KHELO INDIA

SAI
SPORTS AUTHORITY OF INDIA

Svayam®

Handbook on Accessibility of Sports Facilities

Collated by:
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Introduction

Sports unite individuals across diverse abilities, promoting health, camaraderie, and a sense of achievement. However, for many persons with disabilities, barriers to accessing sports facilities and events continue to hinder their participation. This handbook, **"Enhancing the Accessibility of Sports Facilities - A Handbook on Accessibility"**, seeks to address these challenges by providing comprehensive guidelines to make sports venues more inclusive and welcoming for all.

Accessibility in sports facilities goes beyond infrastructure; it encompasses thoughtful design, inclusive policies, and a commitment to ensuring that everyone—athletes, officials, spectators, and support staff—can fully engage with the event. From seamless wayfinding and unobstructed seating to assistive technology provisions and inclusive event overlays, this handbook offers practical solutions and best practices to enhance accessibility.

The content draws from national and international accessibility standards, legal frameworks, and real-world experiences to serve as a reliable resource for facility managers, event organizers, architects, and policymakers. By adopting these guidelines, stakeholders can not only meet legal obligations but also foster an environment that celebrates diversity, promotes equal opportunities, and enhances the overall sporting experience for everyone.

Together, through the implementation of these recommendations, we can champion the spirit of inclusivity in sports and set a global benchmark for accessible and equitable sports facilities.

Founder's Message

Access is not a privilege—it is a right. And in the world of sports, this right becomes all the more powerful. Sport represents discipline, passion, and perseverance. It embodies the spirit of equality. But that spirit can only be realised when every athlete—irrespective of ability—has equal access to the playing field, the podium, and the facilities that support their journey.

At Svayam, we have always believed that accessibility must be embedded into the core of infrastructure planning—not added as an afterthought. As the Accessibility Partner of Khelo India, we are honoured to carry this belief forward by supporting efforts to make sports facilities across the nation accessible to all.

This handbook, collated by Svayam, brings together relevant national and international standards to guide the inclusive design and upgradation of sports infrastructure. It is a ready reckoner for those entrusted with the responsibility of building and maintaining these spaces—architects, engineers, administrators, and planners. Our aim is simple: that no athlete is ever left behind due to an inaccessible facility.

We are grateful to the Sports Authority of India and the Khelo India team for their continued trust and leadership. Their commitment to inclusive sports is shaping a more equitable future—one where participation is not limited by physical barriers but powered by inclusive thinking and meaningful action. Let this handbook serve not just as a guide, but as a call to action. Let us collectively ensure that every stadium, every training centre, and every sports complex reflects the principles of dignity, equality, and universal access.

Accessibility must become standard practice, not a special provision. Let us commit to making every facility barrier-free and universally usable from the outset.

Sminu Jindal
Founder Chairperson, Svayam

Preface

Inclusive sports infrastructure is a key pillar of an equitable and accessible society. Recognising this need, Svayam has compiled this handbook to provide clear, practical, and actionable guidance for making sports facilities accessible to persons with reduced mobility and diverse functional needs.

With over 25 years of work in the field of accessibility, Svayam has been a pioneer in advocating for universal design across sectors such as transport, heritage, health, education, and public infrastructure. Our commitment to inclusive sports has been longstanding—we have supported multiple national and international para-sports events, worked with leading sporting bodies, and contributed to policy and infrastructure improvements that benefit athletes with disabilities. This handbook is a continuation of our efforts to embed accessibility into mainstream sports infrastructure development.

The publication is intended for a wide range of stakeholders, including planners, architects, engineers, consultants, contractors, sports administrators, and policymakers. It supports them in the planning, design, development, retrofitting, and maintenance of sports infrastructure that is inclusive, safe, and usable by all. The handbook draws from a wide range of authoritative sources, including:

- Harmonised Guidelines and Standards for Universal Accessibility in India, 2021
- Accessibility Standards and Guidelines for Civil Aviation by Ministry of Civil Aviation
- Guidelines on Accessible Sports Complex and Residential Facilities for Sports Persons with Disabilities, 2022
- Accessibility Standards for Healthcare Facilities – DEPwD, 2023
- National Building Code of India, 2016
- Accessibility Guide, 2020 – International Paralympic Committee
- Various international best practices and global accessibility benchmarks

We are grateful to the Sports Authority of India (SAI) and Khelo India for supporting the release of this handbook and for their leadership in promoting inclusive sporting infrastructure nationwide.

We hope this document serves as a valuable resource and contributes meaningfully to building a barrier-free sporting ecosystem.

- Svayam

Contents

1. Basic Anthropometry and Space Allowances

Introduction:

Anthropometry, the measurement of human body dimensions, is essential for designing accessible environments that cater to a diverse population. Sports facilities must accommodate the varying sizes, shapes, and mobility needs of individuals, ensuring comfort and safety for all users. Understanding anthropometric data helps in creating spaces that are inclusive and functional for people with and without disabilities.

Key Considerations

- **Dimensions of Mobility Devices and Space Allowance:** Design spaces to accommodate a diverse range of users, including children, adults, and individuals with disabilities, ensuring sufficient clearance for mobility aids like wheelchairs, walkers, and crutches.
- **Reach Range:** Account for maximum reach ranges, both seated and standing, as well as turning radii for individuals using mobility aids such as wheelchairs.
- **Vision Zone:** Dimensions and placement of information systems and other facilities should consider the vision range of individuals, whether seated or standing, including those with physical, hearing, or visual impairments.
- **Heights and Widths:** Clear height and width should be considered for different individuals with mobility aids should be considered as per their anthropometric requirements.

1.1 Space Allowance for Wheelchair Users

For a Sports Wheelchair: In high-intensity sports such as tennis, rugby, racing, etc. para-athletes require a wheelchair designed for enhanced stability. This is achieved through tilted (cambered) wheels and dual sets of four casters for added safety and maneuverability. The recommended width dimensions of the wheelchair can be referenced from the figure below;

Sports wheelchair type	Approximate length (L)	Approximate width (W)
Generally	800 mm	800–1200 mm [4]
Tennis	850 mm	1000 mm
Racing	1800 mm	750 mm

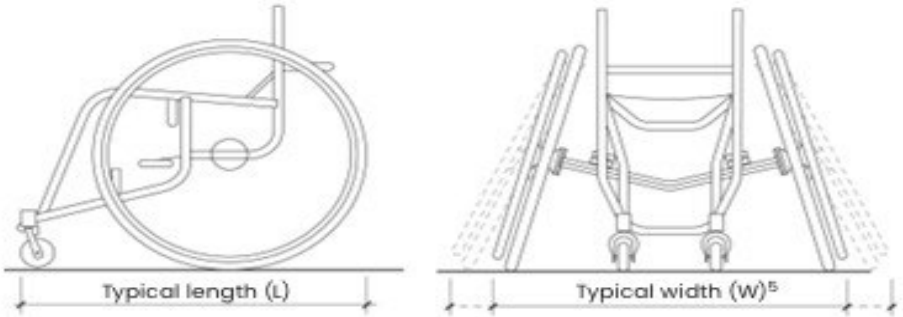


Figure: Sports Wheelchair (Accessible Sports Facilities and Design Guidelines)

For a standard wheelchair following space allowance can be refer

Section	Standard Wheelchair Users
Wheelchair Dimensions	- Overall length: 1000-1100 mm - Width (open): 650-720 mm - Width (folded): 300-330 mm - Height: 910-950 mm - Seat height (front): 480-510 mm - Seat depth: 420-440 mm - Arm-rest height: 220-230 mm - Footrest clearance: 90-200 mm - Weight: Max. 25 kg

Space allowance and dimension for user with standard wheelchair	
Footrest and its Space Allowance	Footrest extends 350 mm in front of the knee; 350 mm deep and 700 mm high clearance under counters and stands required.
Clear Floor Space	Minimum: 900 mm × 1200 mm For transfer: 900 mm × 1350 mm
Circulation Dimensions	Minimum turning space: 1500 mm Comfortable: 1800 mm Ideal: 2000 mm
Reach Range	- Forward reach (max): 1200 mm - Forward reach (min): 400 mm - Side reach (max): 1300 mm - Common reach zone: 900-1200 mm
Height	The average height of a person seated on a wheelchair is generally less than **1200 mm** whereas the average height of an average person standing is generally less than 2000 mm.

Refer to the figures 2.6, 2.7 and 2.8 for details;

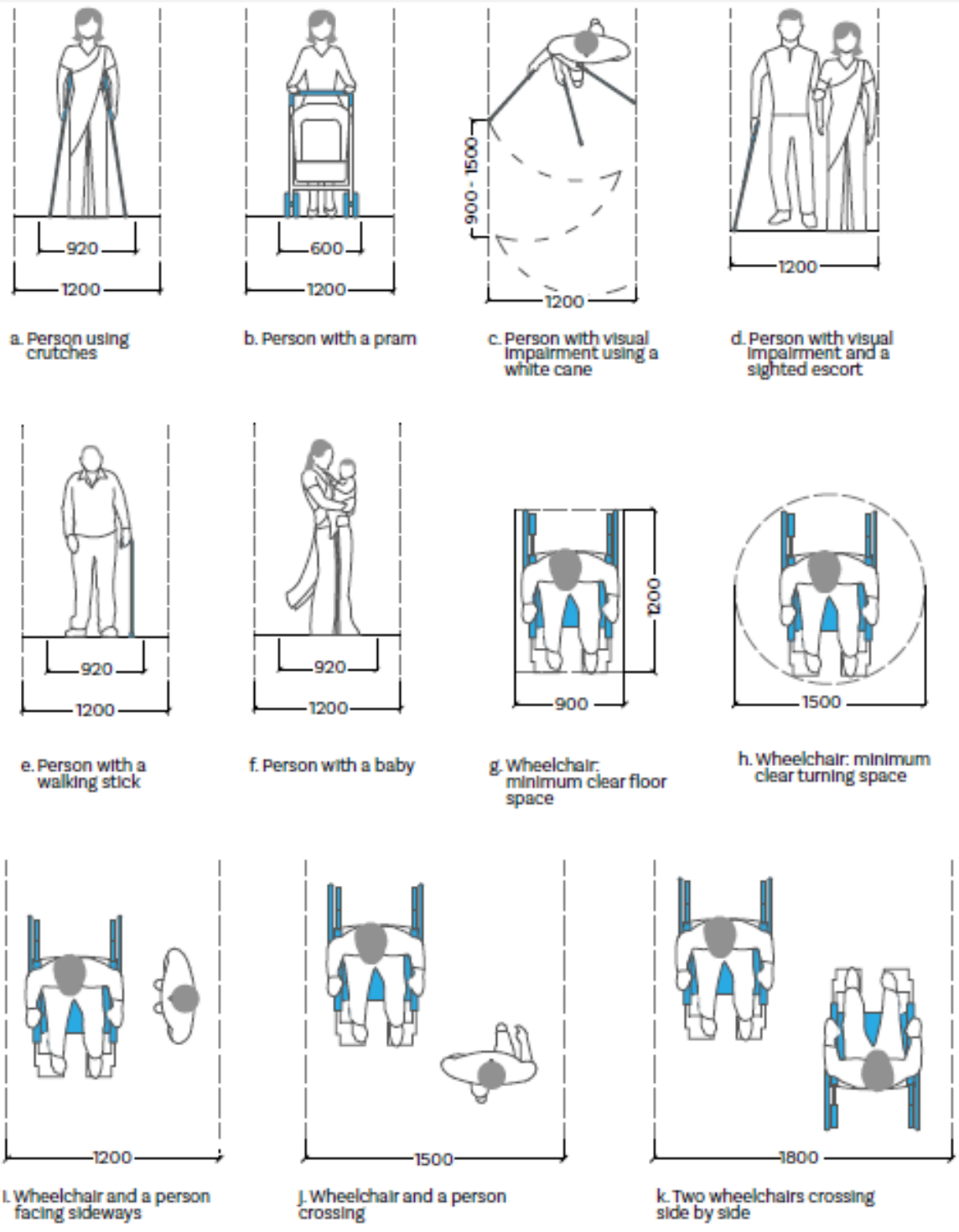


Figure 2.6 Minimum widths of a clear walkway for diverse user groups

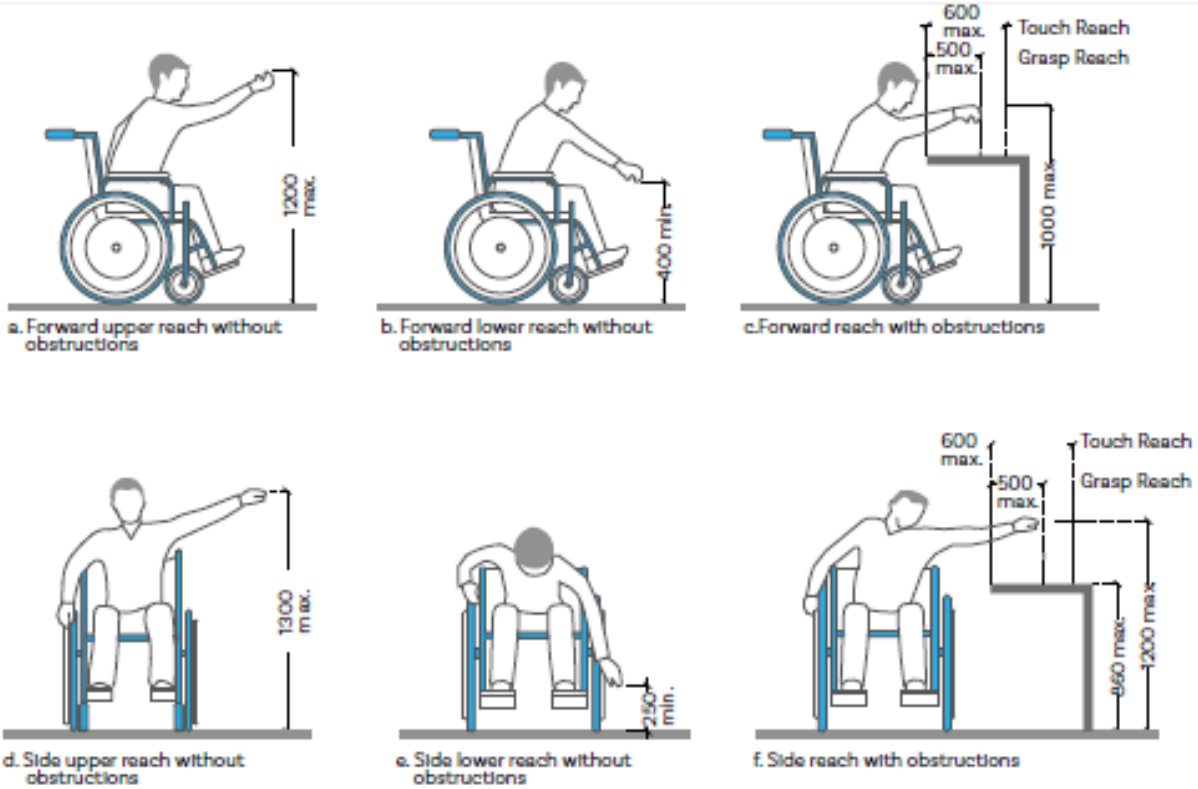


Figure 2.7 Reach ranges for wheelchair users[5]

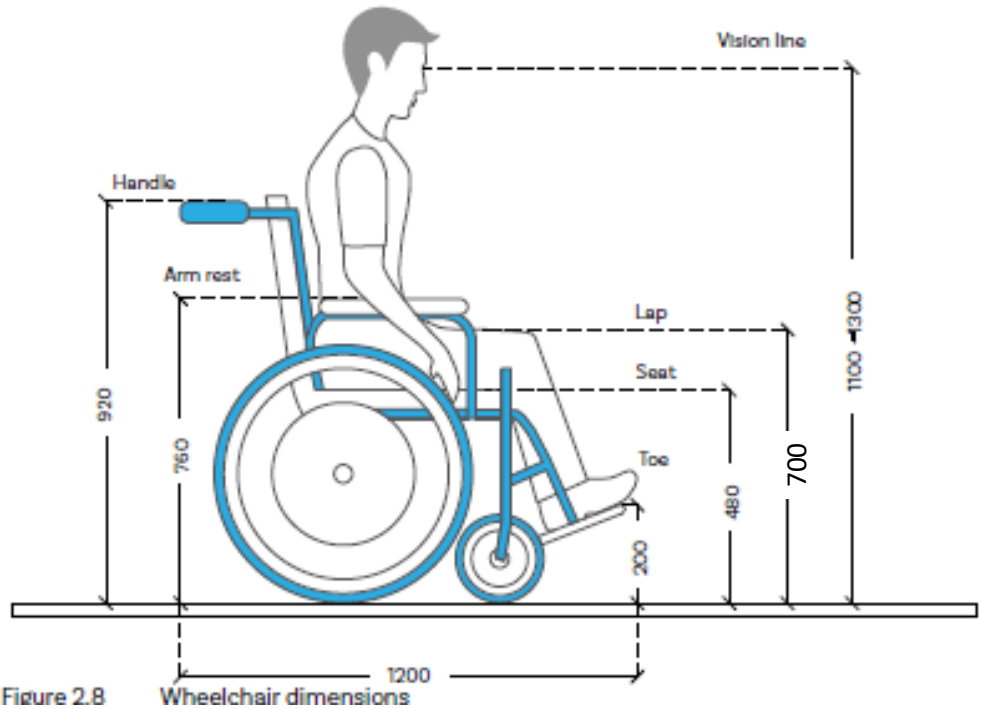


Figure 2.8 Wheelchair dimensions

1.2 Space Allowance for Other Users

1.2.1 Crutch User: Although people who use walking aids can manoeuvre through door openings of 900 mm clear width, they need wider passageways for comfortable gaits as shown in Fig. 2.6a Crutch tips, often extend down out at a wide angle, and are hazardous in narrow passageways where they might not be seen by other pedestrians.

1.2.2 White Cane Users: Following shall be ensured for white cane users:

a.) Protruding objects, such as directional signs, tree branches, wires, guy ropes, public telephone booths, benches, and ornamental fixtures shall be installed with consideration of the range of the white cane of a person with vision impairment.
b.) A barrier to warn blind or visually impaired persons shall be provided under stairways or escalators so that they don't accidentally enter into them.
c.) Walkways, halls, corridors, passageways, aisles, or other circulation spaces shall have clear headroom to minimize the risk of accidents.
d.) Adequate space allowance should be made considering that the radial range of white cane is a band of 900 mm wide (see Fig. 2.6c).
e.) Any obstacle above 300 mm cannot be detected by the white cane. If there are projections above this height then the same has to be treated in accordance with Section 2.5.

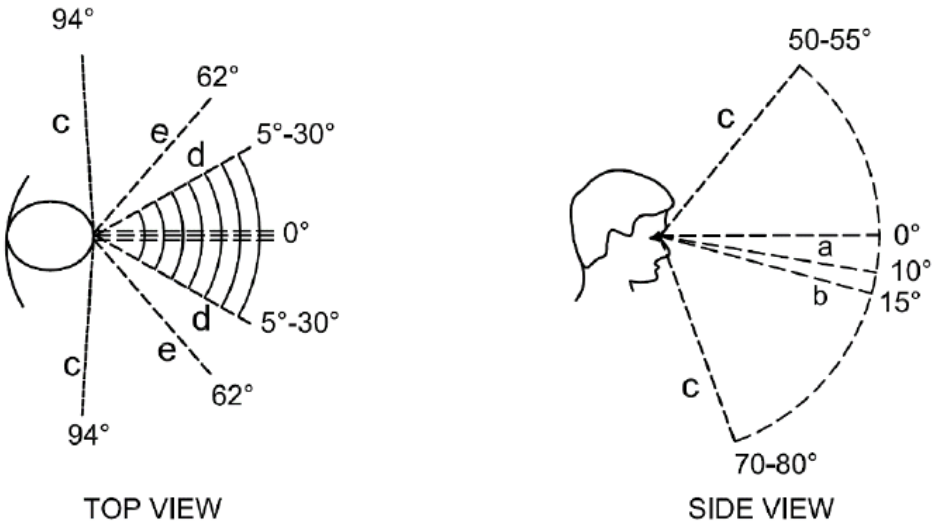
1.2.3 Short Stature: For people of short stature including children and people with dwarfism their reach range varies depending upon their age, and growth hormone syndrome, refer to the table below;

Table 2.2 Children's Reach Ranges[2]

FORWARD OR SIDE REACH	AGES 3 AND 4	AGES 5 THROUGH 8	AGES9 THROUGH 12
HIGH (MAXIMUM)	915 mm (36 inch)	1015 mm (40 inch)	1120 mm (44 inch)
LOW (MINIMUM)	510 mm (20 inch)	455 mm (18 inch)	405 mm (16 inch)

1.3 Vision Zone

Different fields of vision are given in Fig. 24. All visual information should be designed based on these dimensions and shall be placed at a height between 900 mm and 1800 mm (see Fig. 25). The smallest letter in an information panel shall not be less than 15 mm.



Key

a Normal optical axis, standing person

b Normal optical axis, sitting person

c Limit of field of vision

d Normal angle of vision

e Maximum angle of vision

FIG. 13 FIELD OF VISION

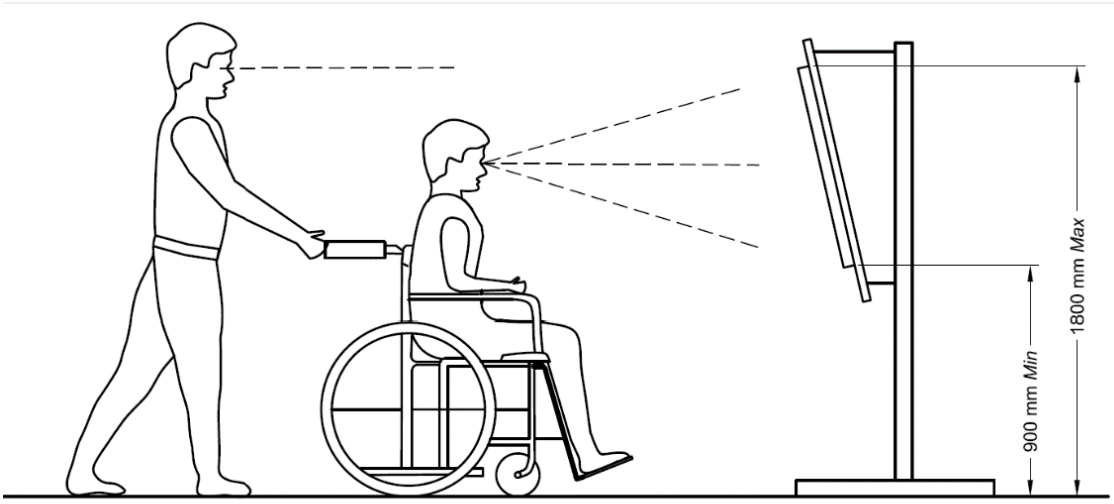


FIG. 14 VISION ZONE

2. Approach

While India has made progress in making transportation accessible, a lot still needs to be done, especially in integrating universal design principles across all modes. The focus should be on consistent enforcement of accessibility standards, training transport personnel, and upgrading infrastructure in a more inclusive manner.

Hosting a major event offers cities and regions a unique opportunity to enhance their infrastructure, making them more accessible and inclusive for all. By improving transportation, accommodations, and public services, cities can create a welcoming environment that benefits both residents and visitors. These advancements not only support the event itself but also leave a legacy, fostering greater accessibility and inclusivity for years to come. This section examines the various transport options, lodging, and services provided during large-scale events.

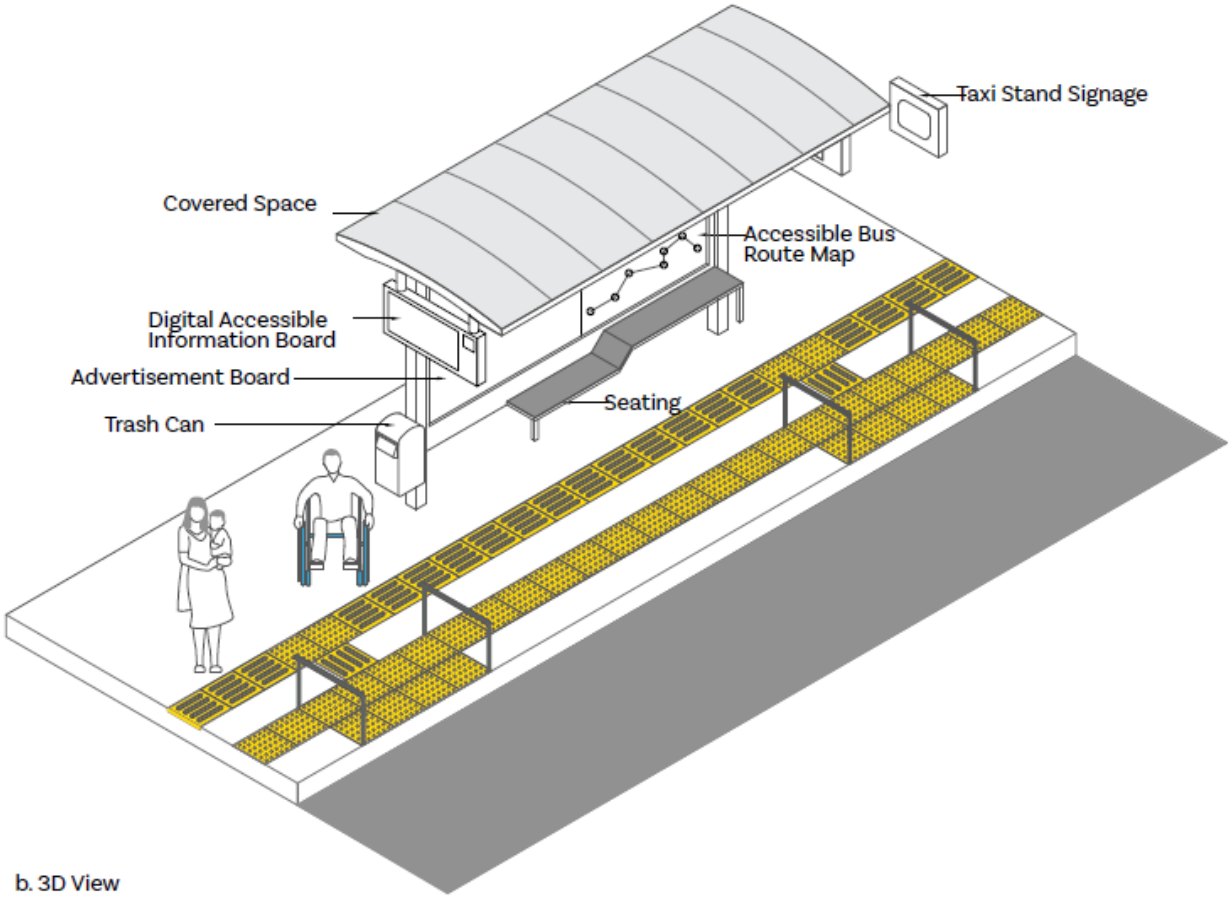
Accessible transport is crucial for creating an inclusive urban environment. Instead of treating accessibility as an add-on, it should be an integral part of the entire transport system, forming a seamless network that connects accessible facilities. In India, this includes road, rail, air, and water transport. The goal of transport planning should be to develop a strategy that meets the needs of all users, including daily commuters, tourists, persons with disabilities, and transport staff, ensuring smooth and barrier-free travel from home to destination and back.

To ensure smooth and inclusive mobility for everyone, including persons with disabilities, the elderly, children, and women, transport infrastructure should be designed without barriers. Here are key Suggestion for both internal and external transportation:

- Buses, taxis, mini-buses, and three-wheelers should be designed to accommodate people with disabilities as much as possible.
- Accessible vehicles should have wider doors, a low-floor design, handrails, footlights, and a ramp or hydraulic lift for wheelchair users and prams.
- A designated wheelchair space should be available inside buses, clearly marked with the standard accessibility symbol.
- Bus routes and stops should be clearly displayed inside and outside the bus with bright, well-lit text visible even at night.
- Bus stands should be near accessible entrances and have shelters for weather protection.
- Pathways from roads to pedestrian areas should be level or have ramps for easy movement.
- Drivers should receive training on the needs of persons with disabilities.
- There should be at least one accessible route from the bus stop to the building entrance, with clear signs and tactile paving for visually impaired individuals.

Accessible buses with level approach: Ahmedabad BRTS
Photo Credits: CPWD

Accessible Buses with foldable ramp



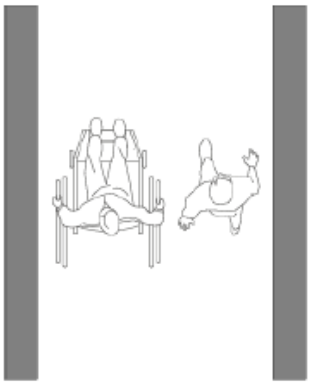
Accessible Bus Stop.

2.1 Walkways & Pathways:

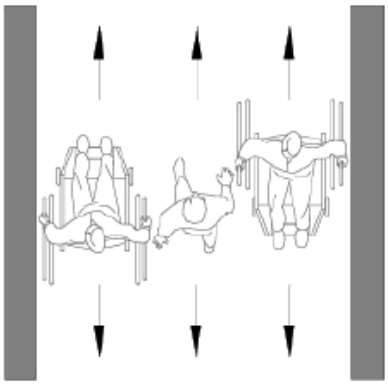
Walkways and pathways in sports facilities are essential for connecting key areas like entrances, seating zones, restrooms, locker rooms, parking areas, and playing fields. They ensure smooth movement for athletes, spectators, and staff, helping to maintain an organized flow of foot traffic in stadiums, training centers, and sports complexes.

Inclusive pathways in sports facilities promote participation for para-athletes, disabled spectators, and elderly visitors. Universal design benefits everyone, including people with temporary injuries or families with young children. Well-planned walkways make sports facilities safer, more user-friendly, and enjoyable for all. Walkways and pathways (used here interchangeably) shall meet the following general requirements:

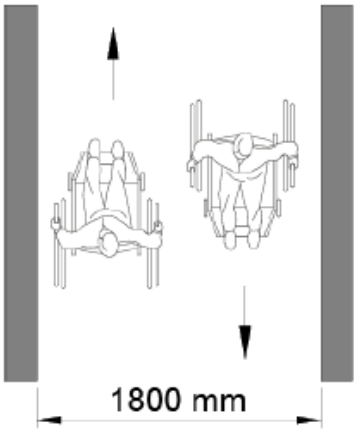
- **Pathway Width-**
  - **For two-way traffic**, walkways should be at least 2000 mm wide (can be reduced to 1800 mm if there is space for turning and passing).
  - **For one-way traffic**, the width should be at least 1500 mm (can be reduced to 1000 mm with approval).
  - Provide turning space of at least 1800 mm x 2000 mm every 25 meters.



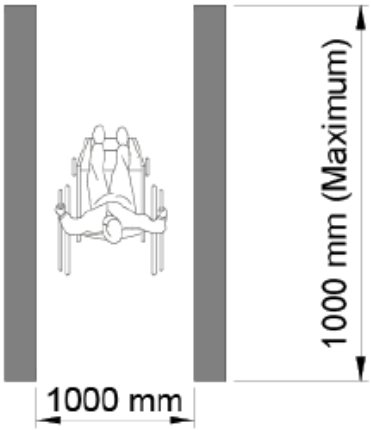
Low Traffic



High Traffic



Mid Traffic

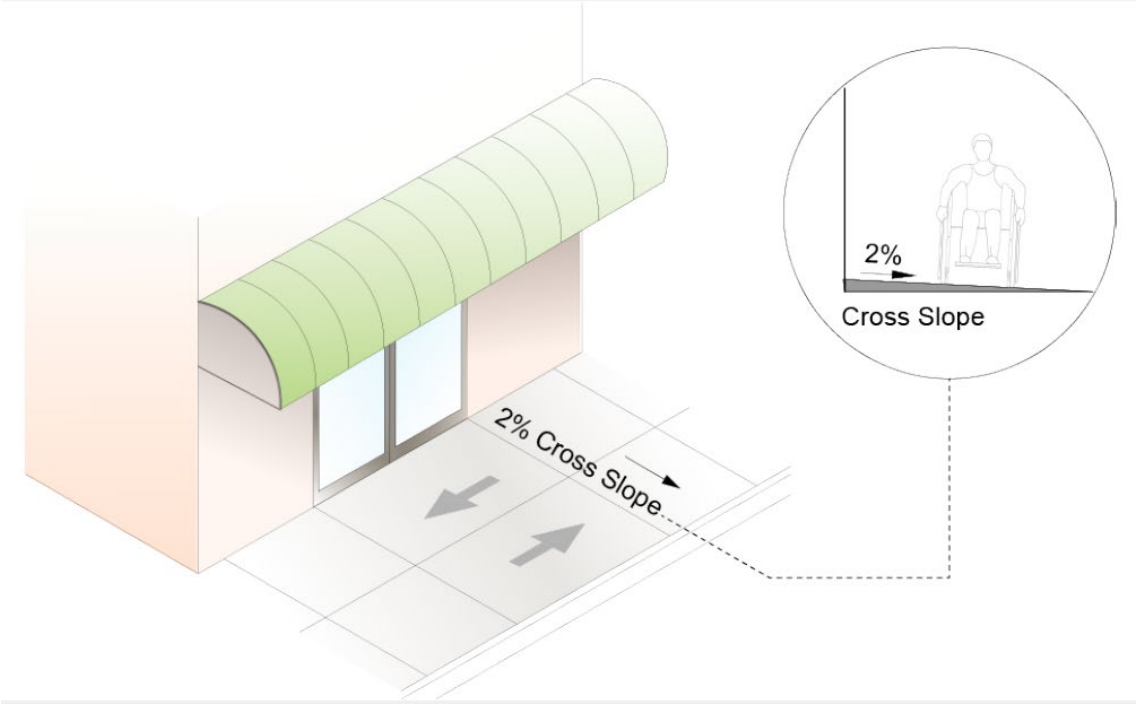


Exception: Upon IPC Approval

- **Surface-**
  - Walkways shall be smooth, hard, non-slip and have levelled surface suitable for walking and wheeling. Irregular surfaces as cobble stones, coarsely exposed aggregate concrete, bricks, etc., often cause bumpy rides and shall be avoided.
  - Care shall be taken to ensure that adjacent surface materials do not display different slip resistance characteristics, particularly at the edges of changes of level or gradients. Such walks shall be of a continuing common surface not interrupted by steps or abrupt changes in level.

- **Signage-** At the beginning of the approach road, information and directional signs indicating the approach to various areas of the sports building should be provided in vernacular & English language with good visual contrast.

- **Slope: -**
  - The walkway shall not have a gradient exceeding 1:20. If the slope or any part of a walkway on an accessible route to a building exceeds 1:20, it shall be designed and constructed as a ramp in accordance with 9.1.
  - The cross-fall gradient across an accessible route shall not exceed 1:50 (20 mm/m), except when associated with a dropped kerb.



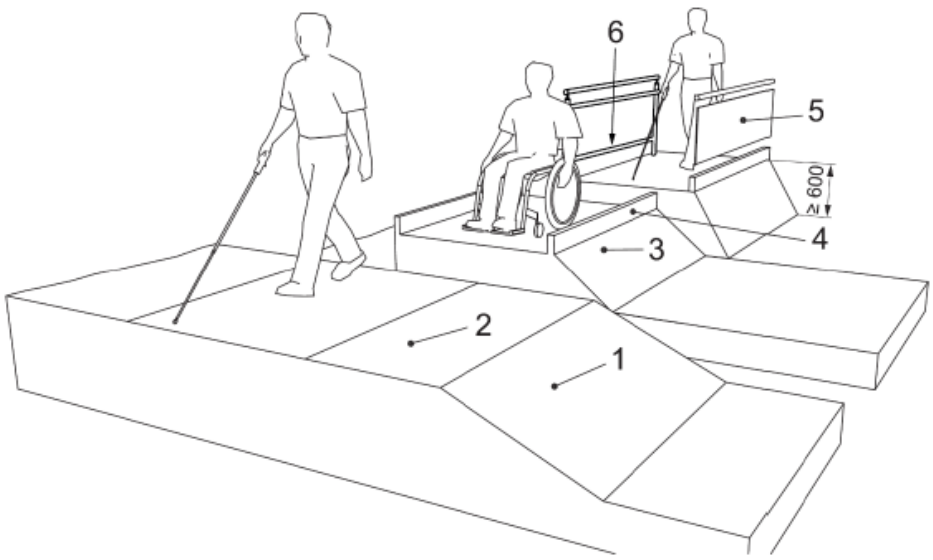
- Where pathway meets the road, a kerb shall be provided, which shall be designed in accordance with 2.2.

- **Rest Areas: -** When walkways exceed 60 m in length, it is desirable to provide rest area adjacent to the walk at convenient intervals of 30 m in the form of benches/resting seats in accordance with **section 2.6**. A colour contrast should be provided around the seating area for ease of identification by persons with low vision.
- Wherever walks cross other walks, driveways, or parking lots, they shall blend to a common level.
- **Barriers: -**
    - Obstacles such as objects, signs, columns, or bollards along walking paths should be avoided. When necessary, they must comply with the guidelines in Section 2.5, including any protruding objects extending into walkways, to ensure accessibility and safety.
    - Gratings and manholes should be avoided in walks.

- **Stepped Paths for Ambulant People:** For ambulant individuals, a stepped path may be safer and more comfortable than a sloped path or ramp. If the rise of a ramp is greater than 300 mm, an additional flight of steps must be provided. A single step without a proper path is not acceptable. Tactile warning indicators should be placed at both the top and bottom of stairways on accessible paths. The width of steps should be at least 1200 mm, following the guidelines in **section 9.2.**
- **Handrails on Stepped Paths**: Handrails should be provided on both sides of stepped paths with two or more steps, and the height of each riser should not exceed 150 mm. A handrail is also required on both sides of any channel that divides the flight of steps. For detailed handrail requirements, **refer to section 8.**
- The cross-fall of a level or sloped path, a stepped path, a ramp, or a landing, that is provided to permit drainage of surface water, shall be 1:50. The top, bottom and landings of steps and ramps shall be properly drained to avoid water flowing down steps and ramps. A dished channel should not be constructed within the boundaries of a path or ramp. Dished channels shall have a maximum width of 150 mm and a maximum drop into gulley of 5 mm. A drainage grating that is within the boundaries of a path or a ramp shall be set flush with the surface **(see section 2.3)**.

- **Providing protection** at the side of the path protects people who use wheelchairs and ambulant people from injuring themselves as the result of a fall. Examples of protection against falling are shown in Fig.
    - **Paths with Slopes (up to 30°):** If the path is next to terrain sloping downwards by up to 30°, a firm, level margin of at least 600 mm should be provided on the side.
    - **Paths with Steeper Slopes (more than 30°):** If the path is next to terrain sloping more than 30°, a protective upstand of at least 150 mm should be added. The upstand should contrast with the path by at least 30 points in Light Reflectance Value (LRV).
    - **Guarding for Raised Paths:** If a path, ramp, or platform is more than 600 mm higher than the surrounding ground, it should have a guardrail for safety. However, if the ground around the path is firm and level for 600 mm, no guardrail is needed.

Guarding shall be designed to discourage a user, particularly a child, from climbing on it.



Key

1 Downward slope less than 30°

2 Level margin minimum 600 mm wide

3 Downward slope greater than 30°

4 Upstand, minimum height of 150 mm with a minimum difference in LRV of 30 points in relation to the path or ramp

5 Guarding including an upstand

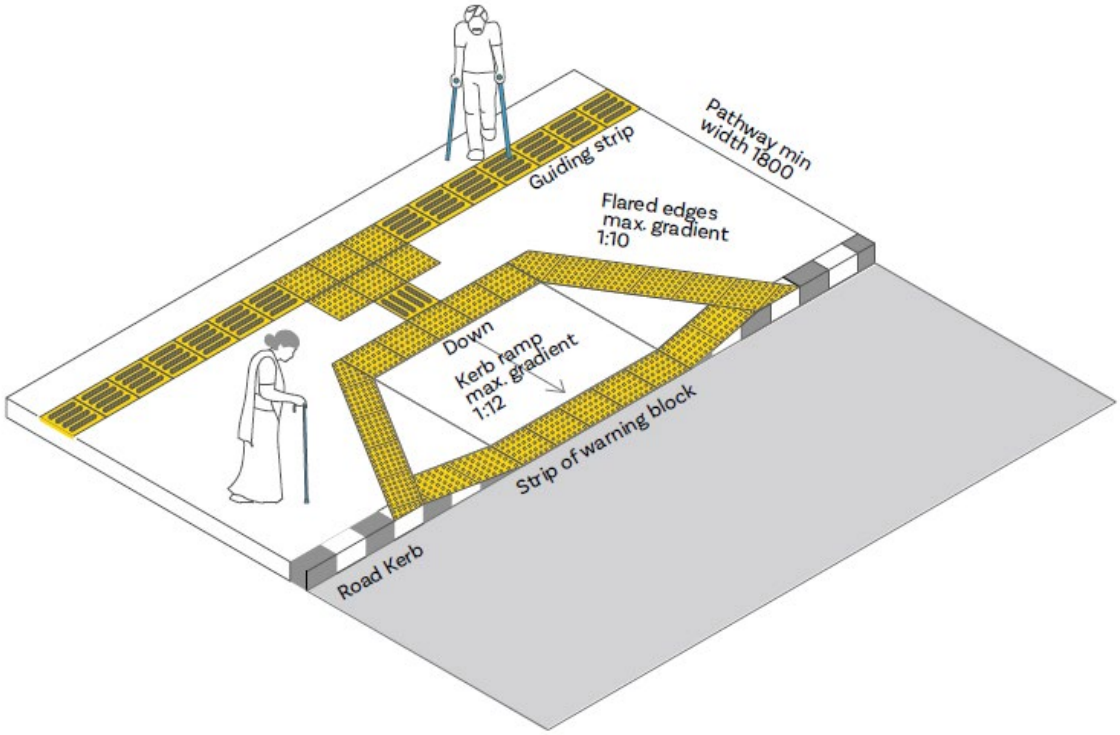
6 Tapping/ kerb rail at a maximum height of 300 mm

All dimensions in millimetres.

2.2 Kerb Ramp

It is a ramp built on a footpath or pavement to accommodate the change in level towards vehicular areas to allow easy and continuous access. Kerb ramps shall be provided at pedestrian crossings and at each end of the footpath of a private street or access road. Kerb ramps shall be provided where the vertical rise is less than 150 mm. They shall meet the following requirements:

- The gradient of a kerb ramp shall not be steeper than 1:12. The kerb ramp shall not be less than 1200 mm in width. It shall provide a clearance of at least 900 mm at the back of the kerb ramp on the footpath (see Fig.).
- Kerb ramps shall have flared sides where pedestrians are likely to walk across them as shown in Fig. and the gradient of the flared side shall not be steeper than 1:10.
- They shall have a slip-resistant surface.
- They shall avoid raised traction strips in order to reduce the hazard to everyone.
- They shall be designed not to allow water accumulating on the walking surface.
- Handrails may not be provided with kerb ramps.
- They shall be so located and protected to prevent obstruction by parked vehicles.
- They shall be free from any obstruction such as signposts, traffic lights, etc.
- They shall not encroach into a roadway, as it is dangerous for users and obstructive for vehicles.
- They shall be so located to enable users to have an unobstructed view of traffic approaching from any direction.
- They shall be provided with adequate visual and tactile warning.
- TGSI (warning type) shall be provided to notify the presence of traffic and shall have a minimum luminous contrast of 70 percent with the adjoining surfaces for the elderly and persons with visual impairment.
- The crossing of any high traffic intersection should be equipped with a pedestrian crossing light and an audio system for the visually impaired. The operating button should be located at a reachable height between 610mm (min) and 1220mm (max.)


Pathway min
width 1800
Guiding strip
Flared edges
max. gradient
1:10
Down
Kerb ramp
max. gradient
1:12
Strip of warning block
Road Kerb

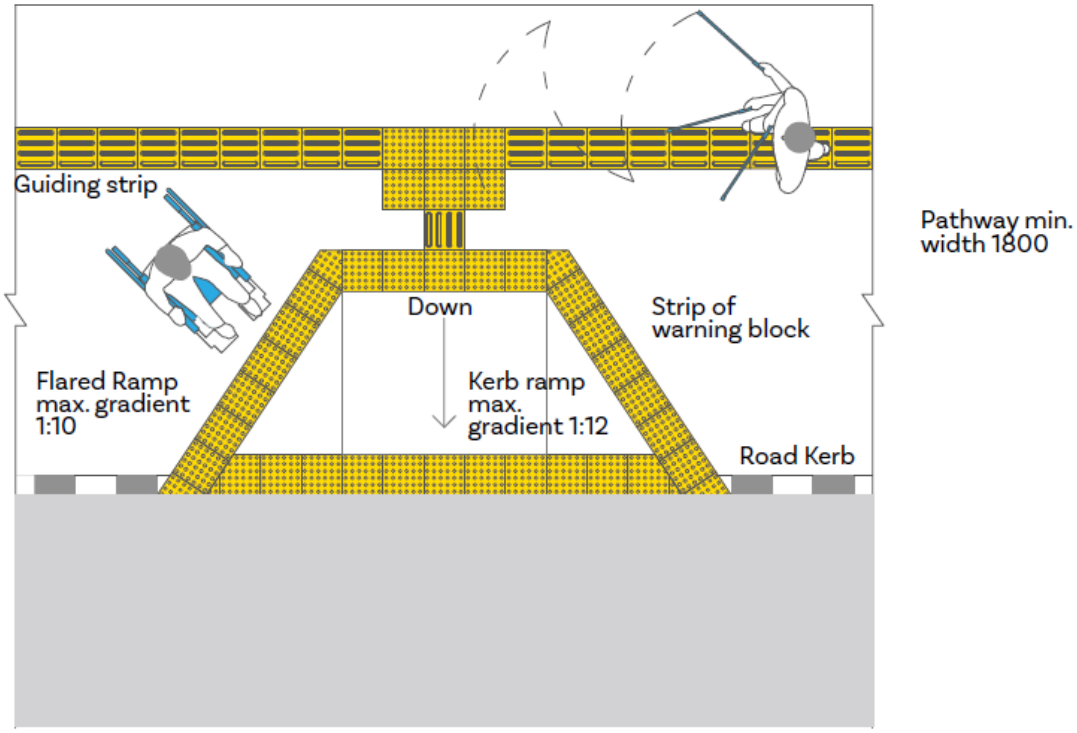

Guiding strip
Pathway min.
width 1800
Down
Strip of
warning block
Flared Ramp
max. gradient
1:10
Kerb ramp
max.
gradient 1:12
Road Kerb

Photo Credit: United States Department of Transportation

2.3 Gratings and Manholes

Gratings and manholes should be avoided on walkways/ pathways. If unavoidable, gratings shall have spaces not greater than 12 mm wide in one direction to prevent a wheelchair from getting its casters caught in a drainage ditch or grating cover. Also, the grating bars shall be perpendicular to the travel path in such a way that its longer dimension is perpendicular to the dominant direction of movement. Grating shall be flushed with finished ground level and shall be treated with a non-slip finish (see Fig. 30).

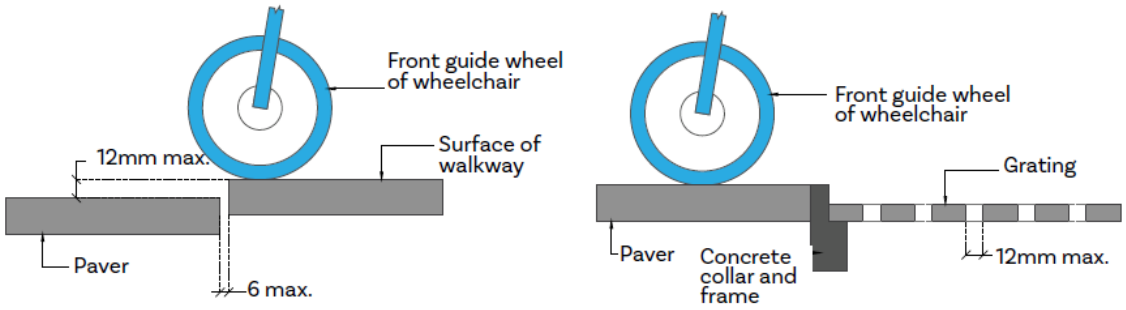


Figure 3.9 Accessible street grating details: Sectional elevation

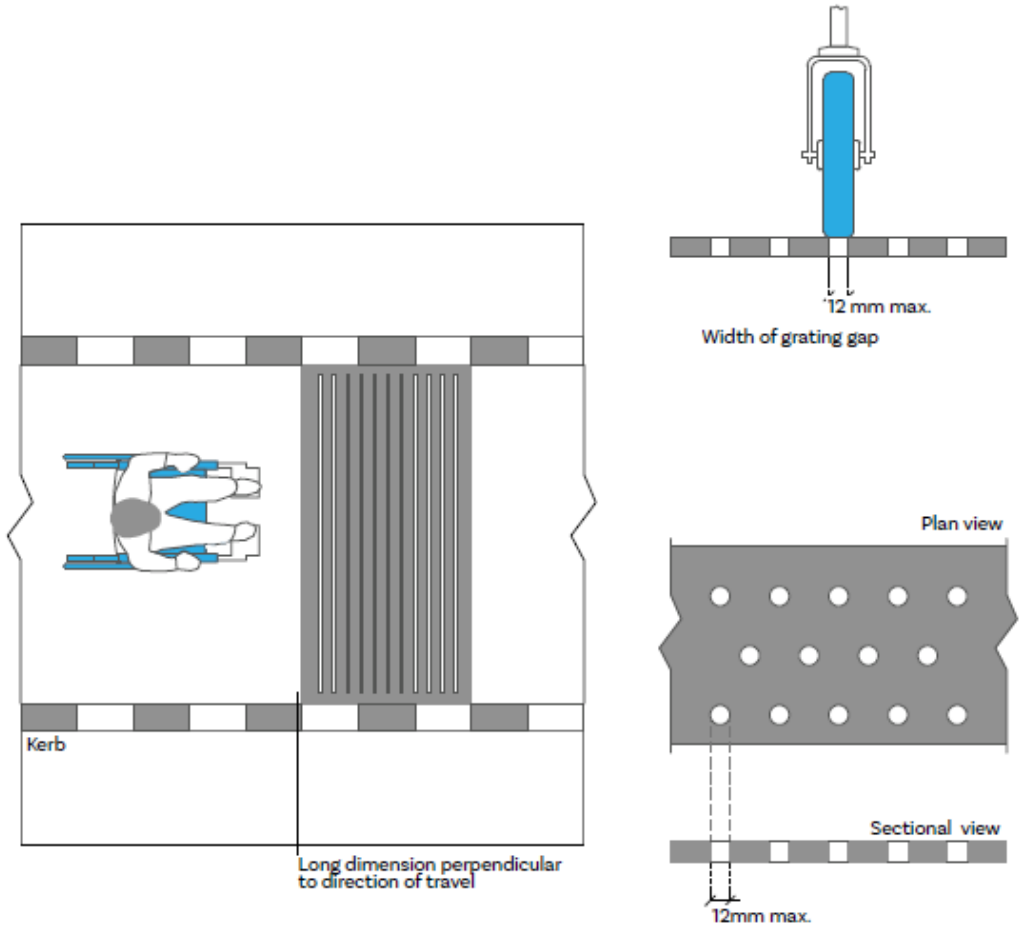


Figure 3.10 Accessible street grating details: Plans layout

2.4 Tactile Ground Surface Indicators (TGSI)

TGSI stands for Tactile Ground Surface Indicators, which are specially designed surface features on the ground to aid visually impaired or blind individuals. These indicators provide essential information to help navigate spaces safely and independently.

There are two types of tactile ground surface indicators:

1. Warning Indicators

- Warn of a hazard or a significant destination (e.g., edge of a staircase, ramps, and intersections).
- Identified by a white cane or underfoot, they alert users to tread cautiously and prepare for obstacles or level changes.

  Installation Guidelines:

  - Placed 300 mm from the beginning and end of ramps, stairs, landings, and door entrances.
  - Two rows of tactile warning tiles must span the entire width of the accessible path before hazards such as intersections, doorways, or obstacles like trees.
  - Warning Indicators should be installed to:
    - Mark the beginning and end of a tactile guiding path.
    - Warn about hazards, level changes (stairs, ramps, lifts), and areas with traffic.
    - Highlight decision points in a guidance system.
    - Indicate entrances/exits of buildings, transport terminals, and boarding areas.
    - Guide movement to and from ramps, staircases, and multi-level crossings.
    - Mark important spots like boarding positions in public transport stations.
    - Alert about life-threatening hazards such as railway platforms.
    - Identify vehicle hazards where pedestrian areas are not separated (e.g., parking exits, driveways).
    - Always be positioned perpendicular to the walking direction and cover the full width of elements like stairs or ramps.
    - Avoid using warning patterns for any other purpose to prevent confusion.

2. Guiding Indicators

- Direct users along a safe path when there are insufficient visual or physical cues.
- Help users follow a clear, accessible route (e.g., across open plazas or pedestrian pathways).

Installation Guidelines:

- Install one or two rows of tactile guiding blocks along the entire length of the accessible route.
- Ensure the path is free of obstacles (e.g., poles, uneven surfaces) and has a clear headroom of at least 2100 mm.
- Guiding Indicators should be installed
    - Open spaces to orient individuals with visual impairments.
    - From plot entrance /drop off /parking to building entrance, reception, public amenities and to stairs/lifts.
    - Sidewalk/footpath section of an approach road to a building; and
    - From a public facility to the nearest public transport station.

3. TGSIs, however, shall not be installed at the following places:

- On the ramp surface, stairs or any inclined surface.
- Into areas where vehicular movement is expected. Access routes must be protected from vehicular movement.
- Internal corridors narrower than 1800 mm, except at decision points; and
- Inside sanitary facilities.

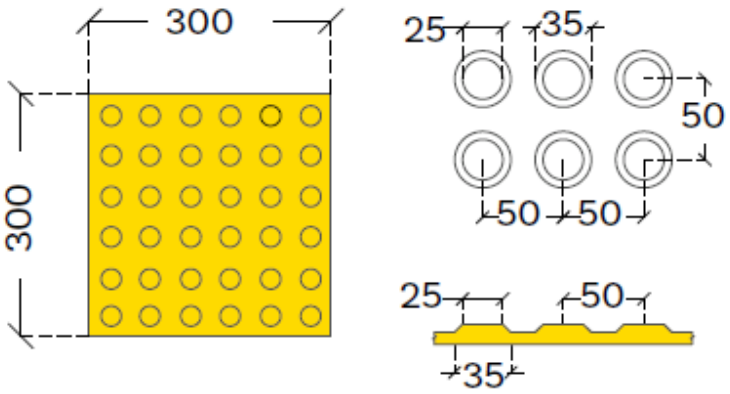


Fig a: Warning Indicators

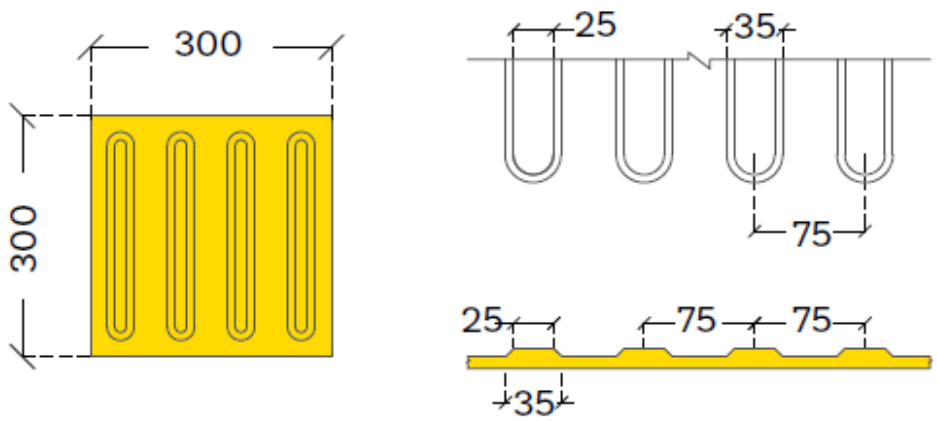


Fig b: Guiding Indicators

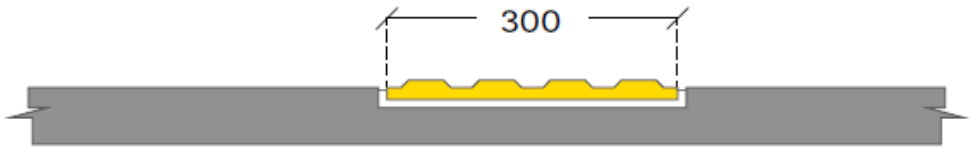
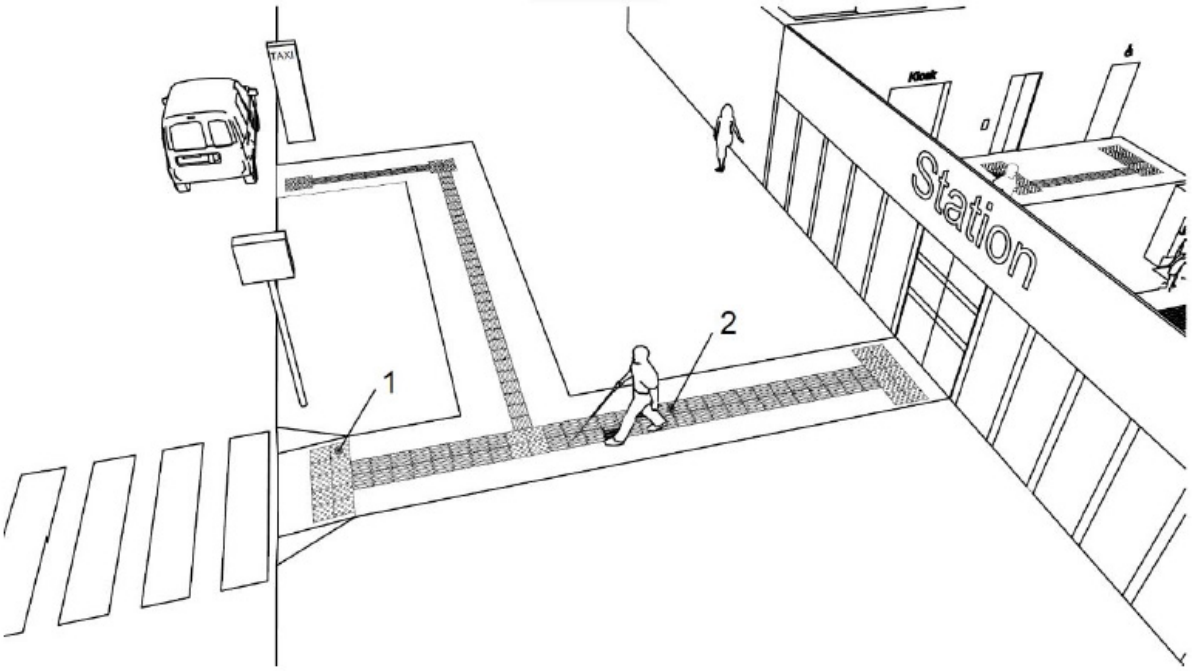


Fig c: Tactile Paver Section



Key

1 Tactile ground surface indicator as attention pattern for decision points or hazards

2 Tactile ground surface indicator as guiding pattern

Example of Tactile Guiding Surface Indicators

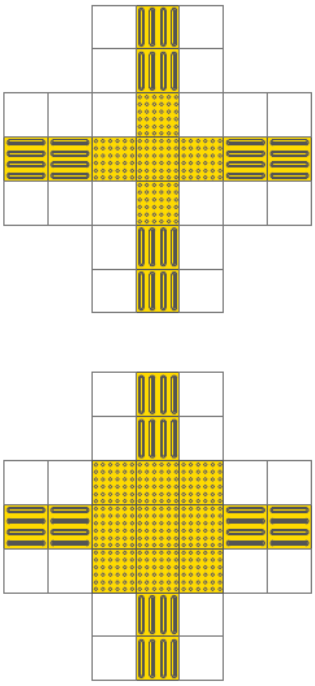


Fig a: '+' shaped junction

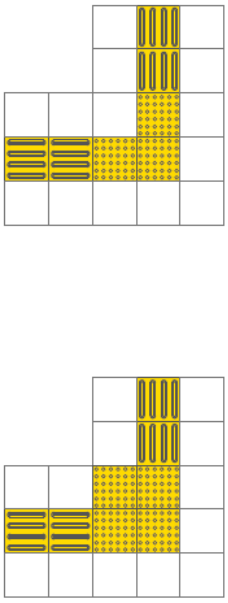


Fig b: 'L' shaped junction

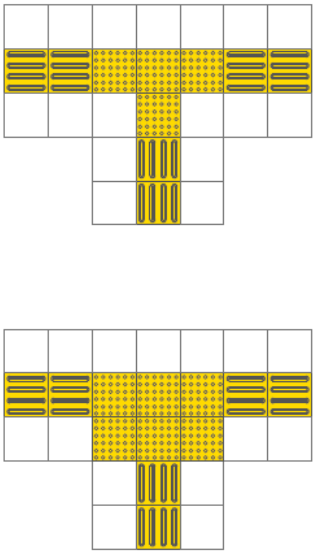


Fig c: 'T' shaped junction

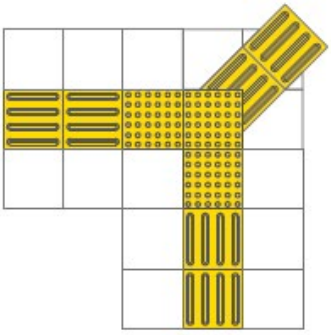


Fig d: 'Y' shaped junction

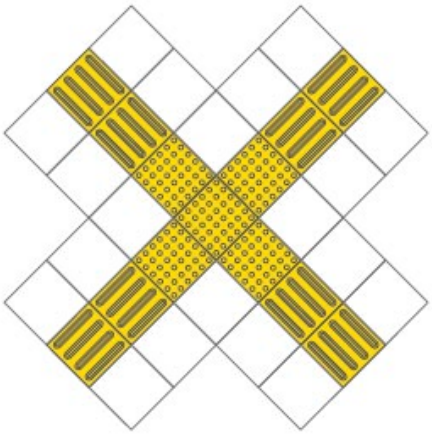
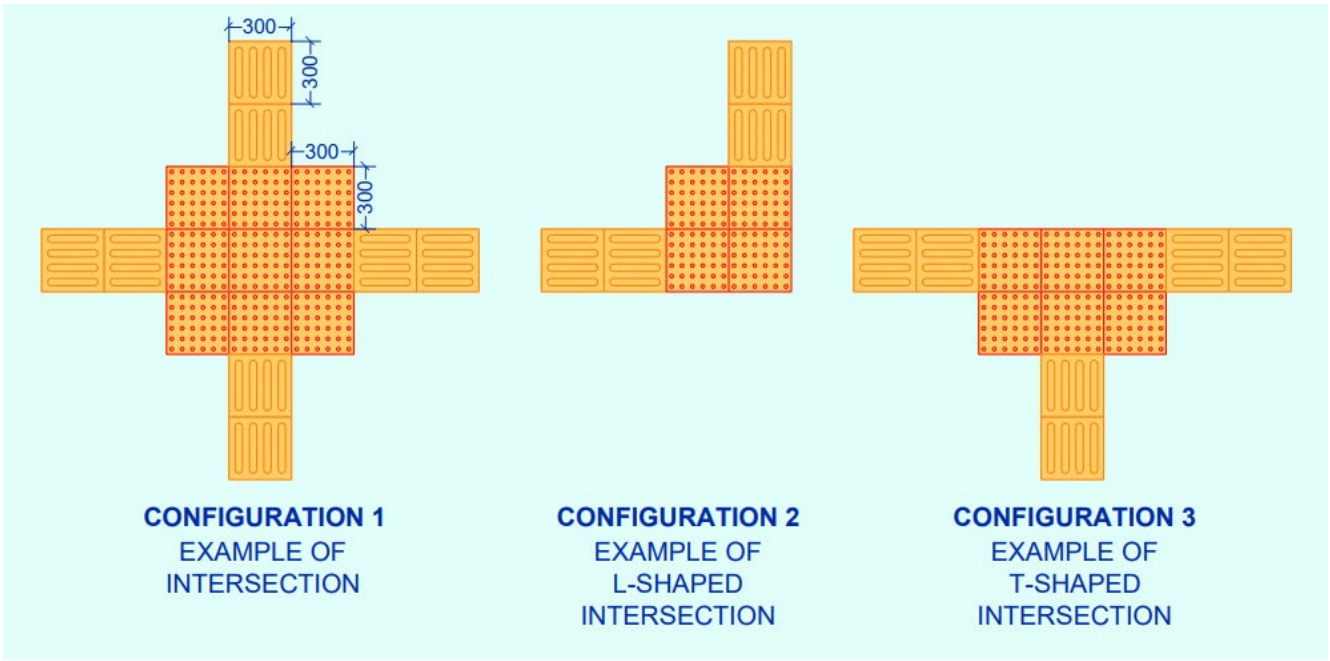
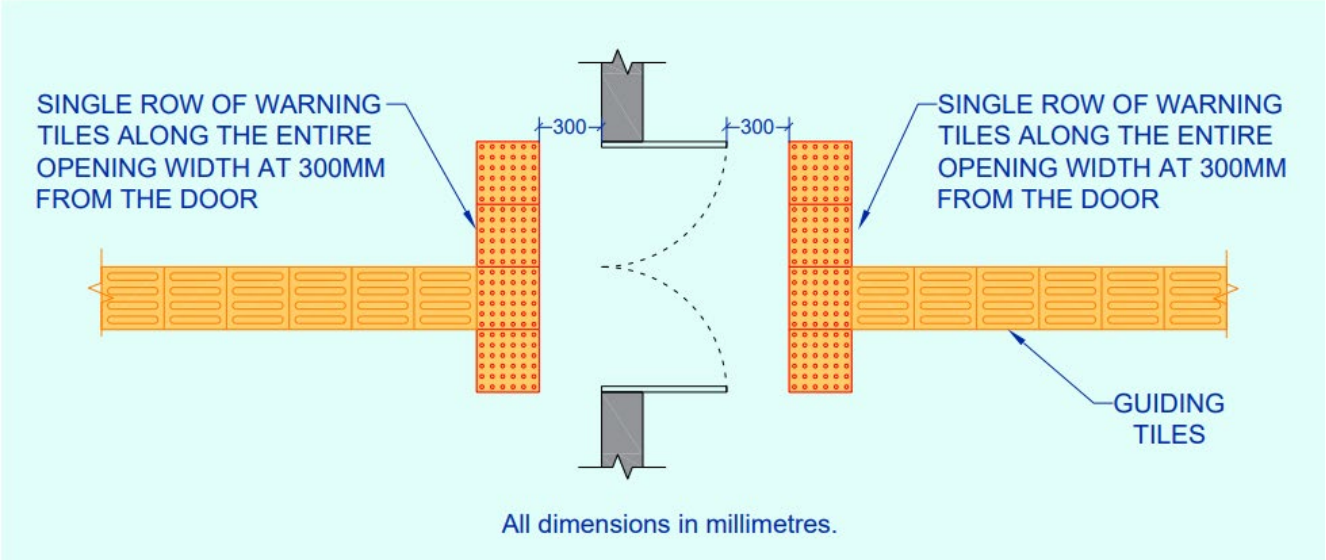


Fig e: 'X' shaped junction


300
300
300
300
CONFIGURATION 1
EXAMPLE OF
INTERSECTION
CONFIGURATION 2
EXAMPLE OF
L-SHAPED
INTERSECTION
CONFIGURATION 3
EXAMPLE OF
T-SHAPED
INTERSECTION


SINGLE ROW OF WARNING TILES ALONG THE ENTIRE OPENING WIDTH AT 300MM FROM THE DOOR
300
300
SINGLE ROW OF WARNING TILES ALONG THE ENTIRE OPENING WIDTH AT 300MM FROM THE DOOR
GUIDING TILES
All dimensions in millimetres.

2.5 Barriers and Hazards

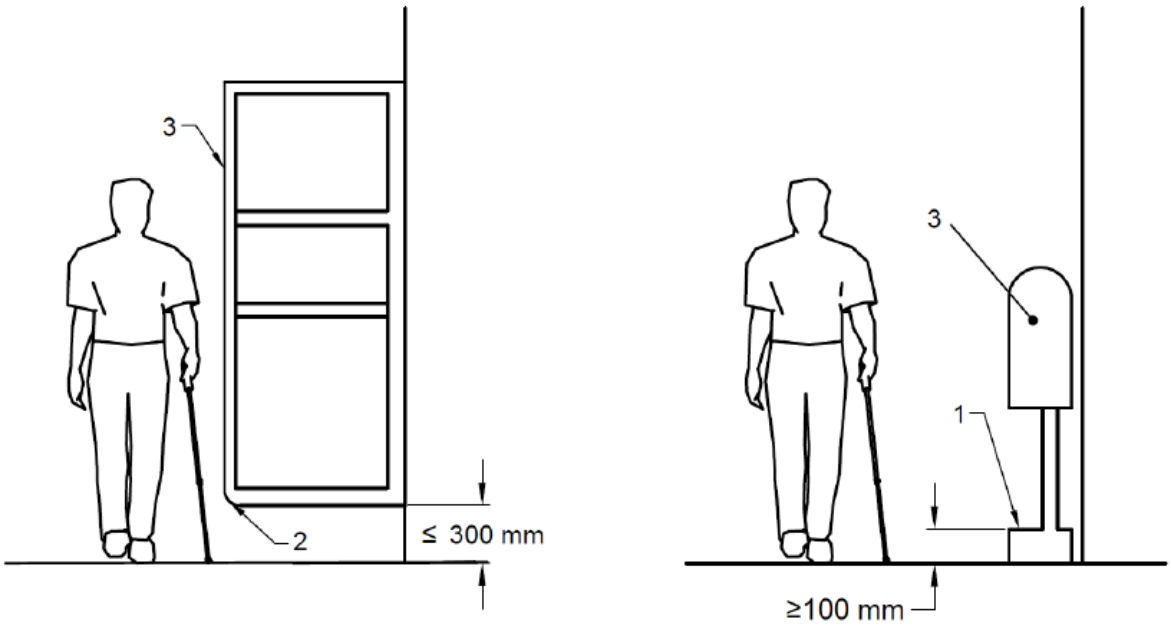
Obstacles, such as equipment, signage, or free-standing structures along pathways in sports facilities, can hinder movement, compromise safety, and reduce accessibility, particularly for athletes and spectators with disabilities. Addressing and mitigating these barriers is crucial for creating inclusive and accessible sports environments.

Unavoidable Free-Standing Posts/Columns:

- Must leave a minimum 1000 mm of unobstructed walking width.
- Should be marked with visual indicators at least 75 mm in height with a minimum visual contrast of 30 points difference in the LRV value of the colours to the background shall be placed; one at a height between 800 mm and 1000 mm above floor level, and the other between 1400 mm and 1600 mm above floor level.
- The headroom along a path shall be maintained at a height of not less than 2100 mm above the surface of the path
- Objects projecting more than 100 mm between 300 mm and 2100 mm above ground level must be clearly visible & detectable with a cane.

Protection for Projecting Obstacles:

- Provide a protective guard at ground level (e.g., kerb or fixed element) at a height of 100–300 mm for cane detection.
- Cane detection should not be set back more than 100 mm from the face of the projecting object.
- Wing walls, side partitions, alcoves, or recesses are recommended to shield projecting elements, extending from 300 mm to 1000 mm above the floor. The protection should visually contrast with the background.



Key

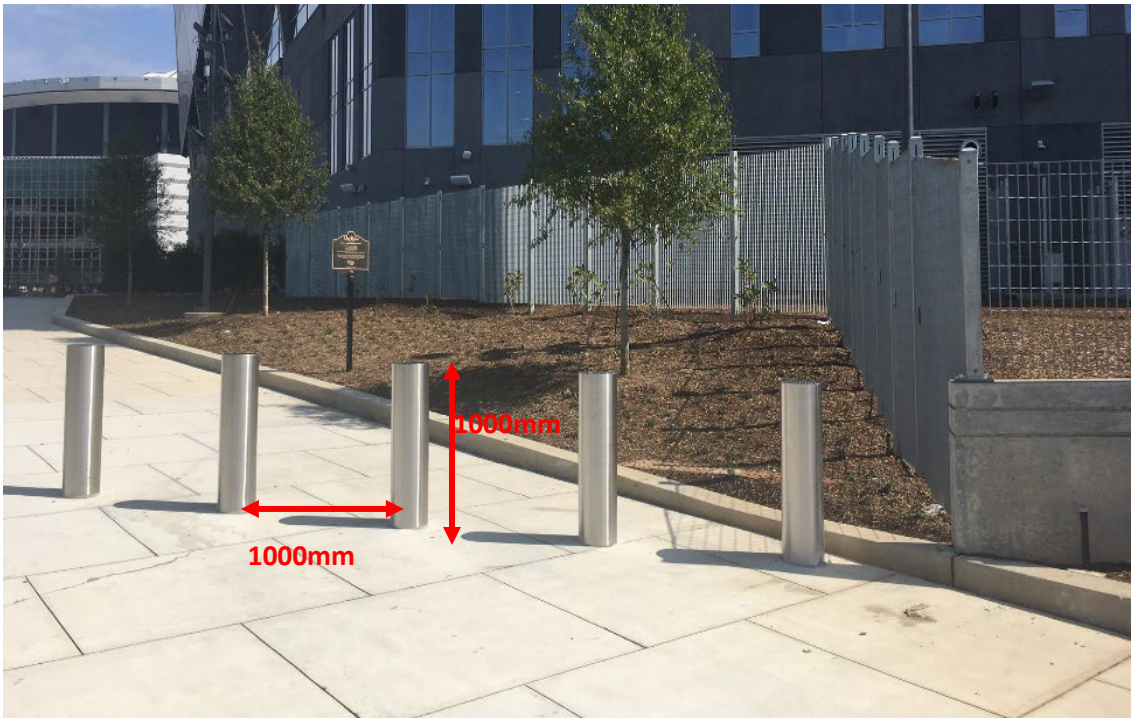
1 Base plinth detectable with cane if a projecting object is more than 100 mm above floor level

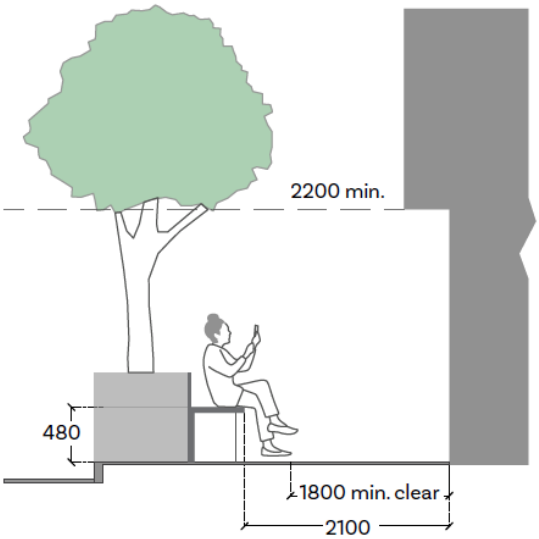
2 Winged protection between 300 mm and 1 000 mm above floor level, contrasting visually with the background and detectable with a cane

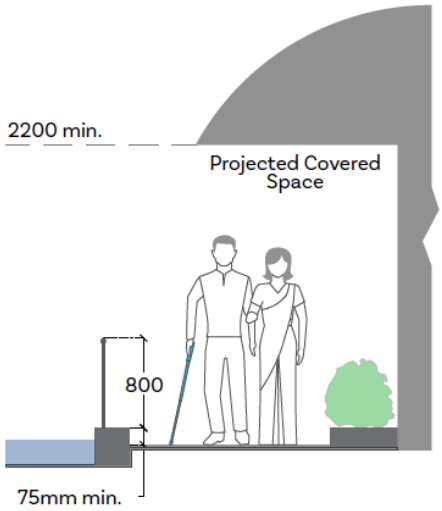
3 Difference in light reflectance value to background — minimum 30 points

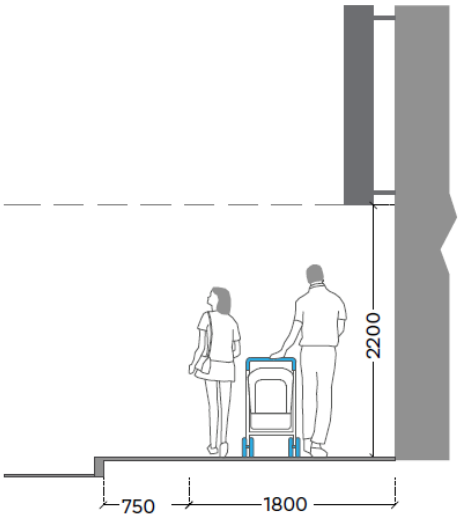
Bollards, short vertical posts generally arranged in a line to guide traffic and protect from vehicle intrusions, shall have a maximum height of 1000 mm.

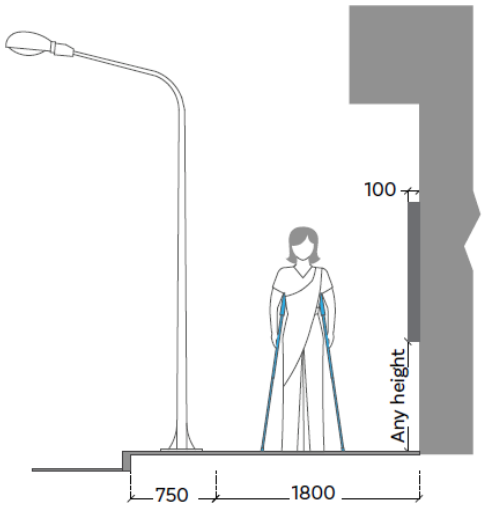
- Bollards, where installed within the access route shall have a minimum clear spacing between them of 1000 mm to provide clear passage width for movement of wheelchairs.
- Bollards as street elements should be checked for regular maintenance and acts of vandalism.

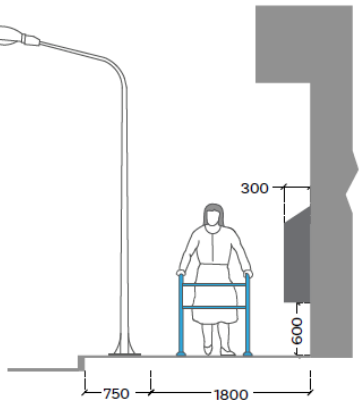


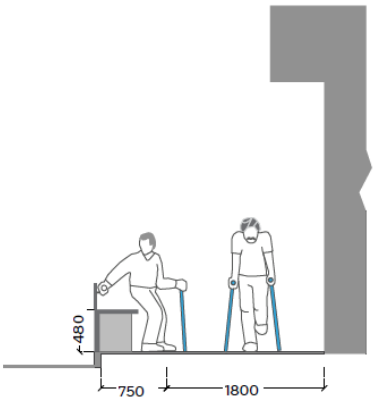

2200 min.
480
1800 min. clear
2100


2200 min.
Projected Covered Space
800
75mm min.


2200
750
1800


100
Any height
750
1800


300
600
750
1800


480
750
1800

2.6 Outdoor Seating

Outdoor seating along pathways in sports stadiums enhances accessibility, comfort, and safety for all visitors, including elderly individuals, persons with disabilities, and families. These seating areas provide rest spots, reduce fatigue, assist in wayfinding, and improve the overall spectator experience. Strategically placed seating helps manage crowd flow, supports emergency preparedness, and ensures inclusivity by accommodating diverse mobility needs. Key design considerations include

- Seating in external environments could be designed either as independent furniture or as built in features responding to the context. In either case, it is important to first identify the location and placement of furniture ensuring that it doesn't hinder the access route for pedestrian mobility including those on wheelchairs or prams, etc.
- It should be provided at regular intervals of every 30 metres along access routes especially near level changes such as external steps or ramps. In recreational contexts, they should be placed in shelters to experience and enjoy the scenic views.
- Seats with backrests are useful for additional support, and armrests, positioned approximately 200mm above seating level, are also useful to lean against, as well as assisting in getting in and out of the seat especially for elderly or those with assisted care.
- Seats should be between 450mm - 500mm high.
- Seating around trees in public spaces or parks, etc. with adequate design for accessibility can emerge to be inclusive resting spaces for all.
- Seating locations should be well lit for safety and ease in access for all including persons with low vision.

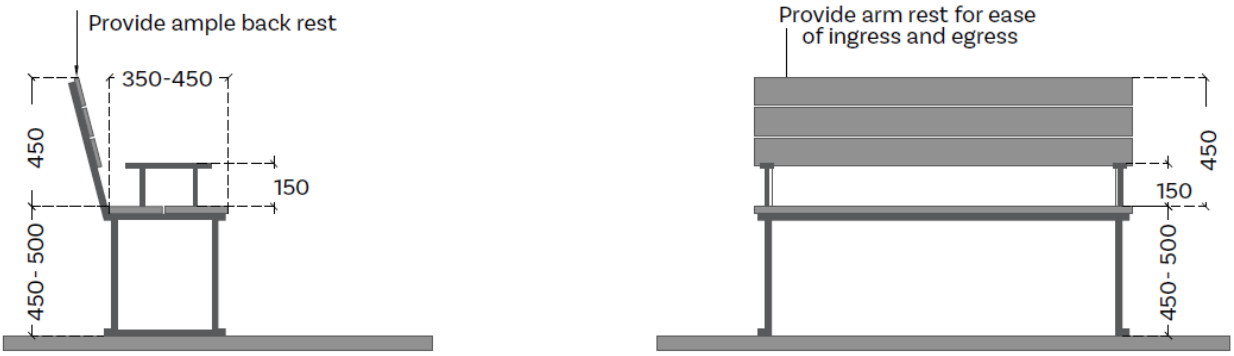


Figure 3.27 Outdoor seating: Elevation

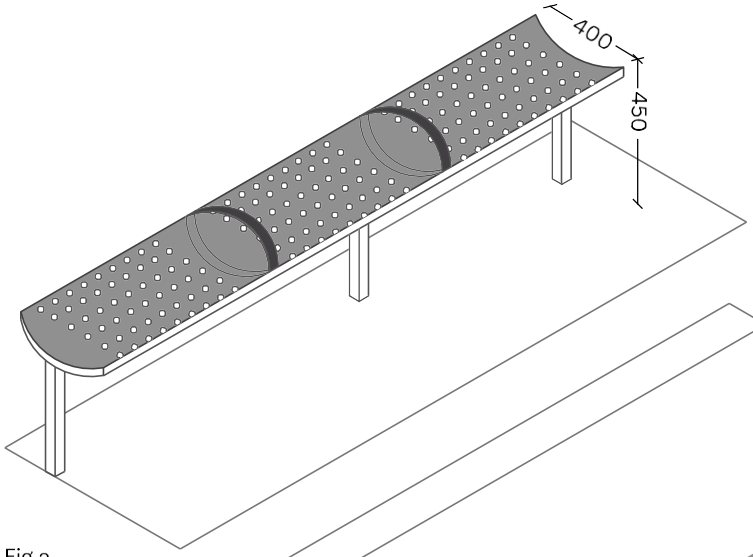
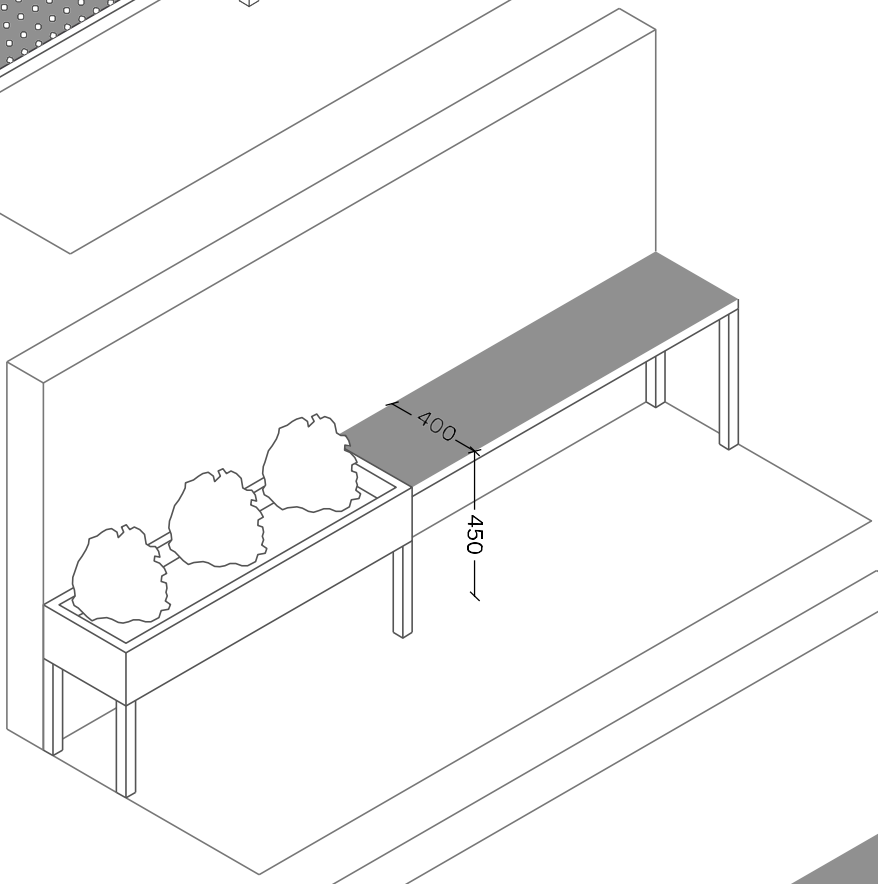


Fig a



Figb

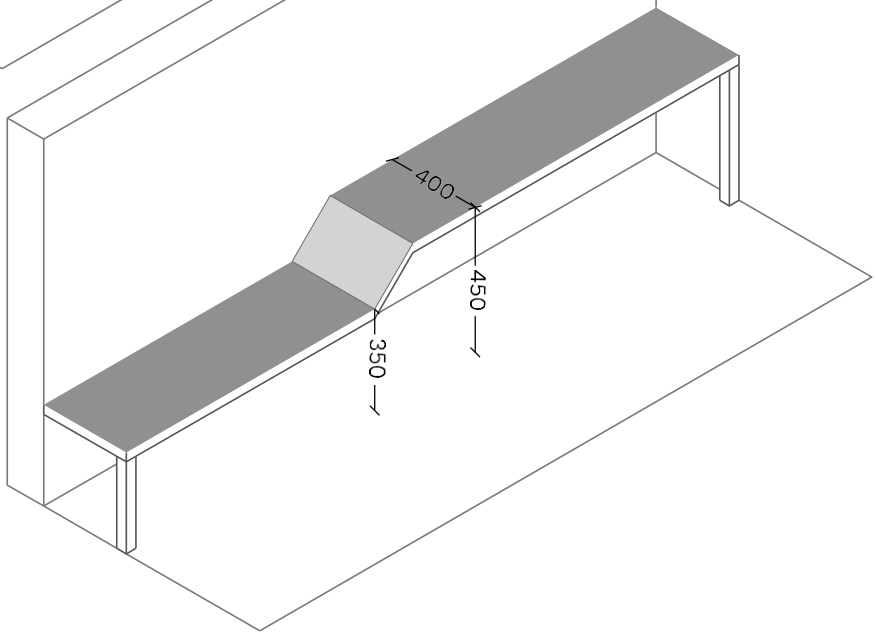
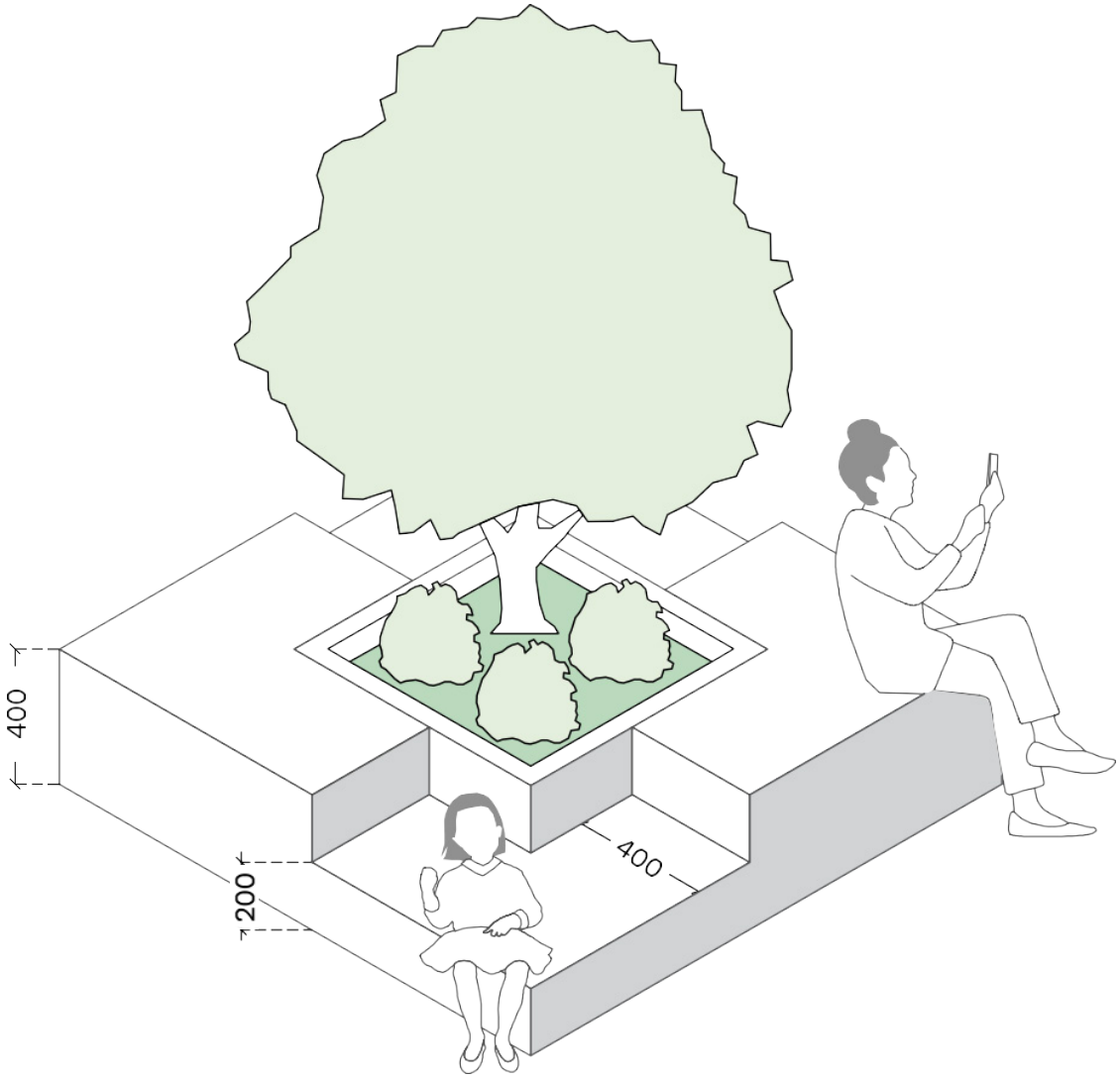


Fig c



Outdoor seating: 3d visualization Type A

2.7 Lighting for Walkways

Proper lighting for walkways in sports stadiums is essential for safety, accessibility, and visibility. Well-lit pathways help prevent accidents, guide spectators, and ensure smooth movement, especially for individuals with disabilities, elderly visitors, and families.

Adequate lighting enhances security, making walkways safer at night or in low-light conditions. It should be evenly distributed, glare-free, and placed at appropriate heights to avoid shadows or dark spots. Tactile paths and important areas like ramps, stairs, and crossings should have enhanced lighting for better navigation.

Lighting for walkways shall be as given below:

- Lighting should illuminate the walkway; lighting fixtures not exceeding a height of 4 m from ground level should be provided.
- Lighting shall be provided every 20 m to 30m, focusing light not on the car lanes, but on the walkways.
- A white light source, for example high-pressure sodium, is preferable in city and town centres for the aesthetic effect and for better colour definition, which benefits those with poor sight.
- White lighting at average 35 to 40 lux is recommended to ensure colour contrast of tactile blocks and to ensure visibility at night to persons with low vision.
- Light pole may preferably be located within the tree-planting zone.
- Lower-level light poles are preferred to avoid shadow where there are high trees.

3. Accessible Parking Spaces

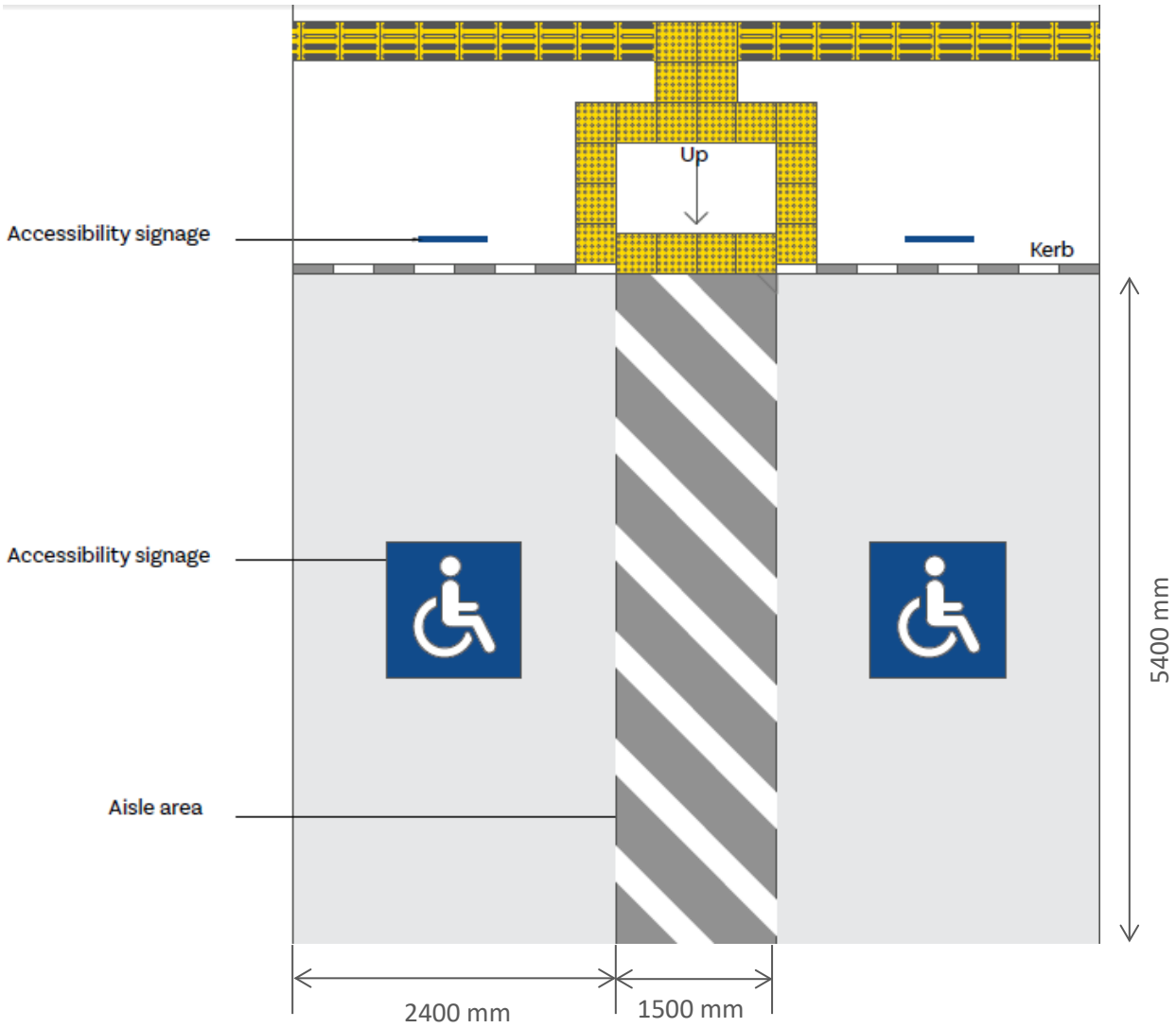
Designated accessible parking spaces serving sports facilities shall be located as close as possible to the main entrance, with the distance from the accessible parking space to the main entrance not exceeding 30 meters. If access to the facility is through a lift, parking should be within 30 meters of the lift lobby. A kerb ramp must be provided to connect the parking space to an adjacent higher pedestrian pathway, adhering to accessibility standards.

- The number of parking spaces to be given near the stadium area shall be calculated as per the table give below.

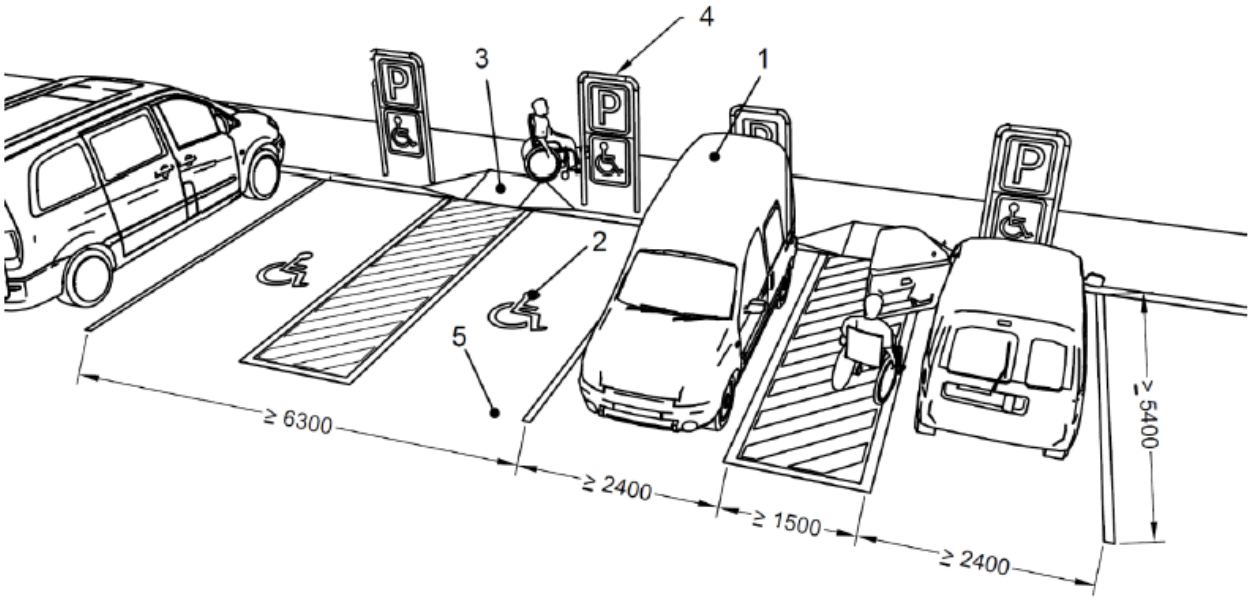
Total number of car parking spaces in the parking lot	Minimum Required number of accessible parking bays
1-10	1
11-25	2
26-50	3
51-100	4
101-200	6
More Than 200	Add an accessible parking bay at the rate of 1 per 100 parking spaces in the parking lot

- **Minimum Parking Size: The** parking shall be 5400 mm x 3900 mm as shown in Figure.
- **Transfer Bay:** of minimum 1500 mm width shall be provided on the right side of each reserved parking space. Vehicles must be parked in one direction to utilize this transfer bay. Refer Figure.
- **Shared Transfer Area: -** Two accessible parking spaces with one shared transfer area are widely used and shall have a minimum width of 6300 mm.
- **Accessible Route: -**
    - The accessible route of 1200 mm width shall be provided for wheelchair users to pass behind vehicle that may be backing out.
    - Where designated parking is not directly connected to the sidewalk, it is important to minimise the need for people with mobility impairment to travel behind parked cars. Where travel behind cars is unavoidable, a marked pedestrian route should be provided to the closest exit or accessible sidewalk.

- **Van Parking:**
  - One in eight designated spaces need to accommodate side lift vans. Van parking requires a total width of 4600mm (expanding the transfer area by 700mm to accommodate the lift).
  - For roadside parking of an accessible van, the minimum dimensions shall be 9000 mm × 2400 mm with a kerb to access the nearest footpath/sidewalk.



Typical accessible car parking layout



Key

1 Minimum unobstructed height for vans 2 600 mm

2 Symbol of accessibility

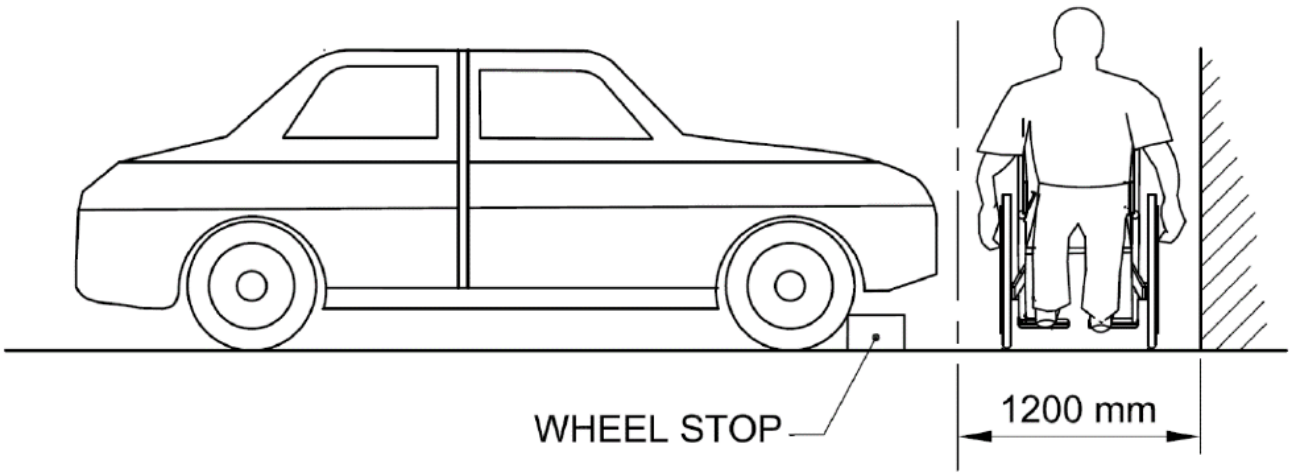
3 Kerb ramp

4 Signage, including symbol of accessibility

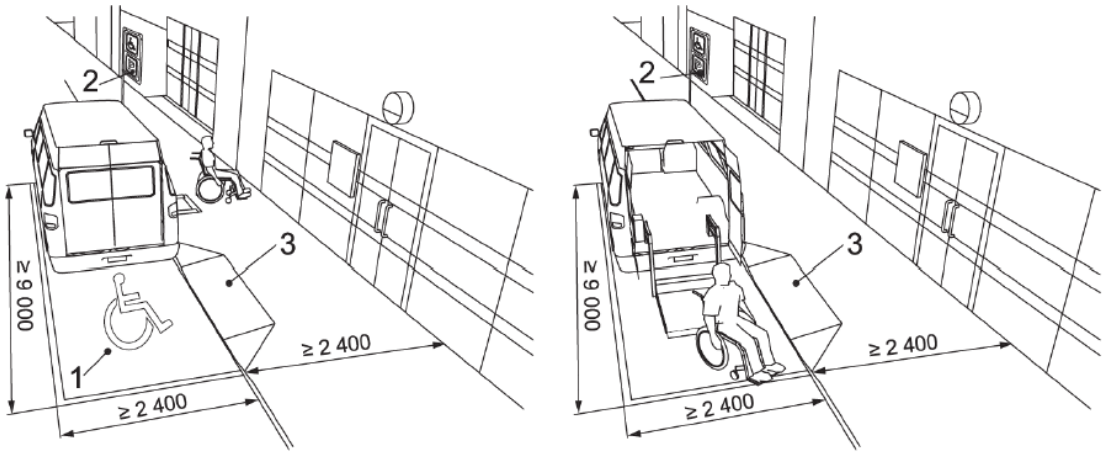
5 Firm ground

All dimensions in millimetres.

ACCESSIBLE PARKING SPACES ACCESSIBLE PARKING SPACES WITH ONE SHARED TRANSFER AREA



ACCESSIBLE ROUTE WIDTH FOR WHEELCHAIR USERS TO PASS BEHIND A VEHICLE



Key

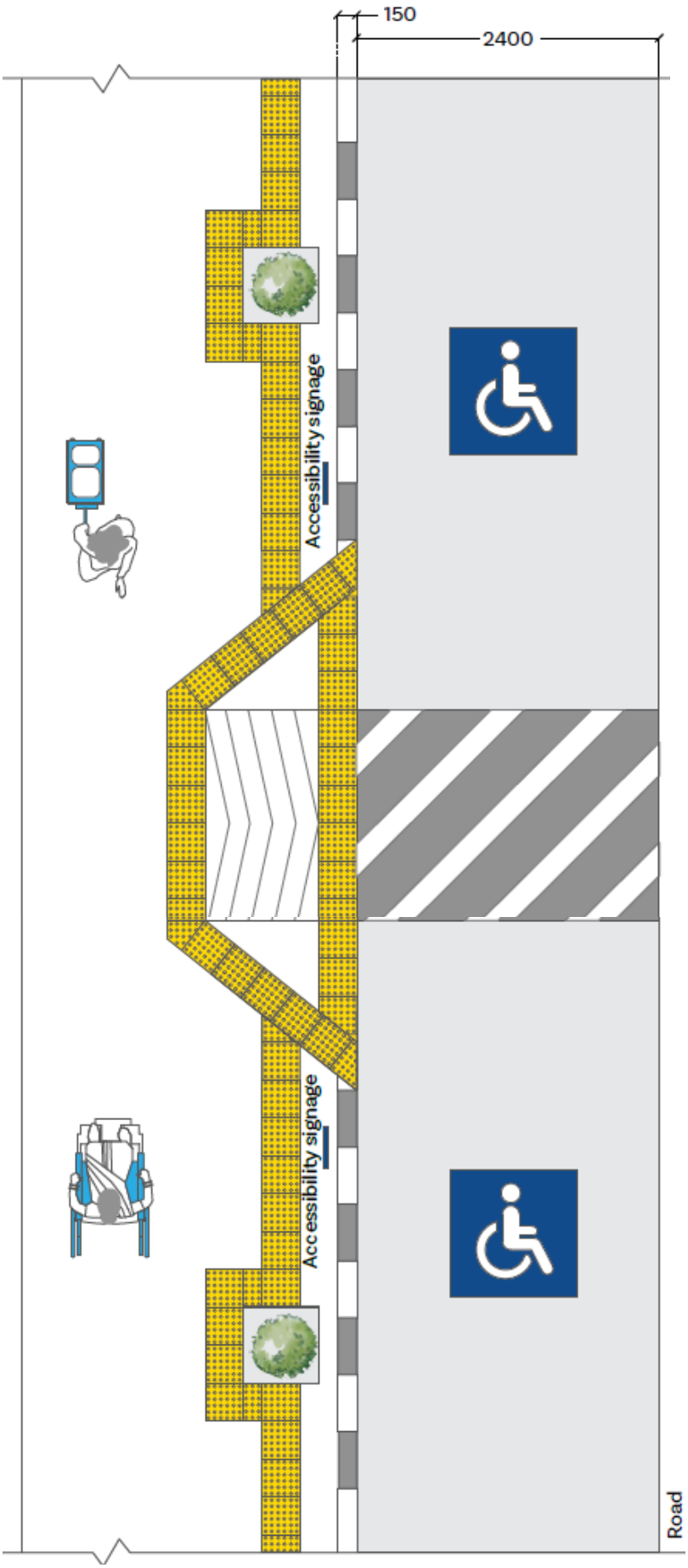
1 International symbol of access on the ground

2 Vertical signage for accessible parking space(s)

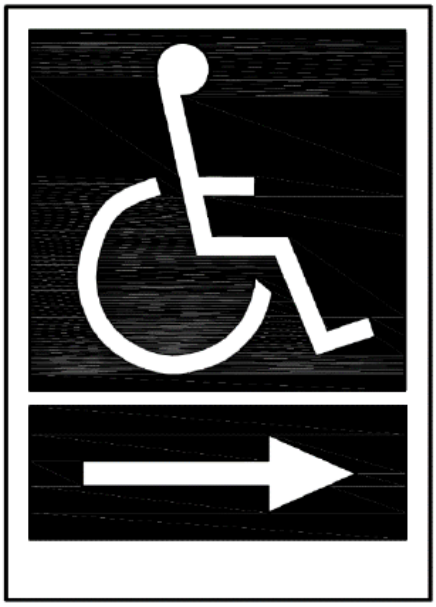
3 Kerb ramp joined to the adjacent footpath/ manoeuvring space

All dimensions in millimetres.

PARKING SPACE ALONG A FOOTPATH/SIDEWALK

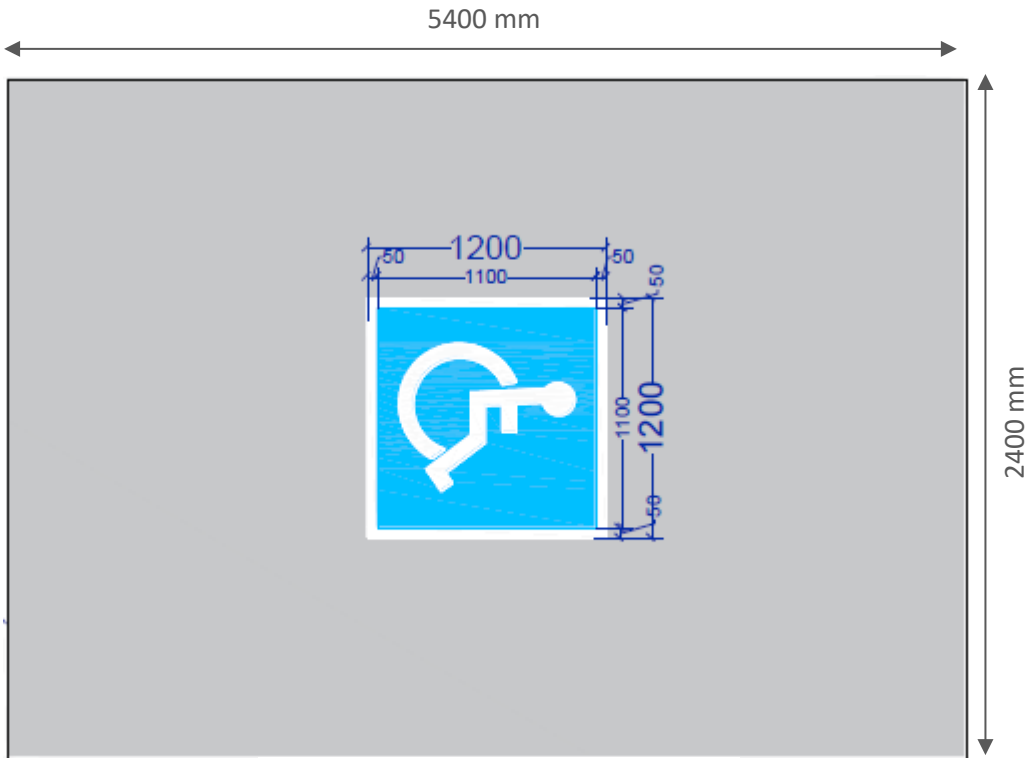

150
2400
Accessibility signage
Accessibility signage
Road

- **Directional sign-** with arrows and the international symbol of accessibility shall be placed along the route to the accessible parking lot, especially at direction changes or where the lot is not easily visible.

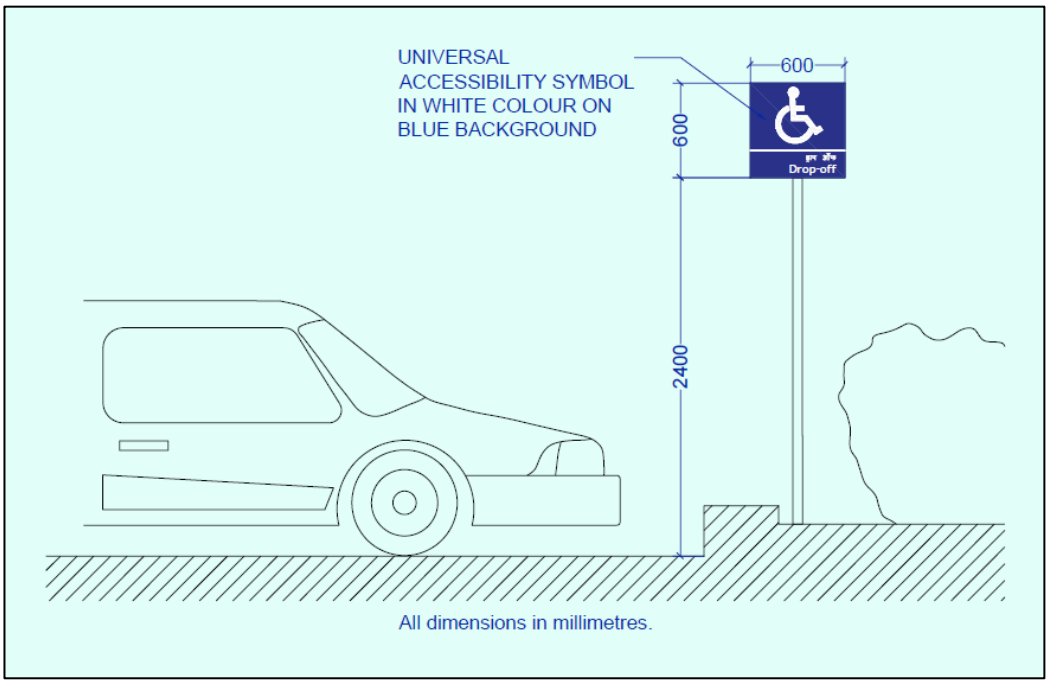


DIRECTIONAL SIGNAGE LEADING TO DESIGNATED ACCESSIBLE PARKING SPACES

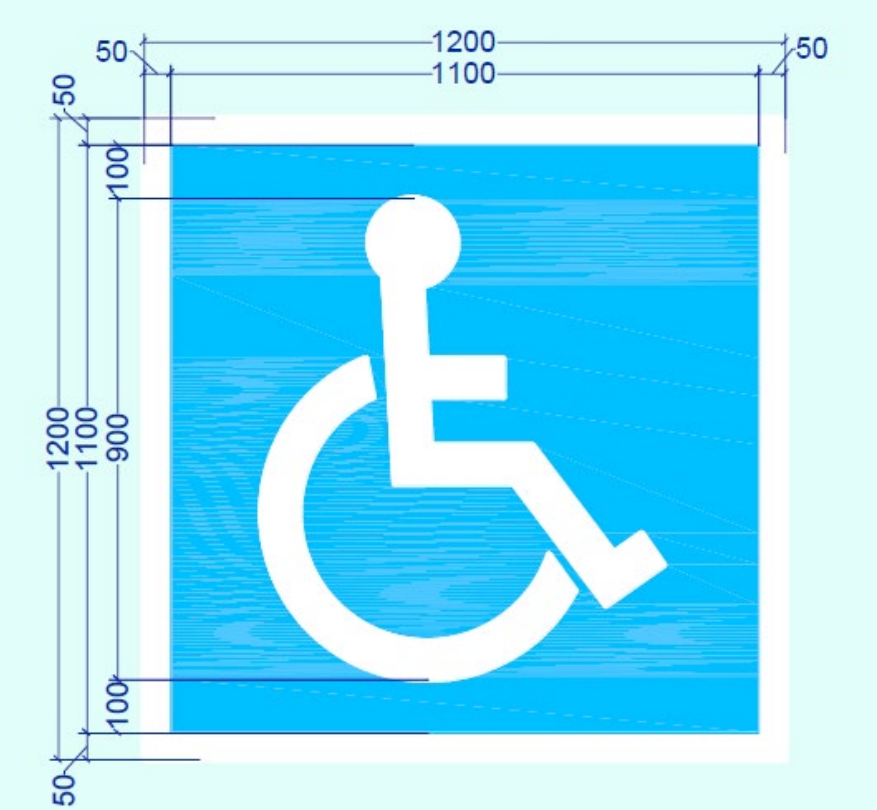
- **Locational Sign-**
    - On-floor signage shall be a square between 1000 mm and 1500 mm in size, placed at the centre of the parking lot, and designed in a contrasting blue and white colour scheme.
    - The transfer bay (also called the loading/Unloading area) shall be painted with white diagonal lines.
- Vertical signage (600mm x 600mm) at a minimum height of 2400mm shall be provided.
- One drop-off area in front of the entrance and one pick-up area in front of exit of same size shall be provided.
- Accessible route shall connect the pick-up and drop off zone to the stadium entry.
- Digital Parking management systems may be adopted with real time information to easily provide parking information to diverse user groups.
- Parking management systems shall ensure keeping the reserved bays unoccupied. Except in case of medical emergency, they shall not be used by alternate users.
- It is recommended to ensure that the Parking management staff is sensitised and trained towards responding to the needs of persons with disabilities, along with other diverse user groups.



On-Floor Signage



Vertical Signage



DIMENSIONS FOR MARKING ON THE STREET OR GROUND

All dimensions in millimetres.

Example of parking symbol on floor, transfer bay marking and kerb ramp

3.1 Accessible Parking for Adapted Vehicles

Adapted vehicles are modified to help people with disabilities drive or travel comfortably. These vehicles improve mobility and independence. With growing awareness and inclusive policies, the demand for adapted vehicles is rising, especially in urban areas. Governments and private companies are also promoting accessibility by offering subsidies and better infrastructure, making these vehicles more common and necessary.

Adapted sports vehicles are vehicles that have been modified or designed to meet the needs of people with disabilities. They can include wheelchairs, hand bikes, tandem bikes, and tricycles

Examples of adapted sports vehicles

- **Wheelchairs**: Used in wheelchair rugby, wheelchair basketball, and other sports. Wheelchair rugby players use wheelchairs with strong frames, foot protection, and wheel covers.
- **Hand bikes**: Used in cycling
- **Tandem bikes**: Used in cycling
- **Tricycles**: Used in cycling

➢ A few parking spaces (best practice 3 %) for adapted scooters, tricycles and other personal mobility devices (in two-wheeler category) shall also be provided in each accessible parking space with a minimum bay size of 3000 mm x 2400 mm for one parking with transfer aisle.

- Additionally, this facility should be provided near sports venues that require adapted sports vehicles, such as wheelchair basketball, para-cycling, para swimming, sitting volleyball etc. The distance between these designated parking spaces and the sports facility should not exceed 30 meters, ensuring convenience and accessibility for para-athletes.

Athletes with severe lower limb impairments use hand cycles.

Athletes with a vision impairment race tandem with a sighted cycler in front.

Athletes with severe lower limb impairments use hand cycles.

Athletes with balance difficulties such as cerebral palsy use tricycles.

4. Entrance to the Premises & Security Check

The building entrance in a sports facility includes all access and entry points for athletes, spectators, staff, and visitors. An accessible sports facility entrance must accommodate various elements such as designated drop-off points, passenger alighting areas, pedestrian pathways, and other essential services. These features should cater to different user groups, including persons with disabilities, elderly individuals, and those with special needs. The main entrance must ensure seamless access for all without requiring special entry procedures, promoting an inclusive environment for everyone attending or participating in sporting events.

- **Alighting and Boarding point:** Space should be provided for passenger drop-off points for taxis, public transport and for large vehicles such as vans, etc, as near as possible to the main accessible entrance. Vehicle drop-off areas should be a minimum of 9000 mm long and 3600 mm wide and be served by a kerb ramp.
- **Accessible Routes:** At least one accessible route leading to an accessible entrance of the building shall be provided from the alighting and boarding point of taxi stands and car park lots for people with disabilities.
- **Level Difference: -** If there is a difference in level between the carriageway and the footpath, a kerb ramp conforming to **section 2.2** shall be provided to facilitate the setting-down of people close to the main entrance of a building. This benefits people who need to transfer to and from a wheelchair and others.
- **Visual Impairment Assistance: -**
    - An appropriate tactile ground surface indicator (TGSI) should be provided to lead vision impaired persons to the main entrance where no other clues indicate the path to the building.
    - A **tactile map** of the building should be available at the entrance for visually impaired visitors.
    - A texture change around doorways can help visually impaired persons locate entrances. **Beepers** may be added at main entrances to assist them.

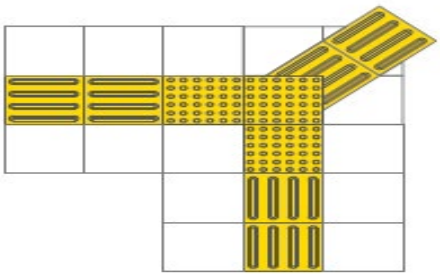
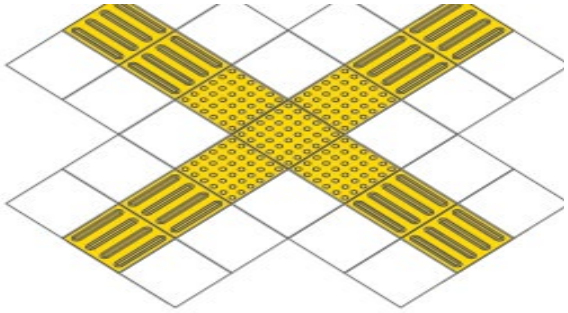


Fig d: 'Y' shaped junction



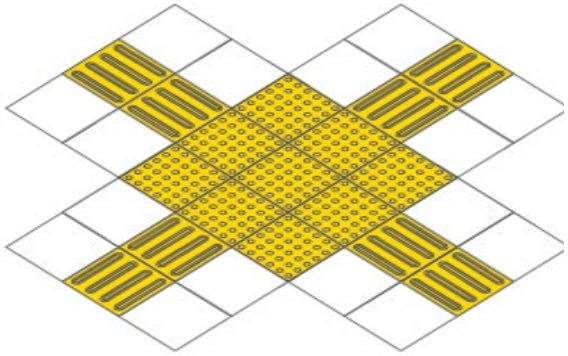
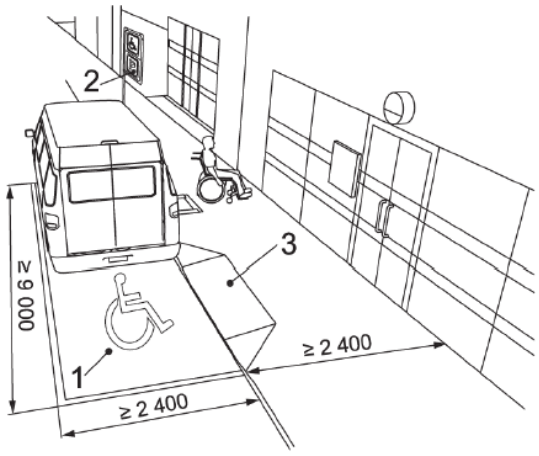
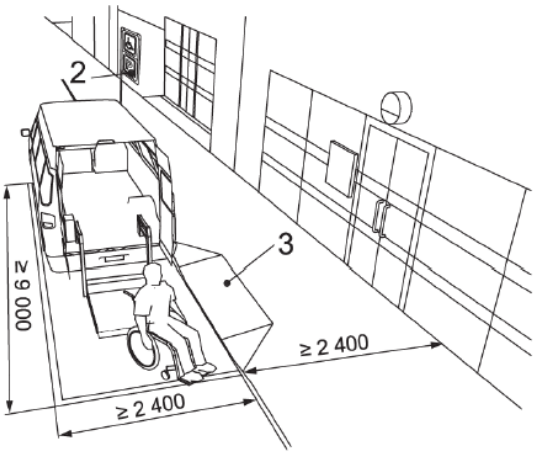


Fig e: 'X' shaped junction





Key

1 International symbol of access on the ground

2 Vertical signage for accessible parking space(s)

3 Kerb ramp joined to the adjacent footpath/ manoeuvring space

All dimensions in millimetres.

PARKING SPACE ALONG A FOOTPATH/SIDEWALK

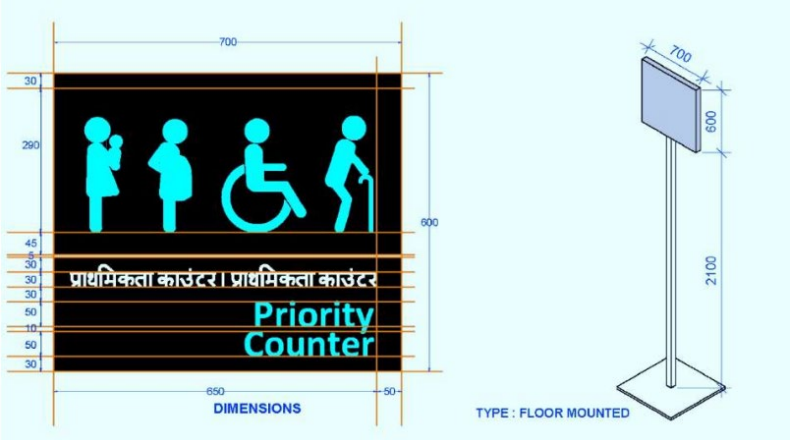
- **Signage:**
    - The accessible entrance, if different from the main entrance, shall be located adjacent to the main entrance and not at the rear of the building. The accessible entrance shall be clearly signed and easy to locate.
    - Symbol shall be displayed at all other non-accessible entrances to direct persons with disabilities to the accessible entrance complying with Section 24.
- **Entrance Doors: -**
    - The width of the accessible main entrance door shall not be less than 1500 mm minimum and the width of all the other doors shall not be less than 900 mm minimum (preferably 1000 mm).
    - A clear, firm and level landing of at least 1800 mm × 1800 mm shall be provided on either side of the entrance door.
    - The width of the passageways leading to and from such access door shall not be less than 1500 mm;
    - It is generally good practice to recess foot mats in the floor on either side of the door, but care shall be taken to ensure that the top end of the mats is flushed with the rest of the flooring.
    - Building shall have all accessible entrance doors complying with Section 6.
- In multi-storey buildings, the accessible entrance shall have an accessible route leading to the lifts.
- Internal floor surfaces shall be of materials that do not impede the movement of wheelchairs.

4.1 Security/Door Frame Metal Detector

Key points: -

- DFMD gate should incorporate with the international symbol of accessibility to provide a direction for passengers with reduced mobility.
- To provide independent accessible entry, DFMD should have a wide gate of clear widthat least 1000 mm. A wide DFMD gate allows wheelchair, prams, and other mobility aids to access the departure loungewith ease.

- Tactile ground surface indicators for safe navigation should be provided just before the entrance of DFMD gates.
- One lane for males and one lane for females to give priority treatment to persons with disability shall be marked. The lane should not be reserved for them, instead used for giving them priority treatment. Frisking cubicle of standard size (minimum 1500mm x 1500mm for wheelchair turning) shall be given for both these lanes, male as well as female (for frisking people with amputation, etc.)
- 'Priority Lane' signage should be displayed at the beginning of these two lanes for easy identification.
- The DFMD panel of minimum 1000mm width shall be provided in these two lanes.
- The person in charge of the counter should be given training to communicate efficiently with all the people with disabilities including training on sign language.

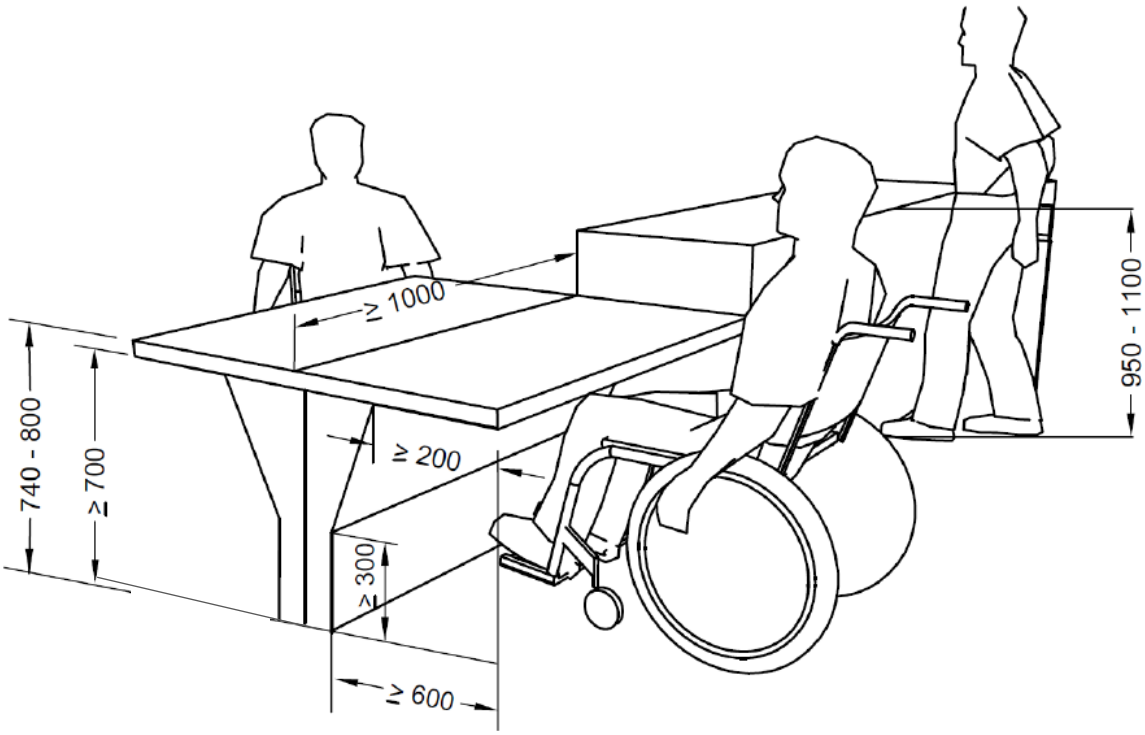


5. Reception Counter/Help Desk

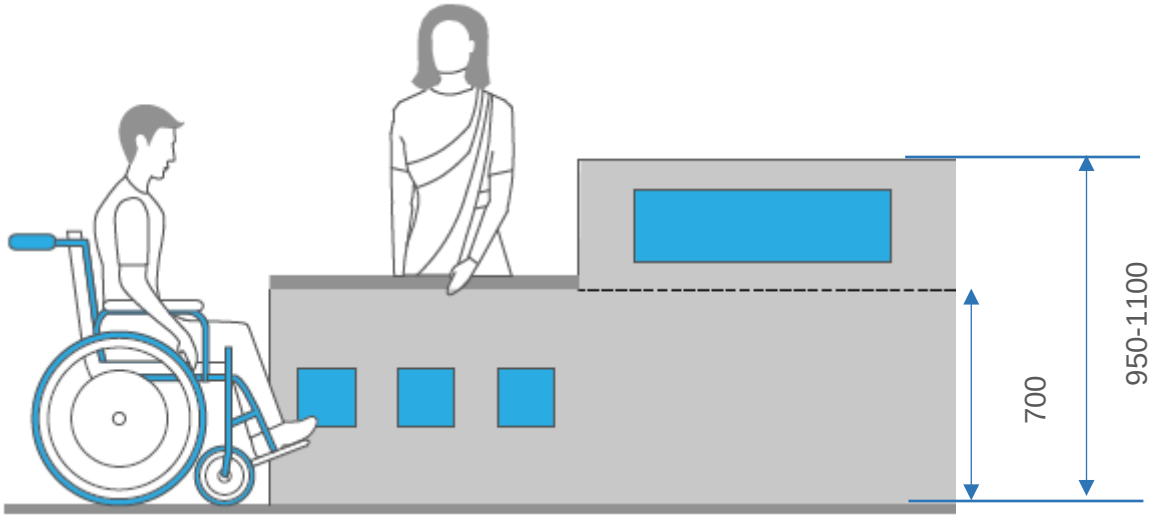
A Reception Desk, Help Desk, or Registration Desk is a central point or the first point of contact where visitors, participants, and staff can get information, check-in, or seek assistance. The reception desk welcomes guests and provides directions, supports and resolves issues such as lost items, technical help, or event-related queries. the help desk resolves queries and handles event check-ins and document verification.

An accessible reception, help, or registration desk promotes inclusivity, independence, and equal access to services. A well-designed accessible desk improves user experience, enhances safety, and complies with legal accessibility standards. By making these desks accessible, we create a welcoming and efficient environment for all visitors**.**

- **Manoeuvring space: -** Reception counters, desks, and ticket offices must be accessible to all, including wheelchair users. A clear space of **at least 1500mm × 1500mm** (preferably 1800mm × 1800mm) should be available on both the receptionist's and visitor's sides.
- **Height:** The counter should have a dual height design, with the lower section to be between 750 to 850 mm from the floor, providing at least 700 mm of knee clearance for individuals in wheelchairs or of short stature. The upper section should be between 950 mm and 1100 mm from the floor to accommodate standing individuals, ensuring accessibility for both athletes and spectators.
- **Signage & Pictograms:**
    - As a good practice, reception counters shall indicate in a universally accessible way the icons or pictograms of various facilities available. It plays a vital role in informing people from a distance about the possible support available at reception counters.
    - A tactile map or model is a useful way of providing information to visually impaired people and people with hearing impairments who wish to navigate around a building.
- **Hearing Assistance:** In noisy areas or counters with security screens, at least one position should have a hearing enhancement system (e.g., an induction loop) and be clearly marked. Counters should not be placed in front of bright windows to prevent glare and shadowing, which make lip-reading difficult.



All dimensions in millimetres.



All Dimensions in millimetres

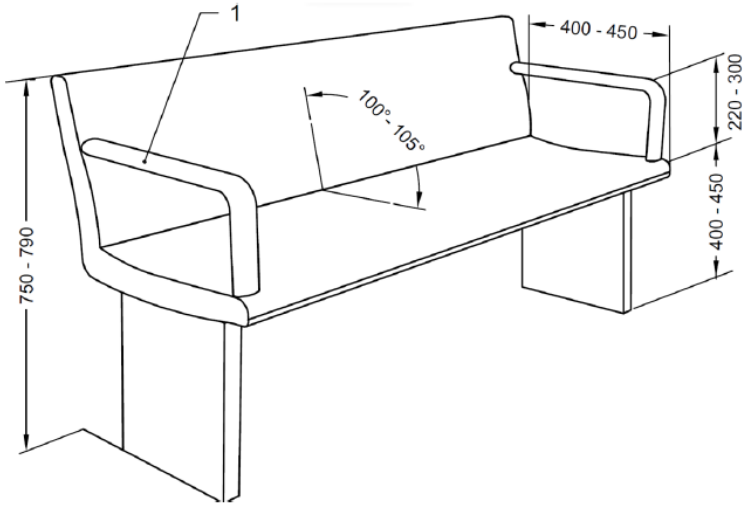
- **Illumination:** To facilitate lip reading, lighting should provide even illumination. The reading and writing surfaces at counters, desks and ticket offices shall be illuminated to a level of at least 200 lux in the room, and on the desk in a range of 350 lux to 450 lux.
- **Queue System:** If a queue number ticket system is used, it shall be suitably designed to be accessible. All necessary information shall be given in simple wording with sufficient visual contrast and based on the two-sense-principle. The ticket machine and the calling system shall provide visual and audible output.
- **Cloakrooms:** Attended cloakrooms are staffed rooms where bags/luggage/other articles can be stored securely. Typically, a ticket or receipt is given to the customer, with a corresponding ticket attached to the garment or item. A cloakroom shall comply with the requirements given for reception/counters.
- **Emergency Services:** First Aid, defibrillators or other forms of emergency support may be provided on the reception through properly identified signage system.
- **Staff Training:** It is important to ensure that reception staff is trained in supporting the special needs for diverse user groups. This may include elements like knowledge of multiple languages including sign language, technology support for guiding assistance, etc.

5.1 Waiting Area

Waiting areas in sports facilities should be thoughtfully planned to accommodate a wide range of users, including athletes, spectators, staff, and individuals with disabilities. These spaces should be easily identifiable, accessible, and usable in various contexts, such as within stadiums, arenas, or sports complexes. For example, waiting areas at entrances, ticket counters, or during event intermissions should be designed to meet the specific requirements of the facility while considering the diverse needs of all visitors, including those with mobility impairments. Waiting areas should be planned for both short and long durations, ensuring inclusivity and comfort for everyone.

Below are key recommendations for creating accessible and inclusive waiting spaces in sports facilities:

- **Priority Seating:** Clearly marked **accessible seating** should be provided for individuals with disabilities, the elderly, and those with special needs to ensure comfort and inclusivity.
- **Seating design** should incorporate a configuration and layout that ensures a clear aisle width of at least 900 mm to allow for easy movement and manoeuvring of wheelchair users, individuals with mobility aids, baby strollers, rollators, and others. Each seating area should provide a clear, level floor space of no less than 900 mm x 1200 mm to accommodate these users comfortably.
- **Comfortable Seating Design:**
  - Seat height: 450mm–500mm
  - Seat depth: 400mm–450mm
  - Armrest height: 220mm–300mm, extending to the front of the seat
  - Backrest angle: 100°–105° for comfort
  - Armrests: at a 700 mm height from the finished floor level. Seats with armrests and backrest to assist older persons and those with mobility difficulties with sitting down and standing up. However, few seatings in waiting areas may omit armrests to allow lateral transfer.
- **Diverse Seating Options:** Given the diversity and dispersion of users, in environments of high footfalls and short-term waiting, it is recommended to provide furniture with standing support along with seating spaces to accommodate diverse user needs. If tables with fixed seats are used, there shall be a place for at least one person in a wheelchair at the table.
- **Uniform illumination** of 200 lux along with adequate visual contrast is recommended for waiting spaces between seating, flooring and overall ambience of the environment.
- **Basic amenities** like charging points, vending kiosks, etc. should be easily accessible from the waiting spaces.



Key

1 Armrest omitted on some benches to allow lateral transfer

All dimensions in millimetres.

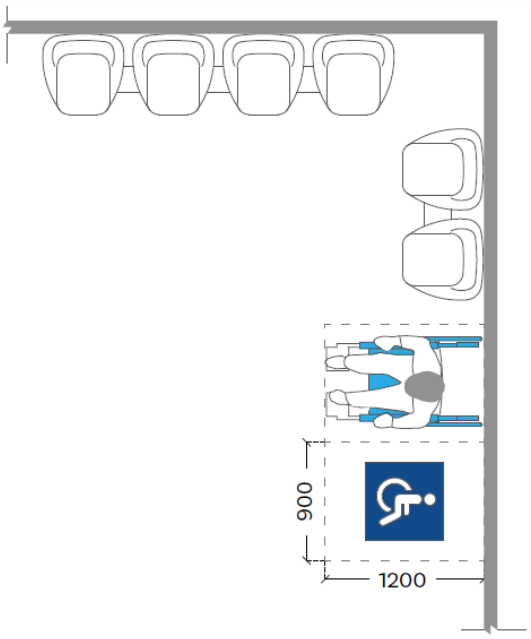


Fig a. Type A

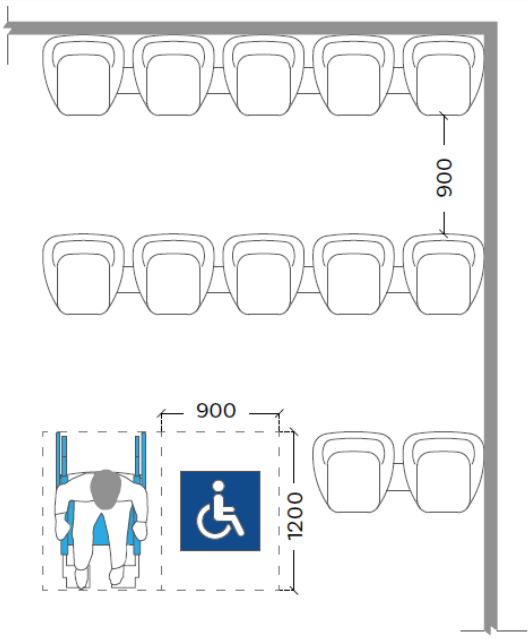


Fig b. Type B

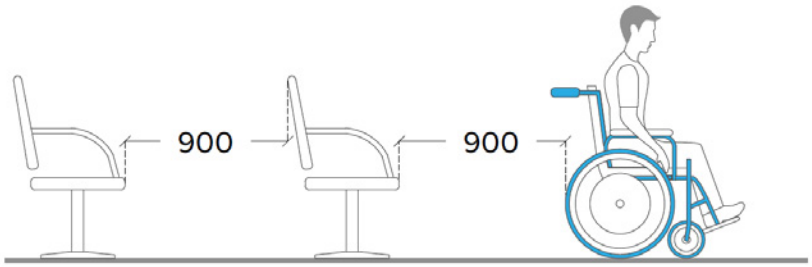


Fig c. Section

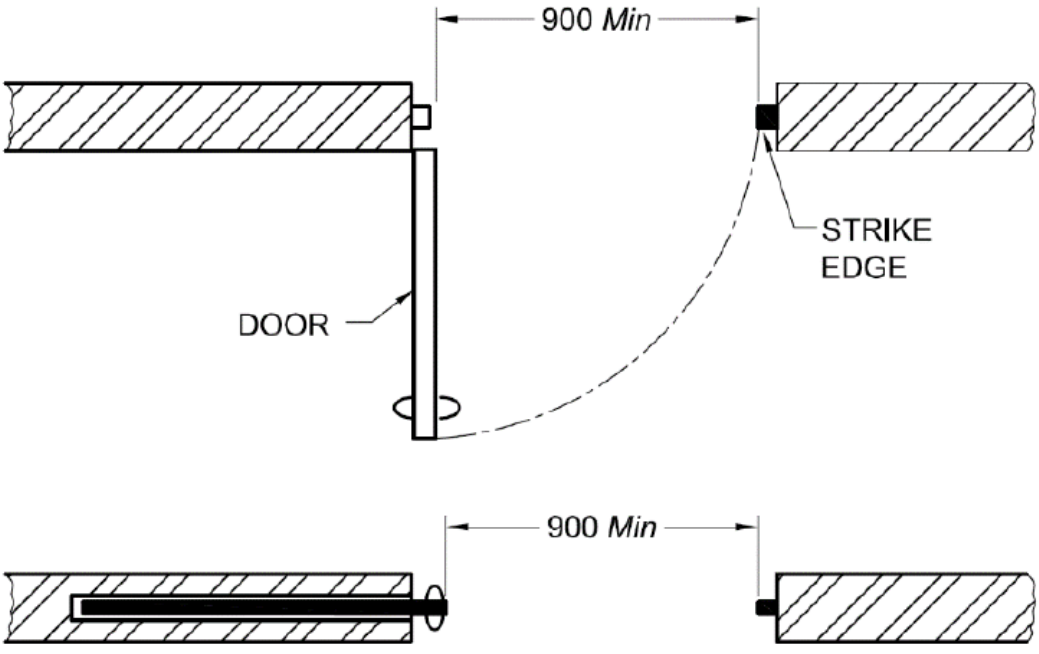
6. Doors

Doors and their fixtures are essential to accessibility in sports facilities, regardless of the building's size or scale. As the first point of entry, doors play a crucial role in shaping the user experience. Therefore, careful planning, design, and detailing are necessary to ensure they are accessible. Factors such as door width, type of fixtures, and operability are critical for accessibility. Despite the wide range of modern door systems, it is recommended to follow specific guidelines for door systems in sports venues to accommodate all users, including athletes, spectators, and staff.

The doors shall meet the following general requirements:

- **General Design & Identification**:
  - Doorways should be levelled and designed to be easily identifiable and locatable by individuals with vision impairments, ensuring seamless access for all.
  - A texture change around doorways can help visually impaired persons locate entrances
  - All external doors shall have warning blocks installed 300 m before the entrances for aid of visually impaired users.
- **Threshold & Floor Contrast**:
  - There shall be no thresholds (doorsills). If thresholds are unavoidable, they shall not exceed 12 mm and those exceeding 5 mm shall be bevelled and contrast visually with the adjacent floor.
  - A minimum difference in LRV of 30 points compared to the floor shall be provided.
- **Automatic & Sensor-Operated Doors:**
  - Wherever possible, power or sensor operated door shall be provided. The automatic doors should be configured with manual operation in case of any power failure.
  - Automatic doors, where provided should have guard rails, power floor mats, push or kick plate, horizontal or vertical sensing device and the doors should remain fully open until area is cleared by user. Sliding automatic doors are safer than swinging automatic doors.
  - Automatic doors shall have a push button system to open them.
- **Alternative Entryways**: Wherever revolving doors or turnstiles are installed, they shall be supplemented with an alternate side-hung (swing type) door with 900 mm (preferably 1000 mm) minimum clear opening width.

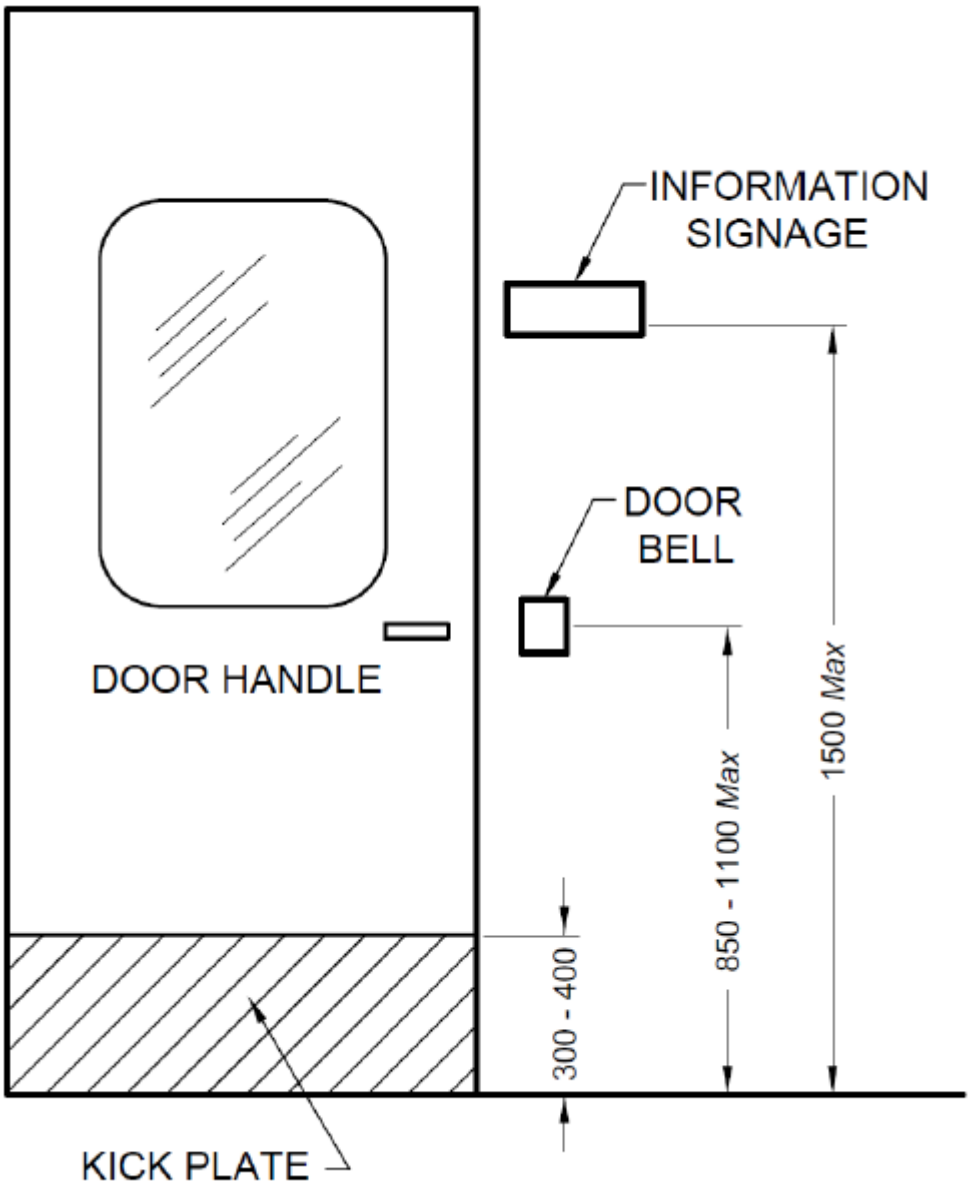
- Bathroom (toilets/washroom) doors should swing out/should be two-way opening type so that the person inside does not fall against the door and block it. In case there is not much space available, consideration should be given to the use of sliding or folding doors, which are easier to operate and require less wheelchair manoeuvring space.
- **Doorway Dimensions & Accessibility:**
    - Minimum clearance of 900 mm accommodates only 65 percent of the wheelchair users, clearance of 1200 mm accommodates 90 percent of all wheelchair users especially also those who use powered wheelchairs.
    - The minimum clear opening of doorways measured between the face of the door and the face of the door stop with the door open at 90° as illustrated in Fig. In case, the door has two independently operated door leaves, at least one active leaf shall be 900 mm.
    - The sweep period of the door should be adjusted, so that from an open position of 90°, the door does not take less than 3 s to move to a semi-closed position
    - Door should not be too heavy to operate and shall not require a force of more than 20 N to operate.



All dimensions in millimetres.

Minimum Clear Opening of Doorways

- **Vision Panel:** All two-way swing doors or doors in general circulation areas shall be provided with vision panels giving a visibility from a height of 800 mm to 1500 mm (see Fig). This will enable both the wheelchair user, and the ambulatory disabled to be noticed by a person on the opposite side in order to prevent him/her from being accidentally struck by the door.
- **Kick-plates** of not less than 300-400 mm height are recommended for doors in high-use to protect the push side of doors from damage (see Fig).



All dimensions in millimetres.

- The leading edge of any door that is likely to be held open, especially those which are opening into corridors or circulation areas, shall contrast visually with the remaining surfaces of the door and its surroundings on its both sides by a 25 mm wide high-contrast manifestation, to help identification by visually impaired people. The architrave/door frame shall also contrast visually with the wall surfaces surrounding the doorway.
- Low-hanging door closers that remain within the opening of a doorway, when the door is open or that protrude hazardously into regular corridors or traffic ways when the door is closed, shall be avoided.
- **Manuvering Space:**
    - To enable wheelchair users to approach doors, manoeuvring space as given below shall be provided. In narrow spaces, sliding doors may be preferable. A minimum distance of 600 mm shall be provided beyond the leading edge of door to enable a wheelchair user to manoeuvre and to reach the handle.
    - Wheelchair manoeuvring spaces shall be free of any obstructions and be provided on the side of the door handle in the following manner
        - On the pull side, a minimum space of 600 mm.
        - On the push side, a minimum space of 300 mm; and
        - For two-way swing door, a minimum space of 300 mm.
- The minimum space between two hinged or pivoted doors in series, shall be 1500 mm plus the width of the door swinging into that space, as shown in Fig.

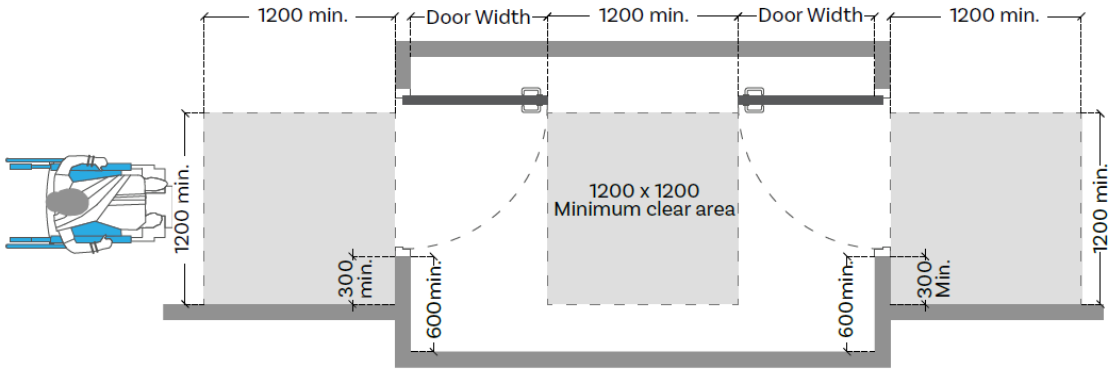


Fig a: Doors in a series opening in opposite directions

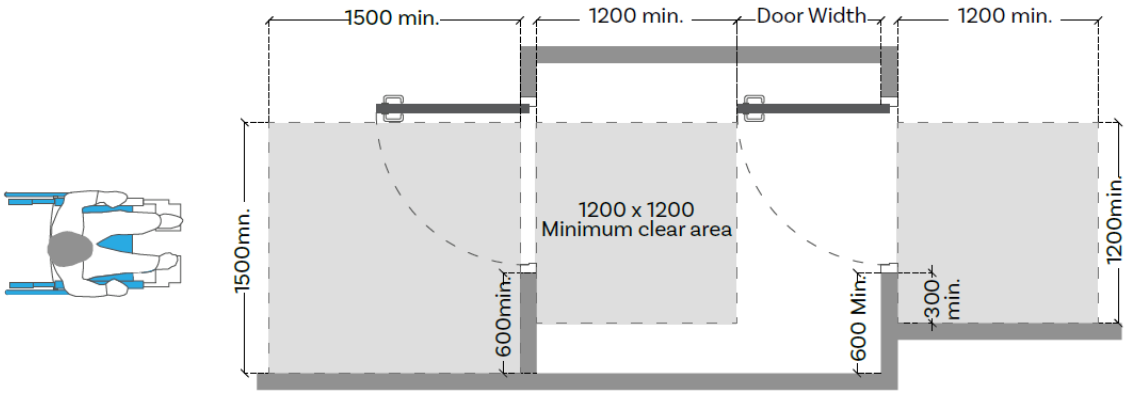


Fig b: Doors in a series opening in the same direction

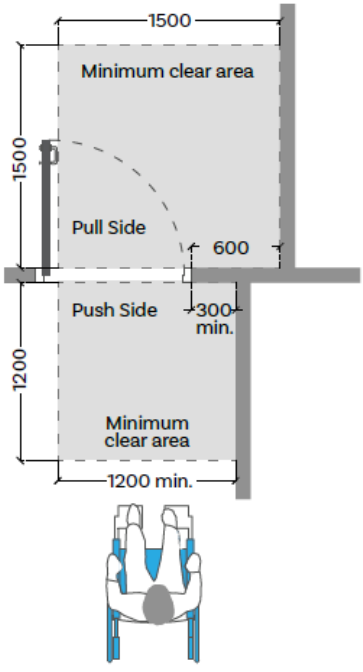


Fig a: Case of one push side swinging doors

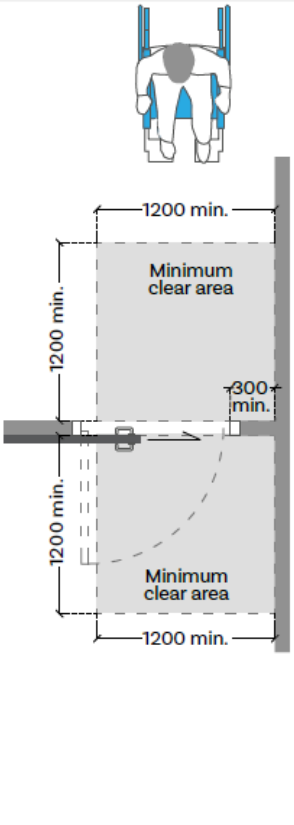


Fig b: Case of sliding door

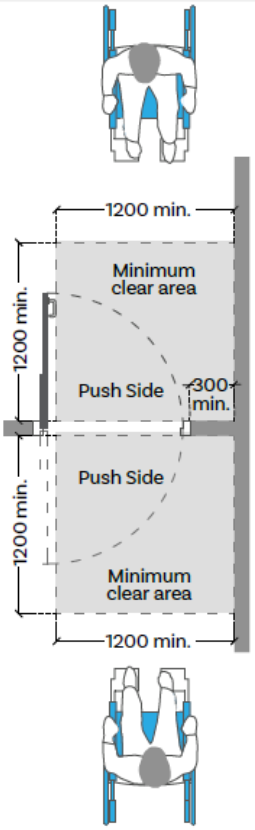
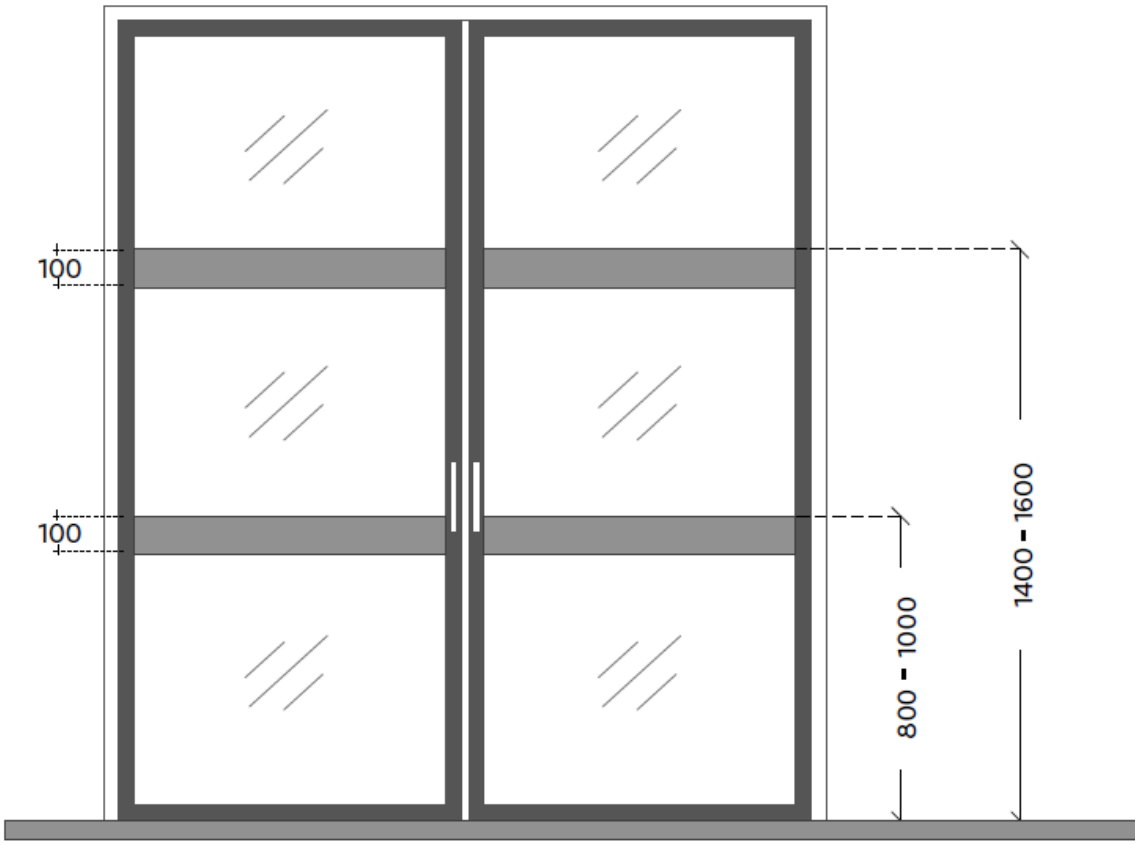


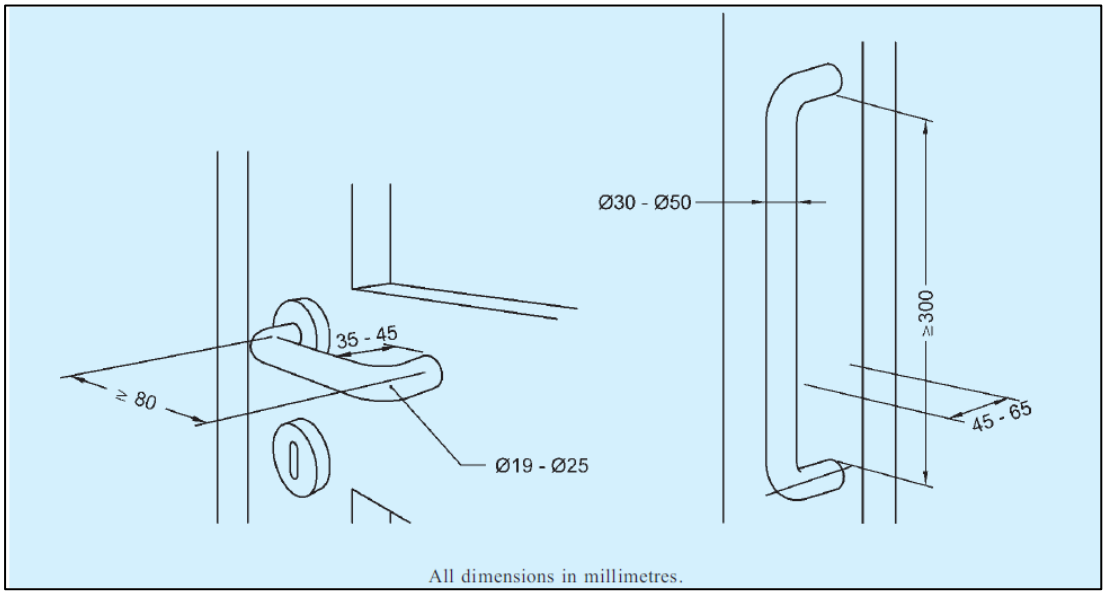
Fig c: Case of both-side push swinging doors

- **Glass Doors:**
  - The presence of a glass door shall be made apparent with permanent uninterrupted visual manifestation at two levels (hand and eye level), within 800 mm to 1000 mm from the floor and within 1400 mm to 1600 mm from the floor, contrasting visually with the immediate background with a difference in LRV of 30 points seen through the glass in all light conditions (see Fig.).
  - Markings should be at least 75mm wide and contrast clearly with the background (30 LRV difference) to ensure visibility in all lighting conditions.
  - If a glass door is part of a fully glazed wall, it should be easily distinguishable and more visible than the surrounding glass.
  - Frame the door on both sides and top with a 25mm-wide opaque high-contrast strip for clear identification.
  - Glass that is silvered or highly reflective should be avoided and any free-standing edges of glazed screens should have a strip contrasting visually with the surroundings against which they are seen.



Markings on glass Doors

- **Door Hardware: -** Operable devices such as handles, pulls, latches and locks shall meet the following requirements:
  - **Ease of Use:**
    - Operable with one hand and without tight grasping, pinching, twisting, or fine finger control.
    - Operating hardware should be exposed and usable from both the sides when the door is fully open.
    - Push-pull mechanisms preferred for effortless operation.
  - **Handle Types:**
    - It is safer to use D-shaped handles as they reduce the risk of catching on clothing, or injuring from the exposed lever end; and
    - Doorknob is not recommended, as it does not provide adequate grip for persons with impaired hand functions.
    - Lever handles to be preferred on latched doors.
  - **Positioning and Visibility:**
    - They shall be mounted at a height of 850 mm to 1100 mm from the floor (see Fig.).
    - The location and design of latch and push/pull handles shall be consistent throughout a building.
  - **Accessibility Considerations:** To facilitate the closing of a door by wheelchair users (for example a water-closet compartment, that does not have a self-closing mechanism), the door shall have a horizontal handle, provided on the closing face of the door, approximately 760 mm from the floor.

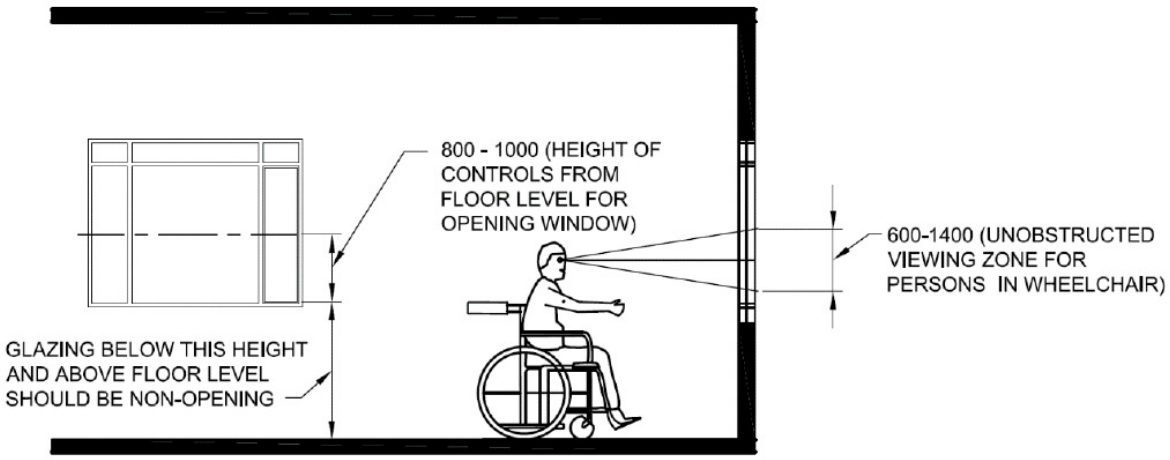


Examples Of D-Lever and Vertical Door Handles

7. Windows

Windows and openings in buildings play a responsive role to enhance air and light quality into building interiors besides creating a visual connect between inside and outside. Accessible windows and openings imply appropriate planning of fenestrations, sill levels, overall size, fixation details, ease of operations and the experience of connect between inside and outside. Designing window systems in buildings requires to consider accessibility in perspective of various associated functions including visual connect for diverse categories of persons with disabilities along with other functional limitations.

- They shall provide an unobstructed viewing zone for wheelchair users between 600 mm and 1400 mm.
- Curtain or venetian blind controls/ropes shall be at 800-1000 mm height from the finished floor level for wheelchair users/short stature persons.
- Windows should have handles and other controls upto a maximum height of 1200 mm. It is recommended to use lever type hardware for openings.
- Window frames shall be in contrasting colour to the wall and sills where they are placed.
- Window opening should not cause an obstruction to a moving person esp. persons with visual impairments and others to avoid any accident.



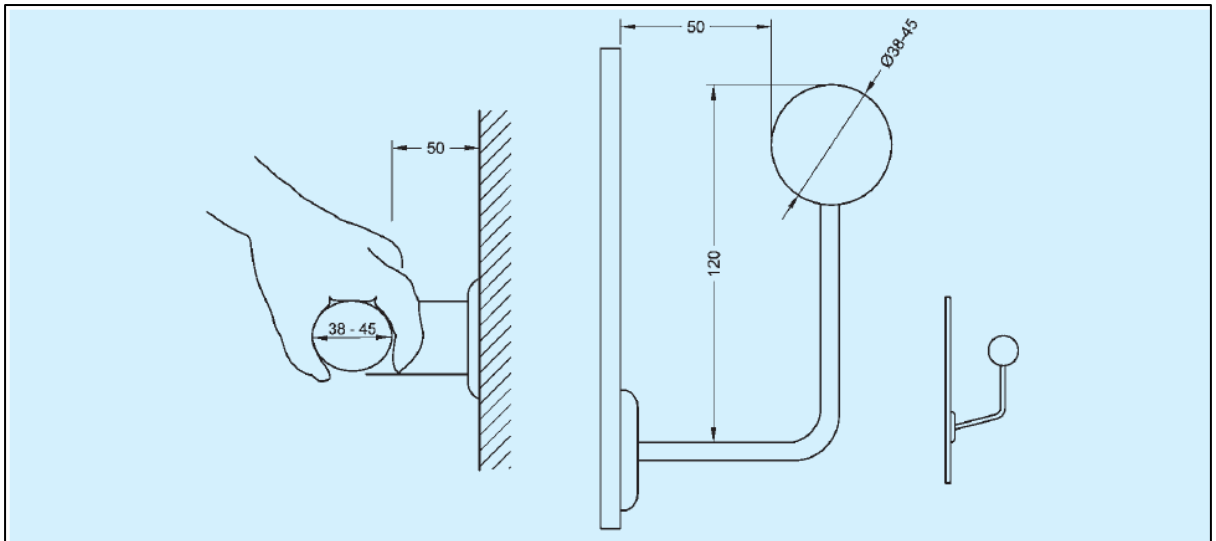
All dimensions in millimetres.

8. Handrails & Grab Bars

Handrails/grab bars are extremely important features and shall be designed to be easy to grasp and to provide a firm and comfortable grip so that the hand can slide along the rail without obstruction. Many persons with disabilities rely upon handrails/grab bars to maintain balance or to prevent serious falls. Handrails are used as a locational and mobility aid by persons with visual impairments and as a support for persons with mobility impairments. The handrail/grab bars shall be securely fixed to the wall. To aid identification, the colour of the handrail/grab bar shall contrast with the wall behind.

Handrails shall (see also Fig.),

- be securely fixed and rigid; the fastenings and the materials shall be able to withstand a minimum point load, both vertical and horizontal of 1.7 kN;
- be slip-resistant with round ends.
- have a circular section of 38-45 mm in diameter.
- have a minimum clear space of 50 mm to 65 mm from the wall.
- be installed at a height of 700 mm to 900 mm.
- be free of any sharp or abrasive elements.
- have continuous gripping surfaces, without interruptions or obstructions that may break a hand hold.
- contrast with the wall behind; and
- may be provided with Braille/tactile markings at the beginning and at the end to give information to people with visual impairment.

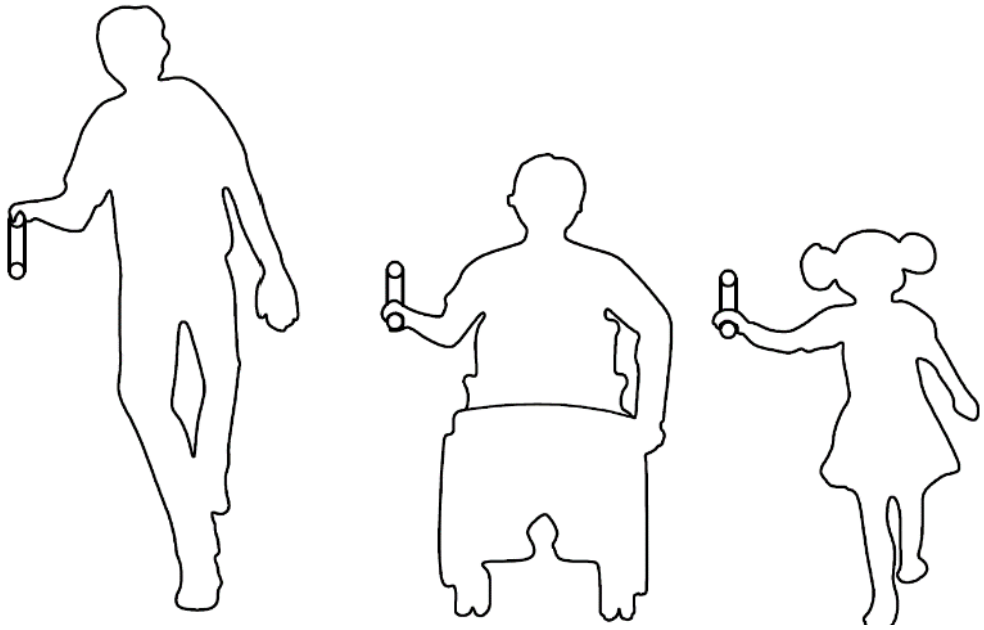


All dimensions in millimetres.

HANDRAILS

For stepped path, stairs and ramps, handrails shall meet the following requirements (see Figs.):

- They shall be provided on both the sides.
- They shall be continuous, even at the landings.
- They shall extend at least 300 mm beyond the first and last nosing. A handrail shall not project into a transverse circulation path unless it is continuous and intended to form part of the guidance along that path. The end of the horizontal extension should be turned towards the wall on the closed side of the ramp or stairs or be turned down and terminate at the floor or ground level.
- They shall have a minimum clear space of 50 mm from the walls; and
- The height to the top of a handrail shall be between 850 mm and 950 mm above the surface of a ramp, the pitch line of a stair, and the surface of a landing. A second handrail, with a lower profile than the first one, shall be provided. The height to the top of the second handrail should be between 650 mm and 750 mm above the surface of a ramp, the pitch line of a stair, and the surface of a landing. There shall be sufficient distance between the two handrails (say, 200 mm).
- In case the handrail is enclosed in a recess, the recess shall extend at least 450 mm above the top of the rail.



Handrails at two levels to help children and people with short stature

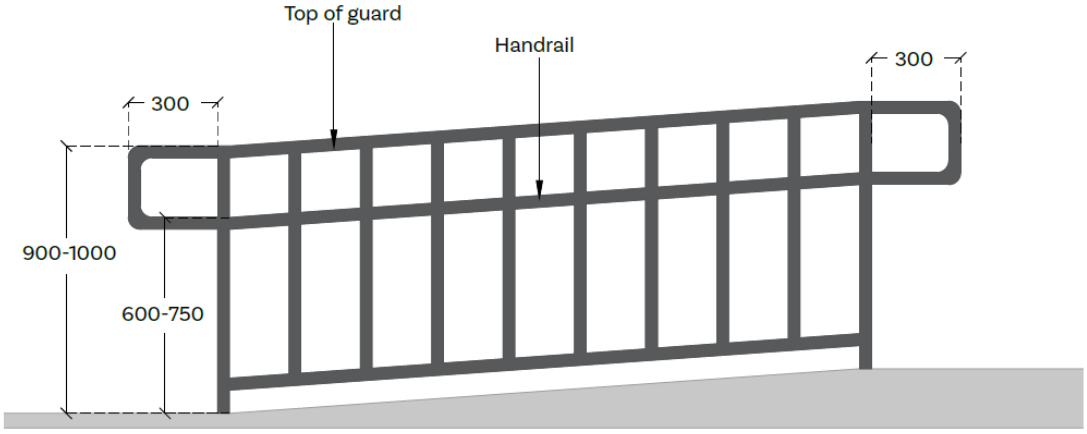
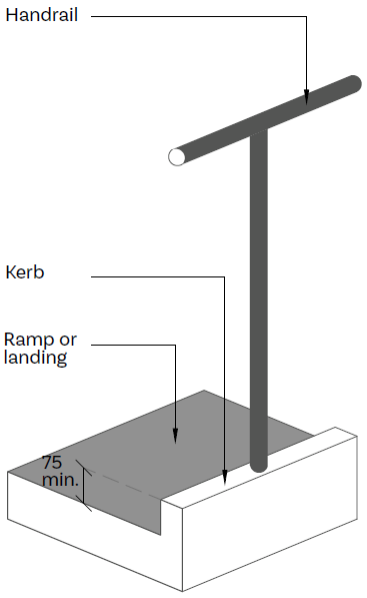
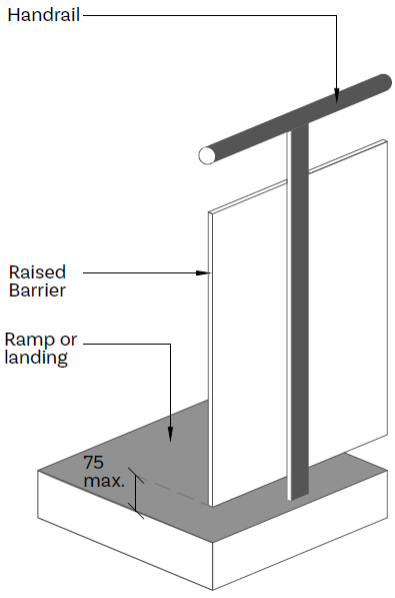
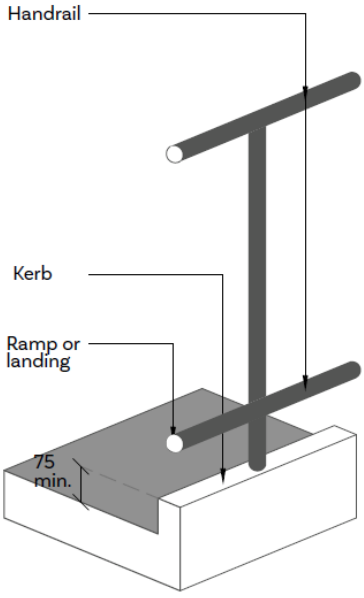


Figure 3.17 Handrail detail

Braille indicators at end of the handrails







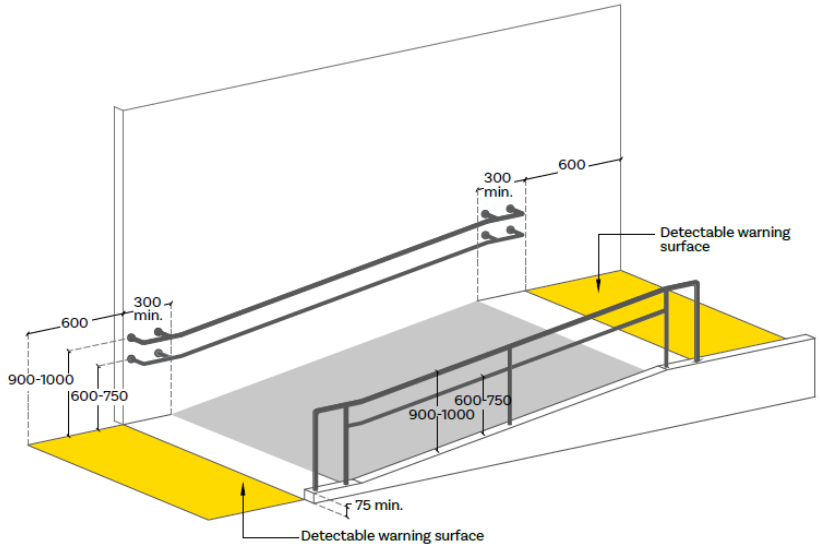


Fig a. Handrail returns to wall

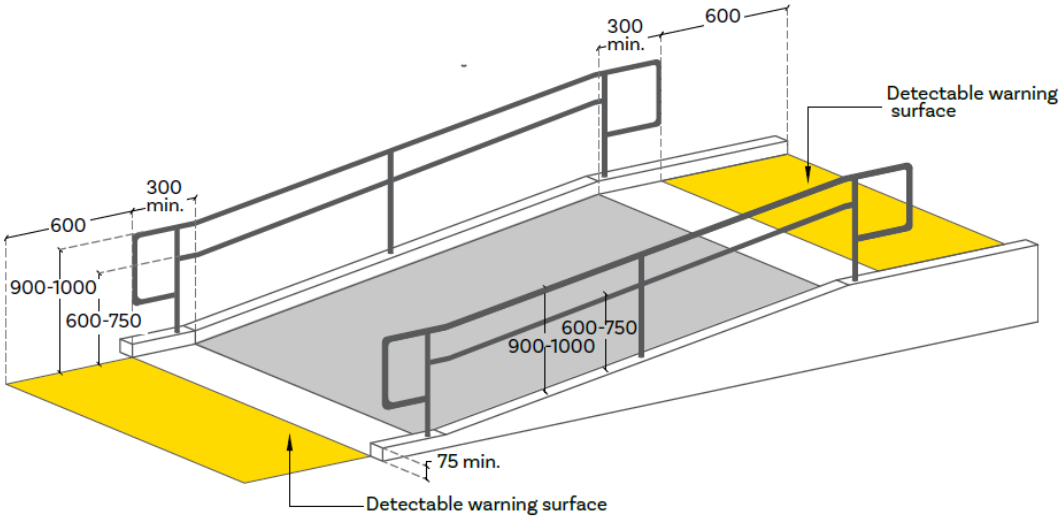
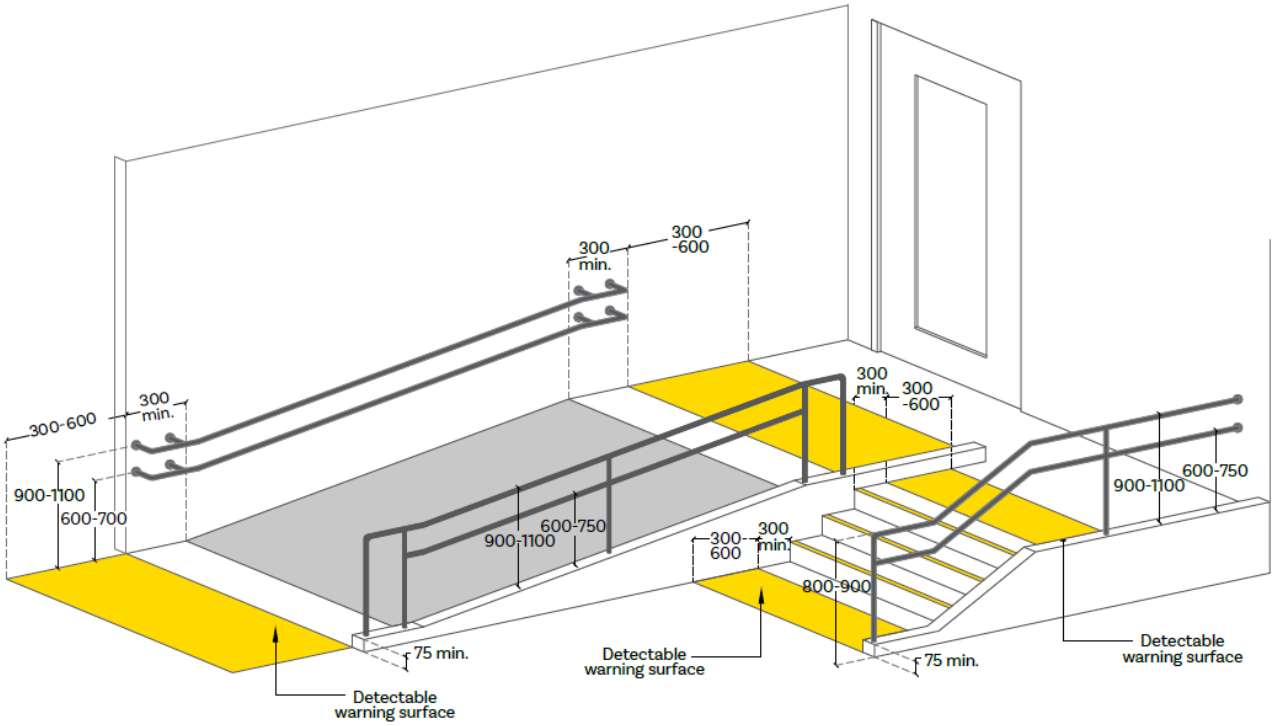


Fig b. Handrail returns to post



9. Level Changes

Vertical circulation and level changes shall be designed, constructed and managed so that they can easily be understood and used by all people. Vertical circulation includes the provision of ramps, stairs and lifts, as well as escalators, moving walks and lifting platforms.

Vertical level changes up to 6 mm may not need edge treatment to pass over them using wheeling devices like wheelchairs, baby prams, etc.

Level changes between 6 mm and 15 mm should be levelled off with a slope no greater than 1:2. Other details for level changes and gradient shall be as per Table given below.

Changes In Vertical Rise (mm)	Gradient not Steeper Than	Best Practice as per the IPC	Ramp Width (mm)	Handrail on Both Sides	Other Requirements
Less than 6	Edge treatment may not be required	1:12	-	-	-
6 to 15	1:2	1:12	1200	-	-
16 to 50	1:5	1:12	1200	-	-
51 to 150	1:10	1:12	1200	-	-
151 to 300	1:12	1:14	1200	✓	-
301 to 750	1:12	1:20	1500	✓	Landings after every 5 m of ramp run
751 to 3000	1:15	1:20	1800	✓	Landings after every 9 m of ramp run
More than 3000	1:20		1800	✓	Landings after every 9 m of ramp run

9.1 Ramps

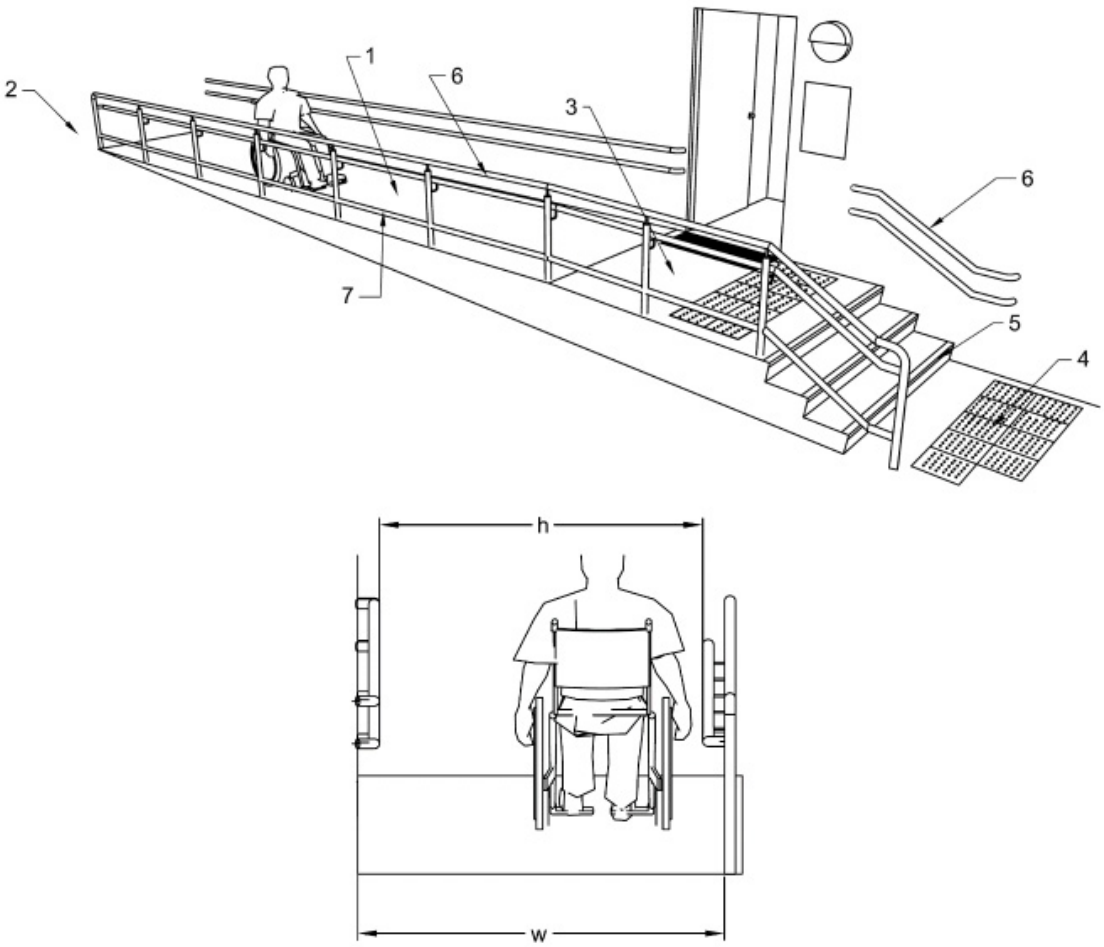
While designing new sports stadiums, ramps should be well integrated as a feature of the building itself and be executed in spirit of universal design. However, if ramps are required to be built as retrofitting measures, then also it is recommended to integrate through form and material finishes with the existing building to avoid any stigmatizing look.

Ramps allow persons with reduced mobility to move from one level to another. However, many ambulant persons with disabilities negotiate steps more easily and safely. Hence it is preferable to provide accessibility by both steps and ramps.

- **Dimensions and Gradient:** The minimum clear width of a ramp, excluding handrails, shall be at least 1200 mm. As the height difference increases, both the width and gradient should be adjusted accordingly, following the specifications in the **table above**.
- **Handrails and Landings:**
    - A ramp run with a vertical rise greater than 150 mm shall have handrails that are on both the sides and comply with **Section 8**.
    - End landings must be provided at the top and bottom of ramps, sloped paths, and stepped paths, as well as where the direction changes. The minimum landing size should be 1500 mm in length for straight runs and 1500 mm × 1500 mm for areas where the ramp changes direction. Landings should always be free of obstructions, including door or gate swings.
    - Additionally, intermediate landings must be placed at regular intervals of no more than 9000 mm along a ramp. If a landing is located before or after a turn or entrance, it should have a minimum size of 1500 mm × 1500 mm to ensure safe and comfortable movement.
- **Safety Features:**
    - Ramps and landings not adjacent to a wall should have an edge protection in form of a 75 mm kerb.
    - Ramps should not ideally connect straight to doors as wheelchair users need a levelled platform at the end of the ramp to manoeuvre and negotiate opening the door.
    - A curved ramp is not a preferred design solution. Similarly, a cross fall may put a wheelchair user at risk and may adversely affect steering, particularly on manually propelled chair.
- **Surface: -** Ramps and landing surfaces shall be non-glary, smooth, level, even and slip resistant even when wet. Outdoor ramps and their surface shall be designed to prevent water from accumulating on the walking surfaces. The

surface finish shall be hard and suitable for the volume of traffic that the ramp is likely to experience.

- Single row of tactile warning blocks (TGSI) shall be placed as per 2.4 at the beginning and end of each ramp. This shall be placed 300 mm before the beginning and end of each ramp run to indicate the level change to visually impaired persons.
- **Alternative Solutions for Large Elevation Changes:**
    - Where there is a large change in elevation that requires multiple ramps and landing combination, other solutions such as lifts should be considered.
- **Internal Ramp Specifications (if required):** Internal ramps should, if possible, be avoided. Where required, internal ramps shall be designed in accordance with the following additional criteria:
    - No series of ramps should rise more than 2000 mm in total. If this is the case, an alternative should be provided, for example a lift.
    - An internal ramp should have the lowest practical gradient. In order to avoid trips and falls during a fire evacuation, a gradient of 1:15 should be the maximum permissible gradient within a building.
    - The minimum illumination at the top and bottom of the ramp should be 200 lux and 150 lux in between the bottom and top.



Key

1 Ramp surface
2 Horizontal landing
3 Horizontal landing
4 Tactile ground surface indicator in front of stairs
5 Complementary stairs with markings
6 Handrails on both sides of ramp and stairs
7 Upstand, *Min* 150 mm
h Width between handrails
w Width of ramp surface

Examples of ramp and horizontal landings at beginning and end

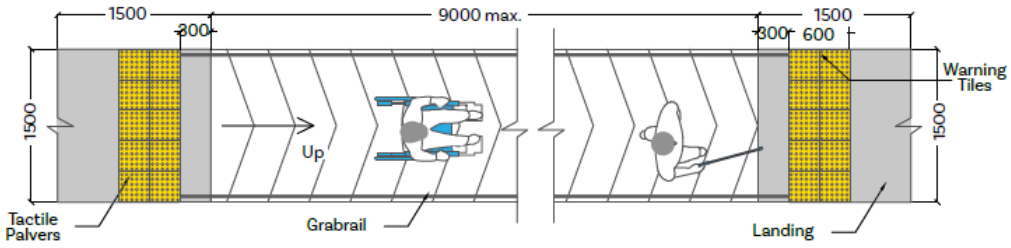


Figure 4.8 Typical details of Straight ramp

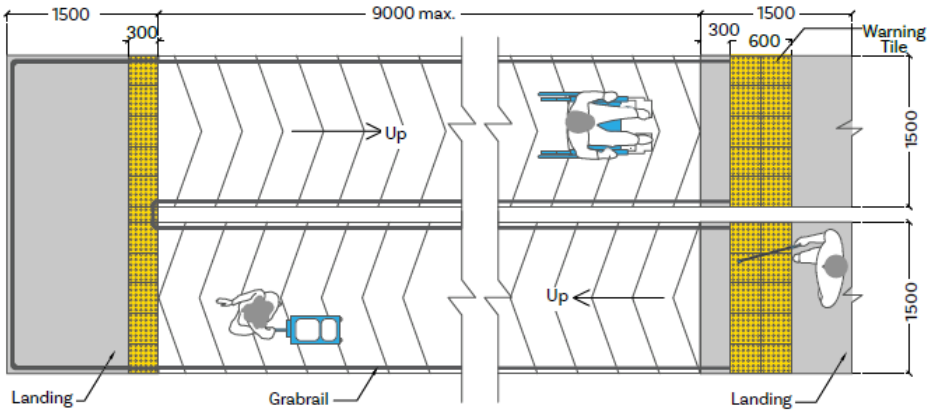


Figure 4.9 Typical details of 'U' Shaped ramp

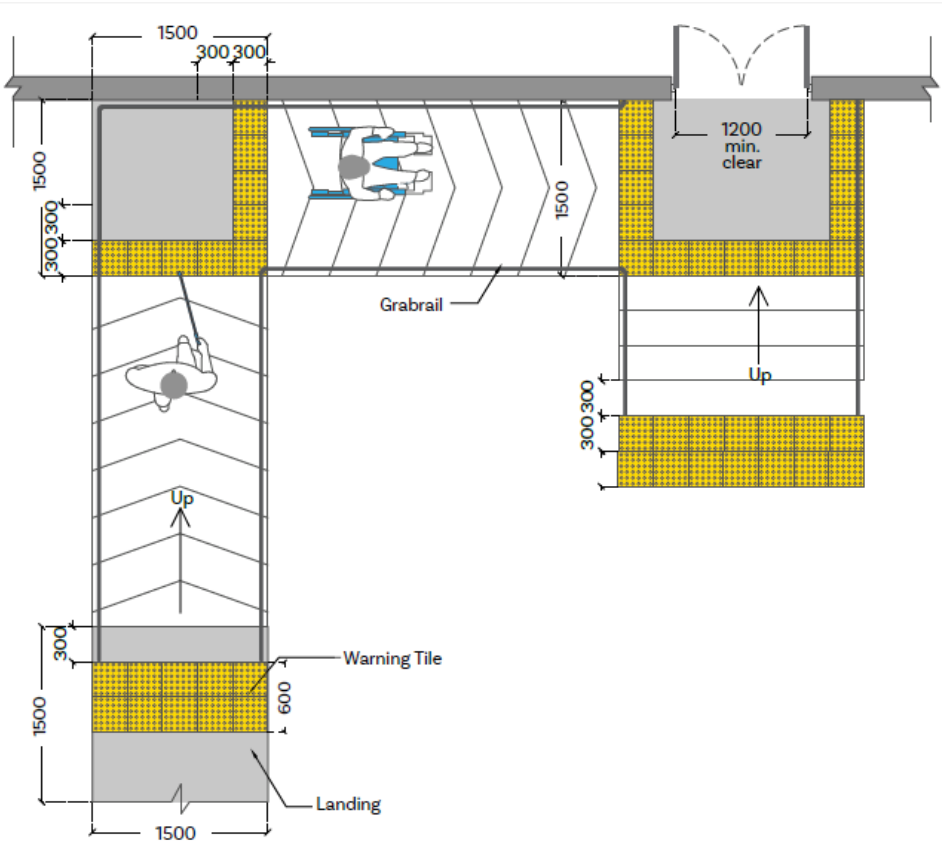


Figure 4.10 Typical details of 'L' Shaped ramp with steps: Type A

9.2 Staircases

Steps and staircases are intended as an alternative to lift access in buildings and shall be of adequate design to allow all persons, with or without a disability, to travel safely and independently.

Stairs shall not be the only means of moving between floors. They shall be supplemented by lifts and/or ramps. Staircases shall comply with the following general requirements:

- **Step Dimensions & Consistency:**
  - The minimum width of tread without nosing shall be 300 mm and the maximum height of riser shall be 150 mm.
  - The number of risers shall be limited to 12 per flight. The stairs should have a minimum clear width of 1500 mm.
  - Steps shall be of a consistent height and depth throughout the staircase.
- **Headroom & Landings:**
  - The minimum headroom in a passage under the landing of a staircase shall be 2100 mm. The minimum clear headroom in any staircase shall be 2100 mm.
  - The stairs landing shall be minimum 1500 mm deep.
- **Tactile & Safety Features:**
  - Tactile ground surface indicators (warning type) shall be installed 300 mm before the beginning and 300 mm after the end of each flight of steps to aid people with visual impairments.
  - Stairs shall have handrails at two level, comply with the requirements given in 8
  - Projecting nosing and open stairs shall not be provided to minimize the risk of stumbling. Spiral stairs shall be avoided.
  - There shall be colour contrast between landings, and the steps. Step edges shall contrast in colour to the risers and the treads. Contrast colour bands 50 mm wide shall be provided on edge of the tread

- Surface: The materials selected for the surface finish of the stairs shall be firm and slip resistant, especially if surfaces are likely to become wet due to location or use, or if spillage occurs. Slippery surfaces like granite, glazed tiles shall be avoided.
- No appliances, fixtures or fittings shall project beyond 90 mm from the surface of any wall in a staircase below a level of 2000 mm, measured above the treads of the staircase. If such a projection is unavoidable, the same shall also be extended downwards to the level of the treads. However, in no case the width of the staircase shall be less than 1500 mm.
- Illumination level of minimum 200 lux shall be maintained on the stairs.

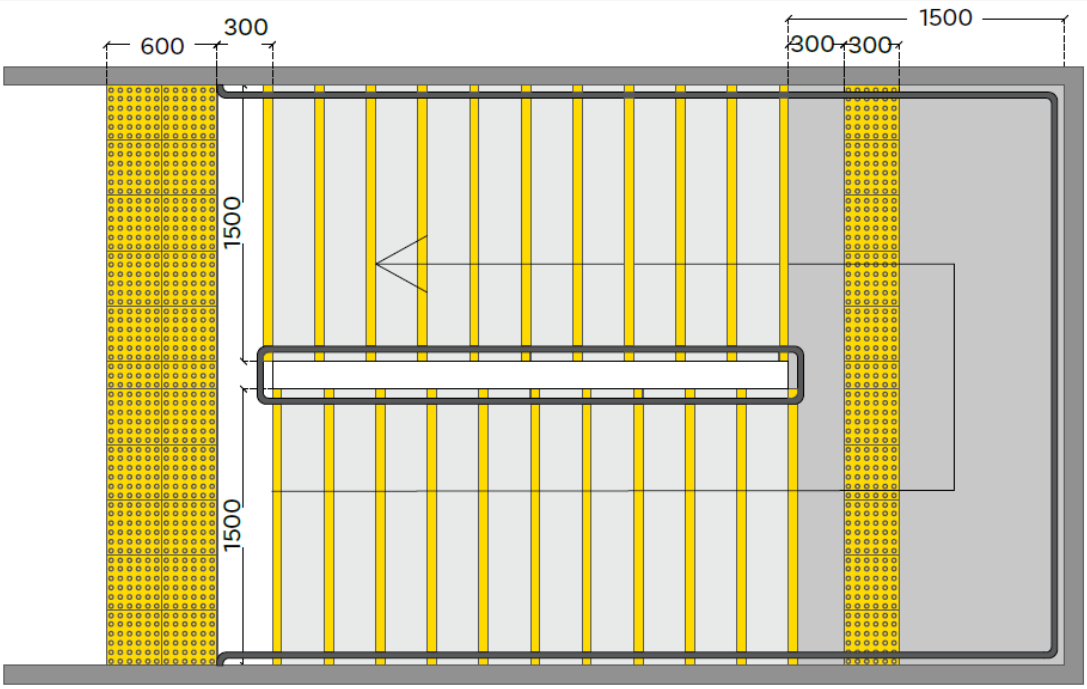


Fig a: Staircase plan showing color contrast and tactile tiles

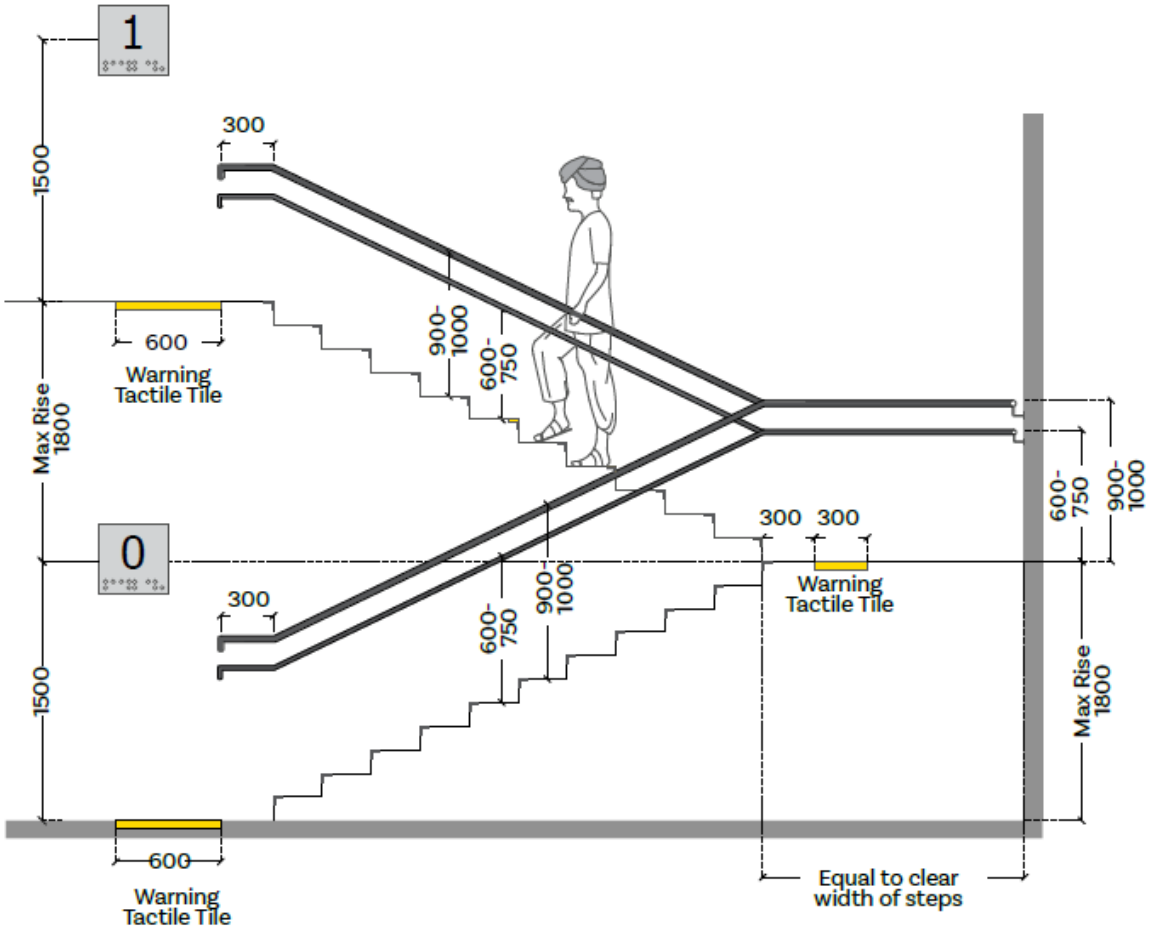
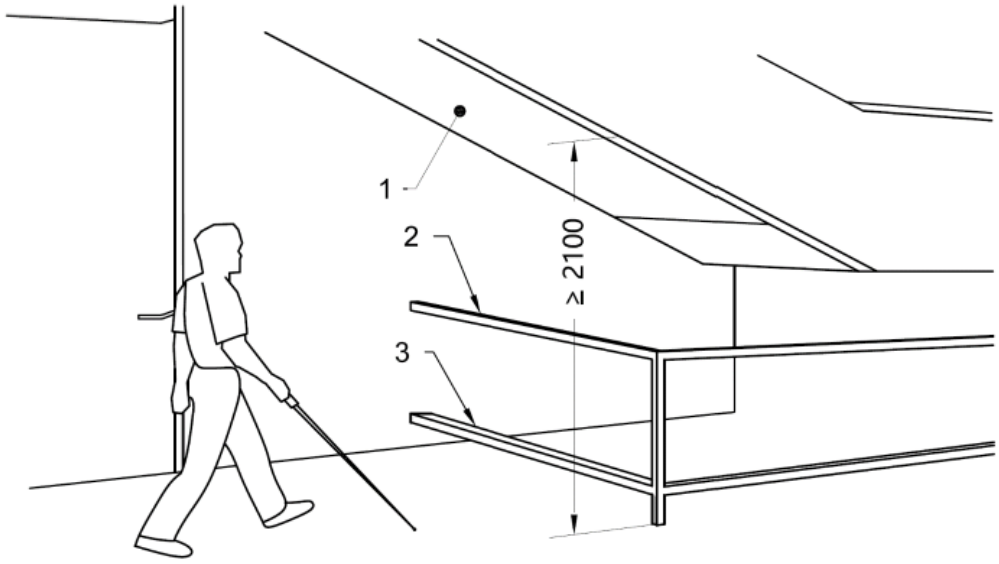


Fig b: Typical staircase section with various accessibility features



Key

1 Minimum 2 100 mm height

2 Guardrail against impact, at a height 680 mm to 700 mm above floor

3 Guardrail detectable with cane, at a maximum height 300 mm above floor

All dimensions in millimetres.

Warning guardrail in case of insufficient headroom

9.3 Lifts

Lifts play a vital role in sports facilities by ensuring accessibility, safety, and convenience for athletes, spectators, and staff. They enable persons with reduced, including wheelchair users, to access different levels of stadiums, gyms, and arenas, promoting inclusivity in sports.

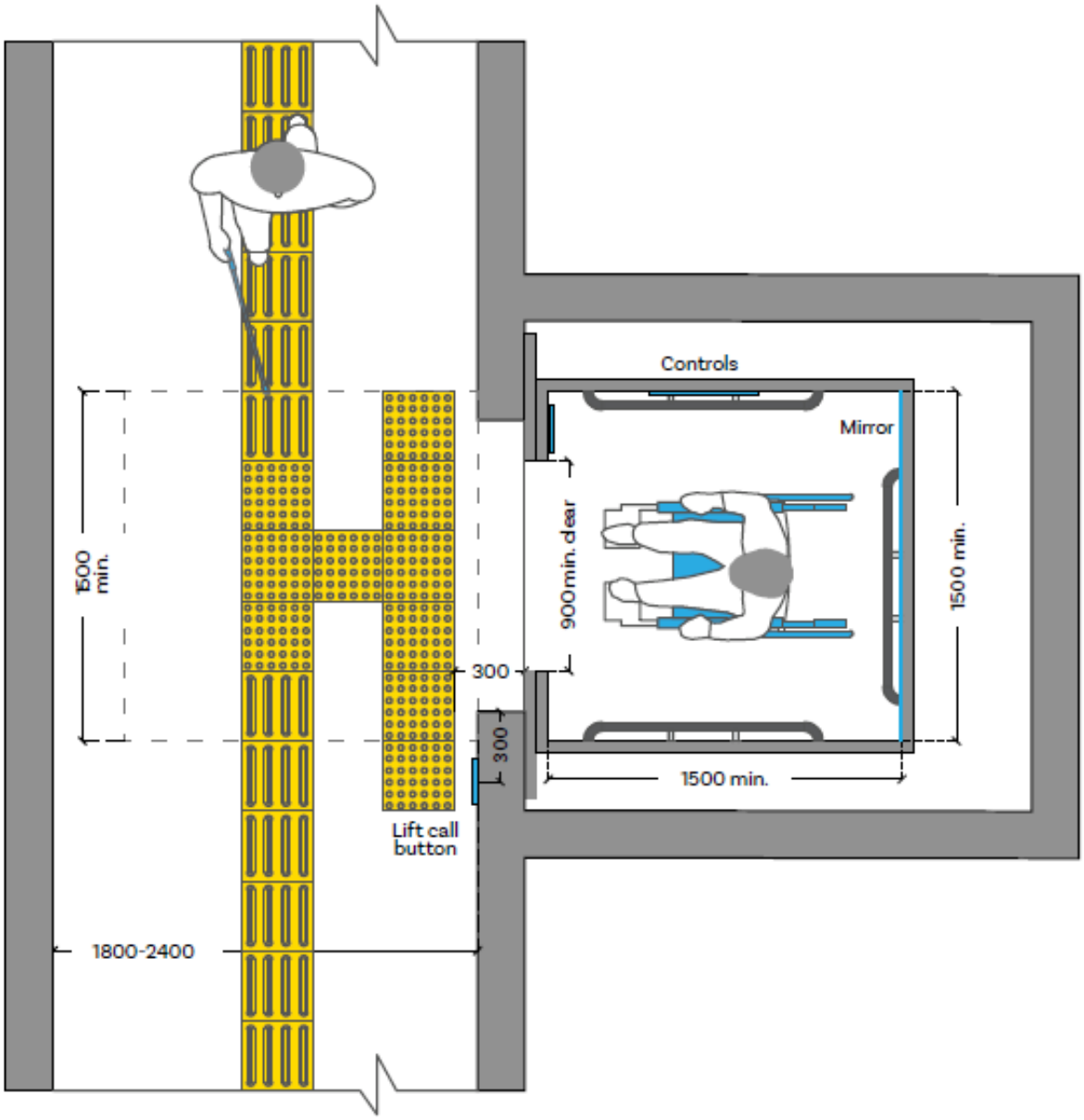
Lifts also help transport heavy sports equipment, medical staff, and injured players efficiently, reducing physical strain and improving emergency response. In large venues, lifts optimize crowd movement, preventing congestion and ensuring smooth access to seating areas, VIP boxes, and locker rooms.

Additionally, specialized lifts, such as platform lifts for swimming pools, enhance accessibility for para-athletes. Modern lifts with energy-efficient and smart control systems contribute to sustainability while improving user experience. Overall, lifts in sports infrastructure play a crucial role in making facilities more accessible, safe, and efficient for everyone.

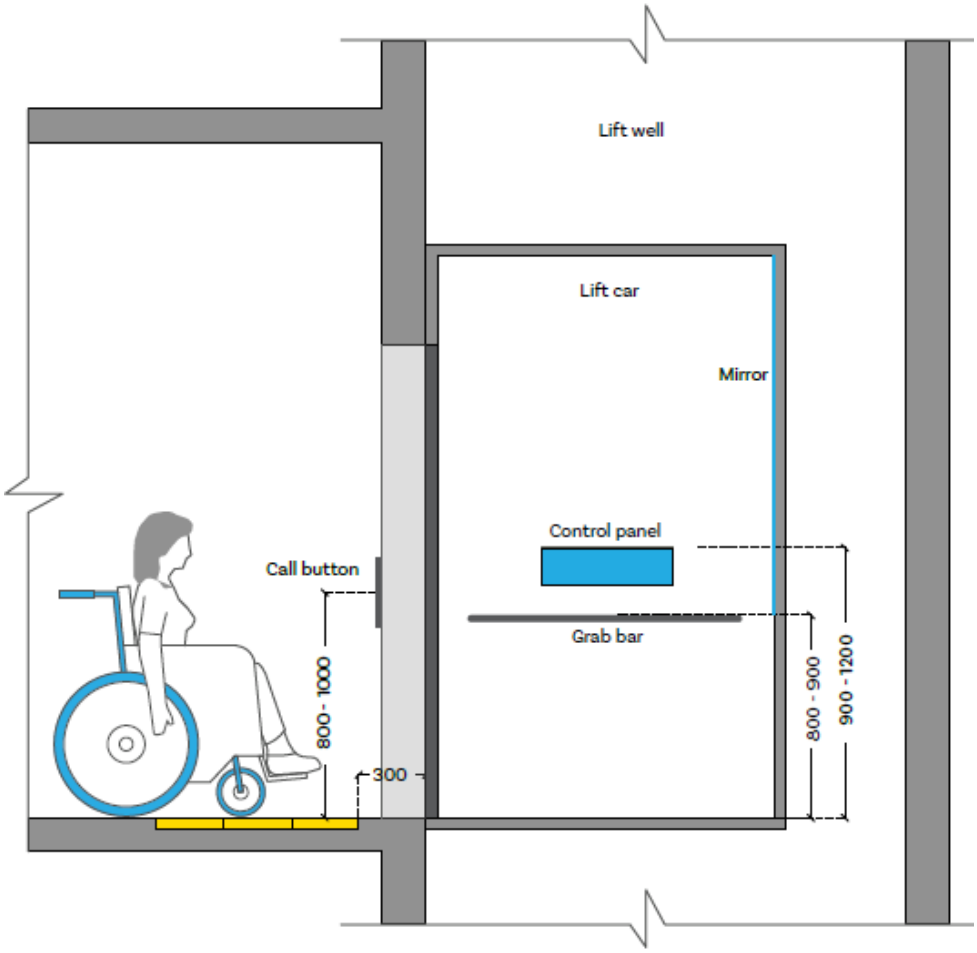
Such lifts shall meet the following general requirements:

- **Location & Signage**:
  - Lift shall be located on accessible routes.
  - Clear signage indicating the location of accessible lifts should be provided at building entrances, incorporating the international symbol for access. **(Refer Section 24)**
  - A **floor directory for lifts** should be placed near or inside an elevator to inform users about the different floors in a building and the facilities or departments available on each floor.
  - A sign indicating the number of the floor arrived shall be provided on each lift landing on the wall opposite the lift in big fonts with good colour contrast
- **Lift Dimensions & Entrance:**
  - The minimum size of the lift should be 1900 mm x 1900 mm for all new establishments. This would enhance vertical mobility for all including those using powered wheelchairs. In case where the space is not available, the lift size shall be a minimum of 1500 mm x 1500 mm (Fig:).
  - The clear opening of entrance to the lift car shall be at least 900 mm (preferably 1000 mm).
  - The lift door shall be contrasting in colour from the adjoining wall.
  - There shall be no difference in level between the lift door and the floor surface at each level. The gap between the lift door and building floor shall not be more than 12 mm.

- It is recommended to install a 13-passenger lift which allows easy manoeuvrability for wheelchair users, baby strollers and other wheeling devices.



- **Door Operation:**
    - A non-contact sensor device shall be provided in the door opening to detect an entering or exiting passenger or an assistive device and prevent the risk of the passenger or assistive device from being hit by the leading door panel(s).
    - The sensor device shall cover at least 2/3 of the door height measured from 25 mm above the door sill.
    - Time of closing of an automatic door shall be more than 5s and the closing speed shall not exceed 0.25 m/s. The door opening time shall be adjustable to suit the conditions where the lift is installed.
    - A mechanism to increase this time shall be installed to be customized by a user with mobility impairments (for example by means of a button outside the car to call the lift to the floor for it to arrive with extended door opening time, and a button marked with a wheelchair symbol inside the car with the same purpose). Under normal operation the levelling accuracy of the lift car shall be ±12 mm.
- **Call Buttons:**
    - The call button located outside the lift shall have a clear floor space of at least 900 mm × 1200 mm with no obstruction placed to prevent a wheelchair user from reaching the call button
    - Call button shall be installed at a height between 800 mm and 1000 mm.
- **Control Panel:**
    - Touch control panels shall not be used in any case as they are not accessible to visually impaired persons. The control panel inside the lift shall meet the following requirements (see Fig.):
    - It shall be placed at a height of between 900 mm and 1100 mm from the floor level.
    - It shall have buttons with Braille/raised letters and in sharp contrast from the background to aid people with visual impairments.
- **Handrail:** shall comply with 8 and shall be placed at a height of 900 mm from the floor level. These shall be fixed on both sides and at the rear of the lift



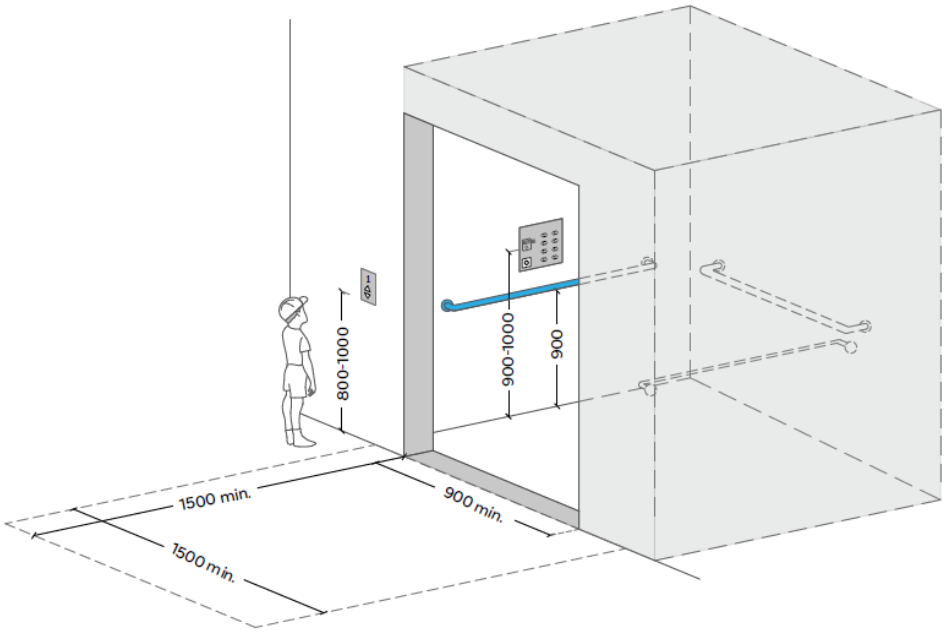


Figure 4.18 Lift platform dimensions

- **Visual & Audio Accessibility:** The lift shall have a voice announcement system along with a visual display to indicate the floor level and the information that the door of the cage is open or closed for entrance or exit. The announcement system shall be clearly audible, that is, the announcement shall be of the order of 50 dB.
- Internal walls shall have a non-reflective matte finish in a colour and tone contrasting with the floor.
- The provision of a mirror on the wall of the lift car opposite the lift door is a positive aid to navigation for wheelchair users. It allows the wheelchair user to see if anyone is behind them and also to see the floor indicator panel. The mirror should not extend below 900 mm from the lift floor to avoid confusing people with impaired sight.
- Internal car lighting should provide minimum level of illumination of 100 lux at floor level, uniformly distributed, and avoiding the spotlights.
- **Emergency warning**-The car shall have an alarm device (two-way communication system) permanently connected to a manned security point.

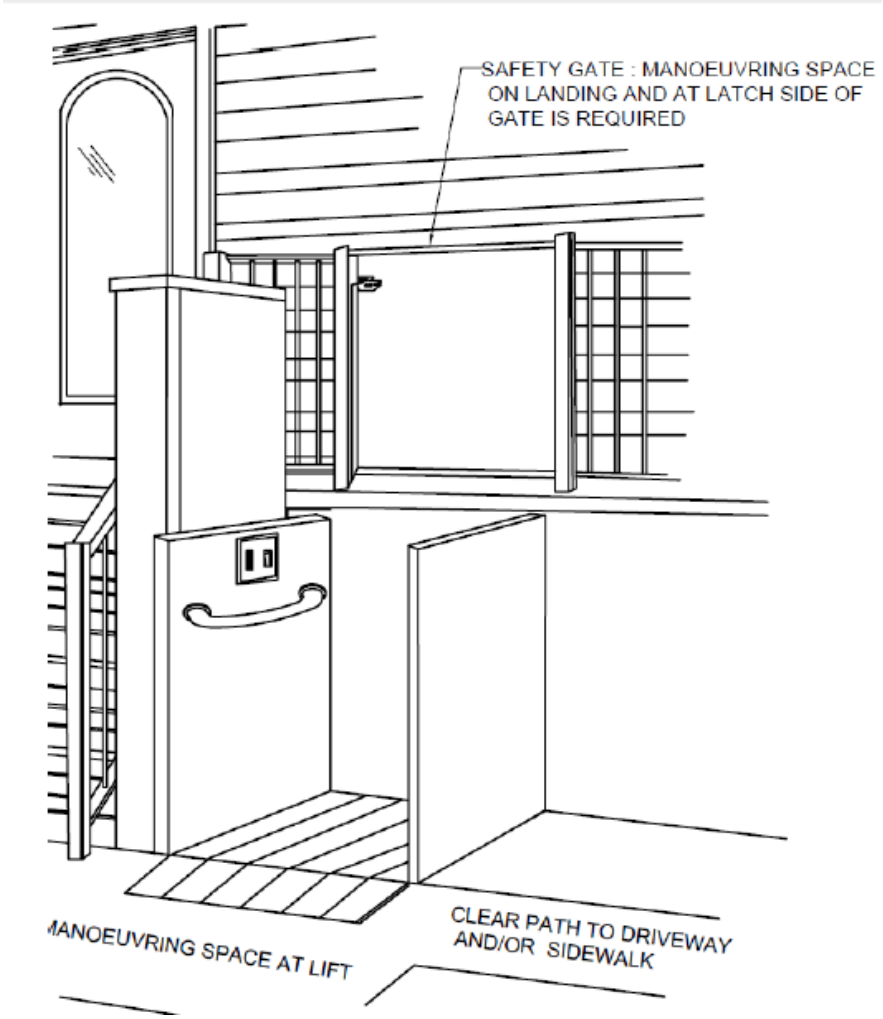
BRAILLE ON BUTTONS VOICE GUIDANCE SYSTEM GRAB BARS ON 3 SIDES

9.4 Vertical and Inclined Lifting Platforms

Where it is impracticable or impossible to provide an accessible lift or a ramp in an existing building vertical or inclined lifting platforms should be provided as a reasonable alternative for vertical circulation within the building. These are special passenger elevating devices for persons with disabilities. These may have either vertical or an inclined movement. These shall be able to be used safely, independently and also with an accompanying person. All control devices shall also be accessible and usable for powered wheelchair and walking aids users. If driving, guiding or lifting mechanisms present hazards at the sides of a platform, the mechanisms shall be guarded to protect the users. The guarding shall be smooth, hard and continuous.

9.4.1 Vertical Lifting Platforms

For maximum level changes of 2500 mm, vertical lifting platforms may be installed. For level changes of more than 1200 mm, the lift shall be placed in a closed structure with doors at different accessible levels. Vertical lifting platforms may have a variety of openings for entry and exit. Minimum size should be 1200 mm x 1000 mm.



Vertical lifting platforms

9.4.2 Inclined Lifting Platforms

Inclined lifting platforms consist of three elements: a railing, an electric generator and a moving platform. The operating system of the lift may be lateral or suspended. Inclined lifting platforms may be installed along the stair wall as long as they do not obstruct the required width of the exit. The platform may be folded when not in use. Platform lifts may be installed on all types of stairs including switch back stairs, that is, those with a rotation of 180° and spiral staircases. Inclined lifting platforms are usually used to connect one or more floors or to overcome split levels in existing buildings.

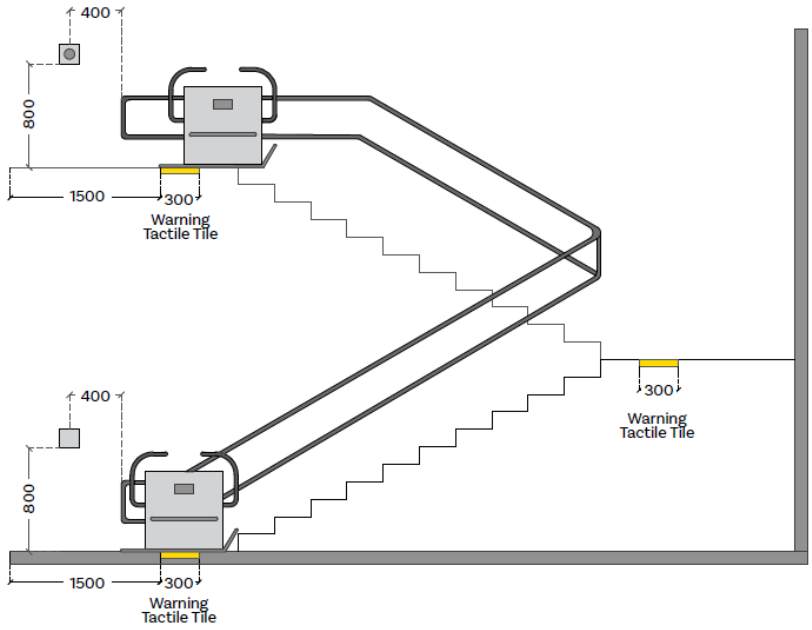
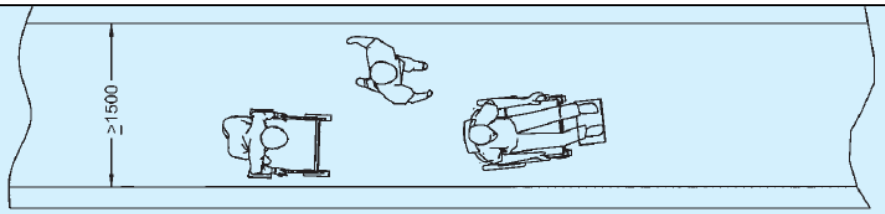


Fig a: Staircase section showing wheelchair platform lift and tactile tiles

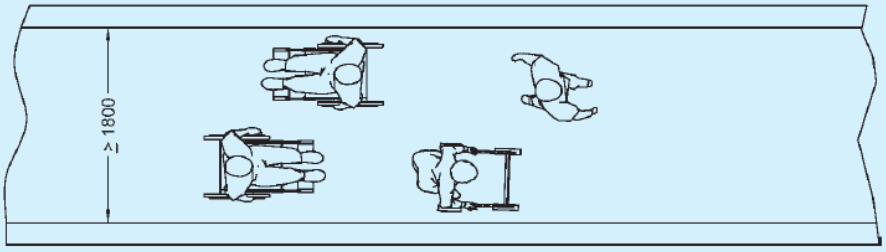
10. Internal Corridors and Accessible Routes

The main horizontal circulation design shall be level on each floor in order to ensure that the building is accessible to all people. Horizontal circulation shall be without steps. Where differences in level cannot be avoided, ramps or lifts shall be provided.

- **Corridor Dimensions:**
  - Intensity in use of the corridor shall be a criterion when establishing the minimum width and length of the corridor (see Fig.). The minimum unobstructed width of corridors shall be 1800 mm.
  - Where less than 1800 mm wide, a corridor shall be provided with passing places, 1800 mm wide and at least 1800 mm in length at reasonable intervals. These dimensions shall be exclusive of handrails and any other projections, for example portable fire extinguishers, notice boards, etc.
  - Routes should preferably intersect at right angles to each other and be easy to follow.
  - The manoeuvring zone required for a wheelchair to make a 90° turn shall be designed according to Fig. It shall have no gradient, and it shall not be less than 1500 mm wide and 1500 mm long in the direction of travel.
  - The space required for a wheelchair to make a 180° turn shall be not less than 2000 mm in the direction of travel and not less than 1800 mm wide
- **Signage:**
  - To facilitate people with visual impairments, routes should have detectable cues and different visual contrast from the surroundings.
  - For orientation and wayfinding in very complex buildings and across large areas, guidance may be provided by tactile ground surface indicators and visual, audible and tactile information, including egress and evacuation**. (refer section 24)**



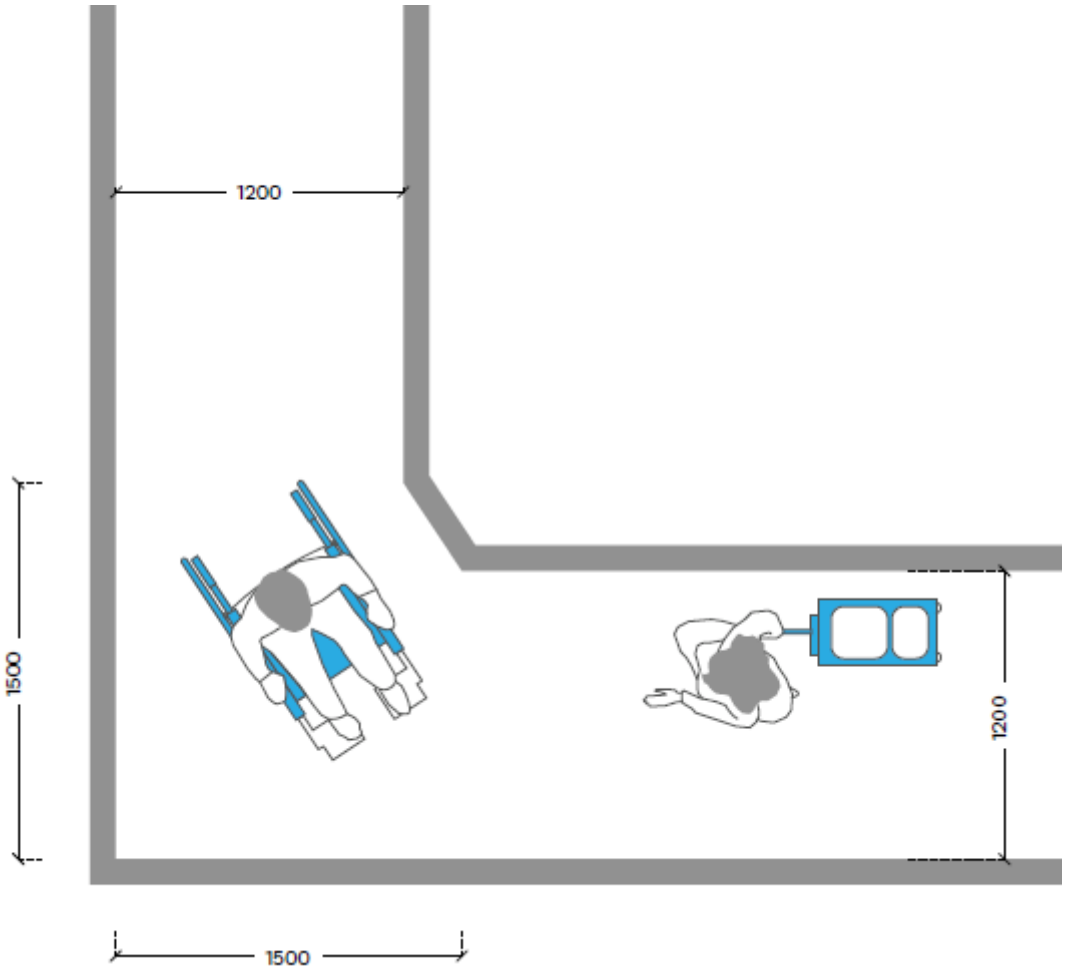
41A MINIMUM UNOBSTRUCTED WIDTH OF CORRIDOR



41B PREFERRED CORRIDOR WIDTH

All dimensions in millimetres.

FIG. 41 DIFFERENT CORRIDOR WIDTHS DETERMINED BY THE INTENSITY OF USE



- **Obstacles and Protrusions**:
    - Obstacles, projections or other protrusions shall be avoided in corridors, passageways or aisles. Long paths of travel shall be avoided, and resting areas shall be provided at frequent intervals not exceeding 30 m.
    - For provision of unavoidable obstacles and protruding objects and protection therefrom, requirements given in **Section 2.5** shall be followed. The minimum clear height of corridors shall be 2100 mm.
- **Floor surface:** shall be stable, firm, level and slip-resistant, preferably of matt finish and shall not have any projections, drops, or unexpected variation in level that may impede the easy access by persons with disabilities. Following requirements shall also be complied with:
    - Complex patterns shall be avoided.
    - Floor patterns that could be mistaken for steps, for examples stripes, shall not be used for floors in corridors.
    - Floors shall be levelled. If this is unavoidable, the slope of floors shall be no greater than 1:20. If greater slope is adopted, floor shall be designed as ramp.
    - For people with low vision, lines of brightly coloured fluorescent tape may be placed on the floor surface to assist mobility in poor lighted areas.
- Carpeting should be avoided in circulation areas/accessible routes. In case, Where, carpets are used in circulations areas, they shall,
    - Not be deeper than 12 mm.
    - Shall be securely fixed.
    - have firm cushion, pad or backing; and
    - Exposed edges of carpets be fastened to floor surface and trimmed along the entire length of the exposed edge.

- **Lighting** in the corridor and manoeuvring zone shall be even, diffused and without glare, reflections or shadows. Minimum illumination level at the corridor and manoeuvring zone shall be 150 lux.
- Handrails can provide support for people with impaired mobility, guidance for people who are blind or have impaired vision and can also support Braille information or tactile information.
- **Doors in the Corridors:**
    - Doors shall conform to **section 6** and shall not open outwards from rooms directly into a frequently used corridor, apart from doors to accessible toilets and service ducts.
    - Where a door opens into an infrequently used corridor such as emergency exit, the corridor width shall allow a clear space of 900 mm within the corridor when the door is open. Such doors shall be located clear of any sloping floor surfaces in the corridor.
    - Any door that opens towards a frequently used corridor should be in a recess at least as deep as the width of the door leaf.
    - Collapsible gates with gaps present a significant safety concern for individuals using wheelchairs or mobility aids, as the wheels or aids may get caught. It is recommended to avoid using collapsible gates.

11. Toilets

General

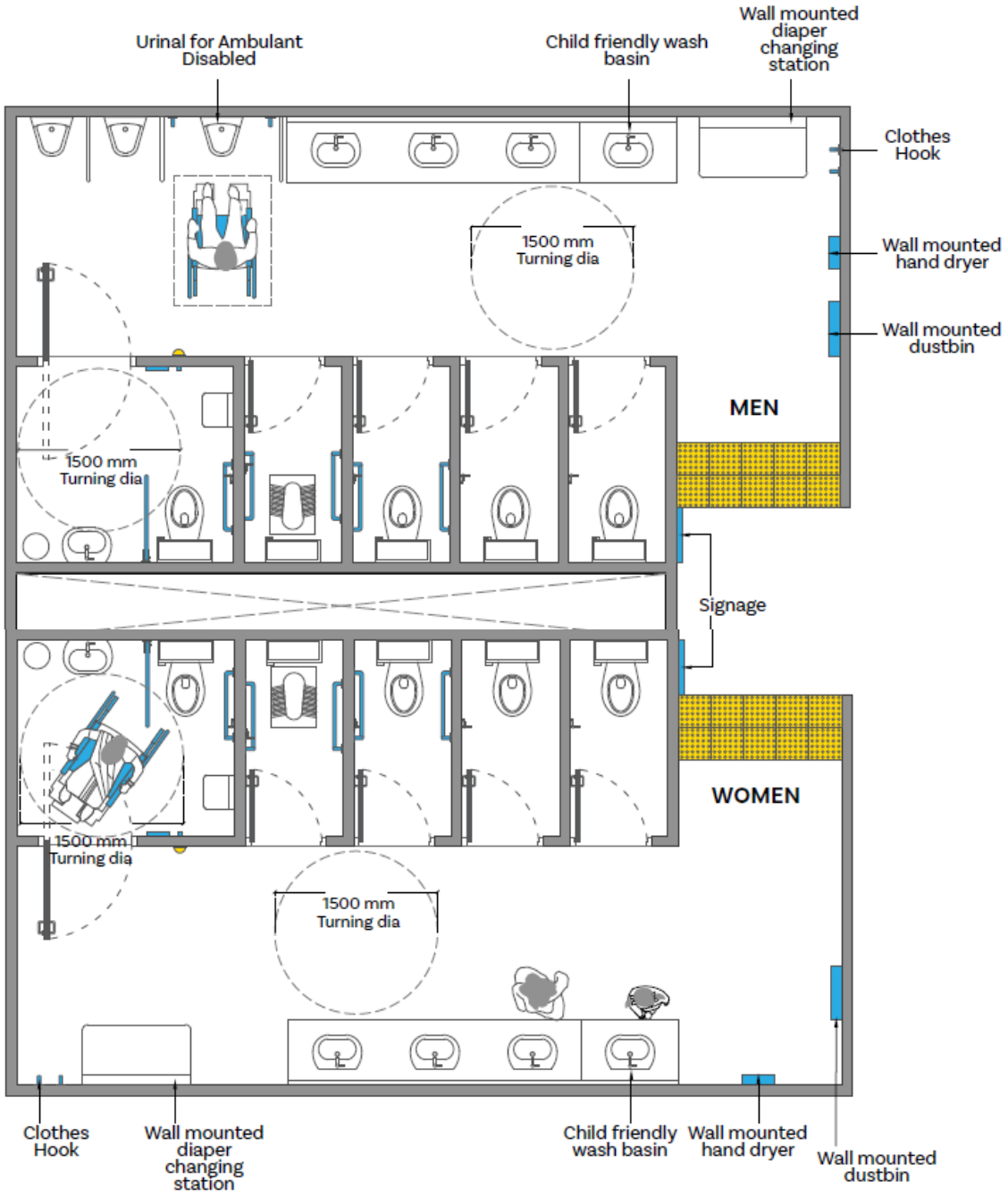
Accessible toilets are essential for ensuring **dignity, safety, and independen**ce for people with reduced mobility, the elderly, and those with mobility challenges. They provide adequate space for wheelchair users, grab bars for support, and non-slip flooring to prevent falls.

Accessible toilets promote hygiene, comfort, and inclusivity in public spaces like malls, offices, and hospitals. They also comply with legal accessibility standards, making environments more user-friendly for everyone. By removing barriers, accessible toilets enable equal participation in daily activities, ensuring a more inclusive society.

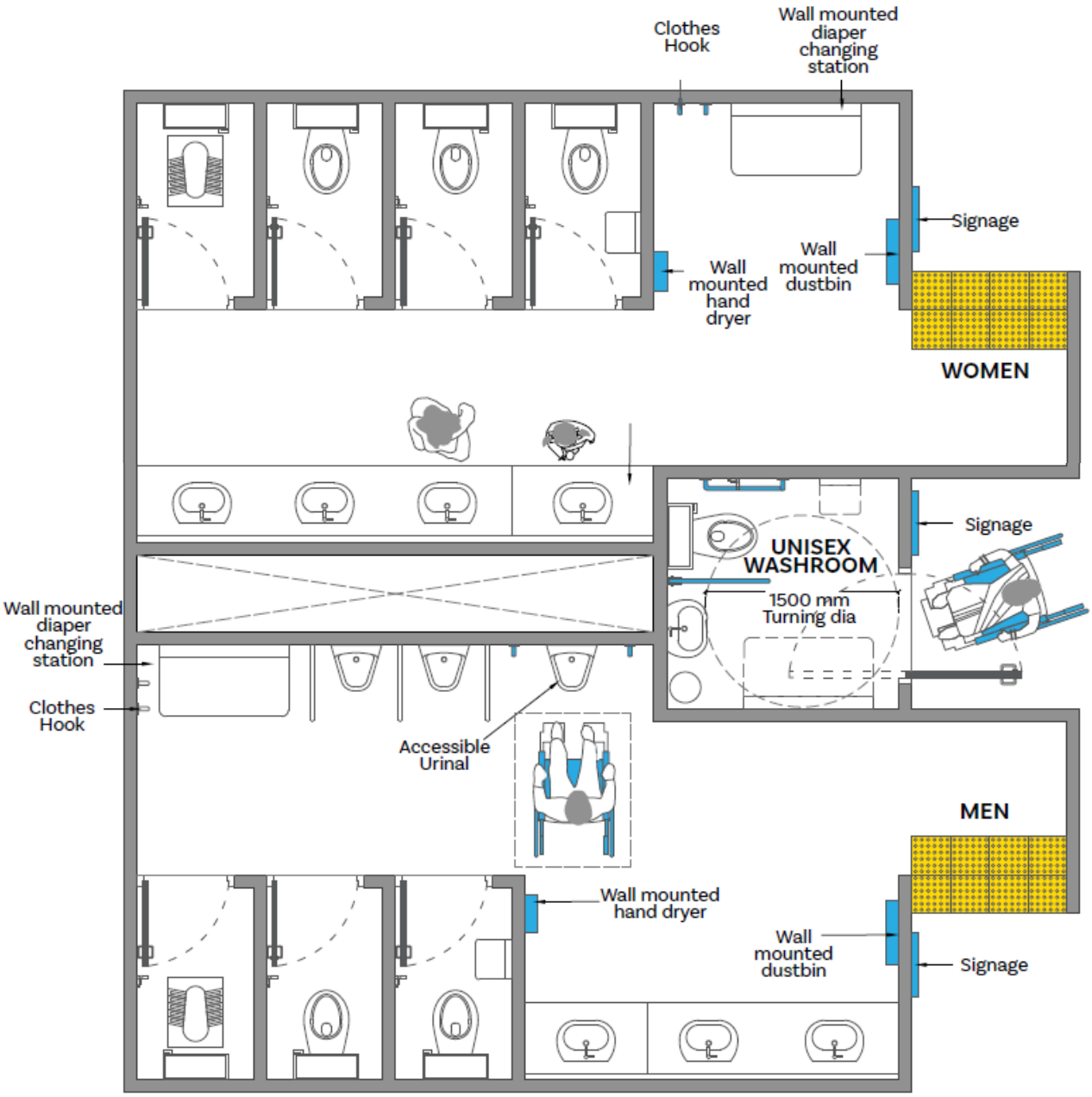
11.1 Toilet Size/Layout

- There should be one male and one female common toilet block along with an accessible WC cubicle shall be provided and a separate **gender neutral/unisex accessible** washroom shall be provided with all supportive features including lateral transfer provisions to WC.
- Accessible toilets that can be used by both sexes (**unisex or gender-neutral accessible toilets)** allow the greatest flexibility for people who require assistance hence is the preferred option.
- The provision of the accessible toilets shall be such that any wheelchair user/ambulant disabled person doesn't have to travel more than 30 m on the same floor.
- The gender neutral/Unisex accessible toilet shall be of two types, namely, Type A and Type B.
- If only one toilet is decided to be provided considering the estimated requirement as per this standard, it shall be Type A unisex accessible toilet. Where, more than one accessible toilet is provided, different options exist.

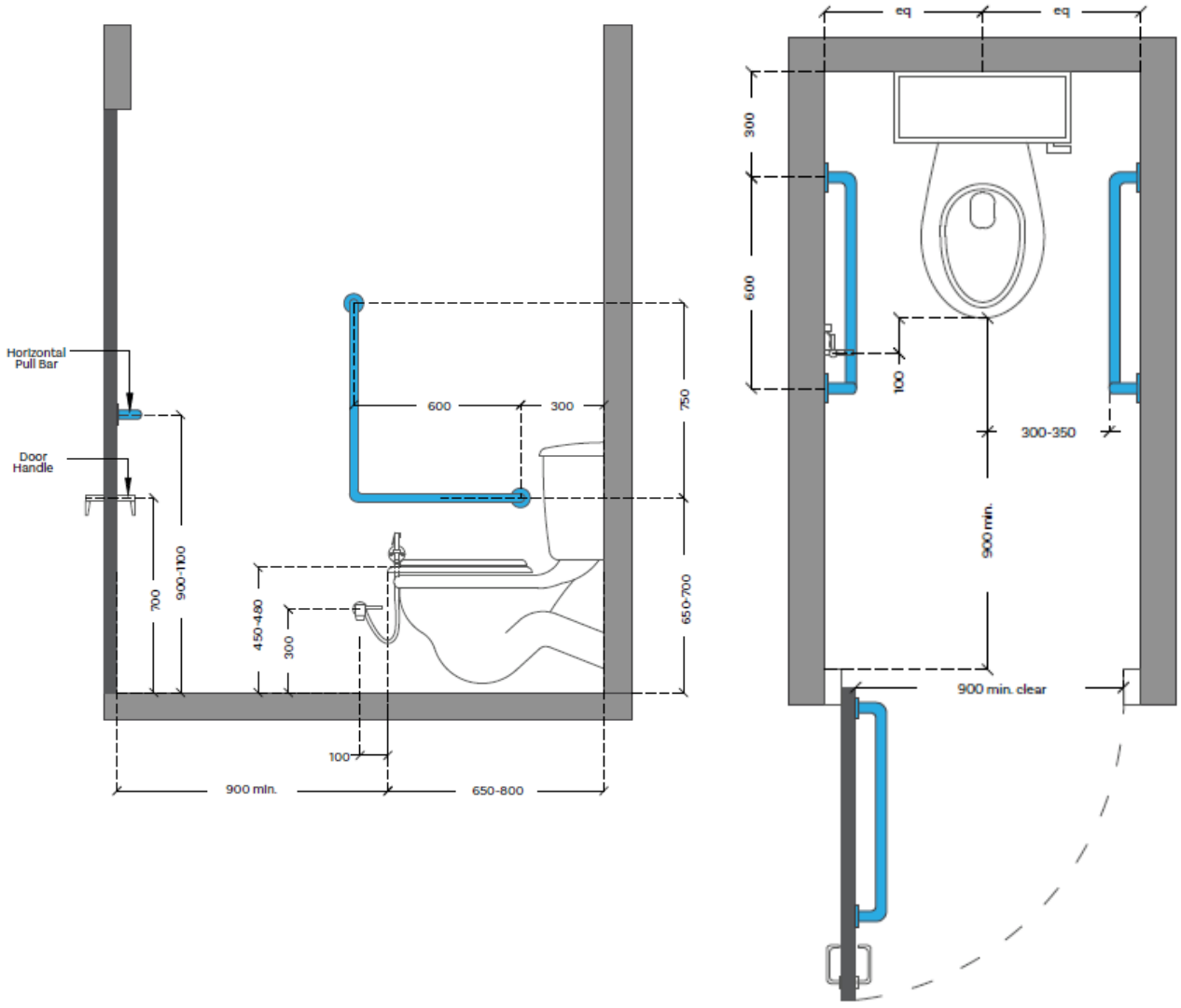
- When more than one accessible corner toilet of Type B is planned, a choice of layouts suitable for left hand and right-hand transfer shall be provided. In case such toilets are in similar position on each floor of a multi-storey building, it should allow for right- and left-hand transfer on alternate floors.
- In any case, a unisex accessible toilet of Type A shall be provided on the ground floor to be able to meet the need for both left and right-side transfers.
- The minimum dimensions for a Type A accessible toilet room are 2200 mm width and 2300 mm depth, and the minimum dimensions for a Type B accessible toilet room are 1700 mm width and 2200 mm depth.
- It is recommended to have a clear manoeuvring space of 1800 mm diameter in front of the water closet and wash basin in the accessible toilet unit (gender-neutral/unisex toilet) and the layout of the fixtures in the toilet should be arranged to facilitate this clear space.
- If the above-mentioned space is not available, an uncompromising space of 1500mm diameter shall be provided. The layout of the fixtures in the toilet should be as mentioned below –
    - All fixtures and utilities should provide a clear space of 900 mm x 1200 mm for wheelchair users to access them
    - Have clear space of not less than 900 mm wide next to the water closet
    - Be equipped with a door complying with **Section 11.2**
    - Have a water closet complying with **Section 11.3**
    - Have grab bars complying with **Section 11.4**
    - Have a wash basin complying with **Section 11.5**



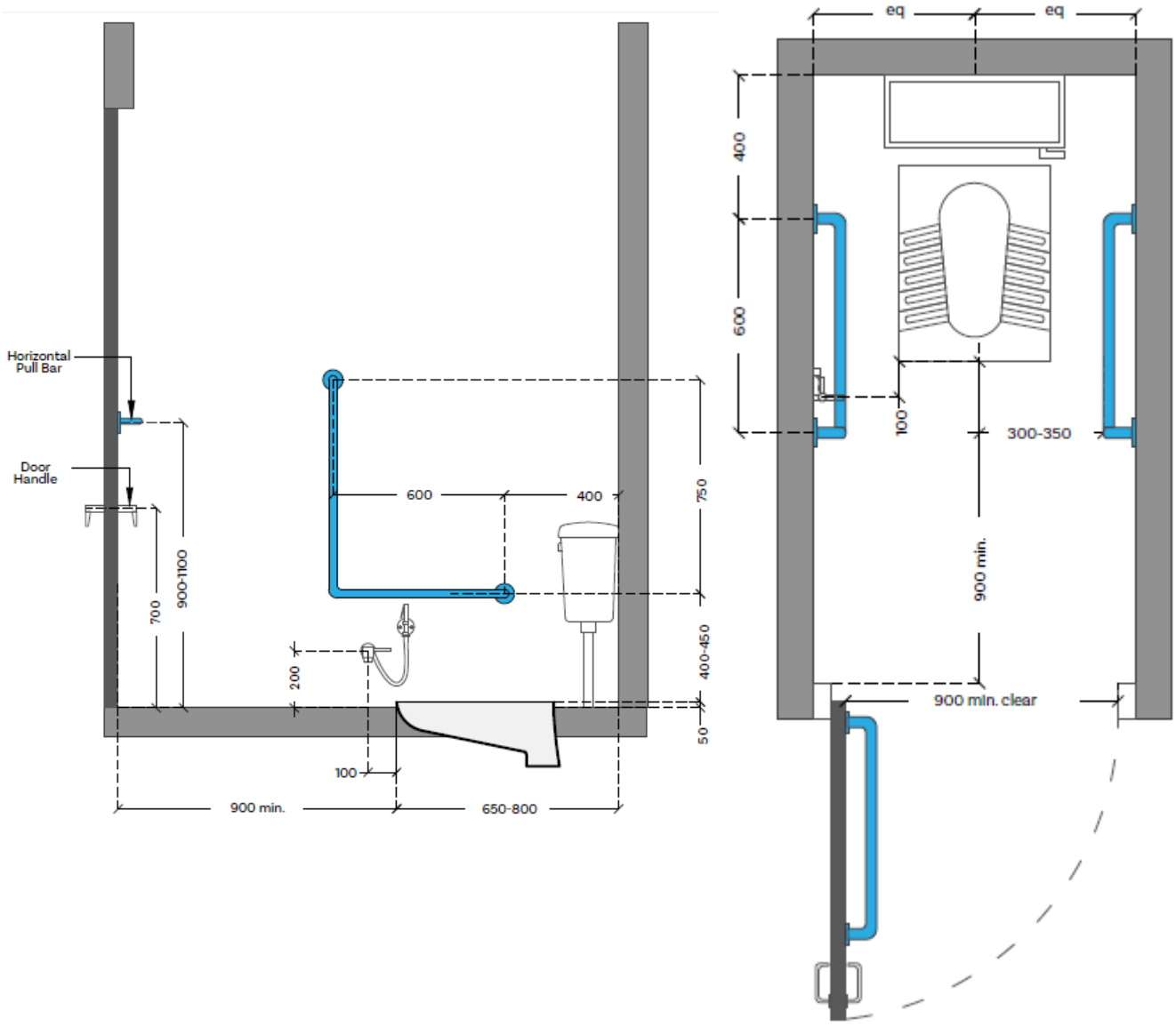
Accessible Common toilet block layout: Type A



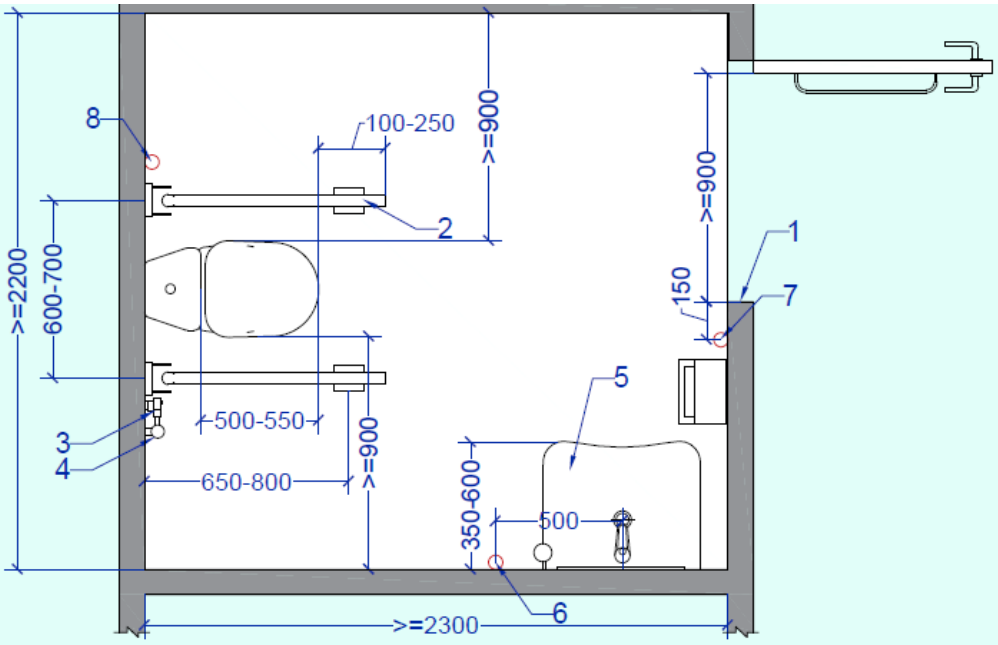
Accessible Common toilet block layout: Type B



Accessible WC Cubicle in Common Toilet Block



Accessible WC Cubicle in Common Toilet Block

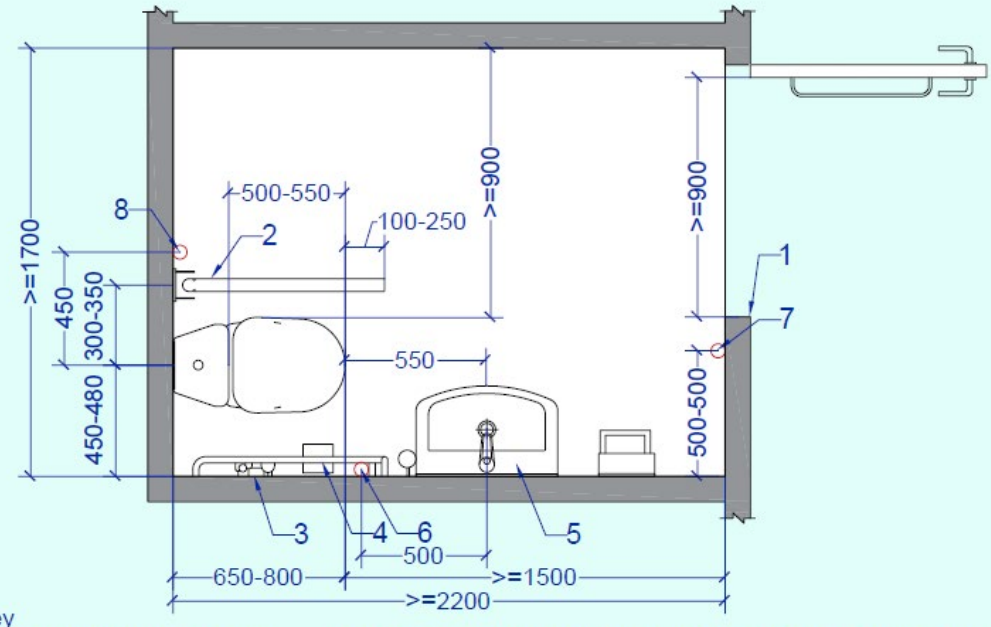


Key

1. Door Opening >=900mm
2. Foldable grab bars
3. Independent water supply
4. Grab bar on wall
5. Washbasin
6. Emergency bell at a height of 300mm from finished floor level
7. Emergency bell at a height of 900mm from finished floor level
8. Alarm pull cord with two red bangles one at 100mm, the other at 900mm above floor level

All dimensions in millimetres.

Example of Type A Toilet Room - Lateral Transfer from both sides



Key

1. Door Opening >=900mm
2. Foldable grab bars
3. Independent water supply
4. Grab bar on wall
5. Washbasin
6. Alarm pull cord with two red bangles one at 100mm, the other at 900mm above floor level
7. Emergency bell at a height of 900mm from finished floor level
8. Emergency bell at a height of 300mm from finished floor level

All dimensions in millimetres.

Example of Type B corner toilet - Lateral transfer from one side only

11.2 Toilet Doors

- All toilets should have marked on plates with raised alphabets and braille put on the wall next to the door latch, preferably on the left side. Additional signage should also be provided on the door at 1500 mm height from the floor finish.
- The toilet door should be either an outward opening door or two-way opening door or a sliding type and should provide a clear opening width of at least 900 mm require a force of more than 22N to operate. Automatic doors can also be used**.**
- Be provided with a horizontal pull-bar, at least 600 mm long, on the inside of the door, located so that it is 130 mm from the hinged side of the door and at a height of 1000 mm.
- Difference in floor level should be less than or equal to a tile drop at the toilet entrance door (no Choukhat)
- Other door related fixtures/hardware can be placed in accordance to **Section 6**

11.3 Water Closet

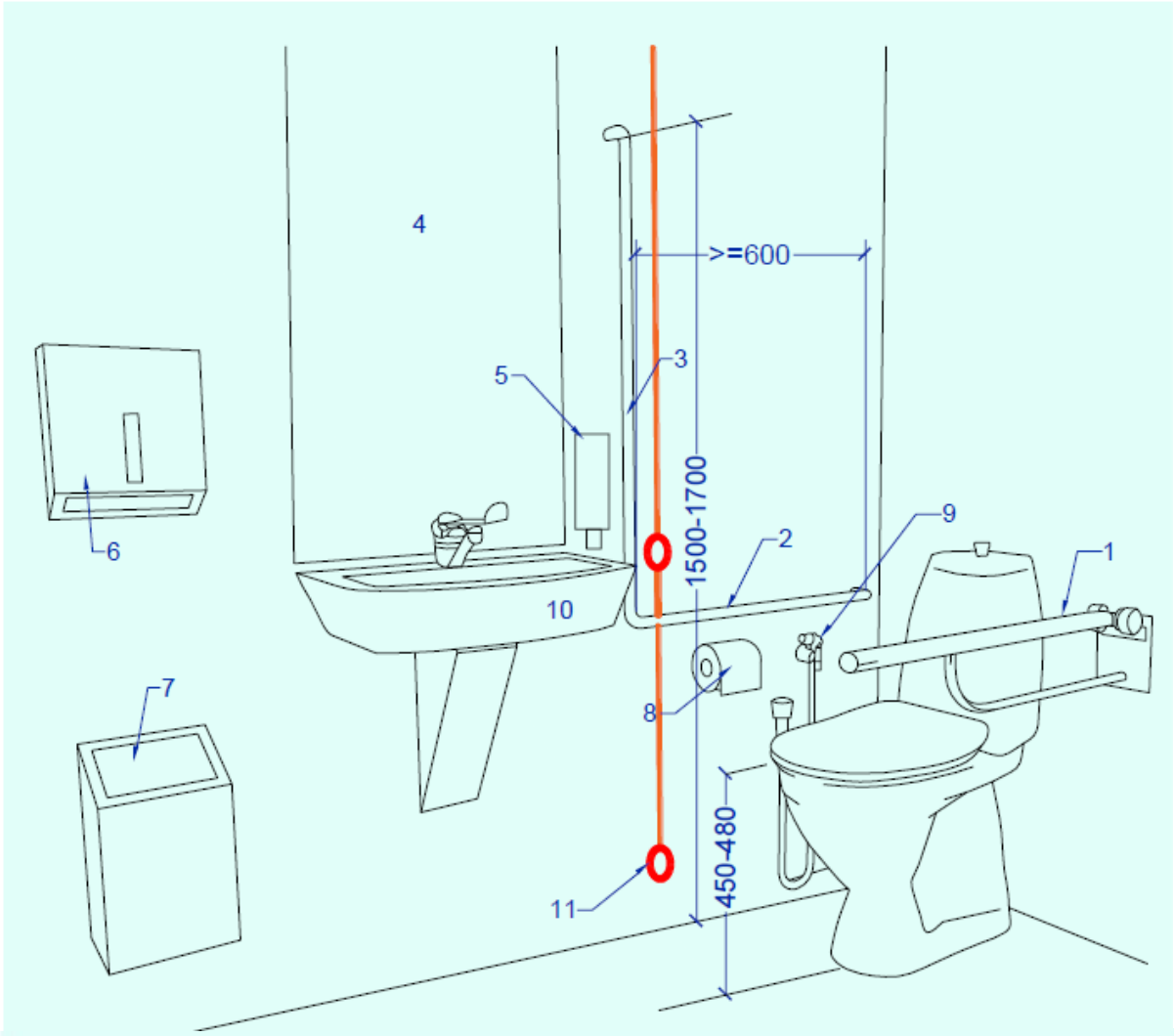
Appropriate commode height and wider utilization space in front and on the side of the commode seat facilitate a convenient wheelchair transfer process. Also, amenities should be installed at a convenient height along with the provision of grab bars and handrails to assist people with low muscle strength and reduced mobility.

The western commode can be a preferred choice over the Indian-style commode, as it reduces strain on the user's knees and hips.

- It shall be so located that the distance between centerline of the water-closet to the adjacent wall in case of corner toilets (Type B) be between 450 mm and 480 mm. The minimum distance of a corner toilet from the edge of the WC seat to the adjacent wall should be 250 mm. In the case of Type A toilet, the distance from the edge of the WC seat to the adjacent wall shall be 900 mm, minimum on both sides to allow ease of transfer.
- The top of the water-closet shall be between 450 mm and 480 mm from the floor.
- The minimum distance from the front edge of the water-closet to the rear wall should be between 650 mm and 800 mm.
- There shall be adequate clear floor space of at least 1 300 mm depth and 900 mm width, both in front and on the transfer side, adjacent to the water-closet.
- The water-closet shall preferably be of wall-hung or corbel type as it provides additional space at the toe level.
- An emergency alarm cum call switch should be provided within easy reach on the wall near the water closet at two levels: at 300mm and 900mm from the floor level to allow the user to call for help in case of an emergency.

11.4 Grab Bars

- On both sides of a toilet, a grab bar (whether drop-down or fixed to the wall) shall be provided at a distance between 300 mm and 350 mm from the centre line of the toilet.
- On the sides where a lateral transfer is possible, a foldable grab bar (drop-down support bar) shall be provided at a height of 200 mm to 300 mm above the water-closet. The length of the foldable grab bar should overlap the front edge of the water-closet in between 100 mm and 250 mm. The positioning of a foldable grab bar should allow access from a wheelchair when folded up.
- Where a wall is beside the toilet, a horizontal grab bar shall be provided at a height of 200 mm to 300 mm above the water-closet, and a vertical grab bar shall exceed from the horizontal grab bar to a height of 1 500-1 700 mm above floor level. The grab bar shall extend minimum 150 mm to the front edge



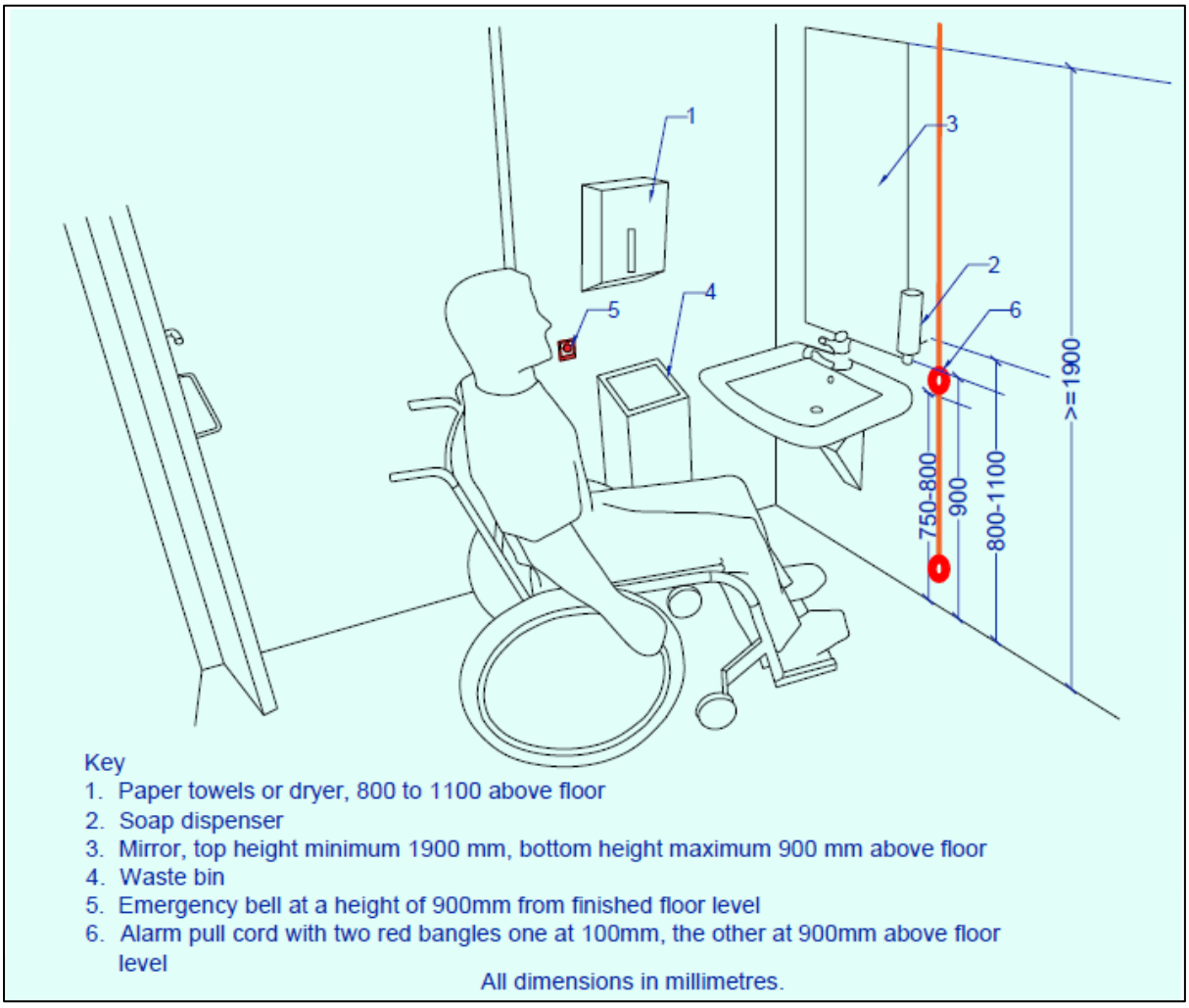
Key

1. Drop down support grab bar at seat height plus 200 to 300 mm
2. Wall mounted horizontal grab bar at seat height plus 200 to 300 mm
3. Wall mounted vertical grab bar
4. Mirror, top height minimum 1900 mm, bottom height maximum 900 mm above floor
5. Soap dispenser 800 to 1100 mm above floor
6. Towels or dryer 800 to 1100 mm above floor
7. Waste bin
8. Toilet paper dispenser 600 to 700 mm above floor
9. Independent water supply
10. Wash basin
11. Alarm pull cord with two red bangles one at 100mm, the other at 900mm above floor level

All dimensions in millimetres.

11.5 Washbasin

- The positioning of a washbasin should allow access from a wheelchair. It shall provide a minimum clear floor space of 900 mm wide by 1200 mm deep, of which a maximum of 480 mm in depth may be under the washbasin.
- It shall be mounted such that the minimum distance between the centreline of the fixture and the side wall is 460 mm; and the top edge of the washbasin is between 750 mm and 850 mm from the floor.
- The differences in stature may require lower or higher heights of washbasins and it may be advisable to have an inbuilt flexibility to increase or decrease heigh or **dual-height washbasin (in common toilet block)**.
- The space under the washbasin shall be unobstructed with a knee clearance centred on the washbasin minmum 700 mm high, and 200 mm deep. In addition, a to clearance of at least 300 mm high shall be provided (see Fig.).
- The front edge of the washbasin shall be located within a distance of 350 mm to 600 mm from the wall, according to Fig.
- The hot water and drain pipes within the knee space or toe space shall be properly insulated.
- Automatic or lever type faucets/taps shall be provided.
- In front of the washbasin, space should allow for a frontal or oblique approach by a wheelchair. The reaching distance to the tap control shall be a maximum of 300 mm, according to Fig.
- Edges on washbasins should be rounded.
- The mirror above the washbasin shall be positioned to have the bottom edge at a height of not more than 900 mm above the floor, up to a height of 1900 mm (see Fig. 81). The mirror shall be tilted at an angle of 30° for better visibility of wheelchair user. Care shall be taken in placing mirrors and lights to avoid confusion and dazzling for visually impaired users.
- A shelf with minimum dimensions of 200 mm × 400 mm should be provided near the washbasin at a height of 850 mm, or combined with the washbasin.
- Install hand dryers, towel/soap dispensers, waste bins, and hand-held showers at 800–1100 mm height. Coat hooks should be at 900–1100 mm, with one at 1400 mm.



Key

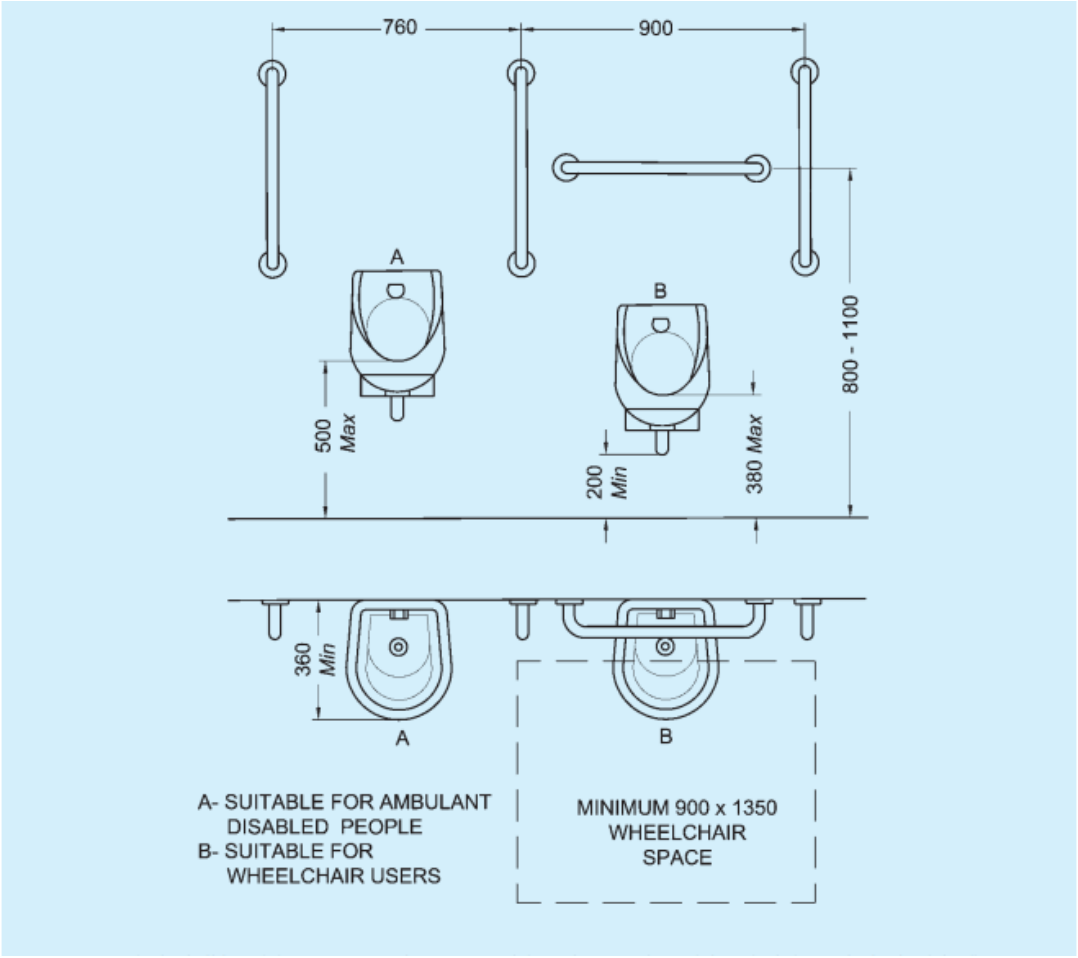
1. Paper towels or dryer, 800 to 1100 above floor
2. Soap dispenser
3. Mirror, top height minimum 1900 mm, bottom height maximum 900 mm above floor
4. Waste bin
5. Emergency bell at a height of 900mm from finished floor level
6. Alarm pull cord with two red bangles one at 100mm, the other at 900mm above floor level

All dimensions in millimetres.

11.6 Urinal

Wheelchair users may be able to pull themselves to a standing position to use a urinal, or they may be able to use a urinal from their wheelchair. Ambulant people with disabilities, for example, crutch users, may need support in front of urinals. Bowl urinals are preferableto slab urinals for the benefit of the visually impaired. The following design guidelines should be taken into consideration when designing an accessible urinal.

- In all men's bathrooms provide at least one accessible urinal.
- When wall hung urinals are fitted in the washroom, it is recommended that at least one of these havs its rim set at a height of 380 mm for wheelchair users and at least one has its rim set at a height of 500 mm for standing users/ambulant disabled**.**
- Urinals shall be minimum 360 mm deep measured from the outer face of the urinal rim to the back of the fixture.
- Vertical grab rails 600mm long should be positioned either side of the accessible urinal.
- Each vertical grab rail should be positioned so that its centre point is located 1200mm above the finished floor level.
- The accessible urinal must have a contrasting colour in relation to its back wall.
- This wall hung urinal should be set clear above the floor level, without any raised access platform and with a clear floor area in front of the urinal of at least 760 mm wide and 1220 mm deep to allow forward approach for ambulant disabled and minimum of 900 mm × 1350 mm for wheelchair users to use the urinals.

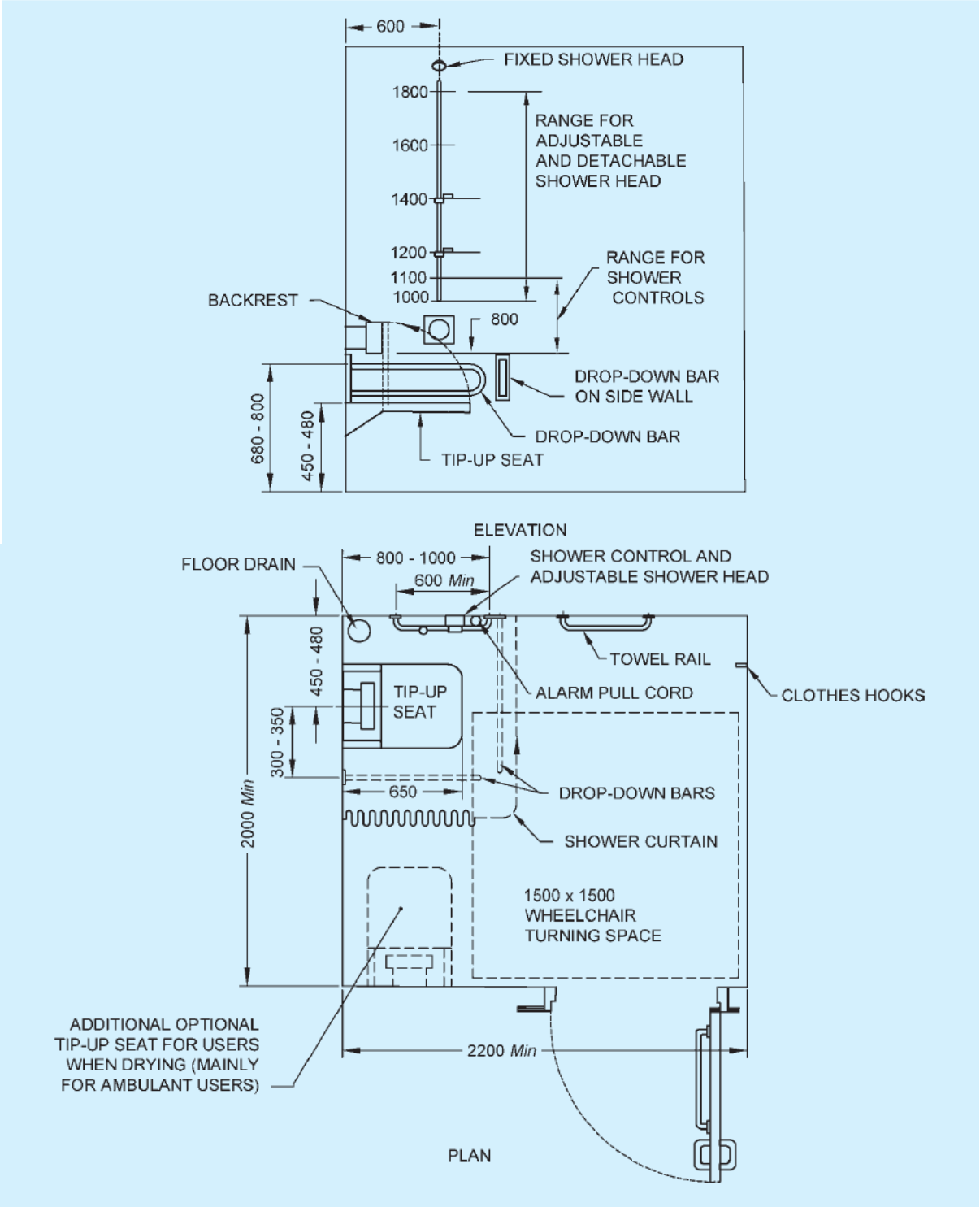

760
900
A
B
500 Max
200 Min
380 Max
800 - 1100
360 Min
A
B
A- SUITABLE FOR AMBULANT DISABLED PEOPLE
B- SUITABLE FOR WHEELCHAIR USERS
MINIMUM 900 x 1350 WHEELCHAIR SPACE

11.7 Diaper Changing Station

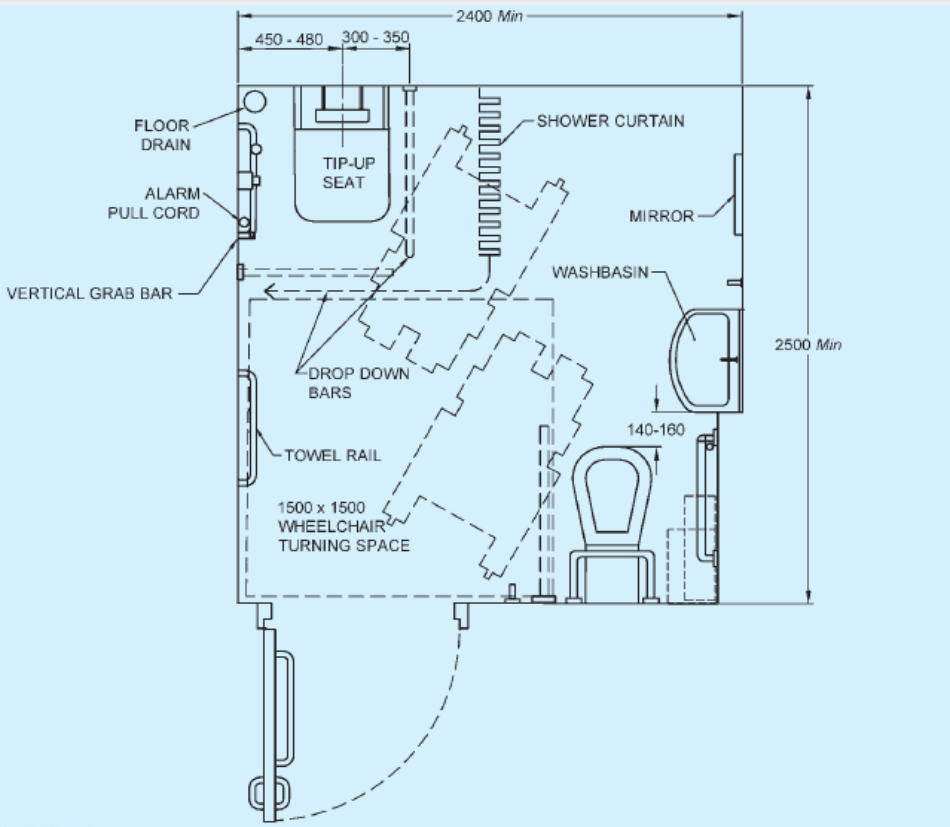
- A diaper changing station should be provided within every common toilet block/family washroom for use by either parent and in every cluster of toilets for both male and female toilets.
- A diaper changing station should:
  - Be stable and equipped with safety straps and barriers lengthwise to ensure the safety of the infants.
  - Have a concave changing surface to ensure comfort and protection of the child.
  - Withstand a static weight of about 130 kg.
  - Be mounted such that the highest edge, or the lip, of the pull-down deck is between 700 mm to 850 mm above the finished floor level when open.
  - Be provided with clear instructions to facilitate safe use.
  - Be provided together with dispensers for bed linens and wet wipes for hygiene purposes.

11.8 Shower Area

- **Room Dimensions:**
  - A self-contained shower or changing room should be at least 2000 mm × 2200 mm.
  - A shower room with a corner accessible toilet should be at least 2400 mm × 2500 mm (manoeuvring areas may overlap).
- **Shower Area & Transfer Space:**
  - The wet showering area should be at least 900 mm × 1350 mm.
  - The transfer space inside the shower room should also be 900 mm × 1350 mm.
- **Flooring & Drainage:**
  - The shower floor must slope 1:50 to 1:60 towards a drain.
  - Outside the shower, the slope should be 1:70 to 1:80 towards the shower area.
  - The floor must be slip-resistant and anti-glare, even when wet.
- **Shower Entrance:**
  - The transition into the shower should be level, without a step or kerb.
  - If a kerb is unavoidable, it should be no more than 12 mm high and bevelled at a 1:2 slope.
- **Shower Seat:**
  - A wall-mounted, foldable seat should be provided.
  - Minimum seat size: 450 mm × 450 mm.
  - Seat height: 450 mm – 480 mm above the floor.
  - The seat should be 45-50 mm from the rear wall and 650 mm from the front edge to the rear wall.
  - A height-adjustable seat is recommended.
  - The seat should be self-draining, slip-resistant, stable, and fold upwards safely.
- **Grab Bars & Shower Fixtures:**
  - Grab bars should be installed as per Section 11.3.
  - A flexible shower hose must be at least 1500 mm long.
  - The handheld showerhead should be 1000–1200 mm above the floor.
  - The hose fitting should be at least 1300 mm above the floor.



Self-Contained Shower Room for Individual Use



NOTES

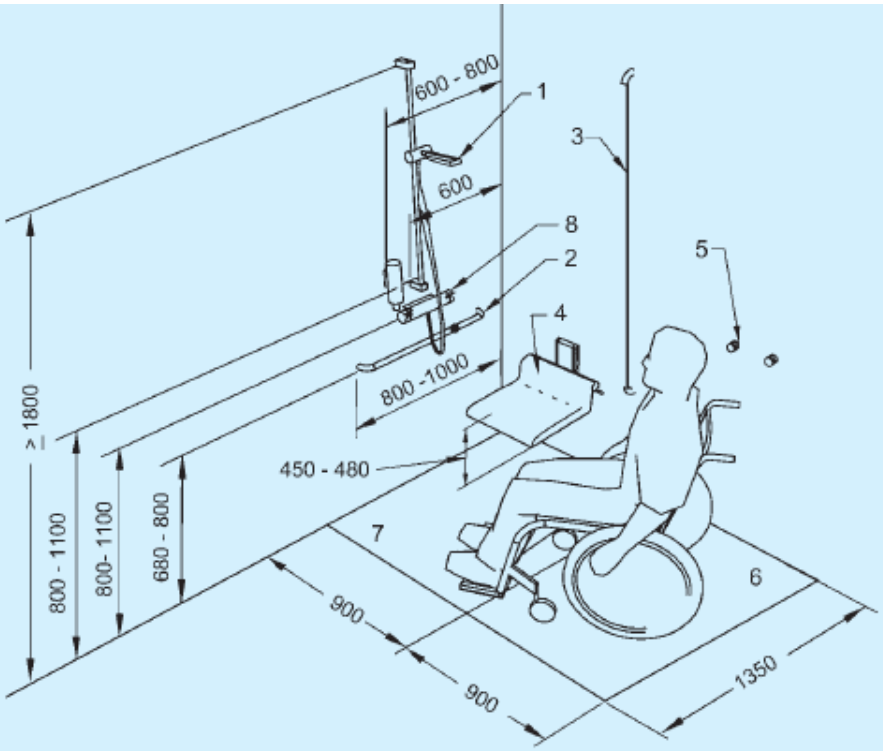
1 Layout shown for right-hand transfer to shower seat and water closet.

2 The larger washbasin are set back 200 mm to maintain the correct relationship of its leading edge with the water closet.

All dimensions in millimetres

SHOWER ROOM INCORPORATING AN ACCESSIBLE CORNER TOILET FOR INDIVIDUAL USE

Height Adjustable Shower Seat with Armrests and Backrest
(Picture Reference Prosafe living)



Key

1 Hand-held shower head
2 Horizontal grab bar
3 Vertical grab bar
4 Foldable shower seat
5 Towel hooks
6 Transfer area
7 Wet showering area with gradient 1 : 50 to 1 : 60
8 Shower controls

All dimensions in millimtres.

EXAMPLE OF A SHOWER PLACE WITH GRAB RAILS, ADJUSTABLE SHOWER HEAD AND FOLDING SEAT

12. Changing Room

General

Changing rooms are a very important space as they provide the preparation area for the athletes. Different sports have different needs inside this space, so the design of a changing room should be versatile and allow flexibility.

In instances where the changing room will be used for team sports, the space should allow for several wheelchairs to circulate inside. The best way to guarantee a free circulation is by providing flexible benches that can be removed or relocated within the space.

In addition, they must have step-free entrances, wide doorways, and enough space for wheelchair movement. Benches and lockers should be easy to reach, and showers and toilets must have grab bars, non-slip flooring, and enough space for transfers. Clear signage, good lighting, and emergency alarms should also be in place to ensure safety and ease of use. These features create an inclusive environment for everyone.

12.1 Benches

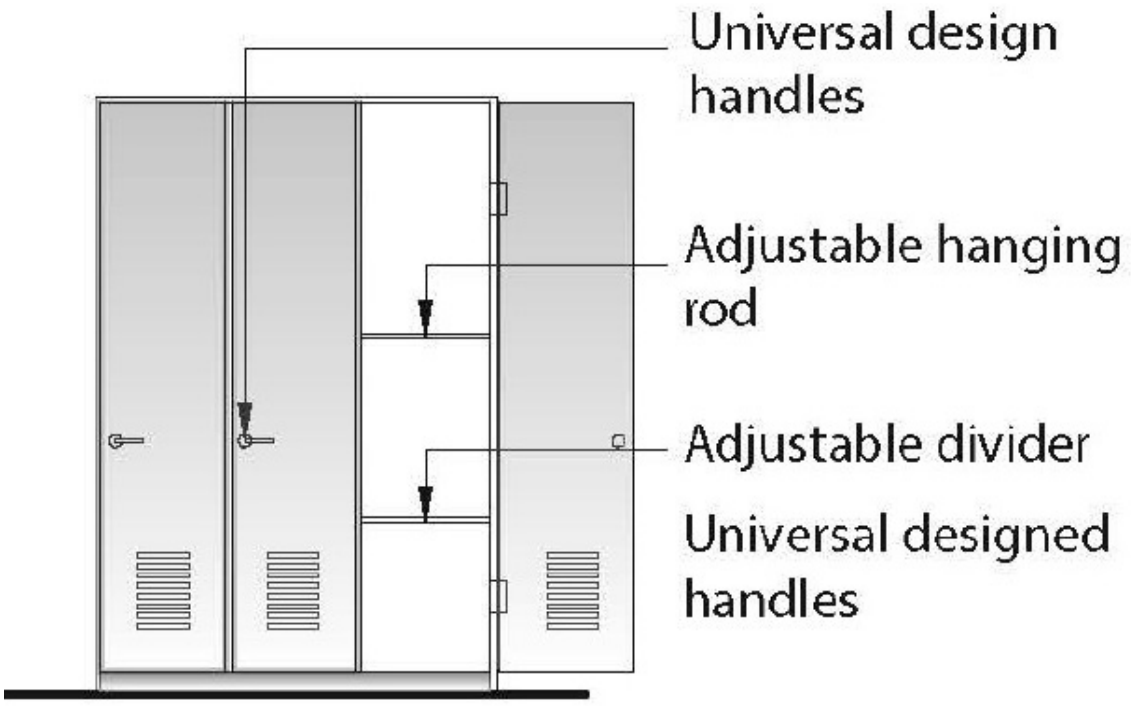
- Ensure the layout of the changing area provides sufficient space for a wheelchair user (mini. 1200 mm) to move freely without obstructing other users.
- Provide seating or benches at a height range of **450–550 mm**. A height of **500 mm** is recommended to suit a wide range of users, or a height adjustable bench. Install ceiling hoists that are fit for purpose to assist individuals with mobility impairments.
- Install alternate coat hooks at heights of **1050 mm** and **1400 mm** above the floor to cater to users with varying reach capabilities.
- Provide adjustable height changing beds to meet the needs of users requiring additional support
- Use nonslip floor surfaces suitable for wet areas to ensure user safety and ensure that the carpet should not restrict or make wheeling difficult.
- Benches should be relocated to provide better circulation for wheelchair users, but they should not be completely removed as they will still be used for changing or support.

12.2 Locker Design

- Ensure the provision of a sufficient number of lockers to meet user demand. At least **10%** of the lockers should be positioned at a height of **1200 mm** for accessibility.
- Incorporate tactile numbering on locks and lockers to support users with visual impairments.
- The design of lockers should take into consideration accessibility parameters so they can be used by any athlete regardless of disability. Some of the characteristics are:
    - Locker door handle should be placed between 610mm and 1,220mm.
    - A hanger rod must be placed within reachable range for a person to have access from a seated position. A hanger rod for a person standing should also be provided.
    - The locker should be easy to access, without having any obstacles such as benches in front. There should be enough space to circulate and operate the doors.

12.3 Shower Area inside changing room

It is standard practice to provide communal shower spaces in changing rooms either in the form of cubicle or open. Many times, they can be very uncomfortable for people with mobility impairments who require a wheelchair, a walker or use prosthetics. These spaces are often very wet, and the splashing of water can be harmful for mobility equipment. Shower area shall be provided in accordance with **section 11.8 and section 11.**



Locker interior elevation

13. Spas, Saunas & Swimming Pool

13.1 Spa pools

Spa pools can provide some issues when it comes to provision of unaided access, due to the small size of most commercially available pools the inclusion of a ramp is not usually possible or feasible.

The industry appears to accept this restriction, and while unaided access may not be possible for all wheelchair users without provision of a ramp, the more mobile chair users who have some level of mobility may still be able to access the pool without their chair using grab rails or a limited number of steps.

Mechanically assisted access is possible to spa pools by way of hydraulic lifts or hoists (refer to section titled hydraulic lifts). Wheelchairs that can be borrowed by patrons should be provided where a means of wheelchair access into the pool is provided as everyday wheelchairs cannot enter the water.

Best practice is that footrests are not required in the spa where pool lifts are provided but are encouraged, especially on larger spas where the water depth is 850mm or more or where there is sufficient space.

Where spas are provided in cluster, at least 5% in each cluster *or* at least one spa must be accessible.

- Ensure the spa pool is located on an accessible route to accommodate all users.
- Provide seating within the spa pool at variable levels, equipped with footrests, to accommodate users with different needs.
- Contrast the edges of the spa pool with the surrounding environment for improved visibility.
- Ensure the edges have tactile differentiation from surrounding surfaces to assist users with visual impairments.

13.2 Sauna

In sauna facilities, it is recommended to provide accessible seating, including designated wheelchair seating positions and a variety of seating heights to accommodate different users. The approach should be accessible with level surfaces and wide entrances, ensuring doors comply with accessibility standards. Additionally, as it is an enclosed facility, it is advisable to install an emergency call button system and offer assistance.

13.3 Swimming pool

Swimming pools should be designed to ensure full integration of swimmers with disabilities in all activities. Following are points should be considered in providing an accessible facility.

Entry and Exit: Swimming pools should be equipped with accessible ramps that have handrails meeting the required standards. In cases where ramps are not feasible, pool lifts or hoists should be installed to provide mechanically assisted access. These devices allow para-players to enter and exit the pool independently. Additionally, wheelchairs designed for water use should be available for patrons, as everyday wheelchairs may not be suitable for pool environments.

Route and Access: The route through a swimming pool complex should be the same for swimmers with disabilities as for non-disabled swimmers. This ensures that everyone can navigate the facility equally and without barriers.

Surface Safety: Bare feet on wet floor surfaces can make movement more difficult and dangerous for people with mobility impairments. Therefore, the surface needs to be skid-free, and absorbent mats can be provided to enhance safety provided they don’t have any raised or loose ends.

Pool Design: The design of the pool should include sloped entries and zero-depth entry areas to accommodate users with varying levels of mobility. These features allow wheelchair users and those with limited mobility to access the pool without assistance. It is also beneficial to have grab rails and a limited number of steps for more mobile chair users who can transfer themselves into the pool.

Seating and Rest Areas: Around the pool, there should be a variety of seating heights and designated wheelchair seating positions to cater to different needs. Rest zones with accessible seating options should be provided for para-players to relax between activities. These areas should be easily accessible and located on level surfaces to prevent tripping hazards.

Emergency Systems: Given that swimming pools are often large and busy environments, it is crucial to have emergency call buttons installed within easy reach of para-players or a remote button can be provided. Additionally, staff should be trained to respond promptly to emergencies and provide immediate assistance to para-players.

Self-Consciousness and Assistance: People with disabilities may often feel self-conscious in a pool setting because they might be without their aids, are physically exposed, and may require assistance to enter the pool. To support these swimmers, pool lifts or hoists should be available as assistive devices to facilitate safe and independent entry into the pool.

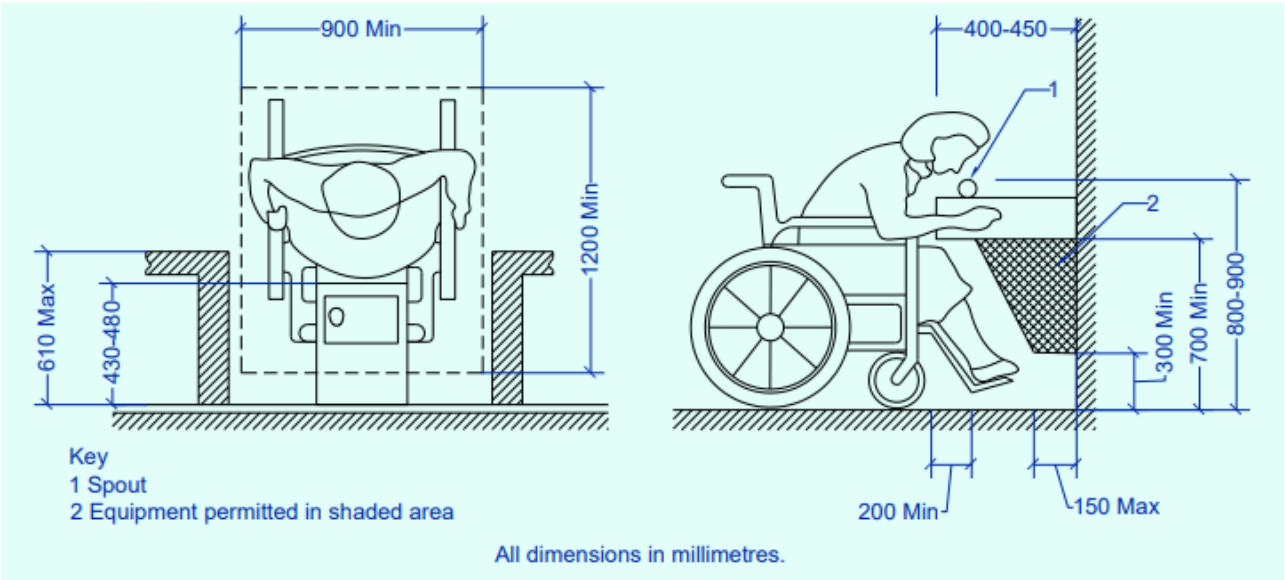
Training and Staff: Staff members should receive training to understand the specific needs of para-players and how to assist them effectively. Awareness programs can help educate both staff and other pool users about the importance of accessibility features and how to use them properly.

14. Drinking Water Facility

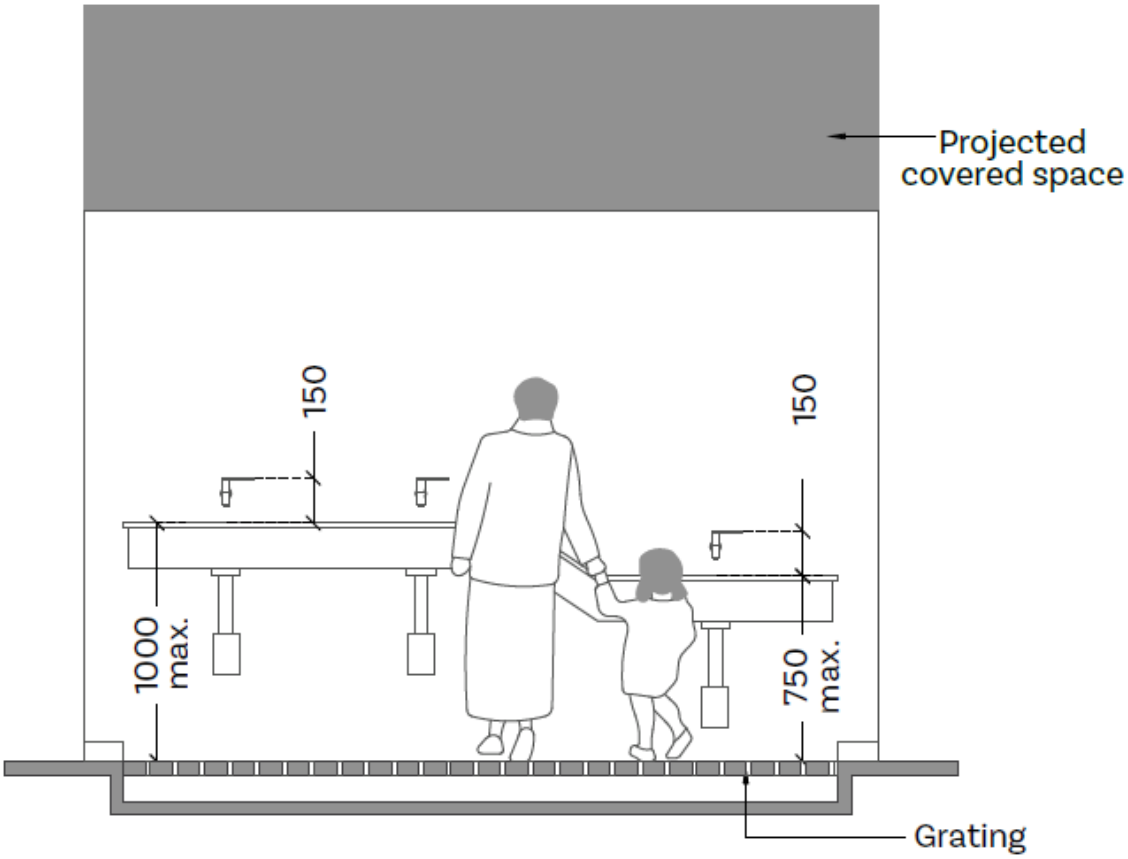
General

Accessible drinking water facilities are vital in sports environments to ensure the well-being and performance of all athletes, staff, and spectators, regardless of their abilities. Proper hydration is crucial for maintaining physical endurance, preventing injuries, and optimizing performance during activities. For individuals with disabilities, accessibility ensures equal opportunities to stay hydrated, fostering inclusivity and participation. By providing strategically placed, easy-to-use, and universally designed water stations, sports facilities promote health, enhance the sporting experience, and align with principles of accessibility and equity.

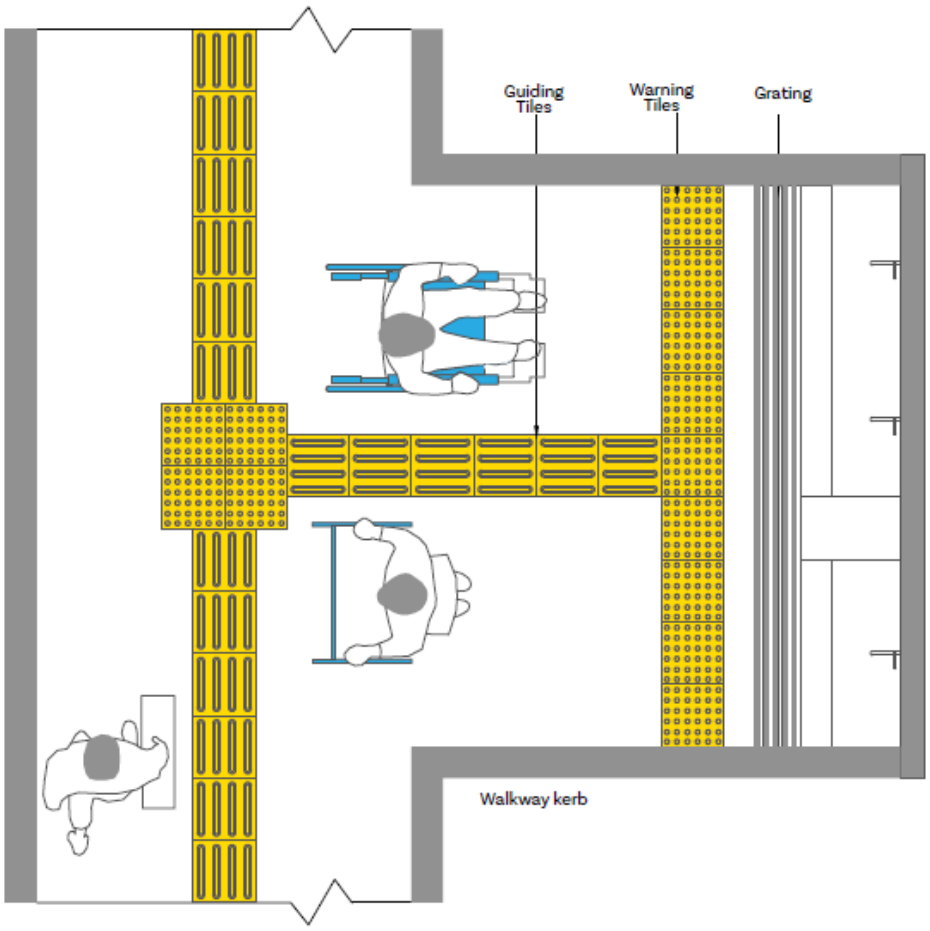
- Drinking water facilities in buildings should be easily locatable, identifiable and reachable through well identified signage**.**
- Water units shall have a clear space of 900mm X 1200mm in front of them and should not be on raised platform as it restricts wheelchair.
- The provision of two drinking facilities at different heights is very convenient for standing adults, people in wheelchairs and children. Where only one counter is provided, it shall be at a height of 700 mm above floor level.
- Spout heights shall be between 800-900 mm.
- The front edge of the unit shall extend 400-450 mm from the wall. It shall have a clear knee space between the bottom of the apron/ equipment and floor or ground of at least 900 mm wide, 200 mm deep extending from the front edge of the equipment and 750 mm high.
- It shall have a toe space not less than 900 mm wide, 300 mm high, extending from the back wall to a maximum of 150 mm.
- Lever type tap systems/sensor-based taps (at two levels) with easy-to-use systems to be used. Fountain type taps can also be given.
- Non-skid surface with proper drainage shall be created.
- Drainage near the area shall be covered to prevent falls
- Single row of warning tiles shall be given in front of the drinking water facility, and it should be connected to the accessible route.


900 Min
1200 Min
610 Max
430-480
400-450
1
2
300 Min
700 Min
800-900
200 Min
150 Max
Key
1 Spout
2 Equipment permitted in shaded area
All dimensions in millimetres.


சுத்திகரிக்கப்பட்ட குடிநீர் ஊற்று
शुध्दित पेय जल फाउन्डन



Front elevation



15. Auditorium, Halls, Sports Arenas and Similar Seating

General

A recreational area/building consists of various facilities, those facilities and features such as approach, entrance/exit doors, toilets, changing rooms, eating spaces and canteens, ramps and kerb ramps in premises, signage and wayfinding, security check-ins, emergency egress, etc. are covered in a different section of this guidelines which should be referred accordingly for a better and accessible experience. This section will guide through the features specific to such facilities.

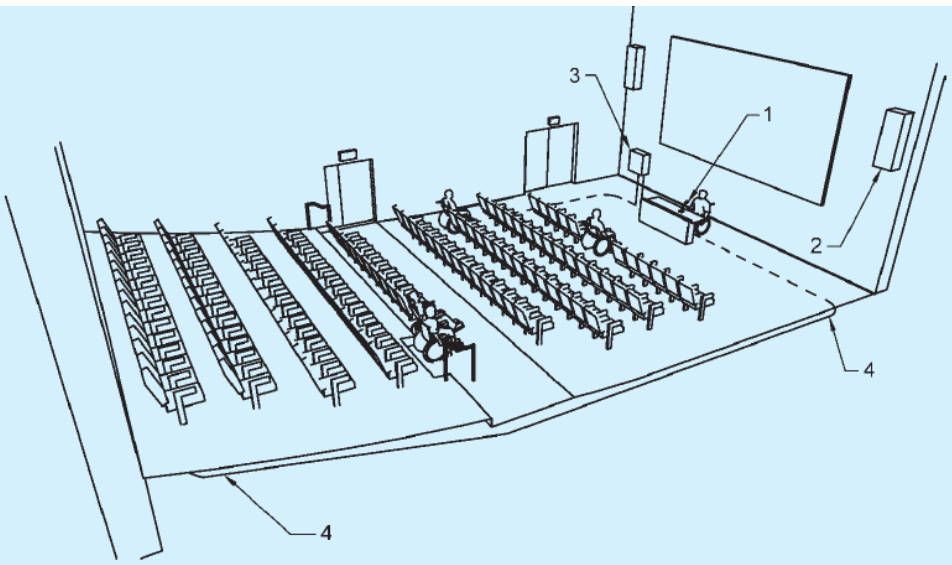
15.1 Hearing Enhancement System:

A hearing enhancement system should be provided. The system should also be provided on the stage/platform.

A hearing enhancement system fitted at an information point can significantly assist communication for a person with a hearing impairment who uses a personal hearing aid or has a cochlear implant. Hearing aids or cochlear implants may have a Tele-coil (T-switch) which allows the listener to receive the sound signal directly.

Hearing enhancement systems, for example, induction loops and infrared signal transmitting systems, shall be provided in conference and meeting areas. All seats, including the front scene, should be covered by hearing enhancement systems like induction loops (see Fig. 99). Portable hearing enhancement systems may be an alternative.

People with hearing impairments have particular difficulty in making out sounds and words in noisy environments. Adequate sound insulation should minimize noise from both and inside the building.



Key
1 Microphone
2 Loudspeakers
3 Induction loop amplifier
4 Induction loop

FIG. 99 EXAMPLE OF INDUCTION LOOP SYSTEM IN CONFERENCE ROOM

15.2 Illumination:

Lighting for Sign Language Interpretation

- **Facilitating Sign Language and Lip Reading:** Adequate lighting should be provided to enable effective sign language and lip reading.
- **Lighting Angle:** Light should illuminate the faces and hands of presenters and signers at an angle of 45° to 50° from the horizontal at ceiling level.
- **Contrasting Backdrop:** A suitable contrasting background should be provided to assist in clearly viewing the lips and hands of the presenter and signer.

Pathways, aisles, and exit routes should be well-lit to help people move safely and easily. Emergency lights should be installed in key areas to provide lighting during power outages or emergencies. Additionally, ensure there is a reliable power backup system to keep these lights functional at all times.

15.3 Designated Seating Area for Wheelchair Users:

When calculating the number of spectator accessible seats in a venue three main elements should be considered; total number of spectator seats, the sport, and the location of the proposed accessible seats within the venue.

At least one percent (1%) of the total capacity should be designated for wheelchair users, whereas total capacity of seats in para sport should increase to 1.2%. It is recommended to provide the designated seating area in the following manner:

Seating capacity	Number of accessible seats	Number of accessible seats for wheelchair sports
Under 10,000	1% of total seating capacity	1.2% of total seating capacity
10,000–19,999	100 plus(+) 8 seats for every additional 1000 seats above 10,000	120 plus(+) 10 seats for every additional 1000 seats above 10,000
20,000–39,999	180 plus(+) 5 seats for every additional 1000 seats above 20,000	220 plus(+) 5 seats for every additional 1000 seats above 20,000
40,000 or more	280 plus(+) 2 seats for every additional 1000 seats above 40,000	320 plus(+) 2 seats for every additional 1000 seats above 40,000

Features of the seating area;

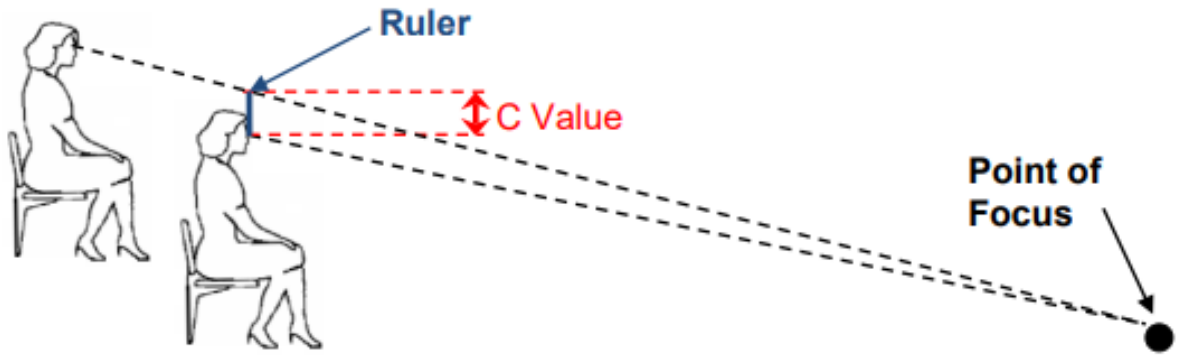
- **Clear Floor Space:** Each seating area should have a level and clear space of at least 900 mm × 1200 mm, while the depth of the row shall be a minimum of 2400 mm;
- **Transfer-Friendly Seats:** Armrests on seats at the row's end should lift to allow wheelchair users to transfer onto a seat.
- **Flexible Seating:** In auditoriums with fixed seats, at least 15 seats should be foldable or removable to create more wheelchair spaces when needed.

- **Wider Seats:** Some seats should be wider to accommodate larger individuals comfortably.
- **Inclusive and Companion Seating:** Seating arrangements should ensure that wheelchair users and individuals with sensory processing disorders are integrated within regular seating areas and not only isolated. Companion seating must be provided right next to the person needing assistance such as wheelchair space, transfer friendly seats, wide seats, sensory seats, etc., ensuring they are not placed separately., refer fig 92;
- **Row and Seating Numbers:** To assist visually impaired individuals, row and seat numbers should include tactile features and be designed with adequate size and color contrast against the background.

15.4 Sight Lines:

Spectators attend events to watch and enjoy sports, feel the excitement, and share the experience. However, their view can be blocked by people seated in front of them, diminishing their experience. To ensure an unobstructed view, accessible seating and wheelchair spaces should be placed at different levels, providing the same quality of sightlines as other spectators.

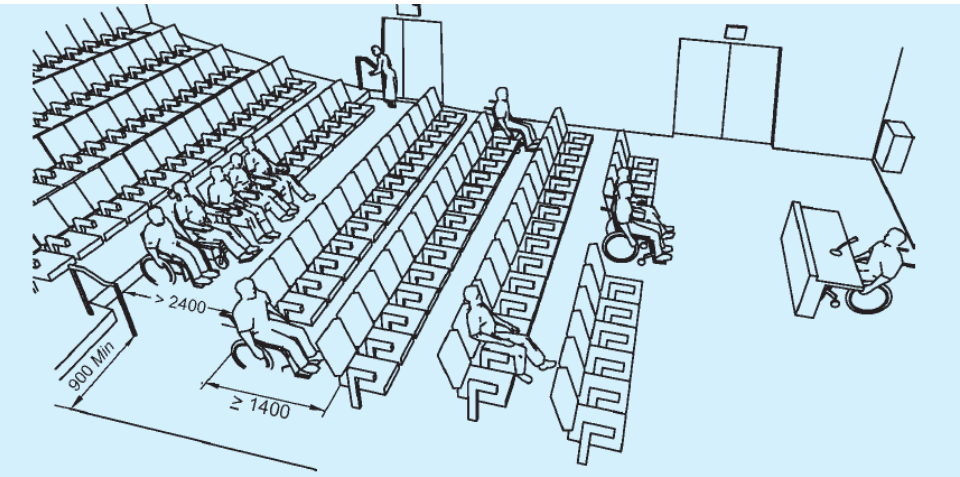
Different sports and facilities, such as auditoriums and halls, have varying focal points. For example, the field of play in tennis differs from that of rowing, and the focus shifts further in indoor venues with or without a stage. Therefore, when designing seating arrangements—whether permanent or temporary—it is essential to maintain a minimum C-Value of 90mm (preferably 120mm) from the focal point.



During key moments, such as exciting plays or the national anthem, many spectators may stand. Thus to maintain clear sightlines for wheelchair users, seats in front can be removed, especially in older or larger venues like stadiums. Alternatively, for all such places the riser height can be increased. Whereas in open-air or cross-country events (e.g., rowing, mountain biking), dedicated raised platforms should be provided at key locations. These platforms must offer an unobstructed view above the heads of standing spectators and be accessible via ramps. Additionally, they should include flexible seating for those who cannot stand for long periods.

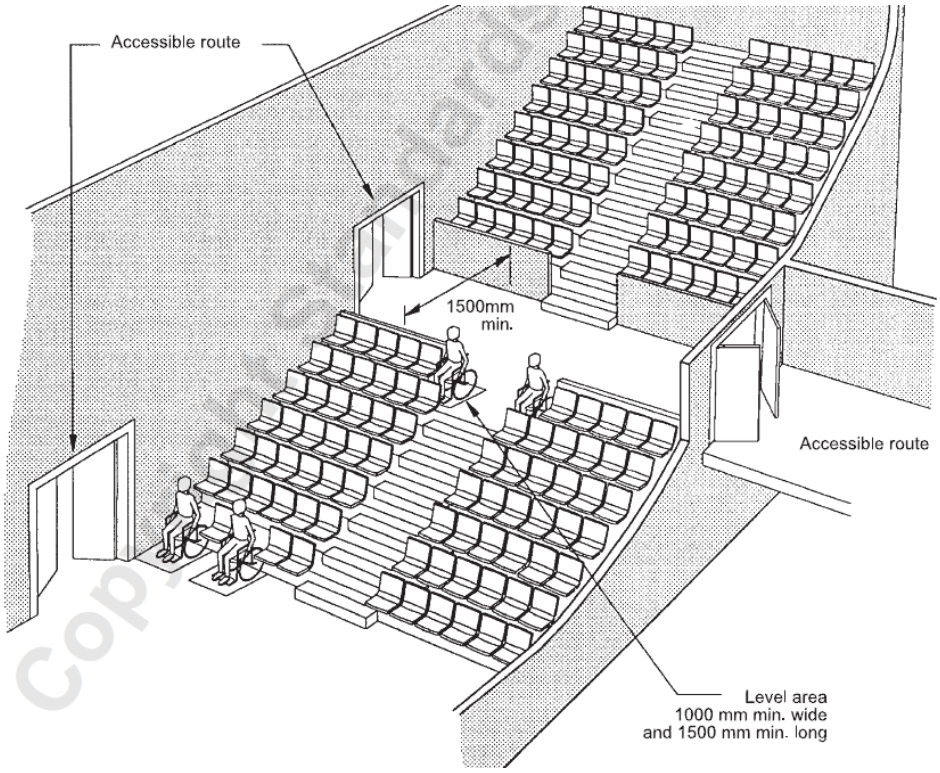
15.5 Access to Stage and Backstage:

Access to the stage and backstage areas must be ensured, with proper measures to guide users to designated spaces effectively. This includes clear signage, accessible pathways, and assistance features where necessary, ensuring seamless navigation for all users, including those with disabilities.



All dimensions in millimetres.

FIG. 92 EXAMPLES OF VIEWING SPACES FOR WHEELCHAIR USERS



Examples of seating arrangements. (Accessibility Design Guide and Checklist New Zealand)

16. Medical Facility

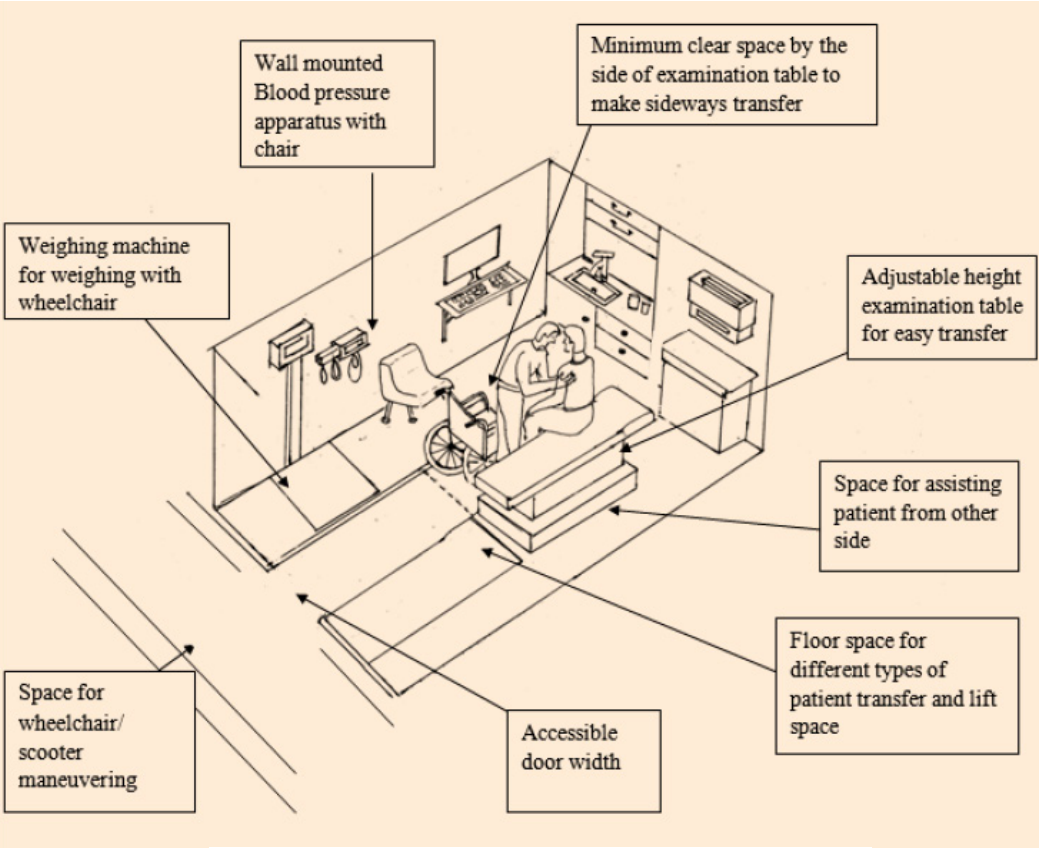
General:

Medical facilities, such as those for first aid, narcotics testing, and general physicians, physiotherapists, etc. are typically available in sports venues and should be made accessible to individuals with reduced mobility, including players with disabilities for both visiting and working in that facility. Relevant sections of these guidelines can be referred to for ensuring accessibility in areas like approach, entrance, signage, wayfinding, toilets, changing facilities, reception/ registration/ information desks, seating, assistance provided within the facility, etc.

The following sections are specific to a medical facility.

16.1 Patient Examination Room:

- Route from the waiting area to the room should have minimum 900 mm wide clear passage.
- The entrance door should open to 900 mm clear door width.
- Space inside should be enough for turning of wheelchair, accessible hardware, accessible weighing scale to weigh a wheelchair examination table that can lowered to 400mm to 500mm, accessible equipment, grab bars and positioning aids etc. A wheelchair turning space of 1500 mm diameter is needed inside the room.
- Adequate clear space is required in the room for using patient lift equipment and for patient transfers. For that, an area of at least 750 mmX1250mmis needed along at least one side of an adjustable examination table.
- There should be, if possible, enough space on both sides of the examination table for easy transfer from any of the side that is convenient to the patient depending on his handedness or disability. Alternative to this is to have two examination rooms with space on opposite sides. All controls like door handles and light switches etc. need to be accessible and operable with a closed fist.



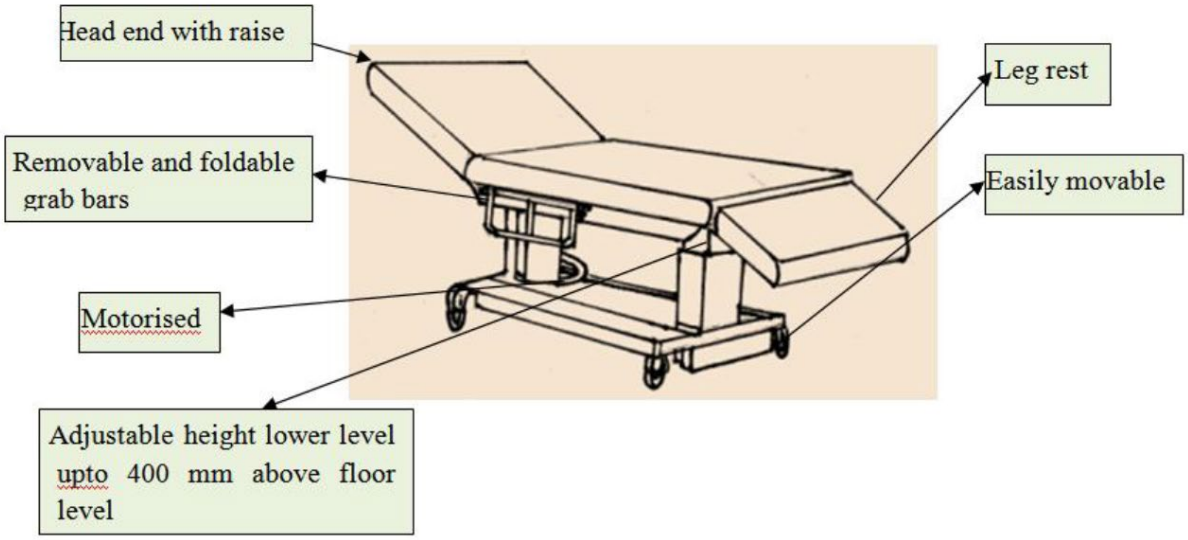
Accessible patient Examination Room

16.2 Examination Table and Chairs:

Examination tables are used for examining the patients in supine, prone or side-lying position. Most of the examination or treatment tables in the healthcare facilities are with fixed height of 800mm. Persons with locomotor disability find it difficult to transfer themselves independently from their wheelchair onto the tables and vice-versa. Sometimes, even some standing patients find it difficult to get onto the table.

- The examination table should be with adjustable height with minimum height of 400 mm to 500 mm.
- Two major advantages of height-adjustable tables are that they make patients' transfers easier and safer compared to fixed-height tables. They also help the physician in examination by providing the required height.
- The table should also have adjustable head and back support through the entire inclination range.
- The tables should have good enough cushioning on top to prevent pressure sores.
- They should be with removable side rails to prevent falls. If required additional safety stirrups, straps and neck supports option should be available
- They should have sufficient length and width for easy lying, turning and transfers.

- The transfer board surface usually needed is 1000 mm X 400 mm which prevents it from rotating.
- People using mobility devices must be able to transfer safely and easily to and from their exam tables and chairs.
- They should have a remote to adjust the height using powered bed position height controls and call buttons.
- Required accessories may be leg supports, articulating knee crutches, stirrups with flexible degrees of freedom for pelvic examination, etc.
- The table should be with a minimum clearance of 150 mm above the floor and the equipment overhang clearance. The clearance permits a portable floor lift to be used for transferring patients.
- Minimum clear floor space of 900 mm X 1200 mm next to exam tables is required for easy transfer of patients onto the tables.
- The weight capacity of the table should be about 250-400 kg.



Accessible Examination Table

16.3 Hospital beds:

An accessible hospital beds should have following features:

- Level of bed should be adjustable for easy transfer onto stretchers or wheelchairs etc.
- It should be easy to get in and out of bed.
- Adjustable bed height to bring down the bed up to the height of 400 to 450 mm between ground and the top of mattress for easy transfer from bed to wheelchair and vice-versa.
- It should have removable and folding side railings to prevent falls.
- There should be clear vertical space under the bed to accommodate legs of portable equipment like a patient lift.
- Mattress should be thick enough for pressure sore prevention.
- The beds should be motorized with remote operated bed height and position control.

- They should be operable by persons with limited or no range of reach, limited vision or fine motor ability.

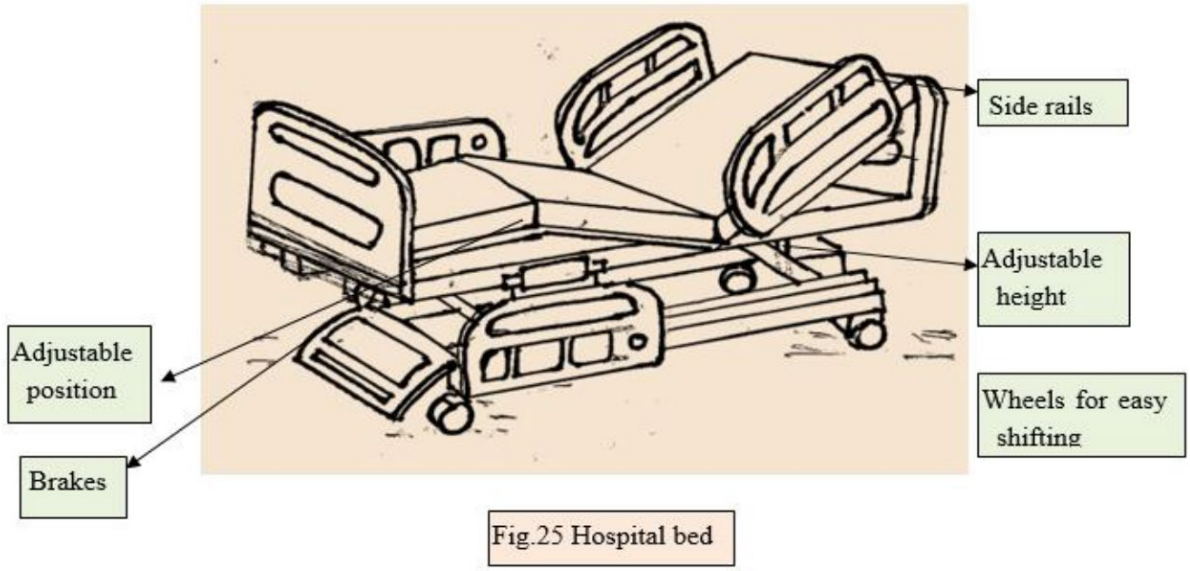


Fig.25 Hospital bed

16.4 Lifts for shifting persons with locomotor disability:

Both ceiling and mobile hoist lifts should be provided for transferring individuals within a room or between rooms inside the medical facility. These lifts are essential not only for persons with disabilities but also for patients with severe injuries or medical conditions. The following are the types of lifts.

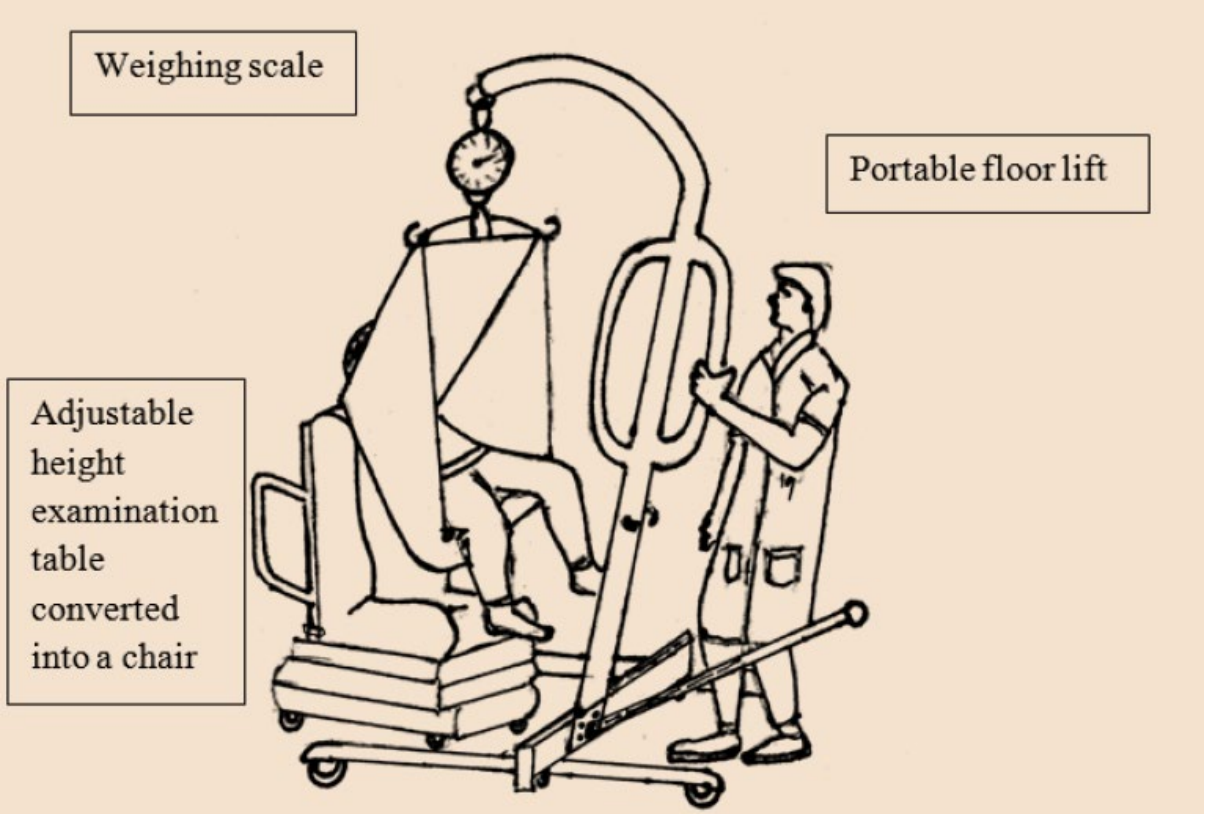
16.4.1 Portable floor lift:

These lifts are easy to be carried to different rooms and areas of the healthcare facility which can't be done with the other types of lifts, the ceiling-mounted or floor-fixed lifts. They usually require space under the table or bed for their legs or base. These can be used as portable weighing scales as well for patients who find sitting in a wheelchair difficult. When the base width is made adjustable the legs can be positioned both under and by the side of the examination table or a chair depending on the requirement.

16.4.2 Over head track lift:

There are three types of overhead lifts: Ceiling mounted lift, lift mounted on a frame which is fixed to floor and lift which is not fixed to floor.

Ceiling mounted lifts are fixed structures where lift is attached to a motorised structure which moves on a track fixed to ceiling. This does not require extra space on floor for wheelchair manoeuvring, so the rooms that do not have space for wheelchair mobility but are to be modified for patient, this type of lift is useful. Disadvantages of this type of lift are that it cannot be moved to another room and is costly. The ceiling structure should be strong enough to take load of both the lift and the patient.



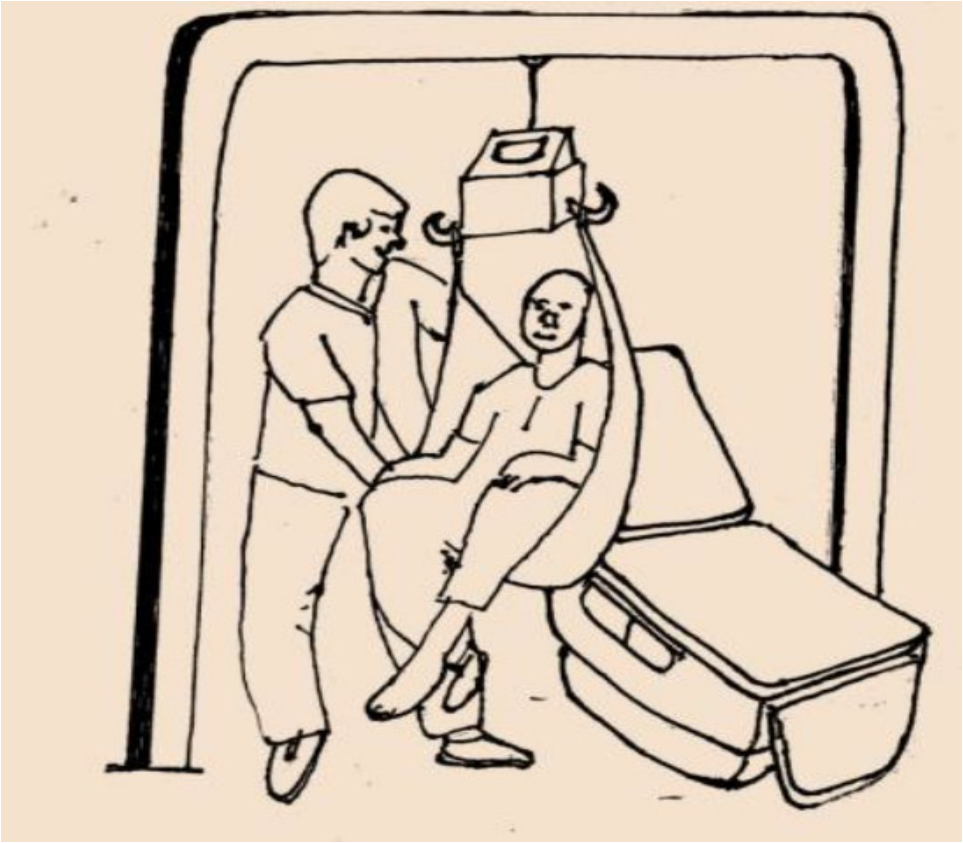
Portable floor lift with adjustable height examination table

16.4.3 Lift mounted on a frame fixed to the ground:

These lifts also cannot be moved to other rooms. These lifts require less space than the free-standing movable lifts. They usually do not need the space required by free-standing and portable lifts so are suitable for small rooms. They do not need the ceiling to be strong and do not require any structural changes.

16.4.4 Lift mounted on a free (not fixed to ground) frame:

These lifts can be moved to other rooms but require more effort than the portable patient lift. These lifts require less space than the portable lifts. They usually require space for the base of the lift, so are suitable for small rooms. They do not need the ceiling to be strong and do not require any structural changes.



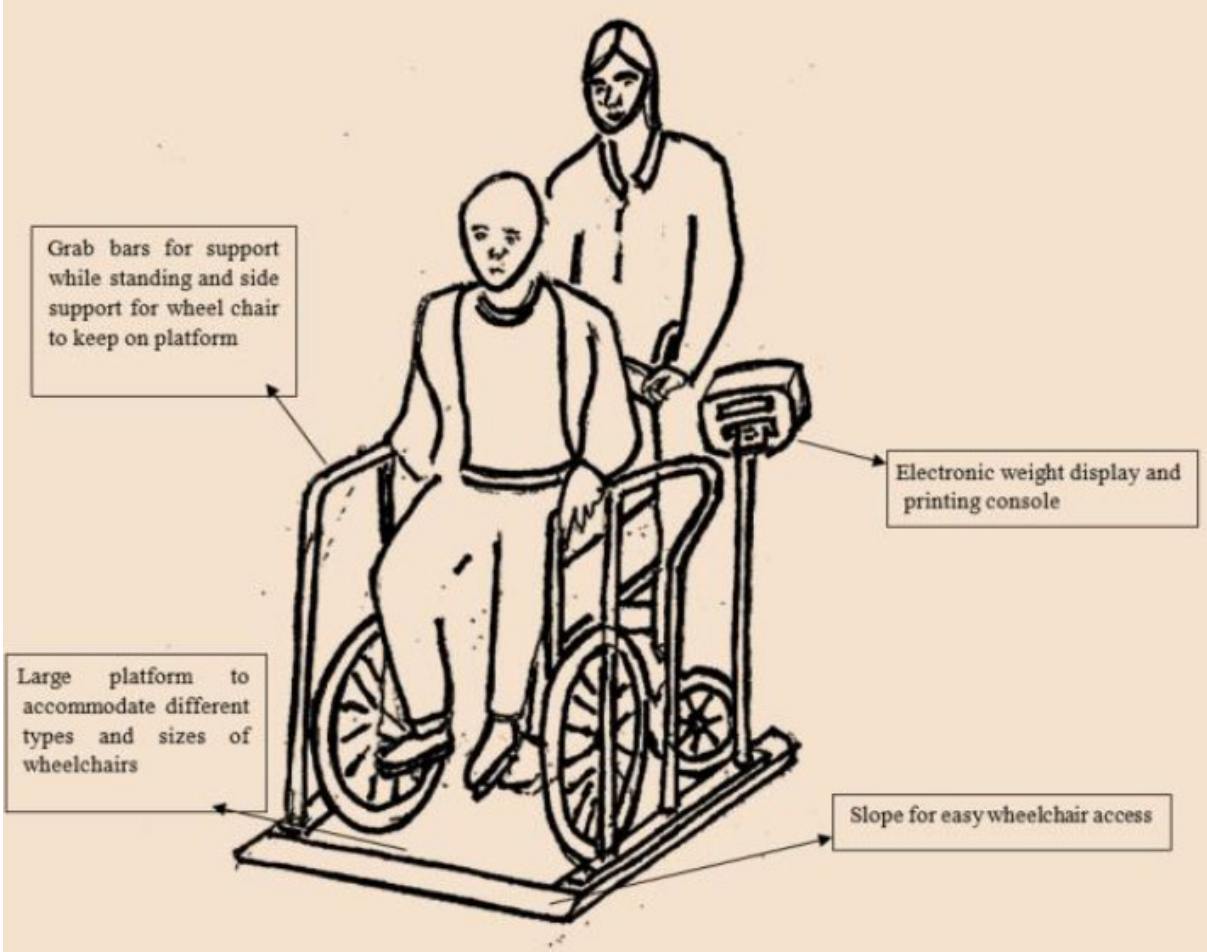
Fixed overhead patient lift

16.5 Weighing scales:

Weighing a patient is needed in management of many medical conditions like Obesity, Diabetes mellitus, Cancer etc. and sports facility a weighing scale is often used for testing and merit purposes. Thus, using a normal weighing scale may be difficult for a person in wheelchair as the wheelchair can't be taken onto the platform of the equipment. Accessible weight scales should have the following features:

- A platform onto which a wheelchair or scooter can be taken up and stabilized. The width and length of the platform should be sufficient for the purpose.
- The surface of the scale should not be slippery and should not allow the wheelchair to move if stabilized so should have slip resistant platform with high contrast edges.
- The weighing capacity of the scale should be high i.e. a minimum of 250 kg. Weight of a wheelchair or a scooter should be easy to be calculated.
- It should have a large digital display with sound announcing the weight.
- For a patient who needs support for standing, the scale should have handrails.

Accessible weighing scales that are integrated into other medical equipment as into a hoist or a bed are also available. There are weighing scales that are foldable and portable. With the provision of accessible weighing scale, the staff weighing the patient should be trained for the purpose.



Accessible Weighing Scale

16.6 NADA (National Anti-Doping Agency) Room:

NADA rooms, commonly present in sports facilities for the testing and examination of athletes, should be designed with careful consideration for accessibility to ensure a dignified and inclusive experience for players with disabilities.

16.6.1 Testing Room:

The testing room should be designed to accommodate athletes with diverse abilities, ensuring it meets accessibility standards. The room must provide a clear turning radius of at least 1500 mm to facilitate wheelchair manoeuvring. Adjustable-height examination tables ranging from 450–750 mm should be installed to enable easy transfers, supported by clear floor space of at least 900 mm on one side of the table. Additionally, all equipment, such as weighing scales and medical devices, must be positioned at an accessible height. Privacy should also be considered, with curtains or partitions that are easy to operate.

16.6.2 Toilet facility:

A dedicated accessible toilet facility should be provided near the testing room, designed in compliance with the relevant **section 10**. The toilet should include features such as grab bars, a clear floor space of 1500 mm for wheelchair users, and slip-resistant flooring. The door must have a minimum clear width of 900 mm and open outward or be sliding for ease of access. For detailed design requirements, refer to the section on accessible toilet facilities within these guidelines.

16.6.3 Lighting and Ventilation:

Adequate lighting and ventilation are essential for creating a comfortable and accessible environment in the NADA facility. The lighting should be uniform with a minimum of 150 lux in the testing room and along pathways to ensure visibility without shadows or glare. Proper ventilation should be provided to maintain a fresh atmosphere, with airflow that does not interfere with accessibility features such as pathways or seating. Careful design considerations should ensure both lighting and ventilation are functional, comfortable, and do not obstruct mobility aids, creating a supportive and inclusive space for all users.

17. Conference, Meeting and Office Rooms

Sports facilities often incorporate conference rooms, meeting spaces, and office units designed for the official use of attendees and employees, including individuals with reduced mobility. These rooms are essential for facilitating communication, collaboration, and administrative tasks within the facility. To ensure inclusivity and accessibility for all users, these spaces must be designed and equipped to accommodate persons with mobility challenges, providing equal opportunities for participation. The following are the requirements to ensure that conference, meeting, and office rooms meet accessibility standards and provide a comfortable environment for everyone:

- **Entrance:** As outlined in **Section 6** the entrance should comply with the guidelines, featuring a wide door and other accessible features.

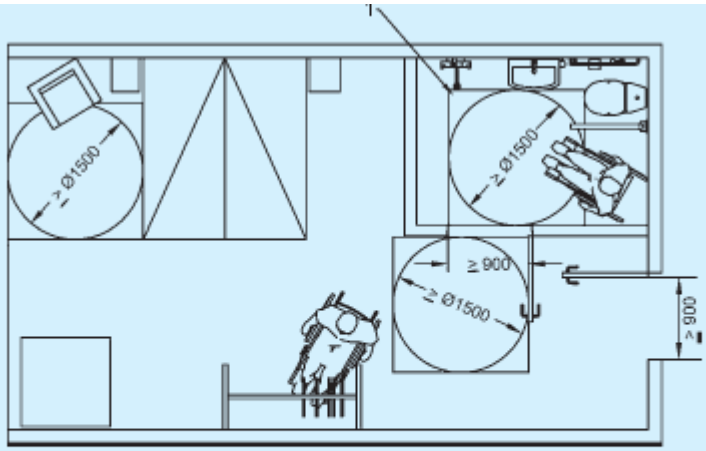
- **Assistive Listening Systems:** Conference rooms and meeting rooms should be equipped with assistive listening systems, such as induction loops, FM systems, or infrared systems. These systems should be installed to amplify sound for individuals with hearing impairments, ensuring that they can hear speakers clearly without interference from ambient noise. The placement of microphones and speakers should be strategically arranged to provide maximum coverage. Refer to **section 24** for details.

- **Acoustic Treatment:** Proper acoustic design is crucial in reducing noise distractions and enhancing sound clarity. The room should be designed with soundproofing measures, such as acoustic panels or ceiling tiles, to minimize echoes and reverberation. This ensures that speech and presentations are intelligible for all attendees, including those with hearing impairments.

- **Seating Arrangement:** There should be adequate space for wheelchair users to manoeuvre within these rooms. A turning radius of at least 1500 mm should be maintained for easy movement, particularly around tables and seating arrangements. Seating should also include spaces designed specifically for wheelchair users, ensuring they are positioned comfortably with an appropriate arrangement that allows easy interaction. Refer to **section 15** for details

- **Furniture:** Desks, tables, and counters in these rooms should be designed to accommodate persons with disabilities. Adjustable-height desks are preferred, with a height range of 750 mm to 850 mm, allowing users to comfortably engage in tasks. For fixed furniture, a clear knee space of at least 700 mm should be provided. Additionally, all office equipment, including computers and telephones, should be positioned within reach, considering the needs of individuals using mobility aids. Refer to **section 1** for details.

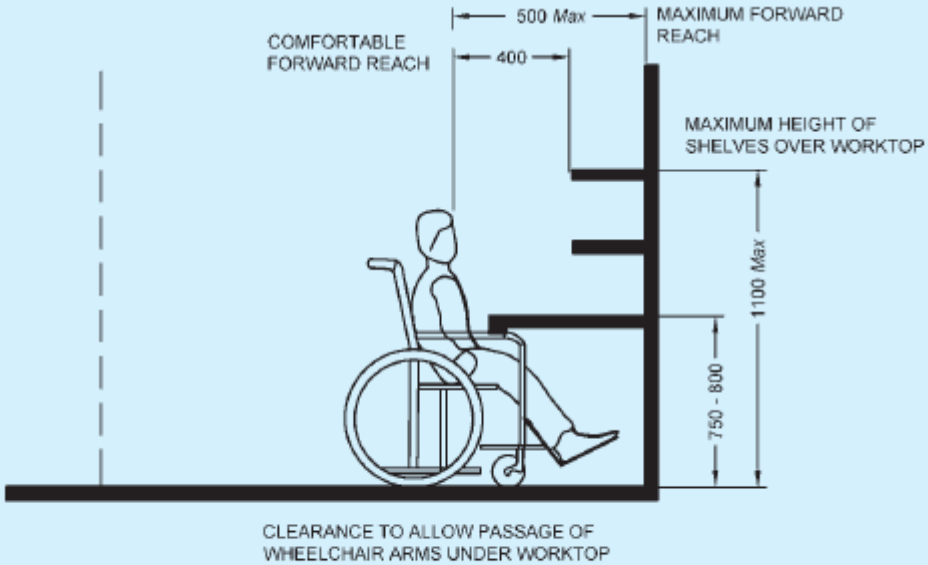
- **Lighting and Ventilation:** Sufficient lighting, with a minimum of 150 lux in work areas, should be maintained to avoid shadows and glare. Proper ventilation must also be ensured, with air circulation that does not obstruct pathways or mobility aids. The temperature and humidity levels should be controlled to maintain comfort for all individuals in these rooms.



Key
1 Shower area

All dimensions in millimetres.

FIG. 94 EXAMPLE OF SPACE ALLOWANCES FOR ACCESSIBLE BEDROOM AND TOILET/SANITARY ROOM



All dimensions in millimetres.

FIG. 95 REQUIREMENTS FOR COUNTER TOP

18. Eating Spaces

Eating spaces, including restaurants, cafeterias, canteens, dining messes, banquet halls, food courts, and similar establishments, should be designed with accessibility in mind to accommodate patrons with diverse needs and abilities. These spaces must cater to a wide range of individuals, including those with reduced mobility, older persons, children, and individuals with neurodiversity or other functional limitations. By incorporating accessibility features, eating spaces can foster inclusive environments, allowing all patrons to access and enjoy the services offered. The following are key requirements for ensuring accessibility in eating spaces:

18.1 Seating Arrangement:

- At least one accessible table should be provided for every 10 tables or part thereof, with a height not exceeding 800 mm and a clear knee space of at least 680 mm high and 480 mm deep.
- The minimum clearance between fixed seats must be 750 mm along the edge of the table to allow easy movement.
- Flexible seating arrangements should be available to accommodate group dining and mobility devices like wheelchairs and strollers.

18.2 Circulation:

- Circulation paths should have a minimum width of 1200 mm to ensure wheelchair accessibility.
- Accessible routes to tables designated for persons with disabilities should have a clear width of at least 900 mm.
- Emergency evacuation routes should be marked with signage, and appropriate response mechanisms should be in place during emergencies.

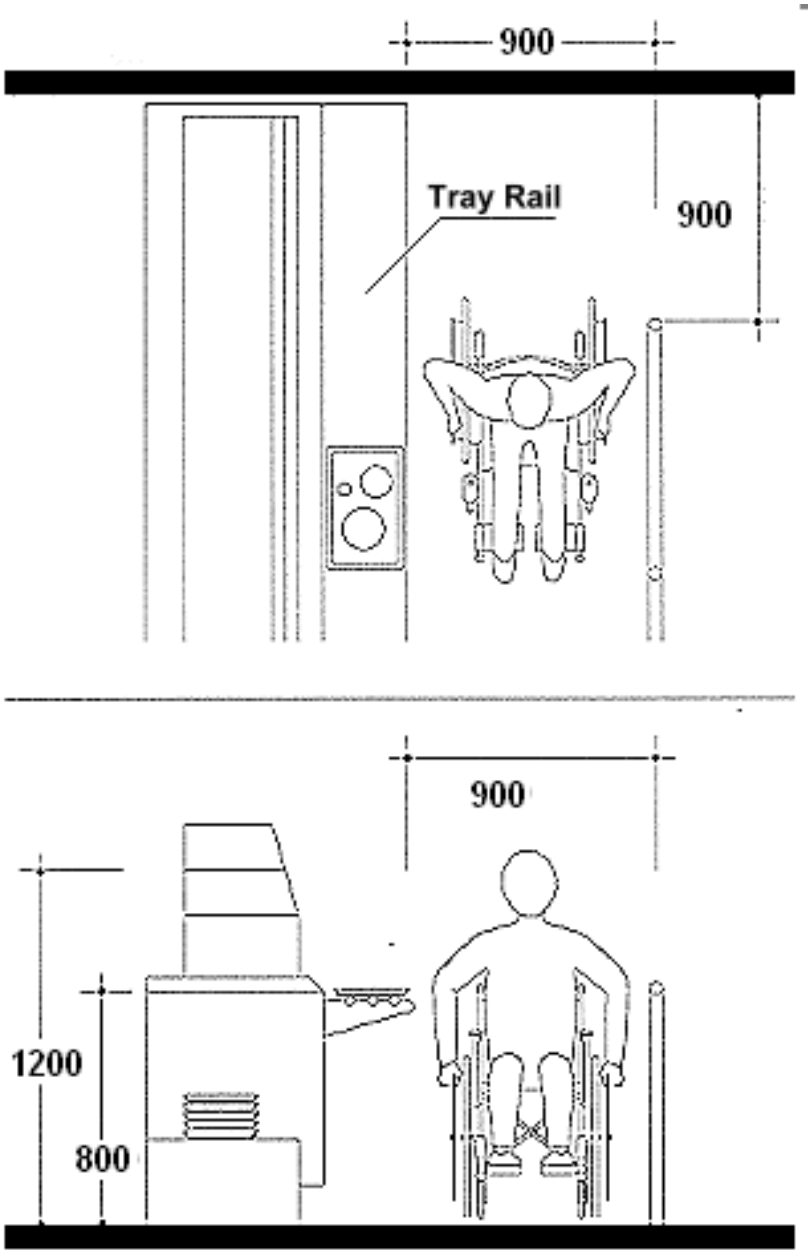
18.3 Furniture:

- Tables should be mounted at a height not exceeding 800 mm, with sufficient knee space for wheelchair users.
- Tables and seats should contrast visually with the surrounding surfaces for easy identification.
- Heavy-duty, corrosion-resistant, and easy-to-maintain materials should be used for furniture.
- Cantilevered tables or those with straight legs are preferable for wheelchair access.

18.4 General Requirements:

- Adequate lighting (at least 100 lux) should be provided in 10% of the dining area to ensure visibility.
- Acoustic treatments, such as sound-absorbing materials, should be incorporated for a comfortable dining environment.
- Menus should be readable, using clear fonts with good contrast and in multiple languages including braille to support cultural diversity and individuals with visual impairments.

- Accessible washrooms, including family-friendly facilities, must be provided in every eating space.



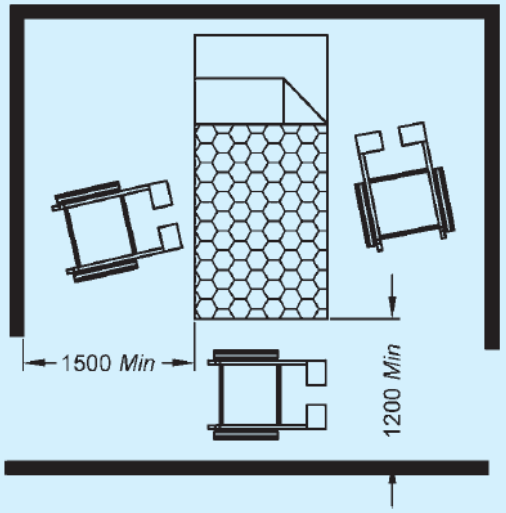
Wheelchair, aisle and reach height

19. Residential Units

Sports facilities often include hostels and residential units for players and officials, which must be designed in compliance with accessibility standards. In existing facilities, at least 5% of rooms or a minimum of one room (whichever is greater) should be made accessible to accommodate individuals with disabilities.

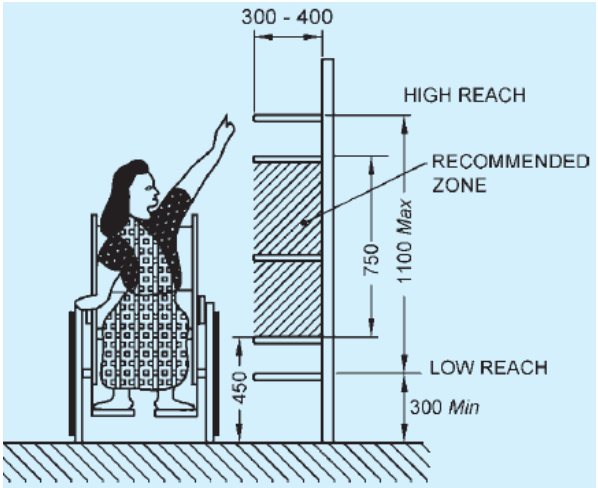
19.1 Rooms:

- The entrance to the room should adhere to the relevant sections outlined above, incorporating accessibility features such as doors with adequate width, manoeuvring space at the entrance, clear signage with braille, proper illumination, and an accessible approach to ensure seamless navigation and usability for all individuals.
- Rooms accessible for wheelchair users shall be designed for two beds. If a single bedroom accessible for wheelchair users is provided, a queen-size bed is preferred, 1500 mm width × 2000 mm length.
- Free space on at least one of the long sides of the bed shall be provided. This space should be 1500 mm, and shall not be less than 1200 mm. At the foot of the bed, at least 1200 mm is required.
- The bedroom should be planned to provide a 1500 mm turning-in space for wheelchairs, at least near all the doors. There should be a clear floor space of at least 900mm × 1200mm in front of all furniture.
- The minimum height of a bed shall be between 450 mm and 500 mm when it is compressed under a 90 kg weight.
- An accessible shower with an accessible toilet should be provided inside with sufficient clear manoeuvring space needed to gain access to facilities. Refer to **section 11** for details.
- There should be a bench for luggage at a height between 450 mm and 650 mm.
- The minimum manoeuvring space and reachability for wheelchair users should be taken into consideration when designing and constructing a storage area. Part of the shelves should be within reaching distance for a wheelchair user, between 300 mm and 1100 mm above the floor. If a door is provided, it should open outwards.



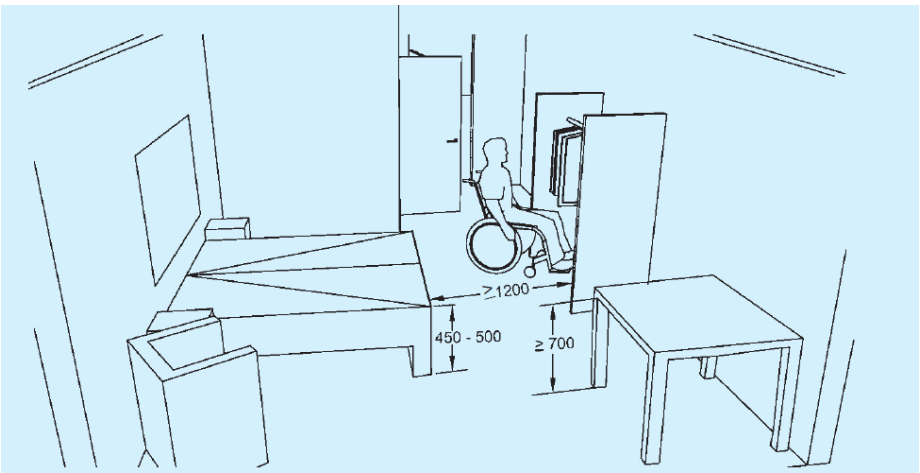
All dimensions in millimetres.

FIG. 97 SPACE AROUND BED



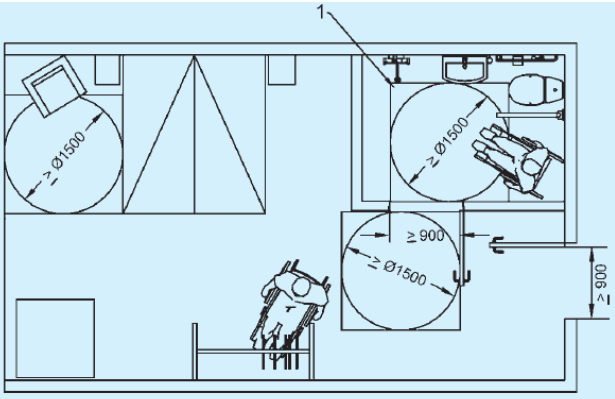
All dimensions in millimetres.

FIG. 98 STORAGE SPACE



All dimensions in millimetres.

FIG. 93 EXAMPLE OF SPACE ALLOWANCES FOR ACCESSIBLE BEDROOM



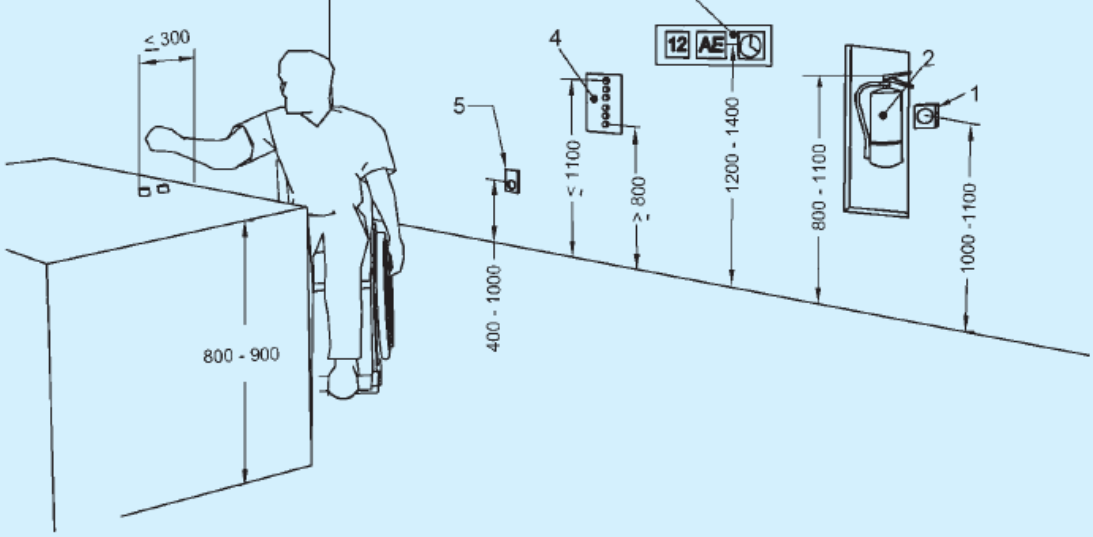
Key
1 Shower area

All dimensions in millimetres.

FIG. 94 EXAMPLE OF SPACE ALLOWANCES FOR ACCESSIBLE BEDROOM AND TOILET/SANITARY ROOM

19.2 Living Room:

- At least 1500 mm turning-in space for a wheelchair should be provided near all entry points to the living room. A living-dining combination is preferable to a kitchen-dining combination (except when the wheelchair user does the cooking).
- The seating space for a wheelchair user at the dining table should provide a clear knee space. The clear knee space for a wheelchair user is at least 900 mm wide, 480 mm deep and 700 mm high.
- Floor surface should comply with **section 20**
- There should be a clear floor space for the wheelchair of at least 900 mm × 1200 mm in front of all the fixtures. Chair seat heights should not be less than 500 mm.
- Devices and controls (fuse boxes, switches, push buttons, intercoms, etc.) shall be installed at an accessible height for reaching and operating, between 800 mm and 1100 mm above floor level, and shall be located at a minimum of 600 mm, with a preference of a minimum of 700 mm from any internal corner.



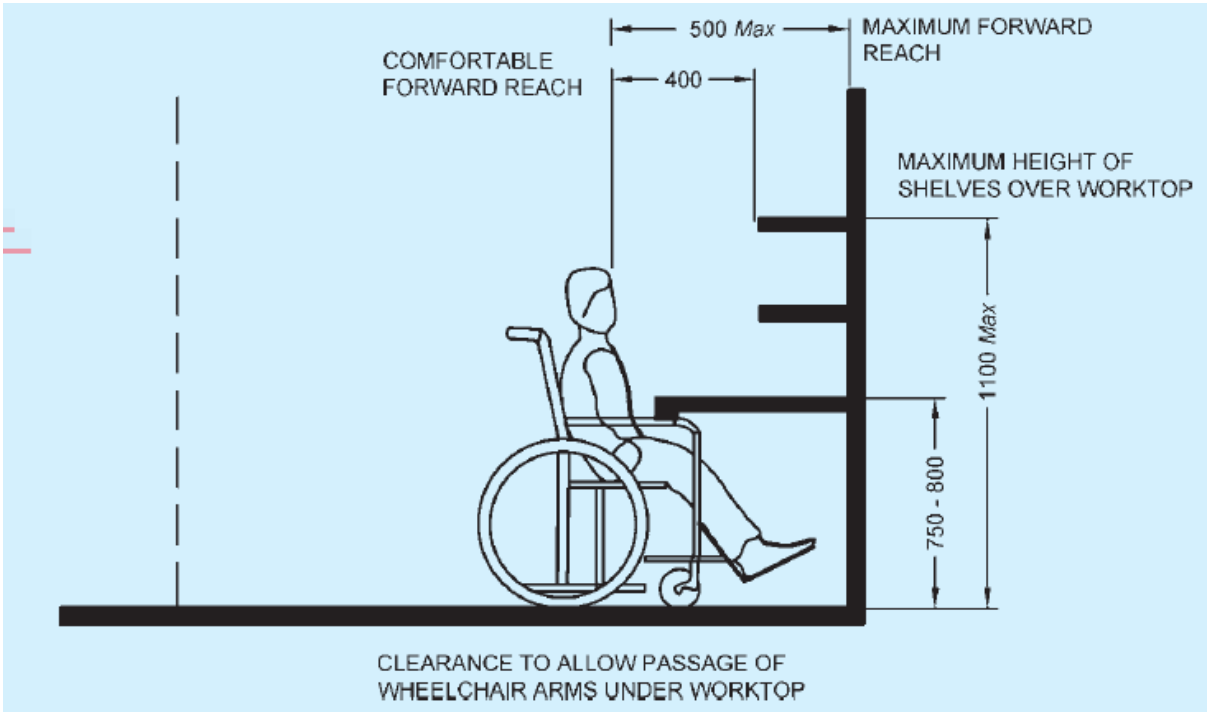
Key
1 Fire alarm, call point
2 Fire extinguisher
3 Meter indicators
4 Control devices
5 Socket outlets

All dimensions in millimetres.

FIG. 62 HEIGHTS OF SWITCHES, SOCKET OUTLETS, READING CONTROLS AND CONTROLS ON A HORIZONTAL SURFACE

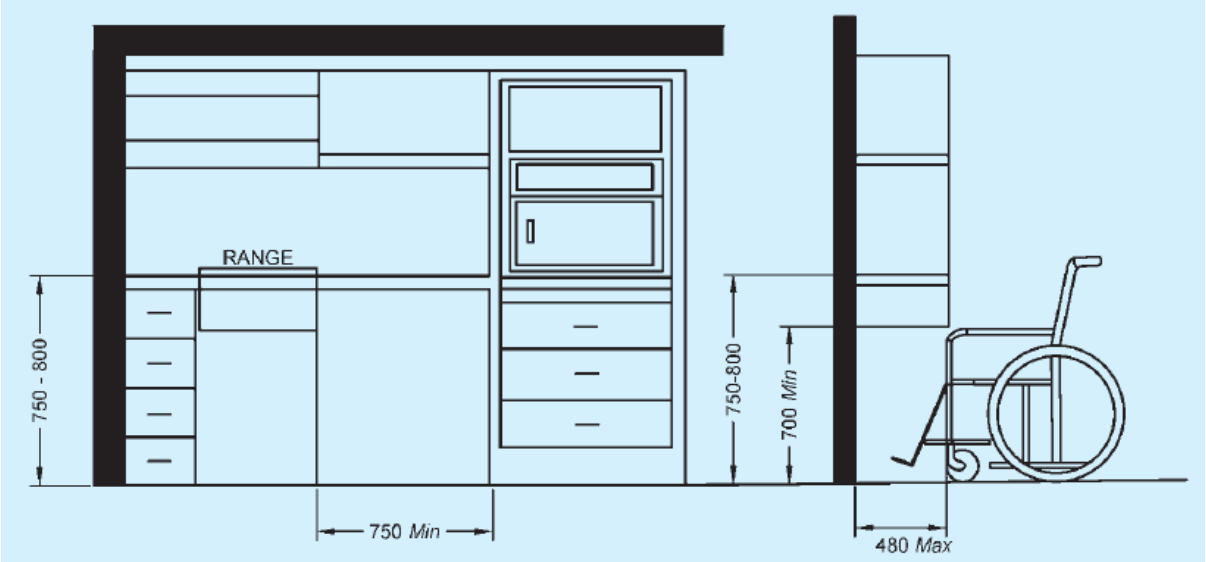
19.3 Kitchen:

- **Manoeuvring Space:** Ensure a wheelchair turning radius of at least 1500 mm and slip-resistant flooring for safe and easy mobility.
- **Accessible Countertops:** Counters should be 750–800 mm high, with clear knee space of at least 900 mm wide, 480 mm deep, and 680–700 mm high.
- **Kitchen Appliances:** Essential appliances like ovens and refrigerators should be usable by individuals seated or standing, with a worktop located beside each.
- **Accessible Sink Design:** Sinks should be reachable for wheelchair users, with taps operable with one hand. If knee recesses are provided, they should be insulated.
- **Storage and Shelves:** Include shelves within reachable heights of 300–1100 mm for wheelchair users.
- **Surface and Edge Design:** Countertops should have rounded edges and smooth surfaces to facilitate sliding items. Slide-out working spaces are beneficial.
- **Controls and Mechanisms:** All controls should be easy to operate and comply with accessibility standards.



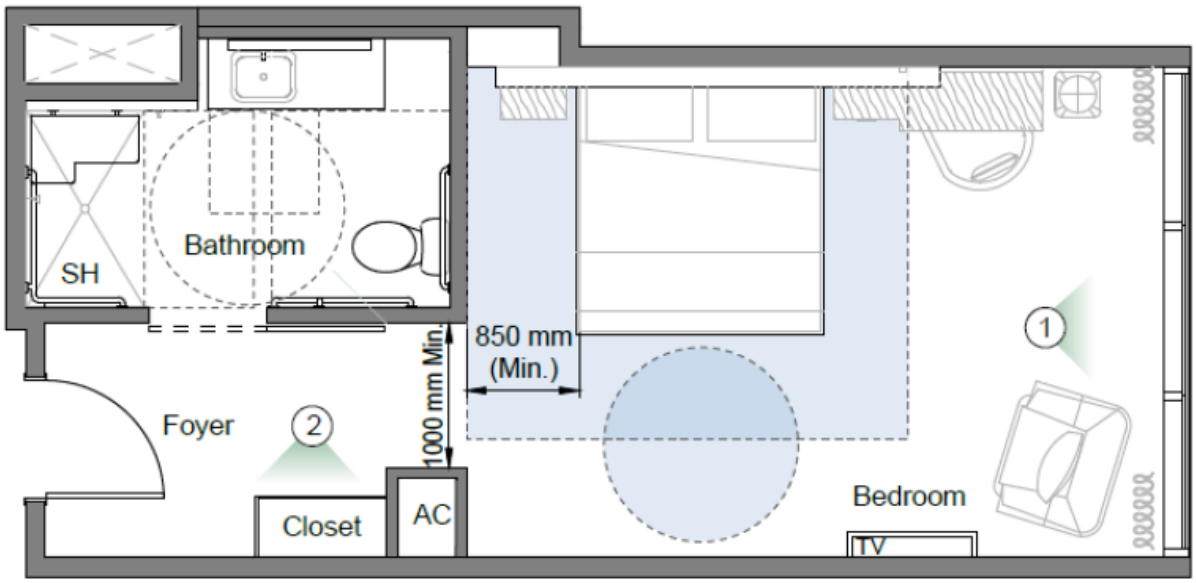
All dimensions in millimetres.

FIG. 95 REQUIREMENTS FOR COUNTER TOP



All dimensions in millimetres.

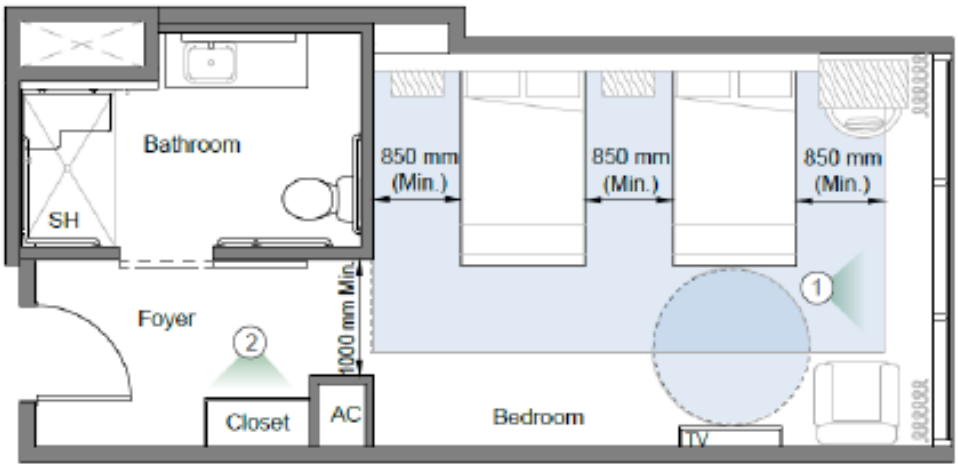
FIG. 96 KITCHEN SHELVES AND CABINETS



General Notes:

1. All bathroom elements shown in this image should follow the minimum requirements described on Chapter 3 and 4.
2. Tubs can be used on certain instances refer to Image 55 and 56 for further information and also to the plumbing elements sections in Chapter 5.
3. All grab bars should be connected to a reinforced wall.

Figure 50: Accessible King Room floor plan



General Notes:

1. All bathroom elements shown in this image should follow the minimum requirements described on Chapter 3 and 4.
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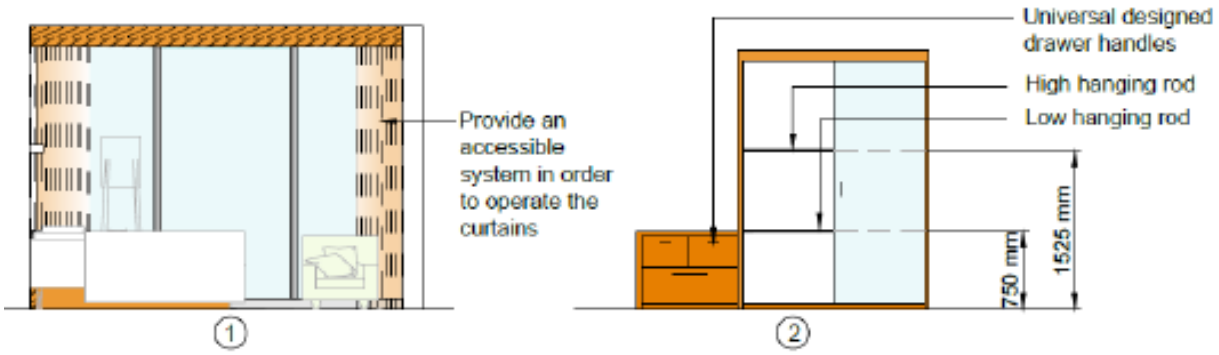
3. All grab bars should be connected to a reinforced wall.

Typical Queen Accessible Room - Floor Plan



Bedroom Elevation **Elevation - Closet**

Figure 52: Accessible Queen Room floor plan

20. Floor Surfaces

Overview

The provision of floor finishes which facilitate the safe and easy use of sports facilities by people with disabilities, including wheelchair users, ambulant disabled people and people who are blind or partially sighted is very important. It is recommended that each sports complex should have one sports facility with a sports hall comprising wooden flooring to facilitate competitive wheelchair sports and training.

Recommended Standards

- Floor surfaces should be stable, firm, level, and slip-resistant, preferably with a matt finish.
- There should be no projections, drops, or unexpected variations in level that impede access for persons with disabilities. A level variation in the corridor or approach area can be countered with a gradient of not more than 1:20.
- Flooring should provide a firm foothold and good wheel grip. It is recommended that level dry floors should have a minimum Slip Resistance Value (SRV), also known as Pendulum Test Value (PTV), of 40. In areas that may become wet, such as entrances, changing/shower areas, and poolside areas, etc., flooring should have a minimum value of 65.
- High gloss floor finishes should be avoided as they produce glare and may be perceived as being wet and slippery even if they have a slip-resistant surface.
- In general, the use of carpet is not recommended, as it is difficult for people with a mobility disability to walk or wheel. If used, the carpet should not be thicker than 15mm. Refer to Figure 9: Floor transition details for further details.
- Circulation routes should be clearly distinguishable from waiting/rest seating areas.
- Where matwells are provided the mat surface should be fixed and flush with the surrounding floor surface. Loose mats are not acceptable.
- Changes in floor colour should be used to identify a potential hazard, such as changes in level or glass screen partition locations. A caution/warning tape can be placed for any temporary structures.
- Wherever possible, floor surface colour should be used to define spatial characteristics and, where appropriate, to warn of potential hazards or assist wayfinding by giving directional information.
- Floor patterning that could be mistaken for steps, e.g. stripe patterns, should not be used.
- For floor finishes that facilitate competitive wheelchair sports see Section 8 of this guide: Sports Specific Access Information.

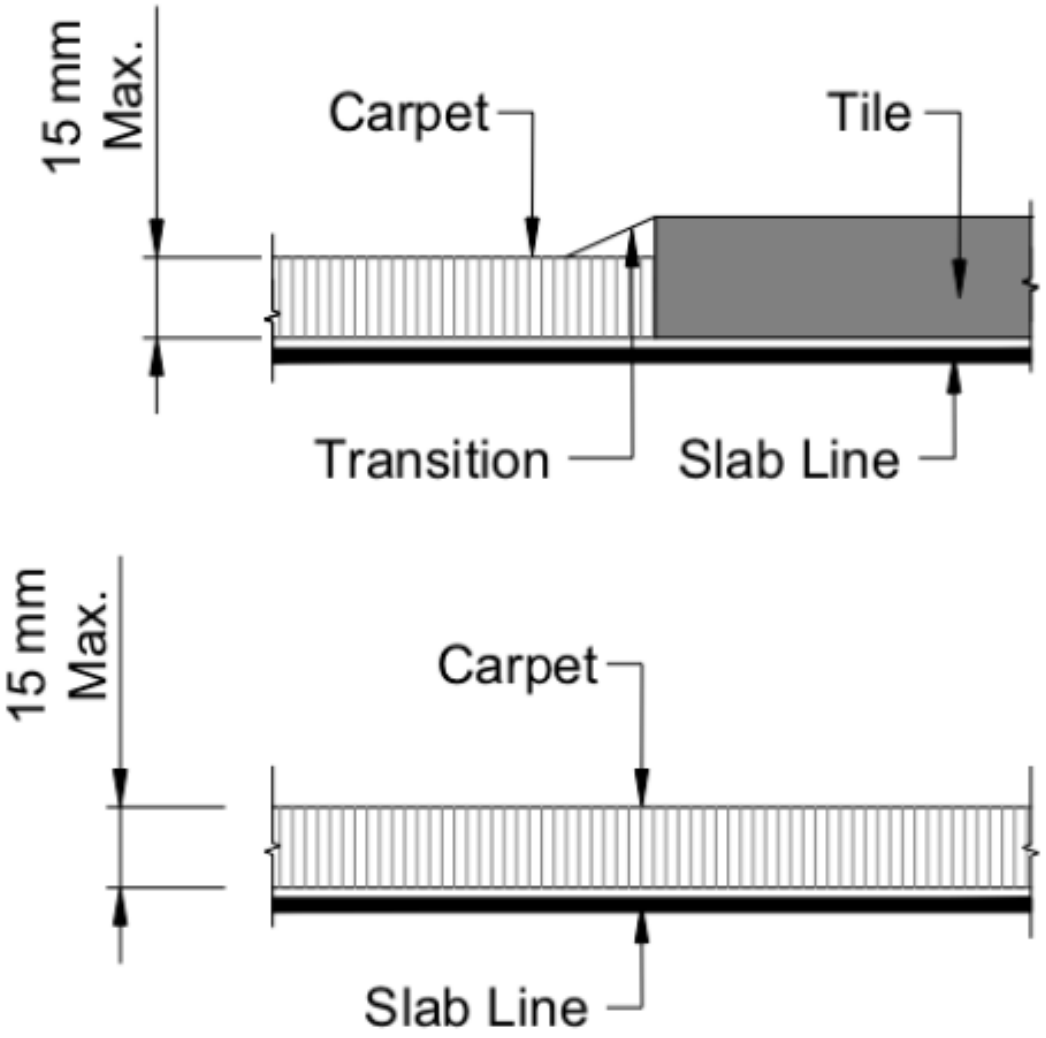


Figure 9: Floor transition details

21. Calming Sensory Room

A Calming Sensory Room in sports facilities serves as a vital space for individuals with sensory sensitivities, including neurodivergent people, offering them a safe and peaceful environment amidst the often-overwhelming stimuli of sports events. These rooms play a crucial role in ensuring inclusivity and accessibility, allowing individuals to regulate their sensory needs without missing out on the experience of attending live events. By integrating such spaces, sports facilities can cater to diverse audiences, fostering a welcoming atmosphere for all.

To create an effective and accessible Calming Sensory Room, the following considerations should be incorporated:

1. **Location:** Should be located near the accessible seating facility in stadium, and at ground level for players with neurodivergent.
2. **Quiet Environment:** Ensure the room is soundproofed to block external noise and maintain a serene atmosphere.
3. **Adaptive Lighting:** Use dimmable, non-fluorescent lighting with options for soft, calming colors to reduce visual overstimulation.
4. **Comfortable Seating:** Provide bean bags, cushioned chairs, or sofas designed for sensory comfort.
5. **Interactive Sensory Tools:** Include items such as tactile walls, sensory toys, and weighted blankets to aid relaxation and self-regulation.
6. **Accessible Design:** Ensure the room meets universal accessibility standards, featuring wide doorways, manoeuvring space for wheelchairs, and clear, simple signage with braille.
7. **Safe Flooring:** Use soft, slip-resistant, and shock-absorbent flooring to enhance safety and comfort.
8. **Soothing Sounds:** Equip the room with an option for calming background sounds or music, such as white noise or nature sounds.
9. **Visual Clarity:** Avoid complex patterns or high-contrast visuals in the room's design to prevent sensory overload.
10. **Privacy and Security:** Ensure the room is secure and private, with limited access to provide a safe space for individuals to decompress.
11. **Nearby Amenities:** Place the room near other accessible amenities, such as restrooms and emergency exits, for convenience.


sensory
ROOM
MFC


WATFORD FOOTBALL CLUB - SEASON 2016/17

22. Service Animal/Pet Relief Area (SARA)

Overview:

Sports facilities that accommodate a diverse audience must consider the needs of service animals accompanying neurodivergent individuals or those with disabilities. Service Animal Relief Areas (SARA) ensure a safe, hygienic, and accessible space for animals and their handlers. Incorporating SARA into sports venues promotes inclusivity and convenience, enhancing the overall experience for all visitors.

Key Provisions:

1) **Approach:** SARA must be connected to the accessible route of the sports facility. Transit time from seating or main activity areas to the SARA should not exceed 15 minutes, adhering to a walking pace of 200ft/min including expected time spent using transportation vehicles and waiting time for an escort, wheelchair, or elevators.
2) **Size and Design:** Should accommodate a person using a wheelchair handling a service animal on a 1.8 m (six-foot) leash. For larger or busier venues, the area may be sized to accommodate multiple service animals simultaneously.
3) **Surfaces:** Include at least two surfaces:
    a. **A hard surface** for wheelchair access, marked to distinguish paths for handlers and animals.
    b. **A softer surface** like gravel, mulch, or artificial turf designed for animal relief, is treated to prevent disease spread in indoor (and outdoor) areas.
4) **Fencing and Safety:** Enclosed with a barrier or fence with an accessible gate to ensure safety and containment of animals.
5) **Plumbing and Hygiene:** Provide a sink with a potable water faucet for handlers and animals. Adequate drainage for regular cleaning and a separate water supply for washing surfaces.
6) **Location Considerations:** SARA can be located indoors or outdoors based on feasibility. Ensure the area is not co-located with smoking zones or loud areas to minimize discomfort for animals.
7) **Weather Protection:** Outdoor SARA should include coverings for sun and precipitation. Provisions to protect animals from noise and jet blasts if near aircraft or loud zones.
8) **Scent Management:** Use pheromone-scented surfaces to encourage use by animals while avoiding strong disinfectant smells.
9) **Accessories:** Include features such as: A fake hydrant or rock (a three-dimensional device) to encourage male dogs to urinate. Waste bags and waste receptacles.
10) **Signage:** Clearly marked signs, visible above the entrance and at accessible heights.

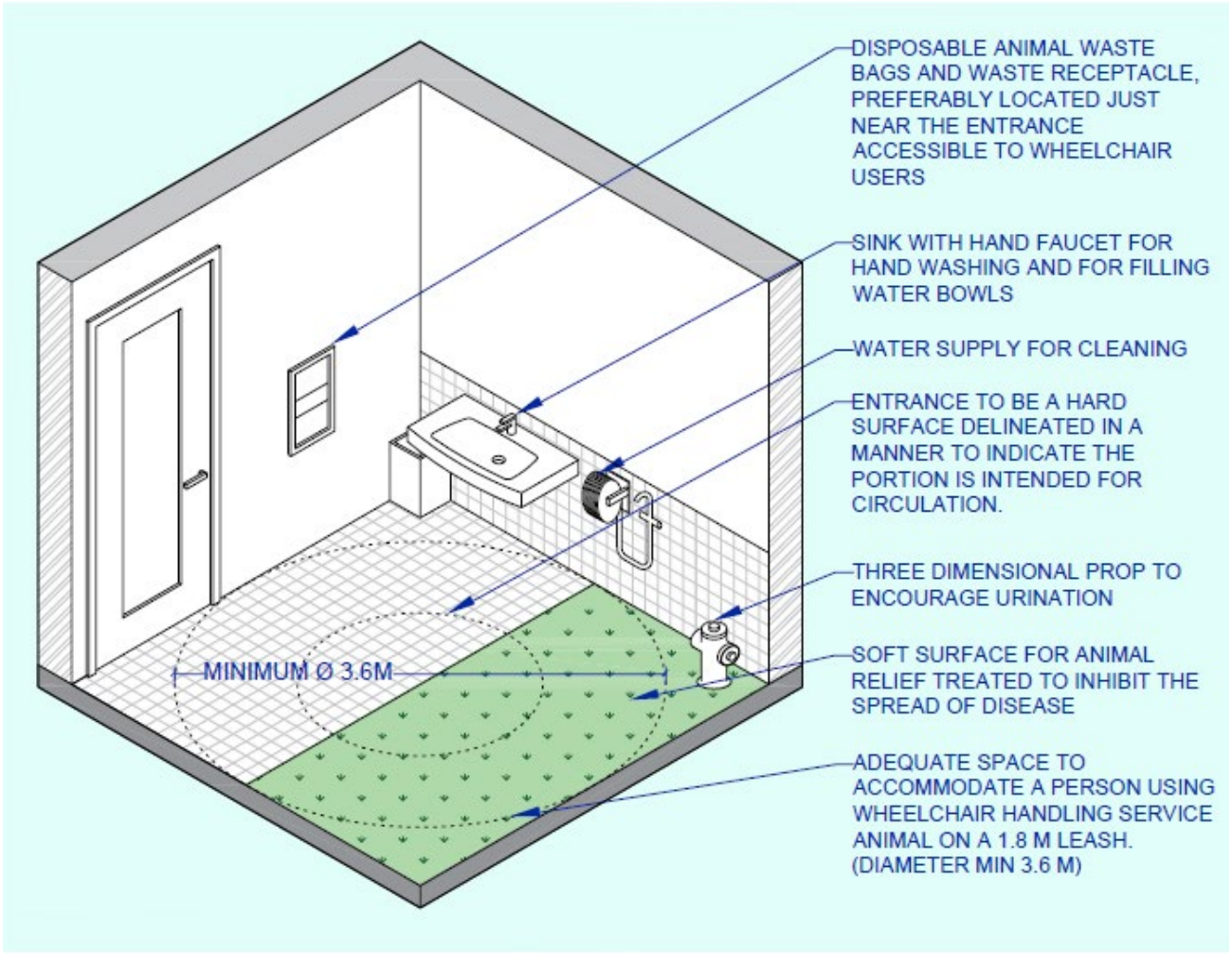


Figure 44: Details of Service Animal/Pet Relief Area

Image 17: SARA at Hartfield Jackson Atlanta Airport (Source: https://thecakeboutiquect.com/)

Image 18: SARA at St. Louis Lambert International Airport
(Source: https://petfriendlytravel.com/pft_airports/st-louis-lambert-international-airport-stl-pet-relief-areas/)

23. Gymnasium (Exercise Area)

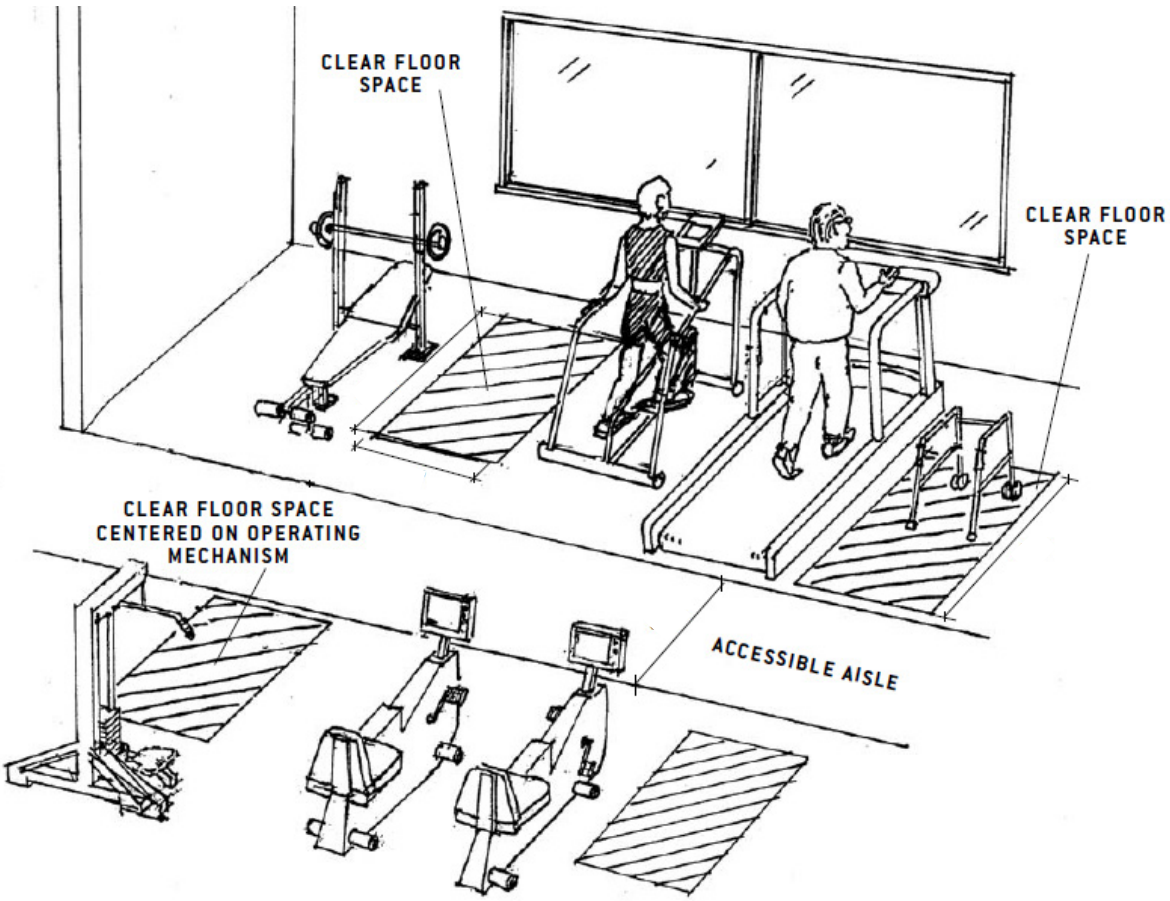
Overview:

Gyms and exercise facilities are essential gateways to physical fitness and health. Accessibility in these spaces ensures inclusivity, allowing individuals with disabilities to enjoy their benefits equally. Designing accessible gyms involves thoughtful consideration of space allocation, equipment usability, and overall facility layout, fostering an environment where everyone can engage in physical activities safely and comfortably.

Key Provisions:

1) **Accessible Routes and Clearances:**
   a.) Ensure that the gym is on an accessible route with a minimum clear pathway width of 1200mm.
   b.) Provide a turning radius of 1500 mm near equipment and at key points to allow wheelchair maneuverability.
2) **Floor Surfaces:**
   a.) Use stable, firm, and slip-resistant surfaces suitable for gym environments.
   b.) Incorporate surface finishes with contrasting colors and materials to provide visual and tactile cues for environmental changes. Avoid bold patterns that may create visual confusion or be mistaken for depth variations.
3) **Exercise Equipment Placement:**
   a.) At least one of each type of equipment (e.g., cardio, strength, free weights) should have clear floor space measuring 900mm x 1200mm to allow wheelchair access and transfers.
   b.) Clear spaces may overlap for adjacent equipment but must accommodate independent use by persons with disabilities.
4) **Accessible Changing Rooms and Restrooms:**
   a.) Ensure that standard toilet and shower facilities have accessible equivalents within the gym.
   b.) Equip changing rooms with features like grab bars, foldable benches, and adequate turning space for wheelchair users.
5) **Equipment Usability:**
   a.) Select exercise equipment that accommodates diverse needs, such as machines for lower body extremity disabilities or equipment with adjustable heights and features.
   b.) Position clear floor space to allow individuals to transfer from a wheelchair or use the equipment while seated.
6) **Signage and Wayfinding:**
   a.) Provide clear, high-contrast signage for equipment and facility navigation.
   b.) Use tactile elements and braille where possible for inclusivity of visually impaired users.

7) **Lighting and Acoustics:**
   a.) Install even, glare-free lighting to enhance visibility.
   b.) Minimize excessive noise to prevent sensory discomfort, creating a calm and focused workout environment.
8) **Additional Features:**
   a.) Include weather-protected entrances to maintain accessibility during adverse conditions.
   b.) Ensure that gym staff are trained to assist individuals with disabilities in using equipment safely and effectively.



CLEAR SPACE REQUIREMENTS AROUND EXERCISE EQUIPMENT

24. Wayfinding and Signage

Effective wayfinding and signage are integral to creating an accessible and inclusive sports facility. These elements ensure that individuals, including those with visual, auditory, or cognitive impairments, can navigate the facility independently and with confidence. By employing universal design principles, facilities can provide clear, consistent, and intuitive guidance, minimizing stress and confusion for all users. Accessible signage and wayfinding not only enhance user experience but also align with global accessibility standards, fostering inclusivity and usability in every corner of the facility.

24.1 Wayfinding:

Navigating a city or within a building involves sensory, cognitive, and motor skills, often relying on environmental cues like landmarks, etc. For instance, a person without disabilities guided by a colleague on the first day of a conference might recall turning left out of the hotel, walking straight across intersections, and turning left at a drugstore to reach the conference centre. This process combines route-following strategies: memorizing a sequence of directions ("left, straight, straight") and associating cues like the drugstore with decisions. However, for individuals with disabilities, such tasks can be challenging due to inaccessible cues or barriers, like lack of tactile landmarks for visually impaired individuals or unclear signage for those with cognitive disabilities, emphasizing the need for inclusive wayfinding solutions.

The wayfinding process involves four stages:

1) **Orientation:** The process of determining one's own location with the facility.
   Example: Installing "You Are Here" signs on maps that has braille/tactile for visually impaired, color-coding different zones within the facility using contrasting wall or floor colors.
2) **Route Decision:** The selection of a direction to reach the intended destination.
   Example: Providing information about the distance of facilities in directional signage and accessible route from that point, helps in deciding the route.
3) **Route Monitoring:** Checking to confirm the selected route is leading toward the destination.
   Example: While color-coding the zone helps, placing directional signage's and maps (with tactile/braille) at regular intervals to reassure users they are on the correct path.
4) **Destination Recognition:** Identifying and confirming the destination when reached.
   Example: Enhancing the destination with large, clear signage that includes Braille, along with distinctive colors, symbols, or textured surfaces, makes the location easily identifiable and unique.

24.2 Signage:

A signage system also increases a person's awareness of their surroundings and aids orientation within the environment. The location of signs should ideally be part of the process of planning the building and environment. A good and successful sign system shall minimize anxiety and confusion. It must be easy to understand and not place Persons with Disabilities or other diverse user types at a disadvantage. Universal signage cuts across the regional/cultural and language barriers as even a common layman can understand the symbols and pictograms. People need clear information about the purpose and layout of spaces to maintain a sense of direction and independent building use. Often visual and tactile information is reinforced by audible information. Information may take the form of visual information (e.g. signs, notice boards), audible information (e.g. public address and security systems, induction loops, telephones, and infrared devices), or tactile information (e.g. signs with embossed lettering or Braille).

The effectiveness of information on the use of a building is determined by:

a.) The location, accessibility, layout, and height of signs.
b.) The size of lettering, symbols, and their reading distances.
c.) The use of tactile letters and symbols.
d.) Visual contrast and lighting.
e.) The finished surfaces of materials used for signs and symbols.
f.) The simultaneous use of audible cues.
g.) Integration with any other communication systems.

24.2.1 Types of Signage:

1) **Directional Sign:** Guides users with wayfinding information, using arrows and travel routes for navigation.
2) **Information Sign:** Helps users orient themselves with "You are Here" labels and location details.
3) **Identification Sign**: Identifies specific facilities, like an accessible washroom, with clear markers.
4) **Instructive or Advisory Sign:** Provides instructions or guidelines on behavior within the built environment.
5) **Health, Safety & Emergency Sign:** Highlights emergency equipment or safety areas, such as fire exits or first aid points.

Image 5.2 Directional sign with multi-lingual text and complementing pictograms
Photo Credits: Dr. Gaurav Raheja

Image 5.10 Instructive signs at an accessible drinking water unit
Photo Credits: Dr. Gaurav Raheja

HIERARCHY	ARROWS TO BE ALIGNED ON THE LEFT	ARROWS TO BE ALIGNED ON THE RIGHT
Top of the sign		Straight up
	To the left, then ahead	To the right, then ahead
	Ahead, then to the left	Ahead, then to the right
	Go up on the left	Go up on the right

HIERARCHY	ARROWS TO BE ALIGNED ON THE LEFT	ARROWS TO BE ALIGNED ON THE RIGHT
	Turn left	Turn right
	Go down on the left	Go down on the right
Bottom of the sign		Go down ahead

Table 5.3 Arrow alignment, typology and hierarchy

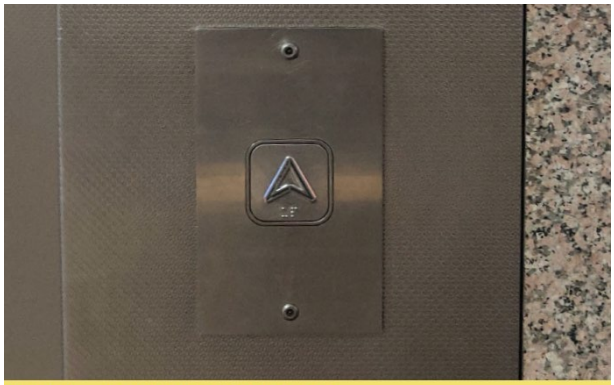


Image 5.4 Lift controls integrated with Braille
Photo Credits: Dr. Gaurav Raheja

Image 5.5 Identification signs on the golf cart in the airport
Photo Credits: Dr. Gaurav Raheja

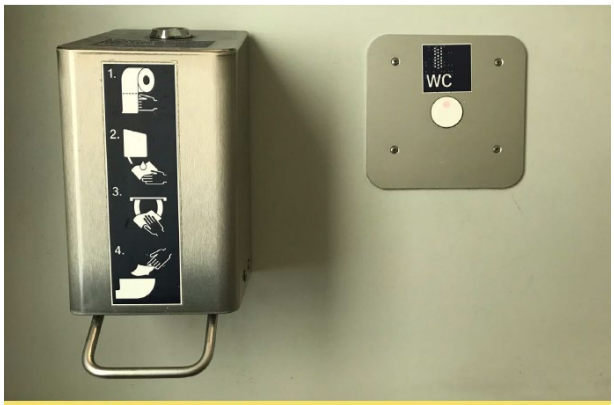


Image 5.7 Instructive signs in the washroom
Photo Credits: Dr. Gaurav Raheja

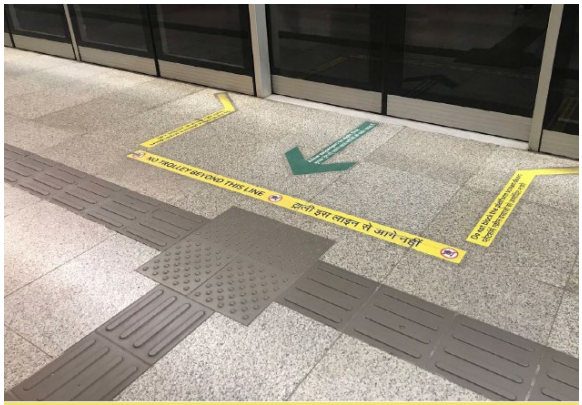


Image 5.11 Floor signage at a transportation hub
Photo Credits: Dr. Gaurav Raheja

Image 5.12 Braille sign on handrail bars

24.2.2 Location:

A well-planned signage scheme should cover public buildings, spaces, and transportation infrastructure, ensuring clear navigation for all users. Key locations include building approaches, entrances/exits, lobbies, public facilities (libraries, toilets), seating areas, departments, fire exits, and parking.

Key provisions are as follows:

1) **Information and Directional Signs:** Installed at circulation route junctions, doorways, and near essential facilities like telephones, drinking water points, and toilets.
2) **Consistent Directional Signs:** Provide logical routes to destinations and exits with consistent naming and clear return directions.
3) **Route Safety Indicators:** Include clear signage for steps, ramps, or level changes at both ends of a route.
4) **Accessibility:** Use the International Symbol for Accessibility to mark facilities for Persons with Disabilities.
5) **Hearing Enhancement Systems:** Signage should indicate areas equipped with hearing systems and where equipment can be accessed.
6) **Symbol and Text Use:** Employ universally recognized symbols with supplemental text to aid users with learning difficulties or language barriers.
7) **Information Boards:** Wall-mounted or ceiling-hung boards at lift landings, staircases, and major intersections in main circulation routes for easier navigation.

Image 5.15 Braille cum tactile route map

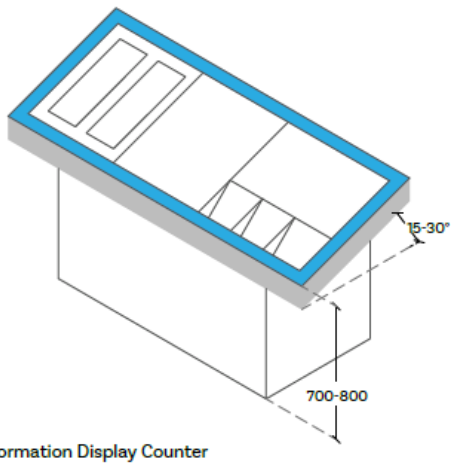


Figure 5.1 Information Display Counter

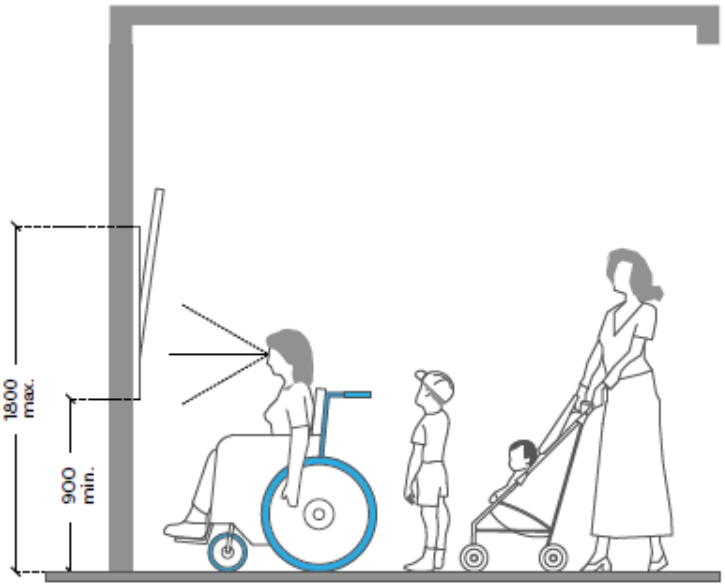


Figure 3.36 Information display board

24.2.3 Color Contrast:

Effective color contrast is crucial for visual comfort and accessibility. Contrasting colors should differentiate figures from the background on signboards, with commonly used combinations like white figures on blue backgrounds. The signboard itself must contrast with its surroundings for visibility. Avoid red/green and yellow/blue combinations to prevent confusion for colorblind individuals, and refrain from using shades of the same color or colors similar to safety signs. A recommended Light Reflectance Value (LRV) difference of 70 points ensures legibility.

Visual contrast measures the difference in LRV between adjacent surfaces on a scale of 0 (black, total light absorption) to 100 (white, total light reflection). While a 30% LRV difference is acceptable, 70% is ideal for better legibility for visually impaired users. The contrast can be calculated using:

Visual Contrast = [(B1-B2)/B1] x 100 %, where B1 is LRV of the lighter area and B2 is LRV of the darker area

Key principles for color contrast include:

a.) Text should contrast with the sign background.
b.) Signs should contrast with the surrounding environment.
c.) Maintain a 70% contrast between the wall and sign panel.
d.) Use a maximum of 5 colors, avoiding shades and safety sign colors.
e.) Ensure surfaces are non-reflective for optimal readability.

Table 5.4 Schedule of Colour Contrast for Signs

BACKGROUND	SIGN BOARD	LEGEND
Red brick or dark stone	White	Black. dark green or dark blue
Light brick or light stone	Black/dark	White or Yellow
Whitewashed walls	Black/dark	White/Yellow
Green vegetation	White	Black, dark green or dark blue
Back-lit sign	Black	White or yellow

Example of colours for Signage

24.2.4 Signage Design, Placement and Illumination:

Effective signage design ensures clarity, accessibility, and functionality through the following guidelines:

1) **Typeface and Style:**
    a. Use standard, legible Sans-serif fonts (e.g., Arial, Helvetica) for readability.
    b. Avoid italics, script fonts, condensed text, or excessive bolding of letters.
    c. Maintain consistent font stem widths and use tactile embossing with Braille where applicable.
2) **Text and Layout:**
    a. Use a combination of upper- and lower-case letters for better word recognition.
    b. Left-align text and ensure spacing between lines is 50% of the line height.
    c. Adopt character width-to-height ratios of 3:5 to 1:1 and stroke width-to-height ratios of 1:5 to 1:10.

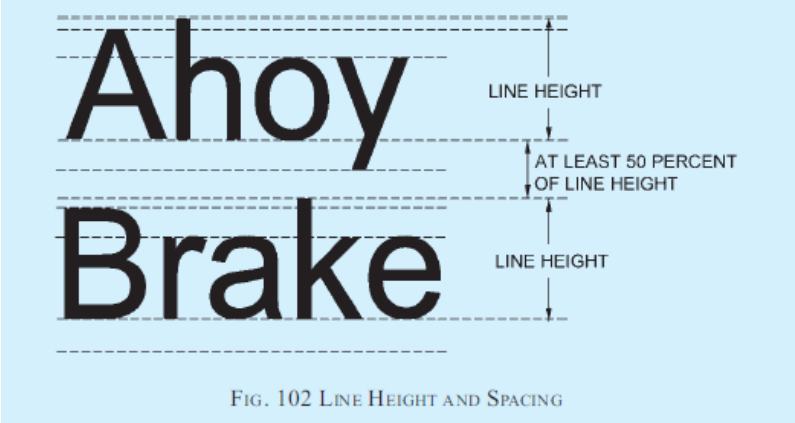


FIG. 102 LINE HEIGHT AND SPACING

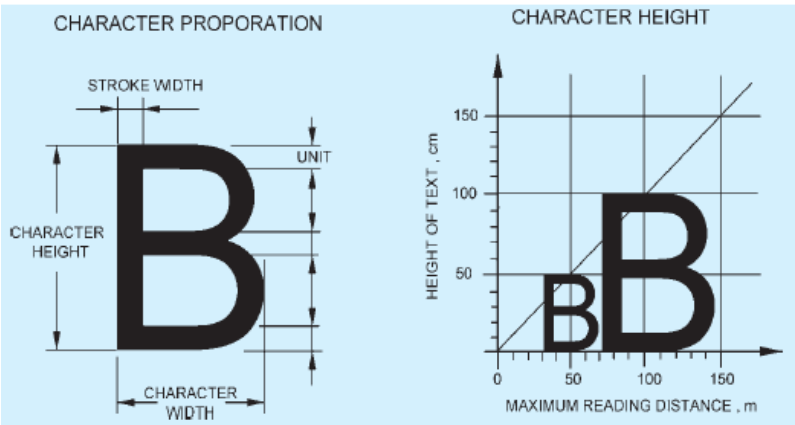


FIG. 103 DIMENSIONS OF CHARACTER IN A SIGNAGE SYSTEM

3) **Pictograms:** Combine lettering with symbols to aid persons with disabilities or language barriers.
4) **Positioning:** Place signs at visible locations and appropriate heights for all users:

a. Wall-mounted signs: 900–1800 mm, with ideal centering at 1500 mm.
b. Braille/tactile signs: 900–1500 mm, ideally at 1050 mm.
c. Overhead signs: At least 2300 mm from the floor, with text size proportionate to viewing distance.

5) **Signage Locations Inside Buildings:**
   a. Directories, direction signs, and bulletin boards: 1800 mm from the floor.
   b. Room signs: 1500 mm to the bottom edge and 50 mm from the doorframe.
   c. Safety notices: Positioned at both high (1600–1700 mm) and low (1000–1100 mm) levels for easy wheelchair access.

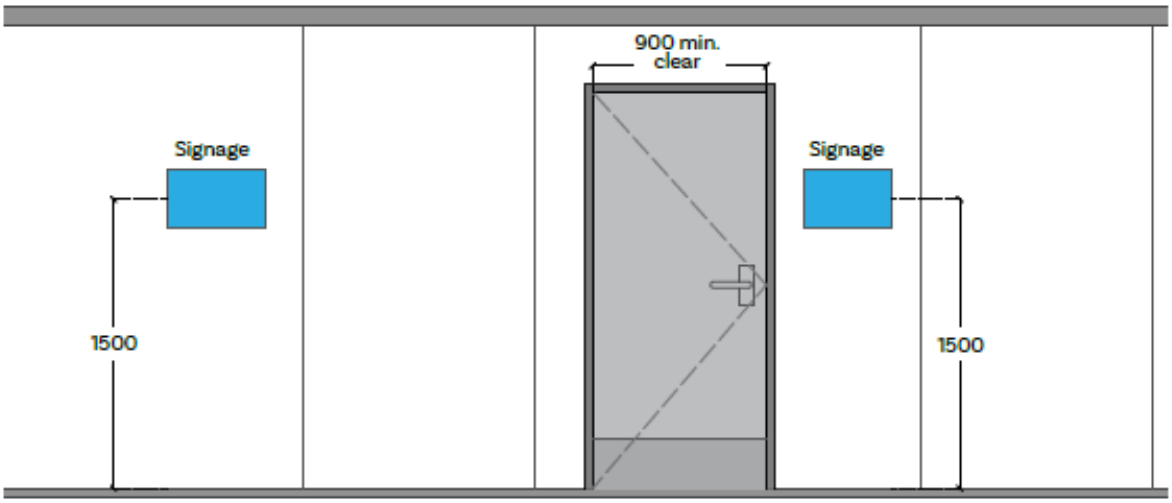


Figure 5.2 Height and placement of signages

6) **Viewing Distances:**
   a. Long Distance: External signs, location markers, and house numbers.
   b. Medium Range: Directional and identification signs.
   c. Close Range: Room numbers, directories, and wall-mounted information.

7) **Signage Size and Letter Height:** Refer to Table 5.5 and Table 5.6 for standardized width, viewing distance, and letter height.

Table 5.5 Size of signage

VIEWING DISTANCE	SIZE OF SIGNAGE
Up to 7 meters	60 mm x 60 mm
7 meters = 8 meters	100 mm x 100 mm
Exceeding 8 meters	200 mm x 200 mm to 450 mm x 450 mm

Table 5.6 Viewing distance and height of letters

VIEWING DISTANCE	HEIGHT OF LETTERS
2-3 meters	15 mm
6 meters	20 mm
8 meters	25 mm
12 meters	40 mm
15 meters	50 mm
25 meters	80 mm
35 meters	100 mm
40 meters	130 mm
50 meters	150 mm

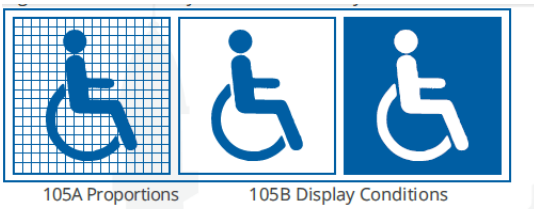
8) **Lighting and Illumination:** Provide uniform lighting of 100–300 lux, with a minimum of 200 lux for directional signs, maps, and panels.

Table 5.7 Illuminance

LUX: Lux is the standard unit of luminance. It is used as a measure of perceived intensity of light. Below are a number of examples of what a variety of lux would correspond to in everyday terms:

Illuminance	Example
1 lux	Moonlight
400 lux	A brightly lit office
400 lux	Sunrise or sunset on a clear day
1000 lux	Typical TV studio lighting
32000 lux	Sunlight on an average day (min)
100000 lux	Sunlight on an average day (max)

9) **Signage Material**
   a. Use non-reflective, matte-finish materials to avoid glare and ensure durability.
   b. Suggested materials include wood, acrylic, and Aluminium Composite Panels (ACP), designed to withstand wear and vandalism.



105A Proportions 105B Display Conditions

Fig: 24. Accessible Ramp

Fig: 25. Accessible Lift

Fig: 26. Human Assistance

Fig: 27. Accessible Unisex Toilet

Fig: 28. Accessible Male Toilet

Fig: 29. Accessible Female Toilet

Fig: 30. Unisex Changing Room

Fig: 31. Vision Impaired

Fig: 32. Hearing Loop

Fig: 33. Ablution/ Cleaning Space

Fig: 34. Prayer Space

Fig: 35. Accessible Emergency Route

25. Evacuation Protocol

All buildings and built facilities should have a well laid out plan for Emergency Egress in case of life-threatening situation caused by a medical emergency, fire, earthquake, or some other form of natural disaster. Fire and life safety systems are especially important in facilities providing specialized services or programs to seniors and persons with disabilities. Senior citizens and people with disabilities are groups at greater risk and may require additional assistance or accommodation to evacuate a facility. Provision of accessible means of egress from all public use areas and facilities is as vital a component as accessible ingress. The following requirements shall be followed as part of a building's emergency evacuation system. Reference to evacuation protocols for accessibility shall be established for each Building Typology/Usage.

25.1 Plan:

1) Evacuation plans that indicate the designated emergency evacuation routes, as well as the location of refuge areas, should be displayed in all public areas of the building that address the needs of users with varying disabilities.
2) Ensure the base of evacuation plans is posted at a maximum height of 1200 mm from the floor.
3) Ensure evacuation plans incorporate a font size of 14 points (minimum) in San serif font.
4) Ensure evacuation plans are available in alternate formats
5) Provide signage to identify evacuation plans.
6) These should contrast strongly against the background. Where possible, these should incorporate raised letters and tactile routes, and Braille for the benefit of persons with disability.

Image 7.1 Emergency exit door
Photo Credits: Dr. Gaurav Rahejo

25.2 Exit Routes:

1) At least 30% of exit routes should be made accessible and duly sign-posted. A signage plan must guide people with reduced mobility to the nearest accessible route and refuge areas.
2) To be considered accessible, the existing stairway shall have a minimum clear width of 1500 mm between handrails and shall either incorporate an area of refuge complying with accessibility standards within an enlarged floor-level landing or a horizontal exit.
3) Stairway identification photo-luminescent signage is provided as well as stair markings.
4) Orientation and direction signs should be installed frequently along the evacuation route, preferably internally illuminated.
5) The emergency lighting provided by traditional overhead emergency lighting luminaries, conforming to the Indian Standard IS: 9583-1981: Emergency Lighting Units, is acceptable for people who are visually impaired.
6) Exit signs shall be in accordance with IS: 4878-1968. Exit signage should also be available in tactile format in the evacuation route.
7) Along the emergency route, tactile floor guidance for persons with visual impairments should be provided.

Note: Fireproof doors along circulation paths that are not exclusively egress routes generally require a force greater than 25N to operate, rendering several disabled people dependent on others to negotiate these doors. While it is essential to cater safety measures for unpredictable emergencies, it is also important to provide an accessible environment to disabled persons. Consider holding the doors open with magnetic catches or floor springs that are connected with the fire alarm system.

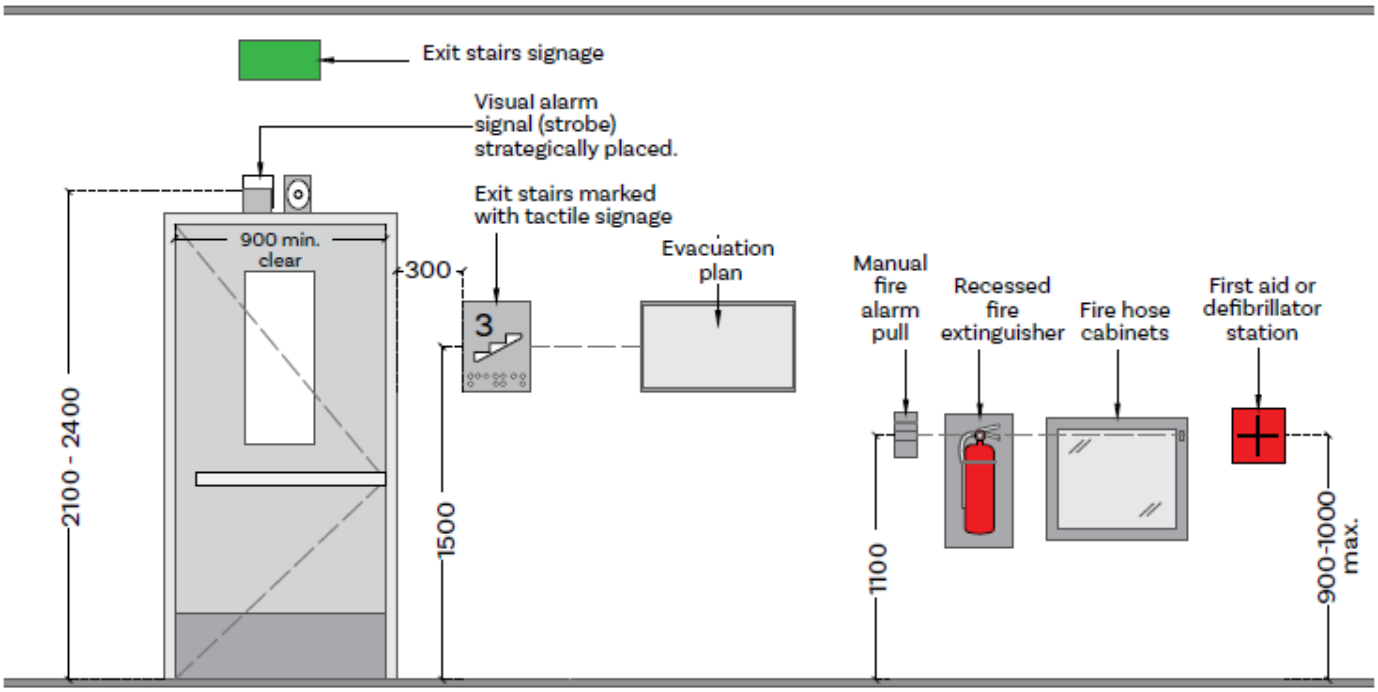


Figure 7.1 Fire Safety and Evacuation Features: Elevation View

25.3 Provision of Refuge Areas:

1) A refuge area, also known as an area of rescue assistance, is a place of relative safety where persons who may not be able to negotiate inaccessible egress routes may await rescue assistance.
2) Where a required exit from an occupiable level above or below a level of accessible exit discharge is not accessible, refuge areas shall be provided on each such level (in a number equal to that of inaccessible required exits).
3) Every required area of refuge is to be accessible from the space it serves by an accessible egress route.
4) Every area of refuge shall have direct access to an exit stairway.
5) Each area of refuge must be separated from the remainder of the story by a smoke barrier having a minimally two-hour fire resistance rating. Each area of refuge is to be designed to minimize the intrusion of smoke.
6) The size of the refuge shall have at least two accessible areas, each being not less than 750 mm by 1200 mm. The area of rescue assistance shall not encroach on any required exit width. The total number of such areas per story shall be not less than one for every 200 persons of calculated occupant load served by the area of rescue assistance.
7) All stairs next to the refuge area should have a clear width of 1500mm between the handrails.
8) A method of two-way communication, with both visible and audible signals, shall be provided between each area of rescue assistance and the primary entry.
9) Provide separate emergency lighting and ventilation systems supported by a backup generator.

25.4 Signage:

1) Each area of rescue assistance shall be identified by a sign, which states, "REFUGE AREA" and displays the international symbol of accessibility.
2) The sign should be illuminated when exit sign illumination is required.
3) Signage should also be installed at all inaccessible exits and where otherwise necessary to clearly indicate the direction to areas of rescue assistance.
4) In each area of rescue assistance, instructions on the use of the area under emergency conditions shall be posted adjoining the two-way communication.

25.5 Alerting System:

In emergency situations, it is critical that people are quickly alerted to the situation at hand. For persons with disability the following needs to be considered:

1) Audible alarms with “Voice Instructions” should be installed that can help guide them to the nearest emergency exit. As an alternative to the pre-recorded messages, these alarms may be connected to central control room for on-the-spot broadcasts.
2) Non – auditory alarms (visual or sensory) to alert persons with hearing impairments should be installed at visible locations in all areas that the building users may visit (including toilet areas, storerooms etc.). Non-auditory alarms include flashing beacons.
3) Integrate visual alarm signals with required audible fire alarm system, including during retrofit projects where feasible.
4) These should be adequately contrasted in colour and tone from the background wall and should be labelled with raised letters and in Braille.

5) Mount appliance at 2100 mm (minimum) above the floor level within the space or 150 mm below the ceiling, whichever is lower.
6) Where visual alarm signals are provided in any common space, public corridor, hallway, lobby, or room, ensure they are placed no more than 15 metres apart, on the horizontal plane.
7) Install visual alarm signals so that the signal from at least one device is visible throughout the floor area or a portion of it in which they are installed and;
8) Ensure the intensity of the visual alarm signal raises the overall light level sharply, but it should not be so intense to be unsafe for direct viewing.
9) Ensure a flash intensity of 75 candela (minimum) with a flash rate between 1 Hertz (minimum) and 3 Hertz (maximum); and
10) Synchronize visual alarms that are in the same proximity to flash at the same time.

Image 7.2 LED Beacon

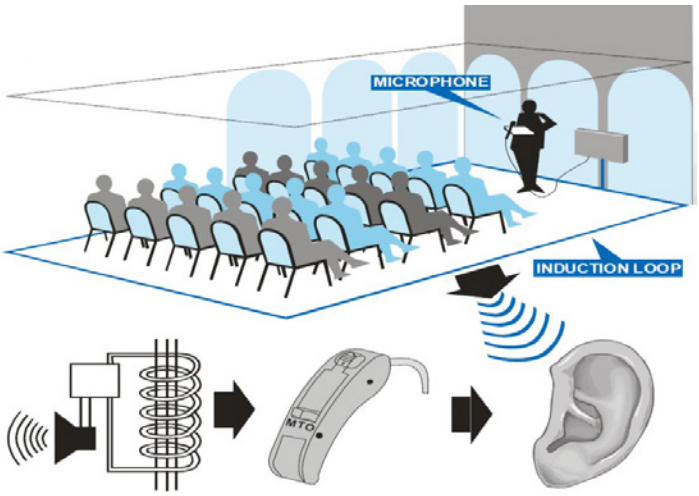
Image 7.3 Fire Alarm Bell

Image 7.4 Fire Alarm

25.6 Public Address System:

In large spaces a series of speakers positioned at designed intervals provide a sound volume that is appropriate to the environment and circumstances in which it is heard. Due to the wide range of systems, their limitations, and benefits, a specialist's advice should be obtained at an early stage of the design process to identify the most appropriate system for each location. A combination of systems may be required to meet a range of user needs. Commonly used systems include:

1) Induction loops – can be either permanent or portable. Typically used at enquiry desks and service counters but can also be used in meeting rooms and auditoriums. The potential for overspill to hearing aid users in adjoining areas needs to be considered.
2) Infrared systems – can operate through headsets or be linked to personal hearing aid devices. Ideal for use in controlled environments such as cinemas and lecture theatres and here confidentiality is important as the signal cannot be picked up outside of the source room.
3) Radio systems – useful in situations where portability is important e.g., guided tours but can also be used in an education environment where children move between classrooms and carry the equipment with them. The use of different channels can prevent overspill issues but there is still the potential for electromagnetic interference and disturbance from other radio channels.
4) Sound field systems – are beneficial to a wide range of users by providing a consistent sound level around a room regardless of distance from the source. These systems should be linked to an induction loop, infrared, or radio hearing enhancement system, where provided.

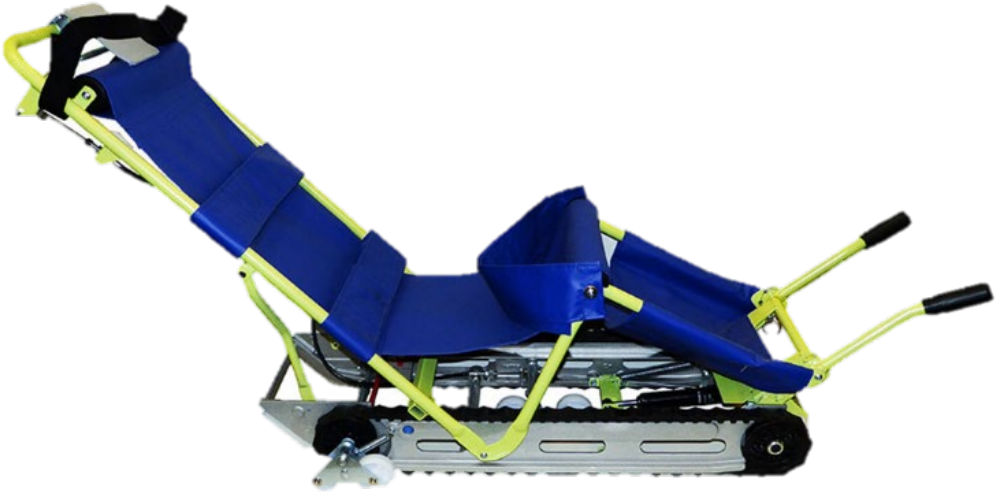


Induction Loop Setup (Reference - https://www.majorcom.fr/en/induction-loop-systems/)

Signage for Induction Loop

25.7 Evacuation Wheelchair

An evacuation wheelchair (also called an evacuation chair or stair chair) is a specially designed mobility device used to help people with disabilities, limited mobility, or injuries evacuate buildings safely, especially in emergencies like fires or power failures when elevators cannot be used.



26. Special Assistance

1) Assistance should be provided at least during an event or training session. Further, an assistive device such as a wheelchair should be provided upon request to anyone with reduced mobility.
2) All wheelchairs and mobility aids provided at the event should be inspected to ensure they are in proper working condition to ensure the safety of the users.
3) Wheelchairs provided for attendees should include footrests and safety belts for added support and security.
4) If wheelchairs or other assistive devices are lost or damaged while being handled within the venue or during transportation, the responsible event organizers must provide compensation for the loss or damage.
5) Visitors and participants should be allowed to carry their assistive devices and provision of security screening with their devices should be in place so that they don't have to get up and screen independently.
6) When overnight accommodations are necessary for participants with disabilities or reduced mobility due to event schedules or unforeseen circumstances, the organizers should ensure the accommodation is accessible and suitable to their needs as much as possible.
7) Event organizers should allow the carriage of assistive devices, such as wheelchairs, free of charge, subject to space limitations within the venue.
8) If a person with a disability or reduced mobility requires the assistance of a companion, the event organizers should ensure that seating is arranged so that the companion is seated next to the individual requiring assistance.
9) If a participant or visitor with a learning disability communicates in a language that staff are unfamiliar with, the staff should seek help from a supervisor or manager to ensure effective communication.
10) All staff should undergo sensitization training to effectively communicate with and assist people with disabilities and ensure their needs are met appropriately.

27. Event Planning and Implementation

Organizing an inclusive sports event ensures that everyone, regardless of their abilities, can participate and enjoy the activities. Early-stage planning and accessibility audits are crucial to identify barriers and implement solutions that accommodate the needs of persons with disabilities. Practical steps such as providing levelled and multiple access, ramps, accessible seating, toilets, transport, accommodation and clear signage can be integrated into event plans, ensuring compliance with laws like the Rights of Persons with Disabilities Act, 2016, and the UN Convention on the Rights of Persons with Disabilities.

Conducting audits both during the planning phase and after implementing changes ensures that temporary arrangements meet accessibility requirements and provide a seamless experience. These proactive steps not only fulfil legal obligations but also demonstrate a commitment to inclusion, making sports events more welcoming and equitable for all participants and spectators.

Planning → Accessible Infrastructure → Inclusive Event Setup → Staff Training & Sensitization → Safety & Emergency Preparedness → Communication & Outreach → Feedback & Improvement

27.1 Wayfinding:

Clear and accessible signage is crucial for guiding attendees during sporting events. Signs should include tactile and Braille components for visually impaired individuals and be positioned at heights compliant with the standards. Temporary structures must avoid creating obstructions or protrusions, ensuring pathways remain clear giving full width of the structure with a minimum pedestrian width of 1500 mm, and detectable by mobility aids.

27.2 Decoration/Beautification:

Decorative elements and temporary beautification efforts must balance aesthetics with accessibility and safety. Structures should not obstruct movement, visibility, or access to essential facilities, wherever a facility is cordoned then a relevant caution signage should be installed. Materials used for decorations should comply with safety standards, including fire safety requirements, while maintaining an inclusive design that enhances the overall environment for all attendees.

27.3 Access:

Temporary access features such as ramps and stages must align with the guidelines, providing safe gradients, non-slip surfaces, handrails for support, and structure of minimum 1.5 safety factor.

Seating arrangements should ensure equitable access, with dedicated spaces for wheelchair users and companion seating and should not be separated from other seating's. These arrangements should also prioritize clear sightlines for all spectators, including VIPs and players.

27.4 Accessible registration:

The registration process should be inclusive for all participants, ensuring ease of access and usability. It should offer multiple formats, including online, on-site, and assisted registration for individuals with disabilities. The registration counters must

have wheelchair-accessible height, assistive listening devices, and trained staff. Digital platforms should be screen-reader compatible, with options for large text and voice assistance. Additionally, priority lanes and sign language interpreters should be available to support diverse needs.

27.5 Assistive Device Shop:

An assistive device shop for sports or general use should be established, particularly during para-sport events, offering essential services such as quick repairs and installations for various devices like wheelchairs, prosthetics, hearing aids, and other mobility aids. The shop should also provide commonly required parts or replacements for sale.

The layout of the shop should have sufficient space for individuals using mobility aids to move around comfortably; for example a shop with display racks should have an aisle space of 1200 mm with 1500 mm manoeuvring space at both ends, more such details can be referred from the standards above. The shops should have counter at two-levels, assistive listening device and trained/sensitized staff with sign language interpreter, all capable of assisting customers with reduced mobility effectively.

27.6 Accessible Podium:

The design of podiums for victory ceremonies at any para-sport events should incorporate accessible features, such as a ramp with a maximum gradient of 1:12 to ensure athletes using wheelchairs can access the podium safely and easily. To allow medal presenters who may also be wheelchair users to perform their duties effectively, the height of the podium for the 1st place should not exceed 300 mm.

Alternatively, a levelled surface can be used, with numbered signs positioned at ground level and a maximum height of 300 mm, ensuring an unobstructed view of the players for cameras and spectators.

This ceremony should be within the venue that allows easy access for all participants, including athletes and medal presenters of varying abilities.

2012 Paralympics - Mixed R4-10m Air Rifle Standing-SH2 medal ceremony (Wikimedia commons)

Para Swimming Federation of India

The podiums of the Paris 2024 Games

Historic Medal day for Para canoe Athletes at Paralympic Games in Rio 2016 ICF - Planet Canoe

27.7 Auditing and Training Program:

To ensure an inclusive and accessible experience for all participants, an auditing and training program is essential. Event staff should undergo comprehensive sensitization training to understand the diverse needs of persons with disabilities and to provide appropriate, respectful, and effective assistance. Training sessions cover topics such as communication techniques, mobility support, and the handling and operation of assistive devices to ensure preparedness for a variety of situations.

In addition to training, regular accessibility audits should be conducted at every stage of the event planning and implementation process. Pre-event audits can identify potential barriers in the layout, signage, or facilities, while post-event audits can assess the effectiveness of accessibility measures and gather feedback for continuous improvement.

27.8 Classification Room:

Classification room is required to classify players in different categories of their particular sport, thus it is directly related to the para-players and their accessibility needs, with general requirements, such as accessible approach, signage, and wayfinding, etc. specific requirements need to be considered, which are as follows:

- Private, Accessible Rooms: Ensure that classification and examination areas are private and accessible. These rooms should be equipped with height-adjustable examination tables to accommodate users of different heights and mobility levels. Desks and chairs (minimum of four) should be provided to facilitate comfortable seating and workspace for both the individuals being examined and the medical staff. Nearby hand-washing facilities are essential to maintain hygiene and prevent the spread of infections.
- Wheelchair Manoeuvring Space: Adequate space must be allocated within these rooms to allow for easy wheelchair manoeuvrability. This is crucial for conducting functional testing and classification procedures without any hindrance. The layout should ensure that wheelchair users can move freely and access all necessary equipment and facilities without difficulty.

27.9 Communication:

Ensure effective communication methods for all participants, including:

- **Sign Language Interpreters:** Provide interpreters proficient in Indian Sign Language (ISL) and International Sign Language (ISL) to assist hearing-impaired participants.
- **Braille Instructions**: Offer Braille instructions and pamphlets for visually impaired participants.
- **Talk Back Features:** Utilize Talk Back features on devices to assist visually impaired participants in navigating the event.
- **Accessible Feedback:** Ensure feedback forms are available in accessible formats, such as Braille, large print, or audio recordings, and provide assistance where required.
- **Web Content:** All the web content related to event ticketing, information related to the event, etc. should be on website that is made accessible complying with the latest WCAG guidelines.

27.10 Emergency Evacuation:

Emergency evacuation should not be hindered by temporary features provided in overlays, if require an alternative plans should be incorporated which include accessible routes, trained personnel, and equipment like firefighting equipment's, alerting features and evacuation chairs to ensure the safety of all attendees during unforeseen situations. Relevant section should referred.

27.11 Feedback Mechanism:

An effective feedback mechanism is a critical component of accessibility management at events, especially in sports facilities and events catering to persons with disabilities. It serves as a tool to assess the success of implemented accessibility measures and identify areas requiring improvement.

The feedback mechanism should be user-friendly and inclusive, offering multiple channels such as physical feedback forms, online surveys, dedicated helplines, and QR code-based options for tech-savvy users. For inclusivity, feedback forms should be available in accessible formats like Braille, large print, or audio recordings, and the process should allow for assistance where required.

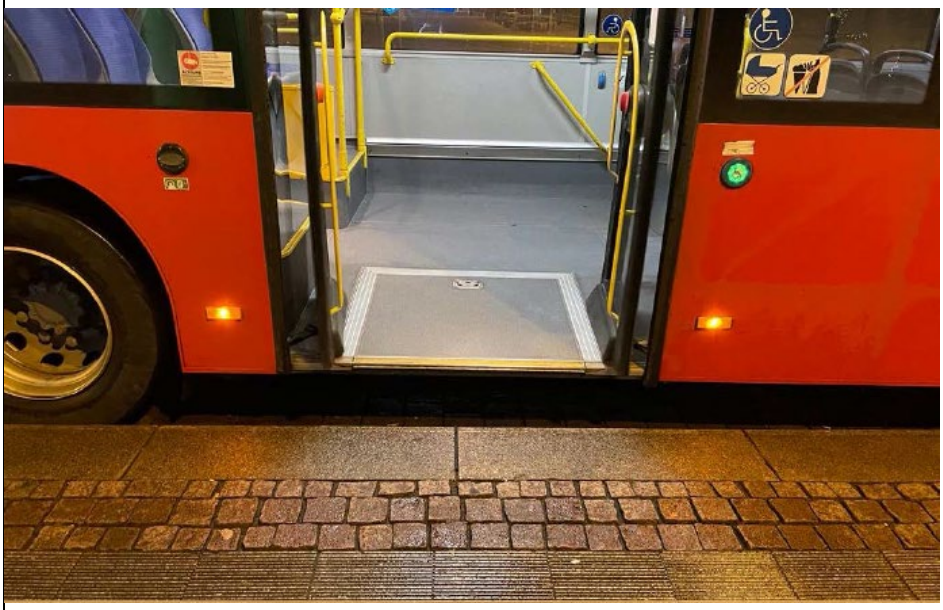
Feedback should be encouraged not only from persons with disabilities but also from their companions, event staff, and other stakeholders to gain a holistic perspective. Responses should be regularly reviewed, analyzed, and acted upon to improve future events. Displaying a summary of actions taken based on feedback reinforces trust and assures participants that their voices matter, fostering a culture of continuous improvement and inclusivity.

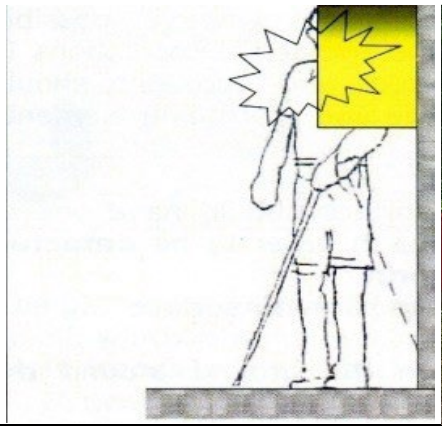
Additionally, a designated accessibility officer or team should be assigned to oversee the feedback process, ensuring timely responses and resolution of concerns raised during the event.

28. Evaluating Accessibility

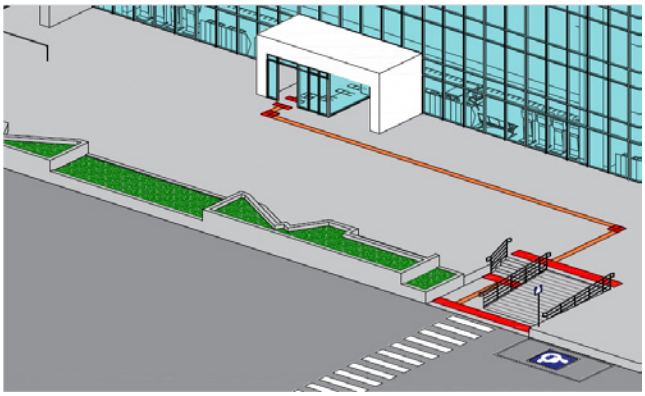
Evaluating accessibility is essential to ensure that spaces, facilities, and services are inclusive and usable for everyone, including people with reduced mobility. It helps identify barriers, improve safety, and enhance user experience.

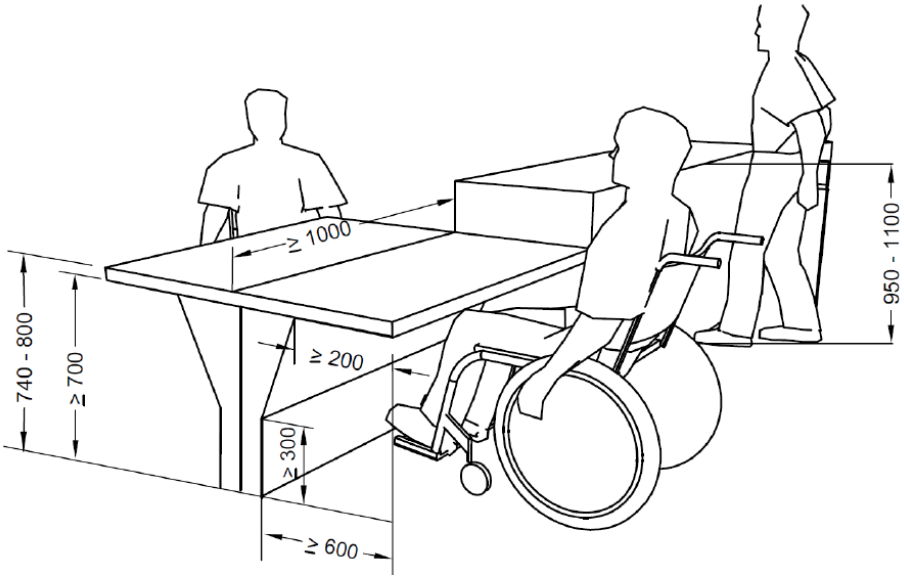
Regular accessibility assessments ensure compliance with legal standards and promote equal opportunities in education, employment, recreation, and public services. By evaluating accessibility, organizations can create more welcoming environments, increase participation, and support independent mobility for all individuals.

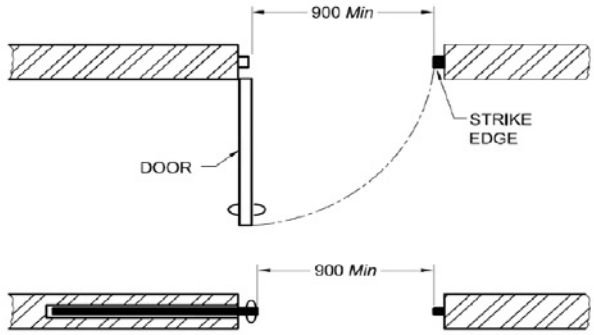
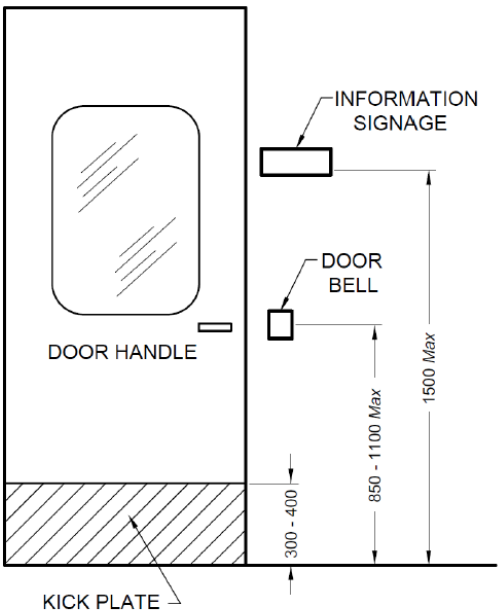
S. No.	Transportation	Remarks
1	Are shuttle, buses, carts etc. services accessible and equipped with ramps or lifts? 	
2	Is there an accessible drop-off and pick-up area for shuttle services?	
3	Are transportation schedules and information available in accessible formats?	
4	Is there a designated accessible transportation coordinator or contact for inquiries?	

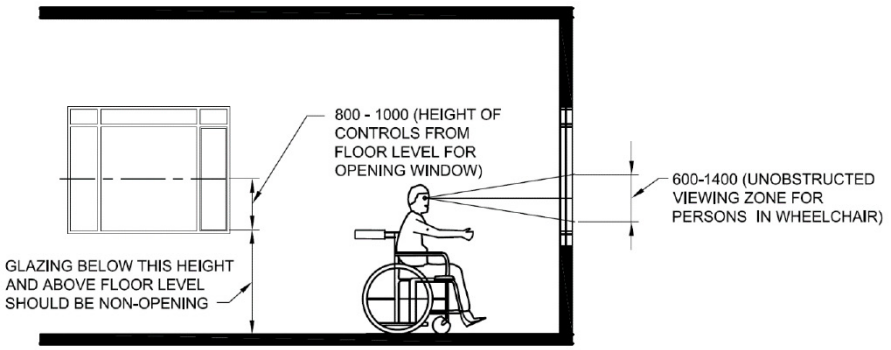
S. No.	Approach	Remarks
1	Does the pathway provide a minimum width of 2000 mm for two-way traffic and 1500 mm for one-way traffic?	
2	Are guardrails provided for paths, ramps, or platforms that are 600 mm or more above the surrounding ground?	
3	Is the entry route to the building levelled and obstruction-free?	
4	If the route is not free of kerbs, is there a kerb ramp provided? 	
5	Are there suitable lighting arrangements throughout the building campus?	
6	Is there at least one accessible route connecting to the building?	
7	Is the approach to the building free from obstacles such as bollards, litter bins, outward-opening windows and doors, or overhanging projections?  	

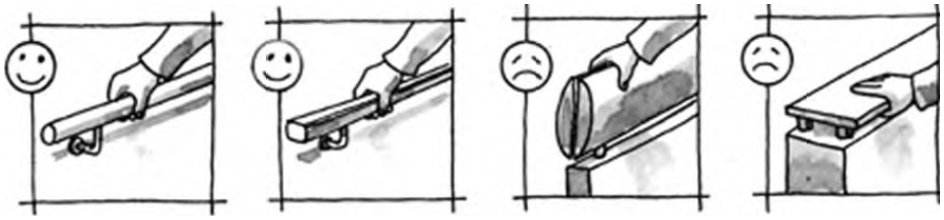
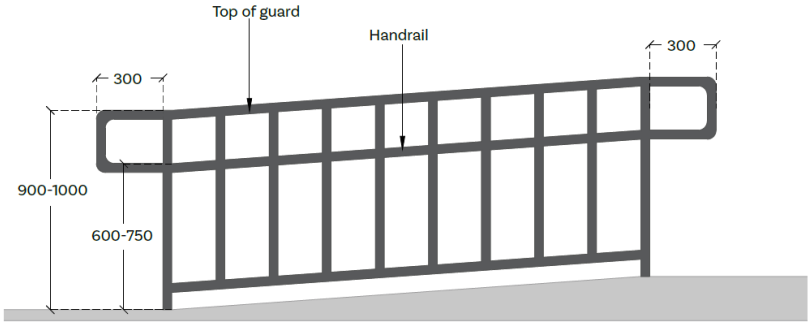
S. No.	Parking	Remarks
1	Is there designated accessible parking provided and clearly marked for people with reduced mobility?	
2	Are there enough accessible parking spaces available?	
3	Are accessible parking spaces located as close to the entrance as possible?	
4	Is there a signage directing accessible parking spaces?	
5	Are accessible parking spaces marked with the International Symbol of Accessibility?	
6	Is there a designated and marked transfer bay available? 	
7	Is there a system for reserving accessible parking spaces for visitors and staff?	

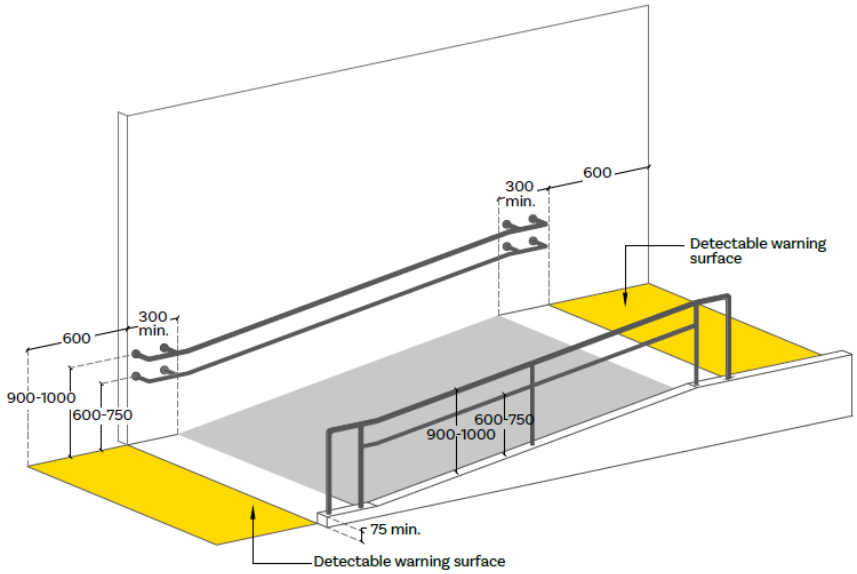
S. No.	Entrance	Remarks
1	Is there tactile guidance from the accessible parking to the entrance? 	
2	Is the accessible entrance clearly signposted and easy to locate by visitors?	
3	Is there a designated drop-off zone?	
4	Is the entrance door distinguishable from the facade?	
5	Is access to the main entrance step-free and accessible for all visitors?	
6	If the main entrance has steps, is there an alternative smooth gradient ramp provided?	
7	Is there an accessible building layout plan displayed at the main entrance?  Image 5.15 Braille cum tactile route map	

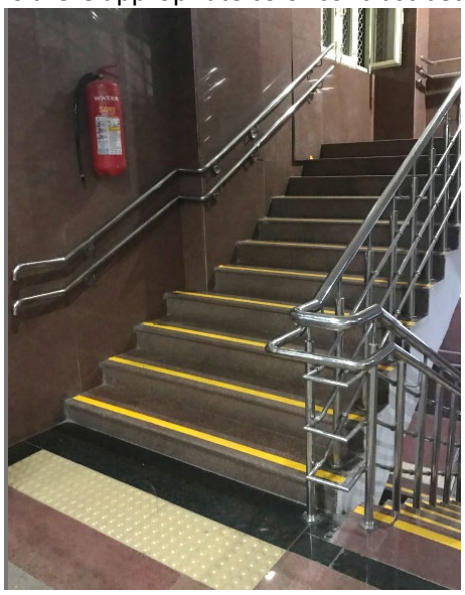
S. No.	Reception Counter/Help Desk	Remarks
1	Is the counter suitable for approach and use from both sides by people in standing and seated positions (i.e., two-level desk and knee space)?  All dimensions in millimetres.	
2	Is appropriate signage provided for the information counter/reception area?	
3	Is there a tactile path leading to the reception/enquiry counter?	
4	Is there a clearly marked accessible pathway with a width of at least 1800 mm?	
5	Are there adequate seating facilities available for visitors?	
6	Are communication tools available for visitors with hearing impairments (e.g., induction loops)?	
7	Is there a digital kiosk or touch screen for accessing information independently?	

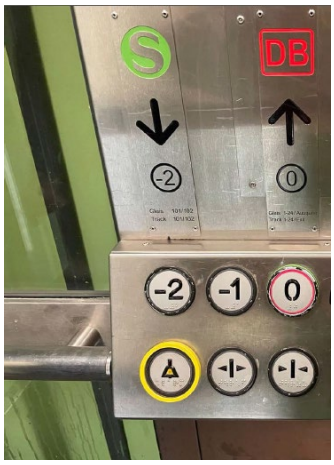
S. No.	Doors	Remarks
1	Is there a texture change around doorways to assist visually impaired users in locating entrances?	
2	Are warning blocks installed 300 mm before external entrances for visually impaired users?	
3	Is the minimum door clearance at least 900 mm is available?	
4	If revolving doors or turnstiles are present, is there an alternate swing-type door with at least 900 mm (preferably 1000 mm) clearance?  All dimensions in millimetres.	
5	Are vision panels installed on two-way swing doors and circulation doors at a height between 800 mm – 1500 mm?	
6	Is there sufficient space for wheelchair users to approach and operate doors?	
7	Can doors be operated with one hand without requiring tight grasping, pinching, twisting, or fine finger control?  All dimensions in millimetres.	

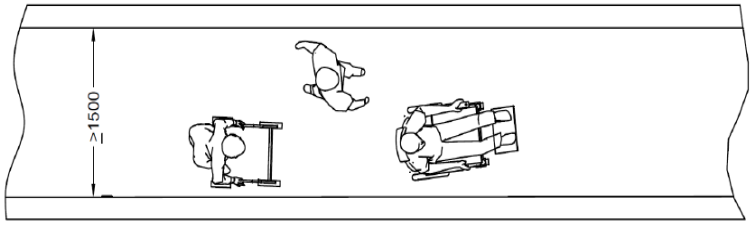
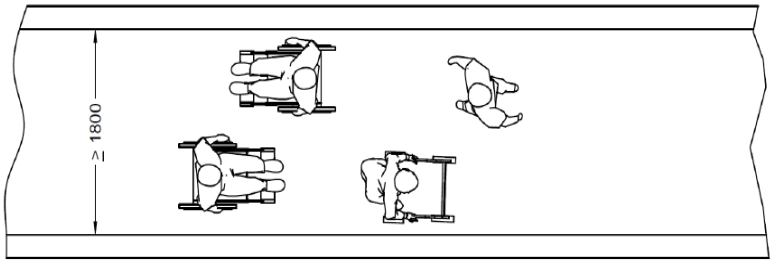
S. No.	Windows	Remarks
1	Are windows designed with a clear viewing area positioned between 600 mm and 1400 mm from the floor for wheelchair users?  All dimensions in millimetres.	
2	Are curtain and blind controls placed between 800 mm and 1000 mm above the finished floor level for easy access?	
3	Are window handles and controls positioned at a maximum height of 1200 mm, with lever-type hardware for ease of use?	
4	Do window frames have a contrasting color to the adjacent wall and sill for better visibility?	

S. No.	Handrails & Grab Bars	Remarks
1	Are handrails/grab bars securely fixed to the wall?	
2	Is the circular section diameter between 38-45 mm for easy grasping? 	
3	Is there a minimum clear space of 50 mm to 65 mm between the handrail and the wall?	
4	Are handrails provided at two level?  Figure 3.17 Handrail detail	
5	Do handrails contrast with the wall behind them for easy identification?	
6	Are handrails installed on both sides of stairs, ramps, or paths?	
7	Do handrails extend at least 300 mm beyond the first and last nosing?	
8	Are handrail extensions turned towards the wall or downward to the floor to prevent hazards?	

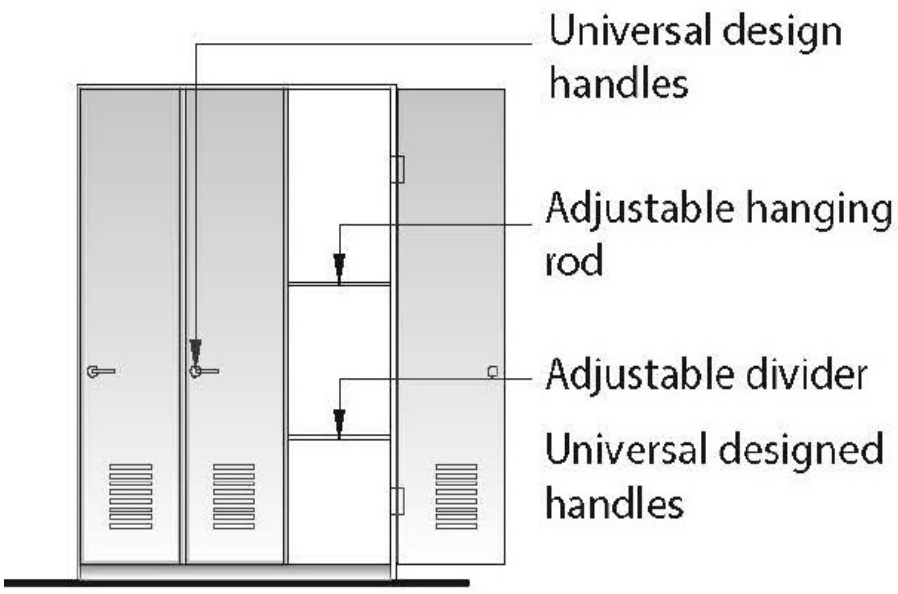
S. No.	Ramps	Remarks
1	Is the minimum clear width of the ramp (excluding handrails) at least 1200 mm?	
2	Do the gradient recommendations follow standard specifications?  Fig a. Handrail returns to wall	
3	For ramps with a vertical rise greater than 150 mm, are handrails installed on both sides?	
4	Are end landings at least 1500 mm × 1500 mm at the top and bottom of ramps, sloped paths, and stepped paths?	
5	Do ramps and landings not adjacent to a wall have edge protection with a mm kerb?	
6	Does the ramp end with a level platform to allow wheelchair users to safely manoeuvre and open doors?	
7	Is a single row of tactile warning blocks (TGSI) placed 300 mm before and after the ramp?	
8	For large elevation changes requiring multiple ramps and landings, are alternative solutions such as lifts considered?	

S. No.	Stairs	Remarks
1	Is the height and depth of each step consistent throughout the staircase, with a riser height of 150 mm and a tread depth of 300 mm?	
2	Is there appropriate color contrast between the landings and the steps? 	
3	Are the stairs connecting different floors either straight or with a 90-degree angle, with landings provided between flights (maximum 12 steps per flight)?	
4	Are there two-level handrails available on both sides of the staircase, continuous at landings?	
5	Is the staircase appropriately illuminated?	
6	Are stair nosings contrasted with the tread color for better visibility?	
7	Is a single row of tactile warning blocks (TGSI) placed 300 mm before and after the stairs?	

S. No.	Lifts	Remarks
1	Are there appropriate directional signs guiding residents to the elevator from all entrances of the building?	
2	Does the lift have a wide door (minimum 900 mm) to allow comfortable entry for wheelchairs?	
3	Is the minimum size of the lift at least 1500 mm wide by 1500 mm deep to ensure easy manoeuvrability for wheelchair users?	
4	Are the call button and control panel positioned at a reachable height (between 800 mm and 1000 mm)?  BRAILLE ON BUTTONS 	
5	Are handrails available on both sides and at the rear of the lift?	
6	Does the lift have a mirror at the rear side?	
7	Does the lift feature a voice announcement system (50 dB) and a visual display indicating floor levels and the status of the doors (open or closed)?   VOICE GUIDANCE SYSTEM	
8	Is there a power back-up system for emergency use?	

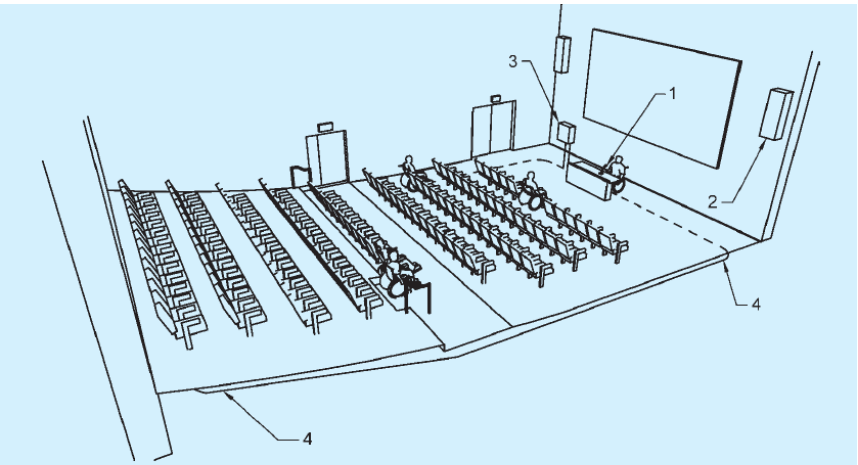
S. No.	Internal Corridors	Remarks
1	Are door mats recessed and securely fixed to prevent tripping hazards?	
2	Are internal doors wide enough for easy entry?  MINIMUM UNOBSTRUCTED WIDTH OF CORRIDOR  PREFERRED CORRIDOR WIDTH All dimensions in millimetres.	
3	Are internal floor surfaces made of materials that do not impede the movement of wheelchair users and are slip-resistant?	
4	Is there any threshold or groove at door openings?	
5	if a raised threshold is present, is it beveled to facilitate smooth wheelchair mobility and is it no higher than 5 mm?	
6	Are doors easy to operate, requiring no more than 22 N of force?	
7	Is the floor inside the building non-glary and free from complex patterns?	
8	Is the corridor free of obstructions, providing a two-way walking width of at least 1800 mm?	
9	Are resting areas with seating provided along long corridors?	

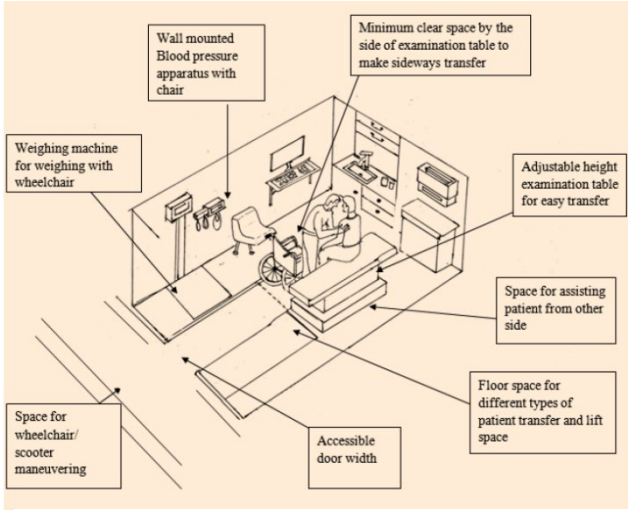
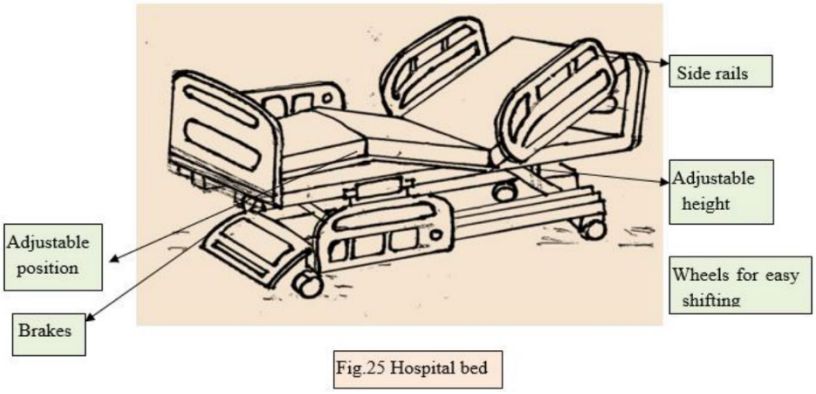
S. No.	Toilets	Remarks
1	Is there signage indicating the presence of an accessible toilet (Unisex Accessible Toilet)?  	
2	Is there at least one wheelchair-accessible unisex toilet available separately for persons with disabilities?	
3	Is the door of the toilet wide enough for wheelchair entry (minimum 900 mm)?	
4	Is the toilet door of the sliding or outward-opening type?	
5	Does the accessible toilets have provision of grab bars (L-shaped or foldable)? 	
6	Is there an emergency alarm bell or cord available within the toilet facility?	
7	Does washbasin have clear knee space of minimum 700 mm?	
8	Are taps accessible? (long lever type or sensor-based taps)	
9	Does the male section have at least one accessible urinal?	
10	Is there any diaper changing facility available?	
11	Are there accessible changing facilities for individuals requiring assistance?	

S. No.	Changing room	Remarks
1	Is there a minimum of 1200 mm of circulation space for wheelchair users?	
2	Are benches provided at a height of 450–550 mm, with 500 mm as the recommended height?	
3	Are adjustable-height benches available for versatility?	
4	Are ceiling hoists installed for individuals with mobility impairments?	
5	Is non-slip flooring used, especially in wet areas, to prevent accidents?	
6	Are carpets avoided or designed not to restrict wheelchair movement?	
7	Are benches relocatable to improve circulation space when needed?	
8	Are at least 10% of lockers positioned at a height of 1200 mm for accessibility?	
9	Do lockers have tactile numbering on locks and doors to assist visually impaired users?	
10	Are hanger rods within a reachable range for seated users, with an additional rod for standing users?  Locker interior elevation	
11	Are designated accessible shower spaces available for wheelchair users, walker users, and prosthetic users?	

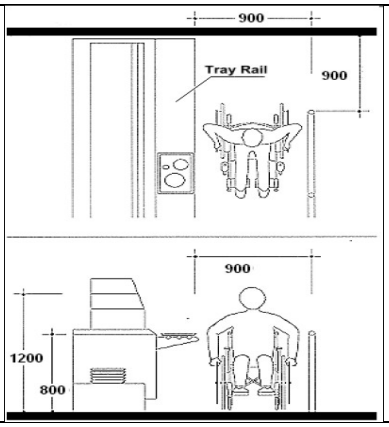
S. No.	Spas & Saunas	Remarks
1	In facilities with multiple spa pools, is at least 5% (or a minimum of one spa) accessible to users with disabilities?	
2	Is there a provision for mechanically assisted access, such as hydraulic lifts or hoists?	
3	Are hydraulic lifts or hoists installed where possible, following the relevant section on hydraulic lifts?	
4	Are grab rails or a limited number of steps provided for wheelchair users with mobility?	

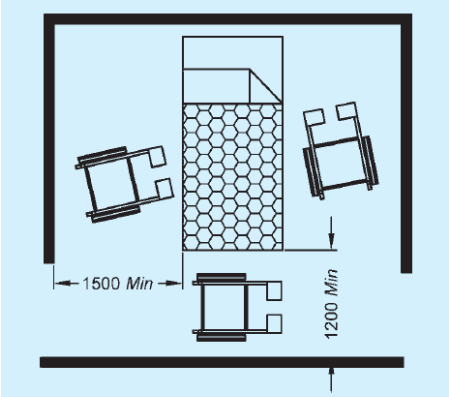
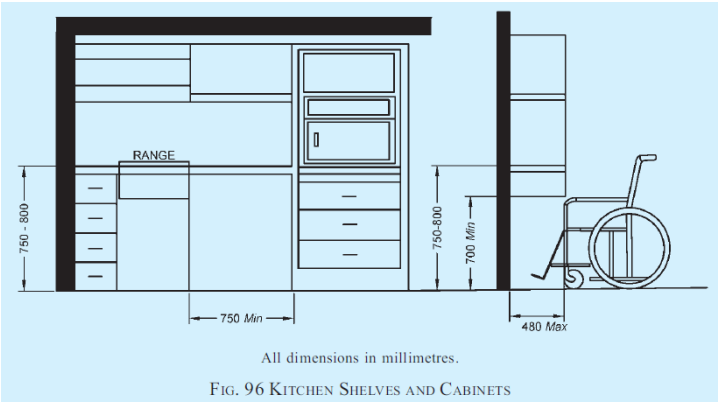
S. No.	Drinking Water Facility	Remarks
1	Is there well-marked signage indicating the location of drinking water facilities?	
2	Is there a clear floor space of at least 900 mm × 1200 mm in front of water stations?	
3	Are drinking water units placed at ground level and not on raised platforms to ensure wheelchair accessibility?	
4	Are there dual-height provisions for drinking facilities to accommodate standing adults, wheelchair users, and children? 	
5	If only one unit is provided, is it installed at 700 mm above the floor?	
6	Are spout heights between 800–900 mm for optimal reach?	
7	Is there clear knee space of at least 900 mm wide, 200 mm deep (from the front edge), and 700 mm high?	
8	Are lever-type or sensor-based taps provided at two levels for ease of use?	
9	Are non-skid surfaces used around water stations to prevent slipping?	
10	Are drainage areas properly covered to prevent falls and water accumulation?	

S. No.	Auditorium, Concert Hall, Sport Arenas	Remarks
1	Is at least 1.2% of the seating designated for wheelchair users in para sporting events?	
2	Are wheelchair spaces located near companion seating and spread across all seating sections?	
3	Are seats removable to accommodate event-specific needs in existing facilities?	
4	Are aisles, pathways, and emergency exits well-lit with a backup power source?	
5	Is an induction loop system available for hearing-impaired individuals?  *Key* 1 Microphone 2 Loudspeakers 3 Induction loop amplifier 4 Induction loop FIG. 99 EXAMPLE OF INDUCTION LOOP SYSTEM IN CONFERENCE ROOM	
6	Is there a contrasting backdrop to aid lip-reading and hand movement clarity?	
7	Are raised seating platforms provided to ensure unobstructed views?	
8	Are spaces designed to prevent blocked views when spectators stand?	
9	Are accessible and elevated spectator/official viewing platforms available for open-air events like rowing and mountain biking?	

S. No.	Medical Facility	Remarks
1	Is there an accessible transferring space of 900 mm × 1200 mm in wards, examination rooms, and OPDs?  **Accessible patient Examination Room**	
2	Is there a minimum 1500 mm diameter space inside rooms for clear manoeuvring?	
3	Are hospital beds adjustable within a height range of 400–450 mm?  Fig.25 Hospital bed	
4	Do examination tables, chairs and beds have an adjustable height of 400–500 mm?	
5	Are lifting mechanisms such as ceiling-mounted hoists, mobile floor lifts, or wall-mounted lifts available for patients with severe impairments?	
6	Are wheelchairs available within the facility for patients, including persons with disabilities?	
7	Are accessible toilets available to ensure patient safety and dignity?	
8	Are grab bars, adequate transfer space, and emergency alarms provided in accessible toilets?	

S. No.	Conference, Meeting & Office Rooms	Remarks
1	Does the stage have accessible approach?	
2	Is the height of the podium sufficient to accommodate wheelchair users?	
3	Is there any dedicated accessible seating provided?	
4	Do the tables provide a minimum clear knee space of 700 mm high?	
5	Is there a hearing enhancement system provided, including on the stage/platform?	
6	Are presentation materials available in accessible formats (e.g., large print, braille)?	
7	Are remote participation options available for virtual attendees?	

S. No.	Eating Spaces	Remarks
1	Is the entry door wide enough for wheelchair entry (minimum 900 mm)?	
2	Are tables provided have minimum clear knee space of 700 mm high? 	
3	Do tables and seats have sufficient visual contrast with surrounding surfaces for clear identification?	
4	Is there a circulation path in front of the stalls with a minimum clearance of 1200 mm wide?	
5	Is there an accessible route with a minimum clear width of 900 mm from the circulation path to tables intended for persons with disabilities?	
6	Are tray slides and counters mounted at 800 mm from the floor for wheelchair users in self-service counters?	
7	Are food shelves mounted at a maximum height of 1200 mm? 	

S. No.	Residential Units	Remarks
1	Is there a minimum of 1500 mm free space along one long side of the bed (with at least 1200 mm at one end)?  All dimensions in millimetres. FIG. 97 SPACE AROUND BED	
2	Does the room include at least two beds or a single queen-size bed (1500 mm × 2000 mm) with a height of 450–500 mm?	
3	Is there a clear floor space of 900 mm × 1200 mm in front of all furniture for wheelchair accessibility?	
4	Does the room feature an accessible in-room shower and toilet with sufficient wheelchair manoeuvring space?	
5	Is the luggage bench positioned at an accessible height between 450 mm and 650 mm?	
6	Are storage and kitchen shelves installed within a reachable height range of 300 mm to 1100 mm from the floor?	
7	Is a portion of the kitchen counter or island designed with a clear knee space of 700 mm height and a minimum width of 800 mm?  All dimensions in millimetres. FIG. 96 KITCHEN SHELVES AND CABINETS	
8	Are switches, intercoms, and other controls installed within an accessible height range of 800–1100 mm?	

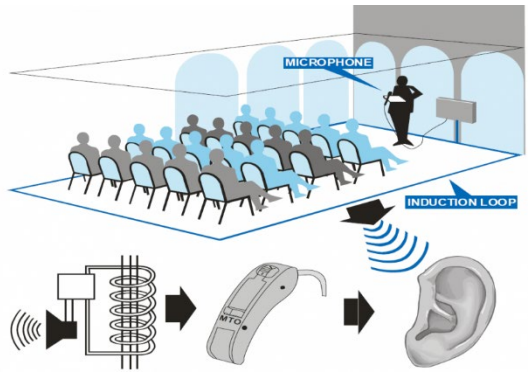
S. No.	Floor Surface	Remarks
1	Are floor surfaces stable, firm, level, and slip-resistant with a matt finish to reduce glare?	
2	Are there any projections, drops, or unexpected variations in level that could impede access?	
3	Does any level variation comply with the maximum slope requirement of 1:20 for accessibility?	
4	Does the flooring provide a firm foothold and good wheel grip for wheelchair users?	
5	Are high-gloss finishes avoided to prevent glare and slipperiness?	
6	Are carpets avoided, or if used, do they have a thickness of ≤ 12 mm for easy mobility?	
7	Are loose mats eliminated, and are all matwells flush with the floor surface?	
8	Are changes in floor color used to highlight hazards, such as level changes or glass partitions?	
9	Are caution/warning tapes placed around temporary structures to prevent tripping?	
10	Are striped patterns avoided to prevent them from being mistaken for steps?	
11	For competitive wheelchair sports, do the floor finishes comply with sports-specific access requirements?	

S. No.	Special Assistance	Remarks
1	Are wheelchairs and mobility aids available upon request, and is accessible overnight accommodation provided if needed?	
2	Are trained staff available for guided assistance, along with digital or Braille event materials?	
3	Are sign language interpreters, captioning services, and visual alerts provided for important announcements?	
4	Are staff trained in effective communication strategies, and are easy-to-read materials available?	
5	is security screening conducted sensitively, allowing individuals to keep their devices on, and is proper storage provided when needed?	
6	Have all staff members undergone sensitization training to provide respectful and effective support for individuals with disabilities?	

S. No.	Additional Facilities	Remarks
1	**Calming Rooms**	
a	Is the calming or silent room designed to support neurodivergent individuals and prevent overstimulation?	
b	Does the space provide a safe and serene environment with minimal external noise?	
c	Are interactive sensory tools available, such as tactile walls, sensory toys, and weighted blankets?	
d	Are there comfortable seating options that cater to different sensory and physical needs?	
e	Is the room designed to be accessible for individuals with impaired mobility and visual impairments?	
f	Is the location of the calming room near seating areas to ensure users can manage sensory needs without missing the event?	
g	Are staff trained to assist individuals using the calming or silent room?	
2	**SARA (Service Animal/Pet Relief Area)**	
a	Is the relief area easily accessible and connected to an accessible pathway?	
b	Is the location within a 15-minute distance from the main activity area?	
c	Is the space large enough to accommodate a person using a wheelchair while handling a service animal on a 1.8-meter leash?	
d	Does the relief area have dual flooring surfaces—a hard surface for handlers and a soft surface (gravel, mulch, or artificial turf) for animals?	
e	Is there a separate faucet available for cleaning?	
f	Are pheromone-scented surfaces used to encourage animal use while avoiding strong disinfectant odors?	
g	Are additional amenities like a three-dimensional object (fake hydrant or rock) provided to encourage male dogs to urinate?	
h	Are waste disposal facilities, including waste bags and receptacles, available and conveniently located?	
3	**Gymnasium**	
a	Is there a minimum aisle width of 1200 mm for easy navigation?	
b	Is there a turning space of at least 1500 mm at the ends of the gym area?	
c	Is a clear space of 900 mm × 1200 mm provided near each piece of equipment?	
d	Are the flooring surfaces stable, firm, and slip-resistant?	
e	Are contrasting colors and tactile cues used to assist visually impaired users?	
f	Are exercise machines and equipment designed with adjustable heights to accommodate diverse users, including wheelchair users?	
g	Are safe transfer options available for individuals moving from wheelchairs to exercise machines?	
h	Are staff members trained to assist individuals with disabilities?	
i	Is there an accessible changing room and toilet facility nearby?	

<table>
<tr><th>S. No.</th><th>Wayfinding & Signage</th><th>Remarks</th></tr>
<tr><td>1</td><td>Is there accessible directional signage on the approach road?</td><td></td></tr>
<tr><td>2</td><td>Can the directional signage be viewed from a distance?</td><td></td></tr>
<tr><td>3</td><td>Is signage strategically placed at the main entrance to assist visitors throughout their visit?</td><td></td></tr>
<tr><td>4</td><td>Are there signs in three languages (English, Hindi & Local)?</td><td></td></tr>
<tr><td>5</td><td>Are universally recognized symbols used alongside text to assist individuals with disabilities or language barriers?</td><td></td></tr>
<tr><td>6</td><td>Are signs placed at appropriate heights (e.g., wall-mounted signs at 900–1800 mm, overhead signs at ≥2300 mm) for all users?</td><td></td></tr>
<tr><td>7</td><td>Do signs comply with standardized width, letter height, and viewing distance recommendations?

Table 5.5 Size of signage
<table><tr><th>VIEWING DISTANCE</th><th>SIZE OF SIGNAGE</th></tr><tr><td>Up to 7 meters</td><td>60 mm x 60 mm</td></tr><tr><td>7 meters = 8 meters</td><td>100 mm x 100 mm</td></tr><tr><td>Exceeding 8 meters</td><td>200 mm x 200 mm to 450 mm x 450 mm</td></tr></table>
Table 5.6 Viewing distance and height of letters
<table><tr><th>VIEWING DISTANCE</th><th>HEIGHT OF LETTERS</th></tr><tr><td>2-3 meters</td><td>15 mm</td></tr><tr><td>6 meters</td><td>20 mm</td></tr><tr><td>8 meters</td><td>25 mm</td></tr><tr><td>12 meters</td><td>40 mm</td></tr><tr><td>15 meters</td><td>50 mm</td></tr><tr><td>25 meters</td><td>80 mm</td></tr><tr><td>35 meters</td><td>100 mm</td></tr><tr><td>40 meters</td><td>130 mm</td></tr><tr><td>50 meters</td><td>150 mm</td></tr></table></td><td></td></tr>
<tr><td>8</td><td>Does the signage have clear contrast for accessibility, such as backlit and color-contrasting features?</td><td></td></tr>
<tr><td>9</td><td>Are there audible or tactile directional cues for visually impaired visitors?</td><td></td></tr>
<tr><td>10</td><td>Are emergency assembly points clearly marked with accessible signage?</td><td></td></tr>
<tr><td>11</td><td>Is uniform lighting of 100–300 lux provided, with at least 200 lux for directional signs, maps, and panels?</td><td></td></tr>
<tr><td>12</td><td>Are non-reflective, matte-finish materials like wood, acrylic, or ACP used to minimize glare and enhance durability?</td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

S. No.	Evacuation Protocol	Remarks
1	Are evacuation plans clearly displayed at 1200 mm height and available in Braille and tactile formats?	
2	Are at least 30% of exit routes accessible, with 1500 mm wide stairways and photo-luminescent signage?	
3	Do designated refuge areas have fire-resistant barriers, two-way communication, and separate ventilation?	
4	Is emergency signage illuminated, raised, and equipped with Braille and directional guidance?	
5	Are voice alarms, flashing beacons, and synchronized visual signals available for individuals with visual and hearing impairments?  Image 7.2 LED Beacon Image 7.3 Fire Alarm Bell   Image 7.4 Fire Alarm	
6	Are induction loops, infrared, and radio systems integrated for effective emergency communication?  Induction Loop Setup (Reference - https://www.maiorcom.fr/en/induction-loop-  Signage for Induction Loop	
7	Is an evacuation wheelchair available for safe stairway evacuation?	

S. No.	Event Planning and Implementation	Remarks
1	Have accessibility audits been conducted before and after implementation to ensure compliance with standards?	
2	Is there any assistive device repair shop available?	
3	Does the shop maintain at least 1200 mm aisle space, 1500 mm manoeuvring areas, and dual-height counters for accessibility?	
4	Are podiums accessible? Are 1:12 gradient ramps or level platforms (max height 300 mm) available for wheelchair access and an unobstructed view? 	
5	Are designated spaces with ramps and handrails provided for wheelchair users, including in temporary event setups like cross-country routes?	
6	Does the event's website comply with WCAG guidelines for inclusive digital access?	

Notes

Disclaimer

This handbook has been compiled by Svayam to serve as a reference for promoting accessible sports infrastructure. While it draws from national and international standards and best practices, it is not a substitute for official codes, legal requirements, or professional consultation.

Users are advised to refer to the latest regulations and consult qualified experts before applying any recommendations. Svayam is not liable for any loss, damage, or consequences arising from the use of this publication. References to third-party resources do not imply endorsement.

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