

MAHATMA GANDHI UNIVERSITY



Mahatma Gandhi University Priyadarsini Hills P. O. Kottayam, Kerala - 686560

(Re-accredited by NAAC with A Grade)

Barrier Free Environment Policy

Barrier Free Environment Policy

Introduction:

Freedom of mobility is a basic right and inseparable part of everyone's life. We are all physically disabled at some point in our lives. A child, a person with a broken leg, a parent with a pram, an elderly person, etc. are all disabled in one way or another. Those who remain healthy and able-bodied all their lives are few.

As far as the built-up environment is concerned, it is important that it should be barrier-free and adapted to fulfill the needs of all people equally. As a matter of fact, the needs of the disabled coincide with the needs of the majority, and all people are at ease with them. As such, planning for the majority implies planning for people with varying abilities and special needs. This is known as inclusive design or universally accessible design.

Disability is an umbrella term, covering impairments (problem in body function or structure), activity limitations (difficulty encountered by an individual in executing a task or action), and participation restrictions (problem experienced by an individual in involvement in life situations) and requires an interaction between features of a person's body and features of the society in which he or she lives.

Any built –up environment should be barrier-free and adapted to fulfil the needs of all people equally. "The Person with Disabilities (Equal Opportunities, Protection of Rights and Full participation) Act, 1995, Govt. of India" sets aside provision for "No discrimination" in the built environment" in Chapter VIII Section 46. It also indicates that differently-abled persons should have access to education at all levels. The act also stipulates that the Governments, local authorities ensure provisions of barrier-free facilities in all new Government buildings and public utilities, roads and transport. India is a signatory of the UNCRPD which articulates the provision of completely accessible and barrier free environment for persons with disabilities.

The UGC started the scheme of assistance to universities to facilitate Higher Education for Persons with Special Needs (Differently-abled Persons) (HEPSN) during the Ninth Five-Year Plan, which continued in the Tenth Plan keeping in view the need to provide special education programmes as well as infrastructure to differently-abled persons in higher education institutions.

The scheme is basically meant for creating an environment at the higher education institutions including Universities to enrich higher education learning experiences of differently-abled persons. Creating awareness about the capabilities of differently-abled persons, constructing facilities aimed at improving accessibility, purchase of equipment to enrich learning, etc., are the broad categories of assistance under this scheme. The broad areas of this scheme are divided into three components:

Component 1 deals with *Establishment of Enabling Units* for differently-abled persons that would facilitate admission, provide guidance, create awareness about their needs and assist them in equal employment opportunities.

Component 2 focuses on *Providing Access to the environment for their mobility and independent functioning.* The construction plans should clearly address the accessibility issues pertaining to disability. Guidelines on accessibility, laid out by the office of the Chief Commissioner of Disabilities, Government of India (website: www.ccdisabilities.nic.in) may be followed in the case of construction and making the environment disabled friendly.

Component 3 considers *Providing Special Equipment to augment Educational Services* for Differently-abled Persons, special aids and appliances for their daily functioning. Availability of devices such as computers with screen reading software, low-vision aids, scanners, mobility devices, etc., in the institutions would enrich the educational experiences of differently-abled persons.

Application

The purpose of this document study is to integrate differently abled people into higher education while leading a life with dignity and self-reliance. In order to achieve this, an individual with disability should be able to commute between home, university/college, work and other destinations. It is also intrinsically important to design the classrooms, library, washrooms, canteen, hostels, and college buses, parking facilities etc. to make the movement easy. It is equally important to use the technology to make learning in accessible formats to meet the diverse needs of students with disabilities studying in the universities/affiliated colleges.

This document on creating a barrier free environment in Mahatma Gandhi University explores the scientific tested and appropriate usable technologies available today to develop both built and learning environments barrier free and disability friendly. A majority of the accessible designs compiled in this document is meant to provide a barrier-free environment for the independence, convenience and safety of all persons including people who are differently abled.

Who needs accessible design?

In our university, students, faculty, visitors and employees require accessible design.

The target group is composed of 6 major categories:

- 1. Wheelchair users
- 2. People with limited walking abilities
- 3. The sightless and the partially sighted
- 4. The hearing impaired
- 5. People with difficulties in learning
- 6. Those persons who are temporarily disabled due to accidents or illness.

Content

The document deals with the technical considerations and design provisions or measures to be taken into account in the planning of the built environment, transportation and learning environments. This includes issues related to the design of several complementary domains: open spaces and recreational areas, local roads and pathways, the immediate vicinity of buildings, building entrances and the interiors of buildings. For the purposes of this document, all information is divided into 3 sections:

- Urban Design Considerations
- Architectural Design Considerations
- Building Types

I. Urban Design Considerations

This section deals with the design requirements of open spaces, recreational areas and pedestrian routes. It introduces solutions to the principal problems in the design of an accessible outdoor environment.

Ii. Architectural Design Considerations

This section deals with the design requirements of vertical and horizontal access in both new and existing constructions. It is subdivided into following headings:

- Ramps
- Elevators/Lifts
- □ Stairs
- Railings and Handrails
- Entrances
- Reception
- Doors
- Corridors
- Restroom/Toilets
- Classroom
- Library
- Conference Hall/Auditorium
- Cafeteria
- Hostel

Others

- Sports Recreational Area
- Evacuation
- Universal Signage and way finding
- Retrofitting and technological solutions
- Dealing with persons with mobility problem and disability

Iii. Building Types

This section deals briefly with the accessibility requirements of selected building types. To establish building and planning by laws regarding access for disabled people, this section needs to be thoroughly developed based on the size of the target group, classification of the various building types and a study of the specific needs of each campus.

1. Ramps

1. Problem Identification

- □ Inaccessible building entrances due to difference between indoor and outdoor levels.
- □ Inaccessible routes due to differences in level.
- Lack of or improper design of ramps.
- □ Very steep and/or long ramps with no resting landings.

2. Purpose-

□ To provide access to buildings and between different floor levels.

3. Design Considerations

3.1 General

- An exterior location is preferred for ramps to provide wheelchair access to different floors. Indoor ramps are not recommended because they take up a great deal of space.
- □ Ideally, the entrance to a ramp should be immediately adjacent to the stairs.

3.2 Ramp configuration

- Ramps can have one of the following configurations:
 - (a) Straight run
 - (b) 90 turn
 - (c) Switch back or 180 turn



Illustrations of layout and dimension of an accessible 'L' shape ramp



Each landing should have a minimum length of 1.20 m and a width at least equal to that of the ramp. Landings should be provided for resting, maneuvering and avoiding excessive speed

Landing should be provided:

- At least every 10 meters
- At every change in direction & at the top and bottom of ramp



Handrails of ramp should be tubular or oval in section; sharp edges should be avoided.

Handrails diameter should be 30 mm to

40 mm and extend 30-40 mm from wall finish

Tactile marking-

A colored textural indication of width 0.60 m at the top and bottom of the ramp should be placed to alert sightless people as to the location of the ramp

Tactile warning markings have a

Different texture to the surrounding floor finish

And can be detected by people using a long or

Useful suggestions-

Circular and curved ramp should be avoided.

Surface of ramp should be hard and non-slip.



Uneven surface or carpet should be avoided.



2. ELEVATORS/LIFTS

1. PROBLEM IDENTIFICATION

- □ Inadequate space inside the elevator cab.
- □ High position of switches, buttons and control panel.
- □ Narrow entry doors &Low lighting inside the lift
- □ Insufficient opening time interval

2. Purpose-

To provide well-dimensioned and convenient lifts to allow free vertical access between different floors

3. DESIGN CONSIDERATIONS

3.1 General

An accessible lift should serve all floors and its location should be clearly indicated and recognizable. The arrival at each floor should be indicated both by optical and acoustic means to alert passengers with visual and hearing impairments.

3.2 Dimensions



Minimum internal dimensions of 1.30 m x 1.00m allowing access for one person using a wheelchair and turning a full circle, or two people using a wheelchair side by side.

The clear opening width of the doors should be

A minimum of 0.80 m, preferably 0.85 m

Lift Cabin

☐ Handrails inside lift should be installed mounted
 0.80 m to 0.90 m from the floor.

A mirror placed at a height of 0.40 m up to 1.60 m in opposite of the door provides an important orientation aid for wheelchair users.

The internal light should provide a level of illumination of minimum 100 lux

Control Panels

The control panel should be positioned on the flank wall rather than front wall to facilitate
 access. In larger lift, control panel option can be placed on both the flank walls.

Call buttons should be located in between 0.90-1.20 m

The numerals should be embossed to be easy identifiable by touch, particularly the alarm button. It is desirable to repeat the legend in Braille

The lift hall signal should be located at an approximate height of 1.80 m



A clear landing area of minimum 1.50 m x 1.50m in front of the lift doors should be provided

Useful suggestions-

The door opening interval should be no less than five seconds. Re-opening activators should be provided.

The elevator should signal arrival at each floor by means of a bell and a light to alert sightless and hearing-impaired passengers simultaneously.

The floor of the elevator and the area in front of the elevator on each floor should have

a non-skid resilient surface or a low-pile fixed carpet.

The color of the elevator door should contrast with the surrounding surface so as to be easily distinguishable by persons with visual impairments.

3. STAIRS

1. Problem identification

- Poorly designed steps that hinder foot movement.
- Steep staircases without handrails.

2. Purpose

To provide safe staircases for all users, particularly those with visual Impairments, elderly and mobility problems.

3. Design considerations

The careful design of steps and stairs is particularly important for the safety of people with visual impairments and mobility problems



• shaded with color contrast to orient persons with visual impairment

Width of stairs

For one way traffic, clear width-1 m For two way traffic, clear width-

1.50 m

Handrails of stairs:

Handrails should be provided both sides at height of 0.70-0.80 m and 0.90- 1.00 m from floor finish. The handrails must extend a minimum of 0.30 m beyond the top

wall.

In case of wider stairs of width more than 3 m, intermediate handrails should be provided.

Tread and Riser of steps/stairs:

Riser should be 150 mm- 180 mm high and tread should be 280 mm deep

Tread nosing should be clearly marked with either a brightly painted non-slip finish or include an integrated non-slip nosing that clearly contrasts in color from the tread

Tactile marking/ Warning surface:

Provision of tactile marking strips should be provided at top and beginning of stairs to orient people with visual disability

Color texture tactile marking width should be 0.60 m and color contrast with surroundings

Lighting at stairs:

Staircases should be well illuminated during day and night when in use (level of illumination preferably between 150 and 200 lux) to avoid risk of any accident or fall

Stairway lighting requires switches at both the top and bottom of the stairs when the stairs have more than three treads.

Useful suggestions-

Avoid visually distracting patterns on the tread Do not place loose rugs on steps, or at the top or bottom of stairways Provide non slip and rough surfaces at staircase

4. Entrance

1. Problem identification

- □ Inadequate space in front of the entrance.
- □ No distinct accessible entrance.

2. Purpose

To provide accessible and easy-to-find building entrances.

3. **Design considerations**

3.1 General

- For new accessible constructions, all main public entrances should be accessible to an ambulant disabled person.At least one entrance per facility should be accessible to a wheelchair user. In new buildings, the accessible entrance(s) should be the main entrance(s) intended for use by the general public.
- Each accessible entrance should be connected by accessible pathways to accessible indoor or outdoor parking areas, local public transit stops and drop-off areas



Accessible entrances provide direct access to persons using wheelchairs or scooters and are also frequently used as waiting areas for persons requiring assistance

Waiting space

There should be enough waiting space inside the main accessible entrance, either in the foyer or adjacent lobby, for at least two persons using assistive devices. Waiting areas should provide a clear view of the entrance and arrival area for taxis, buses or private vehicles.

Public Accessible Telephone

colleges educational In and institutes/ buildings, it is desirable to provide an accessible public telephone near the accessible entrance. This helps in getting assistance of transportation (taxi) or any other services for persons with sensory impairment.

Glaze at Entrance –

Glazed doors should have glazed panels that extend low enough to allow persons using mobility aids to see what is on the far side of the door (i.e., maximum height from grade 900 mm to lower edge of glazing).

Signage and Information panel at

Entrance

Wall mounting signs such as

room no., class room, library,

public

utilities etc should be place at

height of between 1.30 m - 1.60 m

signs

from floor finish.

Overhangin g

indicating

signage lifts. for staircase, conference room, laboratories, Adequate placement of overhanging signs, information cafeteria etc should be placed at panels and maps minimum height of 2.10 m from

floor finishes.



Maps and information

panel

should be place at a height in

between 0.90 $m-1.80\ m$ from

floor.

□ Signage should be provided

Signage and facilities showing at entrance/reception area

at

campus and buildings at of educational institutes

appropriate locations such as

approach to the building, entrance,

reception, library, laboratory,

□ cafeteria and public conveniences.

Directional signage should

be

consistent throughout the route.



5. Reception/ Information Desk/Service counters

1. Problem identification

Inadequate leg space for wheelchair at reception corner and inaccessible information desk

2. Purpose

□ To provide accessible and easy-to-access information

3. Design considerations

a. General Considerations

Counters and reception desks, including information desk should be accessible and understandable to everybody. This includes all visitors or students in a building, as well as personnel who work on the staff side of the counter.

In larger buildings such as colleges/universities and in public offices, service counters and reception desks are likely to be large, with several positions for staff and students. With this type of arrangement, there will be sufficient space to provide counters at different heights.



To ensure full accessibility of the reception desk for wheelchair users, a section should be at least 0.75 m from floor finish but no higher than 0.90 m (lower edge being at a minimum height of 0.70 m).

Reception desks and service counters should be evenly illuminated to a level of 200 lux.

A hearing enhancement system or induction loop should be provided at all reception desks and service counters



All information at reception or front should be given in accessible format. These could be printed information in Braille, large printed materials, accessible route map etc.

6. **Doors**

1. **Problem identification**

□ Inadequate width for wheelchair at door to enter and utilize the facilities

2. Purpose

□ To facilitate the easy passage through doors, particularly for wheelchair users and people using other mobility aids.

3. Design considerations

a. General Considerations

Internal doors should be in designed in such a way to give easy access to persons with limited mobility.

In general, automatic doors are the best solution for persons with disabilities.

Door dimensions

For exterior door, minimum width should be 0.90 m -1.00m

For interior doors, minimum width should be 0.80-0.85 m

Clear height of 2.10-2.20 m is recommended for all the doors

Accessible door features

Accessible doors have following features-

Visible signage

Kick Plate

Door Handle

An extra pull handle

Dimensions are indicated in photographs

as suggested-

Door Hardware/Locks/Fixtures

All doors opening hardware



finish to ensure clear visibility for people suffering from visual impairment.





entrance, vestibule, and room doors should be easy to grasp and use (e.g., of the lever handled type).

on

Hardware for closet doors, drawer

pulls etc., should be of the simple 'D' type (i.e., a continuous and easy to grasp handle), 75 mm - 100 mm long.

The positioning of lever handles

And push / pull handles should be consistent throughout the building

Lever handles are the preferred

typeof furniture, as door knobs of spherical, circular, or similar design can be difficult to operate for people with, for instance, arthritis, Cerebral Palsy or a weak grip.

The door furniture should contrast

In color and luminance with the door Clear height of door from floor finish- 2.10

m-2.20 m



Useful suggestions-

In general, automatic doors are accessible. Automatic doors are of two types- Swinging door and Sliding door. Sliding door should be preferred over Swinging door.

Revolving doors should not be preferred in any public building type.

Automatic doors should have an adequate opening interval to allow people with mobility

problems easy access

7. Corridor

1. **Problem identification**

Inadequate width and obstructed corridor area makes horizontal accessibility inconvenient

2. Purpose

□ To facilitate the easy passage through corridors, particularly for wheelchair users and orientation for all users.

3. **Design considerations**

a. General Considerations

Generally, corridors should be as short as possible to avoid orientation difficulties and if necessary, changes of direction should be at 90 degrees. In all cases, corridors should be left unobstructed.



low,

corridors may have width less than 1.50 but not less than 0.90 m

Water fountain or any other

facilities

such as fire hoses should be located

outside the corridor area and not

Dimension of an accessible corridor

protrude outside.

| Ageing staff and others with limited | |
|--|--|
| strength and endurance may require | |
| handrail support and/or resting | |
| □ places in long corridors or paths of | |
| travel. | |
| In extended length corridors of 50 m | |
| or more, consideration should be | |
| | |
| given to the provision of a bench or | |
| other seating, located at | |

intermediate points along the corridor for elderly staff and others with visual impairment and limited

mobility

The surface of corridor should be slip resistant.

8. Restroom/Toilets

1. **Problem identification**

- Insufficient space and design of restroom or toilets
- Poor design of fixtures, supporting rails and fittings
- □ Inappropriate taps which are difficult to grip

2. Purpose

□ To provide wheelchair accessible toilets and bathrooms with adequate space, fixtures and fittings at a convenient height for people with mobility problems.

3. Design considerations

a. General Considerations

Accessible toilets should be provided with every floors of educational and public building to assist students with limited mobility or ageing staff. If not feasible, at least one toilet should be made accessible in each building.

It is important to provide sufficient space for persons using wheelchair or any other assistive devices. Also, amenities should be installed at convenient height along with provision of grab bars and handrails to assist persons with low muscular strength and limited mobility.

Features of Accessible Toilet-

- Side grab bar- There is a grab bar on the adjacent side wall that is at least 1.05 m long and from 0.95 m above the floor. Grab bars diameter should be 30 mm to 40 mm
- 2. Rear grab bars- There is a grab bar behind the toilet that is at least 36 inches long and from 0.95 m above the floor. Grab bars should be firmly fixed since considerable pressure will be placed on the rail.
- Flush valve- Flush valve is located in reach range and is operable without tight grasping, twisting, or pinching ____
- 4. Toilet seat height-Height of toilet seat from floor finish should be 0.45 m
- 5. Toilet Center line- The toilet bowl needs to be centered 0.45 m from the side wall, so that persons with disabilities can use the side grab bar.
- Clear floor space- Clear floor space: Adequate space is provided to approach the toilet from a variety of wheelchair transfer positions (i.e. diagonal or side approaches). Generally, the toilet needs to be

placed within a 1.5 m wide by 1.5 m deep clear area of the floor.

- 7. Floor of toilet /washroom should be slip resistant
- 8. An additional push alarm or emergency alarm should be placed adjacent to call for assistance in emergency.





Accessible urinal features and design

Features of Unisex Toilet

9. Classrooms-

1. Problem identification

- □ Narrow door of classroom
- Poor design of fixtures, supporting rails and fittings
- □ Inappropriate seat height for wheel chair user

2. Purpose

□ To provide wheelchair accessible classrooms with appropriate height of desk along with utilization area for people with mobility problems.

3. Design considerations

a. General Considerations

Accessible classroom should be provided with every floors of educational and public building to assist students with limited mobility or ageing staff. If not feasible, at least two desk heights should be made accessible in each class.

Minimum 2% to 5% of the seating available in classrooms should be made accessible to accommodate students with limited mobility or persons using wheelchair. Tables must be between 0.7 m and 0.8 m high with at least 0.6 m of knee clearance to accommodate students in wheelchairs. Adjustable tables are recommended.

1. Table Height - Tables must be between

0.7 m and 0.8 m high with at least 0.6 m

of knee clearance

- 2. Desk clear floor space: If provided, desks and writing tables need to have a 0.7 m by
 1.2 m clear floor space that extends
 0.48 m under the desk and any fixed seat needs to be removable.
- 3. Door width Door width should be minimum 0.90 m for convenient entry for persons using wheelchair
- Classrooms with one entrance and exit should be limited to 45- 50 person capacity.



10. Library

1. Problem identification

- □ Insufficient space between racks
- Poor illumination inside library

2. Purpose

□ To provide wheelchair accessible library with adequate space and utilization area so that persons with disability can move around with convenience.

3. Design considerations

a. General Considerations

All library areas, including checking areas, book stacks and reading/teaching spaces, should be accessible to ageing staff and persons with varying disabilities.



should be designed to be accessible to persons using mobility aids.

Lighting should have minimum

illumination of 200 lux as a benefit to persons with low vision and ageing staff. Lighting fixtures should be mounted at the height of 0.9 m approx from floor finish.

Study tables should be designed

to

accommodate persons using wheelchair and mobility aids, with clear knee space of at least 0.7 m high.

Acoustic quality in library should limit extraneous background noise so that persons with limited hearing abilities can comprehend with ease. Design of Accessible Library

11. Conference Hall/Meeting room/Auditorium

1. **Problem identification**

- □ Inaccessible seating arrangements in the conference hall
- Poor acoustics and absence of emergency signage

2. Purpose

Assistive device accessible conference room with adequate seating arrangement and emergency evacuation mechanism

3. Design considerations

a. General Considerations

Meeting rooms and Conference hall, whether used by the public at large, by visitors to college/universities should be designed to be accessible to persons with varying disabilities, including persons using mobility aids and persons with sensory limitations.

Accessible seating should be distributed and integrated throughout seating areas of conference rooms with different vantage points available to all including persons with disability.

Accessible conference hall/Auditorium area should accommodate persons using various mobility aids.



Clear exit and emergency area should be marked with appropriate accessibility signage.

A foldable wooden ramp of 1: 12 width ratio should be provided to help persons with limited mobility getting on stage.

| Number of seats | Number of required | |
|-------------------|--------------------|---|
| in a seating area | spaces for | |
| | wheelchair users | |
| up to 600 | 6 i.e. 1/100 | |
| up to 1000 | 6+2 | |
| over 1000 | 8+1 for each | Dimension of Auditorium/Conference hall |
| | additional | |
| | increment of 1000 | |
| | seats | |
| | | |

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Induction loop system- For Conference

room, sound regulation via induction loops is ensured and clearly marked.

*What is Induction loop system? : People with hearing impairments find it difficult to grasp mass audio activity. In an enclosed 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.



Inuction loop system and signage

12. Cafeterias/ Dining areas -

1. Problem identification

- □ Insufficient space inside the cafeteria
- □ High level of tray rail to access food services from counter

2. Purpose

Accessible cafeteria /mesh with appropriate design of food counter, passageway and seating arrangement.

3. Design considerations

a. General Considerations

Cafeterias and restaurant areas providing food or beverage services should be accessible to persons with varying disabilities, including persons using mobility aids.



Major passageways should be a minimum of 1065 mm wide. If space is constraint, the narrowest passage should be at least 810 mm wide.

At least one counter section of cafeteria should be no higher than 915 mm from floor finishes to allow person using wheelchair to access food and beverages.

Display of menu items should be fixed at

eye level- 915 mm from the floor surface.



Dimension of accessible Cafeteria/ Dining

area/Hostel Mesh

(Hint- 1 meter = 1000 mm)

13. Hostel -

1. Problem identification

- □ Inaccessible entrance due to lack of ramps / lifts
- □ Inappropriate furniture and desk height which makes wheelchair transfer difficult

2. Purpose

□ To provide wheelchair accessible hostel with adequate space, desks, furniture, fixtures and fittings at a convenient height for people with mobility problems.

3. Design considerations

a. General Considerations

Minimum 2% of the rooms available in hostel should be made accessible to accommodate students with limited mobility or persons with disability or any hidden impairment.





unobstructed

and no any protruding objects should

hinder the mobility of persons using

assistive devices.

Bed and furniture

- **1. Table Height** Tables must be between 0.7 m and 0.8 m high with at least 0.6 m of knee clearance
- 2. Desk clear floor space: If provided, desks and writing tables need to have a 0.7 m by 1.2 m clear floor space that extends

0.48 m under the desk and any fixed seat needs to be removable.

Design approach of accessible hostel in universities

| 3. | Beds- Bed height from floor surface | |
|----|--|---|
| | should be appropriate for wheelchair ^I transfer. It should be in between 0.45 m | Design approach of accessible furniture in hostel |
| | -0.50 m from floor surface | |

4. **Bed transfer space**: Clear transfer space should be in between 0.75 m 1.2 m from a wheelchair to the bed.

Others-

Sports /Recreation area

Sports fields, outdoor and spectator areas should be accessible to student with varying disabilities.



minutes is difficult for persons with mobility problems and therefore seating has to be provided wherever people may have to rest along the circulation path.

Design approach of access points at sports area

Design approach of sitting points at sports area



Accessible Seating provisions for ageing staff (Hint- 1 meter = 1000 mm)

Evacuation Plan/ Safety Measures

Ageing staff, Persons with limited mobility and varying disabilities are greater risk during fire and any other emergencies as they may not be able to help themselves autonomously than general people. It is important to ensure that a comprehensive evacuation plan and operational strategies are in place in case of a fire or other emergency.

persons with disabilities (including staff and visitors)

All university buildings with floors above or below grade should develop a fire-safety and emergency plan, indicating in detail the preferred evacuation area strategies for

Strategies can include creation of separate areas for exiting to a safe area on the same floor or creation of safe holding area. For persons with hearing impairment, early warning system in the form of visual flashing lights should be installed. Similarly, Hooter alarm or an alarm with flashes is helpful for persons with varying disabilities.

Emergency signage and way finding should be installed to orient during emergencies for safe evacuations.



Design approach of accessible evacuation route

Universal Signage and Way finding

Signage and way finding is required in all public buildings such as college, universities, hospitals, government offices to provide direction and information to reach particular destination.

The "International Symbol of Accessibility" should be used to identify special amenities, such as accessible parking, accessible entrances, or accessible washrooms.

The design of signs should allow for contrasting colors, serif-free text, simple an consistent use of symbols and the provision of tactile information, including Braille

Signs need to be carefully located so as to help visitors throughout their journey by providing information at junctions or in long passageways.

The height of the sign should be lower rather than higher as there is no perfect height for all visitors and be tactile/Braille enabled.



Wall mounted signs indicating room numbers should be in between 1.4-1.5 m (60 inches) from the floor.

Signage should be placed towards latch side of the door

Overhanging Sign-

Overhanging signs should be located at 2.10 m or 80 "from floor finish to allow safe passage of persons with low vision or visual disability.

Fixed Sign-

Fixed sign indicating street names should be mounted at height of 2.50 m from floor surface.

Maps and information sign-

Maps and information at universities or public building should be place at height of 0.90 m to 1.20 m from floor surface. This is usually the viewing region for persons using wheelchair



Dimension of accessible signage

(1 inch= 0.025 m

Pictograms –

Symbols of accessibility are required to identify text telephones, assisted hearing systems. Colors chosen to be navy blue with white lettering.

> Symbols and border and size to be200 mm x 200mm square with 1.25 mm borders





Pictograms must be placed in a 6 inch

high "field" area, which should be free of raised characters or braille dots.

When text and braille dots are used

with a pictogram, they should be placed directly below the pictogram field.

Pictograms should have a non-

glare

finish and contrast with background

Accessible pictogram

facilities

showing individual facilities should be

installed at entrance, reception

Dimension of accessible pictogram

Tactile Indicators



like pole, trees, potholes etc and should be regularly maintained

Different types of tactile indicators

Parking-

| | Ensure the route between the car park and the | |
|--|--|--|
| | entrance to the building or facility is accessible and easy to understand | |
| Parking should be accessible, easy to use, and should provide sufficient parking spaces within a building environment to meet the needs of all people expected to use them. Wherever car parking facilities are provided, they should consider the needs of all car users, including parents and caretakers with young children; people who need to load and unload goods and shopping; people with visual difficulties; and people who use larger vehicles such as vans with rear hoists that enable wheelchair users to travel while seated in their wheelchair. | Provide clear signage to highlight location of designated parking spaces within the car park. | |
| Standard car parking spaces are typically 3500mm wide x 5000mm long should be | | |
| allocated at a convenient place near the office entrance or reception with international symbols of accessibility as shown in the figure | | |
| | | |
| The parking spaces reserved for persons with | | |
| a | | |
| disability shall be located in proximity and with an accessible route to entrance | | |

Ratio of accessible parking

| Total no of car | Required no of |
|------------------|------------------------|
| parking in a lot | accessible car parking |
| 1 | 1 |
| 51-150 | 2 |
| 151-250 | 3 |
| 251-350 | 4 |

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Retrofitting and Technological solutions-

Existing facilities that will remain in use and are not currently accessible must be evaluated for accessibility. Facilities can be inaccessible due to narrower doors, absence of ramp or inappropriate gradients, no provision of lift, small washrooms, absence of hand railings and supportive grab bars and so on.

A careful examination of infrastructure by doing access appraisal is first key step to prioritize accessibility concern. Following are some basic examples of creative retrofitting and technological solutions to improve the accessibility-



Step at entrance- inaccessible for

Wheelchair user



Step at entrance can be replaced by accessible ramp



Pathway with step

Pathway after retrofitting solutions

Technological Solutions

Vertical lift-

The innovative design ensures that special emphasis has been placed on the needs of both the lift user and the building owner in facilitating compliance with the current disability legislation.



Stage lift –

The STAGE lift is a safe, simple and cost effective accessibility solution for low-rise vertical barriers such as stages and podiums. This lift is easy to use and can be wheeled out of sight when wheelchair accessibility is not required.



Evacuation Trac-

In the event of a fire or earthquake, elevators should not be used for the emergency evacuation of a building. In this situation, people with limited mobility may be trapped or have to wait for a prolonged period of time in an area of refuge. This evacuation trac gives technological solution to transfer from wheelchair to the comfortable place during emergency.



Portable / vehicle loading Ramp-

This type of portable ramp can be carried to different locations during travel. Mostly used for outdoor activities, persons with wheelchair have easy access to any transport services.



Battery operated accessible cart-

Battery operated accessible cart is mostly used in large campus area to help persons with disability to reach different



faculties/departments in universities /institutions.

Dealing with persons with mobility problem and disability-

- Individual who use wheelchairs may require different degrees of assistance. Offer help whenever asked or required. Do not automatically assist the individual without permission. It is ok to offer assistance. However, if the offer is not accepted, respect his/her request! It is recommended to find a place where you can sit down to give the individual a more comfortable discussion or interaction.
- When walking with someone with a visual impairment, offer them your arm for guidance. They will likely keep a half-step behind to anticipate curbs and steps.

- It is recommended to keep conversations clear and find a quiet location to communicate. While interacting with persons with hearing impairment speak directly making sure that your lips are visible.
- Assistive devices such as Wheel Chairs, walking aids, canes are means of freedom to fully engage in life. This can be used by people with temporary ailments, elderly, pregnant woman, joint pains, limb weaknesses, and persons with disability and people with hidden illness such as Asthma, Diabetes, overweight, Osteoporosis. Offer help as and when required if someone have difficulty in accessing various departments.
- The barrier free environment policy involves conducting of an Access Audit in the university campus using the comprehensive 'Accessibility Audit Checklist' prepared in line with the guidelines issued by the Ministry of Social Justice and Empowerment (MOSJE), UGC, AICTE etc to identify the state of accessibility and barrier free environment for persons with disability and elderly persons.

Other Salient Features:

- To engage the service of a barrier free design expert and architect to audit the disabledfriendliness of all physical segments of the university.
- To ensure disabled-friendly features like ramp (of a gradient not greater than 18-20 degrees), lifts (wide enough for wheel chair, and with Braille control switch panel and audition), special assistive fixtures and fitting (like handrails and grab bars alongside the side walk of steps and staircases), and disabled friendly washrooms in all future construction projects.
- To allow a grace period of three months for M.Phil and six months for Ph.D. students who are physically challenged in the submission of dissertations.
- To ensure at least one terminal in the computer workstation (of all departments, centres) with special assistive technologies, preferably open source, for physically challenged students.
- To ensure the websites of Mahatma Gandhi University and its statutory teaching

departments and the affiliating colleges incorporate features friendly to the visually challenged (including colour contrast, variable font size and audition).

- To create a special fund to handle all income and expenditure relating to addressing disability issues of Mahatma Gandhi University including constituent colleges. Besides central and state funding and UGC special assistance, funds are also received from MP/MLA development plan assistance for constituencies, and rules permitting, from the private sector companies (who may fulfil it as part of corporate social responsibility).
- To highlight the aspect of disabled-friendliness in all notifications for admission and appointment released by the university with the statement "MGU is proactive to the needs of the physically challenged" is inserted.
- To impart advanced learning, intervention and research in the area of disability studies, rehabilitation and mental health through institutions like School-School of Behavioural Sciences, Inter University Centre for Disability Studies etc. The main focus of the initiatives is to provide individualized and holistic educational support mechanisms for managing disabilities including learning disability.