

# ACCESS AUDIT REPORT

# NATIONAL MUSEUM

13<sup>th</sup> November 2009

by



**National Centre for Accessible Environments**

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

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## EXECUTIVE SUMMARY

LOCATION	EXISTING ASPECTS	RECOMMENDED ACTION
<b>PATHWAY</b>		
External circulation area- tactile tiles	Not available	Tactile Guiding tiles for persons with low vision and vision impairment, leading from main gate to building entrance
Gratings	May trap front wheels of wheelchair, white cane, crutches	To be placed outside the line of travel and opening should not be more than 12mm
<b>WAY FINDING SIGNAGE</b>		
Directional information panel	Not available	Well illuminated signages in bright colour contrast and big fonts to be provided at eye level
<b>PARKING</b>		
Accessible parking	Available	Parking bay of size 3600mm x 5000mm (including aisle space) with access symbol, imprinted on the ground
<b>BUILDING ENTRANCE</b>		
Ramp	Steep ramp provided from the side	Switchback type ramp to be provided at the main entrance with handrails on both sides  Alternatively a capsule lift with glass panels is proposed.
Steps	Handrail height and diameter not as per standards  Height and depth of steps not distinguishable by person with low vision	To be provided at a height of 850-900mm with diameter of 40-45mm  Steps to have colour contrasted edges 50mm minimum.
Tactile warning tiles	Not available	To be provided 300mm before and after the ramp edges and before and after first and last step
<b>RECEPTION</b>		
Signage and information panel	Inconspicuous	To be prominently displayed with big fonts at eye level. To be also provided in Braille 3D tactile map is proposed.
<b>INTERNAL WAYFINDING &amp; EXHIBIT ROOM SIGNAGE</b>		
Signage	Inconsistency in placement, colour and font size Braille signage not provided	Signs with big fonts and Braille markings to be provided between 1400-1600mm from floor level
Orientation of persons with vision impairment inside the exhibit room	Not available	PVC strip 800mm wide to be provided in front of the exhibits
Audio tour facility	Available	Benefits everyone including persons with vision impairment
<b>GENERAL CIRCULATION AREA</b>		
Flooring	Highly polished and slippery in some areas	Anti skid matt finish to be provided.
Level differences	Steps and steep ramps	All steps to have a smooth gradient ramp of maximum 1:12 with handrails on both sides and warning tiles/PVC mat 300mm before and after the ramp edges.
<b>STAIRS</b>		
Handrail	Not provided on wall side and at landing	To be provided on wall side and landings
Steps	Height and depth of steps not distinguishable by person with low vision	Steps to have colour contrasted edges 50mm minimum
Tactile warning tiles	Not available	To be provided 300mm before and after first and last step

<b>LIFT</b>		
Call and control buttons	Placed out of reach of wheelchair user Do not have Braille markings	To be placed at a height of 900-1000mm Should have Braille markings
Floor signages	Difficult to identify	Should be provided facing the lift door opening for easy identification
<b>ROOM SIGNAGE</b>		
Signage	Mounted on the door Shiny metal signage difficult to read by persons with low vision	Signage with Braille markings to be also mounted on the wall at a height between 1400-1600mm Metal signages to be avoided.
<b>LIBRARY</b>		
Signage	Mounted above eye level	Signage with Braille markings to be also mounted on the wall at a height between 1400-1600mm
Facilities for persons with low vision and vision impairment	Not available	Scanner and computer with JAWS, SAFA software to be provided for persons with vision impairment
<b>MUSEUM SHOP &amp; CAFETERIA SHOP</b>		
Signage	Painted on transparent glass surface which is difficult to identify by person with low vision	Signage on opaque background with Braille markings to be also provided
<b>DRINKING WATER</b>		
Water cooler	Placed on a platform, tap height out of reach of wheelchair users	To be level with floor. All operable parts to be between 900mm-1000mm height.
Way finding signage	Not provided	Way finding signage with pictogram to be provided
<b>GENERAL TOILETS</b>		
Signage	Mounted high above the door frame	To be provided with pictogram on the wall with Braille at a height between 1400-1600mm
Gents toilet- urinal	Has a step Grab bars for crutch users not provided	Level forward approach to the urinal to be provided Grab bars to be provided in at least one urinal
<b>ACCESSIBLE UNISEX TOILET</b>		
Location	Not provided	Space 1750 x 2000mm identified near ladies toilets on ground floor Sliding door 900mm clear width to be provided Directional signage to be placed near other general toilets

## 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.

**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 National Museum conducted on 13<sup>th</sup> November 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.

Access Audit of the following areas was conducted:	
1. Main Gate	11. General circulation area
2. Pathways	12. Stairs
3. External way finding signage	13. Lift
4. Parking	14. Room signage
5. Building Entrance	15. Library
6. Cloakroom	16. Museum shop
7. Reception	17. Cafeteria
8. Internal way finding signage	18. Drinking water facility
9. Exhibit Room signage	19. Toilets
10. Exhibit area	20. Emergency Evacuation

All dimensions are in millimeters.

 All recommendations are marked by this bullet point.

## MAIN GATE & PATHWAY

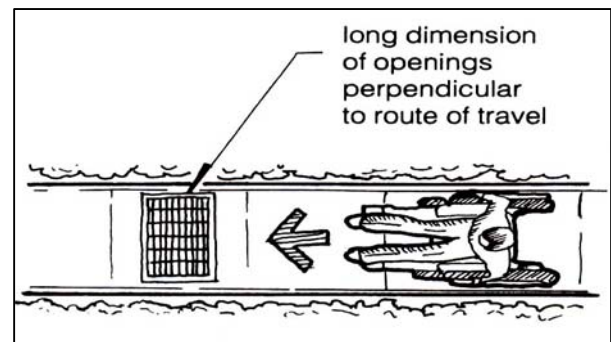
Uneven surface near main gate pose a trip hazard and restrict safe movement.



- ✚ Periodic general maintenance of pathways to be ensured.
- ✚ Wheelchairs may be provided on request for visitors with reduced mobility.

Gratings may trap the front wheels of the wheelchair and white cane of persons with vision impairment.

- ✚ 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.



Orientation for persons with vision impairment has not been provided.



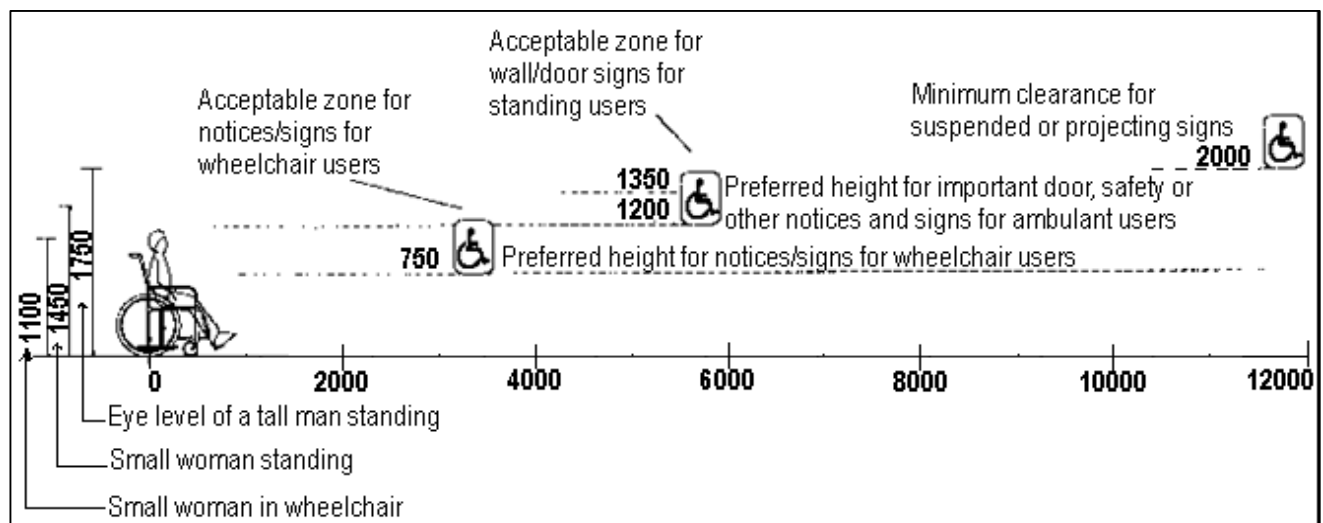
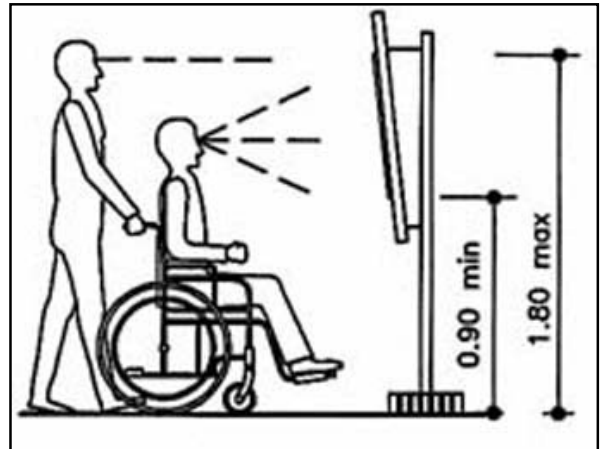
- ✚ Tactile Guiding tiles (refer Annexure IV for engineering configuration) are proposed for persons with low vision and vision impairment.
- ✚ The guiding path should lead to important amenities/facilities such as ramps to building entrances and clearly avoid vehicle movement areas. This benefits everyone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

## WAY FINDING SIGNAGES

Directional information signage has not been provided.

### Recommendations for Positioning of Information Signs

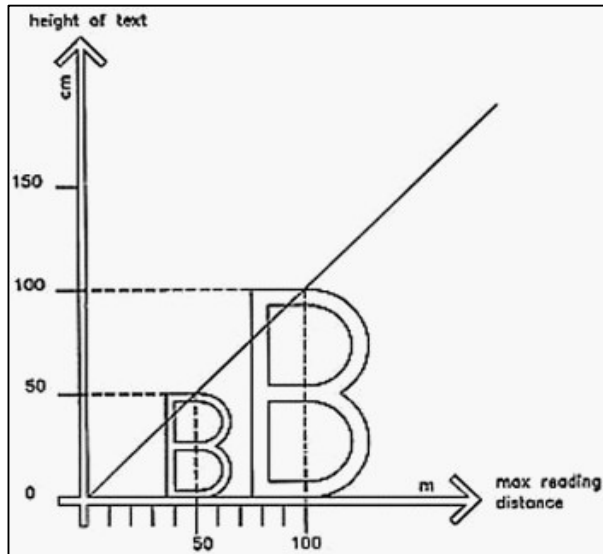
- ✚ The standard height for the installation of signs (height from road surface to bottom edge of sign) to be 1.8m. The height for the installation of signs showing important places may be reduced to a minimum 1.0m if necessary, provided this does not obstruct the passage of pedestrians, etc.
- ✚ When installing signs on sidewalks, on roads that have sidewalks, the distance between the sign and the sidewalk/carrageway 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



	Beige	White	Dark Grey	Black	Brown	Pink	Purple	Green	Orange	Blue	Yellow	Red
Red												
Yellow												
Blue												
Orange												
Green												
Purple												
Pink												
Brown												
Black												
Dark Grey												
White												
Beige												

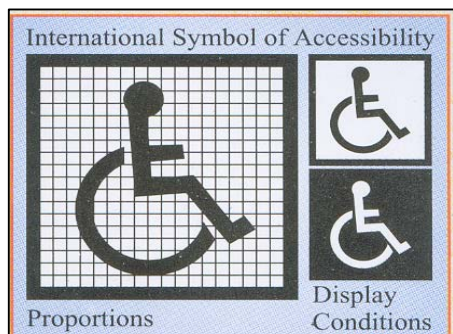
Acceptable (70% contrast or greater)  
 Do not use

### 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).



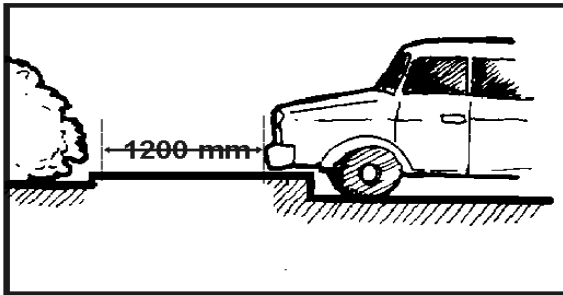
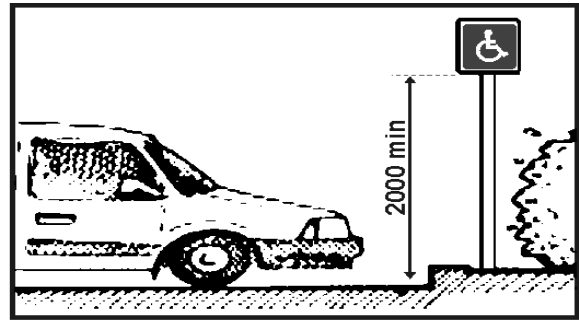
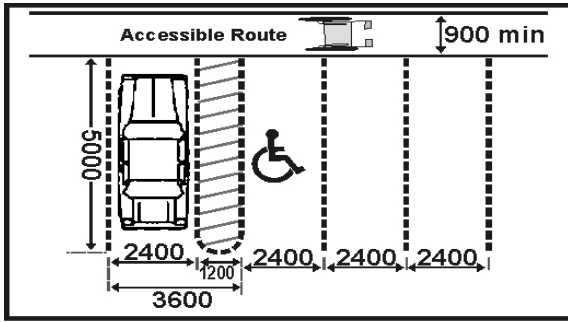
### RESERVED PARKING

Reserved parking has been provided. However, it does not have adequate aisle space and needs to be modified.

- ✚ Two accessible parking with overall minimum dimension 3600mm x 5000mm, including aisle space of 1200mm should be provided (as illustrated on page 8).
- ✚ All security guards/staff should be sensitized and well informed about these reserved parking for Persons with Disabilities (PwDs).



Existing reserved accessible parking



### Standards and signage for accessible parking

#### ENTRANCE

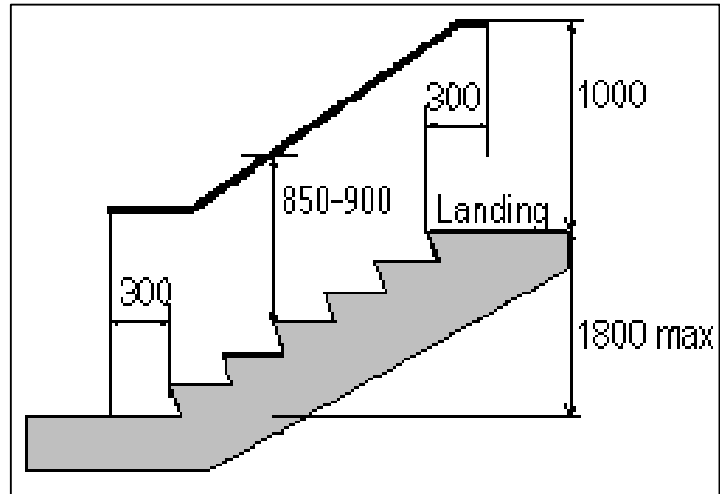
Main entrance has a flight of steps.





Handrail height and diameter are not as per standards.

Handrails also do not extend beyond the first step making it difficult for persons using mobility aids such as sticks and crutches, who prefer to use steps.



- ✚ Handrails on both the sides and middle of the steps to be provided, at two levels, for balance and support for persons with reduced mobility.
- ✚ Refer Annexure III for handrail height and diameter standards.
- ✚ 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).

Differentiation of height of steps is difficult 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 (as illustrated on page 18).
- ✚ Warning strip (Annexure IV and page 18) to be provided 300mm before and after the first and last step edges, so that a person with vision impairment does not accidentally trip.

## EXISTING RAMP

A steep ramp has been provided for PwDs which requires great effort by the disabled person and attendant/escort to maneuver the wheel chair up/down.



Moreover the door is kept locked and collapsible gate has a raised threshold which is a trip hazard.



Existing



Proposed

- Threshold to be either embedded in the ground or bevel edge to be provided as per the proposed illustration.

### RECOMMENDATIONS FOR PROVISION OF RAMP/LIFT AT MAIN ENTRANCE

- Due to high plinth and available space constraint, a switchback ramp as illustrated is proposed for the entrance. Handrails on both sides of the ramp to be provided as per Annexure III.



Existing

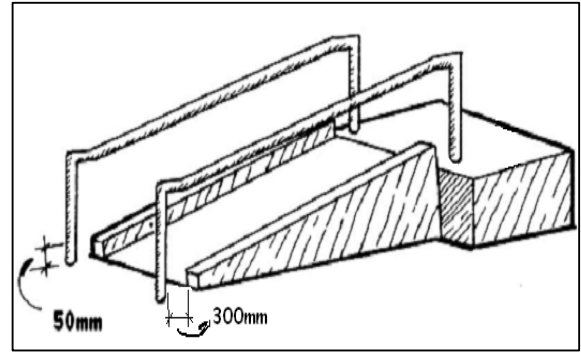
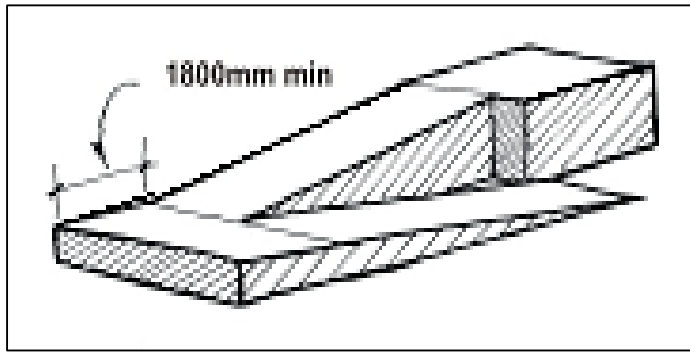


Proposed

- Alternatively it is proposed to provide a capsule lift (with glass panels) having dimensions 1500 x 1500mm minimum.

Proposed capsule lift





- ✚ Ramp gradient to be 1:12 minimum and handrail on both sides of ramp to be provided.
- ✚ Landings (clear space of 1500mm x 1500mm minimum) to be provided for every 750 mm of vertical rise.
- ✚ Ramp width to be 1200 mm or more.
- ✚ Ramp surface to be anti-slip/matt finish.
- ✚ 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.
- ✚ 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 ramp, for protection during adverse weather conditions.
- ✚ Refer Annexure I and III for ramp and handrail standards.
- ✚ Signage with Braille markings to be provided.



Braille Locator

### CLOAKROOM COUNTER



Fairly accessible

## RECEPTION

Counter is fairly accessible.  
However, signage is inconspicuous.  
Information panel on entry fee and audio tour details is difficult to read by persons with low vision.

- ✚ Reception signage to be prominently displayed, with big fonts at eye level.
- ✚ Signage with Braille markings to be displayed to assist persons with diverse disabilities.
- ✚ Reception staff should know sign language.
- ✚ Reception to also have a prominently display signage (given below) which serves as arrival desk for visitors seeking information.



## INTERNAL WAY FINDING AND EXHIBIT ROOM SIGNAGE

Exhibit room information in Hindi and English has been provided. However, there is no consistency in placement height, font sizes and colour of signages throughout the museum.



Examples of signages placed at different heights



Film show information signage difficult to read due to font size, height above eye level

- ✚ Signs with big fonts and Braille markings should be mounted between 1400mm and 1600mm from floor level.

### Information for the visually impaired

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

- ✚ Reception 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

## EXHIBITS AREA

There is no facility for orientation of visually impaired persons.



- ✚ PVC strip 800mm wide to be placed in front of all exhibits which serves as tactile orientation clue to persons with vision impairment.

### Information for the visually impaired and persons with low vision:

Audio tour facility is available which also benefits persons with low vision and vision impairment.



Exhibit information signages are difficult to read due to small font

- ✚ Information signs should be in big fonts and well illuminated benefitting everyone, particularly persons with low vision.
- ✚ Signs with Braille markings should be mounted at eye level between 1400mm and 1600mm from floor level (as indicated by audit team member in photo at right).



### CORRIDORS AND GENERAL CIRCULATION AREA

Highly polished and slippery surface is hazardous and non-conductive to movement of persons with reduced mobility.

- ✚ Anti-skid/matt finish flooring to be provided.
- ✚ Internal lighting should be uniformly distributed.
- ✚ Glare from excessively bright lights should be avoided.

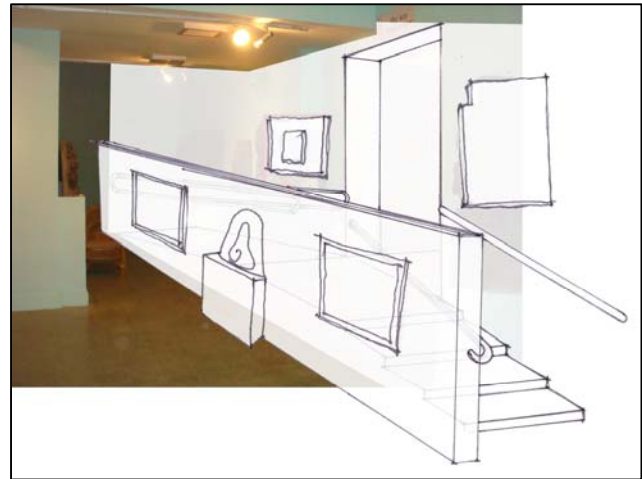
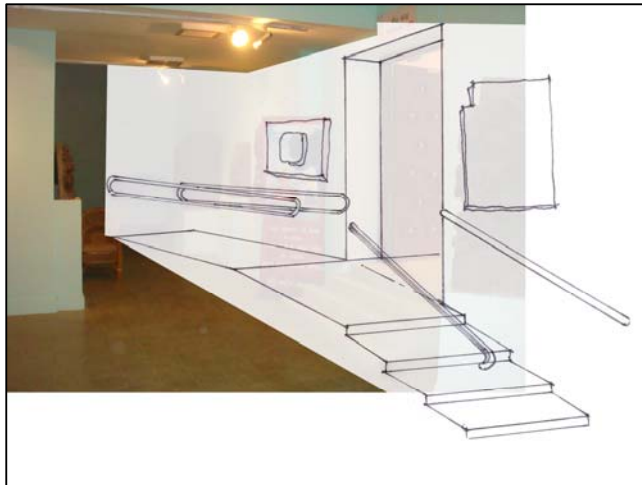


Resting spaces have been provided at various places, benefitting everyone.



Some of the exhibit areas have level differences.

**Existing steps**



**Proposed ramp with handrails and screening wall**

- ✚ All level differences and steps to have a gentle gradient ramp of maximum 1:12, handrails on both sides and warning tiles/PVC mats 300mm before and after the ramp edges.
- ✚ Refer Annexure I, III and IV for ramp, handrail and warning tiles standards.



**Existing steep ramp**



**Proposed flared platform with smooth ramp**



## FOOT MAT

Good orienting cue for persons with vision impairment and low vision. However, it is difficult to move mobility aids on thick coir mats.

- ✚ Thick coir foot mats to be replaced by bright colour (red/yellow/orange) rubber mats.
- ✚ To be placed for entrance to all room and toilet.
- ✚ In all new constructions foot mats to be embedded in a niche (refer photo).



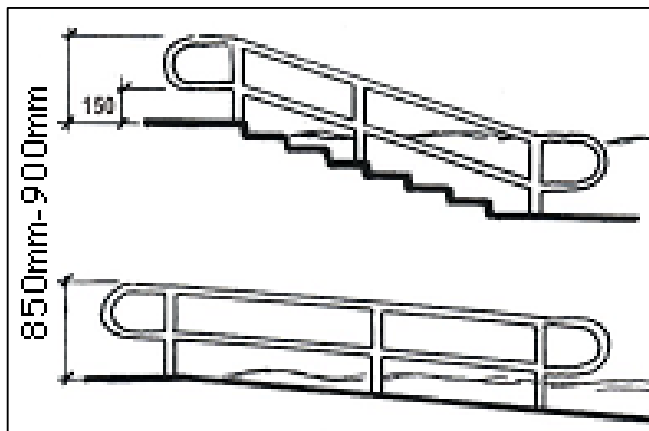
**Proposed**

## STAIRS

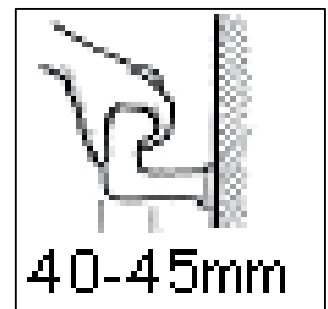
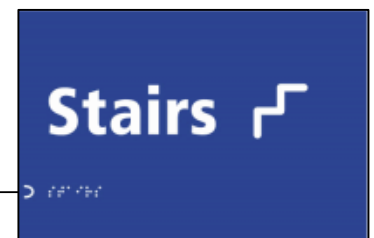
Handrail has not been provided on wall side of the staircase and at landings.



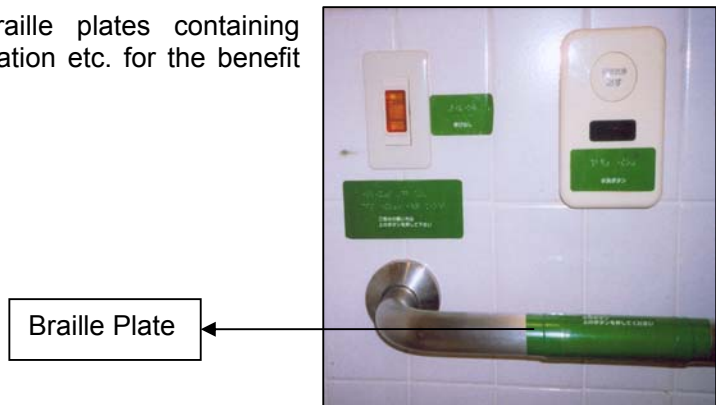
- ✚ Handrail to be provided on both sides and at landings for giving support to persons with reduced mobility while ascending/descending.
- ✚ Handrail to be provided at a height of 850-900mm and ends to be rounded off or grouted in the ground (as illustrated).
- ✚ Handrail should be circular in section with a diameter of 40-45mm;
- ✚ Directional signage with Braille markings to be provided as illustrated.



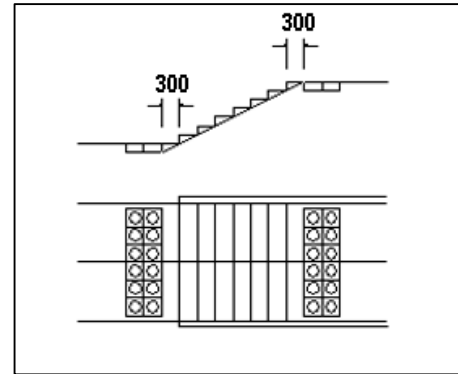
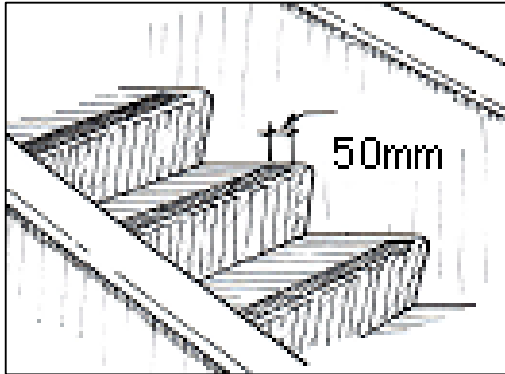
Braille Locator



- ✚ Handrails may also be provided with Braille plates containing information of amenities/facilities/route information etc. for the benefit of persons with vision impairment.



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



- ✚ Step edges (50mm minimum as illustrated) 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.

## LIFT

Call buttons are placed out of reach of persons seated in wheelchair.

Call and control panels buttons do not have Braille markings for persons with vision impairment.



Existing lift call buttons and control panel

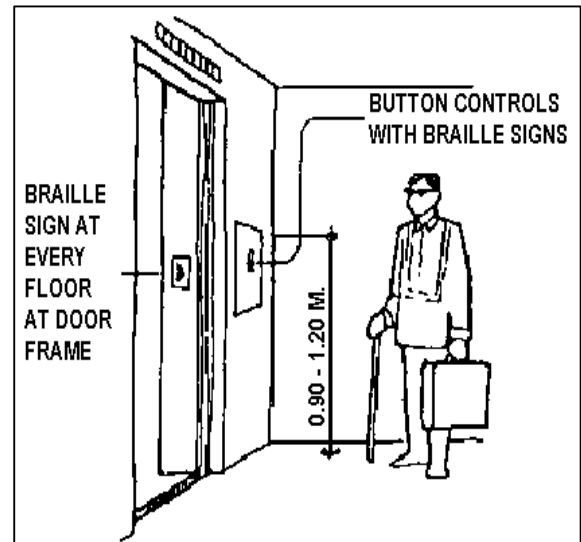
Review mirror and grab bars have been provided

- ✚ Call button should be placed 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.
- ✚ Lift signage with Braille markings (as illustrated) should be provided at strategic location.
- ✚ Floor signages to be also provided facing the lift for easy identification.



#### General recommendations:

- ✚ Minimum space required for wheelchair users is 1400mm x 1400mm.
- ✚ Door should be minimum 900mm wide and closing mechanism to be adjusted to give adequate entry time.
- ✚ **Control panel:** Inside the lift to be on both the sides. To have buttons with Braille/ raised letters and in sharp contrast from the background to aid persons with visual impairments.
- ✚ **Grab Bars:** Be placed at a height of 850-900 mm from the floor level and 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.
- ✚ Lift to be in bright colour contrast to the background making it easier to identify. It helps everyone particularly persons with low vision.
- ✚ Warning strip to be placed 300mm before the entrance to the lift.
- ✚ Refer Annexure IX for additional standards.



#### ROOM SIGNAGE

Room signage is mounted on the door (difficult to identify if the door is open).



Examples of room signage

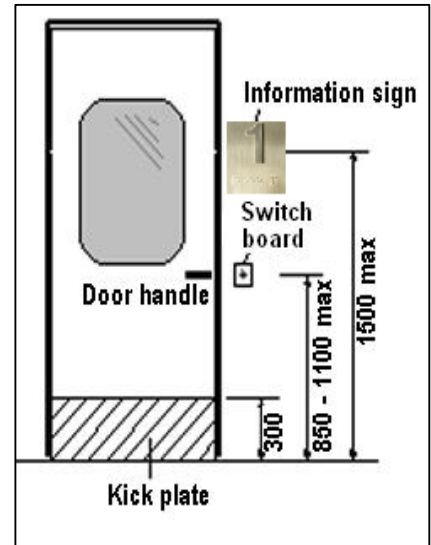
- ✚ Metal signages should be avoided as it produces glare.
- ✚ Signs should be mounted between 1400mm and 1600mm from floor level on the wall (preferably on latch/ door handle side of all doors).
- ✚ The individual characters to be between 15mm-50mm tall and raised by 1-1.5mm.

- ✚ **Signage, nameplates and numbers** of the rooms to be in Braille & raised alphabets, bold & color contrasted with their background.



Braille locator

Proposed Braille signage on wall



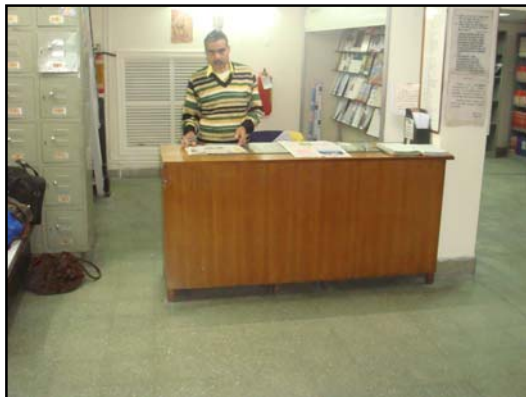
## LIBRARY

Signage is mounted above eye level.

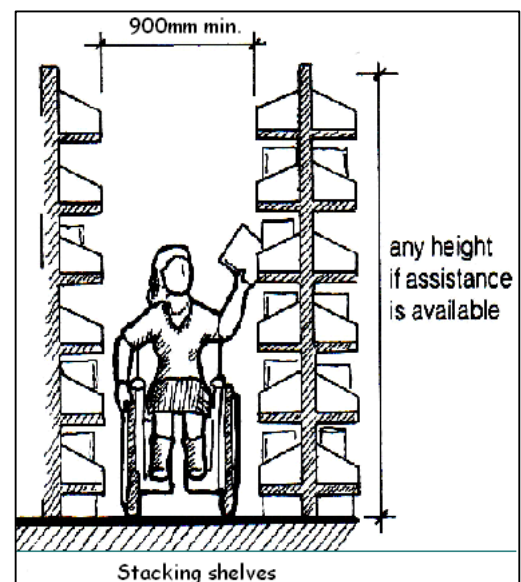
- ✚ To be provided at eye level as per standards for room signage mentioned above and on page 19.



Counter and reading tables are fairly accessible.



- ✚ Aisle space (900mm minimum) between reading tables and between stacking shelves/almirah to be maintained for persons using mobility aids.
- ✚ Scanner and computer with JAWS, SAFA software to be provided for persons with vision impairment.



## MUSEUM SHOP & CAFETERIA SHOP

Signage on glass is difficult to distinguish by persons with low vision.



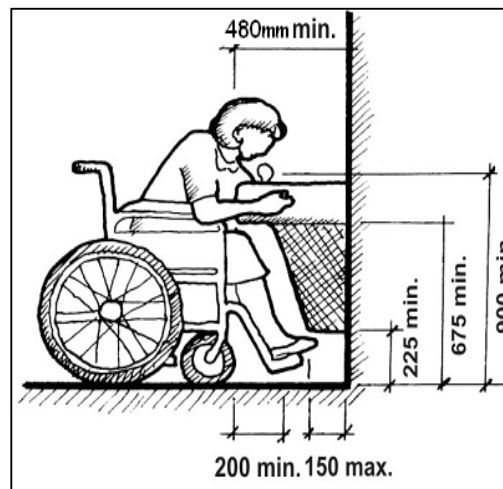
- ✚ Signage with opaque background, with big fonts and Braille markings to be provided.
- ✚ Refer standards for room signage on page nos. 19 and 20.

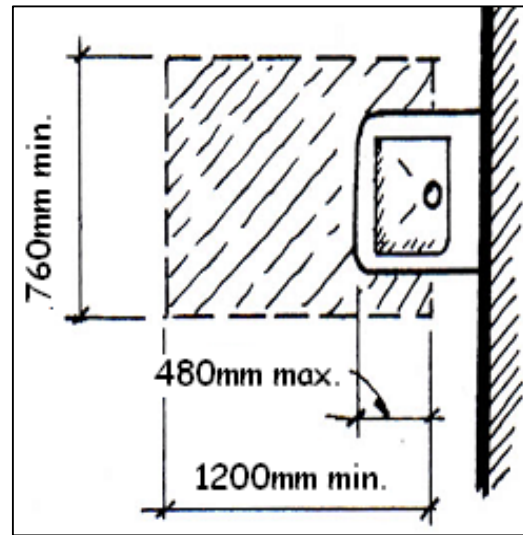
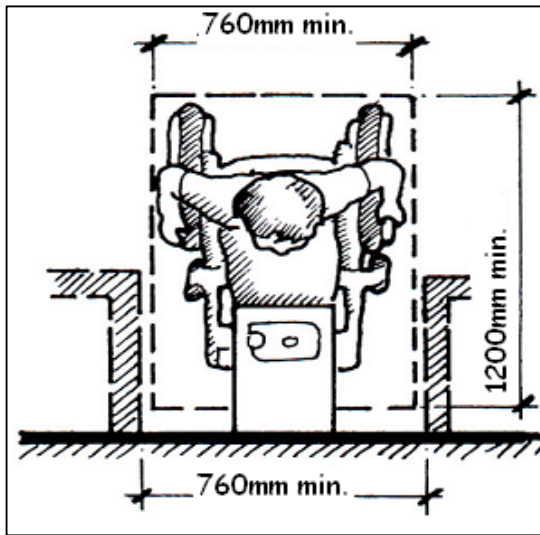
Counter and seating area of cafeteria are fairly accessible.



## DRINKING WATER FACILITY

Drinking water taps are out of reach of persons using mobility aids. Way finding signage has not been provided.





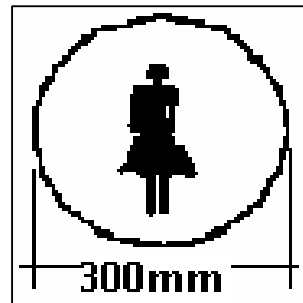
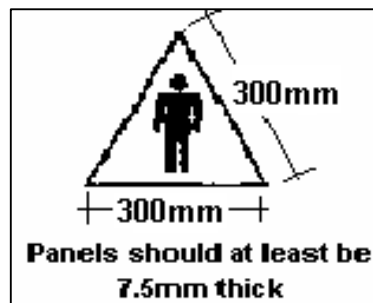
- Water cooler to be lowered so that all operable parts are between 900mm-1000mm height.
- Leg and knee space to be provided (as illustrated) with basin to avoid spilling of water.
- This allows both front and parallel access to taps for persons using mobility aids like wheel chair, crutches etc.
- Way finding signage with pictogram to be provided.

### GENERAL TOILETS

Signage for general toilets is mounted high (above the door frame).



- 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 also mounted on wall next to door at a height between 1400mm-1600mm.

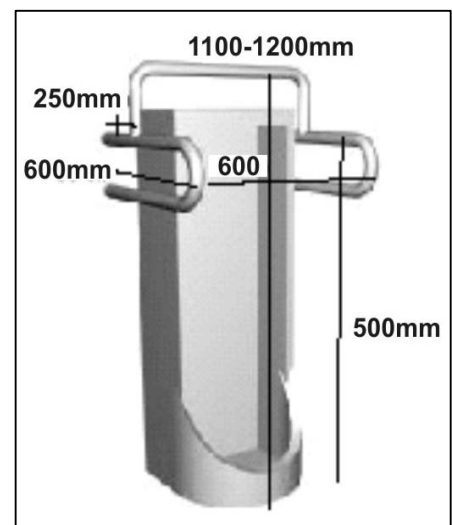


- Warning strip/door mat to be provided 300mm before the toilet entrance.

Step/platform restricts forward approach by persons with reduced mobility.



- ✚ A clear floor space 760mm by 1220mm should be provided in front of urinals to allow forward approach.
- ✚ At least one of the urinals in the **Gents toilets** 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.
- ✚ Refer Annexure VIII for urinal standards.



Accessible Urinal

Handrails in one of the gents' toilet are not continuous.



- ✚ Continuous handrail for steps and landing to be provided.
- ✚ Handrail should extend 300mm after the last step to provide support for semi-ambulant and reduced mobility persons.
- ✚ Refer Annexure III for handrail standards.

## PROVISION OF ACCESSIBLE UNISEX TOILETS

An accessible toilet is under construction on ground floor of the Museum near the Ladies toilet. Existing door width is 750mm only.



Accessible toilet under construction



Gent's toilet has adequate space for accessible toilet cubicle by combining existing cubicle and open space

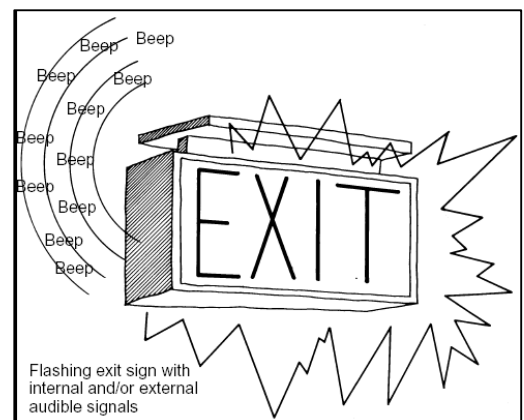
- ✚ Unisex toilet near the Ladies toilet to have sliding door - width 900mm minimum. WC to be placed in a corner placed opposite the door.
- ✚ Refer Annexure VI for accessible toilet standards and signage.
- ✚ Directional signage for accessible multiuse toilet to be included in internal way finding signage and also placed near other general toilets.

## EMERGENCY EVACUATION



Existing fire hydrant and exit signages

- ✚ 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

- It is proposed that bilingual printed access guides be provided at reception area with mapping of accessible routes and facilities.
- Water fountain on ground floor in the sunken courtyard may be aesthetically designed to match the ambience and stone structure of the Museum.
- Way to drinking water facility near the main gate is restricted and taps are out of reach of persons using mobility aids.



- ✚ Divider to be removed and level path (minimum 1500mm wide) to drinking water facility to be provided.
- ✚ Water cooler to be lowered so that operable tap height between 900-1000mm. Refer page 21 and 22 for standards.

## ACCESS AUDIT REPORT PREPARED BY

Access Resource Group, Samarthyam

## CONTACT PERSON

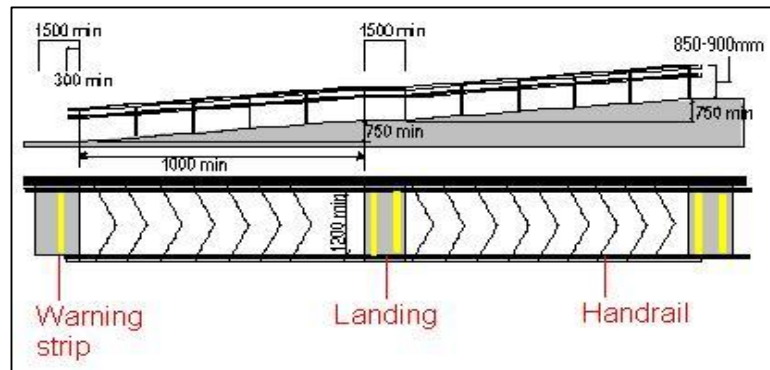
Ms. Anjlee Agarwal  
(M) 9810558321  
Email: samarthyaindia@yahoo.com

## 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
- **Toilet fittings**  
Parryware- Conventina range of WC and washbasin  
Available at Parryware dealers

## 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

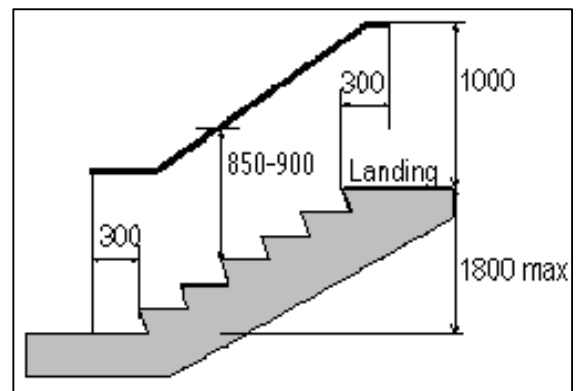
## STEPS & STAIRS

- ✚ 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

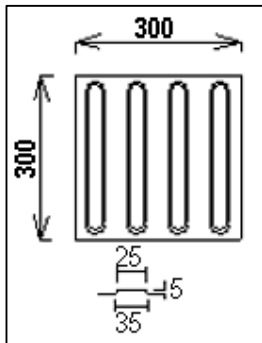
## HANDRAILS

- ✚ 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).

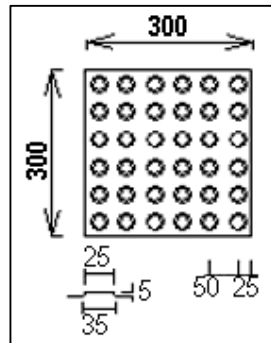


**Tactile Surfaces: Guiding strip & Warning blocks**

- 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**

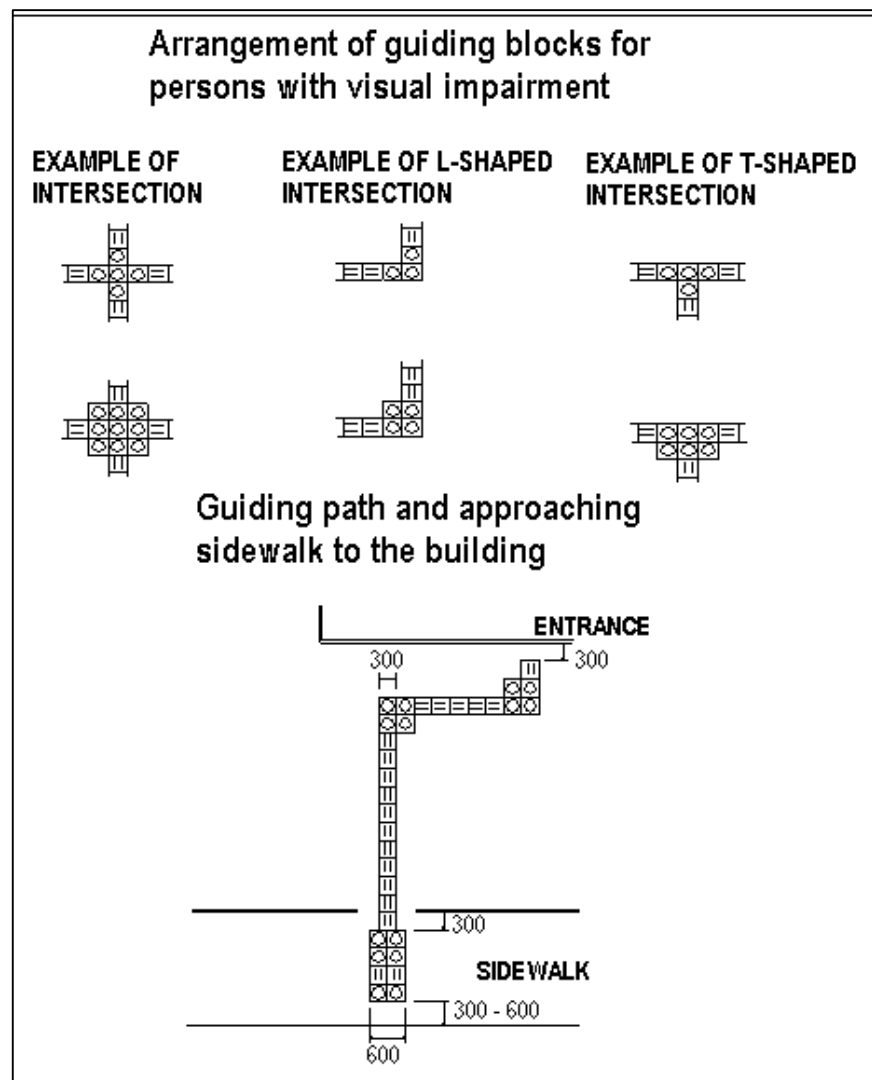


**Warning strip**



**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 persons 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

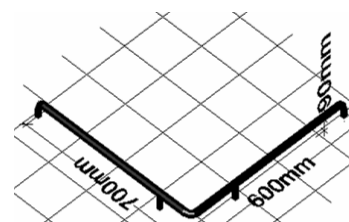
## ACCESSIBLE TOILET

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)

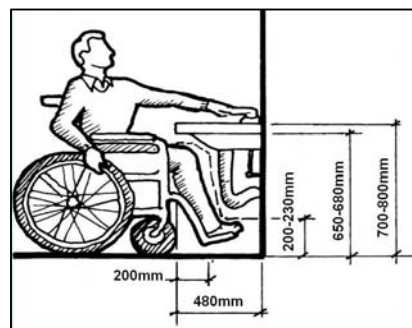
- ✚ Have clear space of not less than 900mm wide next to the water closet.
- ✚ Be located between 460mm to 480mm from the centerline of the WC to the adjacent wall and have a clear dimension of 800mm from the edge of the WC to the rear wall to facilitate side transfer.
- ✚ The top of the WC to be 475-490mm 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.



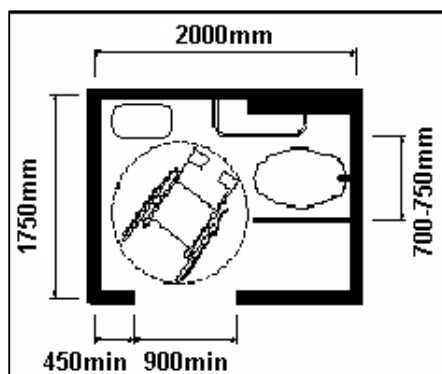
L-shape grab bar

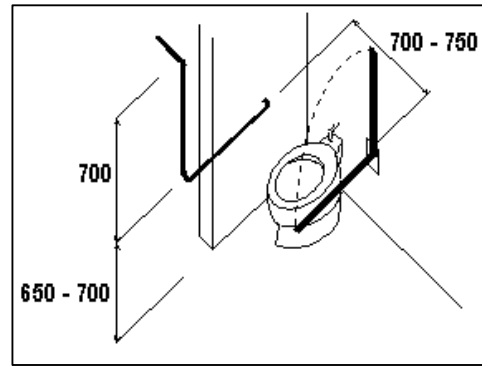
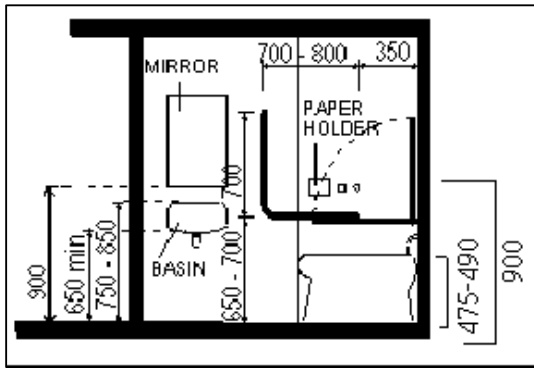
## WASHBASIN

- ✚ 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

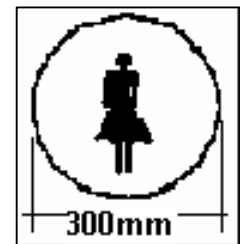
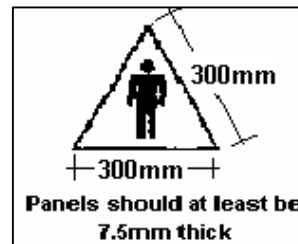




## Annexure VII

**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

- ✚ Urinals shall be stall-type or wall-hung, with an elongated rim at a maximum of 430mm above the finish floor.
- ✚ Urinal shields (that do not extend beyond the front edge of the urinal rim) may be provided with 735 mm clearance between them.



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.

