

# ACCESS AUDIT REPORT

# VIGYAN BHAWAN

23<sup>rd</sup> September 2009

by



**National Centre for Accessible Environments**

A project of Samarthyam Trust (Regd. No. 35922)

B-181, Mansarovar Garden, New Delhi-110015

Telefax: +91-11-41019389 (M) 9810558321

Email: [samarthyaindia@yahoo.com](mailto:samarthyaindia@yahoo.com)

Web site: [www.samarthyam.org](http://www.samarthyam.org)

## Introduction

'The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995' requires that persons with disabilities (PwDs) and the elderly be provided a barrier free environment. The Group of Ministers (GoM) on Equal Opportunities for the Differently-abled Persons has also recommended that "Central Government should act as a role model in creating barrier-free environment in its buildings."

Ministry of Urban Development (MoUD) being the nodal Ministry, is taking necessary steps for implementing the activities entrusted under the Act of 1995 and by the GoM. Recently, an Action Plan for promotion of barrier-free environment in Government buildings was prepared and circulated. As part of the plan to make the buildings of Central Government barrier-free, MoUD engaged SAMARTHYAM, National Centre for Accessible Environments to carry out access audit of the buildings.

Vigyan Bhawan, India's premiere Conference Centre is located at the Maulana Azad Road. Built in 1956, it has been the venue for many historically noteworthy conferences and summits, such as CHOGM, NAM and the Seven-Nation Summit, attended by distinguished world leaders and dignitaries. It has caucus facilities, which include computer controlled conference systems with concurrent interpretation system up to eight languages. Local Area Network with video recording and large screen video projections are also other facilities available for day-to-day conferences. Several other halls provide the requisite seating for parallel sessions, workshops and discussion forums. It is hoped that accessible Vigyan Bhawan, will become a showcase for all and provide great impetus to accessibility in the built environment in India.

**SAMARTHYAM** Access Resource Group greatly appreciates Shri A. K. Mehta, Joint Secretary (UD) and Shri Ashutosh Joshi, Director (UD) for their initiative.

## Access Audit


- The objective of the access audit is to assess the existing facilities and provide suggestions for further improvement. It may be pertinent to mention that access audit is not a fault finding exercise.
- Access Audit team comprises trained access auditors from diverse disabilities and professionals.
- The team visits the site/services to identify & review the obstacles; prepare report with line illustrations, designs and sketches for effective implementation.

## Report Recommendations

- Access audit report is prepared by the Access Resource Group of SAMARTHYAM following familiarization; preliminary survey, detailed Access Audit of Vigyan Bhawan and follow up Access Audit conducted on 23<sup>rd</sup> September 2009.
- The aim of this report is to highlight access initiatives undertaken in the preliminary surveys, along with recommendations for areas which need immediate attention i.e. existing barriers in the periphery of the complex and to illustrate ways of making it more accessible.
- The report attempts to cover the access needs of visitors and employees with reduced mobility including the elderly, pregnant women, persons with temporary impairments and persons with disabilities.
- The recommendations of the access audit are based on ground realities and provide cost effective solutions.
- A list of companies/vendors supplying accessible accessories is also given in the report.

<b>Access Audit of the following areas was conducted:</b>	
1. Approach & Entrance Gate	9. General circulation area
2. Pathways	10. Reception
3. Way Finding Signage	11. Plenary Hall
4. Parking	12. Public Telephone
5. Building Signage	13. Dining Hall
6. Building Entrance	14. Drinking water facility
7. Ramp	15. Toilets
8. Stairs	16. Emergency Evacuation

All dimensions are in millimeters.

 All recommendations are marked by this bullet point.

## EXTERNAL

### APPROACH

Persons alighting from vehicles (Bus etc.) or parking their vehicles in the parking lot (Meena Bagh side) opposite the Vigyan Bhawan are exposed to moving vehicular traffic during road crossing. There is no protection for pedestrians including the vulnerable group such as elderly, persons with reduced mobility and persons with disabilities.

- ✚ Traffic lights should be provided with clearly audible signals to facilitate safe and independent crossing of pedestrians with low vision and vision impairment.
- ✚ **Acoustic devices** (audio traffic signals) should be installed at the point of origin of crossing and not at the point of destination.



### ENTRANCE GATE

It was observed that there are separate gates for vehicular and pedestrian movement.



- ✚ Separate gates benefit pedestrians including the vulnerable group such as elderly, persons with reduced mobility and persons with disabilities.
- ✚ Wheelchairs may be provided on request for visitors with reduced mobility.

### PATHWAYS



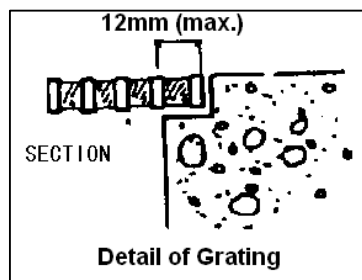
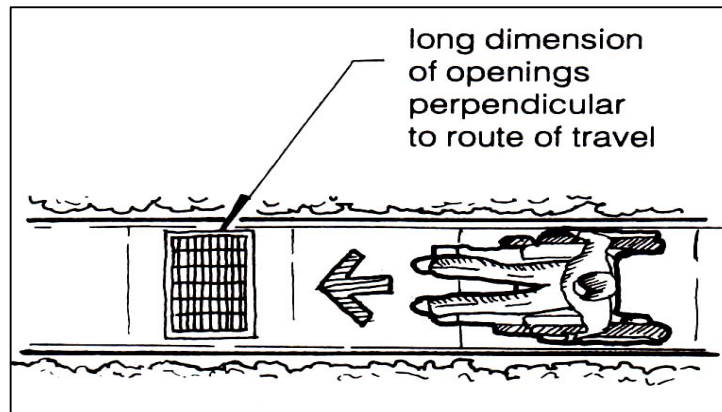
- ✚ Tactile Guiding tiles (refer Annexure IV for engineering configuration) are proposed for persons with low vision and vision impairment, leading from main gates and the internal interconnecting gate for Annexure.
- ✚ The guiding path should lead to important amenities/facilities such as ramps to building entrances and clearly avoid vehicle movement areas. This benefits everyone including persons with disabilities.

**Gratings** trapped the front wheels of the wheelchair and white cane of persons with vision impairment. Other barriers such as uneven surface and gaps pose a trip hazard for persons with vision impairment and thereby restrict safe movement.

- ✚ Periodic general maintenance of pathways to be ensured.
- ✚ Gratings should not be wider than 12mm and should be placed outside the line of travel. However where un-avoidable, strip of net/mesh to be securely fixed on to the existing gratings. Same can be removed while cleaning /maintaining the drainage.



- ✚ Gratings may also be placed perpendicular to the movement of travel as illustrated.





## WAY FINDING SIGNAGES

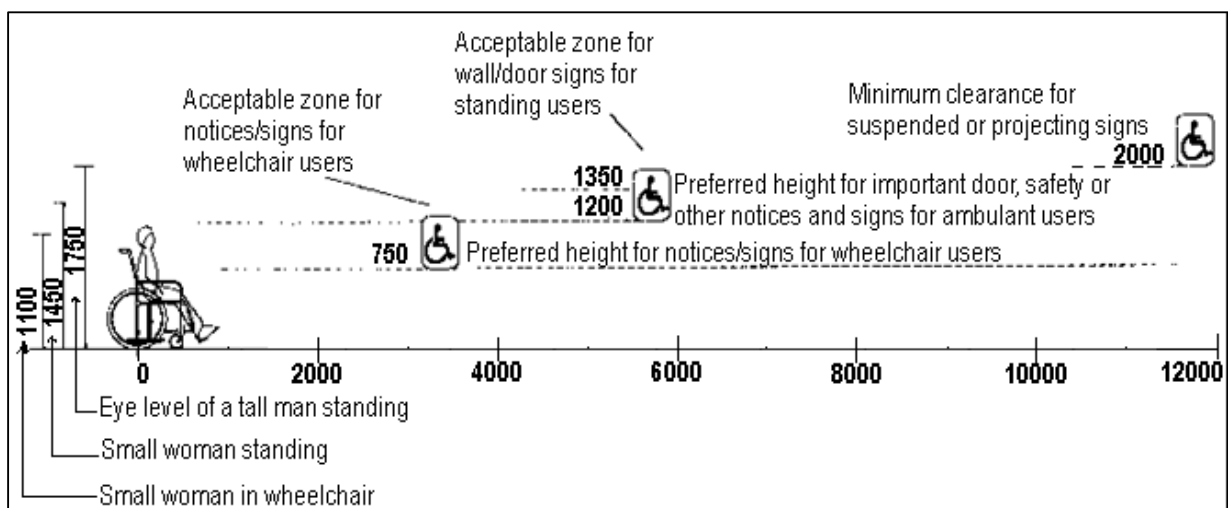
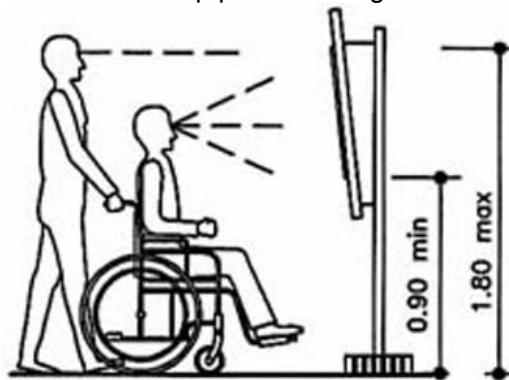
Directional signs have been provided at the turning from main road. However, there are no route map and/or directional signboard for Gate nos. etc. upon entering.



- Directional signs are proposed for the benefit of visitors specially those coming for the first time.

### Recommendations for Positioning of Information Signs

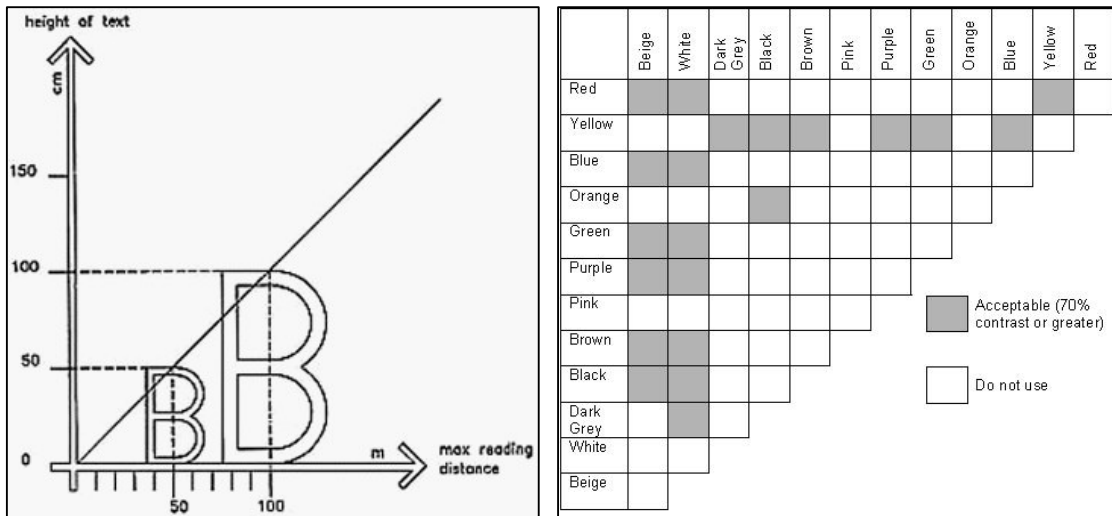
- The standard height for the installation of signs (height from road surface to bottom edge of sign) to be 1.8m. The height for the installation of signs showing important places may be reduced to a minimum 1.0m if necessary, provided this does not obstruct the passage of pedestrians, etc.
- When installing signs on sidewalks, on roads that have sidewalks, the distance between the sign and the sidewalk/carriageway boundary to be at least 250mm.
- Whenever possible signs should be placed at eye level. Large signs or signs that cannot be placed at eye level should be slightly inclined so that the top part of the sign becomes easier to read.



**a) Font and size of letters**

The size of letters shall be selected in accordance with viewing distance, taking account of the diminished eyesight of the aged.

- Be clear with Sans serif typeface
- Be in lower and upper case and left justified
- Embossed with Braille and Braille locators- individual characters between 15mm-50mm tall, raised by 1-1.5mm
- Non glare - colour contrasted with their background
- Font sizes
  - Medium range signs – characters 70 – 100mm high
  - Close up directories characters 15 – 25mm high
- Signage Colour and Contrast Basic principles:
  - 70% contrast between wall and sign panel
  - Avoid shades of colours
  - Avoid using same colours as safety signs

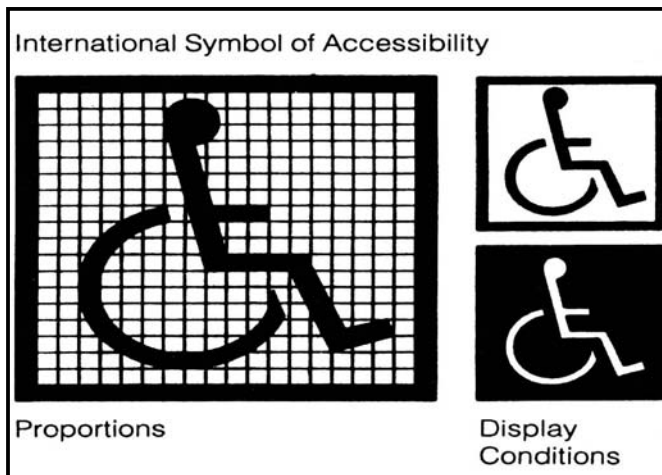


**b) Information in Hindi and English**

Principle names to also be indicated in Hindi and in English.

**c) Color**

- Displays related to barrier-free facilities and routes to be simple and easy to distinguish.
- All signages displaying facilities for “Disabled Person” to have a uniform colour (preferably blue and white).



## Information for the visually impaired

Information signs should include devices for providing information to persons with impaired vision, using Braille, audible devices, or other means.

- Entrances to have an information signage with Tactile Map (3D) for the benefit of persons with low vision and vision impairment.
- Tactile Map should also have Braille Information Plate (in steel or aluminum) giving information of all the amenities/utilities.

Example of Tactile Map



## GENERAL PARKING

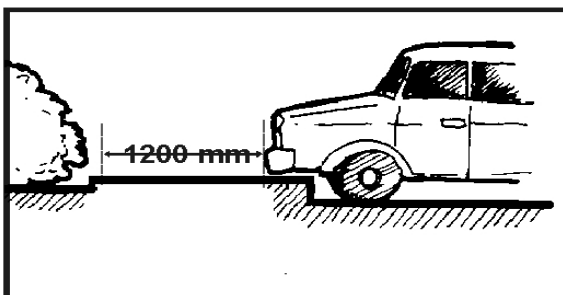
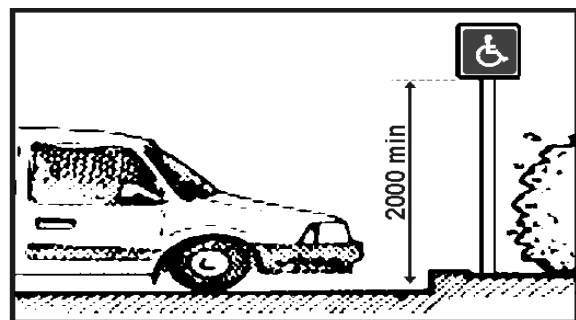
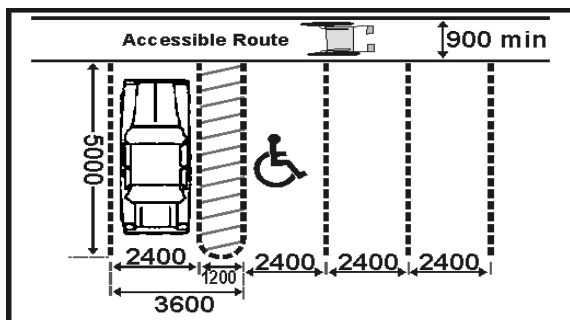
Demarcated parking lots have been provided inside Vigyan Bhawan. However, haphazard vehicle parking on the pathways obstructs right of way and safe movement of everyone including persons with disabilities.

- Parking area to be clearly specified with directional signage.
- Parking to be prohibited on pathways and enforceable to the demarcated areas.

## RESERVED PARKING

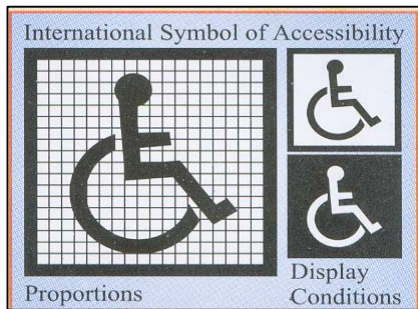
Reserved parking has not been provided for staff/visitors with mobility impairments driving their own vehicles.

- Parking should be within 30 meters of the entrance to the building.
- Accessible parking lots with overall minimum dimension 3600mm x 5000mm, should be provided.
- Wheel stoppers to be provided to avoid vehicles to occupy space on the pedestrian pathway.
- Approach to the parking to be maintained.
- All security guards/staff should be sensitized and well informed about these reserved parking for Persons with Disabilities (PwDs).



The minimum number of accessible spaces as per standards is as given below:

Total number of parking spaces in open car parks or car park buildings:	Required minimum number of accessible spaces:
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7



## DROP OFF ZONE- STOPPING SPACES FOR THE DISABLED PERSONS

Drop off zones are proposed for persons with disabilities who are driven to Vigyan Bhawan.

### (1) Installation

Stopping spaces for the disabled (“disabled stopping spaces”), in which vehicles occupied by the disabled may temporarily stop and the disabled may have safe and easy access to and from vehicles, shall be installed at vehicle entrances and exits.

### (2) Position of installation

Stopping spaces for the disabled shall be positioned as close as possible to pedestrian exits leading outside the car park or the entrances to premises.

When there are several exits in large-scale car parks, the access distance shall be made as short as possible (such as by arranging exits in dispersed fashion).

In addition, care shall be taken to secure safe pedestrian passages with minimal crossings of vehicle routes between pedestrian exits and stopping spaces.

### (3) Size, structure

At least 1.5m of space for access to and from vehicles shall be provided at both the side and the rear of vehicle spaces.

The floor surface should be made as horizontal as possible.

The width, depth and height of vehicle spaces should be designed to accommodate large-bodied vehicles for the disabled.

### (4) Information signs

Signs, painted markings or others shall be provided to indicate stopping spaces for disabled.

Signs shall indicate that the spaces are for temporary stopping by the disabled, by displaying the access symbol.

Painted markings shall show the access symbol on the surface of the vehicle space.





- ✚ The availability of disabled stopping spaces should be indicated at the entrance to the car park.
- ✚ On the route from the entrance to the disabled stopping spaces, signs or others should indicate the existence of stopping spaces by the access symbol if necessary, to guide users to the disabled stopping spaces.
- ✚ These signs should be positioned so that they can be seen even if cars have stopped in the vicinity, and shall be large enough to be identified from the driver's seat.

## BUILDING ENTRANCES & SIGNAGE

Signage for gate entrances has either not been provided or is not at eye level.

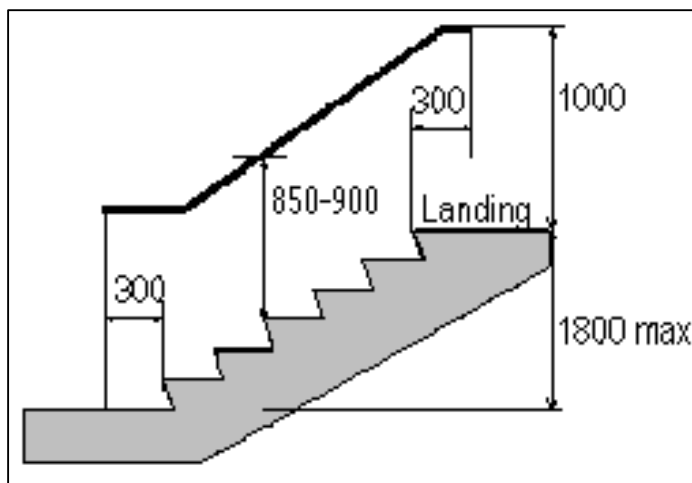
- ✚ Information signs are proposed at all entrances.
- ✚ Refer recommendations for positioning of information signs on page no. 5 & 6.
- ✚ Consistency in placement, colour and font size of signage to be maintained.

## EAST GATE

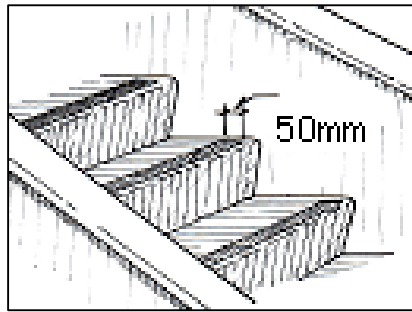
This entrance is demarcated for general public entry. Steps do not have handrail making it difficult for persons using mobility aids such as sticks and crutches, who prefer to use steps.



- ✚ Handrails on both the sides of the steps to be provided, at two levels, for balance and support for persons with reduced mobility.
- ✚ Handrails to extend by at least 300mm beyond the head and foot of the flight in the line of travel and grouted in the ground (refer illustration).
- ✚ Refer Annexure II for steps and Annexure III for handrail height and diameter standards.



- ✚ Step edges (50mm minimum) should have bright contrasting colors, which helps persons with low vision to identify height and depth of each step (as illustrated). Alternatively the risers can also be painted in contrast colours.



- ✚ Warning strip (Annexure IV) to be provided 300mm before and after the steps, so that a person with vision impairment does not accidentally trip.
- ✚ Security personnel to be sensitized to inform persons using mobility aids such as wheelchair to use the ramp at West Gate or South Plaza Gate.
- ✚ Signage for ramp, with directional arrow for West Gate or South Plaza Gate to be provided.

## WEST GATE

This entrance is demarcated for VVIP entry.

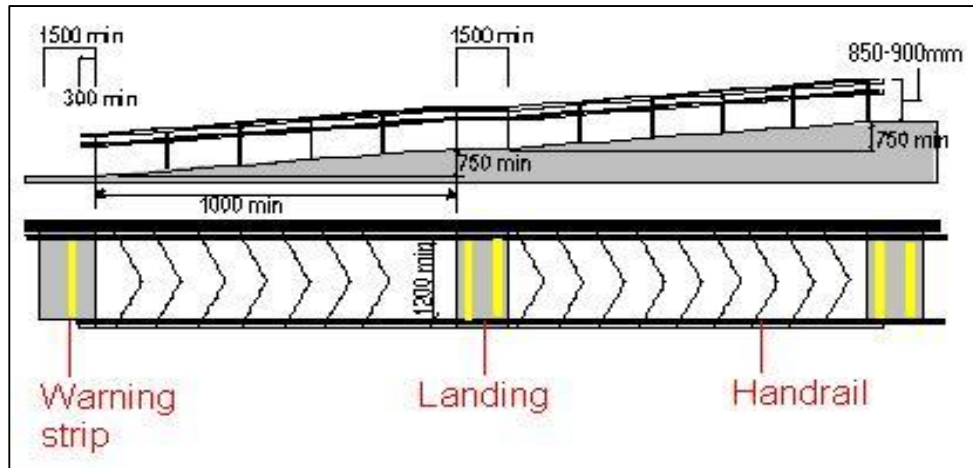


- ✚ Refer recommendations on page 9 for placement of handrails on steps, warning strip before and after steps and contrasting step edges.

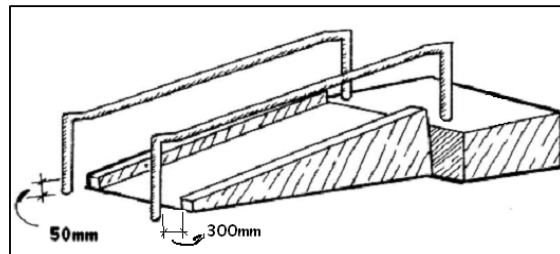
The plinth height is 600mm. An inward cut ramp which maintains the symmetry of the plinth is proposed.



**Mockup of proposed ramp**



- ✚ Ramp with 1:12 gradient minimum and handrail on both sides to be provided (as illustrated above).
- ✚ Warning strip (Annexure IV) to be provided 300mm before and after the ramp, so that a person with vision impairment does not accidentally trip.



- ✚ Handrails to extend by at least 300mm beyond the head and foot of the ramp in the line of travel and grouted in the ground (refer illustration).
- ✚ Handrails to be painted in bright colours preferably yellow/red for easy identification by persons with low vision.
- ✚ Signage for ramp to be provided.
- ✚ Refer Annexure I and III for ramp and handrail standards.
- ✚ Ramp surface to be anti-slip/matt finish preferably flamed granite.

### GREEN ROOM (ENTRY NEAR WEST GATE)

The ramp is fairly accessible. However, handrails have not been provided on the ramp. Guard rail have also not been provided on landing.

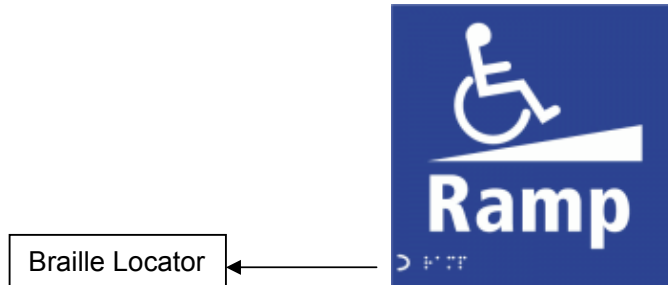


Existing ramp without handrails & guard rail



Proposed guard rail for landing

- ✚ Handrails on both the sides of the ramp to be provided. Refer Annexure III for handrail standards.
- ✚ For preserving the aesthetics and blending with surroundings, a guard rail made of Agra stone (*jali* as shown) is proposed for landing of the ramp.
- ✚ Warning strip (Annexure IV) to be provided 300mm before and after the ramp edges, so that a person with vision impairment does not accidentally trip.
- ✚ An overhead shelter is also proposed over the ramps, for protection during adverse weather conditions.
- ✚ Signage for ramp to be provided. The signage given below is also in Braille.



Earthing strip is not securely fixed on the ramp surface and is a trip hazard.



- ✚ The strip to be secured/embedded properly, benefitting everyone.

### ENTRANCE (SOUTH PLAZA)

There is a good combination of steps and ramp. However, handrails have not been provided for steps and ramp and the ramp gradient is steep (approx.1:8).



**Existing steps**



**Existing ramp**



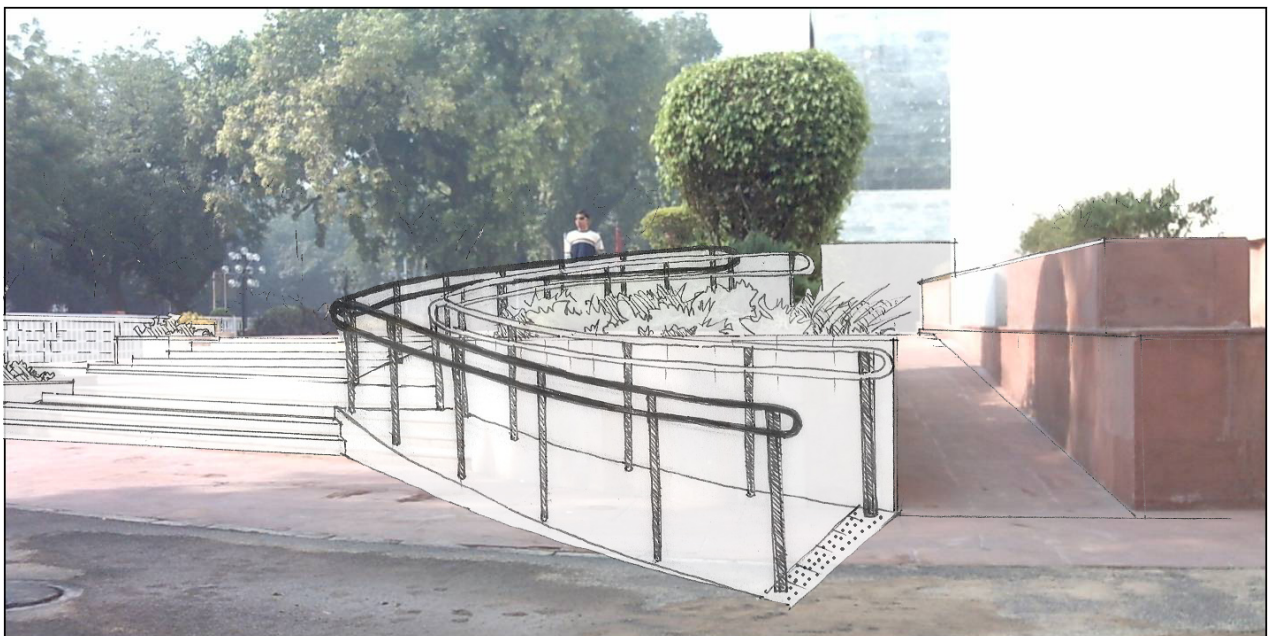
Signage for ramp has been provided. However it is obscured by tree branches.



- ✚ Regular pruning of overgrowth to be undertaken to provide optimum signage visibility.

### PROVISION OF CIRCULAR RAMP FOR SOUTH PLAZA

- ✚ Circular ramp to be provided (as illustrated) so as to provide 1:12 minimum gradient.
- ✚ Handrail on both sides of ramp and steps to be provided (refer Annexure III).
- ✚ Handrails to extend by at least 300mm beyond the head and foot of the ramp and steps in the line of travel and grouted in the ground.
- ✚ Handrails to be painted in bright colours preferably yellow/red for easy identification by persons with low vision.



- ✚ Warning strip (Annexure IV) to be provided 300mm before and after the ramp and step edges, so that a person with vision impairment does not accidentally trip.
- ✚ Step edges (50mm minimum) should have bright contrasting colors, which helps persons with low vision to identify height and depth of each step (as illustrated on page 10).

## RECEPTION (INFORMATION & REGISTRATION)

The existing counter height is 1000mm. Signages are placed quite high.



- ✚ A portion of the counter to be lowered down to 800mm (as illustrated).



**EXISTING**



**PROPOSED**

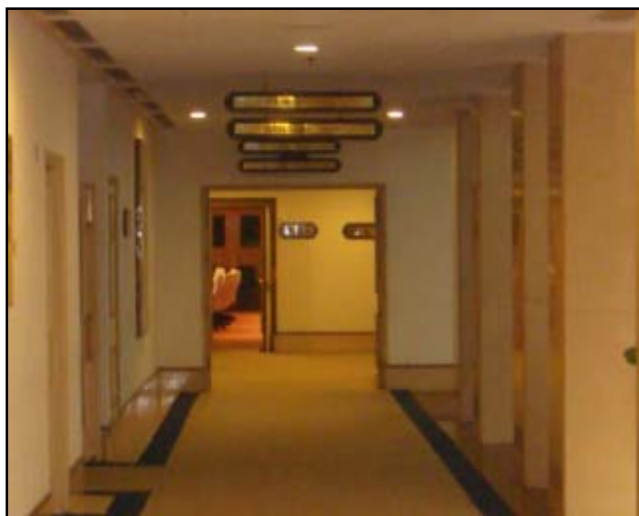
- ✚ Staff manning the counters should know sign language.
- ✚ Signage in big fonts to be placed at eye level.



- ✚ Signage with Braille markings (as illustrated) to be displayed to assist persons with diverse disabilities.

## INTERNAL WAY FINDING & INFORMATION SIGNAGE

Directional signages are difficult to read due to small font size, colour combination and inadequate illumination.



- ✚ Signage having big fonts, colour contrast and well illuminated benefit everyone particularly persons with low vision.
- ✚ Refer standards for font size, colour combinations on page 5 & 6.

## TELEPHONE FACILITY

The telephone facility near dining hall was audited. Handset height could not be ascertained as telephones had not been provided.



### Recommendations for an accessible telephone counter:

- ✚ Maximum height of the operable part of a telephone: 1200mm.
- ✚ Maximum height of a telephone (knee space for wheelchair user): 650mm-680mm.
- ✚ Minimum floor/ground space: 1200 mm x 800mm.
- ✚ Signage (including accessible telephone facility as illustrated) to be placed at eye level.



## DINING HALL

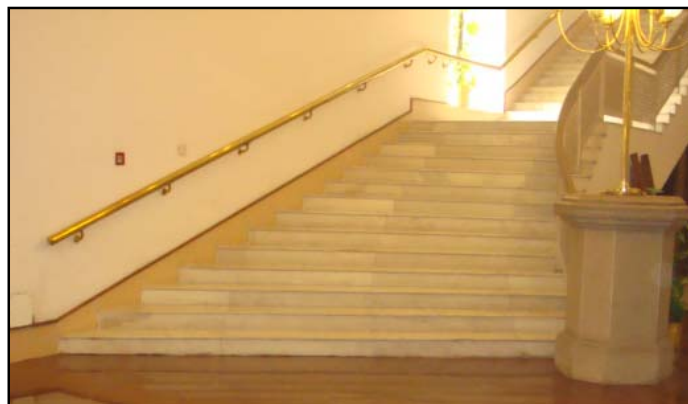
Hall and serving table counter height is fairly accessible.  
Flooring is slippery.



- ✚ Flooring to be anti skid/matt finish which benefits everyone.

## STAIRS

Handrail has been provided on both sides of the staircase and also at landings. However, handrail does not extend beyond the first step and has open ends.

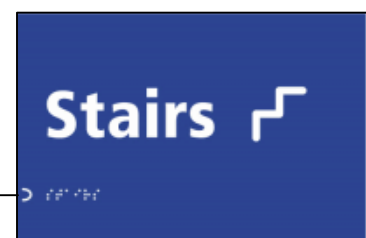


- ✚ Handrail to extend by at least 300mm beyond the head and foot of the flight in the line of travel and grouted in the ground.
- ✚ Handrails can also be provided with Braille plates containing information of amenities/facilities/route information etc. for the benefit of persons with vision impairment.
- ✚ Refer Annexure III for handrail standards.
- ✚ Directional signage with Braille markings to be provided as illustrated.



Braille Locator

Braille Plate

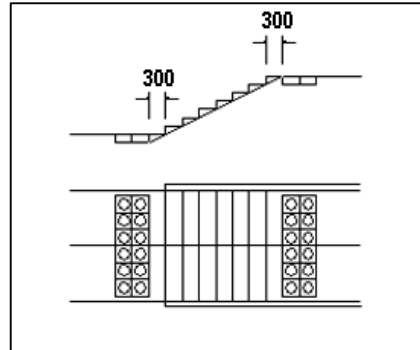
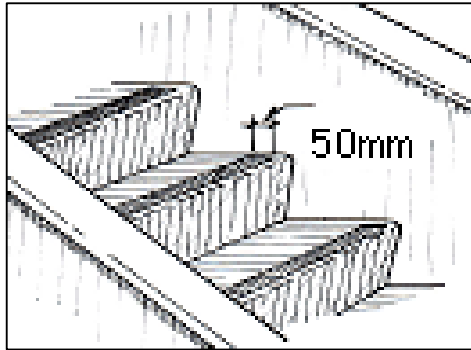




- ✚ Nosing to be avoided, as it creates difficulty for persons who drag their feet while climbing.
- ✚ Sloping risers are recommended in all new constructions.

Differentiation of height and depth of steps is not possible by persons with low vision.

- ✚ Step edges (50mm minimum) should have bright contrasting colors, which helps persons with low vision to identify height and depth of each step.
- ✚ Warning strip (Annexure IV) to be provided 300mm before and after the step edges, so that a person with vision impairment does not trip accidentally.



## PLENARY HALL



- ✚ Metal signages should be avoided as it produce glare.
- ✚ Signs should be mounted between 1400mm and 1600mm from floor level on the wall (preferably on latch/handle side of door).
- ✚ The individual characters to be between 15mm-50mm tall and raised by 1-1.5mm.
- ✚ Signage for the Hall to be in Braille & raised alphabets, bold & color contrasted with their background.

Seating (first row, corner seats) for persons using wheelchair is fairly accessible.



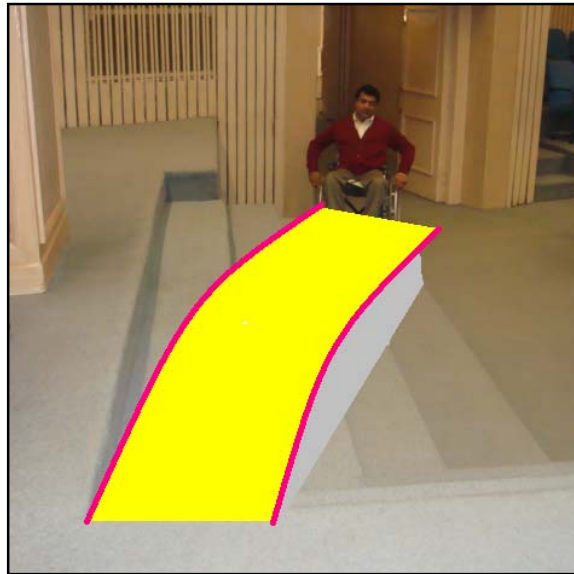
## ACCESS TO DAIS

The dais floor is 1050mm above the hall floor level. Several options such as provision of ramp and platform lift were discussed with the accompanying engineering staff.

In view of the space constraint and to maintain the aesthetics and ambience, the following are proposed:

### RAMP

- A permanent ramp (wooden structure) width 900mm to be provided over the steps.
- The ramp shall follow a curve, thereby avoiding relocation/shifting the lectern (as illustrated).
- Similar carpeting to be provided on the ramp surface and sides.
- Edge protection (colored red in illustration) on both sides to be provided, in lieu of handrails.



**Proposed ramp**

### PLATFORM LIFT

- A hydraulic/manual platform lift with toughened glass edges can be provided, that blends with the aesthetics of the hall. Matching carpet should be laid down on the flooring of the lift.

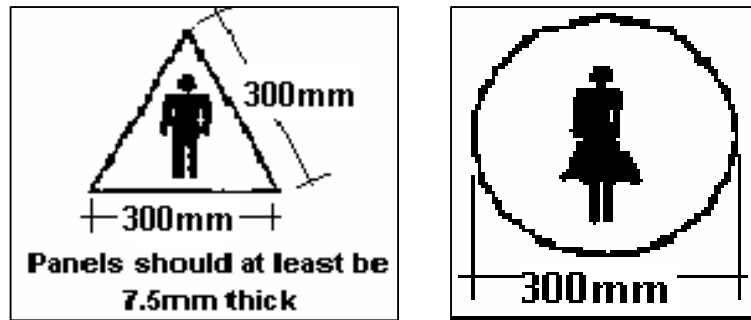
✚ Induction Loop Unit (refer page 21) and digitized display (speech to text conversion) are recommended for benefit of persons with hearing impairment.

### GENERAL TOILETS

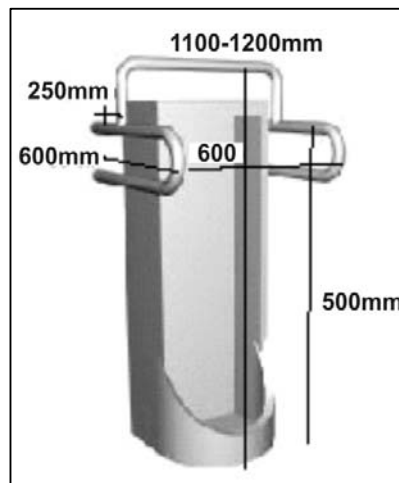
Due to space constraint in the toilets at E2 Gate (near Kitchen) an accessible toilet cannot be provided.



- ✚ Refer page 5 & 6 for directional signage standards.
- ✚ For visitors/employees with low vision and vision impairments pictogram (male in triangle and female in circle), marked on plates along with Braille & raised alphabets, to be mounted on wall next to door at a height between 1400mm-1600mm.



- ✚ Warning strip/door mat to be provided 300mm before the toilet entrance.
- ✚ At least one of the urinals in the **Gents toilet** should have grab bars; installed on each side and in the front of the urinal to support ambulant persons with disabilities (for example, crutch users).
- ✚ The front bar is to provide chest support; the sidebars are for the user to hold on to while standing.
- ✚ A clear floor space 760mm by 1220mm should be provided in front of urinals to allow forward approach.
- ✚ Refer Annexure VIII for urinal standards.



#### LADIES AND GENTS TOILET (NEAR THE EAST GATE)



#### Existing gents & ladies toilet signage

- ✚ Refer above illustrations and Annexure VII for installation of pictogram (male in triangle and female in circle), along with Braille & raised alphabets, for the benefit of the persons with vision impairment.

## PROVISION OF AN ACCESSIBLE MULTIUSE TOILET

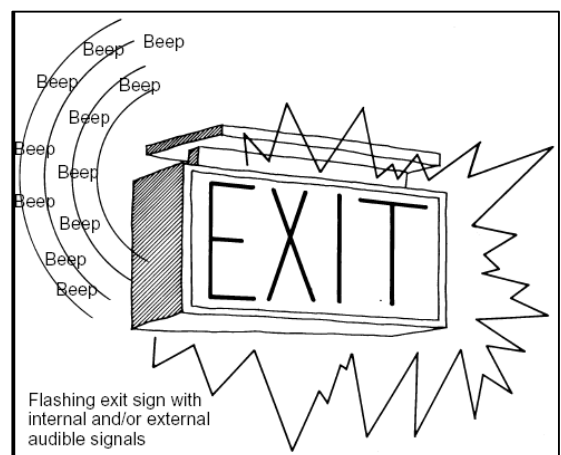


**Space identified for accessible multiuse toilet**

- ✚ An accessible multiuse toilet in the ladies and Gents toilet (near the East gate) is proposed in the empty space immediately upon entering the toilet. Existing space 2280mm x 2280 mm is adequate for this purpose. Refer Annexure VI for accessible toilet standards and signage.
- ✚ The existing entrance door will serve for entering the accessible multiuse toilet and the second door is proposed to be permanently covered. Refer Annexure V for door width and hardware.
- ✚ A new adjoining entrance door is to be provided for the general toilet.
- ✚ Directional signage informing accessible multiuse toilet near East Gate to be included in internal way finding signage and also placed near other general toilets.

## EMERGENCY EVACUATION

- ✚ Emergency alarm both audio (hooter type) and visual (flashing bulb) to be provided on each floor/level at strategic locations.
- ✚ Employees/staff and security guards, need to be drilled for the same at periodic intervals.
- ✚ An access sensitization/ awareness training to be given to security guards and staff handling/transferring persons with disabilities to refuge area during emergency.





## GENERAL REMARKS

- ✚ Adequate and well distributed lighting should be installed. Glare from excessively bright lights should be avoided.
- ✚ Internal lighting should provide a level of illumination of minimum 100 lux (approximately 50-75 lux at floor level), uniformly distributed, avoiding the use of spotlights or down lighters wherever possible.
- ✚ Anti-skid/matt finish flooring to be provided. Alternatively a PVC mat may be placed in the high use areas.
- ✚ **It is proposed that bilingual printed access guides be provided at reception area with mapping of accessible routes and facilities.**

## ACCESS AUDIT REPORT PREPARED BY

Access Resource Group, Samarthyam

## CONTACT PERSON

Ms. Anjlee Agarwal

(M) 9810558321

Email: samarthyaindia@yahoo.com

## VENDORS LIST

- **Tactile maps**
  - National Federation of the Blind (NFB), 2721, 2nd Floor, Chowk Sangtrashan, Paharganj, New Delhi - 55 Ph: 23562277, 23562546
  - National Association of the Blind (NAB), Sector-5, R.K. Puram, New Delhi-22 Ph: 26102944, 26175886
- **Signage, Braille plates and Grab bars**

Access Plus, B-175, Mansarovar Garden, New Delhi-110015 Ph: (M) 9811133547, 9711190806
- **Guiding/warning tactile tiles**
  - Pelican Ceramic Industries Pvt. Ltd., 410, Suneja Tower-1, District Centre, Janakpuri, New Delhi-58 Mr. Ashok K. Luthra (M) 9810545699 Ph: 25552097, 32482791, 32982791
  - Kensai Ceramics- Mr. Anil Sabharwal - 9810129062
  - Durato Brand available at all leading stores
- **Loop Induction System**

People with hearing impairments find it difficult to enjoy mass audio. In an enclosed entertainment venue, it is possible to enclose a small area with a Loop-Induction System so that people with hearing impairments within it can hear voices and sounds without ambient noise. A Loop-Induction System comprises of a microphone, an amplifier and a loop (a conducting wire encircling the enclosure). The sound of music or the voices of actors are converted into electromagnetic signals. The signals are carried to the loop. A pickup coil fitted in a hearing aid picks up the electromagnetic signals and the receiver in the ear converts this into comprehensible speech or music. Since the hearing aid does not pick up actual sound signals, it receives no ambient noise, ensuring good quality of sound

AYJ National Institute for the Hearing Handicapped, Kasturba Niketan, Lajpat Nagar-II, New Delhi-110024  
Mr. V.P. Sah (O) 011-29815093, (R) 95120-2611784
- **Toilet fittings**

Parryware- Conventina range of WC and washbasin  
Available at Parryware dealers
- **Platform Lift**

Callidai Motor Works, 28, Desika Road, Mylapore, Chennai - 600 004  
Ph : 044-24991609, Fax : 044-24995185, Email : bhargavsundaram@vsnl.com

**RAMP**

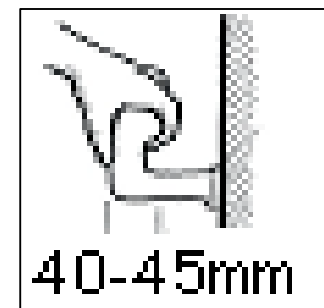
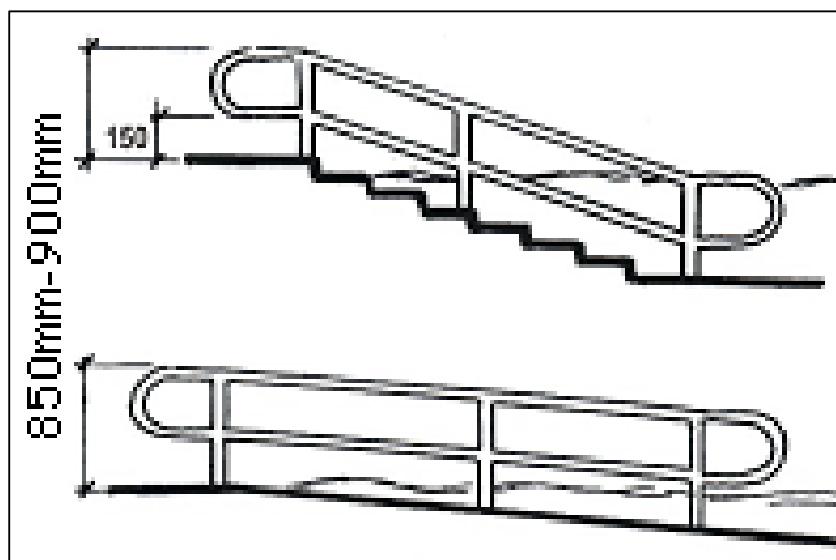
- ✚ **Indoor-** Gentle slope of 1:12 max.
- ✚ **Outdoor-** For first floor and above 1:15 or 1:20 gradient ramp is advised depending upon availability of space.
- ✚ Landings- every 750 mm of vertical rise clear space of 1500mm x 1500mm minimum.
- ✚ Ramp width to be 1200 mm or more.
- ✚ Handrails to be on both sides at a height of 850mm-900mm; both ends to be rounded and grouted and extend 300mm beyond top and bottom of ramp.
- ✚ Surfaces (ramp + landing) should be slip resistant.
- ✚ Strip of warning blocks should be placed 300mm before and after the ramp edges.

**Annexure II****STEPS & STAIRS**

- ✚ Have continuous handrails on both sides including the wall (if any) at 850mm – 900mm.
- ✚ Warning strip to be placed 300mm at the beginning and at the end of all stairs.
- ✚ Nosing to be avoided.
- ✚ There needs to be signage indicating the floor level on each floor. It is also desirable to have a directory of services available on each floor at the landing areas.
- ✚ It is desirable to use tactile features on the handrail to indicate the end of the rail and to give information for benefit to visually impaired people. (e.g. it is possible to indicate the floor level on each handrail by adopting the use of raised spots, where one spot indicates first floor, two spots indicate second floor etc.).

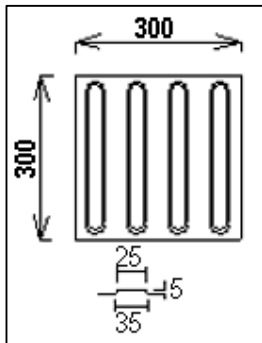
**Annexure III****HANDRAILS**

- ✚ Should be circular in section with a diameter of 40-45mm;
- ✚ At least 45mm clear of the surface to which they are attached;
- ✚ At the height of 850mm-900mm from the floor;
- ✚ Extend by at least 300mm beyond the head and foot of the flight and ramp in the line of travel and grouted in the ground.
- ✚ Should be in bright color contrast to the surroundings (preferably red/yellow).

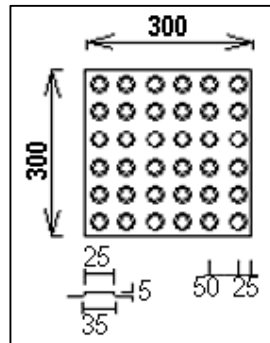


**Tactile Surfaces: Guiding strip & Warning blocks**

- Line-type blocks indicate the correct path/route to follow.
- Dot-type blocks provides warning signal, to screen off obstacles, drop-offs or other hazards, to discourage movement in an incorrect direction and to warn of a corner or junction. Should be placed 300mm at the beginning and end of the ramps, stairs and entrance to any door.



**Guiding path**

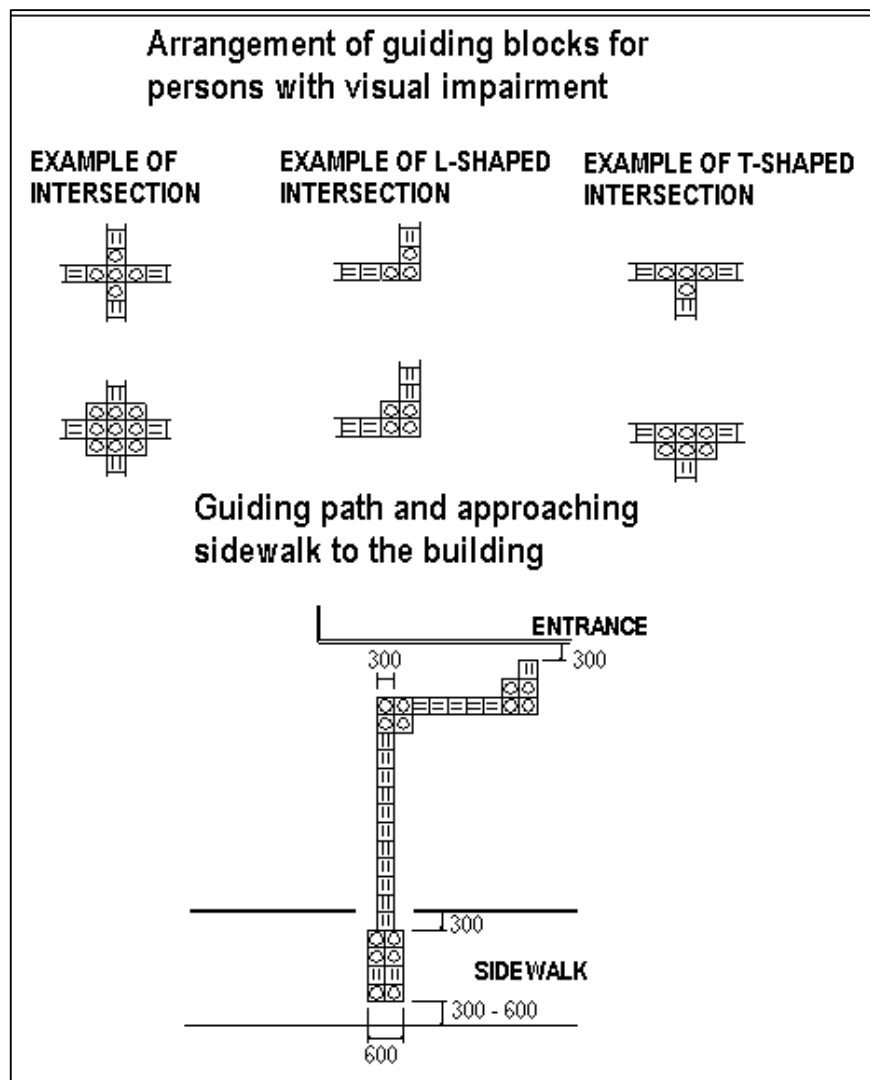


**Warning strip**



**Places to install guiding blocks:**

- In front of an area where traffic is present.
- In front of an entrance/exit.
- To and from a staircase or multi-level crossing facility.
- In open space to orient students with vision impairment.



## DOORS

- Should provide a clear opening of 900mm.
- Be fitted with a lever action locks and D-handles of circular section, between 850mm and 1100mm from floor level.
- Also be fitted with vision panels at least between 900mm and 1500mm from floor level.
- Be color contrasted with the surrounding wall and should not be heavier than 22N to open.
- Kick plates are recommended 300mm from the bottom, to resist wear and tear.

## Annexure VI

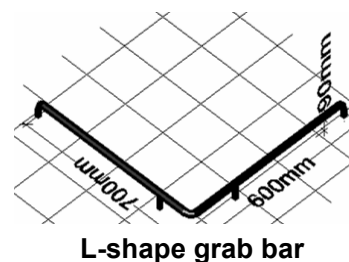
## ACCESSIBLE TOILET

A minimum of one toilet compartment should have enough floor space for wheelchair users to enter and exit.

- Clear floor space 2000mm x 1750mm.
- Provide a door of clear opening of at least 900mm with the door swing outwards or be folding or sliding type.
- Should have slip resistant flooring.
- Accessible toilet** should have a switch near the WC (one at 300mm and the other at 900mm from the floor level), which activates an emergency audio alarm (at the reception/attendants desk, etc.).
- Flooring to be anti-slip/matt finish.

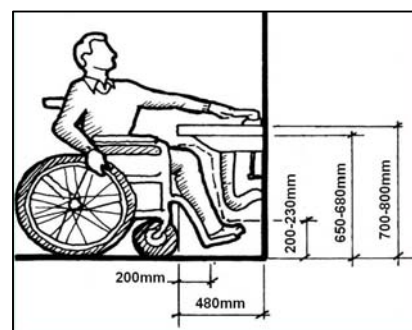
## WATER CLOSET (WC)

- Have clear space of not less than 900mm wide next to the water closet.
- Be located between 460mm to 480mm from the centerline of the WC to the adjacent wall and have a clear dimension of 800mm from the edge of the WC to the rear wall to facilitate side transfer.
- The top of the WC to be 475-490mm from the floor.
- Have a back support.
- Grab bars at the transfer side of the WC and the adjacent wall.
- On the transfer side of the WC- swing up type and on the wall side L-shape grab bars should be provided.

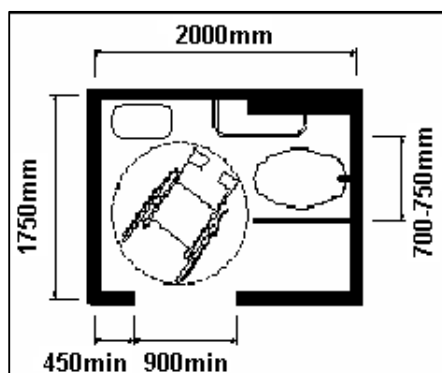


## WASHBASIN

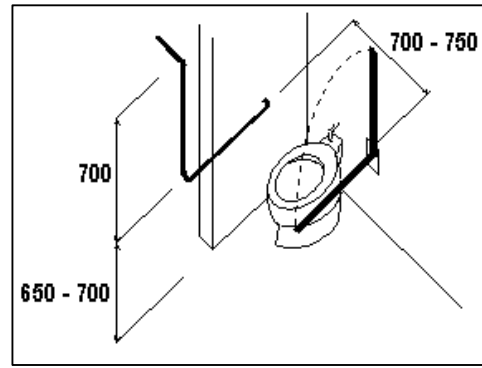
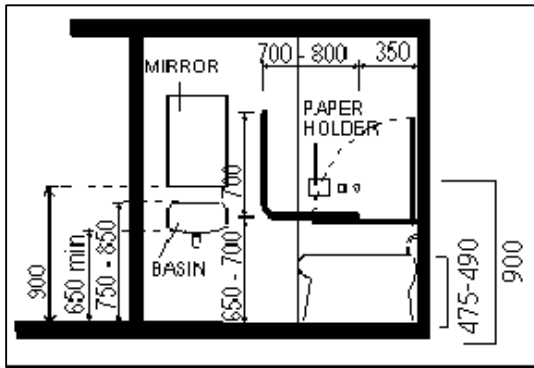
- With dimensions 520mm and 410mm, so mounted that the top edge is between 700mm-800mm from the floor; have a knee space of at least 760mm wide by 200mm deep by 650mm-680mm high.
- Lever type handles for taps are recommended.
- Mirror's bottom edge to be 900-1000mm from the floor and the mirror may be inclined at an angle.



## PLANS OF ACCESSIBLE TOILET



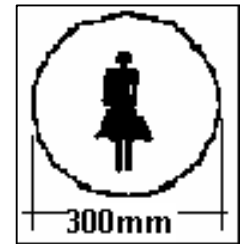
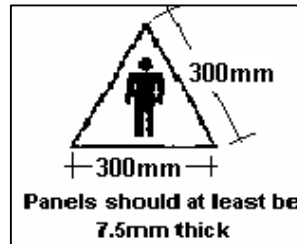




### Annexure VII

**GENERAL TOILETS** to have pictogram (male in triangle and female in circle), marked on plates along with Braille & raised alphabets, put on wall next to door, for the benefit of the persons with vision impairment.

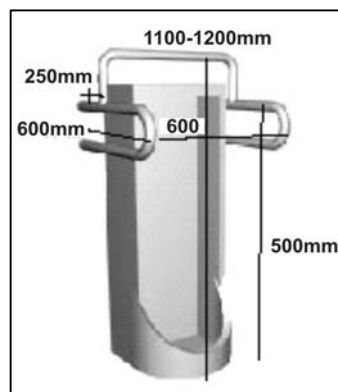
- For visitors/employees with low vision and vision impairments, following are proposed:
- Warning strip/ door mat 300mm before the toilet entrance.
- Braille signage should be displayed on the right side of every toilet by indicating embossed letters with ladies and gents pictogram.
- All signage to be in raised alphabets at the eye level, on the wall and in bold and contrasting colors.



### Annexure VIII

### URINALS

- At least one of the urinals in the **Gents toilet** should have grab bars; installed on each side and in the front of the urinal to support ambulant persons with disabilities (for example, crutch users).
- The front bar is to provide chest support; the sidebars are for the user to hold on to while standing.
- Urinals shall be stall-type or wall-hung, with an elongated rim at a maximum of 430mm above the finish floor.
- A clear floor space 760mm by 1220mm should be provided in front of urinals to allow forward approach. Urinal shields (that do not extend beyond the front edge of the urinal rim) may be provided with 735 mm clearance between them.



Accessible Urinal



Urinal with grab bar, Dilli Haat

**LIFTS**

- ✚ Floor: Minimum space for wheelchair users 1400mm x 1400 mm.
- ✚ Doors: 900mm wide and closing mechanism to be adjusted to give adequate entry time.
- ✚ Call button & control panel: At a reach of 900mm-1000mm; at least 400mm from any corner or have a clear floor space of at least 900 mm x 1200 mm with no obstruction placed to prevent a wheelchair user from reaching the call button;
- ✚ Control panel: Inside the lift to be on both the sides. Have buttons with Braille/ raised letters and in sharp contrast from the background to aid persons with visual impairments.
- ✚ Braille information/raised numbers, audio and visual indicator, review mirror & kick plates to be fitted.
- ✚ There should be no gap or difference in level between the lift door and the floor surface at each level. If such a gap is unavoidable, then it should not be more than 12 mm.
- ✚ Review mirror & kick plates to be fitted.
- ✚ Grab Bars
  - Be placed at a height of 900 mm from the floor level; and
  - Be fixed on both sides and at the rear of the lift.
- ✚ Audio and Visual Indicators
  - The lift should have a voice announcement system along with a visual display to indicate the floor level.

