

# ACCESS AUDIT REPORT

# GANDHI SMRITI

20<sup>th</sup> October 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>APPROACH</b>		
Pavement	Pavement high	Curb ramp /table top to be provided
<b>PARKING</b>		
Accessible parking	Not available	Parking bay of size 3600 x 5000mm with access symbol imprinted on the ground to be provided
<b>CONNECTING PATHWAY</b>		
External circulation area- tactile tiles	Not available	Tactile Guiding tiles leading from main gate to building entrance.
<b>WAY FINDING SIGNAGE</b>		
Directional signage	Difficult to read, inadequate font size	signages in bright colour contrast and big fonts to be provided at eye level
<b>MARTYR'S COLUMN (SHAHEED STAMBH)</b>		
Steps	Ramp not available	Ramp with 1:12 gradient to be provided
<b>ETERNAL GANDHI (EXHIBIT &amp; AV AREA)</b>		
Steps and ramp	steep ramp	Ramp with 1:12 gradient and warning tiles to be provided
Door	Step 180mm high	Ramp to be provided
<b>EXHIBIT INFORMATION SIGNAGE</b>		
Exhibits	Information not provided in Braille	Braille or audible
Orientation for persons with vision impairments	Not available	PVC strip 800mm wide to be provided in front of the exhibits
<b>LIFT</b>		
Call button and control panel	High	At height of 900-1000mm
Elevator car floor size is 1100mm x 1400mm	Difficult to accommodate wheelchair users	Minimum space required is 1400mm x1400mm
Door width is 800mm	Difficult to accommodate wheelchair users	Clear door width to be 900mm
Audio floor announcement	Not available	To be provided for person with visual impairment
<b>DRINKING WATER</b>		
Entrance	has level difference	Level access to facility to be provided
Taps	High for persons using mobility aids	Lowered tap at 900mm-1000mm height to be provided
Way finding	Not available	Signage with pictogram to be provided
<b>SHOPPING CENTER</b>		
Entrance	Step	Inward cut ramp to be provided
<b>ACCESSIBLE TOILET</b>		
Location	Toilet block under renovation	One cubicle to be converted to accessible unisex toilet with grab bars and signage
Entrance	Step and door opens inside	Ramp and sliding door to be provided

## 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 Gandhi Smriti conducted on 20<sup>th</sup> October 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 & Main Gate	7. Lift
2. Parking	8. Room Signage
3. Way Finding Signage	9. Shopping Center
4. Martyr's Column	10. Drinking water facility
5. Eternal Gandhi (exhibit & AV area)	11. Toilets
6. General circulation area	12. Emergency Evacuation

All dimensions are in millimeters.

✚ All recommendations are marked by this bullet point.

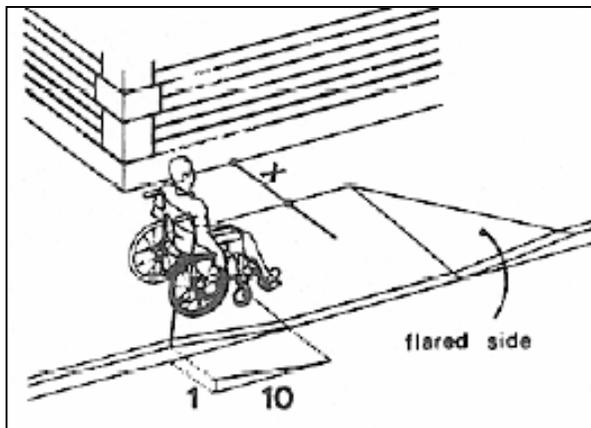
## MAIN GATE & PATHWAY

There are two entrances to Gandhi Smriti. Entrance shown in photo is used primarily by staff and VIP entry.



However, pavement curb stone height is not conducive for movement of mobility aids users.

- ✚ Pavement should be dropped, to be flush with roadway, at a gradient no greater than 1:10 on both sides of necessary and convenient crossing points. Width should not be less than 1200mm.
- ✚ If width (X) is less than 1200mm, then slope of the flared side shall not exceed 1:12.
- ✚ Warning strip (Annexure IV) to be provided on the curb side edge of the slope, so that a person with vision impairment does not accidentally walk onto the road.



**Curb ramp**



**Table Top crossing**

- ✚ Alternatively, flat Table top (raised road level to pavement height) can be provided for comfortable crossing by mobility aid users and everyone in general.

Another entrance shown in photo is used for general public entry. However ramp has been provided only on one side of raised pavement.



- ✚ An inward cut ramp to be also provided on the road side of the raised pavement.
- ✚ Gradient of ramp to be minimum 1:12. Refer Annexure I.
- ✚ Tactile Guiding and warning tiles (refer Annexure IV for engineering configuration) are proposed for persons with low vision and vision impairment. Warning strip to be provided 300mm before and after the ramp and step edges, so that a person with vision impairment does not trip accidentally.
- ✚ Signage for ramp to be provided.
- ✚ 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.
- ✚ Wheelchairs may be provided on request for visitors with reduced mobility.

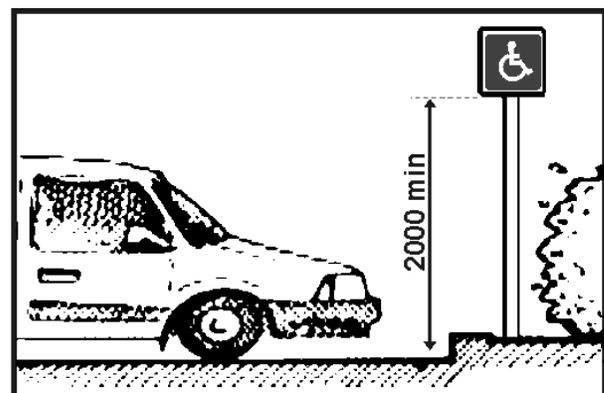
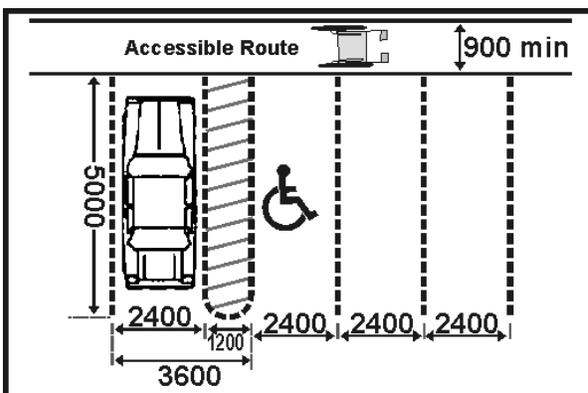
## RESERVED PARKING

Reserved parking has not been provided for visitors and staff with mobility impairments.



### Proposed spaces for accessible parking

- ✚ Parking should be within 30 meters of the entrance to the building.
- ✚ Space for two reserved accessible parking has been identified as shown in above photos.
- ✚ Two accessible parking lots with overall minimum dimension 3600mm x 5000mm, should be provided.
- ✚ All security guards/staff should be sensitized and well informed about these reserved parking for Persons with Disabilities (PwDs).

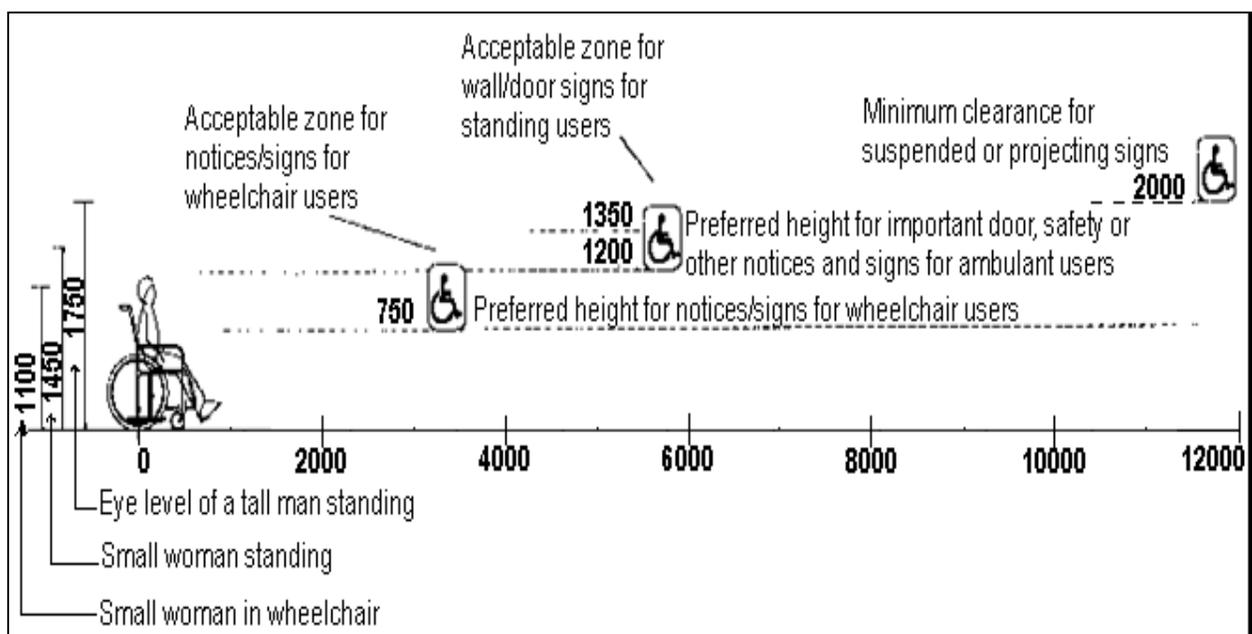
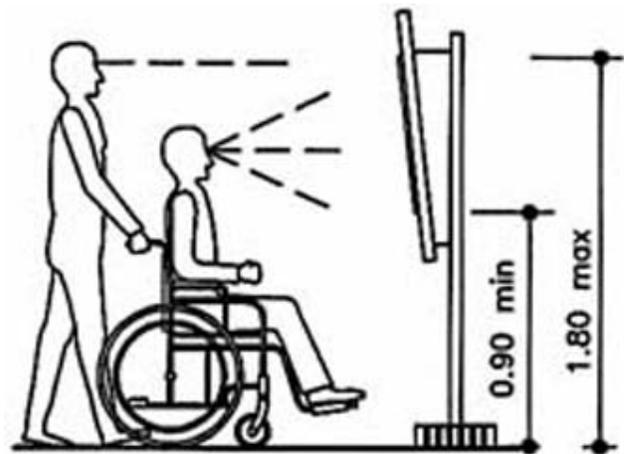


## WAY FINDING SIGNAGES



### Recommendations for Positioning of Information Signs

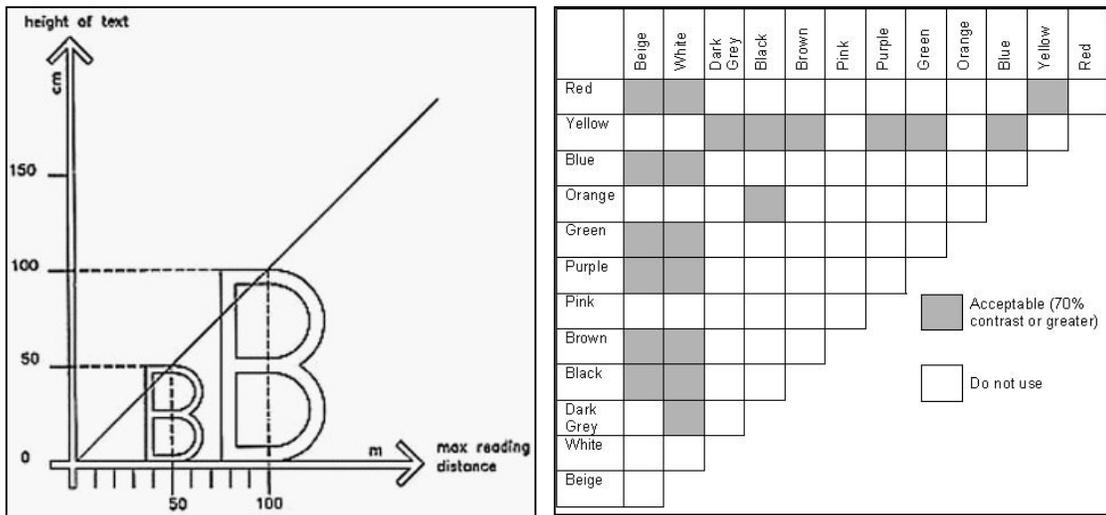
- ✚ The standard height for the installation of signs (height from surface to bottom edge of sign) to be 1.80m. The height for the installation of signs showing important places may be reduced to a minimum 1.00m if necessary, provided this does not obstruct the passage of pedestrians, etc.
- ✚ When installing 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

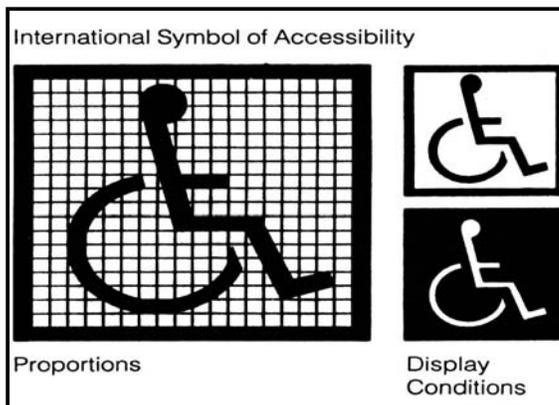
The size of letters shall be selected in accordance with viewing distance, taking account of the diminished eyesight of the aged.

- 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) 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).

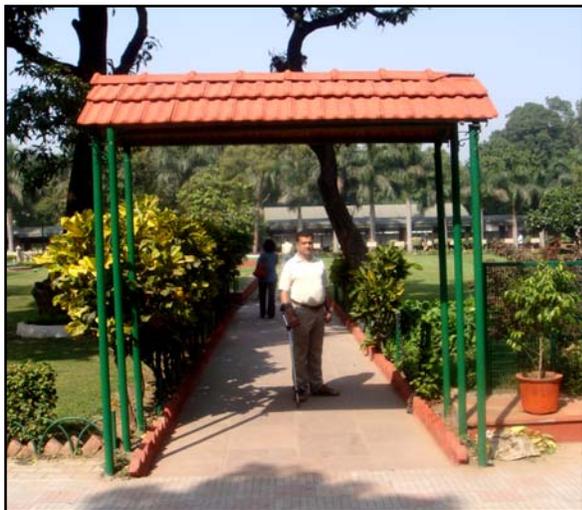


## MARTYR'S COLUMN (SHAHEED STAMBH)

Main entrance is marked by steps.



Another entrance from the side is proposed to be made accessible for PwDs.



**Side entrance**



**Proposed access symbol and directional signage**

- Access symbol to be provided at this entrance for easy identification.
- Directional signage to be provided at the main entrance informing accessible side entrance.



**Existing steps and step ramp**

## PROVISION OF RAMP



Space identified for ramps

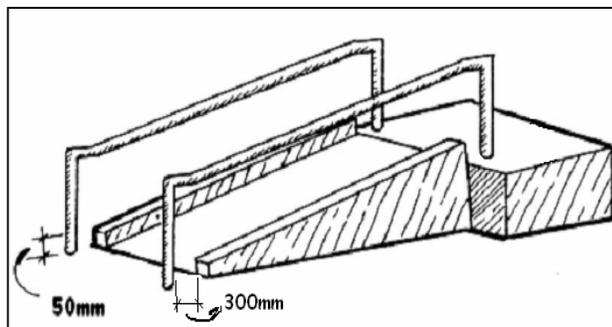


Proposed ramp with edge protection



Ramp continued with handrails

- ✚ L shape ramp minimum gradient 1:12 with handrails on both the sides to be provided in the identified space, as illustrated.
- ✚ Handrails to be raised to height of 850-900mm from the floor and extend by at least 300mm beyond the head and foot of ramp and grouted in the ground (as illustrated).
- ✚ Handrail to be painted in bright colours (preferably red/ yellow) 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 trip accidentally.
- ✚ Signage for ramp to be provided.



## ETERNAL GANDHI (EXHIBIT & AV AREA)

The existing two ramps are steep and not placed in a line (figure I).  
The main entrance door has a step 180mm high (figure II).



Figure I (existing)



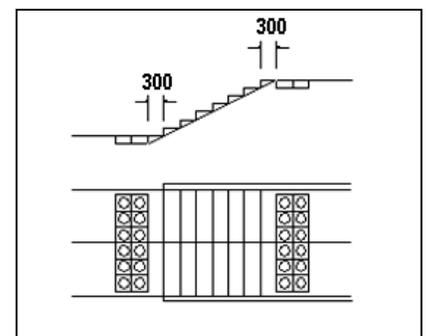
Figure II (existing)

✚ Accessible entrance is proposed by providing gentle mergers and ramp (as illustrated).



Figure I (Proposed)

✚ Warning strip (Annexure IV) to be provided 300mm before and after the ramp edges, so that a person with vision impairment does not trip accidentally.





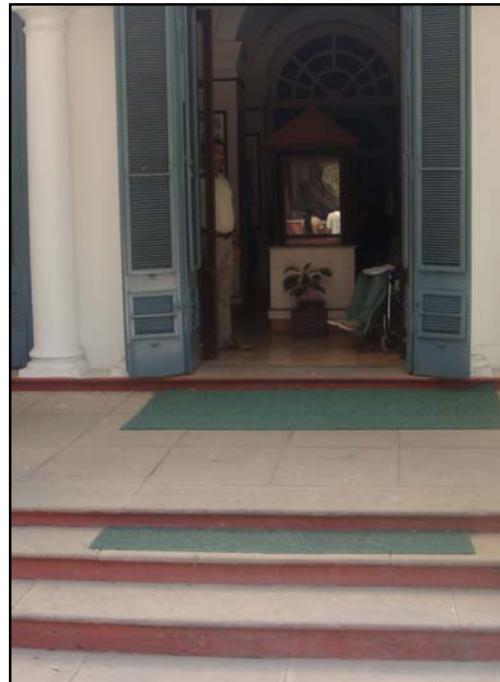
**Figure II (Proposed)**

### FOOT MAT

It is difficult to move mobility aids on thick coir mats and it can pose trip hazard.



**Thick coir foot mat**



**Good example of foot mat (Gandhi Smriti)**

- ✚ Thick coir foot mats to be replaced by rubber mats, as shown in photo at right.
- ✚ Foot mats are good orienting cue for persons with vision impairment and low vision and should be placed for all entrances.

## EXHIBITS AREA

Flooring in some areas is extremely slippery which is extremely hazardous for persons with reduced mobility. There is no facility for orientation of visually impaired persons.



- ✚ Anti skid non slip flooring having matt finish is recommended, benefitting everyone.
- ✚ 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

- ✚ Exhibit Information should include devices for providing information to persons with vision impairment, using Braille or audible devices.
- ✚ Information signs should be in big fonts and well illuminated benefitting everyone, particularly persons with low vision.

## LIFT

Lift has been provided from outside the building. However, there is a level difference on way to the lift, which is a trip hazard. Directional signages have not been provided.

- ✚ A smooth and gentle merger to be provided, benefitting everyone.
- ✚ Directional signages to be provided at strategic locations.



Call buttons (height 1250mm) are placed out of reach of persons seated in wheelchair.

- 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.

Elevator car floor size is 1100mm x 1400mm and door width is 800mm, which can accommodate wheelchair with difficulty. Grab bar have been provided however, review mirror and audio floor announcement are missing.

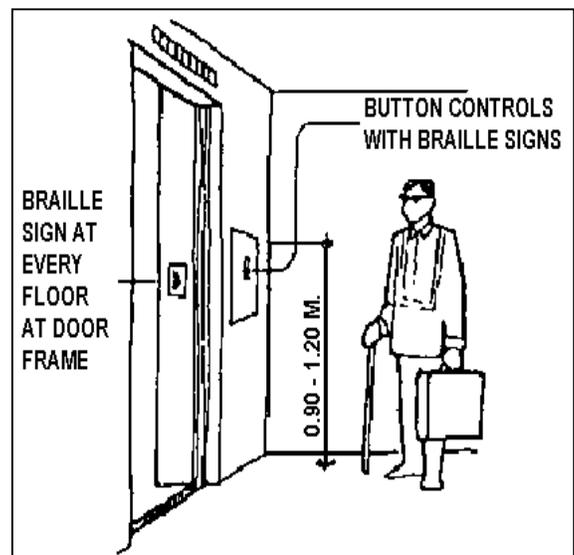
- Minimum space required for wheelchair users is 1400mm x 1400mm.

Existing lift



### General recommendations:

- Doors:** 900mm wide. 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 every one particularly persons with low vision.
- Warning strip to be placed 300mm before the entrance to the lift.
- Refer Annexure VIII for additional standards.



- Lift signage with Braille markings (as illustrated) should be provided at strategic location.



## ROOM SIGNAGE

Room signage is mounted above eye level.

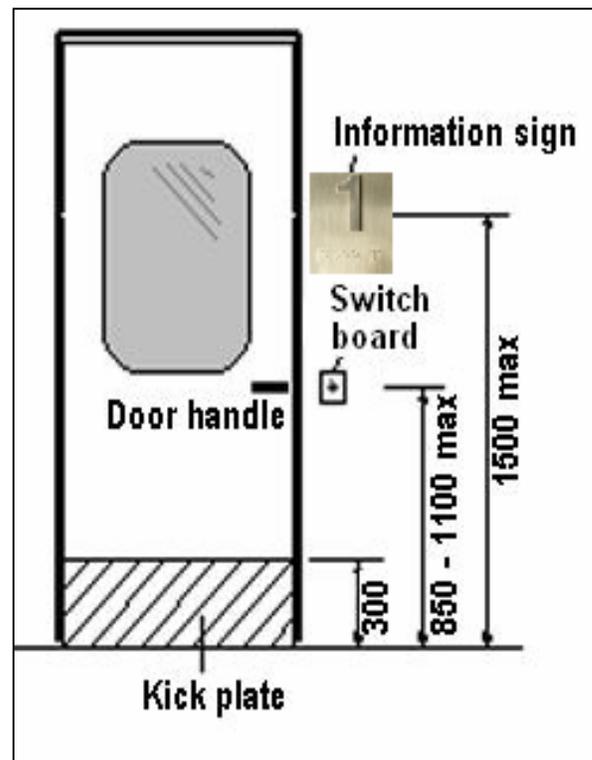


Examples of room signage - difficult to read due to small font size, colour combination

- ✚ 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.



Proposed Braille signage on wall



## DRINKING WATER FACILITY

Drinking water facility is marked by level difference which creates difficulty for persons using mobility aids.

- ✚ Level access to facility to be provided.
- ✚ Alternatively a gentle merger to be provided, benefitting everyone.

Way finding signage has not been provided.

- ✚ Way finding signage with pictogram to be provided.



Existing tap height is 2000mm, which is out of reach of persons using wheelchair.

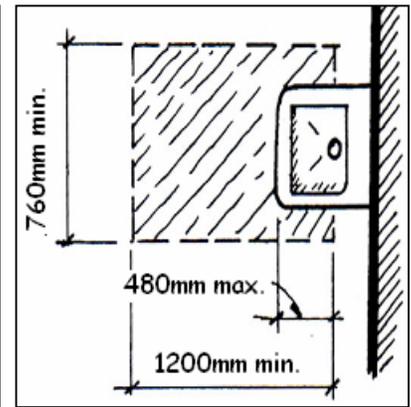
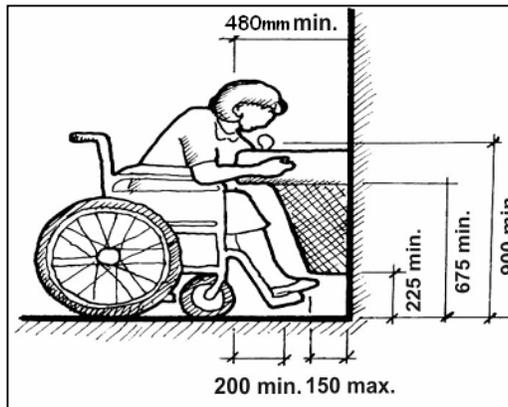
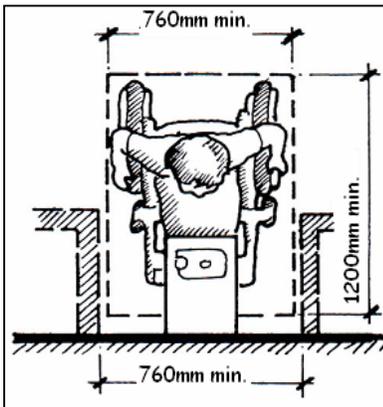


**Existing**



**Proposed**

- ✚ Lowered tap with basin to be provided (as illustrated) for persons using mobility aids such as wheelchair.
- ✚ All operable parts to be between 900mm-1000mm height.
- ✚ Leg and knee space to be provided (as shown in the diagrams) 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.



## SHOPPING CENTER

All shops and craft area are marked by a step.

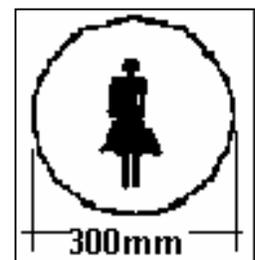
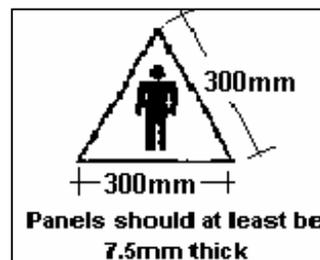


- ✚ An inward cut ramp to be provided to the entrance of shopping and craft area.
- ✚ Ramp edges to be flush with the pathway surface.
- ✚ Refer page 4 for curb ramp standards.

## GENERAL TOILETS (NEAR MAIN GATE)



- ✚ 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 (1400-1600mm), on the wall and in bold and contrasting colors.



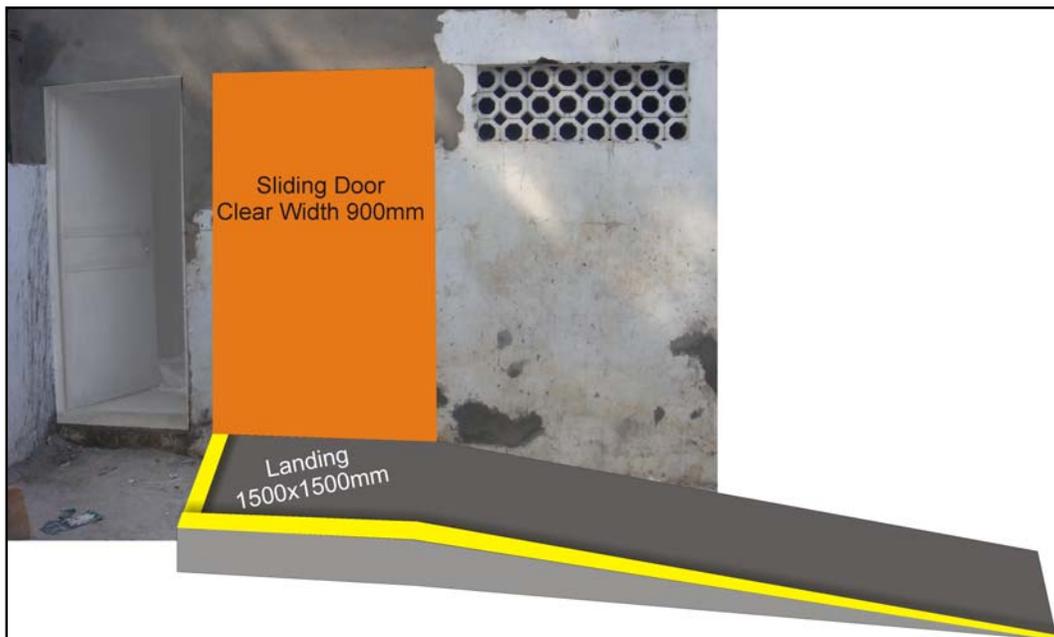
- ✚ At least one of the urinals in the Gents toilets should have grab bars; installed on each side and in the front of the urinal to support ambulant persons with disabilities (for example, crutch users).
- ✚ The front bar is to provide chest support; the sidebars are for the user to hold on to while standing.
- ✚ Refer Annexure VII for standards.

## PROVISION OF AN ACCESSIBLE MULTIUSE TOILET

An accessible multiuse toilet is proposed in one cubicle of the existing toilet block under renovation. However, there is a step and door (opens inside) needs to be relocated.



Existing toilet size is 1800mm x 4500mm which is suitable for conversion to accessible multiuse toilet.

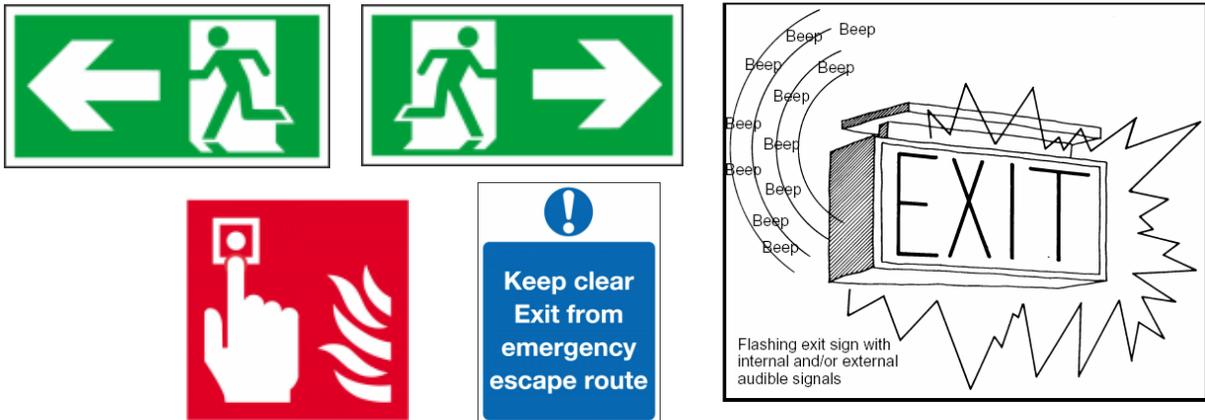


**Proposed ramp and sliding door for accessible toilet**

- ✚ L shape ramp (maximum gradient 1:12) with landing 1500mm x 1500mm and edge protection to be provided as illustrated.
- ✚ Existing door to be relocated and a sliding door (minimum clear width 900mm) in the center to be provided as illustrated above.
- ✚ Refer Annexure I for ramp standards.
- ✚ 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

- Emergency alarm both audio (hooter type) and visual (flashing bulb) to be provided 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 entrance and exit route for visitor entry to be bifurcated/ separate.
- Emergency exit stairs are proposed from the first floor.
- 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

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## 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

### Guiding/warning tactile tiles

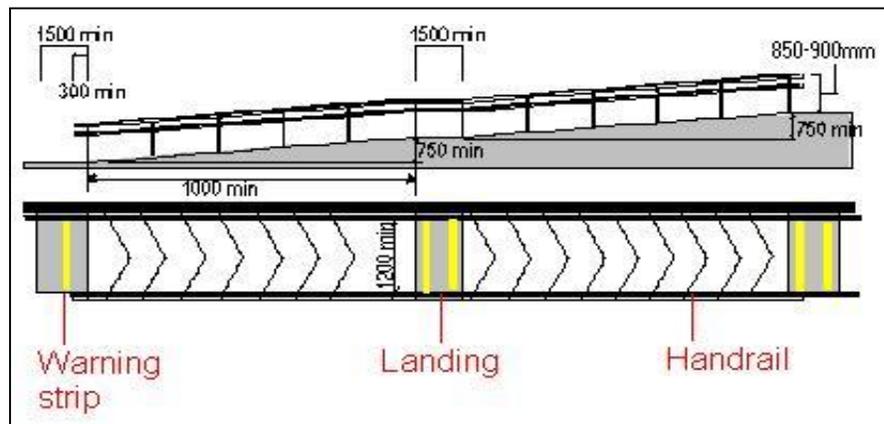
- Pelican Ceramic Industries Pvt. Ltd., 410, Suneja Tower-1, District Centre, Janakpuri, New Delhi-58 Mr. Ashok K. Luthra (M) 9810545699 Ph: 25552097, 32482791, 32982791
- Kensai Ceramics- Mr. Anil Sabharwal - 9810129062
- Durato Brand available at all leading stores

### 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.).

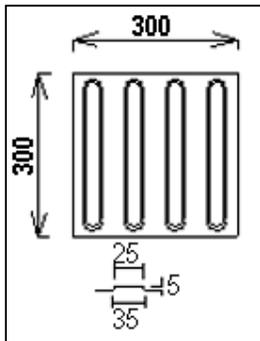
Annexure III

## HANDRAILS

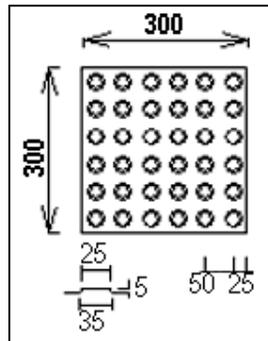
- ✚ Should be circular in section with a diameter of 40-45mm;
- ✚ At least 45mm clear of the surface to which they are attached;
- ✚ At the height of 850mm-900mm from the floor;
- ✚ Extend by at least 300mm beyond the head and foot of the flight and ramp in the line of travel and grouted in the ground.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

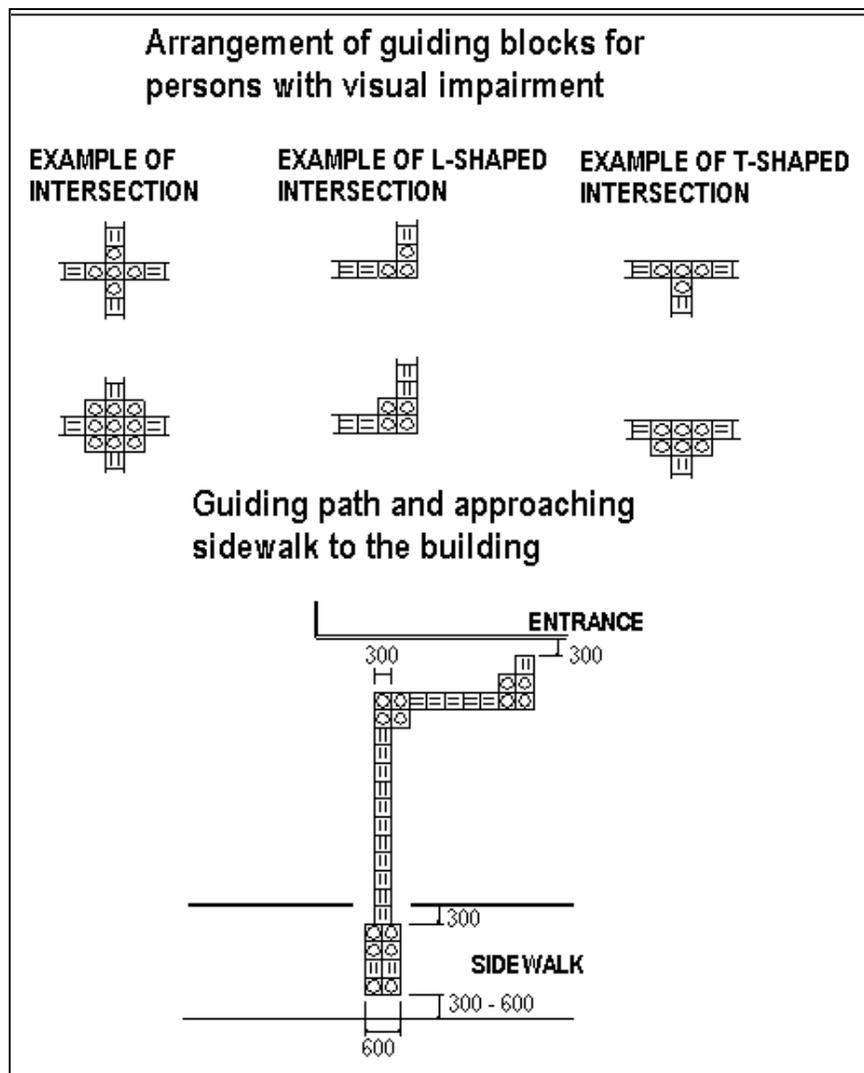


**Warning strip**



**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.

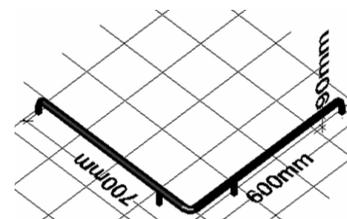
## Annexure VI

## 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)

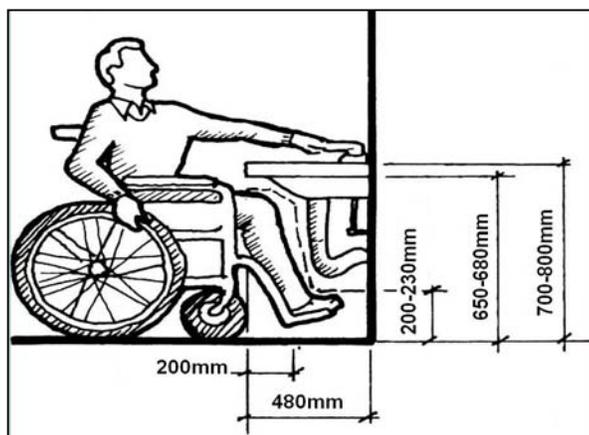
- Have clear space of not less than 900mm wide next to the water closet.
- Be located between 460mm to 480mm from the centerline of the WC to the adjacent wall and have a clear dimension of 800mm from the edge of the WC to the rear wall to facilitate side transfer.
- The top of the WC to be 475-490mm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

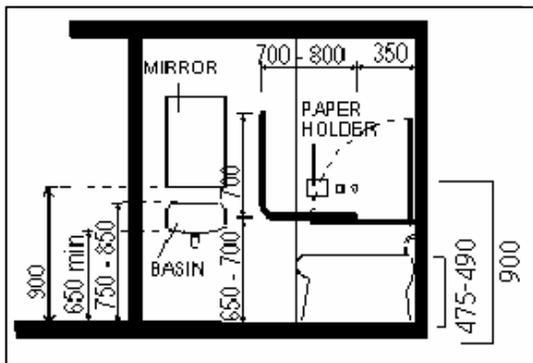
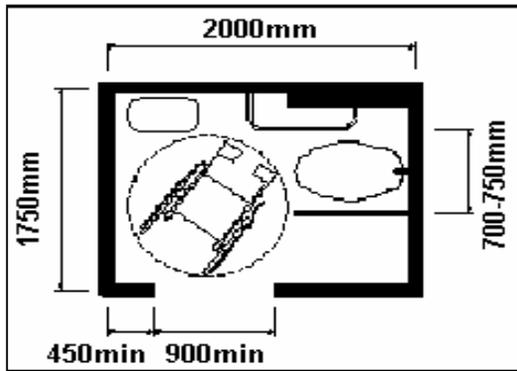


L-shape grab bar

## 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.

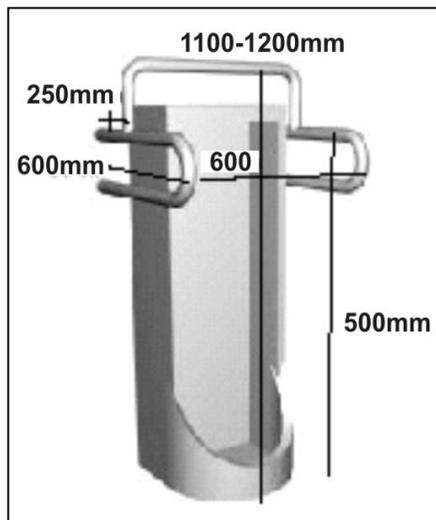




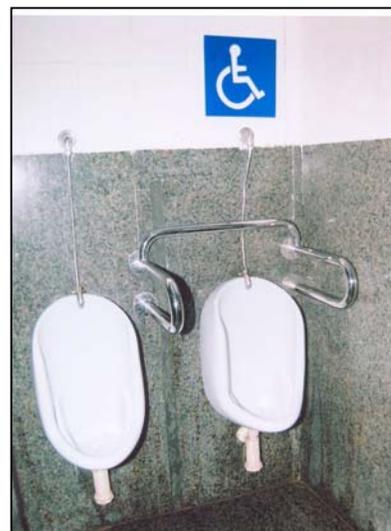
Annexure VII

**URINALS**

- ✚ A clear floor space 760mm by 1220mm should be provided in front of urinals to allow forward approach.
- ✚ 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.



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.

