

Design for All



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inspires his students and colleagues to approach their design solution as "Design for All". During his past tenure as Urban Planner in Andhra Pradesh urban Finance and Infrastructure Development Corporation, he was instrumental in initiating the projects of road signage including braille inscriptions in Kakinada Smart City. Architect Mahapatra's latest research work titled "Accessibility in core areas; Case study: Road stretches in Kolkata and Shimla, India", co-authored with Prof. Dr. N. R. Mandal (HOD, Dept. of URP, SPA Bhopal) has been presented in the 2nd International City Regeneration Congress, Tampere, Finland in 2017.

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Editorial

'How a society treats its disabled is the true measure of a civilization.'

- Chen Guangcheng

'Design for All: A Publication of Design for All Institute of India,' is no longer a magazine for sensitizing the thought of Universal Design or Architectural endeavours. By 2018, it has already become an integral part of architectural discourse in Indian context. This magazine has inspired me and a generation of aspiring professionals to know what is going on and to believe what is necessary for the society at large. Especially in the field of Universal Design or Barrier Free Architecture, this magazine has been an absolute pioneer in establishing the need, importance and relevance of such issues which were by and large avoided by policy makers, architects, planners, civil engineers and designers till late 1990s.

Being an ardent follower of this magazine since my undergraduate days, it gave me utmost satisfaction when Dr. Bhatia or Bhatia Sahab (as he is popularly known) thought that I would be apt for being the guest editor for a Special Edition of "Design For All" in November 2018 (Vol-13 No-11). In this editorial column, I shall mention about the theme of articles/papers/projects that are selected for publication in this issue. However, let us first discuss about the present Universal design scenario in our country.

Urban population in India was recorded as 377.1 million in 2011 which is approximately 31 percent of the total population of the country (Census of India, 2011). Population projections by Census of India indicate that the urban population may increase to approximately 50 percent of the country's population by 2050. It is only lately that there has been a sustained focus in India by successive governments to improve the quality of life and infrastructure in cities. One of such

initiatives has been 'Accessible India Campaign' (launched in December 2015) in consonance with the Article 9 of UN Convention on the Rights of Persons with Disabilities. The scheme, inter alia, has a target to make at least 50% government buildings disabled friendly in each of the state capitals till 2018 and make 25% of the public transport vehicles as disabled friendly till mid-2017.

To be a part of this editorial team, even for a single edition, opened a new window for me in terms of academic pursuits. I wanted this edition to be a platform to showcase some of the original research work of the editor as well as some students work from GITAM School of Architecture, GITAM (deemed to be University) Visakhapatnam campus. This special edition of 'Design for All' is divided into four sections.

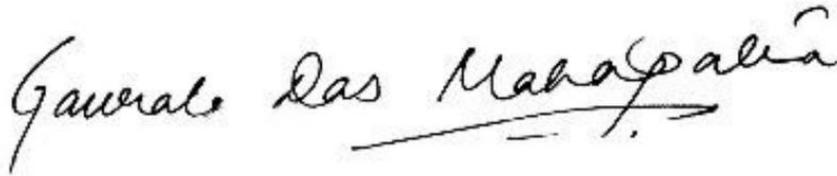
The first section titled "Original Research Work" contains two papers. The first paper titled "Accessibility in core areas of cities; Case study: Road stretches in Shimla, Himachal Pradesh, India" helps us to find out the problems related to accessibility in public buildings, prioritize the accessibility related issues while planning for development of a city (especially old core), and ascertain preferences of transport modes and problems faced by commuters with regards to walkability in a an old core city area in hilly regions. The second paper titled "Role of Motion Pictures in shaping peoples' attitude towards disabilities" shows a methodology which enables us to imagine movies or motion pictures as an integral tool to raise awareness about disabilities.

The second section titled "Awareness initiatives" contains glimpse of an initiative which was undertaken by the guest editor and his colleague as a part of Sensitization Program regarding Universal Design scenario through a workshop in PMCA, Cuttack in October 2018.

The third section titled "Academics and Design for All" comprises of three articles of Undergraduate B. Arch. 7th Semester students from School of Architecture, GITAM (deemed to be University) Visakhapatnam Campus, and one paper by an Assistant Professor which deals with the aspect of Universal Design and Barrier Free Space Standards. The first article in this section titled "Statutory Basis of Universal Design Platform" focuses on the statutory implications of the Universal Design Scenario in 21st Century India. The second article titled "Universal Design Components in Public Space" is a narration of how the public spaces might be designed to be universally accessible. The third article in this section titled "Transitional Spaces in Barrier Free Architecture" tells us the importance and sensitivity with which an architect should perceive the notion of spatial transition in Universal Design paradigm. The third article titled "Barrier free interaction spaces in University campus" shows us the attributes of a Barrier Free Campus, which would ensure an equitable opportunity in the educational campuses for specially abled and able bodied alike.

The fourth section titled "Design for All – a design perspective" contains three study papers by Undergraduate B. Arch. 7th Semester students from School of Architecture, GITAM (deemed to be University) Visakhapatnam Campus, which lays emphasis on the finer design level features other than Universal Design. The first paper titled "Effect of interiors and its visual linkage to exteriors to enhance spirituality of an enclosed place" enables us to know the everyday spaces in an unveiled perspective. The second paper in this section titled "Healing Architecture" introduces us to the style of architectural design which actually helps healing through design; at places, where people from all walks of life are involuntarily taken to. The third paper titled "Impact of thematic landscapes on campus design" shares the relation between landscaping and a successful campus design.

I hope that this special edition becomes a memorable edition in the glorious history of this prestigious magazine. I would like to extend my heartfelt thanks to all those who contributed to the content of this magazine. I would also thank Prof. Dr. K. Mohan, Director, GITAM School of Architecture for his constant support to research and publication activities in the campus.



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Dated: 1st October, 2018

Place: Visakhapatnam

Section 1:

Original Research Work



Dr. Nikhil Ranjan Mandal

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Professor & Head of the Department, Urban & Regional Planning, SPA Bhopal, Madhya Pradesh, India.

Professor Dr. N.R. Mandal is a dedicated researcher and propagator of Universal Design in the planning paradigm. Having authored a number of national and international publications, Professor Mandal is an immense source of inspiration to his students and colleagues. Besides Universal Design, his area of research includes Industrial Development Strategies for Resource Based Regions, Urban Competitiveness, Role of Development Controls in Urbanization, Housing Quality Assessment, Aptitude for Architectural Education and Landscape Design Criteria for Eco-Tourism. His latest research work titled "Accessibility in core areas; Case study: Road stretches in Kolkata and Shimla, India", co-authored with Architect Gaurab Das Mahapatra has been presented in the 2nd International City Regeneration Congress, Tampere, Finland in 2017.

Contribution Details:

- **Section 1: Original Research Work**
- **Paper: 1**
- **Paper Title: Accessibility in core areas of cities; Case study: Road stretches in Shimla, Himachal Pradesh, India**



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Accessibility in core areas of cities;

Case study: Road stretches in Shimla, Himachal Pradesh, India

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ABSTRACT

Lately there has been a sustained focus in India by successive governments to improve the quality of life and infrastructure in cities. One of such initiatives has been 'Accessible India Campaign' (launched in December 2015) in consonance with the Article 9 of UN Convention on the Rights of Persons with Disabilities. The scheme, inter alia, has a target to make at least 50% government buildings disabled friendly in each of the state capitals till 2018 and make 25% of the public transport vehicles as disabled friendly till mid-2017. In this context, to assess the ground level scenario, a case study was undertaken. It's a stretch of 6 km of Mall Road: a pedestrian colonial streetscape with huge tourist footfall in popular Indian hill station Shimla (2276m above MSL, state capital of Himachal Pradesh).

The case study of mall road stretch in Shimla focuses on assessing the accessibility scenario of selected public buildings abutting the road as well as the amenities available along the road. This study helps to find out the problems related to accessibility in public buildings and prioritize the issues related to accessibility. Considering the inferences from case studies, different interfaces (query building) have been proposed for further preparation of a mobile based application as an assistive tool for people with disabilities, through results obtained from questionnaire survey and Geographic Information System (GIS) based mapping.

Keywords: Accessibility, Walkability, GIS Mapping, Shimla

1. INTRODUCTION

Urban population in India was recorded as 377.1 million in 2011 which is approximately 31 percent of the total population of the country (Census of India, 2011). Population projections by Census of India indicate that the urban population may increase to approximately 50 percent of the country's population by 2050. Aware of this growing trend of urbanization and its contribution to the growing national economy, successive governments in India presently have renewed its focus on improving the built environment and governance of its cities. To this end, since 2015, the Ministry of Urban Development [presently: Ministry of Housing and Urban Affairs], Government of India has launched four major missions/schemes. They are, a] Atal Mission for Rejuvenation and Urban Transformation (AMRUT), b] Smart Cities Mission, Heritage City Development and Augmentation Yojana (HRIDAY), and c] Housing for All (Urban). In addition to these, there has been another initiative by the Ministry of Social justice and Empowerment: 'Sugamya Bharat Abhiyan' or 'Accessible India

Campaign' (launched in December 2015) in consonance with the 'Article 9 of UN Convention on the Rights of Persons with Disabilities'.

Fundamentally, accessibility is a way of assuring equitable quality of life to all citizens. In this context, there has been a noticeable paradigm shift. This shift may best described as planning for "We and Us" especially in the social and physical realm (Finn Aslaksen S. B., December, 1997). The latter scheme, inter alia, has a target to make at least 50% government buildings disabled friendly in each of the state capitals until 2018 and make 25% of the public transport vehicles as disabled friendly until mid-2017. Following the global thinking, there is a rising concern in the concept of inclusiveness in the built environment in India as well. Earlier, India had a few limited provisions and regulatory mechanisms to this end and lately have embarked upon the path of formulating the same; e.g., a] IS 4963: Recommendations for Buildings and Facilities for the Physically Handicapped (1987), b] "Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1996, c] Guide lines and space Standards for barrier free built environment for disabled and elderly persons (Central Public Works Department [CPWD], 1998), d] 'Planning a Barrier Free Environment' (Ministry of Social Justice and Empowerment, 2001), e) National Building Code-Annexure-D, CPWD Guidelines, Guideline of Barrier Free Environment (2005), f) Guidelines for Pedestrian Facilities (Indian Road Congress, IRC-103, 2012),and g) Harmonised Guidelines and Space Standards for Barrier-Free Built Environment for persons with Disability and Elderly Persons (2016). It may be noticed from the above list that while regulatory mechanisms were limited only for the physically handicapped within buildings and facilities; progressively, detailed guidelines have been prepared covering other components of the overall built environment in cities. However, as many of these have been guidelines and not mandatory rules to be followed,

implementation of the same to achieve barrier free or inclusive built environment as a whole has not happened in the past.

It is in this context, an academic exercise (with limited scope of work) was carried out primarily to assess the ground level scenario and with the following two respective objectives: a] to find out the problems related to accessibility in public buildings and prioritize the accessibility related issues while planning for development of a city (especially old core), and b] to ascertain preferences of transport modes and problems faced by commuters with regards to walkability in a an old core city area. For exploring these objectives, a case study was undertaken in the form of a stretch of 6 km of Mall Road. It is a pedestrian colonial streetscape with huge tourist footfall in popular Indian hill station Shimla (2276m above MSL, state capital of Himachal Pradesh).



Figure 1: Sealdah Station Area, Kolkata Figure 2: Shimla Mall Road, Shimla

2. STRETCH OF 6 KILOMETERS IN MALL ROAD, SHIMLA

This section shall elaborate the steps undertaken to find out the problems related to accessibility in public buildings and methods to prioritize the accessibility related issues while planning for development of a city.

2.1. Introduction to study area

It is estimated that there may be approximately 3837 differently abled people in Shimla Municipal Corporation, considering 2.26% as the average percentage recorded in Himachal Pradesh (Census, 2011) amongst the 169578 people residing in Shimla. Mall Road is the most frequented pedestrian road for both the residents and tourists in Shimla. Shimla being a hill town, some of the problems that Mall Road is beset with are for example, steep incline and slippery nature during foggy weather, abutting organic development, etc. Of late, there had been a proposal for a cable-car project which has not become a reality. There is one lift to access a lower level road. Besides, there are only a few stepped access /stairs leading to a lower level road.

2.2. Research Methodology

The focus of the study includes five broad components: a] Site Issues, b] Building Issues, c] Environmental Systems, d] Communication Systems and e] Program Spaces. These five broad components had several sub categories (28 in total across all five broad categories) and subsequently each sub categories were further divided into 3 indicators (84 indicators in total).

- Site Issues includes sub-categories like Access points and their approachability, Parking requirement and prioritization, Passenger loading zone, Pathways and their appropriateness, Vertical circulation, Amenities and their approach, Walking Surfaces and their material adaptiveness, and Public Restrooms and their universal accessibility.***
- Building Issues includes sub-categories like Entry, Lobby, Reception Area, Doorways, Vertical Circulation, Walking surfaces, Amenities, Restrooms and Service counters.***

- **Environmental Systems** includes sub-categories like **Natural Illumination** and its characteristics, and **Artificial Illumination** and its features.
- **Communication System** includes sub-categories like **Information and Direction Signs** with specific details, **Room identification information and specifications**, **Security Systems and Emergency Alarm** with their basic features, **Public address systems** and **Public information technology**.
- **Program Spaces** include sub-categories like **Public Assembly** and its provisions towards accessibility, and **Outdoor Recreation and Exhibit Spaces** and their quantum of provisions for the differently abled.

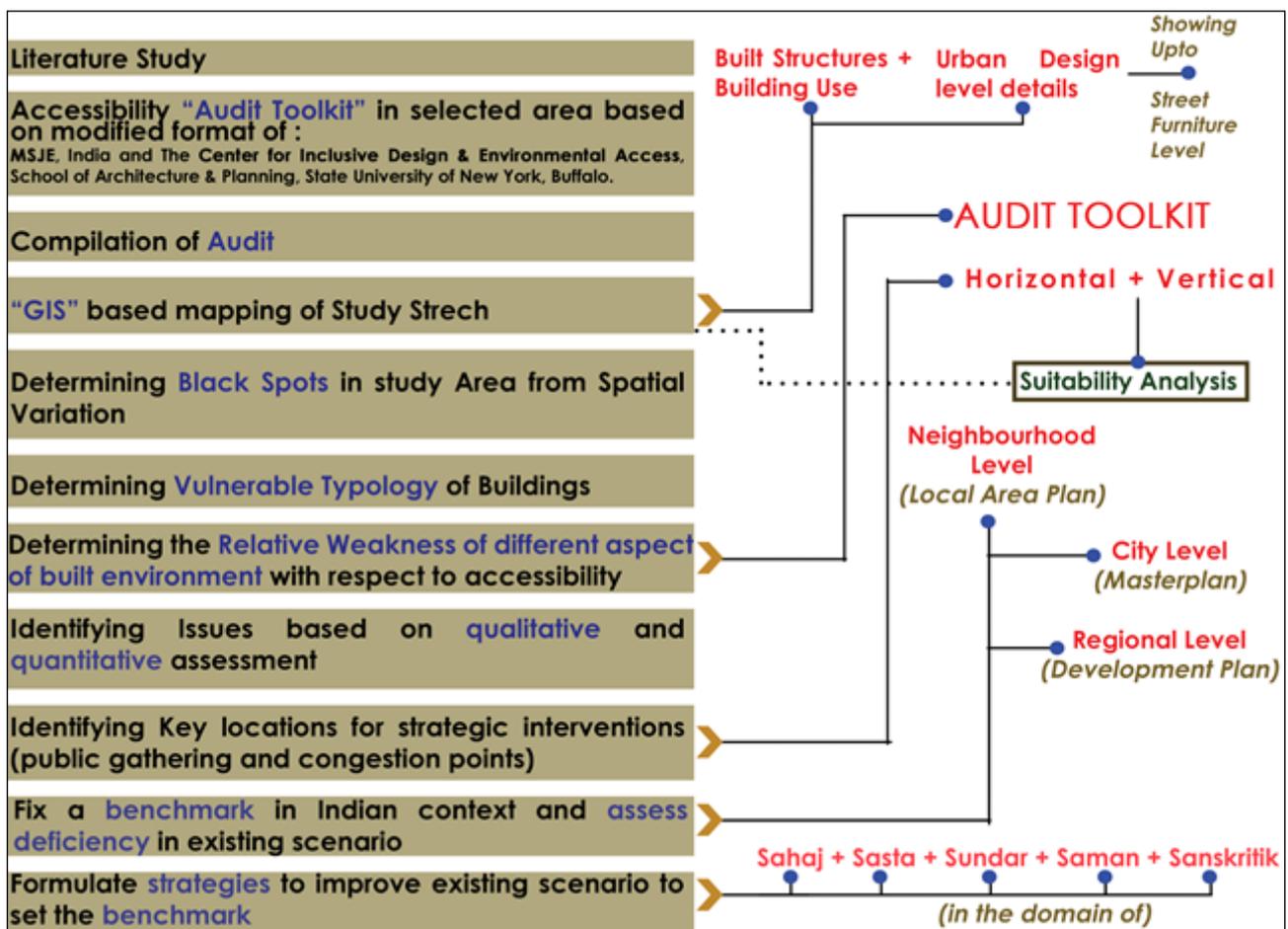


Figure 3: Research Methodology for the Accessibility Study in Mall Road, Shimla

2.3. Survey Techniques

The survey format for this study was prepared with reference to the audit formats of Ministry of Social Justice and Empowerment (MSJE), India and The Center for Inclusive Design and Environmental Access, School of Architecture and Planning, State University of New York, Buffalo. According to the primary observations and demographic study in Shimla, the available survey format was modified to suit the context. The study area of Mall road was divided into six study stretches (as mentioned below), starting from SBI building location to Chief Minister's residence. Eventually, accessibility audits of 60 selected public buildings were done on this stretch.

- ***Stretch 1- SBI to Scandal Point***
- ***Stretch 2- Scandal Point to Mall Road CCD,***
- ***Stretch 3- Mall Road CCD to Lift,***
- ***Stretch 4- Lift to Lower Bazar,***
- ***Stretch 5- Vidhayak House to CM residence, and***
- ***Stretch 6- Lift to Kamala Nehru Hospital.***

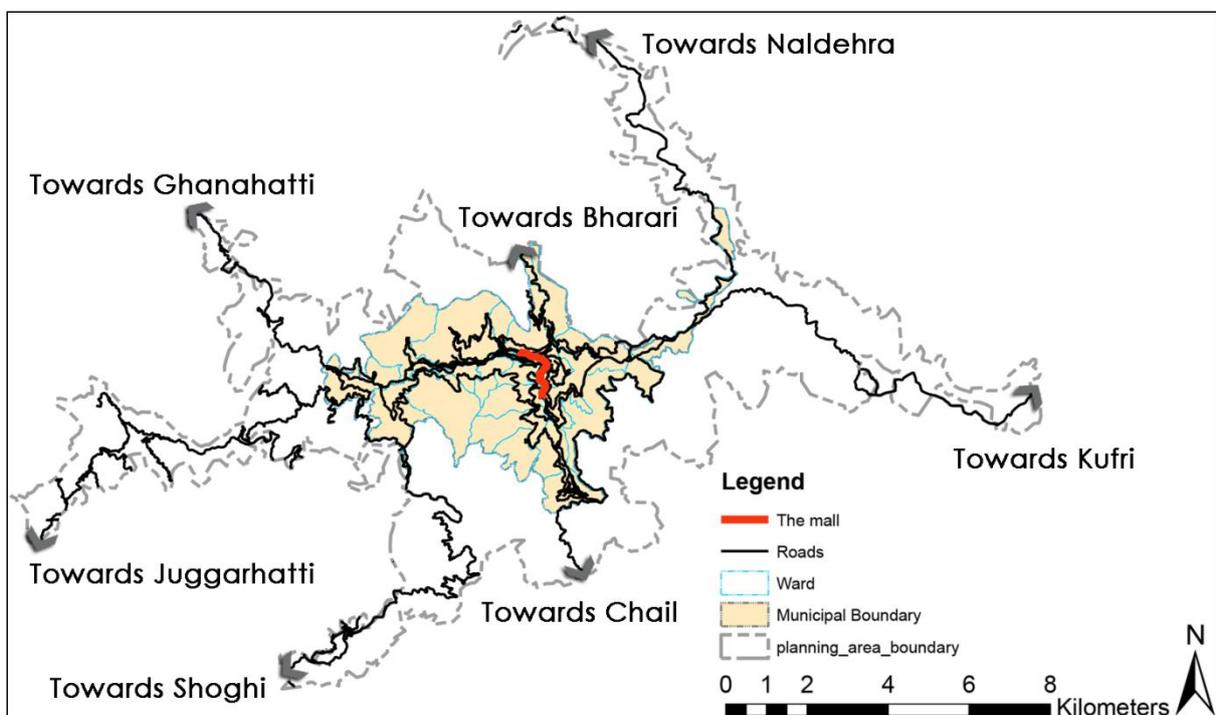


Figure 4: Location of the Study Stretch [Source: Shimla Municipal Corporation]

2.4. Scoring pattern and Indexing method

A total of 60 selected public buildings were surveyed across six stretches (for survey purpose only) with 10 buildings in each stretch. As discussed above, five broad components were considered with a total of 28 sub categories and each of these sub-categories had 3 indicators each. If there is a presence of an element in the surveyed building, the indicator is marked as '1' and if not present, then '0'. If more than one, say two indicators are present, then the score will be marked as '2'. Therefore, the maximum mark that a sub-category can get is '3' and lowest is 0'. For example, if the indicator of 'Required number of accessible parking' in the sub-category of 'Parking' in the broad component of 'Site Issues' is present in the 'Sulabh Sauchalaya' (toilet/ washroom) Complex in Stretch 5 of Mall Road; it receives a score of 1. The following process was undertaken to determine the results of survey:

- For each building, the total score across 84 criteria were summed up and divided by 84 to get individual building wise average accessibility score.**
- Then, the scores of 10 building in each stretches are summed up and divided by 10 to get individual stretch wise average accessibility score and the weakest and strongest stretches were identified.**
- Similarly, sub-category wise average accessibility score was also calculated and the weakest and strongest sub-categories were identified.**
- Similarly, broad component wise average accessibility score was also calculated and the weakest and strongest broad components were identified.**
- Similarly, building-use wise average accessibility score was also calculated.**

2.5. Accessibility Scores

Out of the 60 surveyed buildings of mall road stretch - 76% were buildings with public-semipublic use category, 14% with commercial use category, 6% with institutional use category and 4% were residential buildings. Accessibility score was found to be highest for public-semipublic use category i.e. 0.234, and lowest for residential buildings i.e. 0.190. Individual stretch wise average accessibility Scoring showed that that Stretch-06 have buildings with better accessibility i.e. 0.31, and Stretch-02 from Scandal Point to CCD have buildings with poor accessibility i.e. 0.12.

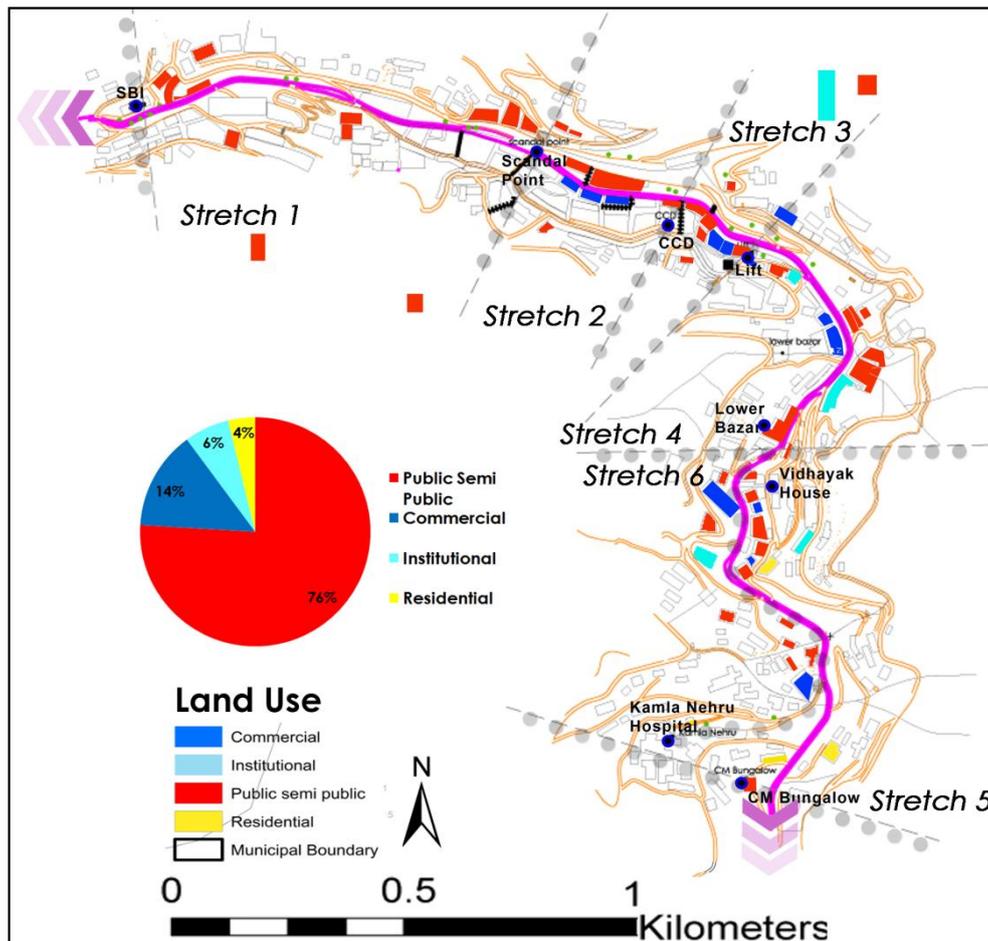


Figure 5: Showing Stretches and Building Uses [Source: Author]

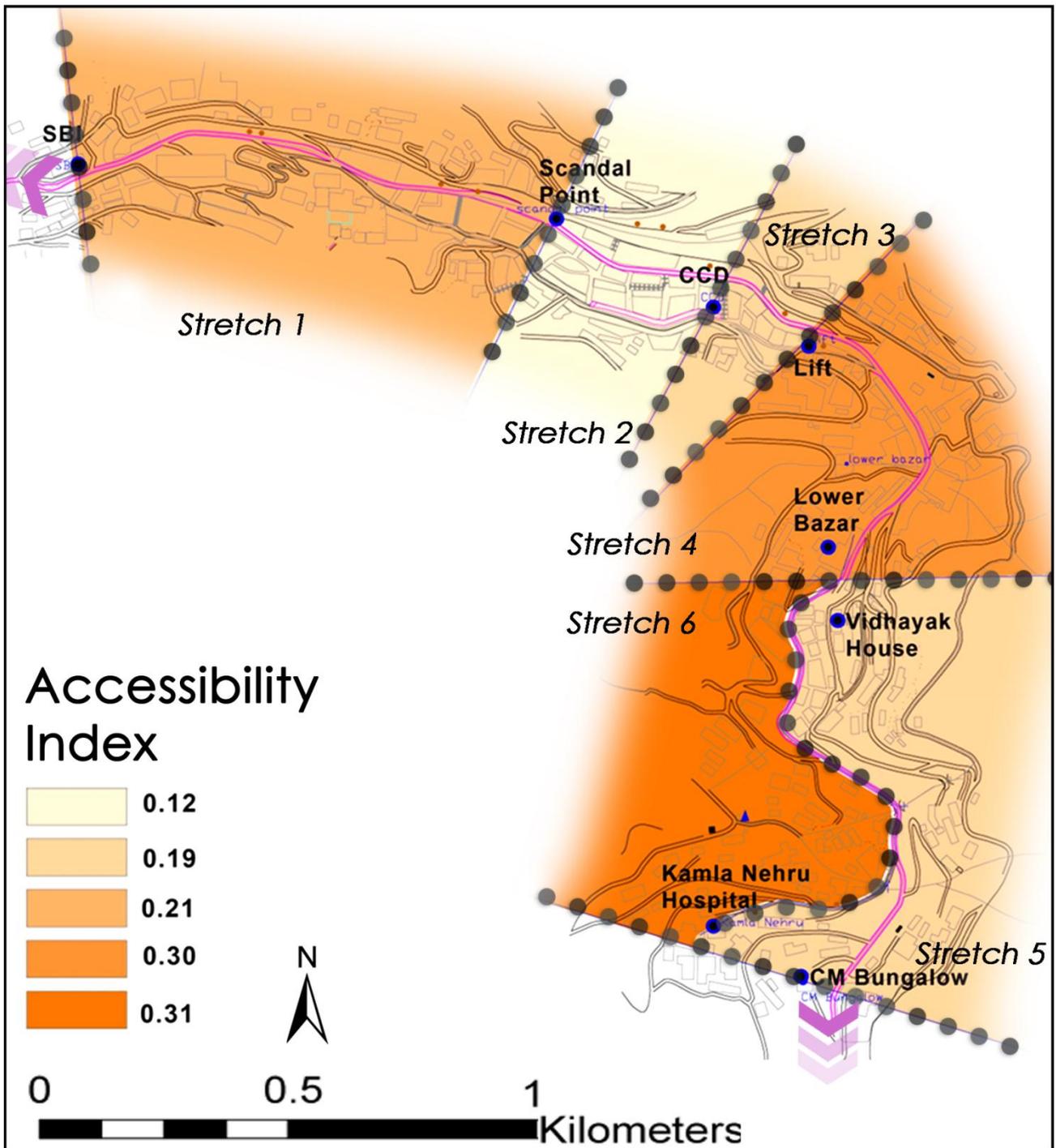


Figure 6: Stretch wise average accessibility score [Source: Author]

Building Typology	Number of Buildings	% Share	Average Accessibility Score
Public Semi Public (Including: Bank, Religious Structure, Government offices, Museums, Library, Tourism Centres, Life Insurance)	60	75.95	0.234
Commercial (Including Restaurant, Clubs, Bazaar Streets, General store, Stationary shops)	11	13.92	0.241
Institutional (Including: Schools, Hospitals)	5	6.33	0.226
Residential	3	3.80	0.190

Figure 7: Building Use wise average accessibility score [Source: Author]

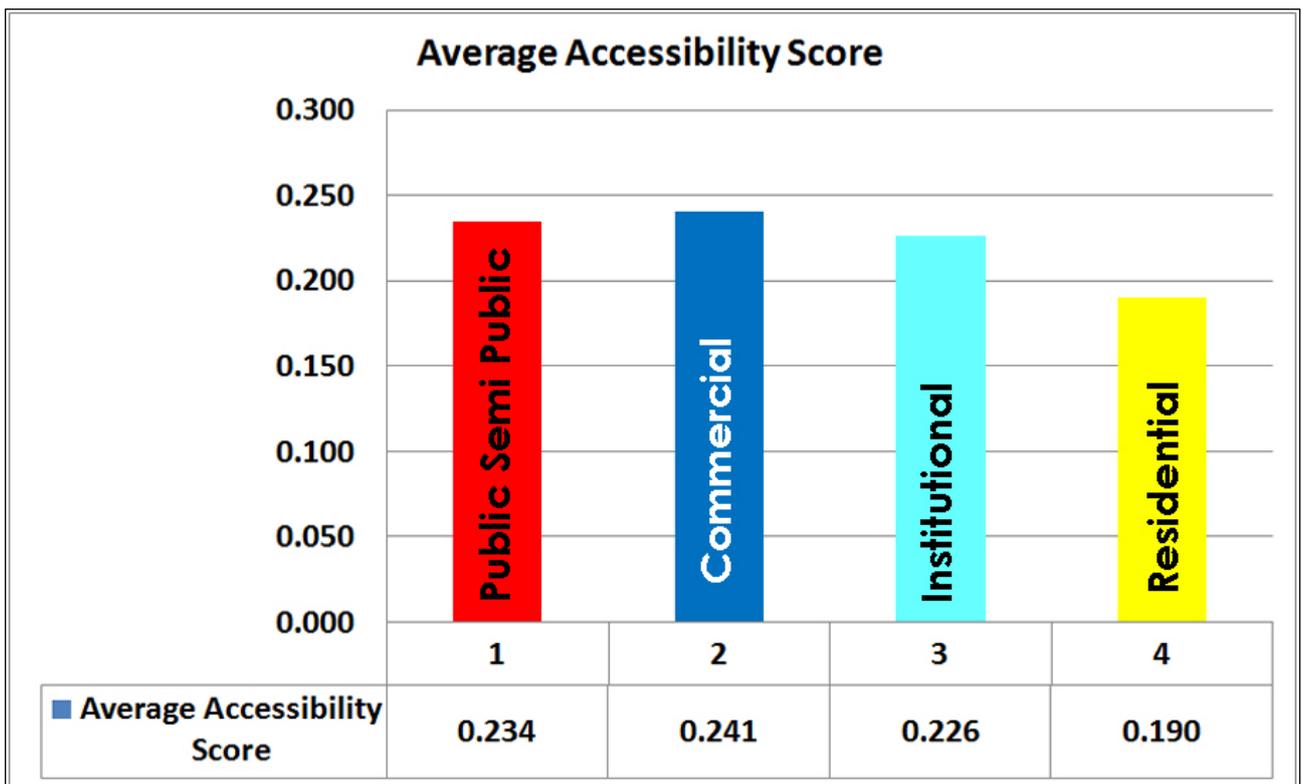


Figure 8: Scores of Building Typologies [Source: Author]

2.6. Accessibility Scores for observed issues

Broad Category of Building Issues has relatively higher broad component wise average accessibility score i.e. 12.36, and Communication system has the lowest score i.e. 9.50 as compare to other three broad components of Site Issues (9.93), Environmental Systems (12.10), and Program Spaces (10.40). In Site Issues as well as building issues, the weakest sub category is vertical circulation. Public address system is the weakest sub category in Communication system issues. In Program spaces, public assembly is the weakest sub category. In overall analysis, Vertical Circulation is the weakest sub-category (with a score of five).

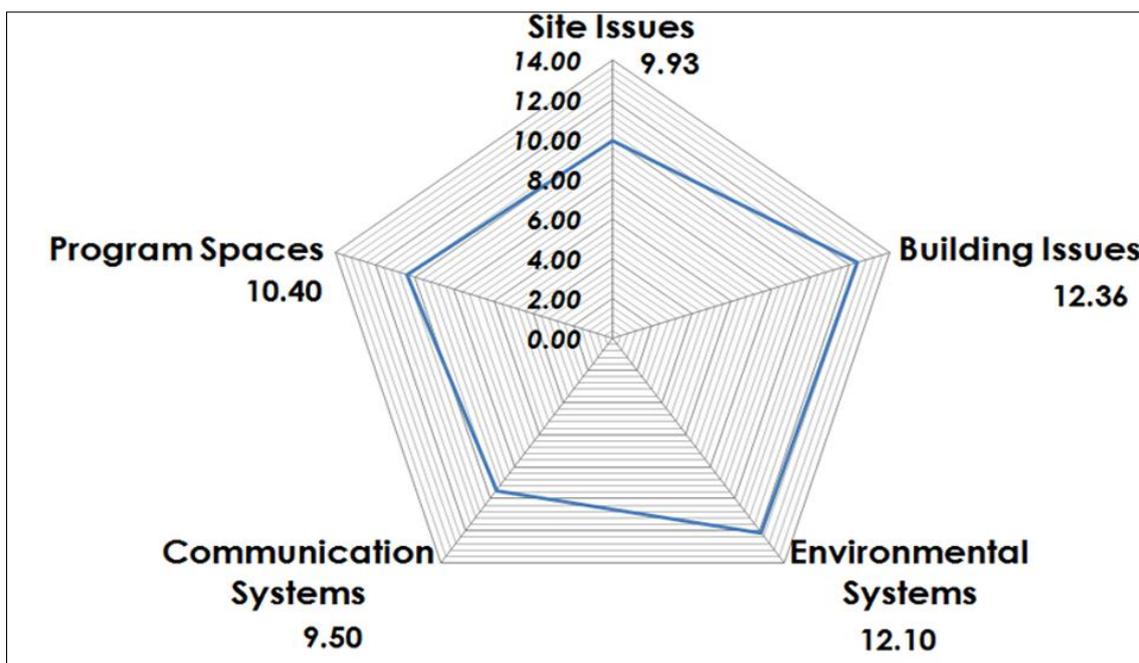


Figure 9: Accessibility Scores of Broad Categories [Source: Author]

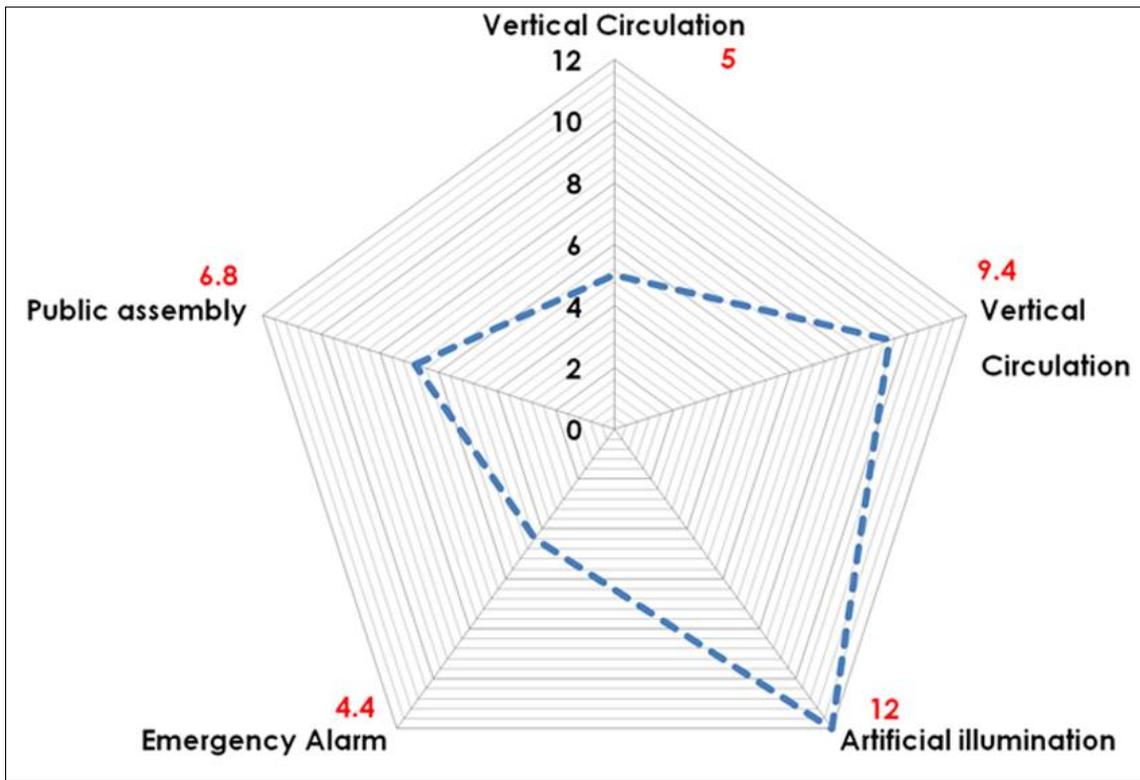


Figure 10: Weakest Sub-Category [Source: Author]

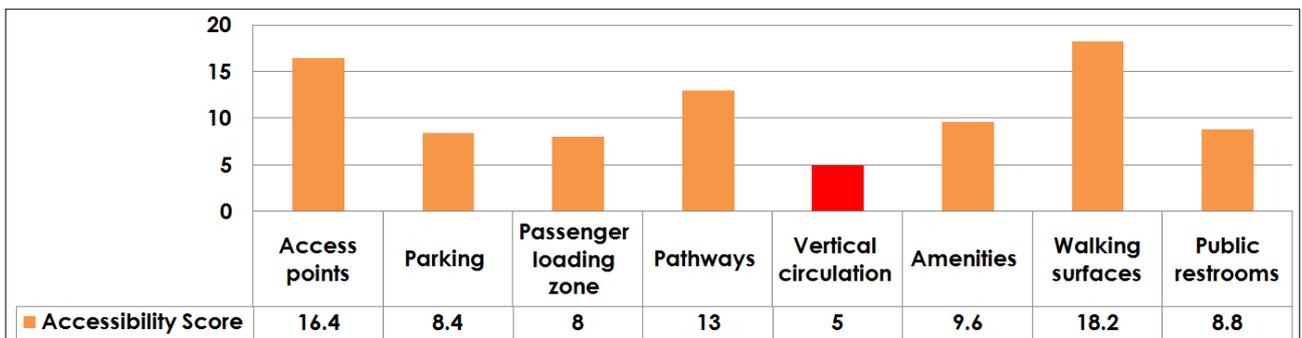


Figure 11: Accessibility Score: Site Issues [Source: Author]



Figure 12: Accessibility Score: Building Issues [Source: Author]

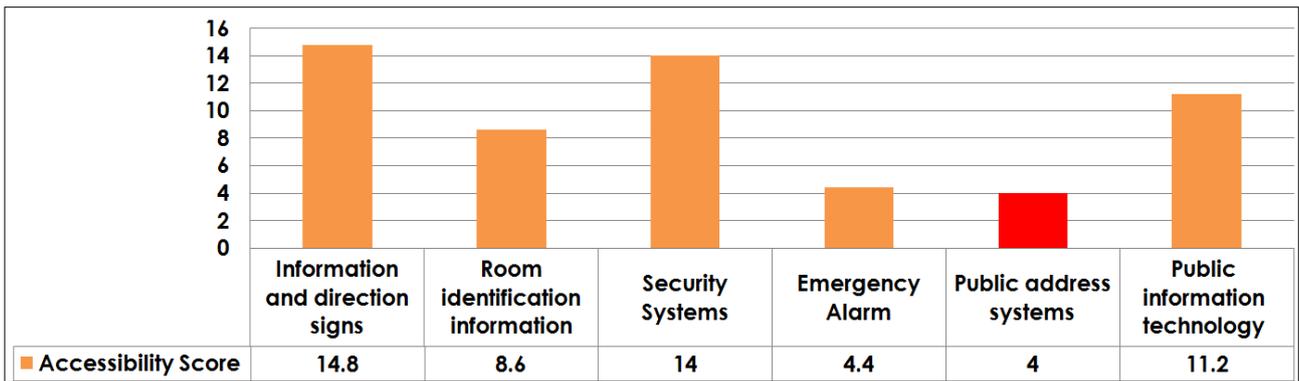


Figure 13: Accessibility Score: Communication Systems [Source: Author]

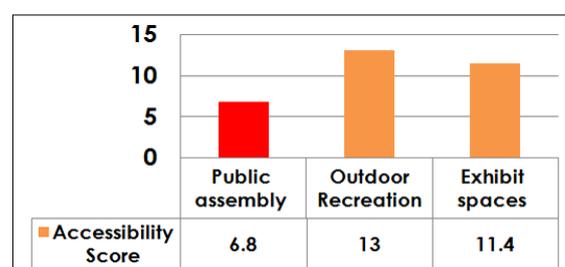
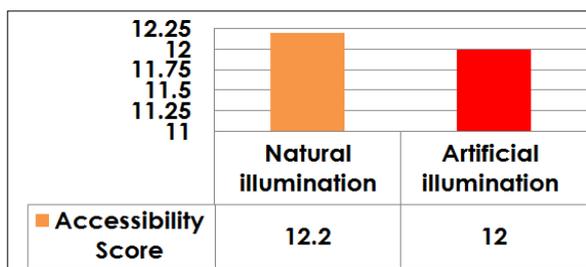


Figure 14: Accessibility Score: Environmental Systems and Figure 15: Accessibility Score: Program Spaces [Source for 14 & 15: Author]

2.7. Critical Discussion

Based on the study as above, it may be noted that stretch 2 faces the maximum challenge in terms of accessibility. Issues of Vertical Circulation, Public Address Systems and Public Assembly appear to be requiring greater attention during development plan preparation. To remove challenges in the site related issues, focus is required on the issues of vertical circulation and public amenities. It was observed during survey that the public amenities do not meet the requirement as set in the standards and guidelines of barrier free environment stated earlier. Roadside seating furniture (street furniture) and public toilets were found to be inadequate and available only at a few poorly accessed places and there is absence of accessible toilets in the Mall road. Vertical connectivity to upper and lower level roads from the Mall road is an alarming issue.

While it would seem that retrofitting and up-gradation of the existing buildings and amenities in the public realm (in terms of accessibility) is necessary, one may prioritize the buildings with commercial and public & semipublic use, which fortunately already score better in this regard. However, amenities and street furniture in the public realm require interventions following the guidelines (national as well as international best practices) for pedestrian facilities.

Since the study had been undertaken as a part of a larger academic exercise of preparing a City Development Plan, some development proposals related to strengthening the vertical connectivity were also suggested as indicated in Figure 16.

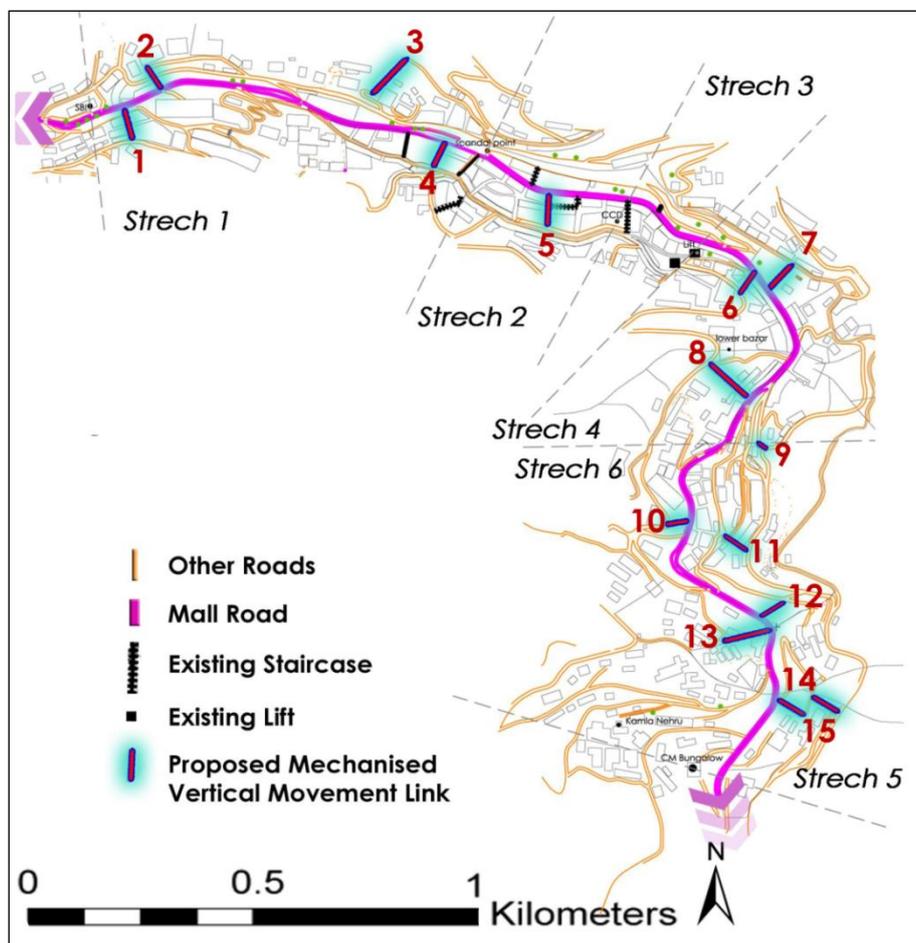


Figure 16: Stregthening Vertical Movement Link [Source: Author]

Link No.	Stretch No.	Moving Direction	Proposal
1	1	Both	Ramp
2	1	DN	Escalator
3	1	DN	Ramp + Escalator
4	1	DN	Escalator
5	2	DN	Travelator
6	4	DN	Travelator
7	4	Both	Ramp
8	4	UP	Ramp + Escalator
9	5	Both	Ramp
10	6	Both	Ramp
11	5	Both	Ramp
12	5	Both	Ramp
13	6	UP	Escalator
14	5	Both	Ramp
15	5	Both	Ramp

Figure 17: Movement Links and Proposed Direction

The list contained in the figure 17 includes all the suggested links, however, links 4, 5, 6 and 8 were prioritized considering pedestrian flow volumes from lower bazaar on the lower road and the Mall road. This aspect of vertical linkages for movement becomes critical owing to the topographical setting of Shimla town and the Mall road area.

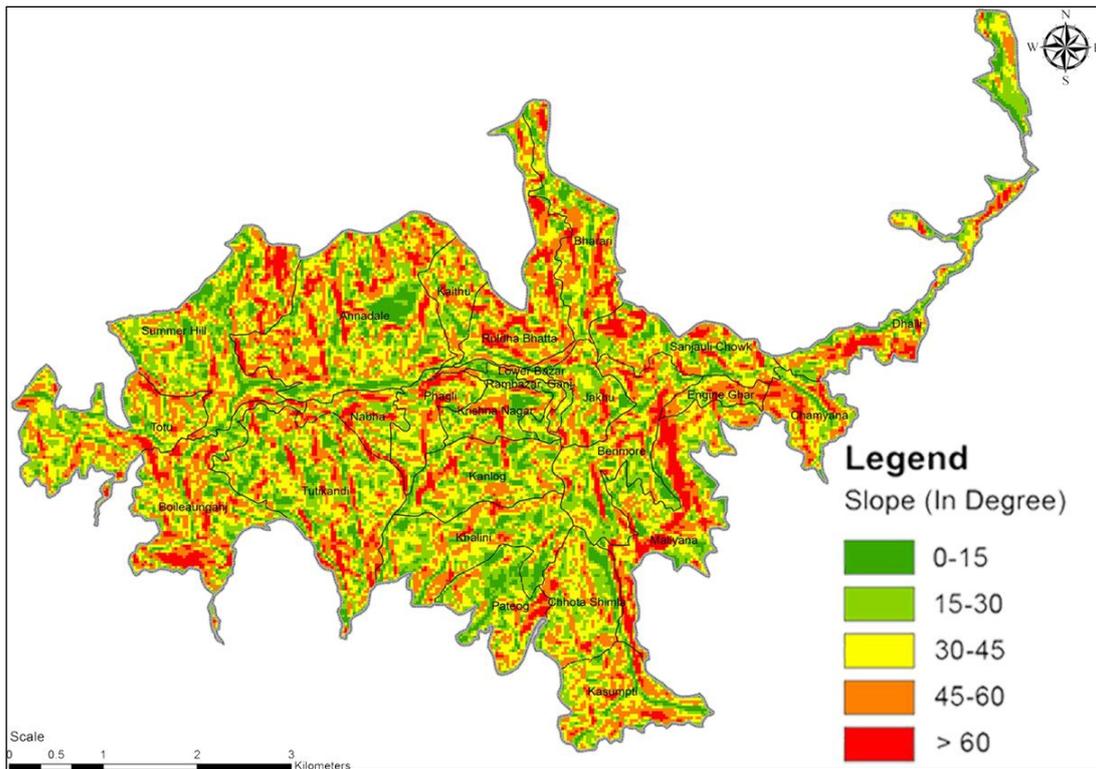


Figure 18: Topography of Shimla [Source: Author – using GIS]

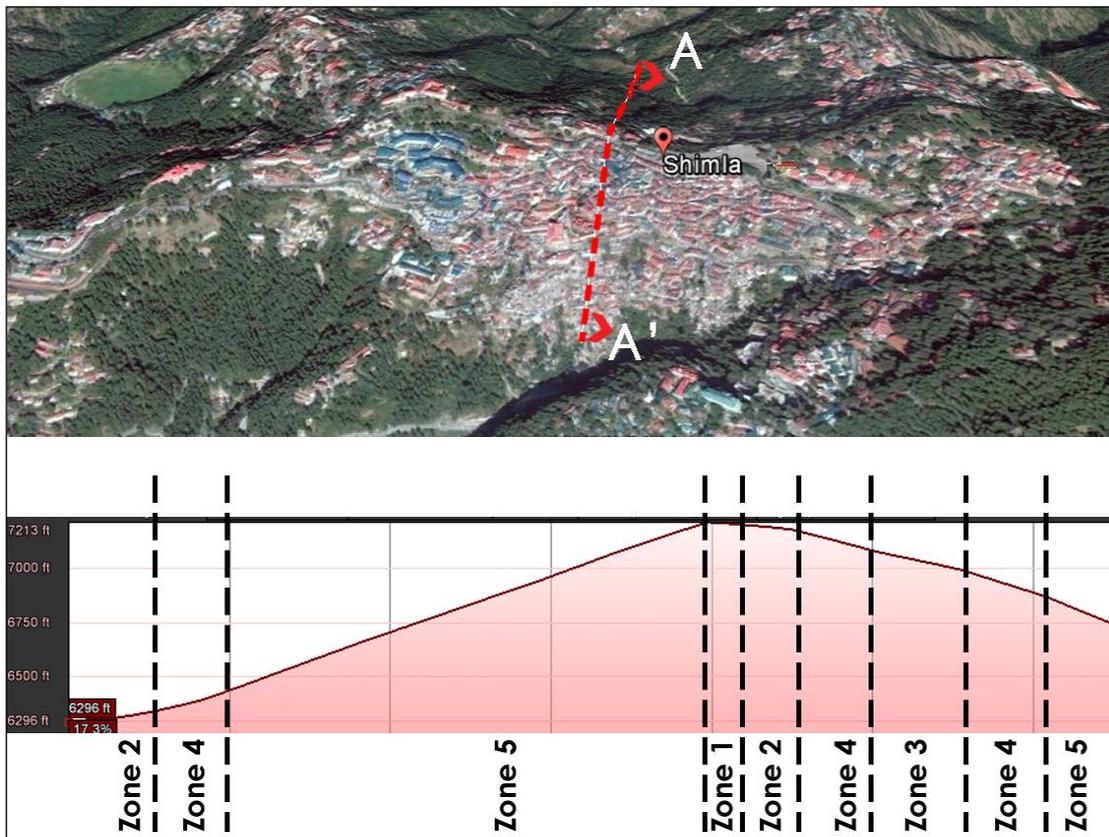


Figure 19: Cross Section of Mall Road Area & Figure 20: Topography of Shimla [Source: Author – using Google Earth]

4. CONCLUSION

This study adopts a process that helps to find out the issues related to accessibility in major buildings and amenities including street furniture in a study stretch. It is evident that just as retrofitting and up-gradation of the existing buildings and amenities in the public realm are necessary, similarly, improving walkability by improving the infrastructure and rationally planning for commuting modes is also necessary. Together, these call for immense visionary efforts and financial support.

The focus of this exercise has been evaluation of the ground realities (like, primary survey). If it is not possible to improve and mitigate the issues, then one may choose the option of informing the less acquainted. In that way, the less acquainted may be prepared to tackle the situation in a better way. A smart city concept includes a focus on Information Communication and Technology (ICT) Eco-System for information sharing in a common platform accessed by all.

In this context, a mobile based application (App) may be of great help. The App may inform the user on all the five broad components as indicated in the first case study for the major public, institutional and commercial buildings and amenities in any important location. Similarly, the app may also inform the scenario of the footpaths, street furniture, choice of modes, accessibility characteristics of the modes and assistance available as indicated in the second case study.

The App interface might involve the components (in the form of distinct ICONS) as mentioned:

- *Sugamya Rachna: What the app is all about?***
- *My Location: Showing Real-time location in GPS interface and vehicle choice/ modal choice available***
- *Real-time View: 3d walkthrough or 360 degree view of the stretch***

- ***Junctions: Showing transit points***
- ***Landmarks and major buildings: Showing accessibility characteristics***
- ***Amenities: Accessible amenity or facility locator***
- ***Bottlenecks: Showing junctions with major difficulties in walkability,***
- ***App Developers: Contact of the app developers, and***
- ***Complaints: Open ended grievance/suggestion redress***

Presently, a sample application using APPSBAR is being prepared for testing the applicability in the GIS lab at School of Planning and Architecture, Bhopal using the data from the second case study.

4. ACKNOWLEDGEMENTS

This paper is a combined effort of the students of 2015-17 batch of Masters in Urban and Regional Planning, Department of Planning, School of Planning and Architecture, Bhopal. Special thanks to Madhuri, Jugal, Preeti and Akkash for their contributions to this project in planning studio. Sincere thanks to Saikat and Surbhi for their inputs to this project in Centre for Human Centric Research Laboratory. Lastly and most importantly, this work would never be possible without the support of my mentor and guide Prof. Dr. Rachna Khare who has taught me the fundamentals of Universal Design.

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Gaurab Das Mahapatra is an Architect-Planner presently working as Assistant Professor in Gitam School of Architecture, GITAM (Deemed to be University), Visakhapatnam Campus.

Architect Mahapatra had received the prestigious DIC (Design Innovation Centre) scholarship for research in Universal Design from Centre for Human Centric Research in SPA, Bhopal under the guidance of Prof. Dr. Rachna Khare, who herself is a pioneer in the Indian Universal Design scenario. In Post-Graduation, he is the recipient of Chairman's Gold Medal, Proficiency Gold Medal and Thesis Topper Award in Masters in Urban & Regional Planning Department from SPA, Bhopal. In Graduation, he is the recipient of Thesis Topper Award from PMCA, Cuttack. In 2017, Architect Mahapatra was also awarded the Young Achiever Award by A3 foundation. Besides having several other academic and professional accolades to his name, Architect Mahapatra also has a number of national and international publications to his name in the domain of Architecture as well as Planning; with special emphasis on Universal Design.

A strong believer in the five Indian principles of Sustainability i.e. Saman, Sahaj, Sanskritik, Sasta & Sundar, Architect Mahapatra always inspires his students and colleagues to approach their design solution as "Design for All". During his past tenure as Urban Planner in Andhra Pradesh urban Finance and Infrastructure Development Corporation, he was instrumental in initiating the projects of road signage including braille inscriptions in Kakinada Smart City. Architect Mahapatra's latest research work titled "Accessibility in core areas; Case study: Road stretches in Kolkata and Shimla, India", co-authored with Prof. Dr. N. R. Mandal (HOD, Dept. of URP, SPA Bhopal) has been presented in the 2nd International City Regeneration Congress, Tampere, Finland in 2017.

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Contribution Details:

- ***Section 1: Original Research Work***
- ***Paper: 2***
- ***Paper Title: Role of Motion Pictures in shaping people's attitude towards disabilities***



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Contribution Details:

- ***Section 1: Original Research Work***
- ***Paper: 2***
- ***Paper Title: Role of Motion Pictures in shaping people's attitude towards disabilities***

Role of Motion Pictures in Shaping People's Attitude towards Disabilities

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[Originally presented by the authors as a part of a Anekshan 2016-2017, at School of Planning and Architecture, Bhopal with Simranpreet Kaur and Pulkit Singhal as the other team members]

ABSTRACT:

Through the medium of films, one can weave influential imprints over audiences mind. When the characters from the movie revolve around the reality of our society it can produce a long-lasting impression over people. Especially in a country like India when digital media has influenced people themselves and their lives with movie characters.

In a recent year representation of disability in motion picture gives us an insight into the life of a disable person through a discourse of media. Unlike newspapers, radio, magazines, television cinema is the source which educates and makes people aware of social issues. The motion picture has become an influential tool to put social issues into the limelight.

Since India has total 2.68 crore population as a disable. Hence there is urgent need to understand the cause in public domain. It also demands to make people aware about the universal accessibility through various other sources such as motion picture.

This study attempts to understand the representation of disable person in motion picture through various forms of disability in order to understand the role of the motion picture to shape peoples attitude towards disabilities in terms of universal accessibility and inclusive built environment.

Keywords: Disability, Universal Accessibility, Motion picture, Inclusive.

1.0 RETROSPECT: INTRODUCTION



The study refers the statistical numbers which give direction to introduce the study. The case-specific study focuses on the Indian scenario in terms of the disability numbers. In India, around 2.4% of the total population is under disability. The gender wise distribution records 55.9% male & 44.1% females are disabling. The number poses a question in terms of rising percentage.

In India the government has surely taken a stand to give disable person their rights and opportunities in terms of employment. Following are the legislative acts formed to advocate the case of disability in India.

1. Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995

2. National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disability Act, 1999

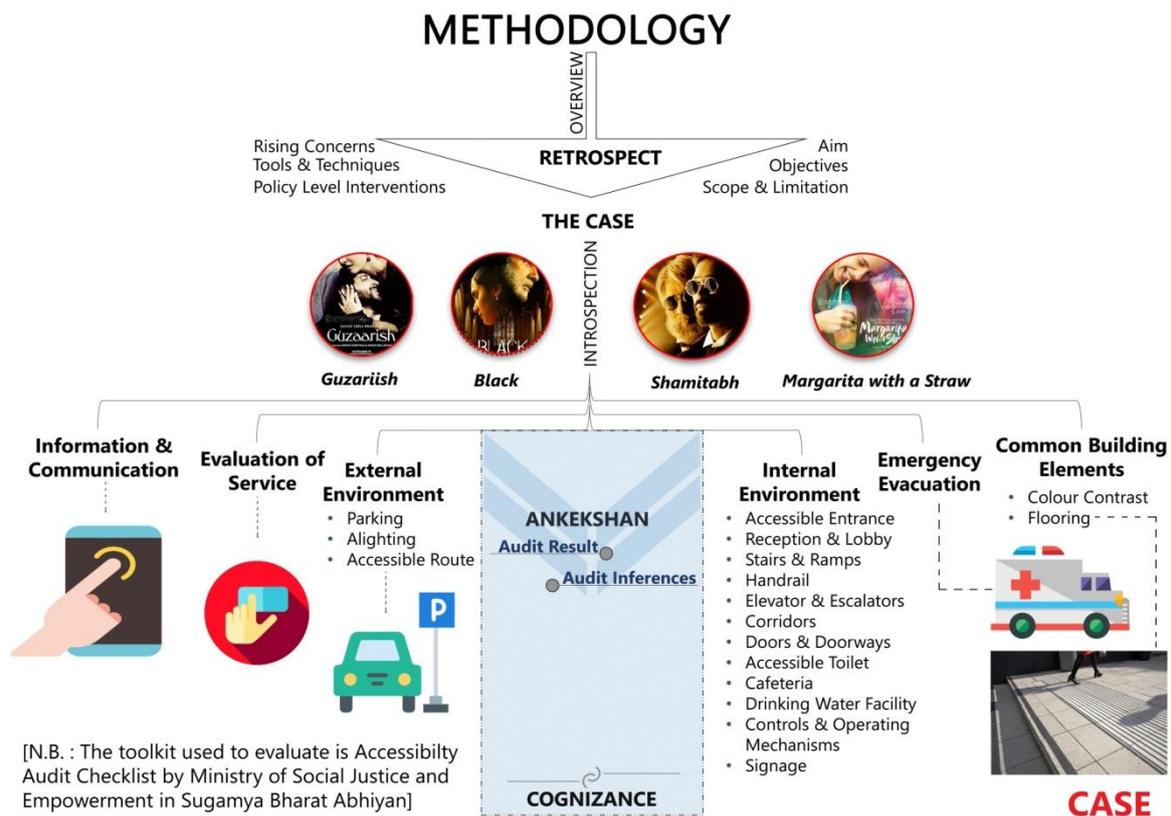
3. Rehabilitation Council of India Act, 1992

In spite of legislative reform has been taken towards disability, it is can be seen the lack of basic infrastructure and barriers in terms of policy resolution which restricts disable to access into public life and therefore based on this a hypothesis is formed.

A methodology has been derived to understand the recent trends of disability in India which put forward a case by assessing the motion picture and the special movie characters that had been played by actors as a disable. It is to understand the pattern of disability pictured in cinemas. Based on which audit toolkit has been formed to assess the urban environment in order to make it universally accessible.

2.0 METHODOLOGY:

A methodology gives a broad picture about series of steps, which are followed during the study. It is divided into three stage scenarios such as "RETROSPECT, INTROSPECT and COGNIZANCE".



2.1. AIM:

To access the role of motion pictures in shaping people's attitude towards disabilities

2.2. OBJECTIVES:

- 1) *To understand the influence pattern of motion pictures on accessibility.*
- 2) *To access the influence based on pre-defined Audit Tool Kit.*
- 3) *To define a guideline for motion pictures based on the findings.*

2.3. SCOPE:

- 1) *To increase the sensitivity towards disabilities.*
- 2) *To create responsive built environment guidelines in a passive way.*

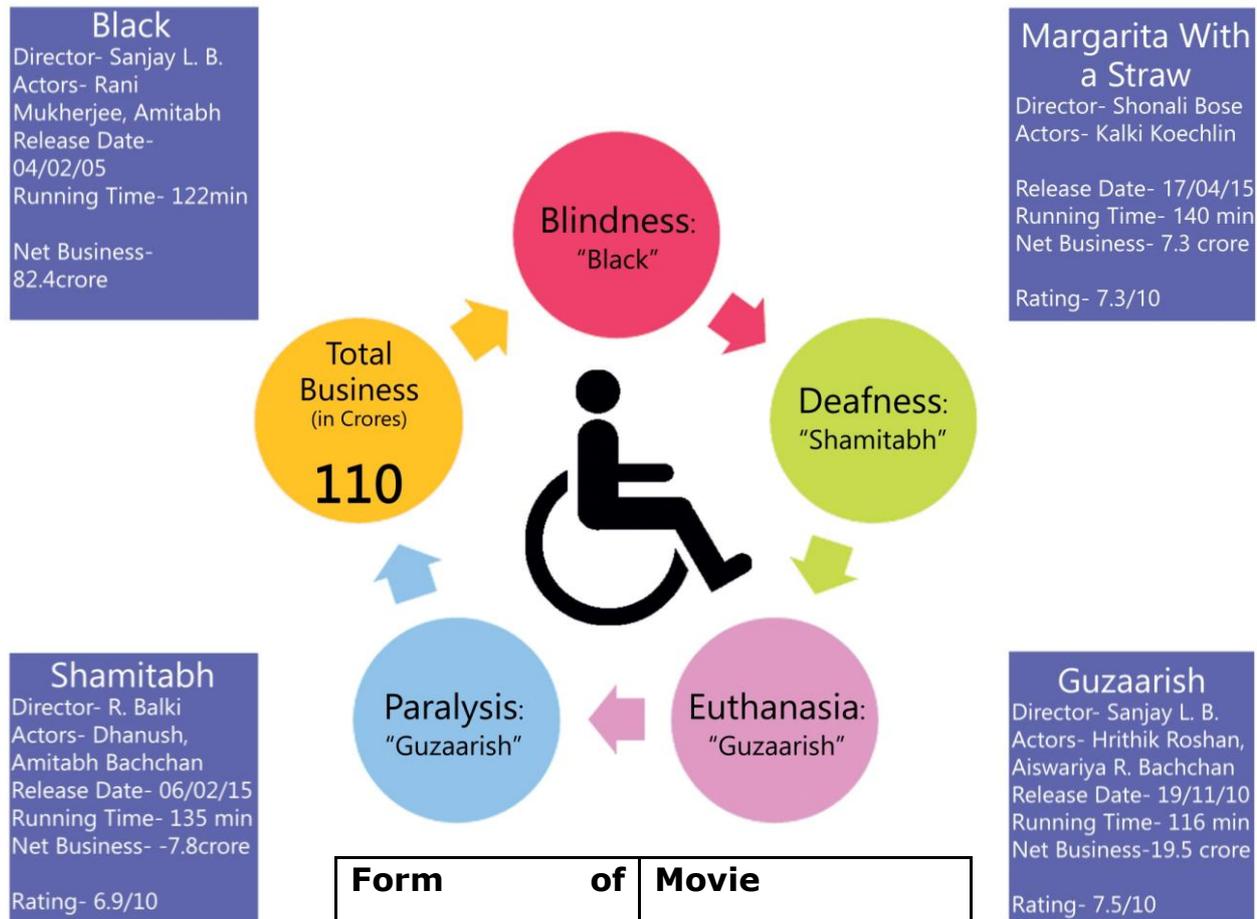
2.4. LIMITATIONS:

The movies are restricted to physical disability issues only.

3.0 CASE:

In order to identify the role of the motion picture, here four movies were enlisted to understand the character. These characters were chosen based on the different disability forms to justify their impediments.

Following flowchart gives fundamental information about disability



Form of disability	Movie
Blindness	Black
Deafness	Shamitabh
Euthanasia	Guzaarish
Paralysis	Margarita with straw

3.1. Representation of disability in Indian Cinema:

- ***There have been trends in Indian cinema to make movies that projects a real life concerns. In Bollywood several film-makers have made movies which build a tale around insensitivity of society towards disabled.***
- ***In movies, the disability has procured in courses of different sides. Where it projects multiple scenarios such as discrimination, heroism, sympathy, emotional, soulful, funny and aspiring forms of disabled characters.***
- ***These movies play important role in order to make society aware about equal access for all. To do this an Audit toolkit has been formed. It will help to make an assessment of built environment. The audit toolkit is based on following parameters:***
- ***The audit tool-kit is designed to broadly assess the built environment and surroundings in both qualitative and quantitative forms. Here it is designed to assess the built environment projected in movies. At the same time to know specific improvements that would make the environment more accessible for disabling in the public realm.***



Impact of motion picture in Indian Scenario

3.2. Why measure Accessibility?

- ***Our environment is increasingly becoming the domain of privatization. The lack of maintenance & facilities in terms of universal accessibility is all factors that discourage disable***

people from accessing frequently. The purpose of this toolkit is to perform quantitative audits for disable person. The motive of this document is to make people aware of disability issues in the city. The results observed at the end are proffering a clear idea about the issues and rehabilitation requires improving universal accessibility through motion picture.

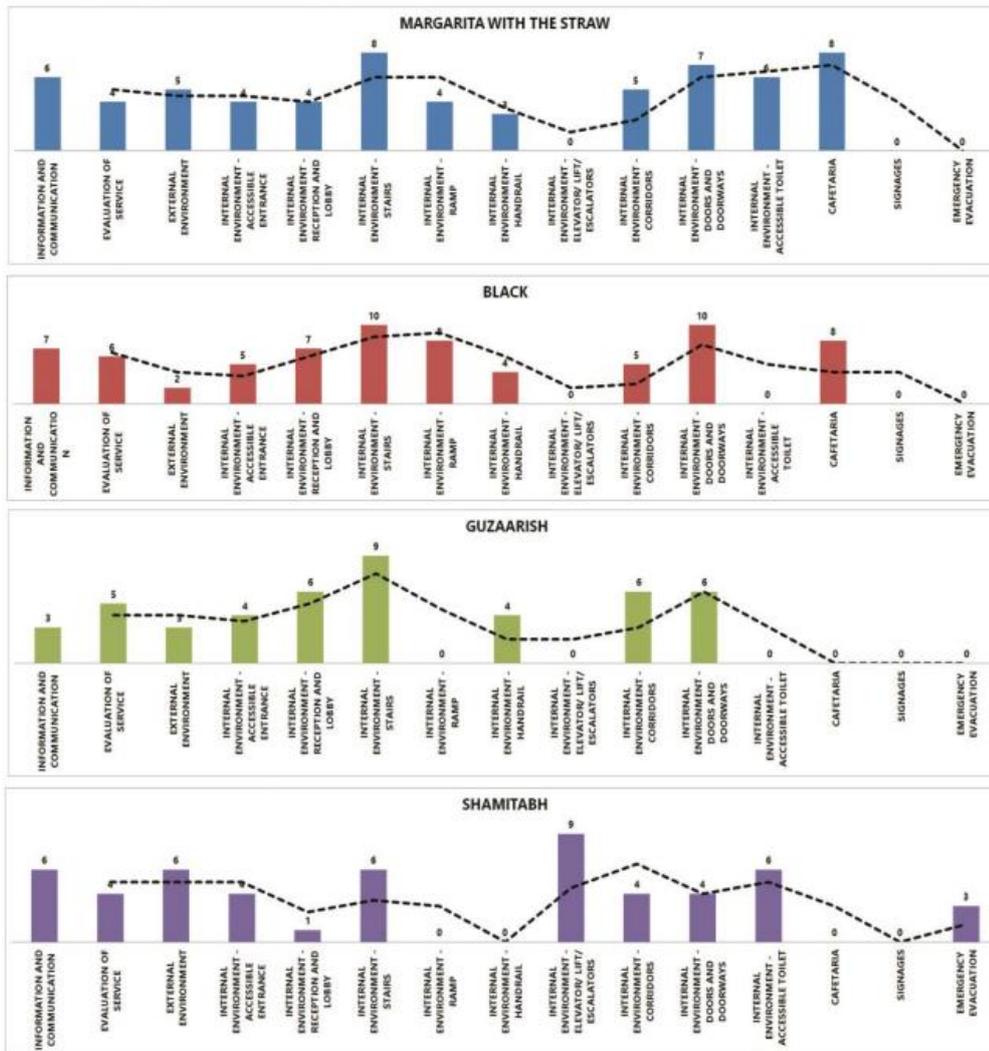
- **Following is the audit toolkit prepared based on certain attributes which are mentioned under Sugamya Bharat Abhiyan:**

Attributes for assessment of built environment:	
Information and communication	Internal environment – lifts & escalators
Evaluation of service	Internal environment – corridors
External environment – Accessible entrance	Internal environment – doors & doorways
External environment – Stairs	Internal environment – Accessible toilet
External environment – Ramps	Cafeteria
External environment – Reception & lobby	Signage
External environment – Handrails	Emergency evacuation

Above attributes were identified in every movie to understand the status of inclusive environment.

Following are the results based on the audit performed to evaluate the built environment provided in respective movies

INFERENCES FROM ACCESS AUDIT



Margarita with a Straw



Black



Guzaarish



Shamitabh

While some movies have described disability in a critical light at times there are movies which played important role in advancing the struggles of the disability community in forming awareness about the true abilities and boundaries of the disabled.

Such as in a movie "Margarita with straw" the true abilities of character name "Laila" strengthens the women character and a perspective of looking at a women character from the two-dimensional image to three-dimensional forward-looking character.

In the movie "Kaabil" the movie character played by Hrithik Roshan projects a very strong character. In a movie, a character is a man who is independent and a person who manages his own matter on his own,

which uplifts the high spirit and qualities of a disabled person. The character is inspiring and motivating in few aspects of his life.

4.0 COGNIZANCE:



Average Accessibility Score - 64/80
Sector Portrayed Strongly - INTERNAL ENVIRONMENT - STAIRS and CAFETERIA
Sector not Portrayed - INTERNAL ENVIRONMENT - ELEVATOR/ LIFT/ ESCALATORS, SIGNAGES and EMERGENCY EVACUATION



Average Accessibility Score - 72/80
Sector Portrayed Strongly - INTERNAL ENVIRONMENT - ACCESSIBLE ENTRANCE and INTERNAL ENVIRONMENT - DOORS AND DOORWAYS
Sector not Portrayed - INTERNAL ENVIRONMENT - ELEVATOR/ LIFT/ ESCALATORS, SIGNAGES and EMERGENCY EVACUATION



Average Accessibility Score - 46/80
Sector Portrayed Strongly - INTERNAL ENVIRONMENT - STAIRS
Sector not Portrayed - INTERNAL ENVIRONMENT - RAMP; ELEVATOR/ LIFT/ ESCALATORS; ACCESSIBLE TOILETS, CAFETERIA, SIGNAGES and EMERGENCY EVACUATION

Above is the analysis made through putting every movie case scenario under the parameters of Sugamya Bharat Abhiyan., which allows making inclusive environment.

The study indicates the sector not being portrayed such as in many cases the internal environment is not worked out in favor to disable therefore recommendation has been given at the end of the study to make the conclusion towards Ankekshan.



Likewise, all these movies have a different idea to inculcate and advocate lives of disabled. Therefore, the study looks into insights of assessment of built environment in terms of rating.

Following are the results found at the end of the audit, the evaluation is based on the rating 1-10:

- 1. Out of all four movies internal environment is accommodating the disable with highest comfort rating.***
- 2. One of the main issues identified in all the movies was lack of use of signages.***
- 3. Provision of the ramp is one of the major components of accessibility that has to be worked out.***
- 4. For the movement of a disable person it is important to have wide enough lobbies to accommodate wheel chair and turning.***
- 5. It is also observed that, many of times no provision for ramps was done.***
- 6. In order to promote equitable access in public environment accessibility is a prime concern has been taken into account in all above movies.***

4.1 RECOMMENDATIONS BASED ON THE STUDY:

To study the motion picture as an influential platform to address the issues of accessibility:

1) To create a basis for direction and script-writing using the Accessibility Audit Checklist in case of similar genre of movies.

2) To provide platform for prestigious "Accessibility Award" for Significant contribution towards Sugamya Bharat dream.

3) Assign an Accessibility Ambassador (preferably Hritik Roshan) to spread the message of accessibility.

5.0 FINAL REMARKS:

The concepts of inclusive cities through barrier free approaches are defined in an entirely different way in developed nations as compared to developing and under developed nations, where this is still a less understood subject. If some form of mass media is influencing the cause for a greater cause, then we should understand the psychology behind it and use it to make inclusive planning interventions at large scale. The premise of this document is to make people aware about disability and its inclusion in the society.

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Section 2:

Awareness Initiatives



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Gaurab Das Mahapatra is an Architect-Planner presently working as Assistant Professor in Gitam School of Architecture, GITAM (Deemed to be University), Visakhapatnam Campus.

Architect Mahapatra had received the prestigious DIC (Design Innovation Centre) scholarship for research in Universal Design from Centre for Human Centric Research in SPA, Bhopal under the guidance of Prof. Dr. Rachna Khare, who herself is a pioneer in the Indian Universal Design scenario. In Post-Graduation, he is the recipient of Chairman's Gold Medal, Proficiency Gold Medal and Thesis Topper Award in Masters in Urban & Regional Planning Department from SPA, Bhopal. In Graduation, he is the recipient of Thesis Topper Award from PMCA, Cuttack. In 2017, Architect Mahapatra was also awarded the Young Achiever Award by A3 foundation. Besides having several other academic and professional accolades to his name, Architect Mahapatra also has a number of national and international publications to his name in the domain of Architecture as well as Planning; with special emphasis on Universal Design.

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Contribution Details:

- **Section 2: Awareness Initiatives**
- **Workshop Title: Being: CREATIVELY RATIONAL - Workshop on Universal Accessibility Audit**



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Ar. Sudeshna Chakraborty is an Assistant Professor in Dept. of Planning in School of architecture, GITAM (deemed to be) University. She is presently working on Universal Design Principles and means to understand them in architectural terms, especially in the studio works.

Contribution Details:

- **Section 2: Awareness Initiatives**
- **Workshop Title: Being: CREATIVELY RATIONAL - Workshop on Universal Accessibility Audit**

Being: CREATIVELY RATIONAL

Workshop on Universal Accessibility Audit

[Held in PMCA, Cuttack, during ZONAL NASA. ZONE 4 from 02.10.2018 to 04.10.2018]

Workshop Instructors:

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BACKGROUND

Owing to the commencing ZONAL NASA (ZONE-4) in Pилоo Mody College of Architecture, Cuttack; Ar. Gaurab Das Mahapatra and Ar. Sudeshna Chakraborty were invited by Prof. Dharitri Das (Principal, PMCA, Cuttack) to conduct a workshop aimed towards the concept of 'Design for All'. Keeping in mind the proposed theme, the workshop instructors came up with the title "BEING: CREATIVELY RATIONAL"; which emphasizes on the present generation of Architects who need to keep their creativity at par with their inherent rational thinking.

'Sugamya Bharat Abhiyan' or 'Accessible India Campaign' which was started in 2015 can be termed as one of the landmark initiatives in the Universal Design platform of India. Besides aiming towards making a completely accessible urban scenario, 'Accessible India Campaign' also has Accessibility Audit as an important part of its structure; which was a significant component of this workshop.

This workshop was distinctly divided into three parts:

- ***The first part dealt with brainstorming session related to: Introduction to Universal Design, Principles of Universal Design, Approaches to understand Universal Design, Accessible India Campaign, and Introduction to Access Audit.***
- ***The second part was a presentation session based on: Understanding the role of motion pictures in shaping people's attitude towards disabilities and Role of access audit to facilitate the same motive.***
- ***The third part comprised of: Accessibility Survey through Case Study and the various parameters and indicators that forms the basis of an Accessibility Survey.***

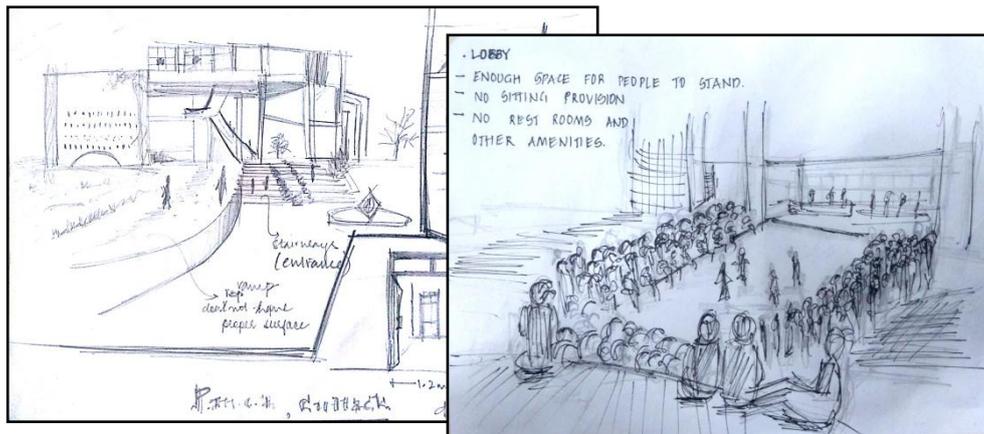
On the day of workshop i.e. 02.10.2018, a total of 32 students from different Architecture Colleges in ZONE - 4 and 4 student volunteers from PMCA had participated. The day long workshop was first of its kind in ZONE-4 ZONAL NASA.

ACCESSIBILITY AUDIT

The following parameters were considered for understanding accessibility scenario of a built environment:

- ***Site Issues***
- ***Building Issues***
- ***Environmental Systems***
- ***Communication Systems***
- ***Program Spaces***

Within these parameters there were several other indicators; and the students were made accustomed to each and every indicators during the hands-on session of the workshop. The aim of the workshop was not merely to reach any conclusion of a particular built environment, but to make the students aware of the sensitive part of any design problem which focusses on the accessibility paradigm.



Some sketches done by students during the workshop



Some photographs taken by students during the workshop



Glimpses from the workshop

ACKNOWLEDGEMENTS

This workshop would not have been possible without the help, support and inspiration of Prof. Dharitri Das (Principal PMCA, Cuttack) and Prof. Dr. K Mohan (Director, School of Architecture, GITAM, Visakhapatnam). We would also like to extend our thanks to Prof. Dr. Rachna Khare (Dean Faculty Welfare, SPA Bhopal) and Prof. Dr. N. R Mandal (HOD, Dept. of Urban and Regional Planning, SPA, Bhopal) for their valuable inputs. Lastly we would like to thank Mr. Sagnik Das, Mr. Durjoy and Ms. Ayantika Roy from PMCA Student body for their co-operation.

[This work was supported by School of Architecture, GITAM (deemed to be University), Piloo Mody College of Architecture and National Association for Students of Architecture]

Section 3:

Academics and Design for All



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Ms. Suman Uekee is an undergraduate B.Arch student, in School of architecture , GITAM (Deemed to be University), Visakhapatnam . She is been inspired by the field of universal design. Moreover, she is curious about the construct of Universal design and hopes to hold forward this idea in her career as an creator and check out to form the society a various place for individuals with every type of abilities and disabilities.

Contribution Details:

- **Section 3: Academics and Design for ALL**
- **Article: 1**
- **Article Title: Statutory Basis of Universal Design Platform**



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Ar. Sudeshna Chakraborty is an Assistant Professor in Dept. of Planning in School of architecture, GITAM (deemed to be) University. She is presently working on Universal Design Principles and means to understand them in architectural terms, especially in the studio works.

Contribution Details:

- **Section 3: Academics and Design for ALL**
- **Article: 1**
- **Article Title: Statutory Basis of Universal Design Platform**

STATUTORY BASIS OF UNIVERSAL DESIGN PLATFORM

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Abstract:

The aim of Universal Design is to discuss the impact of legal mechanism, in determining the effectiveness of a particular theme in Architecture; with respect to mass scale implementation strategies. Universal design is ideological and political opponents of all useless and stigmatization of specialized solutions for the disabled or other groups of the population. Fair status, equality of treatment and equality of merit are key concepts. The Disability Act 2005 is a positive action live designed to advance and underpin the participation of individuals with disabilities in daily life.

This article aims towards understanding the different statutory implications of the universal design platform. The role of access audits and pioneers in Indian Context of Universal Design are also discussed briefly.

1. INTRODUCTION

Universal design has the ability to lift human spirit, especially when environments are designed to really satisfy the needs of those who use them. The universal design makes things much safer, more secure, and more comfortable for everyone. Universal design is designed to reduce the diversity of people. It talks about people's rights.

In 1990, Congress passed the Americans with Disabilities Act (ADA), a law that prohibits discrimination against people with disabilities in the world of work, transport, public housing and telecommunications. The ADA guarantees people with disabilities greater access to participation in the daily activities of people without disabilities. In response, the architects developed the principles of universal design to guide the creation of new buildings and tools for life, so that they are accessible to as many people as possible, including people with disabilities.

The Indian response to Universal Design came a little later. In the subsequent discussion it shall be discussed at depth.

2. DIFFERENCE BETWEEN BARRIER FREE ARCHITECTURE AND UNIVERSAL DESIGN

Barrier-free building consists of modifying buildings or facilities so that they can be used by people who are disabled or have physical impairments. Universal design accommodates individuals of different heights, physical and mental abilities in an aesthetically pleasing way. The universal design without barriers achieves different objectives, but both reinforce the idea that buildings

must be highly accessible, aesthetically pleasing, functional and comfortable.

3. ACTS/LEGISLATIONS IN INDIAN CONTEXT IN INDIAN CONTEXT

The various documents available in Indian Context are in the following levels: Acts/Legislations, Rules and Regulations, Guidelines and Policy

Acts/Legislations in Indian Context:

- *Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995*
- *National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disability Act, 1999*
 - *Rehabilitation Council of India Act, 1992*

Rules and Regulations:

- *The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Rules, 1996 & Amended Rules for PWDs*
- *The National Trust Rules, 2000*
- *The National Trust Regulations, 2001*
- *Rehabilitation Council of India Regulations, 1997*
- *Rehabilitation Council of India (Conditions of Service of the Member-Secretary, the officers and other employees) Regulations, 1998*
- *Rehabilitation Council of India (Standards of Professional Conduct, Etiquette and Code of Ethics for Rehabilitation Professionals) Regulations, 1998*

Guidelines:

- ***Guidelines for issue of Disability Certificates***
- ***Guidelines for evaluation of various disabilities and procedure for certification***
- ***Guidelines and Space Standards for Barrier Free Built Environment for Disabled and Elderly Persons***
- ***Guidelines for submitting Research Proposals for Development of suitable assistive devices for the persons with disabilities under its scheme of Science and Technology Project in Mission Mode***
- ***MSJ&E OM - guidelines for conducting written examination for persons with disabilities***
- ***Guidelines for evaluation and assessment of Autism Procedure for certification***

Policy:

- ***The Rights of Persons with Disabilities Bill, 2014***
- ***First Country Report on Status of Disability in India***

4. PROVISION FOR SPECIALLY ABLED IN ARCHITECTURAL GUIDELINES

Minimum Access Provisions Required in Various Types of Buildings

Type of Building	Minimum Provisions
Single detached, single dwelling units	A minimum of 2 per cent of the total number of units to be constructed with Barrier-free features. (Adoptable Units)
Staff housing, multiple	A minimum of 1 unit for every 25, plus 1 additional unit for every 100 units thereafter. Entrances and

dwelling and high rise residential units and Tenements	exits to be Accessible.
Tenement houses, row houses, Apartments and town houses	A minimum of 1 unit for up to 150 units and a minimum of 1 additional unit for every 100 units thereafter to be accessible.
Post offices, banks and financial Service institutions	A minimum of 1 lowered service counter on the premises.
	A minimum of 1 lowered automatic teller machine (ATM) / cash disbursement point on the premises. Stamp vending machine.
Shop houses and single-storey	Accessible shopping area.
Places of worship	Entrances and exits and main area of Worship to be accessible.
	Mosques: access to area for ablutions; Churches: access to confessionals, fonts and chapels; Temples: access to shrines and courtyards.
Food centres	A minimum of 1 table without stools or seats attached to the floor for every 10 Tables.
	A minimum of 2 tables without stools or seats attached to the floor for the whole premises.
	Accessible entrance¹
Community centres, village halls, Auditoria, concert halls,	Accessible entrances, exists, aisles and main community or public gathering areas.
	Accessible toilet facilities should be nearby. Seating for persons with disabilities to be accessible from

assembly halls, cinemas, theatres and other places of public assembly	main entrances and lobbies.
	Various seating/viewing choice to be provided for persons in wheelchairs throughout the main seating area.
	A minimum of 2 wheelchair spaces for seating capacity up to 100 seats. A minimum of 4 wheelchair spaces for seating capacity from over 100 to 400 seats.

5. TYPES OF DOCUMENTS RELATED TO UNIVERSAL DESIGN GLOBALLY AVAILABLE

Historically, the 1990's finally acknowledged the special needs of the 'differently-abled' and prohibited discrimination on the basis of disability through the enactment of the:

- *Americans with Disabilities Act (1990) in the USA,*
- *Persons with Disabilities Act (1995) in India*
- *Disability Discrimination Act (1995) in UK*

The elaborate list is mentioned below:

1961	The Civil Rights Act of 1964. Martin Luther King's activism and his dream of equality lead to the first of several major pieces of civil rights legislation in US.
1964	The Civil Rights Act of 1964. Martin Luther King's activism and his dream of equality lead to the first of several major pieces of civil rights legislation in US.
1968	Architectural Barriers Act comes into existence.
1974 -	Ed Steinfield leads research for revised

79	ANSI A.117 standard.
1975	National Center for a Barrier Free Environment founded. In 1982, hosted a conference, “ Designed E Environments for All People” at UN in New York.
1977	Birth of Disability Rights Movement. People with disability demand regulations.
1982	Go beyond the codes, design for all people
1984	Adaptive Environments Laboratory at Buffalo State. Research Centre established with prototype settings to test usability.
1985	Ron Mace introduces the term Universal Design
1990	Americans with Disabilities Act (ADA) came into existence
1995	Principles of Universal Design. The Centre of Universal Design develops first edition of performance criteria with group of U.S. experts
1995	India marks beginning in this area by passing of Persons with Disabilities Act, '95
1998	Guidelines and Space Standards for Barrier Free Built Environment for Disabled and Elderly Persons Published by CPWD, New Delhi.

6. TYPES OF INDIAN DOCUMENTS AVAILABLE

- ***Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995***
- ***National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation***

- ***And Multiple Disability Act, 1999***
- ***Rehabilitation Council of India Act, 1992***
- ***Handbook on barrier free (2014) - CPWD***
- ***Accessibility design guidelines***
- ***Manual for a barrier free built environment (2014)***
- ***Guidelines and Space Standards for Barrier Free***
- ***Built Environment for Disabled and Elderly***
- ***Persons Published by CPWD, New Delhi.(1998)***

7. ACCESSIBLE INDIA CAMPAIGN 2015

Accessible India Campaign or Sugamya Bharat Abhiyan is a program that was launched to serve the diverse community of the country. The program is provided with an index to measure the design of buildings for disabled people and human resources policies. The Prime Minister launched the main program on December 3, 2015, the International Day of People with Disabilities. The objective of this mission was:

"Making public space, transportation, tourist spots, airports, railway stations and information and communication technologies in the country friendly in a different way".

8. ROLE OF ACCESS AUDITS IN DESIGN FOR SPECIALLY ABLED

The role of the audit and its follow-up are to:

- ***Identify the extent of the problem of access to public buildings.***
- ***To create awareness of the importance of the concept of barrier-free environments for people with disabilities.***

- ***To enforce the inclusion of accessibility for people with disabilities in the official agenda of government and private agencies.***

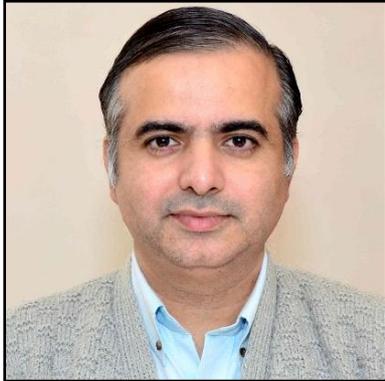
List of a few access audit toolkits are listed below:

List of toolkits

Sl. No.	Name of the Organization	Special Theme
1	Sugamya Bharat Abhiyaan	Internal and external env. accesibility
2	The Royal Borough of Kensington & Chelsea	Garden and Refuge
3	Hawkesbury City Council	Marketing and Customer service
4	Victorian Electoral Commission	Wheelchair Usability
5	Sport England	Accessibility for Players

9. PIONEERS IN INDIAN CONTEXT OF UNIVERSAL DESIGN

Prof. Dr. Gaurav Raheja



Dr. Gaurav Raheja is Associate Professor of architecture at the Indian Institute of Technology (IIT), Roorkee. His professional interest span form inclusive designs for person with disabilities. He is a recipient of the Mphasis Universal Design Award in 2010. He serves as an expert member in various national committees on accessibility standards and national award on Barrier Free Environment in ministry of urban development and ministry of social justice Empowerment, Govt. of India respectively. Dr Raheja is one of the co-authors of the Universal Design Indian Principles. His doctoral research cited in World Disability Report 2011. He recently authored a book titled Enabling Environments for the Mobility Impaired in the rural areas.

Prof. Dr. Rachna Khare



Dr. Rachna Khare Architect and professor, she has dissected and published extensively on the subject of inclusive design worldwide. Her book, Design of Inclusive Educational Spaces for Autism (2010), was published by the Design Institute focused on the human being, Boston, United States. Furthermore, she is one of the authors of Universal Design India Principles (2011). She also edited special editions of international magazines, SPANDREL in "Social Sustenance" in 2012 and ABACUS in "Architecture for All" in 2007. In addition to teaching in her current position at the Bhopal School of Planning and Architecture, Madhya Pradesh, India, Dr. Khare also coordinates the Center for Human-Centered Research (CHCR).

10. CONCLUSION

Importance of legality in context of universal design

Legality is an important consideration in the individualized education plan planning process for students with disabilities. When appropriately considered, legality plays an essential role in a student's ability to access the general education curriculum with greater success and independence. In fact, this role is so important that student use of legislation and state regulation.

Impact of AIC (Accessible India Campaign):

With the successful of the Accessible India Campaign, India is joining the rest of the world, as an inclusive society with universal accessibility, caring for its citizens, accessibility rights and independent living. Physical accessibility related actions are initiate accessibility to education, employment and livelihood, which will unleash productivity of 6% population and their economic contribution in nation building.

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Ms. Arundhuti Biswas is an undergraduate student presently in 4th year, studying in Gitam School of Architecture, GITAM (Deemed to be University), Visakhapatnam Campus. Arundhuti is an aspiring student in the field of Architecture, who is interested in the concept of Universal Design and hopes to carry forward this concept in her career as an Architect and try to make the society a diverse place for people with all types of abilities and disabilities.

Contribution Details:

- **Section 3: Academics and Design for ALL**
- **Article: 2**
- **Article Title: Universal Design Components in Public Space**

UNIVERSAL DESIGN COMPONENT IN PUBLIC SPACES

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Abstract

Movement is essential for all people for good health and well-being, irrespective of their age and abilities. But everybody doesn't have the capability of doing so in all spatial contexts due to certain physical limitations. Among these people are those who are living with disabilities of many categories and thus subsequently face limitations in perusing some activities in daily life. This is when, Universal design comes into action; which as a concept has a global significance. This is due to the great importance that it has given to the human rights by offering equal opportunity for all, regardless of their age, size, ability or disability; which justifies, the 'Design For All'. Universally designed environment provides comfort, adaptability and flexibility that can help to reduce negative impacts of human life cycle and encourage residents' participation in the community. The focus of the universal design is to make spaces usable by all, to the greatest extent possible, without the need for adaptation. Physical barriers of public spaces, urban issues and design

contexts of built environment should be taken into consideration while aiming towards an universal design approach. The purpose of this study is to explore the concept of Universal Design as a significant aspect of social sustainability based on certain principles, guidelines and standards; especially in public spaces.

Key Words:Universal design, Public space, Social sustainability, Social development

1. INTRODUCTION

Universal design is when the environment is designed to truly meet the needs of people who use them. Universal design ranges from inclusive and non-discriminatory design of products, cars, architecture, urban environment and infra-structure, all the way to information technology/ telecommunications.

Public space is defined as, the common ground where people carry out the functional and ritual activities that binds a community, whether in the normal routines of daily life or in periodic festivities

Eg1: One of the best example of universal design in a public space is the former TWA Terminal at JFK Airport in New York, which was designed by Ar.Eero Saarinen. The elegant stairs were covered with ramps because everybody using the airport had to be accommodated. All sorts of people with wheeled conveyances used the ramps: airline pilots with wheeled suitcases, families with strollers and workers pushing hand trucks on the way to servicing vending machines, not just disabled people in wheelchairs [2].

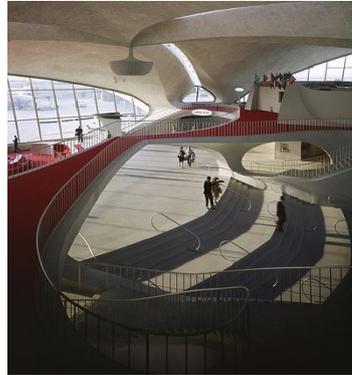


Figure1.1 TWA Terminal, JFK Airport Figure1.2 Ramps at TWA Terminal

2. Principles of Universal Design [1]

There are five principles of Universal Design in India-

- 1. *Equitable***
- 2. *Usable***
- 3. *Cultural***
- 4. *Aesthetics***
- 5. *Economics***

2.1 Equitable (Saman)

The design should be fair and non-discriminating to diverse users.

- a) Avoid differentiation against people of all ages, gender, disability, sizes, caste, class and religion.***
- b) Consider different capabilities of users and build in many levels of engagement. Provide choices in access and use through customization.***
- c) Inclusion of adjustable and adaptable options.***

2.2 Usable (Sahaj)

The design should be operable by all users.

- a) Provide independence, comfort, safety and support during use.***
- b) Facilitate access, operation and convenience by diverse users.***
- c) Include adaptations for those experiencing difficulty in use.***
- d) Provide clarity in use, operation and maintenance to minimize instruction and avoid confusion and error.***
- e) Adopt simple means to overcome complex operation.***

2.3 Cultural (Sanskritik)

The design respects the cultural past and the changing present to assist all users.

- a) Maintain social and traditional qualities in design.***
- b) Present in many languages for inclusive comprehension.***
- c) For all castes and society levels.***

2.4 Aesthetic (Sundar)

The design should be aesthetically appealing to promote social integration among users.

- a) Employ aesthetic to enhance universal appeal and use.***
- b) Allow personalizing aesthetics through flexibility, adaptability and modularity of color, form, texture and interaction.***
- c) Employ appearance to inform use and safety.***

2.5 Economics (Sasta)

The design should be affordable and cost effective for diverse users.

- a) Ensure affordability, durability and maintainability.***
- b) Use local materials for energy savings and cost effectiveness. Focus on low unit cost through wide distribution.***
- c) Adopt modular approach to offer choice in features and price range.***

In the following guidelines, a specific genre of public spaces that are accessible in a built environment of a public realm are discussed which are basically important for the design of a universal public space, are taken into consideration.

3. GUIDELINES FOR ACCESSIBLE PUBLIC SPACES IN BUILT ENVIRONMENT [4]

3.1 Parking and Approach to Building

- a) The accessible parking bay should be of minimum 1200mm wide, leading to the building entrance.*
- b) Accessible parking bay should be 4800mm wide, out of which at least 1200mm, on both the sides, is used as transfer bays.*
- c) Where there are two accessible parking bays adjacent to each other, then the 1200mm transfer bay, on one side, may be shared by the two parking bays in between them.*
- d) Length of the accessible parking bay should preferably be 6000mm, including a 1200mm wide transfer zone at the rear to allow loading of the wheelchair. The transfer zones should have yellow or white cross-hatch road markings, both on the sides and the rear.*



Figure 3.1 Parking

3.2 Signage

- a) There should be the international symbol of accessibility painted on the 2400mm wide area.**
- b) The symbol should be large enough to be easily visible. The minimum size being 1000mm x 1000mm but not larger than 1500mm x 1500mm. The sign on the floor should contrast with the colour of the floor. (preferred are white and blue)**
- c) There should also be a signboard with the international symbol at the height of 1200mm from the floor right at the end of the parking.**



Figure 3.2 Signage

3.3 Main Entrance

- a) Entrance should be easy to locate.***
- b) Consider installing automatic or semi-automatic doors***
- c) Avoid thresholds; if unavoidable, they should be no higher than 6mm.***
- d) Doors should be easily identifiable and contrast visually with the surrounding wall.***
- e) Where glass doors are used, they should have colour strips or other markers.***
- f) There should be a landing of at least 1800mm x 1800mm immediately next to the door.***



Figure 3.3 Entrance

3.4 Reception

- a) It should be designed, so as to accommodate both standing and sitting guests, by providing a seated section that is minimally 1500mm x 760mm x 700mm with a 750mm high knee recess.**
- b) The standing section should range from 950mm to 1100mm in height.**
- c) A minimum clear floor area of 1200mm depth and 1800 mm width is required in front of any reception desk or counter (with a provision of 500mm deep knee recess) to enable sufficient maneuvering space for wheelchair users.**



Figure 3.4 Reception

3.5 Corridor

- a) The minimum width of the corridor should be at least 1500mm.**
- b) For persons with vision impairments, there should be a good colour contrast between the floor and the wall and also between the wall and the ceiling.**
- c) The minimum lighting required in a corridor is 100 lux.**

3.6 Elevator

- a) *The control panel should have a clear floor space of at least 900mm x 1200mm in front of it, to make it accessible to a person using a wheelchair.***
- b) *Buttons with Braille and raised letters, in sharp contrast, tone and colour***
- c) *Have appropriate directional signs that guide guests to the elevator from all entrances of the building.***
- d) *For an elevator to accommodate a wheelchair, it has to be a minimum of 1200mm wide by 1400mm deep with a clear opening of not less than 900 mm.***
- e) *Grab bars to be placed horizontally, at a height of 900mm from the floor level.***

3.7 Stairs

- a) *The nosing of the stairs needs to contrast in colour and tone with the tread***
- b) *Have continuous handrails on both sides even on landings.***



Figure 3.7 Staircas

3.8 Ramp

- a) A ramp gradient of 1:15 is considered adequate and a gradient of 1:12 is the absolute maximum.**
- b) The required minimum clear unobstructed width of a ramp is 1500mm.**
- c) An illumination level of 150lux should be maintained on the ramp.**
- d) Landings should be provided along the length of the ramp, at intervals of every 5 meters for a gradient of 1:12 and every 9 meters for a gradient of 1:15 or 1:20.**
- e) Landings also need to be provided at the beginning and the end of the ramp.**
- f) The materials for the surface finish of a ramp should be firm, easy to maintain & slip resistant.**



Figure 3.8 Ramp

3.9 Handrails

- a) Should have a circular section of 30-45mm in diameter.**
- b) Be free of any sharp or abrasive elements**
- c) Have a minimum clear space of 40mm from the wall.**

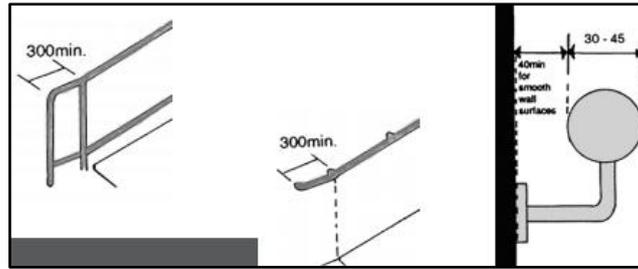


Figure 3.9 Handrails

3.10 Furniture

- a) The furniture should not be fixed but movable, to allow creation of extra space, if required.**
- b) The seat height should range from 450mm to 475mm.**
- c) There should be a clear unobstructed space of 750mm under the table.**



Figure 3.10 Furniture

3.11 Finishes

- a) Adequate colour contrast must be provided between the floor and the wall and also between the wall and the ceiling.**
- b) Lighting in these facilities may range from 50 lux to 200 lux and should not create a glare.**
- c) The flooring should be non-slippery.**



Figure 3.11 Finishes

3.12 Benches

- a) All benches must have a minimum depth of 450mm and be set at a height of 480mm to allow easy transfer from a wheelchair.**
- b) These should have a smooth finish to surfaces and no sharp edges**

3.13 Toilet

- a) Should be no less than 1800mm X 2550mm where a floor mounted water closet is used.**
- b) The toilet door should either be an outward opening door or a sliding type.**
- c) Grab bars with a circular section 30-45mm in diameter to use the water closet safely, should be mounted at a height of 200mm from the water-closet seat.**



Figure 3.13 Accessible Toilet

3.14 Emergency Evacuation Route

- a) *Should be minimum 1200mm wide, to ensure a wheelchair user and an able bodied person are able to pass each other along the route.*
- b) *The route should be free of any steps or sudden changes in level.*
- c) *Use appropriate signage along the route & these should preferably be internally illuminated.*
- d) *A 'way guidance lighting system' consisting of low mounted LED strips to outline the exit route.*

3.15 Illumination

Table 3.15 Illumination Details

AREA	LIMITING ILLUMINANCE (lux)	MINIMUM GLARE RATING	COLOUR RENDERING (Ra)
Entrance halls, lobby	200	22	80
Reception	300	19	80
Circulation areas, corridors	100	25	80
Stairs, Ramps	150	25	80
Restaurant, Cafe	200	22	80
Conference rooms	300	19	80
Business centre	300	19	80
Computer Workstations	300	19	80

4. EXAMPLES OF UNIVERSAL DESIGN [3]

4.1 Community facilities at a primary care centre

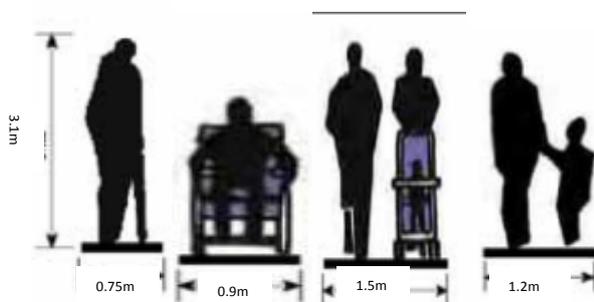


Figure 4.1 Community Care Centre

The salient features are:

- a) *Incorporating setting down points.*
- b) *Ensuring level access from the street that is suitable for wheelchairs and buggies*
- c) *Installing a series of counters at different heights.*
- d) *Using an automatic door.*
- e) *Locating fixtures and fittings at suitable heights.*
- f) *Using colour contrast.*
- g) *Providing signage for orientation and guidance and includes Braille notation.*

4.2 Footpaths and Pedestrian Areas



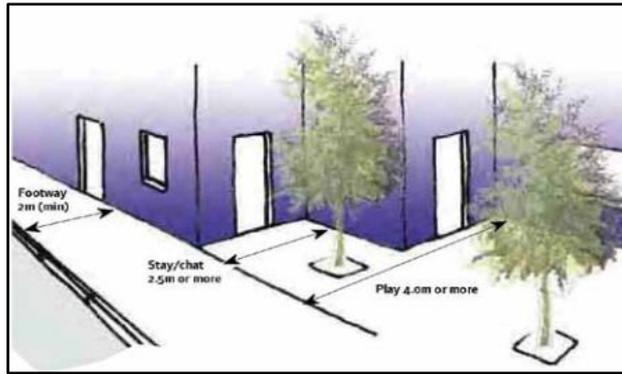


Figure 4.2 Pedestrian paths

4.3 The effects of corner radii on pedestrians

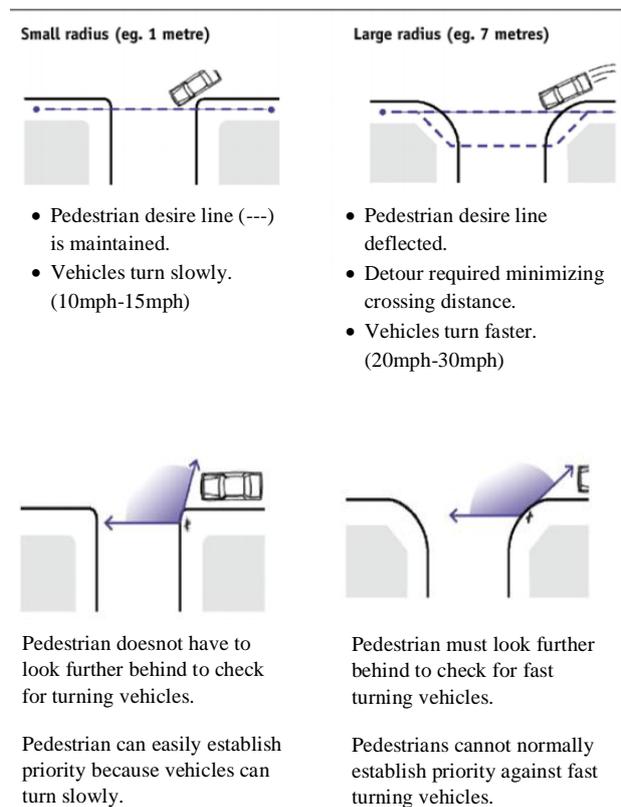


Figure 4.3

4.4 Access routes within a health science building.

a) No tactile strip at base of steps

b) The lack of contrasting nosing on the stairs and the general lack of colour contrast within this area.



Figure 4.4

4.5 Universally designed retail environments

- a) Using clear and consistent paving.***
- b) Incorporating wide pathways.***
- c) Ensuring minimal street clutter.***
- d) Using blister surfacing for pedestrian crossing points.***
- e) Using corduroy hazard warning surfacing.***

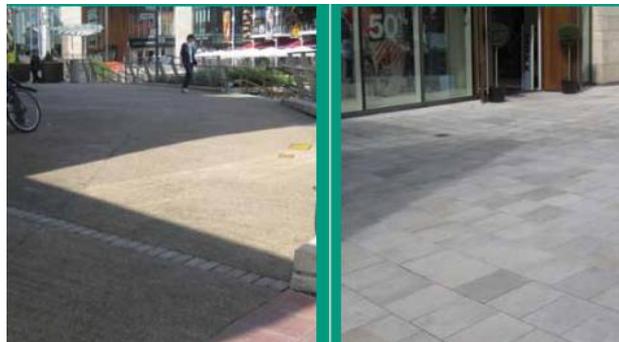


Figure 4.5

4.6 Riverfront amenity park and board way

- a) Incorporating clearly defined pathways.***
- b) Using minimal visual or physical clutter.***
- c) Ensuring level gradient on main pathways.***
- d) Ensuring close proximity to and good quality linkages with the town centre***



Figure 4.6

4.7 Way finding system

- a) Clear print.**
- b) Pictorial signs**
- c) Arrows to signal direction.**



Figure 4.7

4.8 Regional park pathways

- a) *Incorporating clearly defined pathways.*
- b) *Including minimal visual or physical clutter.*
- c) *Laying predominantly level routes.*
- d) *Ensuring edge of each path is delineated with colour-contrasting paint.*
- e) *Providing accessible parking, picnic areas, and frequent seating / rest areas.*



Figure 4.8

4.9 Example of wheelchair accessible passage.



Figure 4.9

5. CASE STUDIES [5]

Connaught Place, Delhi, India

With the changing scenario, Delhi Government has taken up a project to beautify Connaught Place and make it universal. It is one of the biggest commercial centers in India. This project has been taken up in collaboration with the National Centre for

Promotion of Employment for Disabled People and the Council of Architecture.

Delhi Transport Corporation has done its part with Bus Queue Shelter made with a user-friendly approach for disabled people.

They have provided with ramps on both sides of the bus queue and the height of the shelter has been so designed that its low height has been kept parallel to the low floor of the buses. This allows people with wheelchair to commute without any assistance.



Figure 5.1 Ramps for accessibility



Figure 5.2 Abrupt endings of tactile guide ways

Keeping in mind the accessibility by all, the Metros have been designed to be barrier free for any kind of disability. An organization which has taken up the responsibility is SAMARTHYAM. SAMARTHYAM's prime goal is "Inclusive Society and Universal Design in the Built Environment and Transportation".

As a result of Samarthyam's partnership, Connaught Place, New Delhi Railway Station, Nizammuddin Station, AnandVihar Railway Station, Sarai Kale Khan Bus Terminal and pedestrian infrastructure have universal accessible features.

Casa del Jazz, Rome Italy (Completed -2005) [6]

It is a complex of three buildings set in a public park of about two and a half hectares designed by Ar. Cesare Pascoletti. Inside the patronal villa there is a multifunctional 150-seat auditorium designed for concerts, projections, listening guides and lectures. In the same building there are a media library and a library open to the public, a bookshop and a cafeteria. The two secondary buildings houses test and recording rooms, a guesthouse for musicians and a restaurant are present.



Figure 5.3 Casa Del Jazz

Universal Design Features:

- a) The multimedia libraries and shop are intuitively laid out.***
- b) Most of the collection faces forward on shelves that have appropriate reaching dimensions.***
- c) From any view point, the user is able to receive most of the room's spatial information.***
- d) In the concert hall, acoustic design ensures a high quality auditory experience for varying levels of hearing abilities.***
- e) Way finding in the main building is enhanced by signage as well as overlap of accessibility.***
- f) Users requiring mechanical assistance ascending or descending stairs needn't take an alternative route, stair lifts have been installed where there is less severe changes in floor height and staircases and elevators are located next to each other.***
- g) Outside, users can follow clearly defined paths throughout the park that remain well lit at sundown. Plenty of benches are available as well.***

6. CONCLUSIONS

The number of people with disabilities is increasing with time and it is a necessary step to create appropriate environments for their social interaction. The focus of universal design in public spaces is to make them accessible for all and to increase interaction in those spaces. This paper is an analysis of the standards that should be followed for the design of public spaces to a universal area comfortable for all the categories of people.

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Contribution Details:

- ***Section 3: Academics and Design for ALL***
- ***Article: 3***
- ***Article Title: Transitional Spaces in Barrier Free Architecture***

TRANSITIONAL SPACES IN BARRIER FREE ARCHITECTURE

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Abstract

Transitional space is defined as a link or a connecting space between two enclosed spaces. The inclusion of transitional and circulation spaces, in the form of corridors, atriums and staircase, is unavoidable in the design of most buildings. The percentage of these spaces may however vary according to the function/ type of the building. Their functionality also varies according to the appropriate requirements of the building or the user. Transitional spaces offer an opportunity to interfere and create a space which re-engages the person, in that space or passing through that space. Looking at Indian architecture, there are features like pavilions, courtyards, terraces, and thresholds which accentuate transition. Barrier free space is that allows free and safe movement, function and access for all, regardless of age, gender or physical condition. Creating a barrier free environment in a residence is not only providing a ramp for wheel chair access, there are many necessary aspects which are to be considered. Like door and corridor widths with clearances, flooring surfaces,

heights of counters, door handles and railings. Even signage, auditory signals and tactile guides

Key Words: *Transitional spaces, Barrier free features, Circulation spaces*

1.INTRODUCTION¹

RANSITIONAL SPACE is defined as a link or a connecting space between two enclosed spaces. The inclusion of transitional and circulation spaces, in the form of corridors, atriums and stairwells, is unavoidable in the design of most buildings. The percentage of these spaces may however vary according to the function/ type of the building. Their functionality also varies according to the appropriate requirements of the building or the user.

Transitional spaces offer an opportunity to interfere and create a space which re-engages the person, in that space or passing through that space.

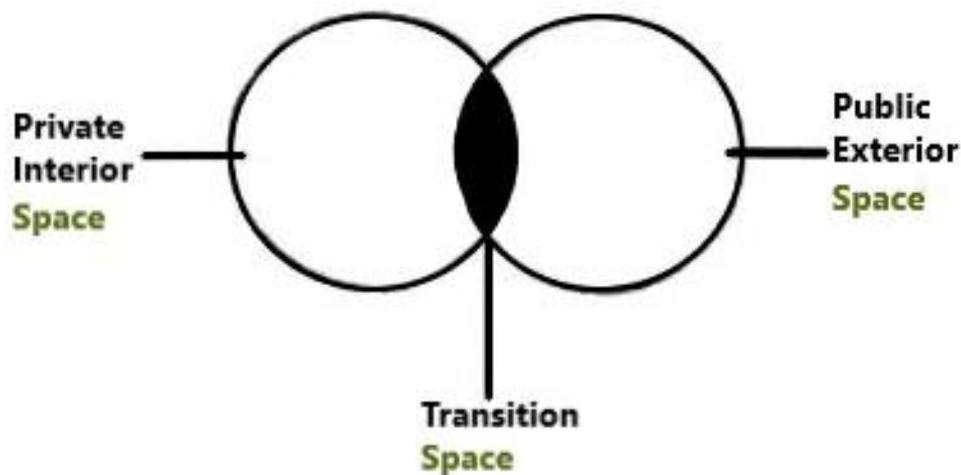
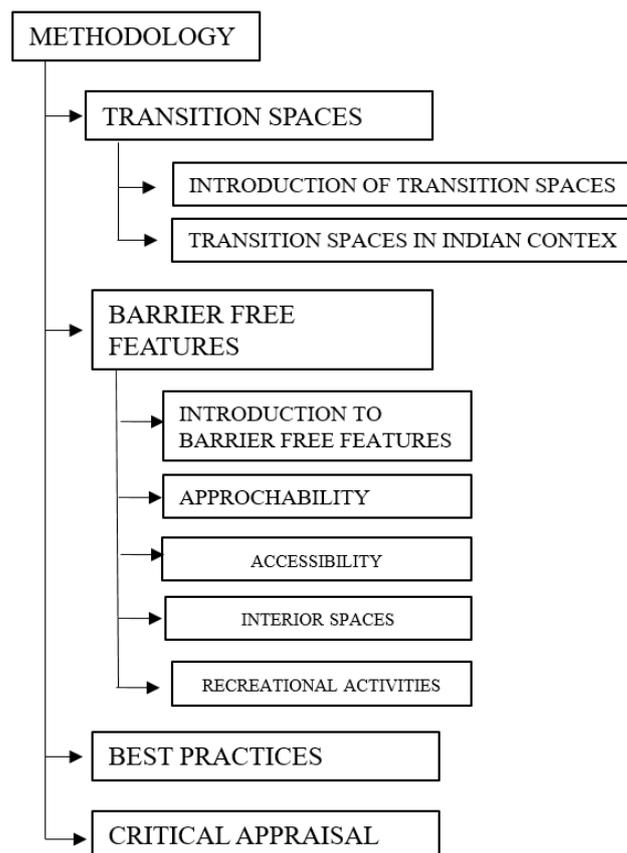


Figure 1.1 The above figure shows how transition space acts between two spaces in a simple diagrammatic form.(Singh, 2017)

Looking at Indian architecture, there are features like pavilions, courtyards, terraces, and thresholds which accentuate transition.

Barrier free space allows free and safe movement, function and access for all, regardless of age, gender or physical condition. Creating a barrier free environment in a residence is not only providing a ramp for wheel chair access, there are many necessary aspects which are to be considered, like door and corridor widths with clearances, flooring surfaces, heights of counters, door handles and railings, and even signage, auditory signals and tactile guides.



2. Transition spaces in Indian context

The transition spaces in Indian Architecture play a very significant role, especially in residential buildings. The transition spaces

marked the boundaries of the living space. They played a role in both dividing and connecting the inner and outer space: the gate, the door, the threshold. These spaces were richly decorated and ornamented to highlight the transition space. (Singh, 2017)

In Indian architecture, the typology and nature of the transitional spaces have been changing with time. They vary in scale, usage and connection. The earlier cities were dense; hence the transitional spaces were tight and mostly bound by all sides, creating a sense of space and comfortable scale. As settlements grew, they became more planned and organized; hence, the transitional spaces were organized and no more acted as left out spaces. Visual expression became a very important aspect of such spaces. With modern age came the functional use of these spaces. These enable equal distribution of physical benefits.

Also, in Indian architecture, design elements contribute a lot to transition spaces. There are openings like doorways, pathways, grounds, patios, garden, trellis, pergolas, foyer, lobbies and other elements like colonnades, aisles, courtyards, water bodies etc. If there is no defined space then confinement by some of the above elements makes the space functional and sensible; or a transitional space. For example, the AnupTalao in FatehpurSikri provides a very elegant transition from the inside (*Khwabgah* complex) to the outside. The central platform in the talao serves as a nice interaction space as well as a quiet space.

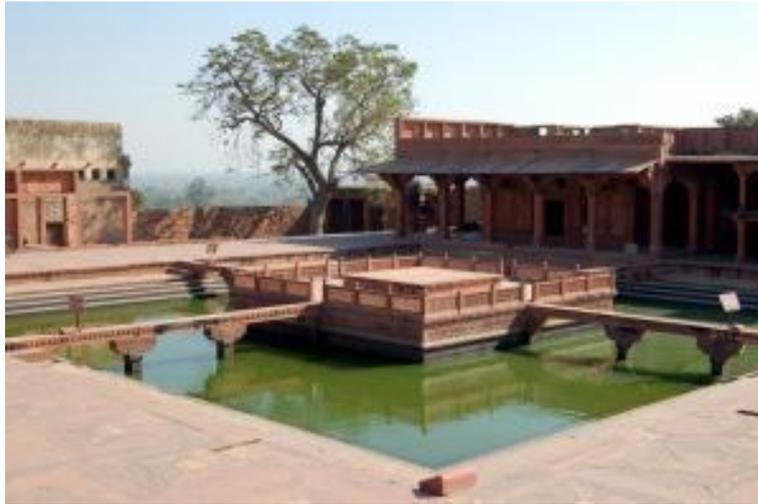


Fig 2.1 platform connected with four bridges in Fatehpur Sikri(India Film, 2015)

We can know from above picture that the platform here can be reached by the four bridges only; hence the four bridges here also act as a transition space.

2.1 Examples

1. Consider when a milkman comes to deliver milk, we interact with him at the verandah because we don't want him to enter our private space. Due to the presence of buffer space he doesn't feel alone. We also use buffer spaces in our day to day life apart from inside and outside.

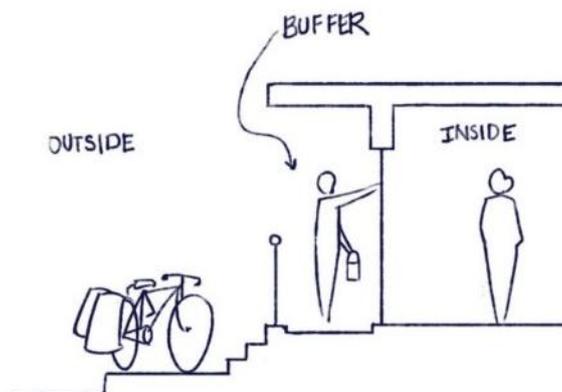


Figure 2.1.1 area near threshold acts as a transitional space for public and private space in a residence (Biswas, 2017)

2. The courtyard here is a transitional space between the inside and the outside realms.



Figure 2.1.2 courtyard(Singh, 2017)

3. The image shows how the entrance has been marked by staircase. Here, a frontal approach has been used, where the staircase lead directly to the entrance, physically and visually.



Figure 2.1.3 staircase acting as a transition space(Singh, 2017)

4. There will always be a common space that connects all the other spaces like your living room or a foyer.

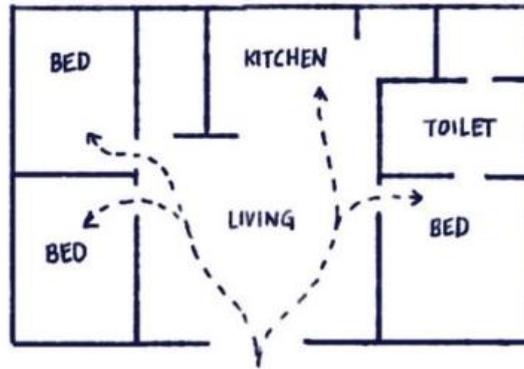


Figure 2.1.4 living acts as a transition space (Biswas, 2017)

Indian temples are one of the best places to study 'transition spaces' in Indian context. In one plan only we are able to see the different levels, scales and points of transition. The transition that happens is not only physical but is also psychological, because of the experience you gain.

The very first transition happens when we enter in the temple through the giant Gopuram. Then we come to Sabhamandapathat is connected to Mandapathrough a colonnade (here the colonnade is acting as a transition space). Then the Antaralaya acts as transition space between Mandapa and Garbhgriha. Pradakshina path acts as transition space for Garbhgriha.

(Singh, 2017)

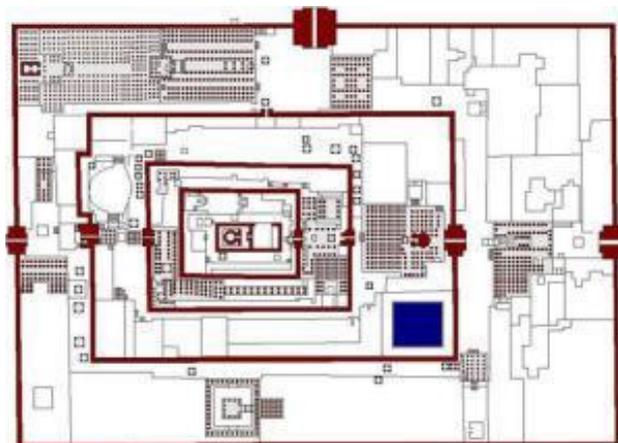


Figure 2.1.5 the image above shows the various layers of transition spaces in a temple (Singh, 2017)

3. types of disabilities

Various, disabilities which have been considered while preparing the guidelines for barrier free built environment are classified under the following four categories. (CPWD, 1998)

- 1. Semi-Ambulatory:** *People who cannot walk for a long time or a long distance, people who needs to take rest walking some distance.*
- 2. Non-Ambulatory:** *people who need assistance of objects such as wheel chair crutches, walker, or support of another person to move from one place to another place*
- 3. Sight:** *Total blindness or impairments affecting sight to an extent.*
- 4. Hearing:** *Deafness or hearing handicaps that might make an individual insecure in public areas because the person is unable to communicate or hear warning signals.*

(CPWD, 1998)

4. APPROACHABILITY

4.1 Signage (Barrier-free)

- a) Signage should be placed at nodal positions, openly and prominently. They must be simple in syntax and must be well lit in ambient lowlight conditions.**
- b) There should be a detectable barrier at the floor level for the white stick users when the signage is floor based and free standing, then.**

- c) *If there are multiple access points, each access point should indicate the shortest route to the accessible entry.*
- d) *Numbers and letters on signs shall have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10 Characters and symbols shall contrast with their background. (CPWD, 1998)*

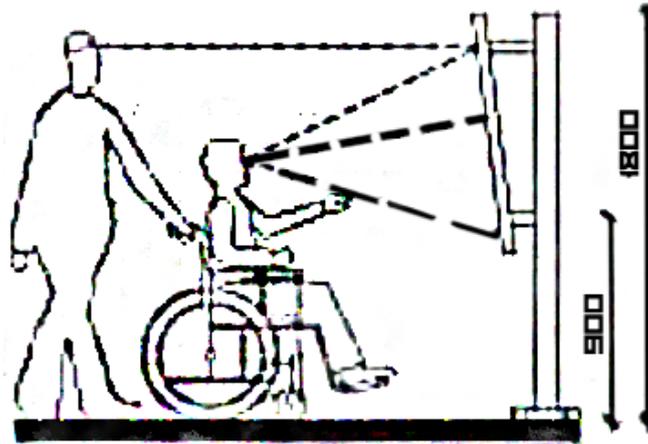


Figure 4.1.1 mounting height for Signage

Table -1

S.NO	DISABILITY	PROVISION
1.	Semi ambulatory	Signage boards will placed at an ideal height of vision for a person
2.	Non ambulatory	Signage boards will be little angular towards the ground
3.	Impaired of sight	Text on boards will be big enough to read from far distance
4.	Impaired of hearing	Audio guiding will be installed

4.2 Parking

Facilities, signage should be displayed at the entrance of public parking in prominent positions to indicate the designated numbers of the parking spaces reserved for persons with a disability. The international symbol of accessibility and the parking space number on the floor shall be clearly marked. (CPWD, 1998)

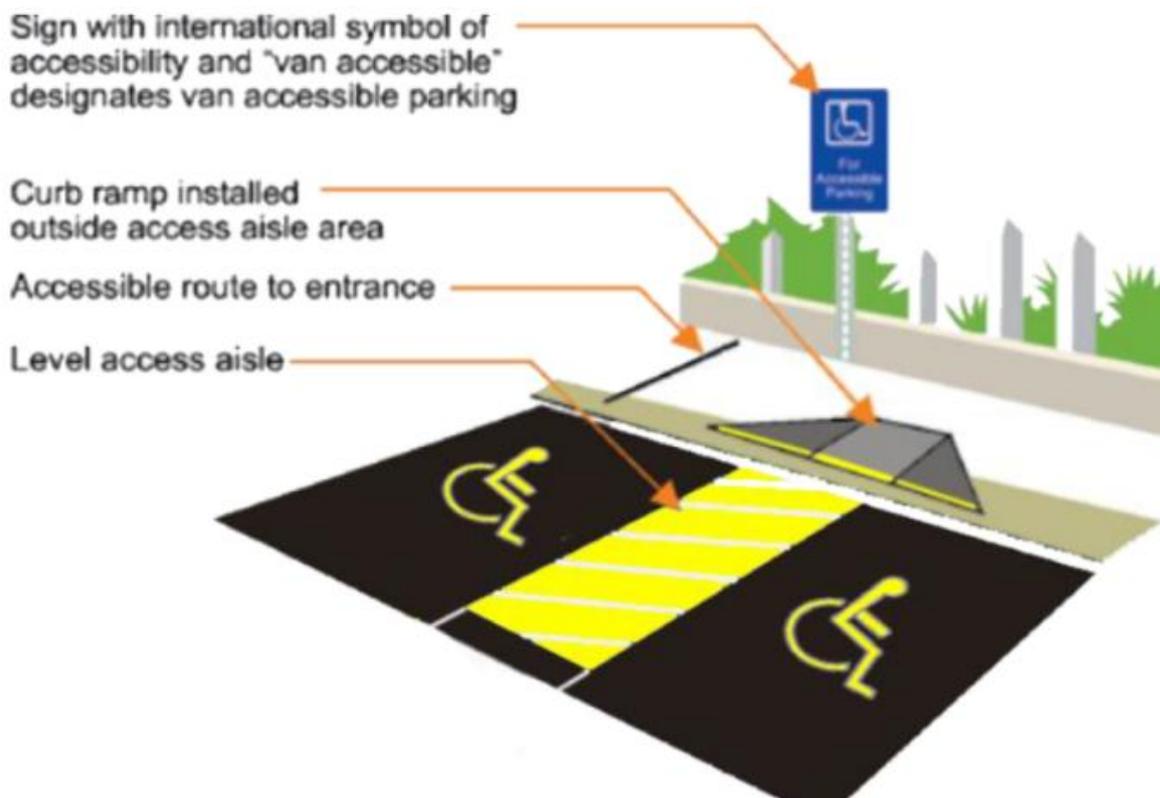


Figure 4.2.1 above figure shows international symbol for wheelchair accessibility.

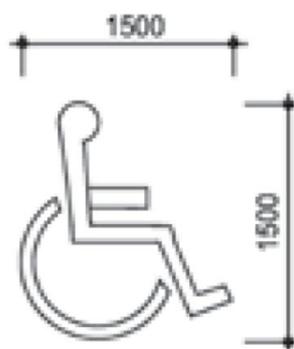


Figure 4.2.2 ideal dimensions of person on wheelchair (CPWD, 1998)

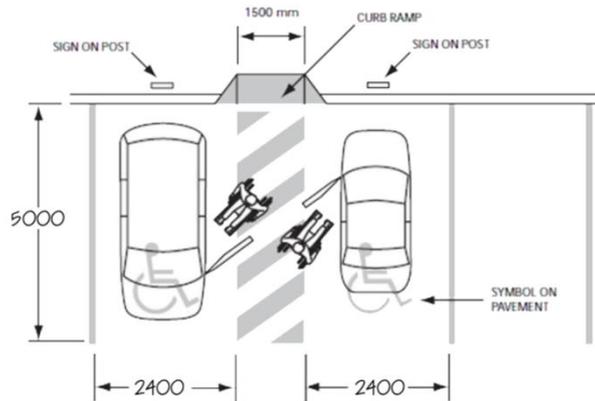


Figure 4.2.3 minimum clearances for wheelchair accessibility in parking space (CPWD, 1998)

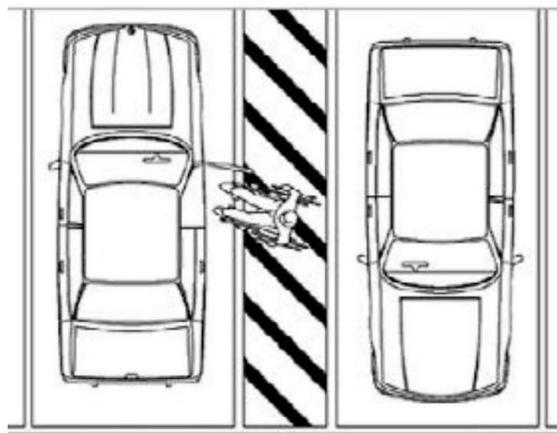


Figure 4.2.4 vehicles must be parked in alternate direction in order to utilize the space provided for accessibility of wheelchair.

Table - 2

S.no	Disability	Provision
1.	Semi ambulatory	Parking lot for disabled person shall be provided near to the destination.
2.	Non ambulatory	1500mm clearance shall be provided for the parking lot for wheel chair access.
3.	Impaired of sight	Installation of proper signage boards.
4.	Impaired of hearing	Audio guiding will be installed

4.3 Corridor

Corridors shall have the following requirements for physically and visually impaired people at the corridors intersections and at the entrance/exit leading directly to outdoors:

- a. *Guiding floor materials or devices that emit sound shall be provided to guide visually impaired persons.*
- b. *Minimum width of the corridor shall be 1500mm.*
- c. *If there is any level difference, then slope shall be provided by 1:12ratio i.e. height to length ratio of slope.*
- d. *Ramps/slope shall have handrails.*

(CPWD, 1998)

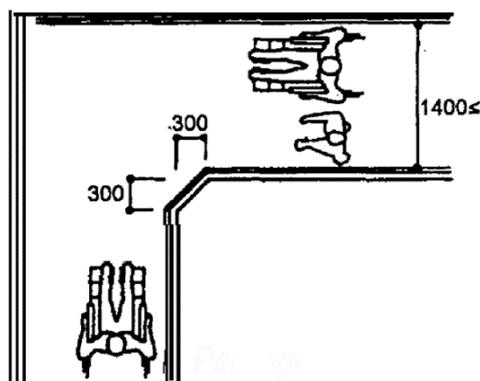


Figure 4.3.1 Passage and corner section clearances with one-way traffic.

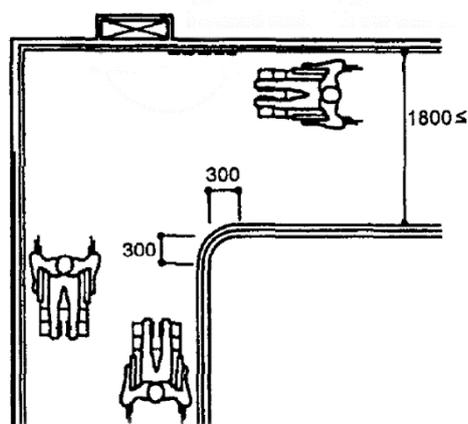


Figure 4.3.2 Passage and corner section clearances with two-way traffic.

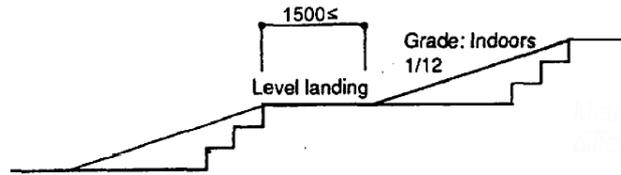


Figure 4.3.3 figure show minimum width for a landing for wheelchair accessibility

Table - 3

S.no	Disability	Provision
1.	Semi ambulatory	Avoiding long corridors
2.	Non ambulatory	Minimum width of corridor should be 1400mm for wheelchair and person to pass.
3.	Impaired of sight	Providing signage at turnings and intersections.
4.	Impaired of hearing	Audio guiding.

4.4 Ramps

- a) If the slope of any part of accessible route with height and slope ratio is 1:20, it shall be considered as a ramp. The least possible slope shall be 1:12 of a ramp. The minimum clear width of a ramp shall be 0.9m**
- b) A landing shall be provided after every 10m of run with a clearance of 1.5m. (CPWD, 1998)**

Table - 4

S.no	Disability	Provision
1.	Semi ambulatory.	Mid landings after every 10m of run.
2.	Non ambulatory.	Slope and height ratio shall be maintained 1:20.
3.	Impaired of sight.	Hand rails for support.
4.	Impaired of hearing	Signage and audio guiding.

4.5 Entrance

- a) *At the approach of a park or a park road there should be no difference in level, in case the level difference is unavoidable then a ramp or a staircase plus a ramp is needed.*
- b) *If any bollards are provided there should be a minimum spacing of 0.9m for wheel chair bound persons. (CPWD, 1998)*

Table - 5

S.no	Disability	Provision
1.	Semi ambulatory.	None
2.	Non ambulatory.	Avoiding level difference with 1500mm wide entrance
3.	Impaired of sight.	Tactile paving and audio guiding.
4.	Impaired of hearing	Audio guiding.

5. Accessibility

Accessibility is a quality of being able to be reached after having entered a space.

5.1 Service Counters

- a) *Counters should be at a height of 800mm with a parallel approach from the finished floor level with a width of 1200mm and 500mm deep.*
- b) *Space between counter and FFL should have a knee space of at least 750mm high, 900mm wide and 450mm deep.*
- c) *In front of the counter the clearance for wheel chair should be at least of 1200mm x 900mm. (CPWD, 1998)*

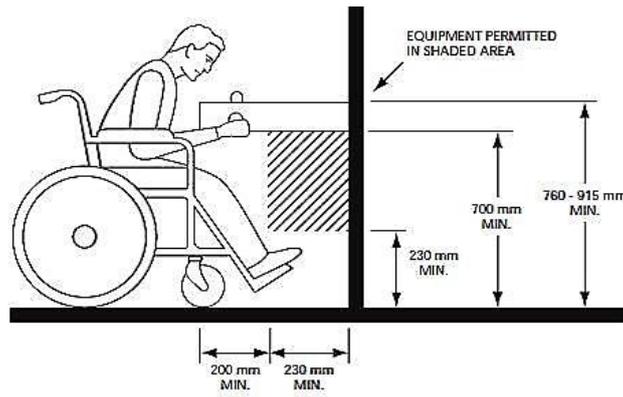


Fig 5.1.1 shows the minimum clearances and dimensions for an accessible service counters for a physically impaired person. (CPWD, 1998)

5.2 Lifts

According to Bureau of Indian Standards following dimensions should be used for wheelchair access elevators:

- Clear internal depth: 1100mm**
- Clear internal width: 2000mm**
- Entrance door width: 900mm**
- Handrail should be of at least 600mm long and at height of 800-1000mm above floor level.**

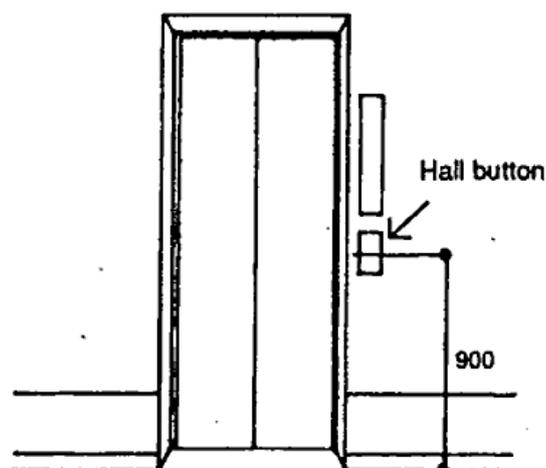


Figure 5.2.1 elevation of an elevator entrance with minimum height of hall button

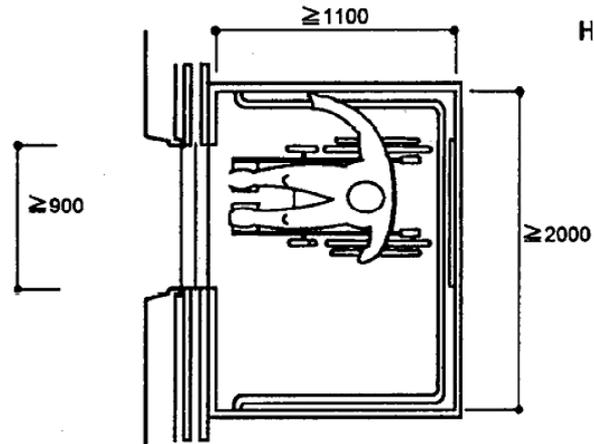


Figure 5.2.2 Space inside Elevator

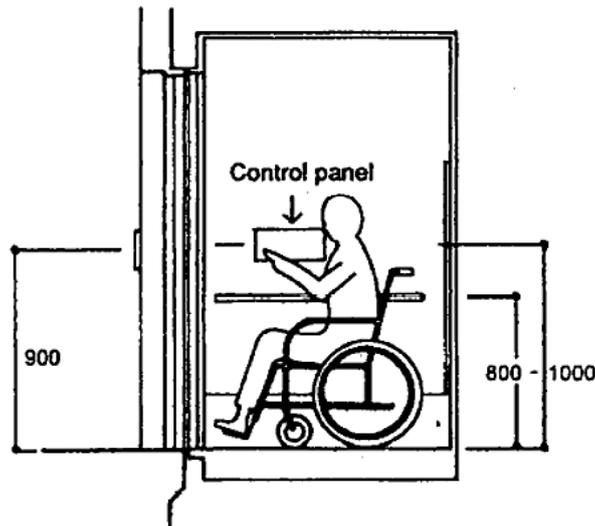


Figure 5.2.3 Height of control panel and standard dimensions

Table - 6

S.no	Disability	Provision
1.	Semi ambulatory.	None
2.	Non ambulatory.	Minimum width of the door shall be 900mm
3.	Impaired of sight.	None
4.	Impaired of hearing	Braille pattern shall be provided on control panel.

5.3 Access Path / Walk Way

- a) *The access path should be at least of 1800mm wide without any step from plot entry or parking area to building entrance.*
- b) *Material which are selected for flooring should suitable to attract or guide visually impaired persons and the surface shall have nonslip surface with texture traversable by wheel chair. (CPWD, 1998)*

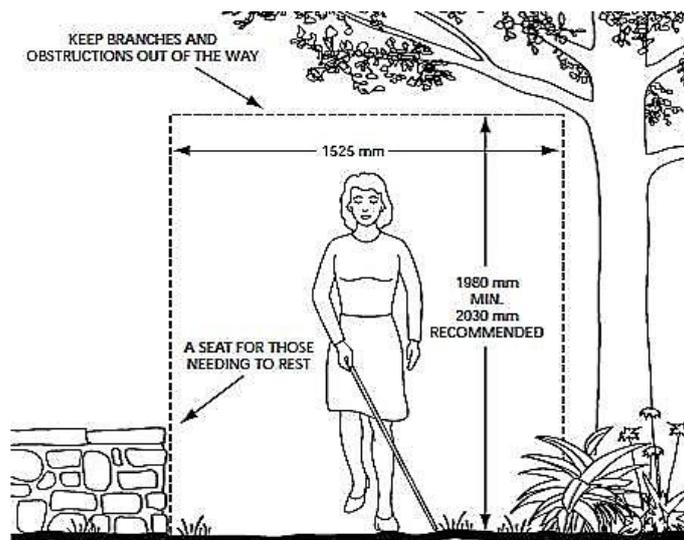


Figure 5.3.1 Shows minimum clearance for a visually impaired person with no obstacles on the pathway. (CPWD, 1998)

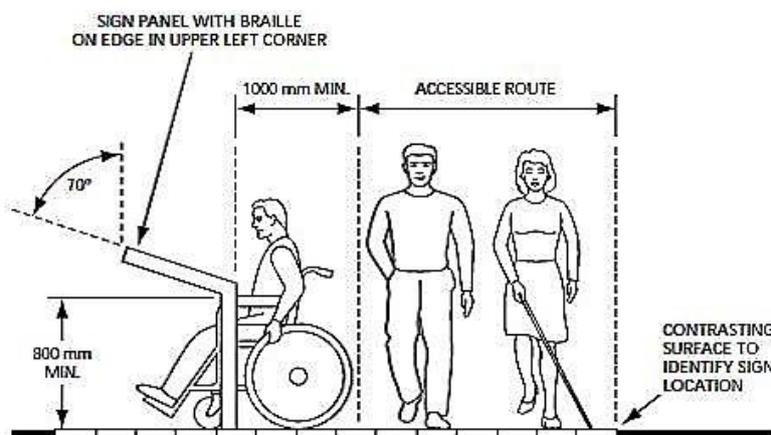


Figure 5.3.2 Minimum angle and clearance of a sign panel for physically and visually impaired people. (CPWD, 1998)

Table - 7

S.no	Disability	Provision
1.	Semi ambulatory.	Providing benches at regular intervals near pavements.
2.	Non ambulatory.	Minimum width of an entrance shall be 1400mm
3.	Impaired of sight.	Minimum width of an entrance shall be 1525mm
4.	Impaired of hearing	Signage and audio guiding

5.4 Benches

Out of total no. of benches in a public park or garden or in any residential parks, 20% of seating benches should be provided for various types of disabled people. (CPWD, 1998)

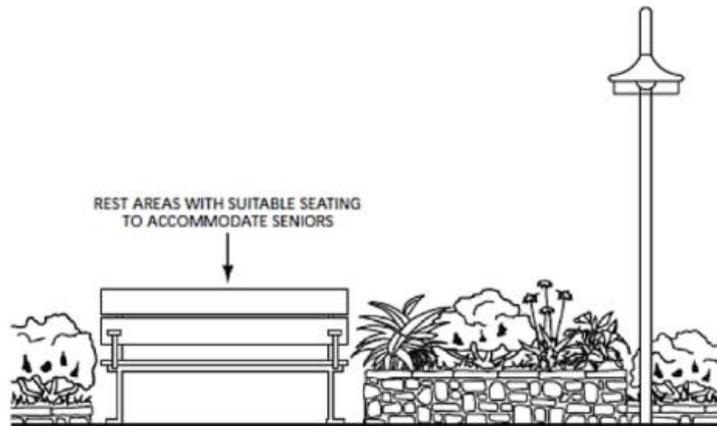


Figure 5.4.1(CPWD, 1998)

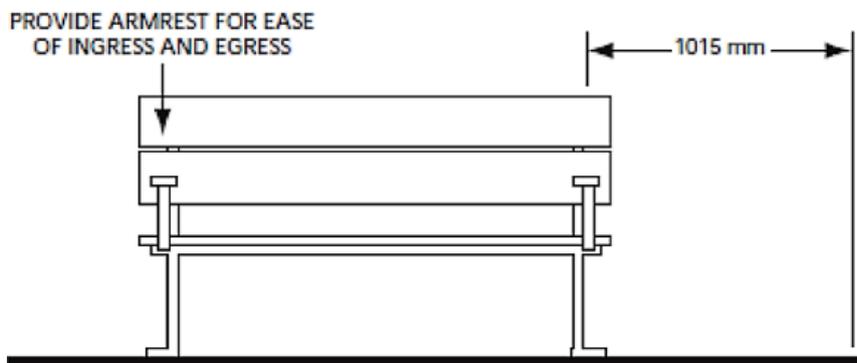


Figure 5.4.2 front view of a bench (CPWD, 1998)

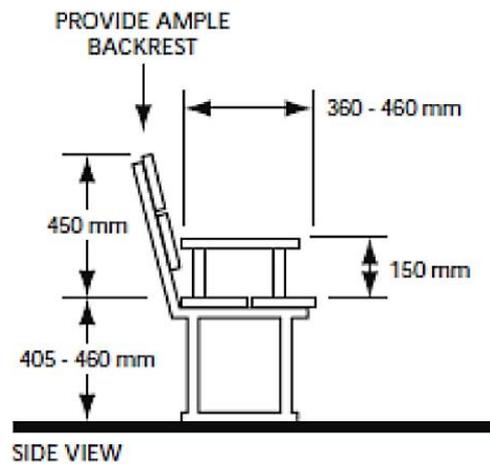


Figure 5.4.3 side view of a bench with dimensions. (CPWD, 1998)

5.5 Gratings

In walking surfaces if there are gratings located, then they shall have spaces not greater than 12mm wide in one direction. In case gratings have elongated openings, then they shall be placed so that the long dimension is perpendicular to the dominant direction of travel.

(CPWD, 1998)

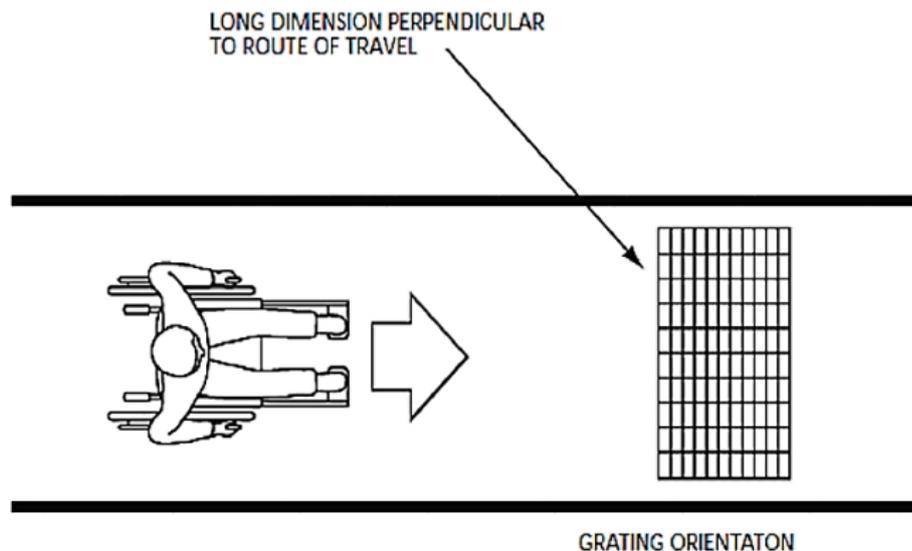


Figure 5.5 Gratings

Table - 8

S.no	Disability	Provision
1.	Semi ambulatory.	Gaps shall be minimized between grating pipes or rods
2.	Non ambulatory.	Grating pipes or rods shall be placed perpendicular to the route of travel of a wheelchair.
3.	Impaired of sight.	None
4.	Impaired of hearing	Avoiding large gaps

5.6 Tactile Paving

A system of textured ground surface indicator found on footpaths, stairs or at any level difference to assist pedestrians who are visually impaired.

Tactile paving is used in some of the following location:

- a) *Where there is a vehicular traffic the tactile paving is provided at immediate front of the location.*
- b) *In front of an entrance/exit to and from a staircase or multilevel crossing facility*
- c) *Tactile paving is provided on walk way in a park so that they can follow the tactile and move from one place to other.*
(CPWD, 1998)

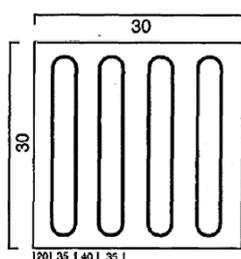


Figure 5.6.1 Type - A

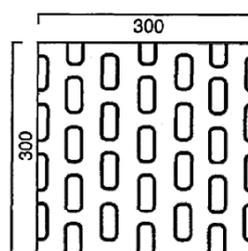


Figure 5.6.2 Type - B

Tactile tile with long and short bars (Type A&B). (CPWD, 1998)

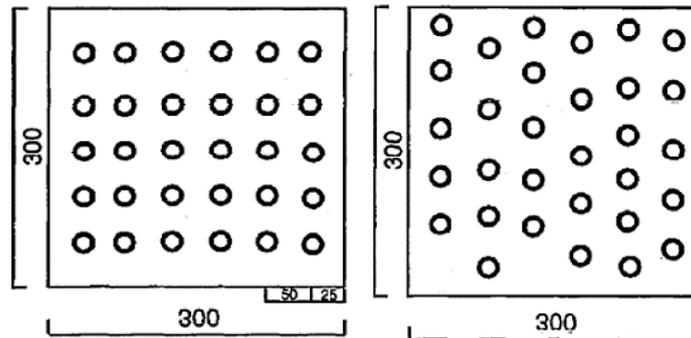
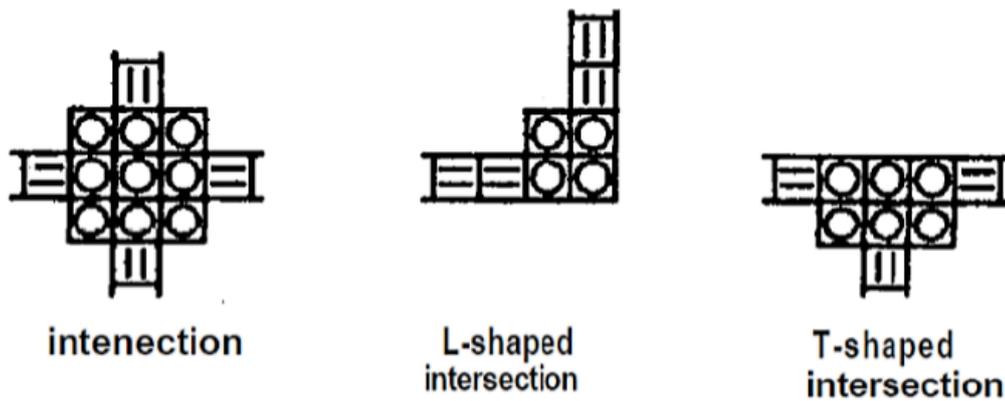


Figure 5.6.3 Type - A

Figure 5.6.4 Type - B

Tactile tile with spots (Type A&B). (CPWD, 1998)



intenection

L-shaped intersection

T-shaped intersection

Figure 5.6.5 Arrangement of tactile flooring at intersections for persons with impaired vision. (CPWD, 1998)

Table - 9

S.no	Disability	Provision
1.	Semi ambulatory.	Tiles of tactile paving shall be anti-skid.
2.	Non ambulatory.	Height of the pattern on tiles shall be 5mm to 8mm
3.	Impaired of sight.	Anti-skid tiles.
4.	Impaired of hearing	None

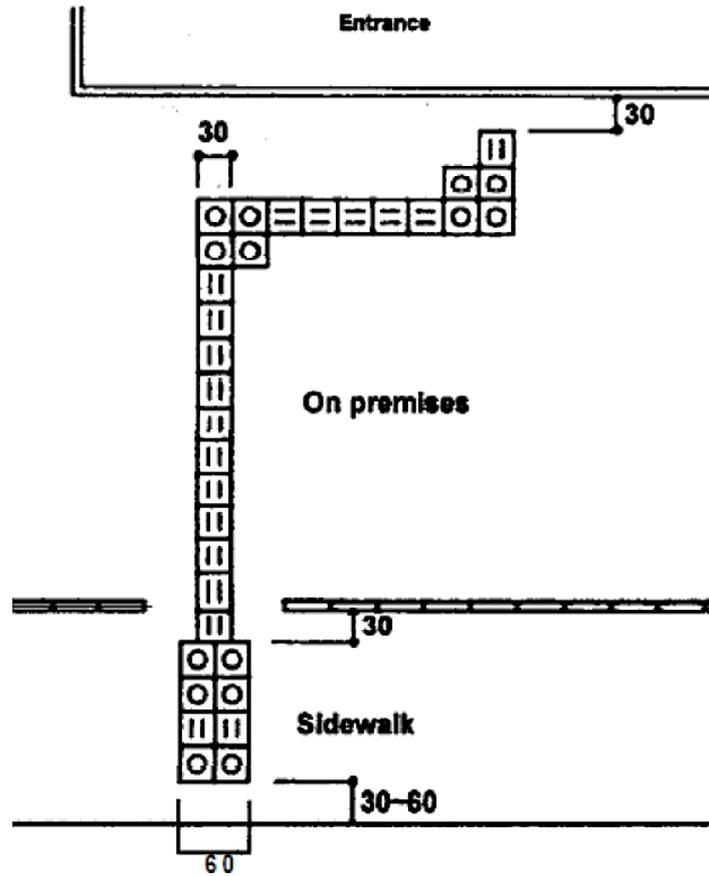


Fig 5.6.6 arrangement of tactile paving (CPWD, 1998)

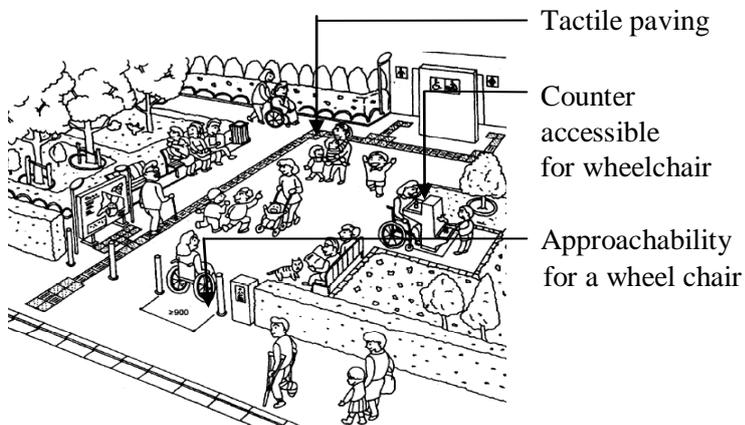


Fig 5.6.7 View of community space having guiding blocks installed. (CPWD, 1998)

5.7 Lighting

- a) **Height, light cut of angle and fixture spacing should be maintained to allow visibility distribution at the walking surface.**
- b) **Lights below 1525mm should illuminate surface only and must not glare into people's eye. (CPWD, 1998)**

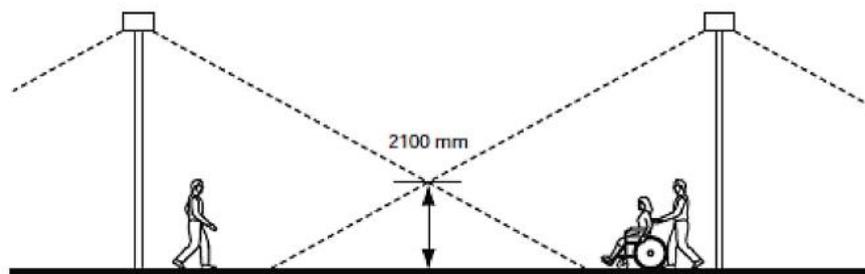


Figure 5.7.1 Angle and height of street lights

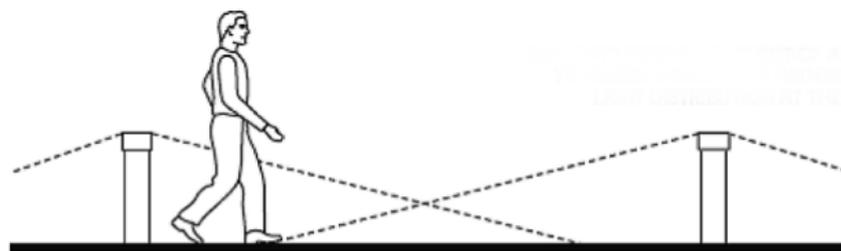


Figure 5.7.2 angle and height of lights for pavements (CPWD, 1998)

6. Recreational activities

The activities which are often done for enjoyment, amusement, or pleasure and are considered to be fun are recreational activities.

6.1 Swimming Pool

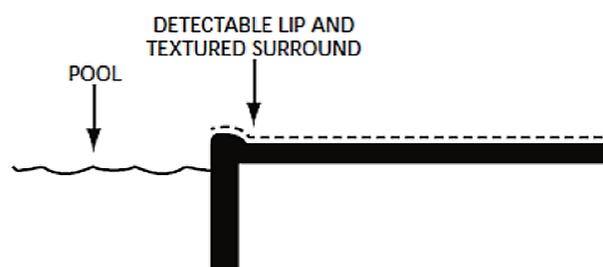


Figure 6.1.1

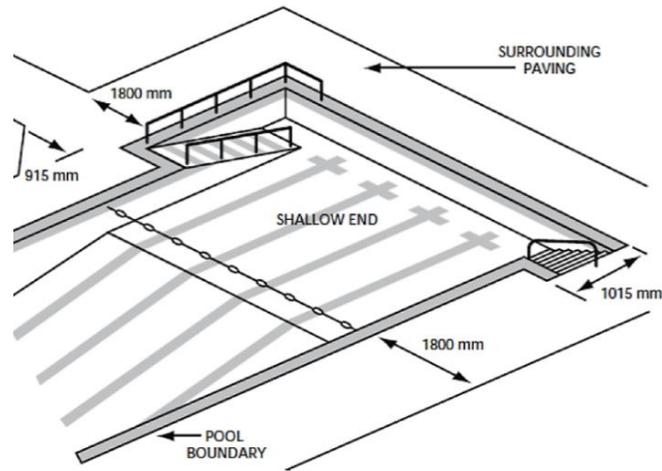


Figure 6.1.2 Slope and steps to enter into a pool for physically impaired people (CPWD, 1998)

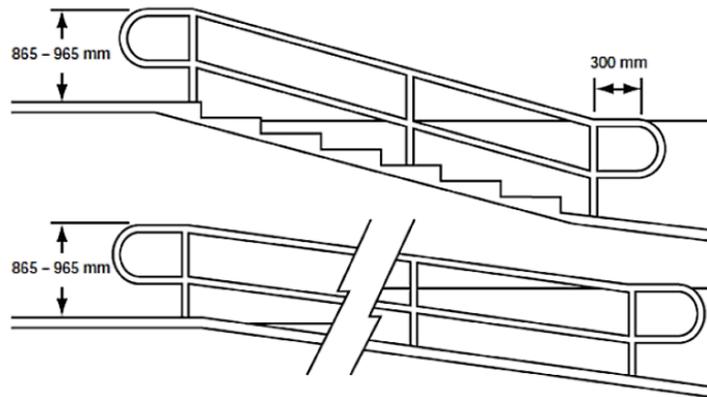


Figure 6.1.3 Side elevation of ramp and stairs (CPWD, 1998)

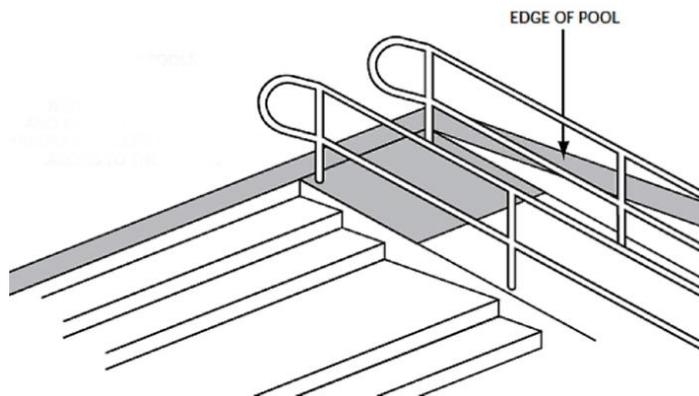


Fig 6.1.4 both ramps and shallow steps with adjacent handrails allow independent access to the water. (CPWD, 1998)

Table - 10

S.no	Disability	Provision
1.	Semi ambulatory.	Tiles in swimming pool shall be anti-skid and handrails near slopes and steps
2.	Non ambulatory.	Ramps and handrails shall be provided for wheelchair access.
3.	Impaired of sight.	Signage boards
4.	Impaired of hearing	None

6.2 Basket Ball

- a) *The height of the hoops can shall be adjustable for wheelchair people and later it can be used as a normal basketball court by adjusting the height again.***
- b) *Hoop should be heighted at 2.7m from ground level.***

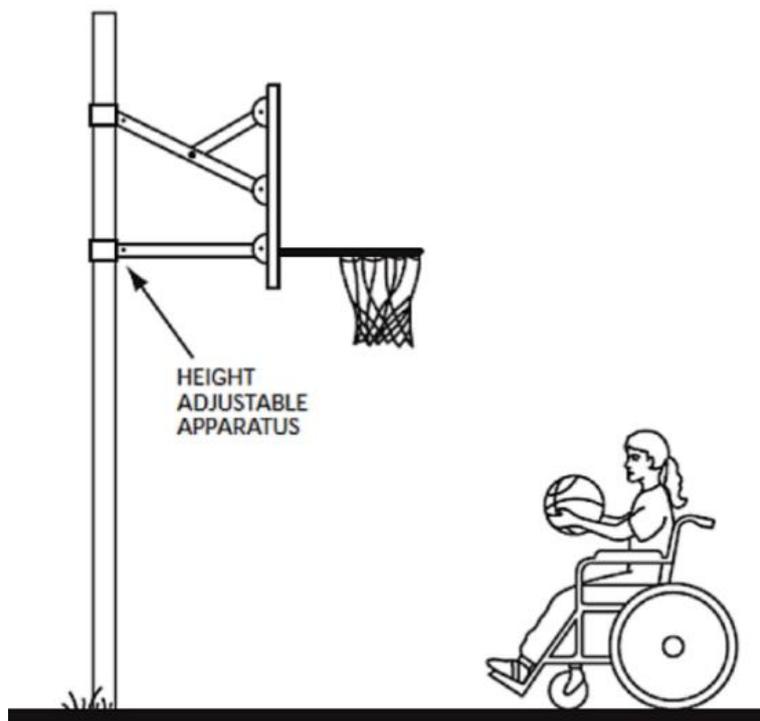


Figure 6.2 shows adjustable hoop for basketball (CPWD, 1998)

6.3 Play Equipment

Height of the platform in play are shall be 310mm. (CPWD, 1998)

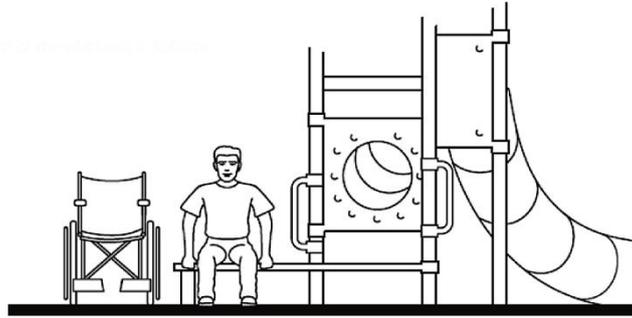


Figure 6.3

6.4 Dustbins

Waste receptacles of all types should be firmly mounted and have a self-closing lid, which is easy to open with one hand.

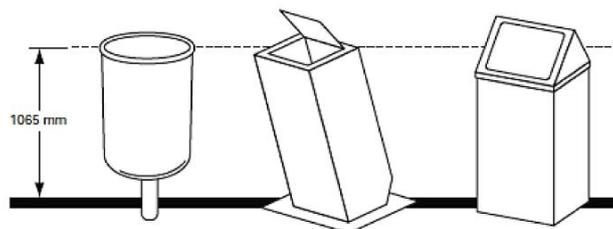


Figure 6.4 shows the maximum height of the dustbin (CPWD, 1998)

7. INTERIOR spaces

Living Room.

- a) *Minimum of 1500mm of turning space should be provided at all entry points to the living area.*
- b) *If dining area is in living area then 750mm seating space should be provided for wheel chair at dining table.. (CPWD, 1998)*

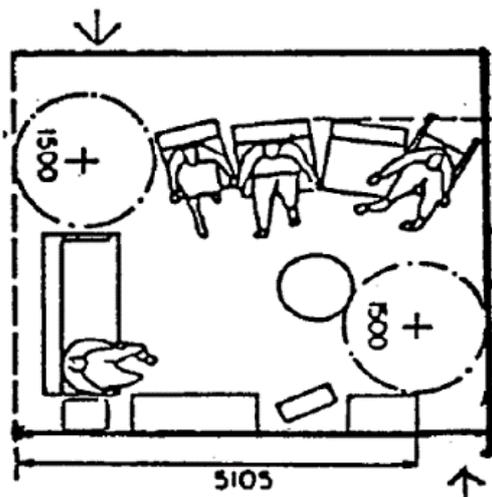


Figure 7.1.1

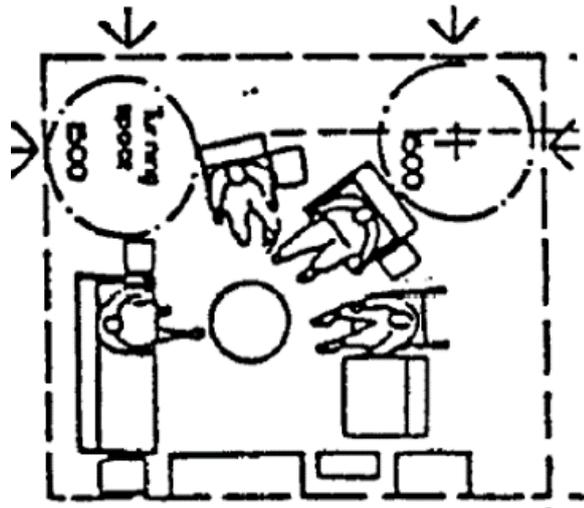


Figure 7.1.2 (CPWD, 1998)

8. CRITICAL APPRAISAL

S.K Puri Park Patna: This is a children park located in Patna, Bihar.

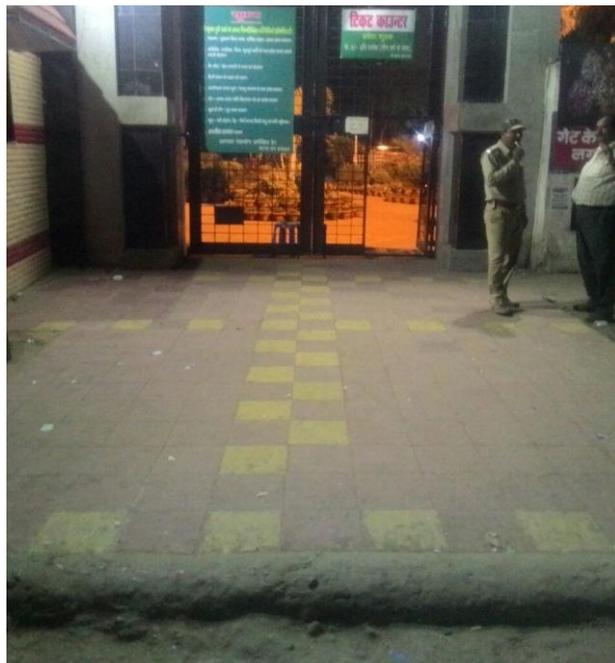


Figure 8.1.1

Entrance at the park has a level difference which is difficult to enter in with wheelchair (refer fig 8.1.1).(Singh, 2017)



Figure 8.1.2

The maximum height of the counter should be 800mm, but here the height is 1700mm which is very high for wheel chair people to access(refer fig 8.1.2).(Singh, 2017)

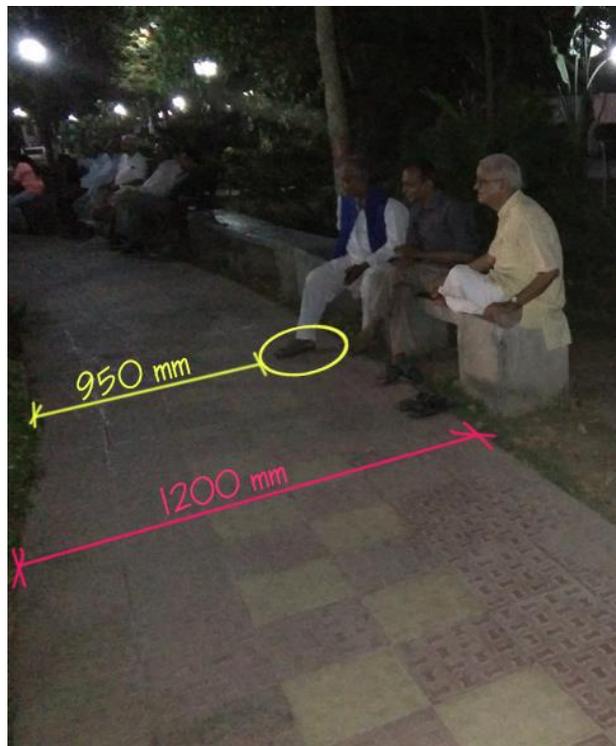


Figure 8.1.3

Pedestrian paths should be of minimum 1800mm wide to access by visually impaired people, whereas here there is only 1200mm wide paths (refer fig 8.1.3).(Singh, 2017)



Figure 8.1.4

Minimum and maximum height of a bench should be 405 and 460mm respectively but here the height of the bench is 550mm (refer fig 8.1.4).(Singh, 2017).

9. BEST PRACTICES

Congress avenue Park, U.S.A

This park is located near Boynton Beach. Barrier free park is located in between tennis centre and Lake. Tennis centre and a barrier free park was built near the beach. (Singh, 2017)



Figure 8.2.1 View of the park

Three plays areas in this park make it more famous. Public art, a water splash pad, picnic pavilion and picnic area, restrooms, and native landscaping.(Singh, 2017)



Figure 8.2.2

The Swamp Splash Pad is across the bridge which is located in the centre of the park with spraying cattails, a frog mister and a large alligator head that peers out of the ground and squirt water. Park has tactile paving which helps visually impaired people to move.

The fitness zone in this park has 17 pieces of exercise equipment, five of which are wheelchair accessible.(Singh, 2017)



Figure 8.2.3 exercise equipment

S.NO	DESCRIPTION	AVAILABILITY
1.	WHEEL CHAIR ACCESSIBILITY	YES
2.	TACTILE PAVING	YES
3.	PLAYAREA WITH STANDARDS OF DIABILITIES	YES
4.	AUDIO GUIDING FOR IMPAIRED OF LISTENING	NO

10. Conclusion

In this study, we can find out the solutions for people with different physical disabilities.

Transition spaces like pathways, gates, corridors, ramps, are causing to the physically impaired people with different reasons. To overcome the issues, I have discussed some of the solutions and measures to be taken. Generally residential and parks have to be focused with barrier free aspects. Not only the transition spaces, spaces for recreational activities like swimming and outdoor sports should be barrier free which are discussed in the study.

People who are visually impaired should be guided to move by placing tactile paving on ground. Techniques and sizes of tactile paving are also disused in this study.

Apart from all these, clearance space should be provided for wheel chair access in each and every place like parking, residential areas and public places.

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Mr. Goray is an inspiring teacher, hardcore researcher and admirer of Universal Design. Teaching has been his passion and Barrier Free architecture has been his core interest.

Contribution Details:

- **Section 3: Academics and Design for ALL**
- **Article: 4**
- **Article Title: Barrier Free Interaction in University Campus**

Barrier free interaction spaces in University Campus

Ar. Nawin Kumar Goray

1. Introduction:

Disability is every one's concern it is the stage of life. It may be short term or may be lifelong identity. According to world health organization "Disability is the part of human condition almost everyone will be temporarily or permanently impaired at some point of time".

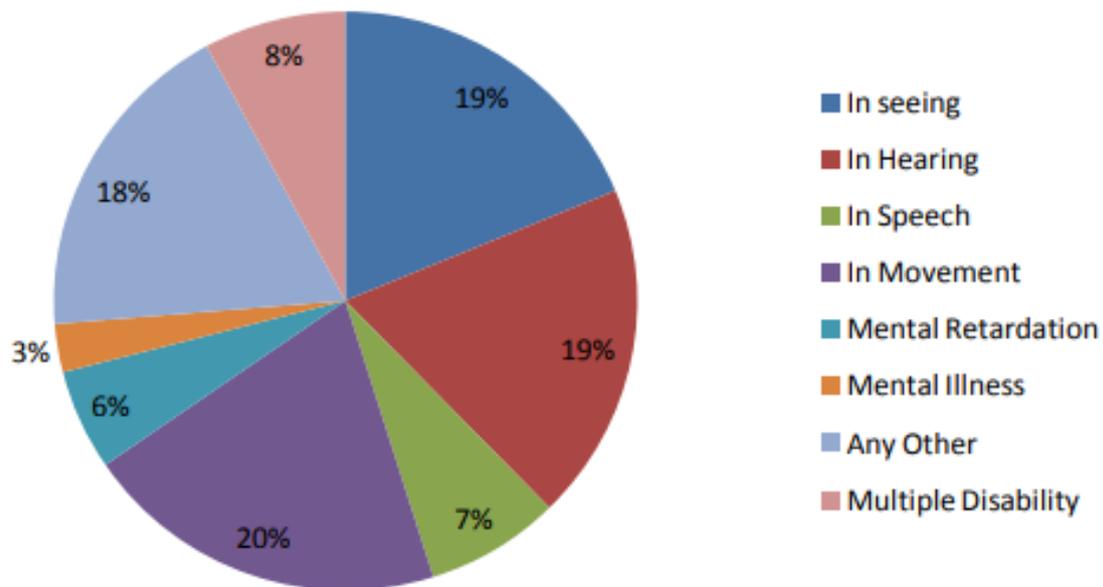


Fig 1: percentage of disabilities in India

Source: ministry of statics and program me implementation government of India (India M. o., 2016)

Disabilities can be divided in to four categories:

- 1. Non-Ambulatory,**
- 2. Semi –ambulatory,**
- 3. Sight and**
- 4. Hearing.**

In Non-Ambulatory are those individuals who are confining to wheel chairs. Semi-ambulatory individuals can walk with the help of crutches or braces. With sight impairment individual with total blindness who are insecure or exposed to danger in public areas. Hearing or deafness make individuals unable to communicate or hear warning signals. (India M. o., 1998)

On the basis of stages, we can decide the degree of disabilities:

- ***Mild: A person who can perform core activity tasks with the help of aids and equipment.***
- ***Moderate: A person who find difficulties to perform core activity task but doesn't require any assistance.***
- ***Severe: Person required assistance to perform core activity task but has the communication ability comes under this category.***
- ***Profound: A person who need always assistantship to perform core task and unable to take self-care. (MOHD RAMZI MOHD HUSSAIN, 2015)***

2. Spaces of conflict in built environment

People need barrier free access to outdoor and indoor built environment. Person with disabilities need assurance to utilizing spaces for their concern. So, physical features are important criteria which need to take care during design phase. Need to identify the indicators which are relating to the mobility of the person such as frequency, purpose, length and duration. Information need to be available for disable people in accessible format and need to follow CPWD guideline accordingly.

A University campus consists of the elements which are highly interrelated. Campus can be taken as a small urban area due to the verities of users and elements. University campus design is the subset of urban planning which combines with environmental design which consists of outdoor and indoor activities with utilities. In outdoor we require playgrounds, exhibition spaces, open air theatre, interaction spaces etc. in indoor it require learning spaces, library, market place, administration, bank etc. all these spaces should be interconnected and should be easily accessible by disable people. According to national building code 2016, Entering, using and evacuating from any building or site

should be safe and easy. For this concern following consideration need to follows:

- 1. Accessibility to the site**
- 2. Vehicular parking for disable person**
- 3. Path connecting to parking and entrance**
- 4. Outdoor lighting**
- 5. Appropriate and accessible outdoor furniture**
- 6. Accessible information and signage near entrance of the site**
- 7. Easy access for disable people to information desk, vertical circulation and toilet**
- 8. Safe staircase and spacious lift**
- 9. Sufficient door opening**
- 10. Tactile, audible and visual means of communication to disable people**
- 11. Adequate height and location of controls and switches.**

Local building bye laws along with national building code of India need to follow to design university campus. University campus plays an important role in quality of life students, faculty and other staffs. Outdoor environment creates non-verbal communication for users.

3. Accessible Campus.

Good University design should have the non-verbal communication to their able and disable people. For that it should have the greater sensitivity towards the users. It should give sense of comfort and security. It should have the way finding features with the help of place making aspect of campus design. Principles of universal design need to apply for sidewalks, routes, parking, building and campus sinages. Accessibility need to be check on universal design index. General guidelines for circulation on campus level are:

- Need to give priority to pedestrians on sidewalks and intersections.**
- Special paving marking for pedestrian or wheel chair users.**
- Traffic-calming measures should be introduced.**
- All sideways and walkways should be barriers free.**

- ***Walks should generally be straight, orthogonal or diagonal in alignment.***
- ***Integrate accessible routes in visually cohesive manner.***

4. Barrier free interaction spaces in University campus.

Interactive spaces in University campus is very important to develop overall personality of the student it creates the interactive environment for students to share their ideas, view and perception. It serves as purpose of gathering space, debate, discussion and group work. These spaces come under informal or semi-formal spaces which provide active academic environment and potential space for discussion, recreational and congregations. From both psychological and physical perspectives influence of physical space cannot be neglected. It indicates in design level itself we need to develop these spaces as the part of the student curriculum. Well-designed interactive spaces have a motivational effect on learner. If these interactive spaces are so important then we cannot neglect the people who are disabled. University campus should be accessible to all and it should follow the universal design codes.

We can categories the interactive spaces on the basis of their use:

- ***Home base interactive space: Place adjacent to campus buildings***
- ***Plazas and green spaces***
- ***Outdoor study area***
- ***Bus stops***
- ***Campus entrance***
- ***Co-curricular activities area***
- ***Recreational areas***

4.1 Home base interactive spaces:

Spaces which are near by the campus building is called the home base interactive spaces. These spaces use to be near by the student's own department which is used for departmental event, outdoor class or for workshop.

The front porch, the front yard, the back yard, the back door comes under the home base interactive spaces. These spaces need to be barrier free it should be accessible to semi-Ambulatory, Semi-Ambulatory, sight and hearing impaired people.

4.1.1. Nearby porch:

Nearby the porch area which is important transitional space between building and outdoor space can be use for good gathering space, eating space and reading space during exam. It is a psychological and physical transaction of the space. It is meeting space of public and private life of the department.



Fig 2: Porch is connected with ramp

Source: Author

This area should be well connected with main road with the campus. There should not be major level difference between road and porch area if it is there it should be well connected with ramp with 1:20 or minimum 1:12 ratio.

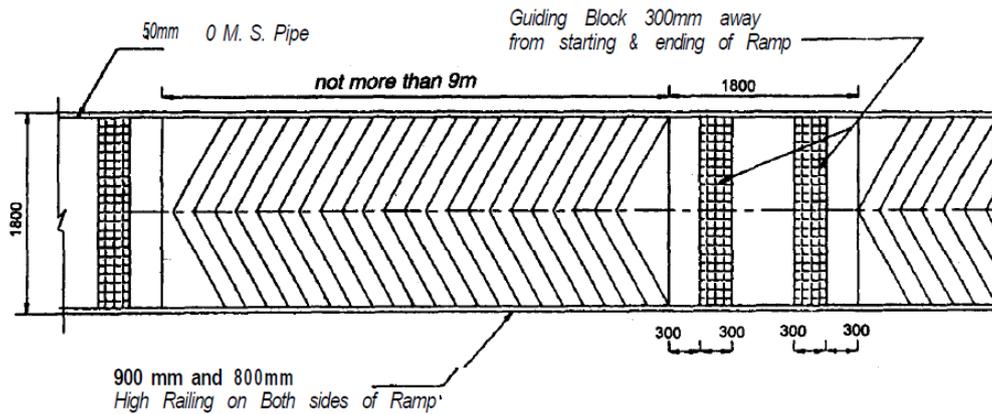


Fig 3: Ramp detail plan
Source: CPWD manual

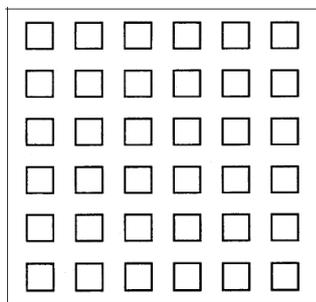


Fig 4: Detail of grating
Source: CPWD manual

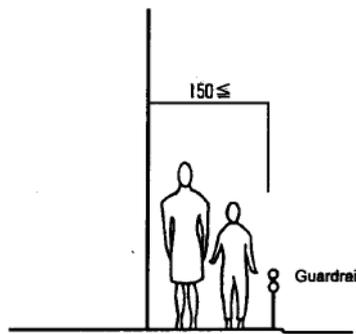


Fig 5: Side walk
Source: CPWD manual

4.1.2. Front and back yard:

Front and back yard can be used for workshop space or outdoor classroom space for concern department. This space can be used as a reading space for students during examination time. Space should be well designed with landscape so that whole space can come under the shade of the tree in summer. Pathway and sitting space should be well designed. For make it barrier free need to use tactile pattern on floor and there should be special provision for differently able person. Height and width need to take consideration; Sinages need to be in contrast and in appropriate height. If sitting on ground is the only option, then mounds need to be part of the landscape design.



Fig 6: Plaza which is access to front and back side of the buildings

Source: Author



Fig 7: Building access path connect with the main road with ramp

Source: Author

4.2 Plazas and Green spaces:

It is a space where student can spend some leisure time with friends and relax between the classes. It gives the opportunity to integrate college campus with culture. It can be combination of hard surface, soft surface and combination of both. It should have the facility of sitting, playing and gathering. It should have the planting, paving and other landscape features. But design of plazas need to take care of differently able people they should not

feel isolate when they are the part of gathering. There should not be any level difference to approach. If there is any need for level difference, there must be ramp provided for that. All the paved surfaces need to be made of non-slip material. All the level differences need to be marked with colour contrast and guiding block. All the approaches and pathways need to be minimum 1.8 M wide. If there is drain in landscape area, then it need to cover and leveled with ground. All the supportive facilities like drinking water, dustbin should have 2 M radius all around so that wheelchair can easily access to the services. Benches need to be installed along the side of walkways. There need to provide guiding block for visual impairment person.

4.3 Bus Stop:

Guiding block need to be given for visually impaired person it should be .30M away from the bus stop pole and it should have two rows. The bus stop should have benches with sitting height 0.38M and roof on the top. Guardrail need to provide if there is any level difference between road and bus stop. Height of bus stop need have exact same as bus entrance so that wheel chair can easily enter in to the bus. Information about buses need to be given inside of bus stand.

4.4 Co-curricular area:

All the co-curricular area like open air theatre, auditorium, playground (indoor and outdoor), and assembly hall are important part of the university campus which makes university live. Activity like yoga, athletics, bicycling, gardening, cricket, football, basketball, volleyball, kabaddi, handball, gymnasium, trekking, music and dance, drawing and painting, decoration, indoor games, art and craft can happen in these spaces. So spaces need to accessible to all. In first two row there should be the provision for sitting for wheel chair users, there should be guiding block for impaired vision and fire escape with 2M width need to be nearby the sitting of differently able person.



Fig 8: Access to the open air theatre with ramp for differently able person with steps provision for others

Source: Author

4.5 Recreational areas:

Recreational area and interactive spaces use to be directly proportional better designed recreation area will be part of the university more interaction will happen. Recreation area be anything that is not formal: it can cafeteria, small grass land, theatre place. All these areas need to equip with the audio system, guiding block with sufficient and dedicated walkways. So, that everyone can use it without any difficulty.



Fig 7: Space in front of cafeteria provides interaction space for students, which is connected with the ramp.

Source: Author

Conclusion:

Interaction spaces in a university are very important for student's psychological and physical development. It builds the connectivity among student and create interactive environment in university. Interactive spaces provide the platform for the students to communicate and share their idea, view, knowledge, and perception on particular topic. Discussion, debate, group working, workshop can be conduct in these spaces for their knowledge enhancement.

But these spaces need to be accessible for all. It should connect with ramp for wheel chair user it should have guiding block for impaired vision. It should equip with audible signals and illuminated sinages for impaired hearing person.

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Section 4:

Design for All - A Design Perspective



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Contribution Details:

- ***Section 4: Design for All – a design perspective***
- ***Study Paper: 1***
- ***Study Paper Title: Effect of interiors and its visual linkage to exteriors to enhance spirituality of an enclosed place***

EFFECT OF INTERIORS AND ITS VISUAL LINKAGE TO EXTERIORS TO ENHANCE SPIRITUALITY OF AN ENCLOSED PLACE

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Abstract

Spirituality embraces the principle that there is something further to the creation than what a visual constraint can see. The spirituality (outside the religion) is often about importance of finding one's own individual path to higher aspirations. Spirituality had been playing a significant role in the building architecture. To make the place spiritual, the physical components of a space i.e., its volume, the role of light, materials usage etc. plays a vital role. The major element of design to make a space spiritual might be light; and through application of light into a space an emotional connection to the space might be achieved. Architects like Tadao Ando, Geoffrey Bawa and Oscar Neimeyer's styles are discussed in this paper to understand the effects of spirituality in Architecture. Tadao Ando's architectural style is strongly influenced by the religion and style of life in Japan and his style create a Haiku effect which emphasizes nothingness to show the beauty of simplicity. Geoffrey Bawa emphasized on innovative techniques of light usage, space form and material use to design with challenging environments. Oscar Niemeyer's architectural style was noted from his designs having free flowing

form of structures. In architecture, establishment of relationship between the interior and the exterior of a space is very important. The principle of datum can help in creating a visual linkage between the interiors and exteriors of a space. Visual linkage between exteriors and interiors of a space to enhance spirituality of a space might be best explained with the example of Glass house by Philip Johnson. The building is completely transparent and permits the landscape to stream right through the whole enclosed space. This paper might be referred to by aspiring architects to understand the effect of interiors and its visual linkage to exteriors to enhance spirituality of an enclosed place.

Key Words: Spirituality, Space, Architecture, Interior and Exterior



1. INTRODUCTION

Spirituality embraces the principle that there is something further to the creation than what a visual constraint can see, which can be related to the concealed features of it, and is enhanced. Spiritual architecture helps to enhance a space to help humans understand the inner self and have an over whelmed experience.

The usage of light as major element of design helps to enhance the spirituality of a space. The spirituality of a space gets enhanced with the visual linkage that is experienced between the interiors and exteriors of the space. [1]

1.1 Spirituality

In olden days spirituality means the process of re-formation, the God i.e., in Christianity it is The Christ, in Buddhism it is The Buddha, etc. Later this meaning got changed to Spirituality denoting the mental aspect of life. Modern Spirituality came up with its own uniqueness as a blend of human psychology, subjective experience and personal growth; and got disconnected from the traditional religious institutes. Few schools encourage spiritual practices for example the Hare Krishna school encourages Bhakti Yoga as spiritual practice, Advaita Vedanta school encourages Jnana Yoga as spiritual practice. The spirituality outside the religion is often about importance of finding one's own individual path to spirituality. Modern spirituality helps the vision towards an inner path of a person enabling to discover the essence of his/her being and develop inner peace and happiness. There are 5 aspects of spirituality namely Hopefulness, Compassion and Understanding, Sense of purpose and meaning, Inspiration and appreciation, Peace of mind. [11] [12]



Figure 1: Spirituality

1.2 Architecture and Spirituality

In the history many cultures devoted huge resources to their sacred architecture and the outcome is the beautiful structures created by man. This shows, how spirituality had been playing a significant role in the building architecture. Geometry, the usage of symbols and motifs have been part of the architecture of religious buildings. To make the place spiritual the physical components of a space i.e., its volume, the role of light, materials usage etc. have to be the major focus. This feature is seen in the architectural buildings of medieval cathedrals, the spaces in these places would be having ample amount of light pouring in from windows made of stained glass or with rays of light falling in from openings designed at a required height, these give comfort and a sense of spirituality to space. Spirituality is not restricted to experience of physical spaces solely it is the experience of moving throughout a space. Mostly it is the desire of architect towards creating spiritual spaces in the structure. A spa in a resort or a museum in a city, the material usage and the incorporation of light into the space give serenity to spaces, allowing the user to experience the spirituality. [2]

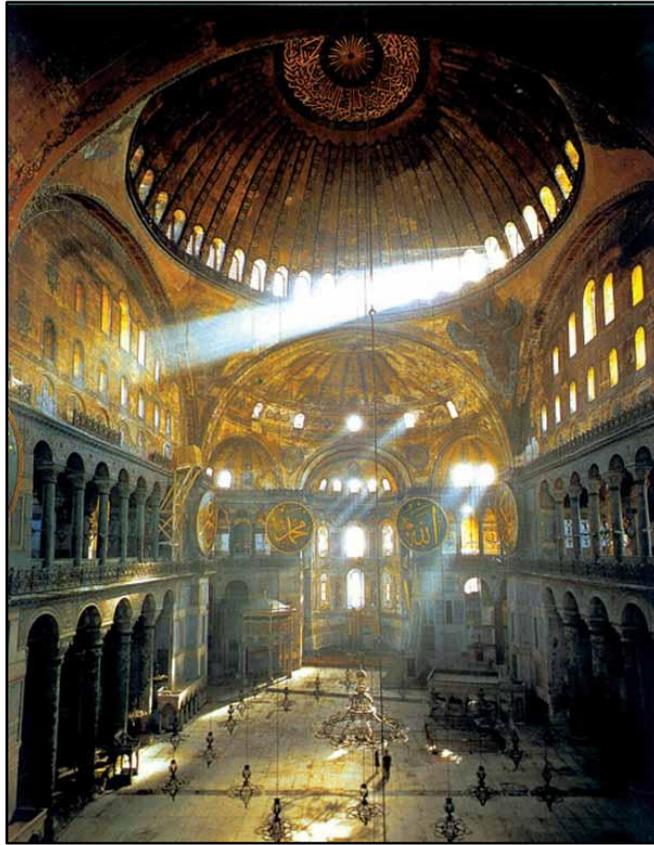


Figure 2: Enhancing the role of light in a space

1.2.1 Light

The major element of design to make a space spiritual is Light and through application of light into a space an emotional connect to the space is achieved. There are many different sources of light, but the most important one is Sun. In architecture the presence and application of light plays a vital role. An architect's duty is to incorporate light into design to form daylighting, shade and colors in interiors and exteriors. [3]

2. ARCHITECTS

In this section, Architects Tadao Ando, Geoffrey Bawa, Oscar Neimeyer; whose architectural style depicted in few of their works focuses on simplicity and emphasizes the spirituality of a space are being discussed.

2.1 Tadao Ando

He is a Japanese Architect and winner of Pritzker Prize for his renowned work "Church of Light".

His architectural style is strongly influenced by the religion and style of life in Japan and his style creates a Haiku effect which emphasizes nothingness to show the beauty of simplicity. Zen a religious Japanese term focuses on simplicity and inner feeling and its influences are seen in Ando's work. Tadao Ando says dwelling in a house is not only a functional issue, but also a spiritual one. The role of the church is to enhance the sense of spirituality and in a spiritual place in their heart, as in their homeland. [10]



Figure 3: Church of Light

Church of The Light

Tadao Ando's main emphasis in Church of the Light was on silence and simplicity. The church is located in Osaka outskirts where the typical Japanese traditional residents. The church is a place where emphasis is on making the user forget the outside world through Tadao Ando's control of the light. Concrete, wood and light are the

main elements used in design and construction. The aspect of spirituality experienced in this place is 'Hopefulness'. [10]

2.2 Geoffrey Bawa

Geoffrey Bawa, The Father of Sri Lankan architecture did an extraordinary work which portrays the Sri Lanka's heritage, culture and importance. He had a 'tropical modernist' style of architecture which became the source of identity of Sri Lanka. Bawa emphasized on innovative techniques of light usage, space form and material use to design with challenging environments. [9]



Figure 4: Seema Malaka

SeemaMalaka

Bawa's Seema Malaka, the Buddhist Temple built on Beira Lake creates an illusion of floating on the surface of water. It was designed as a place for meditation and taking rest, than being a place of worship. The aspect of spirituality experienced in this place is 'Peace of mind'. [9]

2.3 Oscar Niemeyer

Oscar Niemeyer architectural style was noted from his designs having free flowing form of structures. Niemeyer won the Pritzker Architecture Prize in the year 1988, for his work Cathedral of

Brasilia. He was a modern architect whose career stood on the public mind towards life and the culture of own country. [5]



Figure 5: Cathedral of Brasilia

Cathedral of Brasilia

The Cathedral of Brasília is a crown-like hyperboloid structure that appears to be pinned to the ground. The physical appearance of the building, with its eye-catching shape and beautiful ceiling made of stained glass, is as fascinating as its history. The aspect of spirituality experienced in this place is 'Inspiration and Appreciation' [5]

3. LINKAGE BETWEEN INTERIORS AND EXTERIORS

The interior and the exterior of a structure are two different entities which exist together. In architecture, establishment of relationship between the interior and the exterior of a space is very important. A building or a space is not just an architectural thing. It is an interplay of plasticity, sensuousness, identity, authenticity, silence, and etc. This is achieved by establishing a visual linkage between the interior and exterior of a space.

When entering an architectural space, there should be transitioning phases in between. Any kind of sudden entrances or

exits into the spaces have to be avoided. The experience that is encountered while going through the space should have the series of change in ambience, aura, atmosphere, scenery; etc. Apart from the visual experience, the five senses of our body should as well react to the change of aura of space at different dimensions. This results in making the user comfortable to interact with his surroundings. This can be achieved by fenestration method. Fenestration is referred to the openings, voids and windows of a building through which natural light is allowed into a space and creates a contact with the outside. Therefore, maintaining that level of contact between the interior and exterior spaces the outer space can be carried into the interior of the building. A user when experiencing the interiors of a space shouldn't get detached from the outside experience, hence both the interiors and exteriors of a space or building should go hand in hand. [8]



Figure 6: Screen house by Grid Architects

3.1 Datum

Datum can be defined as a line, plane or a volume of reference for other elements of a composition to relate with. It has a regularity and continuity through which a clustered pattern of elements can be organized. A linear datum should be having enough visual continuity to cut through or bypass every element this is to be

organized. Through datum the pattern of elements above it, beneath it, in front of or behind it can be gathered and put together. Therefore, the principle of datum can help in creating a visual linkage between the interiors and exteriors of a space. [4]

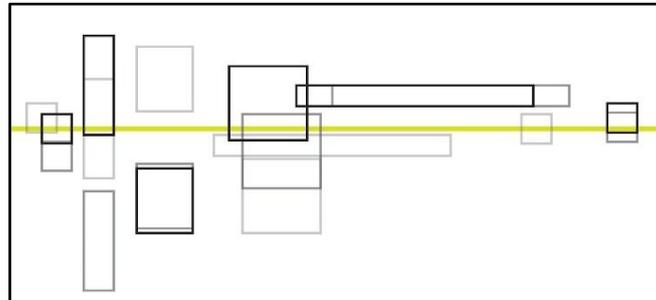


Figure 7: Linear Datum

3.2 Datum to Enhance Spirituality of a Space

Visual linkage between exteriors and interiors of a space to enhance spirituality of a space can be best explained with the example of Glass house by Philip Johnson. [6]



Figure 8: Glass House, by Philip Johnson

Philip Johnson's *Glass House*, built over a histrionic hill in New Canaan, Connecticut, is an architectural beauty renowned for what impact it leaves than what it consists of. The space recommends a life trimmed down to Spiritual essentials—and gloriously ready for inspection. Johnson's masterwork is an influential fantasy for many architects. It is a perfect blend of

the scale and proportions and the complete purity. It is a soft and delicate building with perfect details and pleasingly intimate with its scenery. The building is completely transparent and permits the landscape to stream right through the whole enclosed space. [6]

4. CONCLUSION

In the context of above discussions, it is reviewed that, to enhance the Spirituality of a place few architectural elements have to be considered. The control and usage of Light as an element of design plays a vital role in emphasizing the spirituality of the space. The establishment of transparency between interior and exterior spaces by using materials as a design element or by creating it by using the principle of Datum helps in emphasizing the Spirituality of the space.

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Contribution Details:

- ***Section 4: Design for All – a design perspective***
- ***Study Paper: 2***
- ***Study Paper Title: Healing Architecture***

HEALING ARCHITECTURE

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Abstract

Healing architecture is an ancient form of healing method which involves various aspects of healing architecture and compiling them to medicate and heal the patients and their families. This deals with various user groups in hospital and also outside the hospital which heals patient in both psychologically and physically. Stress has been proven as the ultimate aspect to be considered in the design of healthcare blocks when it designed on factors of healing architecture and the built form of the building can really affect the consequences for reducing stress. Stress handling has been a major issue in the design and growth of healthcare institutes where it deals with many features and key elements which can reduce the environment of stress such as Aroma and Sound. Evidence-Based design has been a core base for the design of any healthcare blocks or spaces as it comprises of many successful design researches and primary surveys in various fields. Nature has played a consistent value in medicating the patients which led to the design of healing gardens where the main factor is to heal patients through nature. The usage of many features to reciprocate healing gardens in the design and their impact on patient's psychological and physical behaviour in the

vicinity had been discussed through case studies. The case studies mainly focus on 20th century hospitals that followed healing aspects in their design and henceforth made a vision for designers to follow the features, aspects, elements with numerous cases proved and practiced through evidence based design and construct hospitals which give homely atmosphere.

Key Words - Healing gardens, Stress, Evidence Based Design, Patients, Day lighting

1. INTRODUCTION TO HEALING ARCHITECTURE

The crucial episode for the patients and their family usually arises in hospital; whether a new life is born, or their loved ones are in treatment, or just about illness or it might be the ultimate truth - death. Thus hospital design is of great significance as far as architecture for the societal needs are concerned. Designing healthcare facilities to enhance the internal environment of hospital staff and patients has been the utmost priority during the phases of hospital design in Architectural works. The new age term "Healing Architecture" explains about the built form giving impact on patient's health and wellness (Podbelski, 2017). An ideal hospital should convince the future user groups' expectations with all the needs and facilities, in order to gain the confidence and trust to become a safety landmark in the society by an environment with positive energy. This ultimately makes some difference on psychological and physical approach in life of patients.

In 17th and 18th century, the dual emergence of scientific medicine (in medical professional field) and Romanti-cism (in Architecture and society), were thought of getting combined together by pioneers who wanted to encourage the re-emergence of outdoor spaces to heal the patients. Subsequently, considerable

efforts have been put forward by Prof. Christopher Alexander (Architect, Urban Theorist and Author), into cataloguing design patterns that resonate with our human behaviour and actualize it (Anand, 2013). Healing architecture describes a physical setting for healthcare facilities that support patients and their families through the phase of illness and stress and might prevent hospitalization and medical visits after a considerable time. The concept depicts that the physical healthcare environment can actually make a difference in how quickly patients recover or adapt to specific acute and chronic conditions.



Fig- 1 An example of Healing Garden: Panzi Hospital, Congo by WHITE ARKITEKTER Architects

1.1 EVIDENCE BASED DESIGN (EBD)

In 2008, CHD has inaugurated early Evidence-based Design Assessment and Certification (EDAC), which will help healthcare organizations to create and nurture knowledgeable and certified practitioners. The “Center for Health Design” (CHD) explains about EBD being the base structure to be looked for any type of built decisions in healthcare design; as it comprises of research oriented evidences with the goal of improving the outcomes and also noting down the progress, success or failure of a particular decision made. Some 650 studies of evidences by CHD have led to

the characterizing of the design priorities to safety, Reduction of stress and Ecological Stress (Malkin, 2008).

2. HEALING GARDENS

The term "Healing Gardens" in hospital often refers to the green spaces in hospitals or any other health care spaces which involve gardens in their healing process. According to the two pioneers, Clare Cooper Marcus (Educator in Landscape Architecture) and Marni Barnes (Psychotherapist and Landscape Architect), healing gardens can be promoted through

- *Relief from symptoms*
- *Reduction of Stress*
- *Improvement in overall well-being and Wellness.*
(Earl.E.Bakken, 2016)

2.1 NEED FOR NATURE BASED APPROACHES IN HEALING GARDENS

After numerous number of interviews and researches done by Clare Cooper Marcus and Marni Barnes they have got results of almost two thirds of population choose nature for their stressful situations and 95% people being interviewed spoke about the rise of enthusiasm when spent time outside in contact with nature. There are numerous impacts that healing gardens can benefit us through such as,

- *Nature provides Distraction.*
- *Nature reduces stress and anxiety.*
- *Plants offer Physiological comfort. (Earl.E.Bakken, 2016)*

2.2 FEATURES OF HEALING GARDENS

The main elements that every healing garden poses are:

- ***Enhanced Garden entrance consists of steps, hedges, fences and pathways accordingly designed to the levels of privacy. (7 Design elements of Healing Gardens, 2017)***
- ***Usage of soothing water in the design gives a reason to evoke relaxing mode and the sounds echoed by water gives peace. (7 Design elements of Healing Gardens, 2017)***



Fig- 2: Usage of Soothing Water Figure 9 Lighting usage in low natural light spaces

- ***Color creativity where the usage of low wattage LED lighting to set off when there is occurrence of low natural light and also providing beautiful shadows to enhance the subtle colors used in the design.(7 Design elements of Healing Gardens, 2017)***
- ***Provide a resting place invites people to sit down and stay a while, be it a single bench or comfortable garden furniture. (7 Design elements of Healing Gardens, 2017)***



Fig- 3: Ceramic pots & Fig- 4 Mimicking Mother nature and providing resting zones

- ***Mimic Mother Nature implies using natural sources such as water, rocks, wood pieces, ornamental grass etc. (7 Design elements of Healing Gardens, 2017)***
- ***Add pleasure to the garden meaning the addition of soothing art forms such as ceramic pots, fountains etc. (7 Design elements of Healing Gardens, 2017)***
- ***Invite Beautiful Visitors deals with providing natural habitat for the birds and butterflies. (7 Design elements of Healing Gardens, 2017)***
- ***Abstract and sculpture to be avoided in the design because of negative thoughts raised due to the art forms in patients. (Earl.E.Bakken, 2016)***

2.3 BENEFITS OF HEALING GARDENS IN HEALTHCARE ARCHITECTURE

Gardens provide psychological, social, spiritual and emotional benefits to humans and them as well in many ways such as

- ***They encourage exercise which not only improves physical health but elates the mood.***

- ***Provides Distraction from busy, crowded hospital zone and allows us to sink with the lush green plants, lights, colors etc.***
- ***Encourage Social Interaction.***
- ***Enhances a sense of control. (Earl.E.Bakken, 2016)***

3. HANDLING STRESS THROUGH HEALING ENVIRONMENT

In 1956, Hans Selye (Austrian physician and Scientist) research study demonstrated about the hormones released through stress and ending up to chronic diseases including brain hemorrhage, artery hardening, certain types of high blood pressure and kidney failure and cancer, stress hormones leads to cardiac arrhythmias, depression, and insomnia.

3.1.1 COPING THROUGH STRESS BY SOUND:

Involving both nervous system and the endocrine system, Stress links between the brain and the body. Music has been known to be an analgesic effect when pleasure centers of the brain stimulate the pituitary gland to release endorphins, the body's natural opiate.



Fig- 5 Sound Therapy

Therapy



Fig- 6 Aroma

3.1.2 BY AROMA

Many hospitals have adapted Aromatherapy to avoid Nausea, decrease the usage of anesthesia in surgery, decrease pain, lower blood pressure etc. It should be noted that these are essential oils, highly distilled essences of herbs and flowers, quite different from the commercial fragrances marketed to consumers in stores selling products for the skin or bath.

3.2 STRATEGIES FOR REDUCTION OF STRESS

Healing environment is primary study based on research in the following areas

Connection to nature

A large body of research is consistent with the proposition that humans are hard-wired to appreciate and benefit from exposure to nature or interaction with a water element,

Control (choice)

A humongous number of studies have documented that when individuals have options or choices, it reduces stress and enables them to feel more in control (Steptoe and Appels 1989).

Social support

It has been well documented that access to friends and family contributes to emotional and psychological wellbeing. According to Janice Kiecolt-Glaser (Professor in Psychology) social support is directly related to dimensions of autonomic, endocrine, and immune function, with family relations appearing to be a key source of support relevant to physiological functioning.

Positive distraction

Humans are multisensory beings; research in the neurosciences demonstrates that various types of sensory experiences can actually be therapeutic and can boost the immune system (Pope 1995; Taylor 1997). Selected types of music, engaging moments spent in front of an aquarium or water feature, meditation, guided imagery, and visualization all provide distraction from pain and opportunities for developing coping skills (Ulrich 1991).

The acceptance of complementary therapies

There are, in fact, a range of complementary therapies in addition to music and aromatherapy—massage, meditation, art therapy, guided imagery, bio feedback, yoga, herbal medicine.

Grants from the NIH are grouped into five major domains (Alternative Medicine):

- 1. *Alternative medical systems***
- 2. *Mind-body interventions***
- 3. *Biologically based treatments***
- 4. *Manipulation and body-based methods***
- 5. *Energy therapies. (Earl.E.Bakken, 2016)***

3.3 IMPORTANCE OF BUILT ENVIRONMENT

Study done for the Center for Health Design by the Picker Institute (1999)

Table 1 – Various fields to be observed in built environments for hospital

1	Promotes connections among staff:	<ol style="list-style-type: none"> 1. visual access to caretakers 2. Fast access in emergencies. 3. An effective communication strategy
2	Is conducive to wellness:	<ol style="list-style-type: none"> 1. focus on noise reduction 2. patient control of room temperature, TV, lighting 3. negative distractions minimized 4. accommodation for family

		<ul style="list-style-type: none"> 5. adequate space for grooming and daily tasks 6. Internet access 7. adequate lighting
3	Is convenient and accessible:	<ul style="list-style-type: none"> 1. clarity of wayfinding on the campus 2. privacy at admitting and registration 3. visible wayfinding directories & visitor info near entry 4. short travel distances between destinations
4	Is confidential and private:	<ul style="list-style-type: none"> 1. quiet areas where patients can be alone 2. privacy for bathing and dressing 3. privacy when treatment options/financial issues discussed
5	Shows caring for family:	<ul style="list-style-type: none"> 1. access to telephones 2. visiting areas for family with seating in privacy groupings 3. play space for children 4. variation in seating to accommodate a wide range of users 5. overnight accommodations 6. private grieving space
6	Is considerate of impairments:	<ul style="list-style-type: none"> 1. consideration for persons using assistive devices 2. wheelchair access at information desks and elsewhere 3. adequate space to move around room using wheelchair 4. bathrooms large enough for wheelchair
7	Facility's connection to outside world	<ul style="list-style-type: none"> 1. exterior gardens and opportunities to connect with nature 2. views from the bed 3. keeping in touch via Internet 4. television
8	Is safe and secure	<ul style="list-style-type: none"> 1. well-lit parking lot 2. transportation 3. adequate handrails within facility 4. clearly -marked fire exits 5. slip-proof bathrooms

4. PRECEDENT CASE STUDIES

Based on the studies that have been reported in the earlier stages we have come up with two hospitals which followed healing concepts in their designs namely RWTH Aachen University and Odense University Hospital.

4.1 RWTH Aachen University



Fig- 7: RWTH Aachen University in Germany

4.1.1 INTRODUCTION

RWTH Aachen University in Germany is designed by HennArchitekten and C.F Mollar in the year 1970 with an area covering about 35000m² with building blocks such as central surgery with 31 separate surgery paces, day clinic with four surgery spaces, Intensive care units with 50 beds, anaesthetics building, service block, public entrance and arrival space.

4.1.2 DESIGN ASPECTS OF RWTH AACHEN UNIVERSITY

A maximum percentage of design is pushed to ground level, new operation and care facilities have been organized to enjoy extensive natural light, and access to green space. To make the visual impact low, existing building most parts are pushed down.



Fig- 8 **Arrangement of spaces arranged underground** & Fig- 9 **View explaining the landscape placement**

Rising with a seeped gesture across the landscape, the building's form creates an inviting, warm, bright public entrance, with carefully-designed views of the rooftop green parkland enabling intuitive wayfinding for patients and visitors.



Fig- 10: Site plan of RWTH Aachen University

A series of specially designed off-stage staff hubs in open spaces puncture the flexibility and efficient layout of the operations floor, providing the best possible surroundings for teamwork and inter-staff communications. (RWTH - A Healing Hub, 2014)

The patient-oriented facilities are all located along the facade, allowing direct access to both extensive daylight and the surrounding greenery. Daylight and comfortable access to nature have a positive effect on the patient's course of disease and are hereby important prerequisites for creating a healing architecture.

In the middle of the building, as a breakdown in the flexible and efficient layout, there are custom designed employee arenas that offer the best conditions for collaboration. (C.F.Mollar)

4.2 ODENSE UNIVERSITY HOSPITAL



Fig- 11 Odense University Hospital

4.2.1 INTRODUCTION

In 1908, Odense University Hospital located in Denmark which is designed by Henning Larsen Architects with estimated area of about 234000m² with a capacity of 1038 beds has been noted as a pioneer hospital in healing patients employing about 11000 members. Hospital buildings at the OUH are closely clustered together in a dense circle, which is surrounded by a pedestrian ring and walkways that shoot off in spokes from the center.

4.2.2 DESIGN ASPECTS OF ODENSE UNIVERSITY

- *The specific facility features a light footprint that incorporates nature at every turn to create an environment replete with peace and serenity.*
- *Daylight floods in through the glass-lined blocks, and rainwater will be collected to feed the many ponds and surrounding landscape.*

- ***Visitors and patients are allowed to stroll around the property and take in the landscape, which features dense old forests, extensive fields, hedges, ponds and channels.***



Fig- 12 Daylight impact on visitors



Fig- 13 Visitor's strolling around the hospital

- ***The modern part of the property will remain completely undeveloped to maintain the feel of the countryside and provide opportunities for recreation.***
- ***Rainwater is collected from the buildings and other impermeable areas to feed into a large wet meadow that will maximize a greater biodiversity of animals and plants.***
(Meinhold, 2011)

5. CONCLUSIONS

Healing architecture being wide in healing and medicating people in different types of healthcare spaces and is showing varied amount of change in psychology of patients in their crucial stages of life by reduction of stress, impacting positive energy in the vicinity as well as peace.

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IMPACT OF THEMATIC LANDSCAPES ON CAMPUS DESIGN

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Abstract

The main objective of writing this paper is to know the role of the theme based landscape elements on the users of a campus. This paper explains different types of landscapes, important of landscapes in a campus design, design elements with the example of constructions in the campuses in India. This paper also includes case study of GITAM University, Visakhapatnam and Meadows Mango Agriculture Theme Park, Kottayam, Kerala, India.

.Key Words: Campus design, Campus landscapes, Landscapes, Theme Landscapes, Theme based designs.

INTRODUCTION

Many students are subjected to high levels of stress in their university life due to interpersonal conflicts, self-esteem problems, financial constraints, time constraints, frustration and emotional problems. In this sense, the design of campus should satisfy the functional as well as mental needs. Many creative and innovative ideas arise in outdoor environments than that of the indoor formal discussions and lectures.[11]

1.1 Definitions

Landscaping

It is the creating or the developing the outdoor spaces for providing the amenities with privacy, beauty, comfort and ease maintenance. [6]



Figure 1 Pergola in IIM, Bangalore



Figure 2 Seating space in CEPT, Ahmedabad



Figure 3 Pool in Pearl Fashion Academy, Jaipur



Figure 4 Paved surfaces in BITS Pilani, GOA

Types of Landscapes

Landscapes are mainly categorized into two types. They are Natural and Manmade landscapes. Landscapes which are naturally occurred and are not affected by human activity are known as natural landscapes. Manmade landscapes as the name refers, these are created or modified by the humans as per the needs. [5]

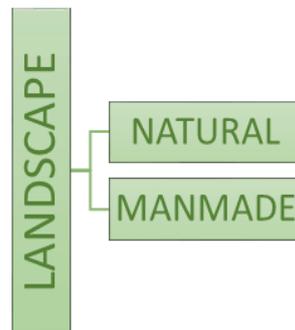


Figure 5 Major Division of landscapes

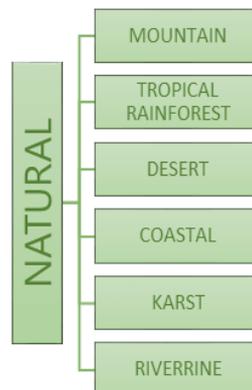


Figure 6 Types of Natural landscapes

Campus

A campus is the location of a university, college, or school's main buildings. [4]

Hardscapes

Civil work component of landscape architecture such as pavement, walkways, roads, retaining walls, sculpture, street amenities, fountains and other built environment. [1]

Softscapes

It comprises the animate (living), horticultural elements of landscape design. [3]

Meaning of Theme based design

It indicates a single theme that unites all the aspects of the piece in one order. [12S] Using a design theme may give the solution to many design problems. A theme design is mainly based on a form, a style and types of landscapes. A theme landscape has identifiable characteristics such as built forms, different material and spatial organisation and signature forms. Many themes are culturally historic and are well defined. [2]

2. IMPORTANCE OF LANDSCAPES IN CAMPUS DESIGN

Landscapes provide ecosystem benefits in addition to the traditional, visual and psychological benefits. To note the importance of landscapes, few literatures and the case studies have been done.

2.1 Types of design elements in landscaping of campus design

Both hard and the softscape elements plays an important role in making a healthy landscapes. The following are the few important landscape elements that are find in the campus designs in Indian context.

Surrounds: It is desirable to have the landscapes in the surrounds which gives some visual clues and cues of the presence of the campus in the areas or to mediate any physical deficiency and to share some common interests. These are mainly used in the areas where the placement of the institution may or may not be in the zoned area. [10]

Perimeter: It is the boundaries of land holdings. These might be used for restricting the access or the restricting the views. These include paved surfaces, vegetation and sculptures, bollards, fences. [10]

Boundary markers: These helps to improve the quality of the perimeter design. Elements of the markers include special lighting along a bounding boulevard, soft elements such as banners and hard elements such as walls and fences. [10]



Figure 7 Lights along the boulevards, LPU, Punjab

Gateways: These provide access to and from the campus which acts as an identifiable landmark that defines the campus boundaries.[9]



Figure 8 Entrance gate, Satyabhama, University, Chennai

Campus roads: These are a most important basic element for shaping a campus plan. They should serve but not dominate the campus landscape. Shorter distances may lead to puzzling of the directions which may lead to the intersection with the pedestrian progress which leads to unsafe movement and causes inconvenience to the users' visual ordeal. [10]



Figure 9 Roads and pedestrian pathways, VTU, Belgaum, Karnataka

Pedestrian walk ways: Researchers in Stanford have found that by taking a walk in nature will decrease the mental depression.[7]. The materials used should be durable, should give the aesthetic appeal and should have the amenities(gazeboz, thresholds) along the pathways may help the users to be comfortable. [10]



Figure 10 IIM, Bangalore

Threshold: These are the natural gathering spaces for discussions, sociability and to take part in the common and bolster activities which vitaminize the campus life. [8] Green spaces around the buildings provide healthy indoor and outdoor environmental benefits to the users (students, faculty and staff). [10]



Figure 11 Semi Opened corridor ways, IIM, Bangalore.

Terminus: It is the end of a travel route which is to the pickup or the delivery point for people, goods, trash. In campuses, a drop-off are needed for the handicapped, visitors, students, faculty, and emergency vehicular services. The drop off points of the vehicles should be penetrated from the pedestrian areas. [10]



Figure 12 Bus Terminus, Parul University, Vadodara, Gujarat

Parking: The campus should provide safe and convenient parking as a campus estate. Parking lots should be placed in such a way that they conveniently access by the users with respect to time constraints. This includes pedestrian ways and landscape elements. [10]



Figure 13 Open Temporary Parking, LPU, Punjab

Sculptures: These are known as “art of the open spaces”. These elements add aesthetics to the landscapes and these acts as landmarks and in some cases, these are added to give the directions to the buildings or some other important landmarks. [10]



Figure 14 Mythological motifs, chameleon-skin domes and Bulbous skylight eyes, CEPT University, Ahmedabad

Lighting: These provide safe and secure environment by illuminating the areas of skylight and twilight and rambling signs and signals to accent and furnish the buildings and the landscape elements which help to blend the architecture and the landscape which may become a landmark. These include spotlighting and silhouetting, up-lighting and down-lighting from wells and wall insects, customized luminaries, and street lights, stanchions, light poles and fixtures will enrich the articulation and define the pathways, roads, bounded edges and the boundaries of the campus.[10]



Figure 15 Street lights on to the vehicular roads, LPU, Punjab



Figure 16 Pathways and Lawn are furnished with lighting, BITS Pilani



Figure 17 Entrance Gateway is furnished by Using Focus lights and the streetlights in the lawns, IIM, Indore

Seating: These are one of the most important elements of the campus designs. These are located near the campus gardens, along with the campus pathways and near the building thresholds. Single seats under a tree or tucked behind a wall, grouped around the fountains, flower enclaves and beside the pathways.[10]



Figure 18 Seating spaces, CEPT University, Ahmedabad



Figure 19 Stepped Outdoor Permanent Seating's, CEPT University, Ahmedabad

Site furniture: This includes Kiosks, gazebos, ash urns, trash receptacles, flag poles, mailboxes, signage boards, outdoor telephones. The selection and the location of these elements should be placed according to the function and these will create attractive settings on the site. [10]



Figure 20 Gazebos, IIM, Udaipur



Figure 21 Kiosk in IIT, Madras



Figure 22 Flag poles near the entrance, LPU, Punjab.

Play fields and Recreation: This includes locker spaces, changing rooms, playgrounds, pathways, seating's, stadiums. Playgrounds should not be far away from the educational buildings as they act as gathering spaces and these should not disrupt the functioning of the building. There should be a green strip around the playgrounds. Lawn grounds are mostly preferred.[10]



Figure 23 *Playground in the middle of the school, Delhi Public School, Haripur*



Figure 24 *Cricket Ground, IIT, Rourkee*



Figure 25 *IIM, Bangalore*

Amphitheater: This is a historic landscape element that serves as seating for ceremonies such as outdoor exercise, convocations and cultural, historical celebrations as well as theatrical and musical performances.it includes a stage, seating's, pathways, entrances and exit areas and aisles. Typically the location of this is far from the educational buildings due to the noises during the celebrations. [10]



Figure 26Amphitheatre, IIM, Kozhikode



Figure 27Amphitheatre, ITM, Gwalior

2.2 Case studies

Two case studies have been done on the landscapes in GITAM University campus, Visakhapatnam and the other on a Meadow mangos agricultural theme park, Kottayam to make a note on how the landscape elements are impacting on the users in these two different typologies.

a) GITAM UNIVERSITY, VISHAKAPATNAM

GITAM University is located in Vishakhapatnam. The campus has access from sub-arterial road and beach road of Visakhapatnam. It was zoned in the educational and IT development zone of the city. To differentiate the campus zone from the surrounding campuses they have used the planter boxes with the university name. This makes the visitor identify the campus. The university land is bounded by having the high walls and within the campus, the buildings of different courses hold their individual lands by using iron fences as their perimeters, bollards and trees as there perimeters. The light poles on to the sides of the boulevards, the banners near the entrance gateways, the iron grid fences, shrubs in the campus, act as boundary markers.



Figure 28 Bollards to separate the vehicular Zones



Figure 29 Roads and the pedestrian pathways



Figure 30 Banners to the street poles in front of the campus

The campus is having the 2 entrance gateways (Front and the Back gates). The entrance gate ways having two gates (one for the pedestrian and the another for the vehicular movement).



Figure 31 Entry gateway



Figure 32 Lighting on the top of the entrance gate wall



Figure 33 Lights emphasizing the shrubs.

The campus is having the sheltered and the open parking areas. The campus having the one main 2-way road with the branches connecting to the educational, residential and the administrative buildings. There are five parks and sculptures which acts as landmarks as well as gathering spaces. These sculptures are placed in front of the buildings represents the name of the blocks. Street lights are provided along the roads and along the perimeter of the campus and few lights to emphasize the signage boards and the entrance gateways. Trash receptacles with the campus logos are provided near the walkways, social gathering spaces. Gazebos are provided near the canteen areas and the flag poles are provided near the entrances.



Figure 34 Nature walk ways



Figure 35 Sculptures

Specific seating spaces are not provided in the campus but few amenities act as seating areas. OAT which is located near the residential area, the canteen area and law and business educational buildings which might create a disturbance to the educational zone. Having the one main playground for the whole campus covered with lawn and the seating's are provided around the ground and tennis courts are provided in the courtyards of the residential areas.



Figure 36 Outdoor seating's near the canteens



Figure 37 Lawn Playground



Figure 38 Amphitheater

**b) MEADOWS MANGO AGRICULTURE THEME PARK,
KOTTAYAM, KERALA, INDIA.**

It is the world's 1st and the largest agricultural theme park located in Kottayam, Kerala that covers an area of 30 acres with 4500 plant species and 45 cottages. The main theme is adopted from the line "the culture and images form once own childhood memories were quickly turning into stories and myths." The idea of showcasing the village culture in every element brings the prodigious project to life. The lands are bounded using the wooden fences and the vegetation which separates different zones. [8]



Figure 39 Thresholds



Figure 40 Coloured wooden fencing



Figure 41 Cottages of vernacular elevations

The vehicles of the visitors are parked in the parking area from where the battery cars makes the site accessible. The roads are paved with concrete blocks of stone texture. Shrubs and trees are provided along the sides of the roads. Street lights are provided along the roads and focus lights to emphasize the softscapes and the sculptures. Sculptures in the vicinity show a connection with the surrounding environment. The park holds many the outdoor activity areas like outdoor fireplace, swimming pools, flower ponds, fishing areas, tot lot areas, cycling, boating, bird sanctuary, tea garden, valentine's parks, cardamom gardens, organic farms, animal husbandry spaces, and archery. [8]

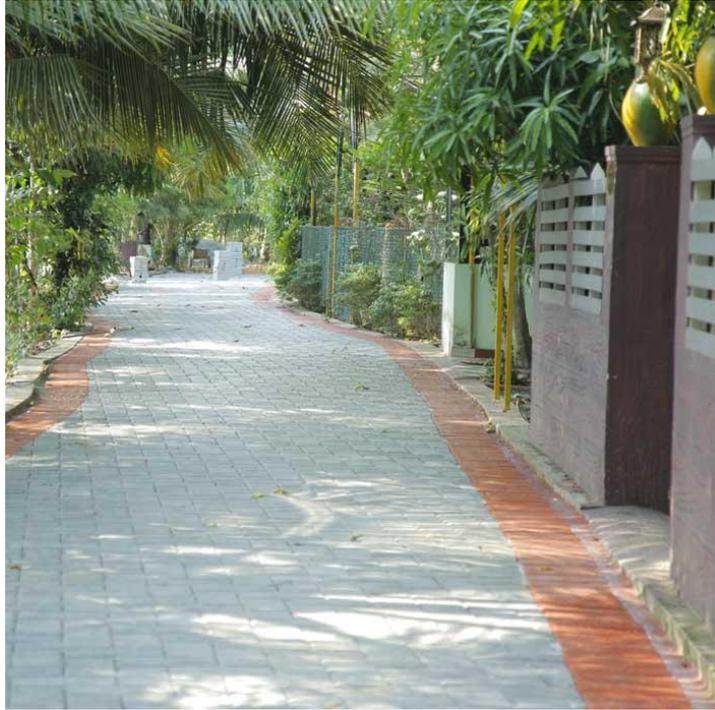


Figure 42 Paved road ways



Figure 43 Paddy fields



Figure 44 Flower pond



Figure 45 *Wooden Rotary wheel*



Figure 46 *Ferry*



Figure 47 *Typical mango shaped Swimming pool*



Figure 48 Sculptures

Signage boards are provided at the entrances of the landmarks and route maps are provided to make visitor friendly in identifying. Benches are provided in the parks and the garden spaces and gazebos are provided at proximity points.[8]



Figure 49 Entrance boards

inferences for an architect

It is important for an architect to understand the user perspectives, the elements characteristics and design applications. The following table contains the inferences of the landscape elements, identified in the referred case studies and the literature studies.

Table : 1 Inferences from the design elements

S. NO.	DESIGN ELEMENTS	IMPACT ON THE USERS
A	Surrounds	Should be identifiable by the visitors as it acts as clues to get into the campus.
B	Perimeter	It acts as barrier to secure the land.
C	Boundary markers	These should emphasize the perimeters and should be ground mounted.
D	Gateways	More number of gateways creates confusion and they should be differentiated respectively.
F	Pedestrian walk ways	1. The continuous paths without sufficient elevations differences will affect the comfort of the users. 2. Shelters along the pathways help the users to get relief from the hot and rainy weather conditions but the quality may change the user's choice.
G	Thresholds	Well maintained large green spaces around the building acts as gathering spaces.
H	Terminus	Located near the entrances and the parking areas with security services.
I	Parking	Temporary and permanent parking should be provided where the student vehicular parking may be restricted to an area after which they may use the sustainable vehicles to move around the campus.
J	Sculptures	By having the theme based sculptures according to the courses might help a student to get creative and innovative ideas.
M	Site Furniture	1. Usage of compatible colors so as to unify with the

		<p>surrounding elements.</p> <p>2. Ground mounted furniture are durable and commonly used.</p>
N	Play fields	Green strip around the play area will separate it from the surroundings.
P	Amphitheatre	Should be located far from the educational buildings by having vegetation around in order to reduce the noise.

ACKNOWLEDGEMENT

This paper would not have been complete with the support of Prof. Dr. K. Mohan, Director, Gitam School of Architecture, GITAM (deemed to be) University; who always inspires us to strive towards personal and academic excellence.

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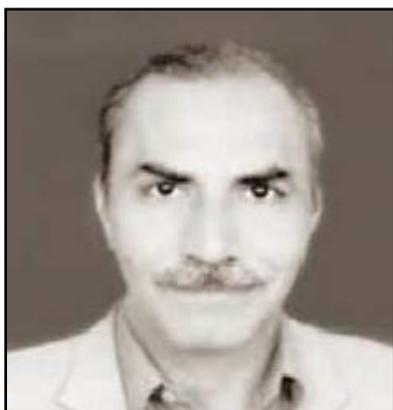
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Letter from the Chairman's Desk

**By Sunil Bhatia
PhD**

I was travelling by car and suddenly noticed at a distance from the road that good number of people were assembled as they were patiently waiting for their turn for taking bath in small lake .Out of curiosity, I asked my friend who was familiar with this area and with not much attention informed 'this is place where natural geyser and it is belief that taking bath in this water their skin problem will be cured'. He further added 'I think people are benefited because it has boiling water with some elements of sulphur that helps in curing'.

Nature is so caring and if there is problem there must have solution lying somewhere but we fail to solve because of lack of knowledge or we are not mature enough to locate the solution of specific problem that is close to us. We indulge in problem because of our foolish thinking and believe ourselves most intelligent. Nature allows us to live along with for better longer living and do not like proving superior or competing with and if we do so that disturbs and wishes to adjust disturbed path for safe progress and in simple word natural correction of path some time creates havoc or even threatens entire civilization. What a way of expression of love and care from nature for us. If there was problem of skin because of our wrong life style other side it gives us cure . Boiling of water is different from other elements and it indicates that uses are different so application will be different.

I started thinking about the role of boiling that is natural phenomena and how beautifully humans used for designing of products with its properties. It was the boiling that laid the foundation of industrial revolution. Steam power has given us mechanical motion as locomotive engine and it gave us extension of legs where human strength has limited role. Marathon was started because of role of messenger limited physical strength and ultimately collapsed while delivering the message of one king to another for seeking help for fighting with enemy. Transport of steam engine has given us extension of our limited physical strength of legs and without getting tired we can transport. Boilers are responsible for sailing the ship and function with the help of boiling the water. Steam power has given a new social thought of living in group but individually without interfering in other's life. When I looked at steam press dressed with proper crease it gives me sense of civilized and better presentable rather shabby look. It boosts my confidence.

Every good thing has in built character of some adverse character and same with the boiling. One day I thought to buy coffee maker where steam was responsible for boiling when we placed the cup of coffee filled with liquid close to outlet made of metal nozzle for steam .It reminded me that we have hard water and in a day I will make once or twice the cup of coffee and fearing of scaling will be higher and spoiled easily that stopped me not to buy. It is useful in office where one or other keep the machine busy for coffee making and chance of scaling because of hard water was lower. Another place I noticed that automobiles where water is replaced with better petroleum products for generating vapor pressure for movement of piston for converting linear to rotational movement generates high friction energy because of fast movement that created adverse effects on machinery and to keep under control of

proper temperature they designed coolant where boiling temperature are deliberately designed for elevation. Anti freezer is also designed keeping boiling point in mind.

Design of pressure cooker was responsible for quick boiling and by product was for fast cooking. Steamer or steam cooking helps us for better adjustment with our digestive system. Boiling is not only used with water has given us new types of cooking and it was different from ancient practice of roasting with direct fire. As humans acquired the knowledge of oil they designed another method of cooking by frying where oil is heated for boiling. It was further classified with deep frying where shelf life enhances compared to shallow fry. As modern people turned for health consciousness design of air fryer is replacing.

While buying washing machine I was very clear that I need a machine that has heating mechanism of water because in my locality dust is not dry but it has some element of oil content and for proper cleaning it should have heated water. Initially people might have started with cleaning in running water by squeezing and accidentally someone found river bank mud has alkaline and it cleans cloth better and easy. As someone added hot water in cleaning a new dimension was introduced and revolutionized the cleaning process. Recent model of washing machines has a unique feature of cleaning the drum by adjusting the water temperature to boiling point. Recently I purchased the soup maker where various types of soup can be made by use of concept of boiling with blender but I noticed a separate button for cleaning by simply adding plain water and pressing the button allow for heating for boiling. Dish washer performs better with boiled /heated water for proper cleaning for removal of greasy oil or tough strains from the vessels. It is old practice that washer man ironed the clothes after applying the water by using wet small

clothes for easy removal of wrinkles. In modern times there are two types of iron electric press, one is dry that does not have mechanism of producing steam and other is steam press that has system of steam. Boiled water pipe lines are used for warming the house for meeting harsh winter

Boiling water is used for sterilizing the surgical instruments. Even baby feeder bottle is boiled for at least half an hour for proper disinfection. Steamers are designed for inhaling the medicines by using vaporizing with boiling water for effective use.

Cold coffee never gives freshness compared to piping hot and easiest way is to design the machine for generating steam because it has high latent heat compared to boiling water. Later on it helped in making various types of coffee. Cold drinks may be for fun, fizzy but hot is always refreshing, energetic. I think our modern life style demands needs for body for warm water for better health. It stimulates as well helps in cleaning the system. A person wishes to test the level of heat of iron plate for cooking by sprinkling water and it evaporates with hissing sound very quickly that indicates it has proper temperature for cooking. .Even in frying we add small quantity for testing for proper required heating for cooking and observed if it immediately moves toward outer it means properly heated. Boiling with froth by adding white flour for making spongy sweet dishes and it is still use in making rasgoola

Boiling can be slow and we call it evaporation that has given us sea salt and helps in maintaining nature cycle of creating clouds for rain. Some products are in volatile nature and change its state to gaseous and people designed various products keeping this phenomenon in mind. It is the boiling that has helped in giving various state of product like emulsion, paste or jelly that were

absent before knowledge of boiling. It is the boiling that gave us jiggery and sugar from the sugar cane.

Boiling is visible in water because of its action. Simmering is also can be notice but other state of water was difficult so they designed thermometer and used the water heating that boiled at 100 ° Celsius and lowest was zero. Similarly in very early stage of human development they understood that impurities escalates the boiling point that helped in faster cooking and found adding spices or salt in fact acted as impurities and by product was turned the food in better taste and released aroma stimulated our digestive hormones for release for proper digestion. I am good cook and once I added the sugar before the salt in boiling food that surfaced new problem of cooking. I inquired my mother and she informed 'never mix sugar before salt, salt helps in cooking where sugar delays and takes longer time and taste will be also different.' It means impurities was not the reason but they understood in very early stage of human development that how to escalates boiling by adding others elements for proper cooked food.

My imagination informed that boiling was in nature and accidentally found it softens the food and old person who was with weak stomach or absence of teeth could digest easily. It is still mystery how the introduction of oil for frying came after boiling the oil for frying. Fast frying has different effects or slow frying has different taste and shelf life. Was taste bud was responsible or need of storing the food for longer? I think taste buds developed when we continuously take those foods otherwise it never activate. A Chinese or Japanese child can eat the lobster live or after boiled by adding salt or spices because eating formed at the early stage of life and other side those who do not have taste buds activated feel nauseous . Boiling is easiest method of

cooking after roasting and baking where we simply need a container that can hold the liquid and heating system. It is not always liquid I found popcorn people uses heated salt for corn to reach the stage of bursting and it might be its boiling point.

It is beyond our imagination in metal age how come idea of hardening struck after heating the sword red hot and suddenly dips in oil or cold water for turning hard. Pasteurizing of milk was possible by boiling then suddenly lower the temperature that helps in killing the bacteria that were responsible for early spoiling and enhancing shelf life. Boiling point of different elements helps in segregating from mixture as well designing of mixing with other metals for alloys.

Distillation is possible because of boiling and I think man used this from the day of making liquor for intoxicating minds. Who has informed that boiling releases steam and carried along some other elements that has some different boiling point lower than water and left the unwanted sediments and again cooling turned to liquid. This simple process helped us in designing various products.

I am thankful to Prof Gurab Das Mahatptara took the initiative for publishing special issue focusing the works of his students and well indeed good job

LAMBERT Academic Publishing has published book "Design For All, Drivers of Design" author Dr. Sunil Bhatia of Design For All Institute of India and it is available on www.morebooks.de one of the largest online bookstores. Here's the link to it:

<https://www.morebooks.de/store/gb/book/design-for-all/isbn/978-613-9-83306-1>

This book is dedicated to our esteem readers, contributors and well wishers.

With Regards

Dr. Sunil Bhatia

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Forthcoming Issues

December 2018 Vol-13 No-12

Robert Nichols , an Owner of Nichols Design Associates, Inc., Washington, DC has been extensive experience in Architectural Design and Universal Design for over 35 years. His expertise within this area of specialty includes building surveys and ADA Accessibility checklist for the public and private clients. He is President and Chairman of the Board of World Deaf Architecture, Inc. (WDA), a new knowledge group of American Institute of Architects (AIA), since a non-profit organization was established in 2016. Received B.Arch. & M. Arch. degrees in Urban Design under the leadership of Prof. Colin Rowe from Cornell University will be our Guest Editor.



January 2019 Vol-14 No-1

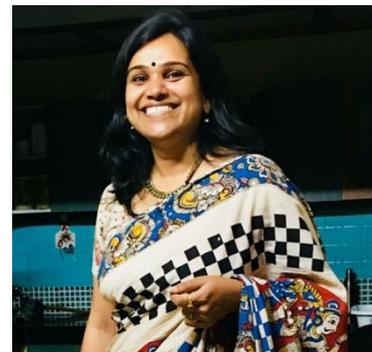
Mugendi K. M'Rithaa , Transdisciplinary Industrial Designer/Educator/Researcher with a passion for Afrika, Design and Innovation.



A widely traveled transdisciplinary designer experienced in design education and research. Skilled in various socially conscious fields including: Industrial Design, Human Factors Engineering/Ergonomics, Advertising and Marketing, Building Research, Design Research, Universal Design, Design Thinking, Communication Design, as well as Design Strategy and Management.

February 2019 Vol-14 No-2

Architect Kavita Murugkar, an associate professor at the Dr B N college of Architecture in Pune, graduated in 1998 from the Pune University, and completed her Masters in Archaeology from the Deccan College Deemed University, Pune in 2006. With over a decade of



teaching experience, Kavita is recognized as a passionate educator and an active researcher and has handled various academic and administrative responsibilities as a faculty and course coordinator successfully ever since she joined BNCA as full time faculty in 2006. Her academic interests and expertise lie in research and constant innovation in subjects like basic design, architectural design, history of architecture and architectural project. Her professional work experience majorly consists of residential and corporate interior architecture projects. She also has heritage related projects to her credit including the listing and documentation of all heritage buildings in Pune for the PMC and INTACH. Kavita has emerged as a strong proponent of Universal Design formerly identified as Barrier free architecture and has set up a

Research and Training Centre for Universal Design at BNCA for promoting people centric and inclusive design education and practice. Her work on the subject of Universal Design has been recognized at State and National level. She is empanelled as an Accessibility Expert and Access Auditor by the Ministry of Social Justice and Empowerment and the Department for Empowerment of People with Disabilities. She is the first architect recipient of the AVISHKAR AWARD for best research project at the State level Inter-university research competition in 2012. She has also received the NCPEDP-MPHASIS UNIVERSAL DESIGN AWARD 2014, for the work done to promote accessibility and Universal Design in the built environment. She has been felicitated by the Indian Institute of Architects, Pune Centre and the Maharashtra association of Schools of Architecture with the Best Teacher's Award 2014 for her outstanding contribution to architectural education. She has also received the A3 Foundation Teachers Award 2016 at Chandigarh for her work in the field of architectural education. She has been invited by prestigious institutions like National Institute of Design (NID), School of Planning and Architecture (SPA, Bhopal) as expert jury and for conducting courses on Universal Design Thinking.

March 2019 Vol-14 No-3

Friedreich's ataxia does not affect my intelligence, this is highlighted by my academic qualifications, which are a double degree from Monash University, Master of Arts from Monash University and a Doctor of Philosophy from University of Melbourne.



However, there are many degrading effects, such as blindness, very poor speech, hearing impairment, poor heart and no mobility. Peter Gibilisco, B Bus (Acc) Ph.D. (Melb). Honorary Fellow University of Melbourne. New Book: The Politics of Disability

See my web-site <http://petergibilisco.com.au/>

April 2019 Vol-14 No-4

Ms Ruth J Clark, Fashion Moves will be guest editor focusing on special dresses



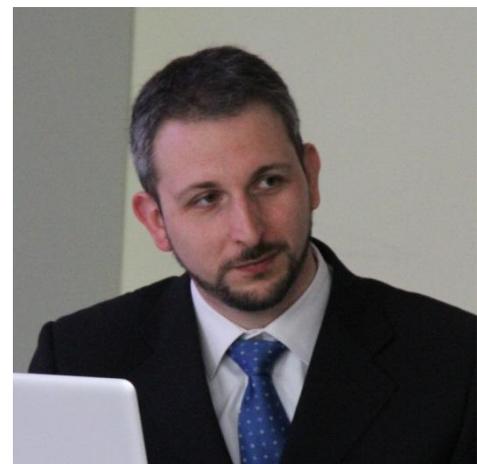
May 2018 Vol-14 No-5

Emilio Rossi is CEO of Emilio Rossi Design Consulting (Italy) and Adjunct Professor of Industrial Design in the Department of Architecture at the University of Chieti-Pescara (Italy).

He got a PhD Industrial Design (Architecture and Urban Planning Programme) and a Master in Architecture

at University of Chieti-Pescara (Italy); he also completed a Master in Euro-Project Management at Europa Cube Innovation Business School (Italy). In 2013, he was a Visiting Research Scholar at Brunel University London (UK), where he conducted studies on Inclusive Design, HCI Design and Design Research.

His research interests revolves around four areas: 1) Inclusive Design in new product development; 2) Human-Computer Interaction and new forms of natural gestures for digital and



tangible products, with a focus on the development of new technologies, tools and methods for sharing knowledge and know-how (i.e. tacit knowledge); 3) Ergonomic Design for Sustainability and, recently, 4) 3D Printing and Additive Manufacturing.

He serves as Scientific Advisory Board Member for AHFE (Applied Human Factors and Ergonomics), where is Co-Chair of the International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping, for IEA (International Ergonomics Association) in the Technical Committee on Human Factors and Sustainable Development and, till 2014, in the National Board of SIE (Italian Society of Ergonomics and Human Factors).

His works has been published in more than thirty peer-reviewed publications, including: The Bloomsbury Encyclopedia of Design (six items), Proceeding of AHFE, Proceedings of IEA, Proceedings of NES (Nordic Ergonomics and Human Factors Society) and Proceedings of SIE.

Professionally, he has 10+ years' experience in new product development; currently he works as a Designer and Consultant in R&D and Innovation. His works have been awarded and produced by many companies, both in Italy and abroad. Specifically, his products and researches have been realised in Italy, UK, Germany, China, Taiwan, Nicaragua, USA, Canada and Chile.

New Books



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Sunil Bhatia

Design for All

Drivers of Design

Expression of gratitude to unknown, unsung, unacknowledged, unstarred and selfless million of heroes who have contributed immensely in making our society worth living. Their design of comb, kite, fireworks, glass, mirror even thread concept have revolutionized the thought process of human minds and prepared blueprint of future. Modern people may take for granted but its beyond imagination the hardships and how these innovative ideas could strike their minds. Discovery of fire was possible because of its presence in nature but management of fire through manmade designs was a significant attempt of thinking beyond survival and no

doubt this contributed in establishing our supremacy over other living beings. Somewhere in journey of progress we lost the legacy of ancestors in shaping minds of future generations and completely ignored their philosophy and established a society that was beyond their imagination. I picked up such drivers that have contributed in our progress and continue guiding but we failed to recognize its role and functions. Even tears, confusion in designing products was marvelous attempt and design of ladder and many more helped in sustainable, inclusive growth.

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SHERYL E. BURGSTAHLER is an affiliate professor in the College of Education at the University of Washington in Seattle, and founder and director of the university's Disabilities, Opportunities, Internetworking, and Technology (DO-IT) and Access Technology Centers.

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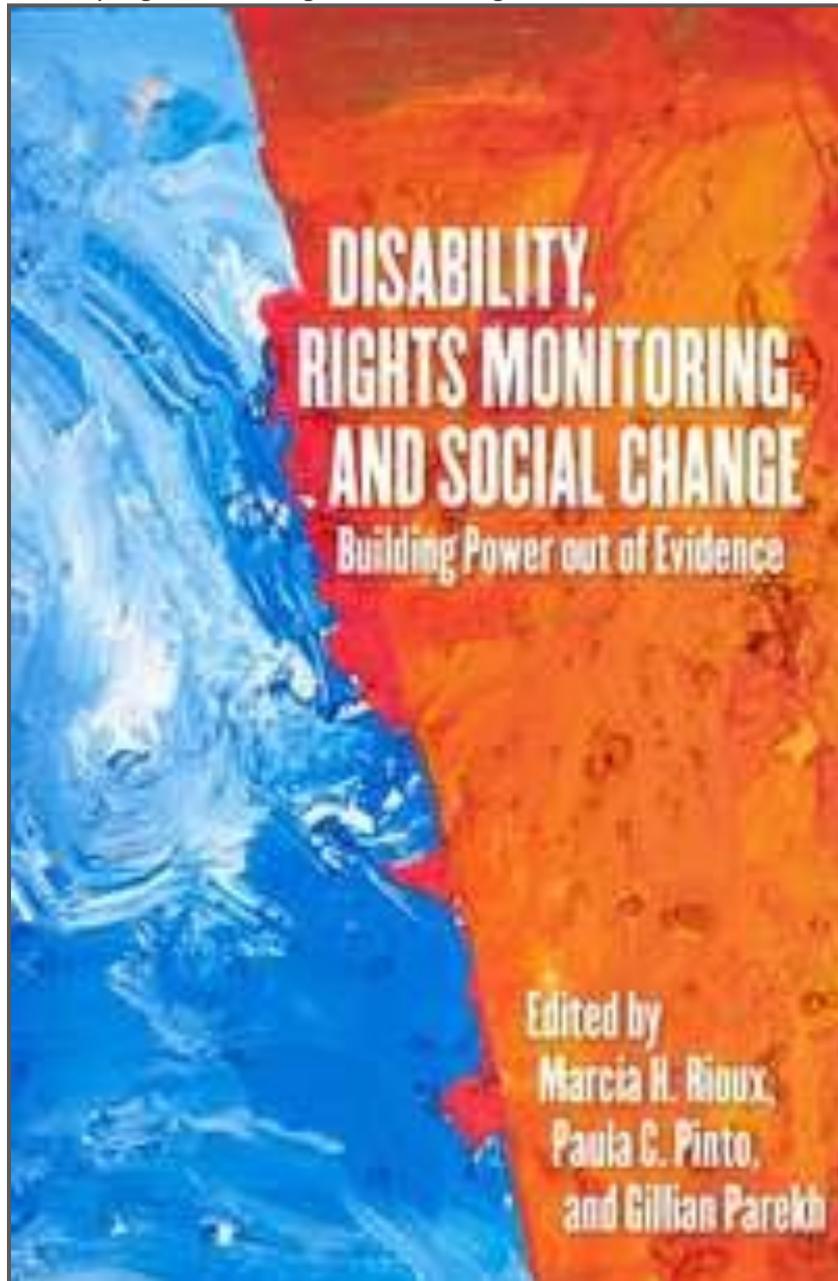
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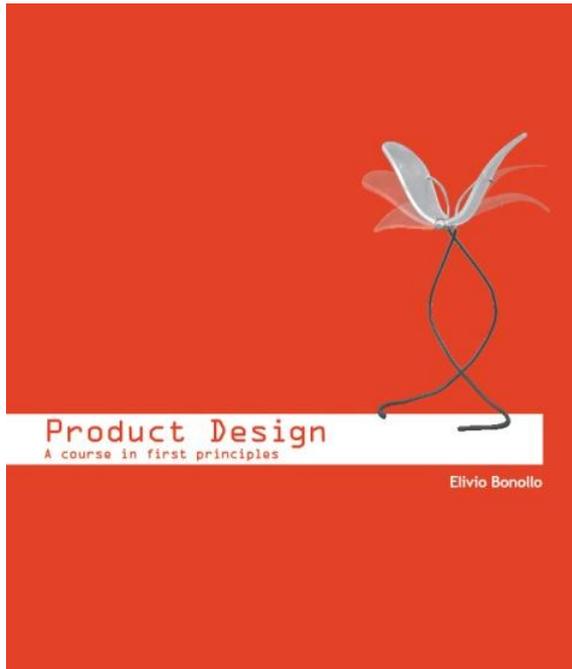
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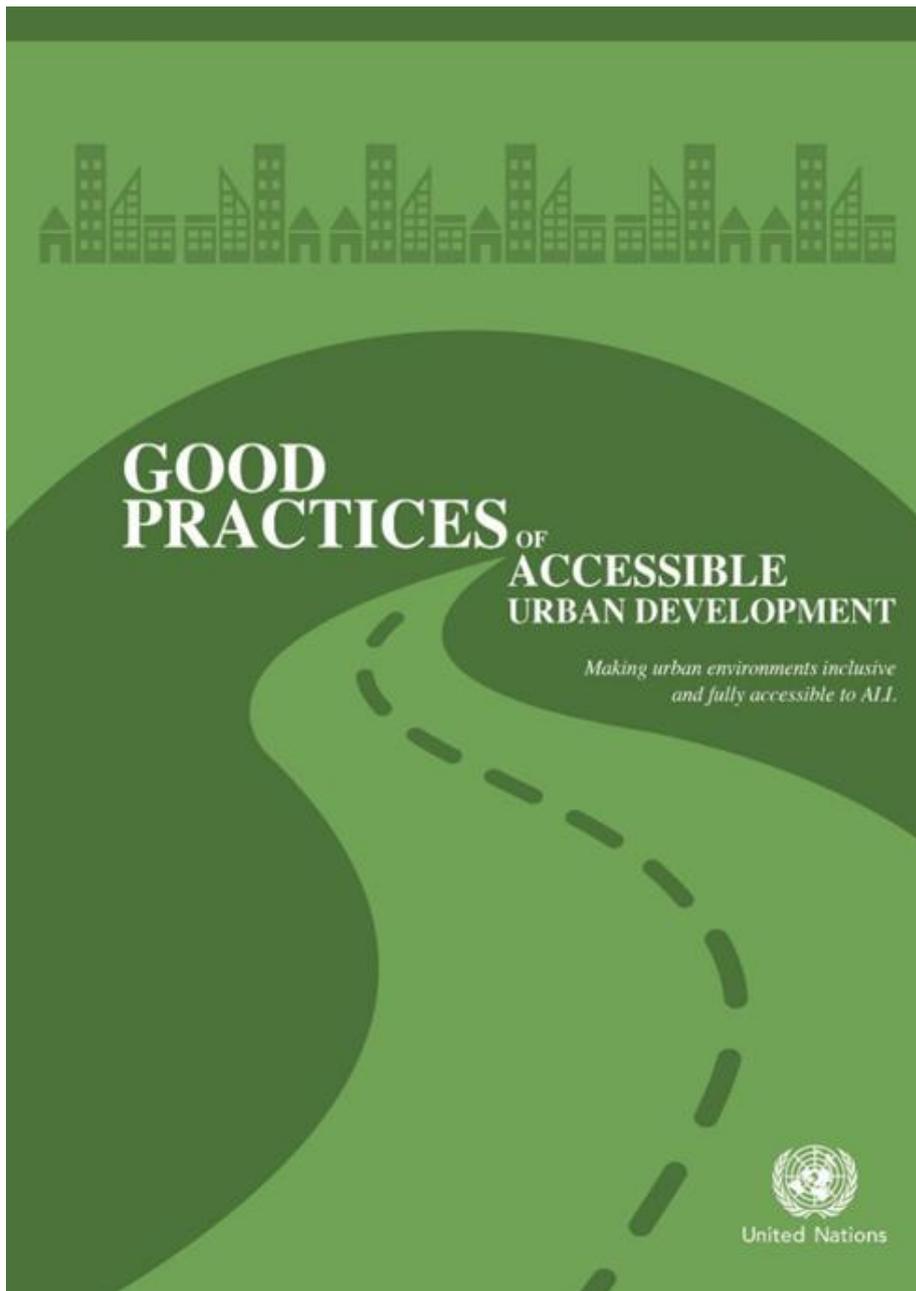
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TAPPING INTO
HIDDEN
HUMAN CAPITAL

How Leading Global Companies Improve their
Bottom Line by Employing Persons with Disabilities



DEBRA RUH



In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared a new publication entitled: “Good practices of accessible urban development”.

The publication provides case studies of innovative practices and policies in housing and built environments, as well as transportation, public spaces and public services, including information and communication technology (ICT) based services.

The publication concludes with strategies and innovations for promoting accessible urban development.

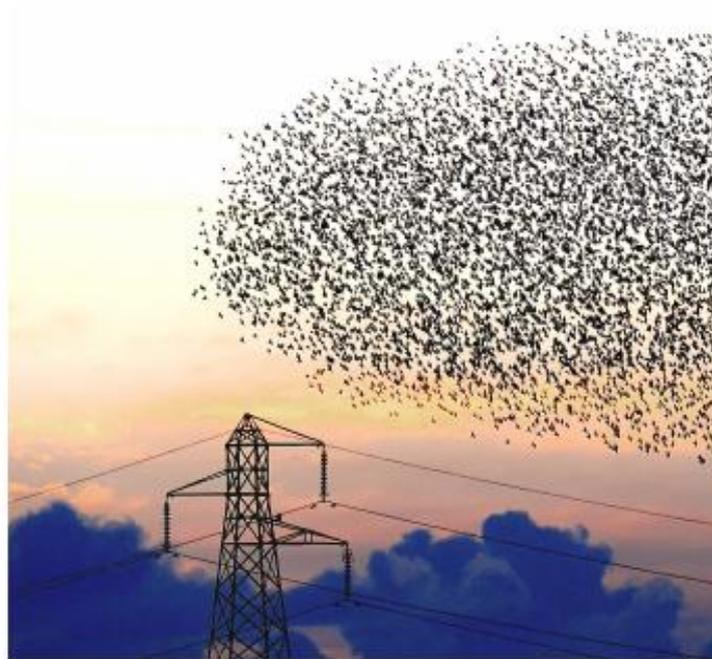
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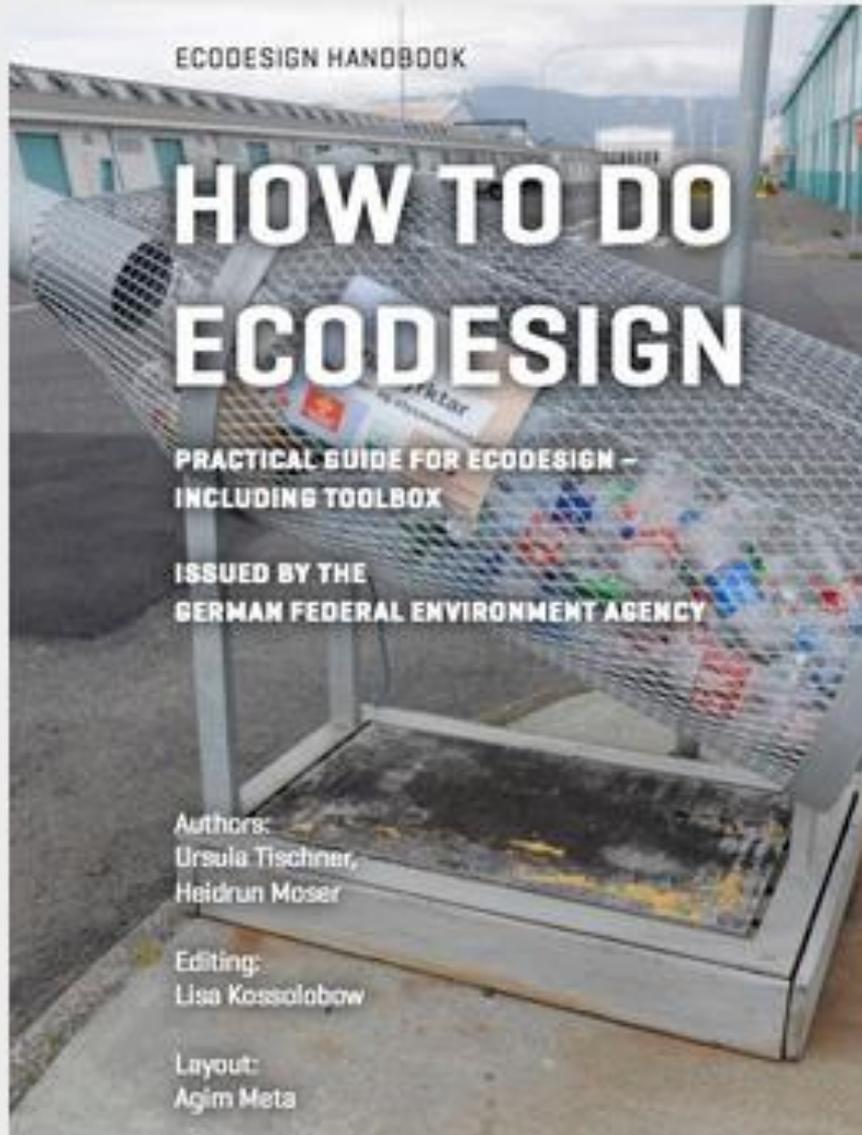
Dr Chih-Chun Chen and Dr Nathan Crilly of the Cambridge University Engineering Design Centre Design Practice Group have released a free, downloadable book, *_A Primer on the Design and Science of Complex Systems_*. This project is funded by the UK Engineering and Physical Sciences Research Council (EP/K008196/1). The book is available at URL:

<http://complexityprimer.eng.cam.ac.uk>

Changing Paradigms: Designing for a Sustainable Future



New iBook / ebook: HOW TO DO ECODESIGN



Practical Guide for Ecodesign – Including a
Toolbox

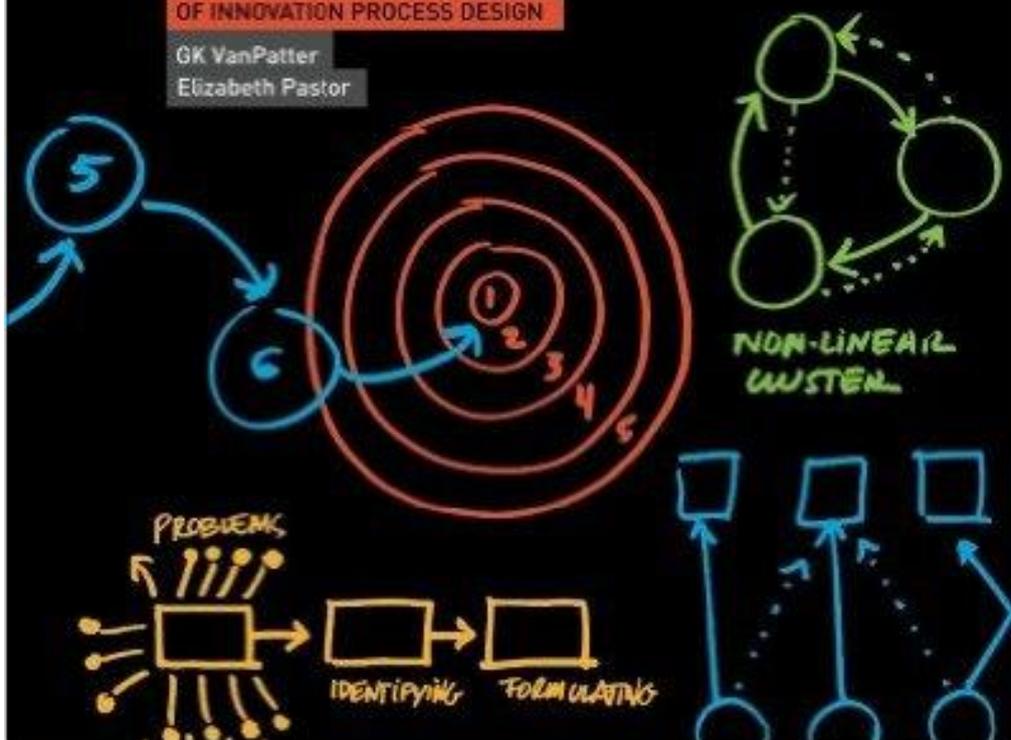
Author: Ursula Tischner

SERIES: MAKING SENSE OF INNOVATION

INNOVATION METHODS MAPPING

DE-MYSTIFYING 80+ YEARS
OF INNOVATION PROCESS DESIGN

GK VanPatter
Elizabeth Pastor



Humantific's new book: Innovation Methods Mapping has just been published and is now available on Amazon.

https://www.amazon.com/dp/1540788849/ref=sr_1_1?ie=UTF8&qid=1482329576&sr=8-1&keywords=Humantific

You can see the preview here:

https://issuu.com/humantific/docs/innovation_methods_mapping_book_pre

TRANSFORMATIONS
7 Roles to Drive Change by Design
Joyce Yee / Emma Jefferies / Kamil Michlewski

TRANSFORMATIONS

7 Roles to Drive Change by Design



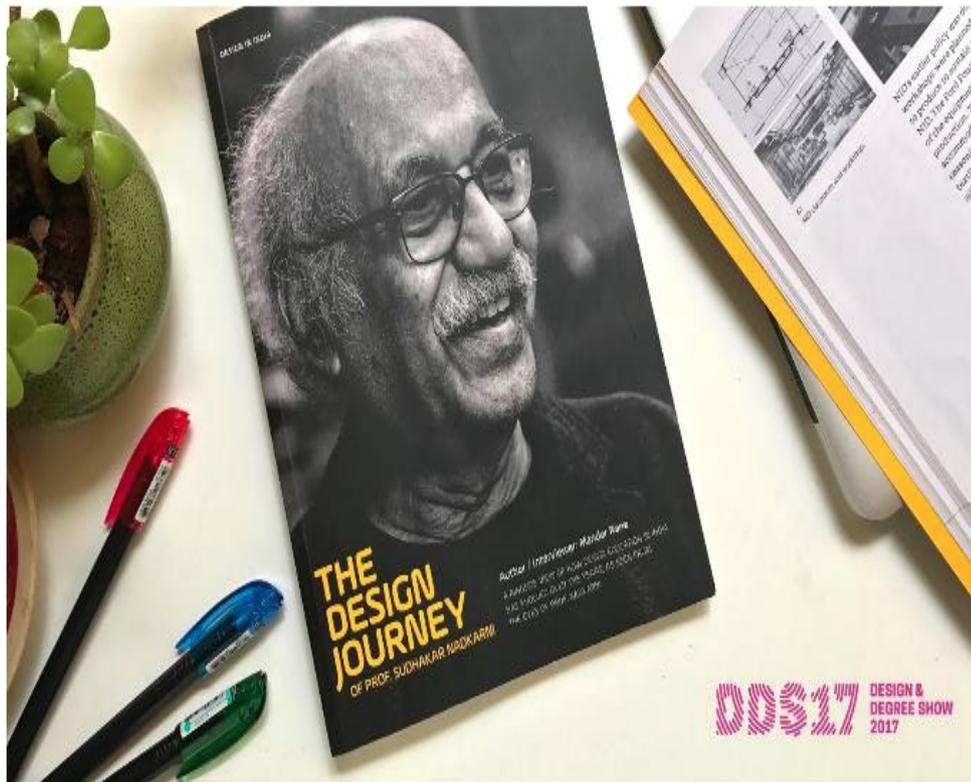
Joyce Yee / Emma Jefferies / Kamil Michlewski

BIS

Pre-book form

Thank you for your interest in the book, 'The Design Journey of Prof. Sudhakar Nadkarni'. Few limited copies will be available for purchase on the day of IDC Alumni Meet, on June 11th, Sunday, 5:30 to 6:30 pm. Rest of the book orders will start shipping June 25th, 2017 onward.

* Required



How many copies of the book do you wish to buy? *

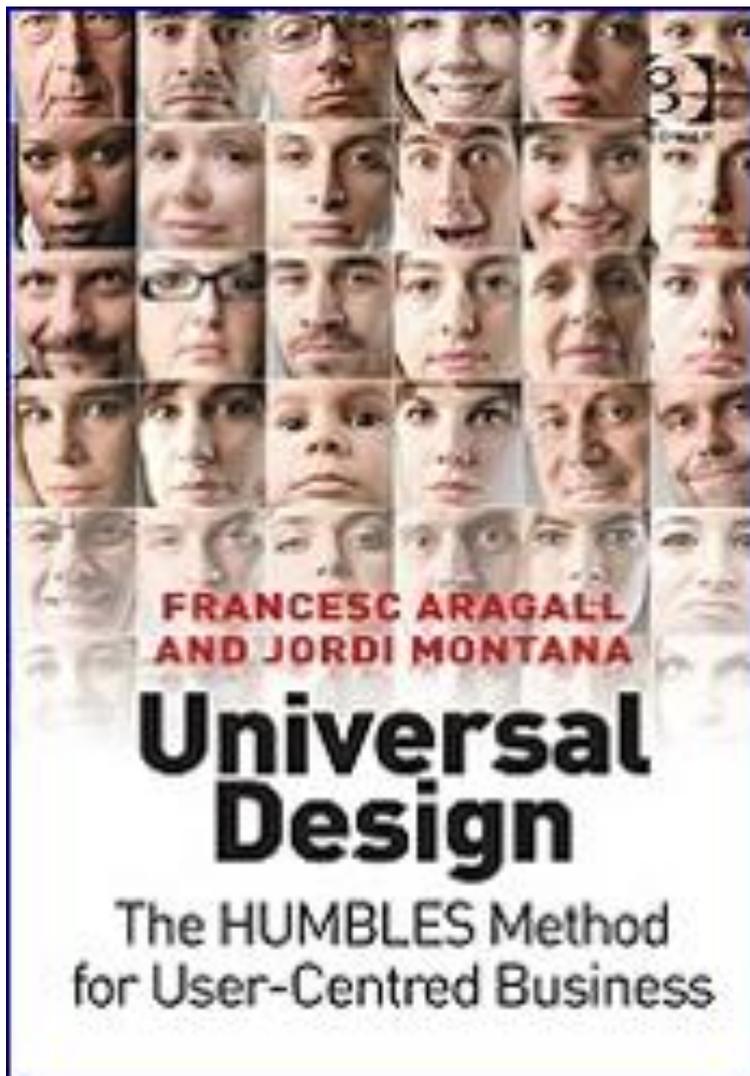
Amar Arnason and Sigurjón Baldur Hafsteinsson

DEATH AND GOVERNMENTALITY

Neo-liberalism, grief and the nation form

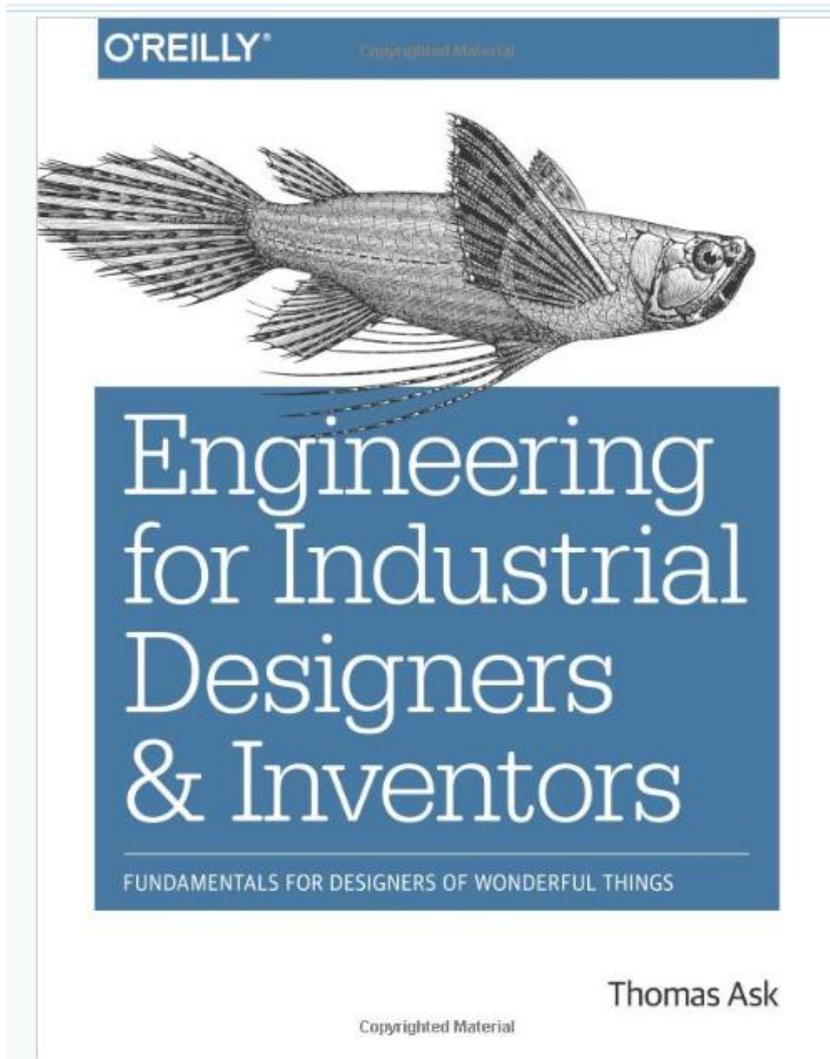


Universal Design: The HUMBLE Method for User-Centred Business



“Universal Design: The HUMBLES Method for User-Centred Business”, written by Francesc Aragall and Jordi Montaña and published by Gower, provides an innovative method to support businesses wishing to increase the number of satisfied users and clients and enhance their reputation by adapting their products and services to the diversity of their actual and potential customers, taking into account their needs, wishes and expectations. The HUMBLES method (© Aragall) consists of a progressive, seven-phase approach for implementing Design for All within a business. By incorporating the user’s point of view, it enables companies to evaluate their business strategies in order to improve provide an improved, more customer-oriented experience, and thereby gain a competitive advantage in the marketplace. As well as a comprehensive guide to the method, the book provides case studies of multinational business which have successfully incorporated Design for All into their working practices.

According to Sandro Rossell, President of FC Barcelona, who in company with other leading business professionals endorsed the publication, it is “required reading for those who wish to understand how universal design is the only way to connect a brand to the widest possible public, increasing client loyalty and enhancing company prestige”. To purchase the book, visit either the [Design for All Foundation website](#)



I have a new book that presents fundamental engineering concepts to industrial designers that might be of interest to you. This is the link:

https://www.amazon.com/Engineering-Industrial-Designers-Inventors-Fundamentals/dp/1491932619/ref=sr_1_1?ie=UTF8&qid=1506958137&sr=8-1&keywords=engineering+for+industrial+designers+and+inventrs

APPEAL:

Link to the Posting [[Master program](#), [Doctoral program](#)]

Deadline for submission of printed and original documents: December 19, 2018

We are seeking applications for prospective Ph.D. and Master students to start either in April 2019 (Spring) or October 2019 (Autumn). The students are expected to work in any of the topics in the HCI area, i.e., Ageing and Accessibility, User Experience and Usability, Games and Play, Interaction techniques, Devices and Modalities where we aim to:

- Designing multimodal text entry techniques
- Computational User Interface Design
- Designing Intelligent UIs to improve the Learnability of Mobile Devices
- Designing interactive systems on smartphone, smartwatches, AR and VR
- Understanding Cultural Effect of Older Adults' New Technology Adoption

Successful applicants will join our newly founded HCI Lab in the Graduate School of Library, Information and Media Science at the University of Tsukuba which is about 70 km northeast of central Tokyo.

It is to be noted that this position will not be funded. Any interested student is suggested either to search Japan government fellowships in their own countries or funding options from external sources in Japan. For further details provided in the University of Tsukuba website, please see Student Support at: <http://www.global.tsukuba.ac.jp/support>

Graduate student requirement

To be eligible, applicants must have:

- Backgrounds in Computer Science, Computer Engineering, HCI, Interaction Design, or Digital Media.
- Strong skills in Computer and Web programming (specifically Android, Python, Matlab)
- Ability to work individually or in a team
- Excellent analytical and presentation skills
- Basic understanding in either user interface design or quantitative research methods (i.e., experiment design, hypothesis testing)
- Ability to read and understand research papers

- Ability to write a research report

Please see the detail requirements for the Master and Doctoral degree application in the School website ([Master's degree English program](#), [Doctoral degree English program](#)). Let me know if you do not have the TOEIC/TOEFL/IELTS score, but planning on taking the exams soon.

- Filled up application form (Form 1 in the website)
- A letter of recommendation from your previous degree supervisor
- TOEIC/TOEFL/IELTS score
- Graduate and Degree certificates along with Academic Transcripts

If you meet these requirements, contact me in advance with your CV, unofficial transcripts, research statement, TOEIC/TOEFL/IELTS score for further discussion.

Deadlines:

For prospective Master and Doctoral students, application period via e-mail: November 21 to December 12, 2018 (Deadline for submission of printed and original documents: December 19, 2018) [Please follow application guidelines for details]. As the number of positions is limited (in both Ph.D. and master level), we strongly suggest applicants submit a research statement at sayans@slis.tsukuba.ac.jp on or before December 4, 2018.

Graduate School of Library, Information and Media Science, University of Tsukuba

Information networks play an increasingly vital role in the circulation and use of knowledge and information, to which traditional books, materials, and academic literature have made a massive contribution. The importance of information in multimedia form continues to grow. While information networks have become similar to a huge library, we should develop new library functions that allow us to manage and utilize information resources. In response to this need, we conduct interdisciplinary research on information and media studies.

The University of Tsukuba, a national research university, offers an academic and international environment for students. The Graduate School of Library, Information and Media Studies (GSLIMS) provides an interdisciplinary environment for the study of the library, information and media sciences. GSLIMS is a member of iSchools, a global consortium of research-oriented information schools, and is also a member of CiSAP, a consortium of information schools in the Asia-Pacific area.

Sayan Sarcar
Assistant Professor
Faculty of Library, Information, and Media Science
University of Tsukuba, Japan
<https://sayansarcar.github.io/>



News

1.

City roads to get a revamp for the differently abled

By Supriya Dedgaonkar



Photos by Nikhil Ghorpade

Workshop spurs PMC road dept to initiate ramps, tactile paving on new and existing pavements; experts from Dr Bhanuben Nanavati College of Architecture to be enlisted.

It's been a long-standing, sad truth that members of the differently-abled community are unable to access even the most innocuous locations around the city, thanks to the rampant lack of amenities for them. Now, this may be set to change, after a unique session conducted for Pune Municipal Corporation (PMC) opened their eyes to the challenges of those with special needs.

Acting on these revelations, the road department has decided to construct new inclusive roads and footpaths with special access facilities like ramps and more, making it easier for specially-abled individuals to use these basic civic amenities sans major hurdles. For this, several streets and thoroughfares have already been identified for the installation of wheelchair ramps and tactile paving (which can help visually challenged persons trace the ground) – some include arterial routes like Jangli Maharaj (JM) Road, Fergusson College (FC) Road, Karve Road, Shivajinagar, MG Road, Kalyani Nagar and Koregaon Park.

PMC executive engineer Abhijeet Dombé told Mirror, “We attended this workshop last week, in which some employees amongst us were blindfolded, while others made to sit on wheelchairs to understand risk factors and problems faced by differently abled people on the road. After this interaction, we also had another meeting and decided to make the necessary provisions for this community on the new roads, construction on which is ongoing; there is also a plan to make changes on existing roads.” He added that designers from the Dr Bhanuben Nanavati College of Architecture (BNCA) will be enlisted for the planning of these roads.

Road department head Anirudh Pawaskar confirmed, “After the workshop, we all have a different approach towards how a road or a path needs to be inclusive of everyone, as also to how we can make these amenities better for people with special needs.”

The session last week was conducted for 80 engineers of the civic body, at the Universal Design Centre of BNCA, run by the Maharshi Karve Stree Shikshan Samstha at Karvenagar. It was conducted by professors Kavita Murugkar and Abhijit Murugkar, who expounded on how several public spaces, especially roads and footpaths, can be made disabled-friendly.

Emphasising the need for this initiative, Rafiq Khan, a city-based activist who works for specially-abled people’s rights, shared, “There is already a Central government rule that all public spaces

ought to have ramps and wheelchairs for the handicapped, but there are so many places across the city that cannot be used by people like us due to the absence of either. We cannot go into banks, ATMs, gardens, and more, for the simple reason that there are no ramps. Some of us are disabled only physically — not mentally. We understand very clearly what is happening, and it becomes very debilitating for us to be excluded from a number of activities, just because the authorities have not made provisions for access.”



Locations identified for this new exercise include JM Road (above), FC Road (top), Karve Road, Shivajinagar, MG Road, Kalyani Nagar and Koregaon Park

(Source: Pune Mirror)



Programme and Events

Global Architecture & Design Awards
Architecture | Interior | Landscape | Urban Design | Product Design

RTF GLOBAL ARCHITECTURE AND DESIGN AWARDS 2018

MEDIA PARTNERS
RCHI BAZAAR World Architecture Community

OPEN TO ALL ENTRY FREE FOR RTF MEDIA LAB MEMBERS

TRANSED
TAIPEI 2018

15th International Conference on Mobility and Transport for Elderly and Disabled Persons (TRANSED 2018)

*Mobility for all:
Connecting the World with Accessible Transportation*

November 12 - 15, 2018
TAIPEI INTERNATIONAL CONVENTION CENTER (TICC)

2nd World Summit
on Accessible Tourism
Brussels
1-2 October 2018



Destinations for All

**Build
Promote
Welcome**

The Accessible Tourism Chain

The second World Summit on Accessible Tourism will present latest innovations and best practices for the development of destinations for all.
In parallel to the summit, an exhibition will allow you to discover accessible tourist destinations, products and services from all over the world.

www.destinationsforall2018.eu

Global Architecture & Design Awards



GLOBAL ARCHITECTURE AND DESIGN AWARDS 2018

A
Rethinking
The Future
Initiative

A call for
Professionals and
Students to submit
their work under
Mentioned Categories

Registration Free
for RTF Media Lab
Members

MEDIA PARTNERS






Global Architecture & Design Awards is one of the world's most prestigious Awards hosted by Rethinking The Future (RTF). RTF has been hosting Awards since 2012, and many esteemed Studios have been the winner of the Awards like Aecom, HOK, Aedas, Bjarke Ingels Group & Dialog, UNstudio, Perkins Eastman, etc. GADA is open to all the professionals and students across the world and offers more than 40 Categories divided into 'Concept' and 'Built'.

[Participate Now](#)

International Architecture Awards



One of the most famous Architecture Awards across the globe, International Architecture Awards hosted by Architecture Podium brings its winners to the top in the industry. Some of the previous winners include Aedas, TerreformOne, Rockwell Group, Pepe Gascon Arquitectura, Nadaaa etc. International Architecture Awards offer 30+ Categories under three groups' i.e.; Architecture, Interior Design and Product Design.

[Participate Now](#)

The Aga Khan Award for Architecture



The Aga Khan Award for Architecture

The Aga Khan Award for Architecture (AKAA), established by Aga Khan IV in 1977, is awarded every three years to an architectural project that meets the needs and preferences of Islamic societies. The Award seeks to identify and encourage architectural concepts in the fields of community development, area conservation, contemporary design, preservation of the environment and landscape design.

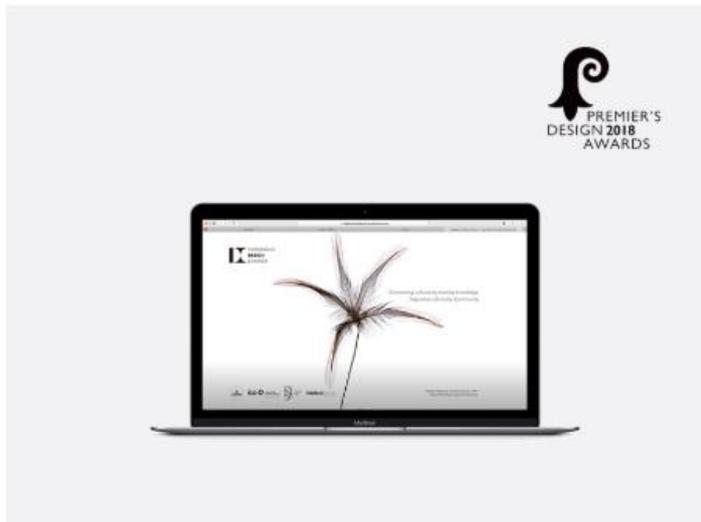
[Participate](#)





International Architecture Awards 2018

After the huge success of previous International Architecture Awards, Architecture Podium is announcing IAA 2018. Architecture Podium created one of the largest awards in architecture and design with some of the esteemed studios as winners like [Aedas](#), [TerreformOne](#), [Rockwell Group](#), [Pepe Gascon Arquitectura](#), [Morphogenesis](#), [Dada & Partners](#), [Nadaaa](#), [XTEN Architecture](#), [Mecanoo](#), [ABIBOO Architecture](#) and many more from across the globe making IAA one of the most successful awards.



2018 PREMIER'S DESIGN AWARDS ANNOUNCED

A ground-breaking International Indigenous Design Charter has taken out the highest design honour in Victoria receiving the 2018 Victorian Premier's Design Award of the Year. The annual awards celebrate the state's best and brightest designers and innovators across categories including architectural, product and industrial, communications, digital and service design. [MORE](#)

Typography Day 2019

IDC School of Design (IDC), IIT Bombay, Mumbai, India

2nd - 4th March 2019



The 7th International Conference for Universal Design in Bangkok 2019

First time in ASEAN, the International Conference for Universal Design in Bangkok.

Call for paper

IAUD, Japan collaborates with Faculty of Architecture, KMUTL, Thailand, organise...

The 7th International Conference for Universal Design in Bangkok, Thailand on 4-6 March 2019

You are invited to submit full papers for the theme “Universal Design and Sustainable Development”

Sub-theme;

- Innovation for all
- Regional and urban development

- Sustainable inclusive city
- User-friendly product design and service
- Rapid global ageing

Submission full paper deadline: 20 November 2019

For more information please visit
<https://www.ud2019.net/index.html.en>

THE ANNUAL INTERNATIONAL BERKELEY UNDERGRADUATE PRIZE FOR ARCHITECTURAL DESIGN EXCELLENCE 2019

2019
berkeley prize
 Architecture and Climate Resilience

ABOUT THE PRIZE
 ESSAY PRIZE COMPETITION
 TRAVEL FELLOWSHIP
 PREVIOUS FELLOWSHIPS

Click on photograph for details.

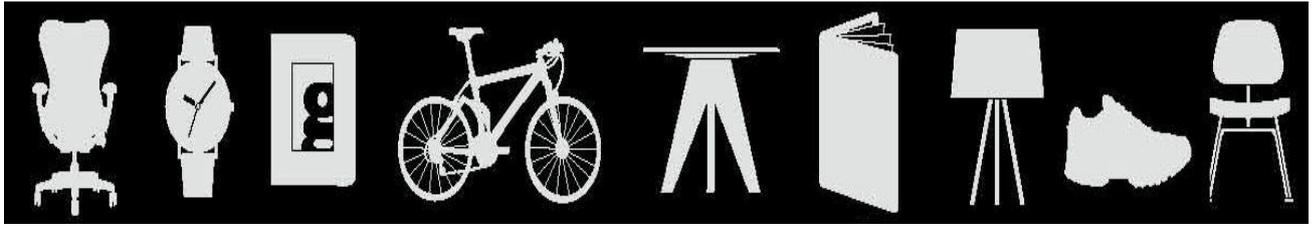
OPEN CALL 2019

CALL FOR IDEAS 2019

15 NOV 2018
 - 7 JAN 2019

Apply now!

Apply at [Future Architecture](#)>>
 Press contact
ana.kuntaric@mao.si
 Press materials>>



2018 Student & Pro Concept Deadline Update

The Final Spark Deadlines for the Winter award categories are fast coming up.

The LAST CHANCE ENTRY DEADLINE is November 30, 2018, Midnight, California Time.

The Winter Spark Design categories are Concept; MAKR (Maker designs) and PROTO (Prototype designs).

It is very important for designers to get their work in as soon as possible. Do not wait until the 30th.

All work is submitted online--no materials are shipped. The judging is by a live jury in Hong Kong. Entries are global and all designers are welcome to participate.

We're having a great year so far, with submissions from schools like Art Center, College for Creative Studies, our friends at Hannam, Hanseo, Hansung, Hanyang and Hongik Universities, SADI, University of Applied Science in Darmstadt, Zhengzhou University of Light Industry, Hubei Institute of Fine Arts, UNIST, KAIST and UMEA.

It is Sparking time!

Spark Design Awards

<https://competitions.sparkawards.com/>

Spark Design Awards

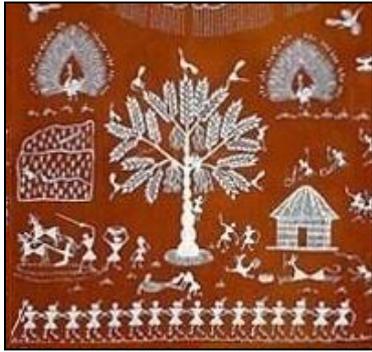
Mobile: +1.914.434.6999

Office: +1.914.481.6106

www.sparkawards.com

P.o.Box 341

Croton On Hudson, NY 10520



Job Openings

Job Opening

We are seeking a communication design educator, researcher, and BFA program coordinator to help lead our large and already successful area into an even more promising future by keeping pace with an ever-changing industry.

The School of Art and Design features many areas of study and offers five undergraduate programs: communication design, studio, photography, art education, and art history. It also offers an MFA program in communication design. Our programs are nationally and regionally recognized, including our BFA and MFA in communication design. We believe in fostering conceptual and technical abilities necessary for artistic expression, and our more than 80 diverse faculty members support this effort.

Responsibilities include:

Coordinate BFA Communication Design Program (course scheduling, program communication, curriculum, purchasing, personnel and general management).

Teach at the BFA and/or MFA level as assigned by the Director.

Pursue research/creative activity in relevant discipline and maintain a substantive record of professional/peer recognition.

Engage in service to the school, college, university, community and profession.

Texas State University, an emerging research university, offers more than 200 undergraduate and post-graduate degrees through our nine academic colleges. Located in San Marcos, it is well situated between the vibrant design and technology communities in Austin and San Antonio. Texas State University is an affirmative action equal opportunity employer. The University strives to cultivate a diversity of people and ideas, a spirit of inclusiveness, a global perspective, and a sense of community as essential conditions for campus life (www.txstate.edu/about/mission). Women, members of minority and underrepresented groups, persons with disabilities and veterans are encouraged to apply.

Job Listing found here

<http://www.txstatedesign.com>

For any questions, please contact me, thanks!

Claudia Röschmann
Assistant Director + Head of Communication Design
Associate Professor
School of Art + Design, JCM Building #2111
Texas State University

2 Job Opening:

VMware is growing the design team in Bangalore, and looking for Product Design Manager and Staff Product Designers to further build the design culture in the company.. If you are interested in either of the positions, please send your profile at manaswis@vmware.com.

**For more information on the available positions, please refer to VMware Design Website - <http://vmware.design/careers.html>
Learn more about the VMware Design Team - [VMware Design – Medium](#)**



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