top loading machine (6.12.2a) so that the door to the laundry compartment is preferably not more than 865mm maximum above the floor.

Position front loading machine (6.12.2b) so that the bottom of the opening to the laundry compartment is preferably more than 380mm minimum and 865mm maximum above the floor.

6.13 Windows

6.13.1 Accessible windows

Windows in buildings are essential for ventilation and weather shielding purposes. As such, they should be accessible by the users in order to perform their function. The most common window types in Hong Kong include casement, top hung and sliding and they require a pushing or pulling force to open or close. Windows should not require a force more than 22.2N to operate. It is recommended that all window locks and controls should preferably be operable with one hand and shall not require tight grasping or twisting of the wrist.



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6.13.2 Window hardware6.13.3 Power-operate6.13.4 Security6.13.5 Weight

6.13.6 Insect screen

6.13.2 Window hardware

All handles, levers, catches, keys and locks should be large enough to hold easily. Hardware of circular design is difficult to grasp. Where possible, keys and locks should be usable within a 90 degree radius. The use of sliding bolts for windows is not recommended. Catches and locks should facilitate smooth and free turning and be able to operate with low friction.

Window fastenings should preferably be located at 900mm above floor level. For windows at high level, remote controls should be considered.

6.13.3 Power-operate

Where possible, use power-assisted activators for windows which require the operation of remote control, or design the structure to allow for powered control in the future. In all cases, manual operation should be available in addition to the power-assisted device in case of power failure.

6.13.4 Security

A balance should be struck between security from intrusion and the ability of the user to undo catches and latches safety and easily. Care should be taken so that accessibility to window furniture does not in itself cause a hazard or obstruction.

6.13.5 Weight

Window weight should be as low as possible for the purpose and location. Hinges should be of sufficient strength and positioning for the width of window leaf.

6.13.6 Insect screen

Where insect screen are required, they should be designed as an integral unit with the window to facilitate easy operation and avoid conflicts in accessing or maintaining either the window or the insect screen.

6.14 Fixed Seating Venues

6.14.1 Accessibility to fixed seating venues6.14.2 Accessible route

6.14 Fixed Seating Venues

6.14.1 Accessibility to fixed seating venues

Fixed seating venues refer to places where permanent seating arrangement for audience are provided such as theatres, auditoriums, lecture halls, conference rooms, arenas and stadiums (6.14.1a). Universal access to the seating area as well as back of stage facilities should be provided.

The use of removable or folding seats will facilitate flexible arrangement of accessible spaces inside the fixed seating venue.

Access to ancillary facilities such as toilets, changing and rehearsal rooms, information and signage, low level lights, assistive listening systems are essential.

6.14.2 Accessible route

All major levels within the fixed seating venues shall be accessible and linked up by ramps (6.14.2a).

Accessible route also serves as a means of escape in case of emergency and the layout of accessible spaces inside the fixed seating venue should not cause any obstruction to the accessible route.

Provide an accessible route from the wheelchair seating locations to the stage and performing area (6.14.2b) where access is provided to the stage from within the fixed seating venue. In addition, an accessible route that coincides with the route for performers should be provided to the backstage area. Access to the stage should be by means of a ramp or a platform lift.

Accessible route should be continuous at all major levels and lead to essential facilities such as toilets and refreshment area.

Provide two to three pairs of entrance doors at each major access point to cater for the large amount of audience. The door opening width should allow the wheelchair users to pass through comfortably. Doors equipped with light touch opening device and delay action auto-closing device are desirable.



6.14.1a) Accessible stadium



6.14.2a) Provide accessible route inside theatre linking all major levels



6.14.2b) Provide equitable ramp access to stage



6.14.2c) Provide accessible doors

6.14.3 Accessible space

6.14.3 Accessible space

Accessible space is one that people in wheelchair can use (6.14.3a) and it is linked by an accessible route.

A minimum number of accessible spaces for wheelchair users shall be provided and shall be computed in accordance with the Design Manual Barrier Free Access.

Wheelchair spaces (6.14.3b) shall be an integral part of any fixed seating plan. Each wheelchair space should be 500mm wide and 900mm deep on level ground. The sight line for wheelchair users should be comparable to other users. Safety barrier should be provided to wheelchair spaces located at high level to minimize the risk of the wheelchair falling over the edge.

Best practice is to use readily removable or retractable seat (6.14.3c) so that the spaces can be used for other users as normal seating when they are not required for wheelchair space.

Provide at least one companion fixed seat or portable seat next to each wheelchair seating space for designated use by a companion. Companion seats should be comparable to the seats for the general public. Place a label on the seat to indicate that the areas are reserved as companion seating.

Where more than 150 seats are provided, wheelchair spaces should be provided in more than one location. Dispersed wheelchair seating locations throughout the seating areas are desirable so as to provide a choice of admission prices and views comparable to those for the general public.

Provide two or more aisle seats with no armrests on the aisle side, or with removable or folding armrests on the aisle side for the ambulant disabled user. Identify such seat with a sign on the seat.

Flexible seating layouts (6.14.3d) are feasible by means of removable seats and steps that can be sunken into the space below to make the area accessible to wheelchair users.



6.14.3a) Provide accessible space with companion seating arrangement



6.14.3b) Provide space for wheelchair user at outdoor area



6.14.3c) Use removable seats to accommodate different use



6.14.3d) Flexible seating arrangement with accessible route

6.14.4 Other associated facilities

6.14.4 Other associated facilities Accessible toilets:

Accessible toilets and its associated facilities shall be provided on the same floor/level of the accessible seats. Refer to Section 6.11 for best practices on sanitary facilities.

Information and signage:

Visual signs as well as braille signs (6.14.4a) should be provided in conspicuous locations.

Provide seating plan (6.14.4b) showing the seating arrangement with clear indication of wheelchair space, exit route and other facilities. The seating plan should be provided adjacent to major door entrances. Braille fire exit plan should be provided. Braille seat numbers should be provided at the top of each seat rest.

Low level lighting:

Provide sufficient low-level lights along the access routes and under the seats.

Assistive listening systems:

Provide permanently installed assistive listening system, or other supplementary wiring necessary to support a portable assistive listening system.



6.14.4a) Provide conspicuous signage with braille sign on rail



6.14.4b) Provide seating plan showing accessible space and facilities

- 6.15 Other Facilities : Public Counters, Public Telephones & Drinking Fountains
- 6.15.1 Public Counters

6.15 Other Facilities : Public Counters, Public Telephones & Drinking Fountains 6.15.1 Public Counters

Service/Information Counters:

Counters should be provided with an upper writing surface for users in the standing position at 900mm high as well as a lower counter top with a maximum height of 750mm (6.15.1a) and knee space should be provided for wheelchair users. If feasible, the length of the lower counter top is recommended to be 900mm although the minimum requirement is 750mm.

Space in front of the information counter should be provided for queuing and waiting.

Design counter top with a notch or other detail to hold walking sticks or umbrellas (6.15.1b).

Signage:

Provide clear signage at conspicuous position (6.15.1c) to indicate the location of the information counter and other signage regarding services that is available at the counter (6.15.1d), such as the assistive listening system.

Service counter with security glazing:

Where security glazing is used to separate personnel from the public, voice communication facilities should be provided. Examples of communication methods include:

- grilles
- slats
- talk-through baffles
- intercoms
- telephone handset devices, at least one shall be equipped with volume control

The method of communication shall be accessible to both wheelchair users and those who have difficulty bending.



6.15.1a) Provide counter with knee space for wheelchair users and visual display

6.15.1b) Provide notch to counter top



6.15.1c) Provide visible signage



6.15.1d) Provide signage on assistive listening system

6.15.2 Public Telephones

6.15.2 Public Telephones

Public telephones should be accessible to all users (6.15.2a). Telephone provision should cater for the needs of wheelchair users, as well as the visually and the hearing impaired.

Best practices are to provide a clear floor space at least 750mm by 1200mm (6.15.2b and 6.15.2c) for wheelchair users. If the phone is installed inside a booth, a clear space of 900mm wide should be provided for people with disabilities or walking aid. Telephone should have push button controls with a dot in digit 5 as the indicator (2.15.2d) for use by the visually impaired. Other useful phone features include inductive device and amplifier for the hearing impaired; touch screen and text message for the speech impaired. Fittings like grab rails, foldable or movable seat should also be considered.

Recommendations for (i) Forward Reach Telephones and (ii) Side Reach Telephones are as follows:

Mounting height:

The highest operable part of the telephone is recommended at 1200mm maximum for forward reach telephones and 1350mm maximum for side reach telephones.

Enclosure walls:

The base, enclosures, and fixed seats shall not impede approaches to either forward reach or side reach telephones. The enclosure wall is recommended at maximum 600mm beyond the face of the telephone for forward reach telephones and 250mm for side reach telephones.

Enclosure shelf:

The shelf within enclosure walls should be maximum 500mm beyond the face of telephone for forward reach telephones and 250mm for side reach telephones.



6.15.2a) Provide accessible telephones

6.15.2b) Provide clear floor space for forward reach telephones



6.15.2c) Provide clear floor space for side reach telephones

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6.15.2d) Dot in digit 5 as indicator



6.15.2e) Provide low level accessible public telephone

6.15.3 Drinking Fountains

6.15.3 Drinking Fountains

Provide low level protruding type drinking fountains for wheelchair users. Best practice is to provide two drinking fountains (6.15.3a) mounted side by side at high and low levels, to cater for needs of all users including people with disabilities, or children and people who find it difficult to bend over.

Spout Location and Control:

Drinking fountains should have spouts positioned at the front of the unit (6.15.3b). The spout shall direct the water flow in a path almost parallel to the front of the unit.

Flow of water should be at least 100mm high so as to allow the insertion of a cup or glass under the flow of water.

For drinking fountain having a round or oval bowl, the spout must be positioned so the flow of water is within 75mm of the front edge of the fountain. For wheelchair users, spouts not higher than 800mm from the floor is recommended.

Controls shall be front mounted or side mounted near the front edge and easily operated with one hand.

Best practices are to provide a clear floor space at least 750mm by 1200mm (6.15.3c) for wheelchair users. Knee space and toe space should be provided underneath the fountain. A toe space of minimum 230mm from the floor and knee space of 700mm from the floor to the underside of fountain are required.

Signage should be provided to indicate the location of drinking fountains.



6.15.3a) Provide drinking fountains for users of different needs



6.15.3b) Place both the spout and the control near the front



6.15.3c) Provide a clear space in front of drinking fountains

6.16 Lighting and Illumination 6.16.1 Use of Lighting

6.16 Lighting and Illumination 6.16.1 Use of Lighting

Lighting is the key element in defining the shape of spaces and helps with orientation.

Entrance areas, foyers and lobbies should be used as transition areas to enable people to adjust to changes in lighting levels from outside to inside and vice versa, and to lighting levels within different parts of a building. In public buildings, electronic monitoring of lighting levels inside and outside should be considered.

Light fittings should be positioned above 2000mm from ground or floor level in accessible pathways. Uplighters should not be used at street or floor level where they will cause obstruction.

Light fittings should be positioned where they do not cause glare, reflection, shadows or pools of light and dark (6.16.1a). The illumination level is much affected by where the fittings are located. For example, if the light fittings are located near one side of the corridor wall, the illumination level on the opposite wall may be inadequate. The situation may be worsen if there are other services running along the corridor blocking the light source.

Light colours for walls and ceilings (6.16.1b) will help to reflect and diffuse the light. Large areas of gloss finish on walls or ceilings are not desirable.

Colour and luminous contrast is essential for differentiating an object with its background and detecting level difference. The use of lighting can improve colour contrast difference between stair treads and risers. Illumination from above the stairs to provide higher illumination to the tread surface to contrast with the riser surface is preferred. Lighting should also be used to provide better contrast between countertops and front edges or cabinet surfaces.

Light fittings in circulation and work areas should be selected to have a non-directional even light spread.



6.16.1b) Use light colour wall and ceiling finishes to reflect and diffuse light

6.16.1 Use of Lighting6.16.2 Switches, sockets and controls

Use lamps with good colour rendering properties where appropriate, for example, use 'daylight' lamps.

Fluorescent light fittings should be screened, maintained to avoid flicker, and located to avoid interference with hearing enhancement systems.

All lighting systems should be compatible with hearing enhancement and radio frequency systems.

6.16.2 Switches, sockets and controls

To facilitate the widest range of users, including the elderly and people in wheelchairs to reach the switches and sockets, the positioning of switches and controls has to be within their reach (6.16.2a). Best practices are as follows:

Light switches at 1100mm to 1200mm high, and thermostats 1200mm maximum height.

Electrical sockets at 450mm to 500mm high from floor level.

Electrical panel with top not more than 1400mm above floor level with a minimum 760mm x 1200mm clear floor space in front.

Switches or sockets with colour and luminous contrast from surrounding finishes and walls should be provided.

Large button type switches, easy-touch rocker or hands-free motion detector light switches should be considered.

Remote controls are desirable for selected lights, heating and cooling.

Doorbell intercoms connecting to portable telephones are desirable.

Audible and visual alarms for doorbell, baby monitor, and smoke detectors should be considered.



6.16.2a) Position switches and controls within reach and with colour contrast to background

6

6.17 Maintenance and Review 6.17.1 Managing Accessibility

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Universal design concepts do not stop when the building is completed. The operator will procure special furniture and equipment (6.17.1a) or carry out specialist fitting-out works (6.17.1b) after the completion of main building works. Early dialogue between the designer, operator and maintenance agent to implement and maintain universal designs would facilitate a holistic approach, avoid abortive work and conflicting spatial requirements. The process of universal design is an on-going one throughout the life span of the building.

Managing and maintaining facilities and services require planning, monitoring and review. The building plans, together with information on facilities for the different user groups, access and evacuation plans are important documents for reference and review. It is a good practice to include information such as accessible car park spaces, tactile path, disabled toilets, refuse space, detectable warnings and call bells etc. into the maintenance plan and user manual. In the planning of relocation of work stations, furniture and equipment, display panels and maintenance work, the management should bear in mind that accessible path and facilities should not be obstructed. Where accessible facilities have to be temporarily closed for repairs, alternative facilities should be provided and clearly sign posted. The operator and the maintenance agency should work out contingency measures such as:-

- Arrange for accommodation that is required for the use of the persons with a disability or the elderly to be positioned on other accessible parts of the building;
- Arrange for temporary accessible toilets suitable for use by persons with a disability or the elderly;
- Arrange for emergency assistance and helpers to cater for the need of any person, including helping them to gain access to facilities.



6.17.1a) Procure adjustable table for multi-users

6.17.1b) Fit out to suit children's use

6.17.1 Managing Accessibility

Apart from the regular maintenance items in the maintenance plan, the followings items require attention:-

- Keep car parking space(s) for the disabled and access unobstructed.
- Keep accessible paths, ramps and steps clean and unobstructed.
- Maintain and update directory signs to facilities and keep signage unobstructed.
- Keep spaces required for wheelchair manoeuvring and tactile paths unobstructed. (6.17.1c)
- Keep proper use of accessible/disabled toilets and do not used them for other purpose.
- Maintain access routes and wheelchair spaces in all seating areas.
- Keep emergency pull cords in working order and not tied up after cleaning.
- Inspect and repair tactile surfaces and floor coverings.
- Maintain colour schemes, textures and finishes of materials (6.17.1d) to comply with statutory requirements and best practices.

It is also important to maintain and test provisions:-

- Maintain and test listening systems e.g. induction loop system and remote signage system.
- Maintain and check facilities for people with disabilities such as lifts and platform lifts.

Training and updating are also required:-

- Review and provide emergency procedures so that services can be provided in case of facilities breakdown and/or repairs e.g. lifts, call bell in disabled toilets.
- Review emergency evacuation plans for all visitors and staff and check that emergency assembly areas are unobstructed.
- Provide training to staff and update on disability and equality aspects for all staff.

The frequency of the reviews and enforcement procedures depends on the usage rate of the facilities.



6.17.1c) Keep tactile path unobstructed



6.17.1d) Maintain accessible route properly

6.17.2 Review and Improve

6.17.2 Review and Improve

An audit on the existing provisions (6.17.2a) should be conducted prior to planning of addition and alterations works. This is particularly important for historical buildings. Major addition and alteration works provide an opportunity to improve and upgrade the accessible facilities in the existing premises. However, the planning of additional facilities within the existing premises should not take away accessible facilities already provided unless the same or enhanced facilities can be provided in the improvement works.

The maintenance aspect and ease of use of the fixtures, fittings and features are factors for consideration when improvement works are planned. For example, in considering the provision of a ramp or a platform lift, apart from ease of access and installation, spatial constraint, the recurrent cost to maintain such equipment should be considered as well.

Furthermore, as new technology and materials become available in the market, more options for accessibility could be considered.



6.17.2a) Review, remove obstacles and improve access