



**EXPLORING SPACE AS AN ENABLER
- FROM THE DESIGN STUDIO**

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DESIGN FOR ALL

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Editorial & Graphics Team : Aditi Taori & Radhika Dhekne

Coverpage Photo Picture taken at 'Sravasti' Buddhist Heritage site by Prof. Kavita Murugkar. It has won the first prize in the CBM National Photography Competition, 2017 on the theme 'Disability'

EDITORIAL



Kavita Murugkar

Founder, Universal Design Center, BNCA, Pune
Director, Design Bridge Foundation, Pune, India

Ever since the evolution of mankind, Architecture has made a significant impact on both - the quality of our personal as well as our community life. Architecture has served as the backdrop against which we live, grow, learn, work, play, entertain etc. and develop as a cultured society with distinct set of values, that also in turn shapes the architecture around us. Clearly, Architecture as a design discipline, has a strong underlying social commitment and the potential to facilitate social inclusion by addressing needs of all sections of the society.

However, such a thought usually remains as a general idea, and hardly taught in the schools of architecture and minimally practised by professional architects. Architectural education and practice even today is un-empathetic to issues of disability and diversity. The cold response to disability needs is evident from the poorly designed standards, and an approach to functional and clinical solutions prescribed and undertaken by architects for mere compliance. Result being, barriers in architecture continue to hinder people with disabilities (PWDs) and deprive them from opportunities, access and activities that are otherwise available to the 'normal' or rather the people without disabilities. Inaccessible built environments are the biggest reason for the exclusion of the vulnerable user groups from the mainstream.

Previous research has also informed that Disability fails to be appropriately embedded in architectural education and in the way architects are trained to think about the world, or 'do' design. Generations of architects have been coming into the profession without being made to realise that people with disabilities are also equal stakeholders and

users, of the architecture we create and that our designs must respond to such user groups and address their needs and expectations too. Consequently, universally accessible architecture is not evident and there are smattering examples of practice models that offer inspiration.

Architectural institutions must challenge the stereotypical mode of thinking about design for disability as dull, non-creative and restricting, to solutions that address environmental problems, accommodate wide range of needs to address diversity, and facilitate social and environmental inclusion. Only then can we change the way the built environment is designed and removal of environmental barriers responsible for discrimination and environmental oppression.

Universal Design has become a global concept of ever-growing importance, to promote inclusion, mandated by the United Nations Enable, and hence needs to be adopted widely in architectural education at the beginner's level when students begin to conceptualize design and offer solutions. There is a need to change the current standard of design education which employs the hypothetical standards of able-bodied users as the lowest common denominator, with that of human diversity inclusive of a person with disability. A design approach that invests in human considerations, usability and functional independence to create environmental inclusion must be promoted and inculcated in the budding architects. Universal design and "Accessibility for All" must be the beginning of architectural problem-solving process for any and every design challenge given to them in their course of education and should not be limited to assignments that deal with special needs.

While we prepare ourselves to make this paradigm shift in our design education, it is also important to simultaneously acknowledge, document, disseminate and encourage Universal Design (UD) based attempts and initiatives made by students, educators and institutions, for enabling mutual learning and creating a resource pool of UD examples for inspiration and study.

This issue of 'Design for All' - titled 'Exploring Space as an Enabler - *from the design studio*' is one such sincere attempt to compile papers written by students and educators from various Architectural institutes across India, which very simplistically describe why and how they used the Universal Design approach to come up with architectural designs and details that try to address the broadest spectrum of users including people with disabilities.

This compilation consisting of 8 papers, illustrating inclusive design solutions for diverse typologies of spaces and functions, ranging from a home to a pilgrimage centre serve as a useful and handy resource and reference not just for the experts in the field but also for the millions of students across the globe being trained for becoming the next generation of architects and designers. I am sure it will be a useful reference also for the novice researchers and young UD practitioners for learning through examples of academic projects demonstrating use of Universal Design philosophy and principles. It aims to throw light on the design process and methodology that one needs to take to create an Inclusive and universally accessible Design, and how it is different from the conventional process. Even with the limitations, every paper aptly brings out the What, Why and How of the journey one has taken from conceptualisation to the final design, with Universal design as the central theme and goal.

Here is a brief summary of each paper that will follow this editorial note:

Devaki Bandal through her paper “AANGAN_An Abode for all” points out that in Indian scenario though Universal design is now considered essential while designing a public space, when it comes to private residencies, universal accessibility is often considered only when the need for it arrives and hence it leads to adaptation or specialized design. It is her attempt at designing a residence that caters to the various physical and mental needs of a diverse age group.

“Evaluating an Inclusive Institute Using Principles of Universal Design” is an attempt by the author Prachi Mahajan to evaluate the accessibility and inclusivity of an Institute recognised as “Inclusive” by the masses. As a student of the same institute who is also visually impaired, the objective of her paper is to bring elements of design to the forefront of the discussion and view the ineptness of structures through the seven principles of Universal Design. The paper concludes with a set of recommendations to modify the existing design elements of the campus to increase accessibility along with steps that can be undertaken by any educational institution that host students with visual impairment on their campus.

The underlying principle of Sufism is “Universal Brotherhood and togetherness” where one helps the other unconditionally. Radhika Dhekne the author for the paper “IMAAAN - A Place Of Faith For All” in her design of the Sufi Centre, takes inspiration from this philosophy and attempts to reflect it in all the architectural aspects from overall planning to details. Her design offers accessibility to ALL in the locality, brings people together and builds a community life in Fatehpur Sikri, the hometown of legendary Sufi Saint - Salim Chisti. Thus, demonstrating application of universal design for transcending cultural and physical differences.

Jui Atre in her paper, “School as an Ecosystem for Inclusive Learning”, puts forth a model of a school that aims at providing an environment for facilitating primary and secondary education for all children irrespective of their abilities and disabilities. Universal Design Principles (International) as well as the Universal Design Indian Principles (UDIP) were taken into consideration while evolving the design. Further the paper elaborates on the whole design process in depth from formation of the brief and area programme to planning of each block and concludes as an attempt to bestow the ‘Sanskar’ of ‘Inclusion’ into its users.

Sheen Pandita in her paper, very creatively pens down her design ideas for “SAMMILIT- The Centre for Accessible India”, a centre which aims to give a positive image to the disabled community and promotes the significance of an inclusive society. The paper is based on the thought that, the symbol professed through architecture would be a source of initiating conversations and building awareness amongst the people. It attempts to achieve Sensitization by providing its user, a surreal experience of both, an enabling and disabling built environment, thus building more empathy and sensitivity in the visitors.

Raj Charaniya in his paper “Paralympic Training Centre, Gandhinagar” describes his proposal for the Centre of Excellence for Para Sports in Gandhinagar, a project proposed by Government of India. With Universal Design as the central theme while designing right from zoning the site to the fine detail considerations for the centre, Raj elaborates on all the steps involved in achieving the final design proposal for the centre. He believes that “The Universal Design Considerations extended to encompass the disabled, once implemented will certainly become a repeatable model and can be used across the country to spring out several such facilities.”

‘Inclusive Pilgrimage - A Case of Chaturshringi Temple Complex, Pune’ is a graphical and textual narrative of a proposal developed in the studio exercise in the subject of Elective on Universal Design at Dr. Bhanuben Nanavati College of Architecture, Pune, by Prof. Kavita Murugkar, to retrofit a largely visited pilgrimage site Chaturshringi temple complex in Pune by applying principles of Universal Design to make it accessible for ALL, specially the people with disabilities and ageing population visiting from surrounding rural areas.

“A Halt in the Journey (Public Toilets and More)” is an effort by Mohini Bhosekar at providing a solution to the sanitation conditions in Chanderi, by creating a convenient and comfortable means of public toilets for ALL (men, women, transgender, PwD). Her Toilet design proposal while sensitively responding to the traditional architecture of Chanderi, offers its users a multi-faceted, multi-functional space catering to their various needs through a design which is enabling irrespective of the abilities.

I am extremely grateful to Dr. Sunil Bhatia for extending this wonderful opportunity to compile this issue as a Guest Editor. I am equally grateful to all the contributors - the students and teachers who have very sincerely and passionately penned down their design journey in the form of interesting narratives that demonstrate the Universality of their solutions. I am very thankful to Aditi Taori, who tirelessly assisted me in putting this issue together in time. My sincere thanks to my pillars of support - Dr. Abir Mullick, Abhijit Murugkar and Dr. Anurag Kashyap for being ever encouraging and showing me the light in the darkest times.

I am very hopeful this effort shall serve as a catalyst to inspire more and more designers and educators to apply and inculcate Universal Design values in their current and future practices and design studios.

With sincere regards and warm wishes,

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FOREWORD



Universal Design Teaching

Prof. Abir Mullick

Lack of human concerns in design motivated educators worldwide to teach Universal Design (UD) in architecture and design. The history of UD teaching, though not long, is rich and it involved people across the globe. In 1975 the Gerontological Society of America (GSA) developed design strategies to teach about aging and environments. UC Berkeley, known for its social focus, supported Prof. Raymond Lipchez's studio course in 1979. This course, which introduces user needs into the design curriculum, brought in wide range of user experts into the studio for students to see, hear, interact, think and consider them into the design process. Students teamed up with user experts to co-curate designs and learn about users as design work progressed. Like Prof. Lifchez, Prof. James Sandhu carried out universal design teaching in the UK and Prof. Edward Steinfeld experimented with UD teaching at SUNY-Buffalo; together they trained many architects and designers in universal design. All three professors, Lifchez, Sandhu and Steinfeld, are pioneers in Universal Design teaching and their work has produced excellent examples of user-centred design.

in 1991, Adaptive Environments in Boston launched the Universal Design Education Project (UDEP) in which 22 US schools participated. The Project required schools to develop strategies to teach universal design. They developed a variety of teaching methods and apply them in the design process to create use-centred designs. The strategies are well documented in a book titled Strategies for Teaching Universal Design. The UDEP project, besides developing teaching strategies, "challenged existing values in design education" and stimulated innovation in design curriculum through user involvement.

There are Indian initiatives that taught about human-considerations in design. Prof. Sudarshan Khanna at the National Institute of Design in 1970s taught a course in rural exposure that took students on a one-week work-live experience to villages and exposed them to the rural way of life. He required them to learn about rural life and demonstrate user concern through design. In 80s and 90s Prof. S. Balaram, also at the National Institute of Design, encouraged students to think about universal design in design projects. His students produced excellent work, and several of them received design awards and public recognition. Over the years universal design teaching has progressed; Professors Gaurav Raheja, Haimanti Banerjee, Rachna Khare and Kavita Murugkar have introduced universal design to students in architecture studios. Not too long ago, Prof. Rachna Khare conducted two National Design Competitions that solicited universal design projects from students in architecture and design schools. Also, under the Berkley Fellowship Dr. Khare conducted a universal design studio on Kumbh Mela which produced excellent examples of universal design.

The work presented by Kavita Murugkar in this issue of 'Exploring Space as an Enabler - From the Design Studio' is heartening and points a finger in the right direction. In India, UD is an emerging area and it presents an opportunity to ensure that designs address human considerations. As UD awareness grows, the need to offer UD education becomes ever more important. Currently, there is a dearth of good examples of universal design that architects and designers can turn to for inspiration and education. Kavita has offered a compilation of UD work done by her students and others, wherein they highlight strategies adopted to offer UD benefits. However, to ensure even richer UD examples get developed; it is necessary to organize a design competition much like the one Prof. Khare had organized. The competition should solicit a wide array of work that represents architecture, landscape design, industrial design, visual communication and user interaction; involve UD experts to judge entries (anonymously) and present them as excellent examples of UD. Complied under the banner of BNCA's Universal Design Centre, the work presented by Kavita offers valuable information and it deserves deep appreciation from the community. I thank the leadership at BNCA (Dr. Anurag Kashyap) for supporting UD Centre and making this happen.

PROF. ABIR MULLICK

Abir Mullick has served as a Professor in the College of Architecture at Georgia Institute of Technology, USA and as the Provost and Vice Chancellor for Navrachana University in Baroda, India. A strong proponent of Universal Design, he has dedicated his academic career to teaching, research and scholarship in Universal Design. He is one of the authors of the Principles of Universal Design (USA) and he led the team that developed the Universal Design India Principles (India). He is internationally known for his work in the field of accessibility and universal access and has served as a resource person to the United Nations on Universal Design matters.

BNCA's Universal Design Research and Training Centre

Establishment of *BNCA's Universal Design Research and Training Centre* is a step initiated by the renowned institute for architecture, towards integrating Socially Inclusive Design education and practise that responds to needs of all sections of the society ranging from children to elderly, able bodied to the people with disabilities, literate to illiterate, the economically affluent to the economically weak people etc.



BNCA - Dr Bhanuben Nanavati College of Architecture for Women in Pune is functioning under the aegis of **MKSSS- *Maharshi Karve Stree Shikshan Samtha***, 114 years old samstha which was established in 1896 by a great visionary and social worker Bharat Ratna Maharshi Dhondo Keshav Karve, to provide shelter to destitute women and work towards social, educational, financial and spiritual upliftment of orphans, distressed women and widows, making them confident and self-reliant.

Carrying forward the same spirit of the parent organization, BNCA's Universal Design Research and Training Centre aims to take leadership in promoting Universal design approach for creating inclusive products and environments through four principle activities - Research, Training, Awareness and Service.

Its inception started in 2011, and since then a wide range of activities and efforts have been undertaken successfully under the leadership of Prof. Kavita Murugkar guided by Dr. Abir Mullick and Dr. Anurag Kashyap, principal of BNCA. The centre was formally inaugurated on 14th February 2014 in the institute courtyard at the hands of

esteemed Universal Design experts Dr. Abir Mullick and Dr. Rachana Khare in presence of Prof. Balaram.

A variety of activities, projects and events have been successfully organised through this centre by team of faculty members and students in the past two years, which includes a 18 week elective module on Universal Design, a city level seminar on Universal Design for professionals and academicians, a one day sensitization workshop for students of architecture and interior design from Pune, heritage walks for groups of differently abled students and citizens, university research project on accessibility plans for protected heritage sites, participation in Universal design competitions, simulation exercises, experiments with tactile models, user needs surveys, participatory design studios based on buildings for special groups, site visits to NGO's, accessibility audit for important public buildings in the city, articles in local newspapers to raise awareness in masses etc. More information on the above is available on the centre's blogspot - www.universaldesigncentrebnca.blogspot.com

With this initiative, the sensitivity of students towards Universal Design has grown immensely and a rigorous effort is being made at all levels - from 1st to final year to create universally accessible and people friendly designs, and not merely visually appealing designs. The Universal Design Centre at BNCA has carved a path for the institute to create more responsible and socially inclined architects and designers for tomorrow!!

ESTABLISHED BY



Dr. Anurag Kashyap, the founding Principal of the 25 year old institute BNCA under the aegis of Maharshi Karve Stree Shikshan Samstha, is instrumental in creating generations of promising women architects in India through his unique leadership and profound philosophy towards life and architecture. He believes that 'Life is larger than architecture' and has strived to create professionals with a complete personality who can do justice to all aspects of life, besides developing into good human beings. The Green Champion Award by IGBC Pune Chapter is one of the many prestigious awards he has received till date.



Kavita Murugkar, an architect and associate professor at the Dr. B. N. College of Architecture (BNCA) Pune and is doing pioneering work in promoting people centric and inclusive design education and practice in the architectural fraternity. She has setup the Universal Design Research and Training Centre at BNCA and is identified as one of the most experienced Universal Access Specialists in India. She is the recipient of the NCPEDP-MPHASIS Universal Design Award 2014 for her contribution in promoting accessibility in the built environment. She has very extensively worked with the Govt. under the Accessible India Campaign to create Universally Accessible infrastructure and buildings across the country.



DESIGN BRIDGE FOUNDATION

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ABOUT US:

DesignBridge Foundation is a non-profit organisation, founded in Pune in 2016, with the objective of promoting and designing Universally Accessible built and outdoor environments in India.

Creating built environments and facilities that are accessible and user-friendly equally to all, with safety and with dignity, is a right protected by law in many jurisdictions. It is an indispensable pre-requisite for social inclusion, focusing on equal opportunity and diversity.

Accessibility to the built environment affects a large number of people within society in their day-to-day normal life, concerning their safety and physical, mental and social wellbeing. Even a single step can deny entry to a person pulling a suitcase on wheels, or a person using a wheelchair or even pose a safety hazard to anyone with impaired vision.

Built Environments that do not comply with safety and accessibility standards, especially toilets and wash areas, ramps, steps and doorways, are often safety hazards posing unwanted risks to precious human lives, especially to increasing huge sectors of populations concerning the elderly, pregnant mothers, those with numerous debilitating conditions, those carrying small children and heavy luggage and also to people with disabilities.

Universal design when applied to the built environment has the power to not only minimize disability and discrimination but potentially enhances everyone's well being and performance.

MISSION:

DesignBridge is on a mission to work **with** people with disabilities, **for** people with disabilities, **to transcend** disability by harnessing the power of **common sense**, empathy and technological innovations for creating **Universally Accessible built and outdoor environments** and hence a **Rights based Inclusive Society** in India.



OBJECTIVES:

RESEARCH

Research & design development of

- Spaces for ALL
- Services for ALL
- Products for ALL

TRAINING

- Capacity Building Training for faculty, students of schools of architecture & design, professionals from fields of architecture, interior design, civil engineering and construction
- Workshops & short-term courses on Universal Design
- Action oriented studio projects & case studies
- Education through design competitions

AWARENESS

- Sensitization by Simulation
- Public seminars and lectures
- Awareness building through mass media & publication
- Promotion through exhibitions
- Social Activism

SERVICE

- Universal Design assistance
- Access audits & Accessibility Consultancy
- Heritage walks for special groups
- Research and development of products and solutions for accessibility and assistive devices

PRINCIPAL ACTIVITIES:

- **Access Appraisal:** Review of the architectural layouts and plans of the proposed buildings to incorporate access features at the planning stage.
- **Access Auditing:** An extensive physical Audit of the existing built environment and services to determine feasibility of use for disabled people who may be employees, members of the public, clients or visitors, and recommend improvements.
- **Access Implementation Strategy Planning:** A post Audit implementation plan is developed to assist individuals or organisations in resource planning and prioritisation to attain maximum cost effectiveness.



- **Accessibility Training:** A useful training for all those interested in enhancing their knowledge to promote and provide environments designed for all.
- **Research:** Research of various technical as well as policy related topics related to disability.

FOUNDERS:



Kavita Murugkar, an architect and academician by profession with over 20 years' experience, is also a strong proponent of Universal Design and is working hard and consistently to promote people centric and inclusive design education and practice in the architectural fraternity. She has established India's second Universal Design Centre for Training and Research at Dr. Bhanuben Nanavati College of Architecture, Pune in 2014. She is **NCPEDP-MPHASIS Universal Design award winner for year 2014**. She has been empanelled by the

Ministry of Social Justice and Empowerment and the Disability Affairs Department, Government of India as an Accessibility auditor, consultant and trainer. Under her able leadership, her team has been working with MSJE, Archaeological Survey of India (ASI), CPWD and various state PWD, corporates, private organisations for Universal accessibility related projects across India.



Abhijit Murugkar, a leading Disability Inclusion Consultant and Universal Access Specialist, is the founder and managing trustee of Design Bridge Foundation, working with a mission to promote accessibility of built environment in India, to ensure that people with disabilities are not discriminated and are provided an equal and dignified access to buildings, cultural places, transportation hubs and information and communication etc. He has developed numerous accessibility related technological and architectural products

under the brand **BarrierFree**.

He has been an independent design consultant, who has over 22 years of experience working in various capacities ranging from Lead Designer to Business Head in various reputed Indian and Multinational organisations such as Getzner India Pvt. Ltd, BP Ergo Ltd, Consortium Architects Pvt. Ltd, Floorspace India Pvt. Ltd.

Committed to create Universally Accessible and Enabling Environments for ALL...

01



AANGAN_An Abode for All

Devaki Bandal

Guided By - Prof. Kavita Murugkar

Devaki is a final year student studying architecture at Dr. Bhanuben Nanavati College of Architecture, Pune. She has worked as an intern at Sunil Patil Associates & Interior Designers, Pune. She has an outstanding academic record by achieving 1st rank in the last 4 years within her college and Pune University. She has received 6th rank at Asian Contest for Architectural Rookie's Award (ACARA) and has received Sustainable Design Award for two years consecutively conducted at BNCA. Devaki believes that universal design should be an integral part of every product and structure so that, it can be utilized by everyone to the greatest extent possible without the need of adaptation or specialized design.



1. INTRODUCTION

Aangan is a residence designed for a marathi family living in New Delhi. Built with the intent of serving as an ideal home for the client and his family of six, constituting of his wife, two children and his parents, the bungalow is situated in a residential colony. An experimentation in architectural forms, intense creativity and innovative design led to the emergence of a dynamic bungalow typology amidst the domestic neighbourhood. The design explores the creative process of stacking a two storied structure typically built of stone and concrete. This abode houses 5 bedrooms, kitchen, lobby, family room, art and music room and spaces that spill from the living and dining into the courtyard. The structure centrally placed on a vast plot of 875.00 sq.m expresses a sense of dynamism and charisma amidst the existing built forms and trees. The rhythm of projections and recessions created by the boxed windows and cantilevered balconies develop in crafting an interesting composition of the external facade. The glass used is U.V proof that shields the interiors against radiation, modelling comfortable interior spaces. The facade design reveals openings on the North, lighting the house with adequate sunlight. Planning has been kept simple, this contemporary design consists of spaces ensuring privacy and provides ample opportunity to connect with the outdoors. With the intention of housing three generations, the house has private spaces combined with enough common spaces for the family to interact. The house gives close attention towards the structure by orienting itself around a courtyard. This careful organization of spaces depicts the design feature of a double height courtyard that co-ordinates the control of light and shade entering the structure.

Site Area: 875 sq.m.

Built Up: 500 sq.m.

2. RESIDENCE & UNIVERSAL ACCESSIBILITY

Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. In Indian scenario, the subject of universal accessibility has gained impetus in a past few years. As a result, the governing bodies have considered all the public buildings as their top priority. When it comes to private residencies, universal accessibility is often considered when the need for it arrives and hence it leads to adaptation or specialized design. The intent of the universal concept is simply life for everyone by making more housing usable by more people at little or no extra cost. (The Centre for Universal Design, North Carolina, 2006). 'Aangan' is a residence designed with an intention of catering to the various physical and mental needs of a diverse age group. It is a residential example that exhibits building features and elements which can be used by everyone.

3. BACKGROUND STUDY & DESIGN PROCESS

The bungalow is meant to house a family of three generations. By studying various homes having a similar user group it was observed that homes meant for joint families focus on providing ample privacy at the same time augmenting interaction between the members of the family. The first step towards designing of the bungalow was to understand the users, their everyday activities and age group. The planning is done

by considering the user age group and corresponding future requirements of the family. The children in the family are of the age group 5 to 10, hence the planning of the bungalow is kept simple to make wayfinding easy. The grandparents are in their mid-seventies and hence their room has been kept on the ground floor next to the vertical circulation core.

4. THE CONCEPT

The main objective of the design is to symbolize the principles of the family through the architectural features. The visitors enter the house through a single height verandah and into a double height open courtyard with a deepstambh as the significant feature of the space. Courtyard symbolizes a unique aesthetic experience with the embellishments of a water body, frangipani tree, pebble court and a deepstambh. The wooden deck on the lower floor accommodating the God's Premise or the Pooja room along with a water body is a territorial demarcation revealing a spiritual experience. The family being Maratha, a devghar and deepstambh portray traditional Maratha architecture at the entrance. During festivals, a drama is created by water and reflections of the lit-up deepstambh. A slow transition from exterior to interior is achieved by gradually increasing the width of pergolas above the verandah as one approaches the living room. Sun, wind, light, earth are an integral part of the design, hence the family enjoys nature even inside the house. A critical feature of the residence is the double height courtyard and family lounge, situated at the ground floor level. The grandparents' bedroom, the kitchen as well as dining was planned at the same level, indicating that almost the entirety of the ground floor acts as the ideal family space. Four other bedrooms, namely the master bedroom, son's bedroom, daughter's bedroom and guest room are planned at the first-floor level.



Fig. 1. View of the overlooking courtyard and Deepstambh



Fig.2. Ground Floor Plan

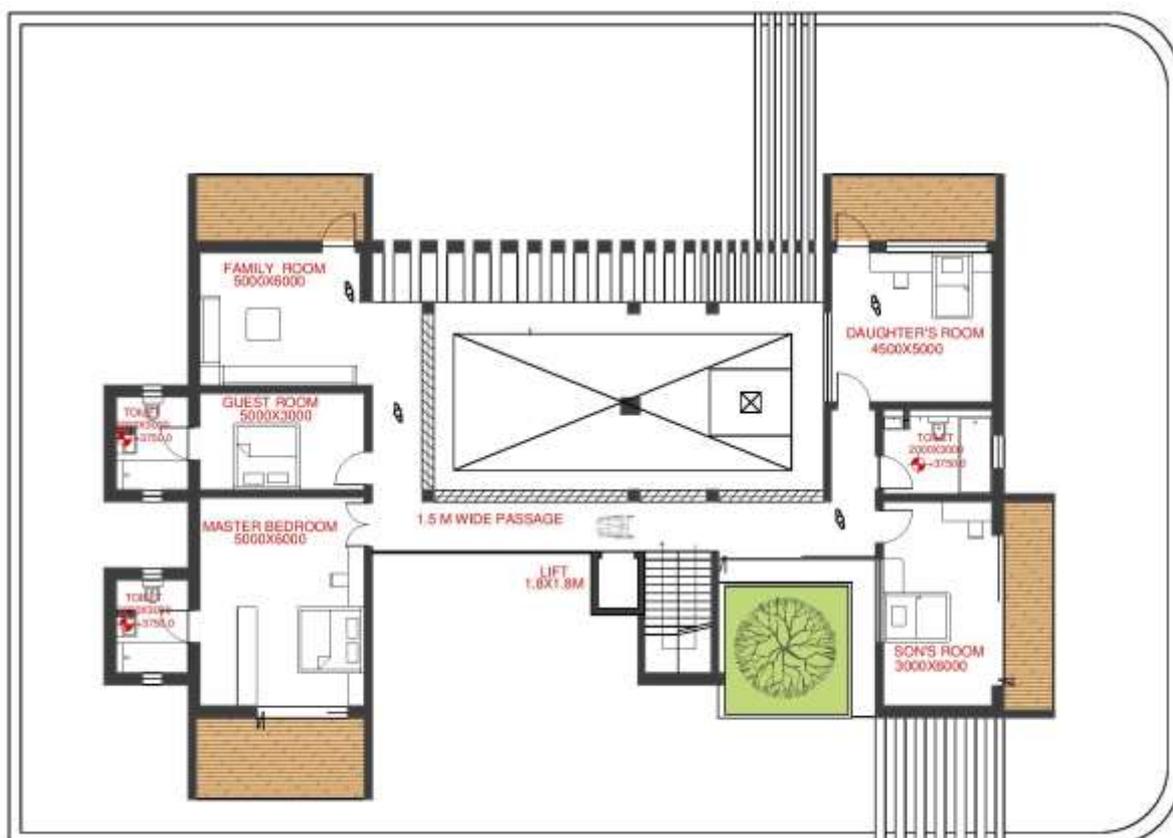


Fig.3. First Floor Plan



5. UNIVERSAL DESIGN FEATURES

5.1 Circulation

The entire bungalow is accessible for all. Ramp accessing the plinth, elevator connecting the ground floor to first floor and terrace have been provided to make the bungalow accessible at all levels.

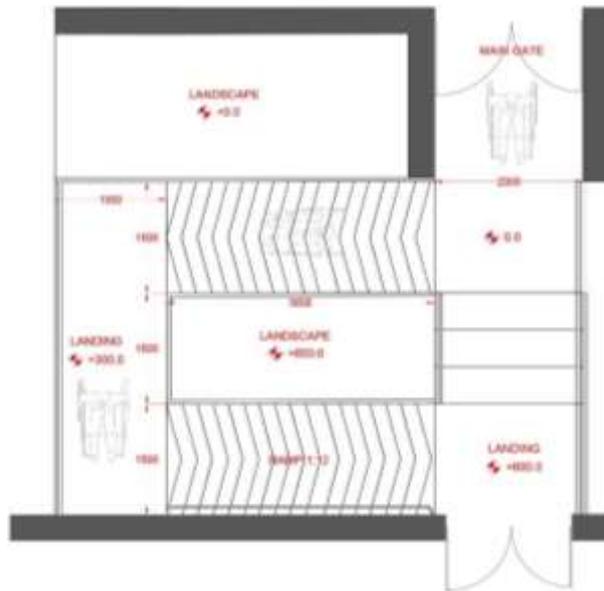


Fig.4. Ramp at Entrance

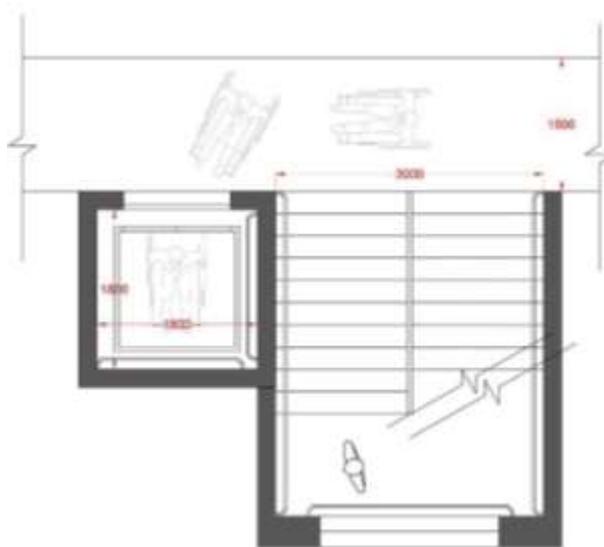


Fig.5. Vertical Circulation Core

A ramp is provided at the entrance with a gradient of 1:20. The width of the ramp is 1.5m and is provided with anti-skid surface, handrails and parapet to prevent users from slipping off the ramp. Two handrails are provided, one at 750mm and the other at 900 mm along the ramp. The clear space between the handrail and wall is 50mm. The steps abutting the ramp are skid-resistant provided with handrails and parapet. The main gate is provided with automated control which is placed at 750mm from the ground level so that it can be easily operated by everyone. The vertical circulation core comprises of a staircase and a house lift. The lift is proposed considering future needs of the grandparents and hence their room is placed near the lift. The lift is an eight passenger Otis lift (1.8m x 1.8m) with a 1200mm door opening. The passage providing access to lift and staircase is 1500mm wide and obstruction free. The staircase is 1500mm wide and is provided with wall and floor mounted railings on either side. The staircase is well-lit by a window located at the landing. All the switch controls for lift, and staircase lights are located at 750mm from the finished floor. All the door in the house have a minimum width of 1.2m to allow comfortable passage of a wheelchair.

5.2 Multi-sensory aspects

Architecture has the ability to serve a deeper function than merely providing shelter. The built environment has been designed keeping in mind the aspects of multisensory perception. As one enters the bungalow, there are various multisensory cues which guide the person. The aroma from the frangipani tree, the splashing of water falling from the spouts, ringing of bells from the puja room together add a multisensory aspect to the courtyard.

5.3 Grandparents' room

The grandparents' room is placed on the ground floor in proximity to the vertical circulation core. The 25 sq.m. room is provided with a separate washroom. The room and toilet doors are 1200mm wide, allowing comfortable passage for a wheelchair. The washroom dimensioning 2.15 x 2.8m is designed by considering the needs of the grandparents.

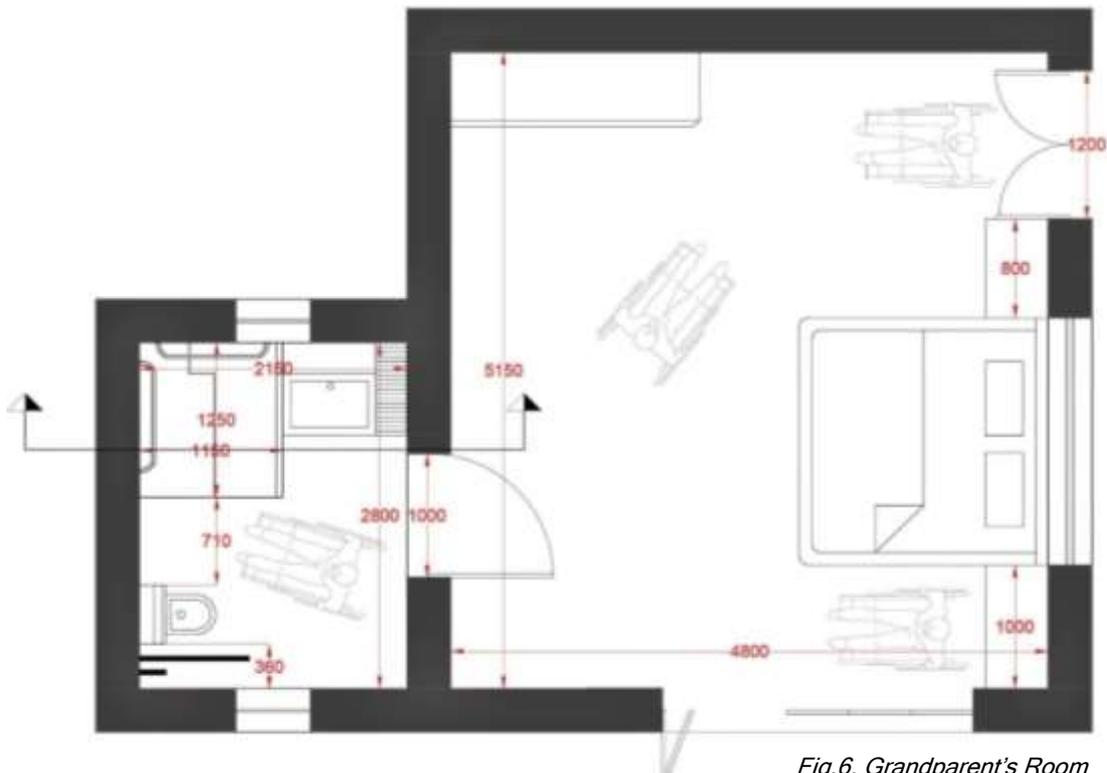


Fig.6. Grandparent's Room



Fig. 7 Section of the toilet

An area with a 600mm turning radius outside the shower is provided. A curbless or low curb (12mm) threshold for wheelchair or walker access, slip-resistant flooring, positioning and strong mounting of grab bars, adjustable height shower head and fixed head, shower controls positioned low enough for easy use when sitting, controls nearer the entrance for assisted operation are the features of the universal washroom. The sink is provided at a height of 750mm and the WC at a height of 450 from the finished floor level. All the floor finishes are antiskid and anti-glare.

6. CONCLUSION

A home is a place where a person is the most comfortable. In today's scenario, residences and apartments are still far from being inclusive. In households, universal design is often considered when the need for it arrives. 'Aangan' is a house which is perceived, planned and designed with a vision of being inclusive which makes it 'An abode for all' in true sense.

02



Evaluating an Inclusive Institute Using Principles of Universal Design

Prachi Mahajan

Prachi Mahajan did her schooling from Springdales School, Dhaulakuan and studied humanities in class 12th. She graduated from Miranda House in Political Science and is currently pursuing M.A. in Urban Policy and Governance from Tata Institute of Social Sciences Mumbai. She aims to work in United Nation in policy making. Her hobbies include singing, reading books, etc.

Universal design interests her because it allows buildings and products to be accessible and usable by everyone, including people with disabilities. Universal design provides one solution that can accommodate people with disabilities as well as the rest of the population. It also gives attention to the needs of older people as well as young, women as well as men. An entrance that is designed to be “universal” will not have stairs at all.

1. INTRODUCTION

The Tata Institute of Social Sciences (TISS) boasts to have one of the few inclusive campuses in the country that has a dedicated centre for the visually impaired. A closer look on the accessibility of the TISS, Mumbai campus however points to infrastructural inadequacy of the campus for truly serving as an inclusive campus. An accessibility audit was carried out for a part of the campus that revealed serious issues that penetrate not just the buildings of TISS, Mumbai but also all buildings that are constructed without taking into consideration the diversity of the population that will occupy those spaces.

The objective of this paper is to bring elements of design to the forefront of the discussion and view the ineptness of structures through the seven principles of Universal Design namely equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort and lastly, size and space for approach and use. The paper ends with a set of recommendations to modify the existing design elements of the campus to increase accessibility along with steps that can be undertaken by any educational institution that host students with visual impairment on their campus. These recommendations include detailed orientation for students with visual impairment, tactile maps of the campus and the placement of signage at various parts on the campus, especially in the buildings where the students are expected to attend lectures.

2. OBSERVATIONS

- According to the first principle of Universal design, the usage and marketability should include people with diverse abilities. Making services available exclusively for Persons with Disabilities may very well qualify as segregation that can lead to further marginalization and stigma. The elements of design that make for situations that unknowingly exacerbate the experience of impairment include limited provision of tactile paths, segregated gates for usage in case of inaccessibility of common entrances, uneven ground and landscaping, expecting security staff to assist students with visual impairment and many such salient features that seem inclusionary on the surface, but lead to dependence which takes these students further away from true empowerment.
- Students with visual impairment are accommodated on campus for ensuring their safety, security and for better accessibility of the resources available on campus. However, due to the limited and makeshift nature of the tactile path provided, accessibility remains dependent on the will of fellow hostellers. The presence of the specially designed Centre for the visually impaired at the Library remains underused due to the inability to fully access places that are not foreseen as frequent spots for the students. While the predictability of the usage of the library is probably as high as the predictability of the usage of the classroom, there are no real provisions available for students to safely walk between the academic building and hostel, which are approximately less than 100 meters apart.
- In case a student is seen alone, the security guards are quick to assist them. While sensitizing security personnel and everyone else on campus is imperative to inclusion, the focus should and must be on enabling students to be independent on campus. An added level of infantilizing seems to take place on campus that can be

emotionally damaging for the student with impairment. The idea of inclusion should not be limited to the network of professors and students who work on disability but must become a part of the daily dialogue that the students and professors have while on and off campus. Advocating for equality and ensuring enough consideration is extended to the needs of people with disabilities drastically improve the accessibility to physical structures.

- The unpredictability of potholes and unevenness of the ground are not easily grasped by students who can't take enough cues on their way to the class every day. The requirement therefore isn't to teach the student how to learn to walk around these potholes and cars but instead bring about change in the environment that would make the campus accessible for all people, including wheelchair users.
- Design must be able to accommodate variation in ability and preferences. Designs that limit choices and preferences are not seen as flexible in usage due to their ineptness to serve all people. The classrooms at the institute have movable desks that make the classrooms flexible on their own but the desks in most classrooms are designed for right-handed persons. Most of the classrooms with a smaller capacity have movable desks and chairs. In the larger halls however, the structure has levels of desks and chairs. The leveled nature of the classroom doesn't allow for any wheelchair access. The size and width of the steps is also not consistent, making the design counter-intuitive (more under principle 3). This takes away flexibility of the structure among other features and the lecture halls thus are exclusively used for conducting lectures that don't require the teacher or the



Fig. 1 Lack of provisions of accessibility in the campus

students to move at all for the duration of the lecture. The seating arrangement being in long rows doesn't allow for any movement once everyone is seated. For instance, to leave the room for any purpose, students have to request everyone seated in the row to move out to make way for movement. This makes the lecture halls rigid in usability.

- The simplicity and intuitiveness of design can facilitate smooth movement for any user regardless of the user's experience, knowledge or language skills. Thus, having predictable structures that any person's ability can adapt to can serve as tools for inclusion. Children, old people with mobility issues and people with disabilities and impairments must be accommodated by the physical structure of the building. Educational institutions often have bulletin boards and blackboards that are made in a manner that provides for flexibility in usage. Similarly, trash cans that are placed in the corridors are also not permanently in the same spot, often resulting in causing obstruction in the path. The designated parking spots on the side of the road are again temporary and become physical barriers for persons who use spatial clues to map their movement in the campus. This causes spatial difficulty for persons who have vision impairment as the predictability of the path is compromised. While the flexibility of these objects might be an advantage of the original design of the object, the actual usage and placement of these objects often causes unnecessary complexity in the overall environment of the campus.
- The lack of signage and cues on campus are another reason for an uncomfortable user experience. There seems to be an expectation that only a limited range of linguistic abilities have to be accommodated on campus. Along with an overall lack of information about where the classrooms are located in comparison to the building, there are also no pictorial or tactile clues provided with any of the existing signs.
- The fifth principle, tolerance for error ensures that designs are able to accommodate any errors or adverse consequences of unintended accidents. The unevenness of the ground works against this principle. It makes the design counter-intuitive and is also unable to keep the users safe. The same is true for the number of sharp turns in the corridors and narrow doors of the bathrooms. The bathrooms next to the canteen are again segregated on the basis of gender and no tactile indication of the same has been provided. There are also open balconies on every floor that are often used for sitting by students which can prove to be extremely dangerous in case of an accident. Moreover, there are no warnings that are issued for the correct usage of these ledges.
- The sixth principle of universal design deals with the effort put into usage. The comfort and efficiency with which a design can be used is a strong determinant of its universality. The campus is accessible by a wheelchair but not all doors and entrances are made keeping this in mind and additionally, this leads to longer paths to access lifts and rooms.
- The seventh principle of universal design, i.e. size and space for approach and use has also been compromised in some areas of the institute for instance in the large lecture halls that have long rows of benches and tables, the height at which the knobs to door are created and the width of certain bathroom doors. The overall lack of awareness of how leaving furniture in an unorganized manner or spilling garbage

can also act as a barrier that needs to be addressed to make the institute truly accessible.

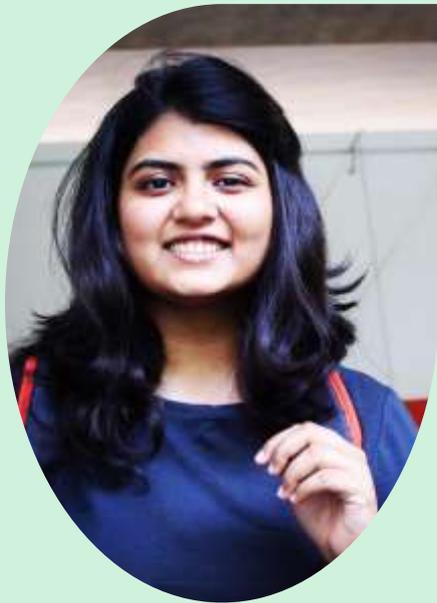
3. RECOMMENDATIONS

- The first recommendation based on personal experiences is to provide tactile maps of the institute to all students with vision impairment. Additionally, placing maps at frequented spots like the convention center, canteen, dining hall and other places in the campus can reduce the possibility of people losing their way on campus. These maps must be made in a manner that is as self-explanatory as possible and must include pictorial and Braille clues.
- The second recommendation is to make orientation of the campus a necessary step when inducting students for a new batch. It's important for the students, teachers and staff to feel that all parts of the campus are open and accessible for them and that they are not limited by their (dis)ability or knowledge.
- The third recommendation is for the campus to have more slopes and smoother (not slippery) surfaces for wheelchair access. While most areas within the buildings have this facility, the number of uneven surfaces, potholes and the change in levels of the footpaths must be looked into as essentially flaws in planning.
- The fourth recommendation is for the campus to start a conversation on disability and being accommodative of it on campus with not just students who study theory but with everyone on campus including workers, staff, students and faculty.

4. CONCLUSION

In this paper we evaluate the accessibility and inclusivity of an institute recognised as "Inclusive" by the masses. Through universal design principles, it points out the various lack of infrastructural elements, that make persons with disabilities at the campus dependent on others. Further a set of recommendations and provisions to make the campus more inclusive and accessible for persons with disabilities are listed. To conclude the idea is that, a place should be designed not just to accommodate but to encourage the broadest spectrum of people and abilities to achieve their highest potential. It is not just about acquiring accessibility through rules and regulations, but making it part of a philosophical approach to live in. I do not believe that "one size fits all" and we are abled differently.

03



“**IMAAN**”- The Sufi Centre - A Place of Faith for All

Radhika Dhekne

Guided By - Prof. Kavita Murugkar

Radhika Dhekne is a final year student at Dr. B. N. College of Architecture, Pune and is sensitive in her approach towards design. She has been a key team member in all the initiatives, research activities carried out by DesignBridge Foundation, Pune for promotion of Universal Accessibility in the built environment. Her research on 'Usability of a Tactile Path for the Blind' was selected as one of the best in the Inter-university State Level Research Competition - *Avishkar* in Maharashtra, India. She uses her creativity not just in the form of design, but also in the chemistry of words - poetry. She believes in the potential of Universal Design as an equaliser and that "Design for All", an inclusive design ideology should be the underlying concept of every creation and not just an after thought / quick fix solution.



Fatehpur Sikri, Uttar Pradesh

Built Up-1000 sq.m

1. INTRODUCTION

Sufism is understood as an inner, mystical, or psycho-spiritual dimension of Islam. Sufism has over 1000 years of history as it is a transmission of divine light from the teacher's heart to that of the student. Fatehpur Sikri, the hometown of legendary Sufi Saint - Salim Chisti has the roots of Sufism embedded in the soil and heart of the place. Due to globalization, this "act of practice" is losing its being. To revive this important culture and bring it to its glorious times, a Sufi Centre is being proposed close to the Fatehpur Sikri palace complex. The underlying principle of Sufism is "Universal Brotherhood and togetherness" where one helps the other unconditionally. The design of the Sufi Centre takes inspiration from this philosophy and attempts to reflect it in all the architectural aspects from overall planning to details. The place being a learning space, teaching space, praying space and a whirling space, will be visited from all over the country, by all age groups from the rich to the poor, from the able bodied to the disabled and from children to the elderly and hence should be accessible to all irrespective of age, abilities, disabilities, gender, caste and any differences, to bring in the faith, unite the energies and spread awareness of "Sufism".



Fig. 1 3D Model of the Sufi Centre

2. UNIVERSAL DESIGN

Universal design is the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible of users. Any environment, especially public spaces should be designed to meet the needs of all the people who wish to use it. This requirement is not a new / special requirement but a fundamental right and approach in designing any space. By designing for the highest possible spectrum of people, the efforts required for anyone using the space reduces,

making the experience a more pleasurable and memorable one. (National Disability Authority, 2012)

The 7 principles of Universal Design were formulated in North Carolina State University under the leadership of Ar. Ronald Mace, a pioneer in Universal Design and the first one to coin the term. As a continuation to this study and principles, NID formulated 5 Universal Design Indian principles led by the head of Jamshedji Tata Universal Design Research Chair, Dr. Abir Mullick and a team of 9 professionals working in this niche of Universal Design and accessibility in the year 2011. These 5 principles are explicitly followed and seen in this Sufi centre:

1. Samaan / Equitable: All the spaces in the centre have dignified access to the largest spectrum of people. There is no segregation of users to make the spaces accessible making it *"SAMAAAN"*
2. Sahaj / Usable: All the spaces in the centre are usable without any "special" provisions making it *"SAHAJ"*
3. Sanskritik / Cultural: The accessibility features blend in well with the culture of Sufism as a part and parcel of the space and not as a stick-on to the structure making it *"SANSKRITIK"*
4. Sasta / Economic: The materials used in the structure are locally available materials, bringing in the essence of the Fatehpur Sikri and the rich history it carries making it *"SASTA"*
5. Sundar / Aesthetic: The design elements such as ramp following a feature wall, the intricate Jali wall, water bodies along the main hall and the prayer hall creating an aesthetical and spiritually elevating experience making it *"SUNDAR"*

3. MULTISENSORIAL JOURNEY THROUGH *"/MAAN"*

The Sufi Centre hosts a spectrum of activities, from Sufi Whirling, Dhikr (remembrance of the Almighty), Muraqaba (meditation), Singing, Learning, Sensitization & Awareness of the local culture. The experience that follows in this multi-faceted space enhances all the senses of a being. The chemistry of light and shadows which is created by the Jali in the cardinal directions to the main hall, the foreground of water to the Qibla wall, the learning spaces around the water body, the aromas that the centre offers while remembering the Almighty, the intense Sufi singing and Sufi whirling bringing about movement in the space, the prayer and meditation that calms the mind and space makes the space multi-sensorial and experiential. This multisensorial space can be experienced by all including people with disabilities without any environmental barriers and discrimination through architecture and the built environment.

The divine journey starts with a gentle slope along with open exhibition wall, showcasing the journey of Sufism right from the inception of Islam to the current day practice. The staggered wall with landings for viewing and touching, having Braille, tactile and audio gallery is accessible to ALL. One gets a few glimpses of the Sufi Centre from the Jali Walls next to the feature wall. Following the tactile, visual and auditory experience, one follows his path into the audio-visual room having accessibility features like the induction-loop system for the people with hearing impairment, to understand and interpret knowledge about Sufism easily.

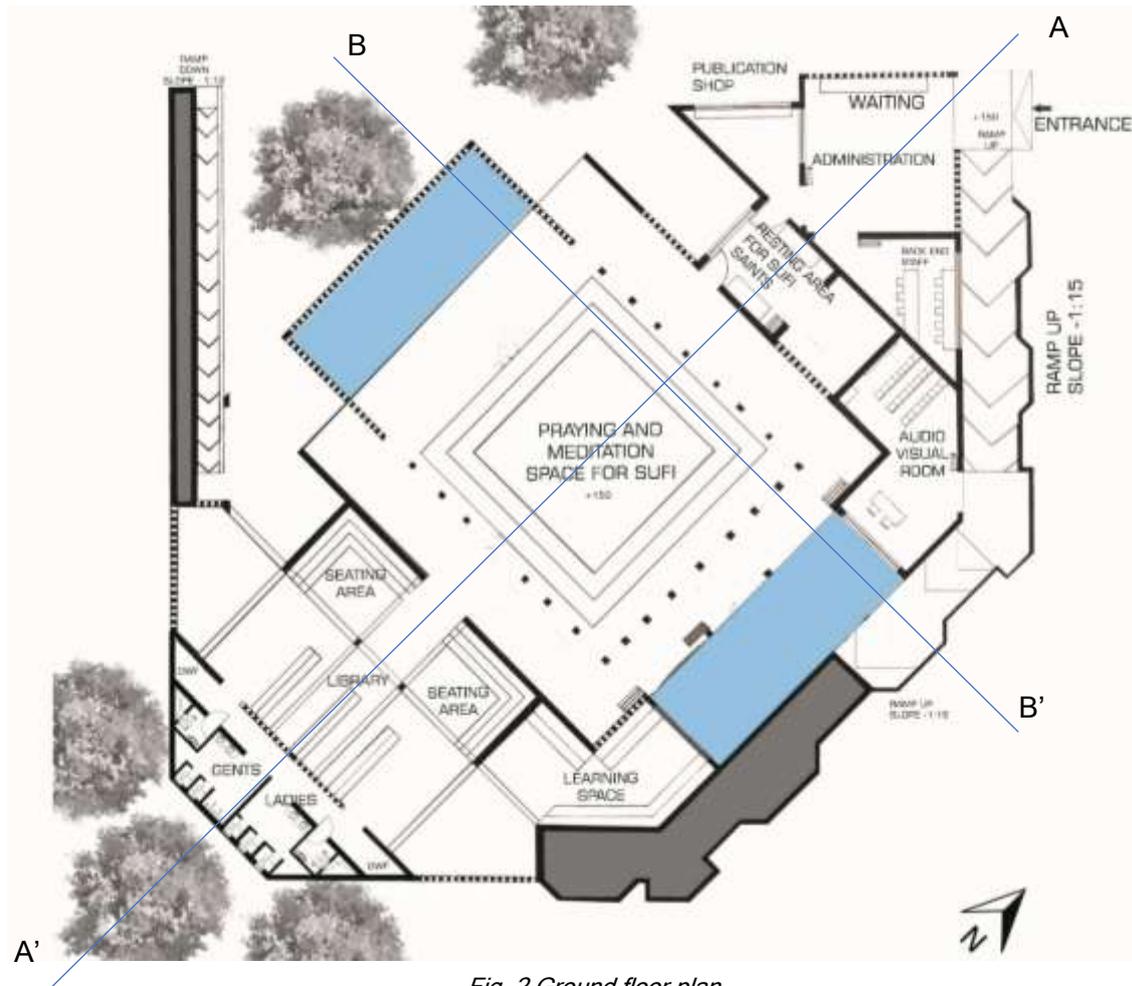


Fig. 2 Ground floor plan

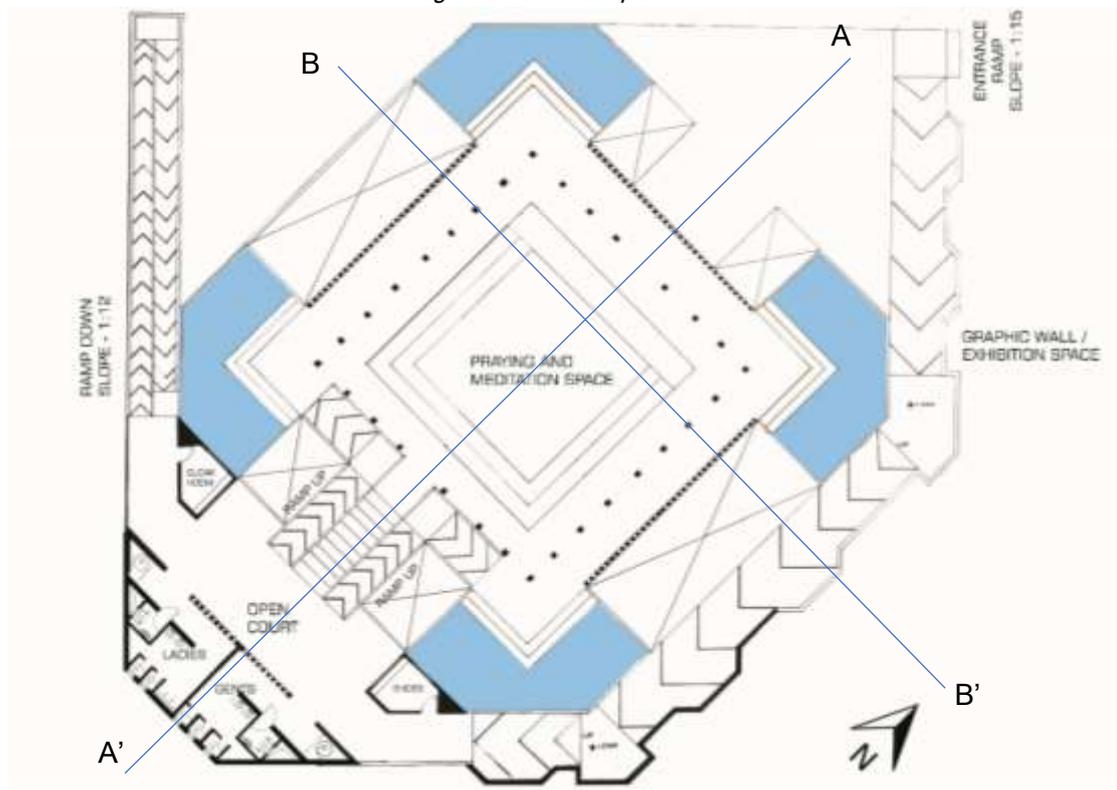


Fig. 3 First floor plan

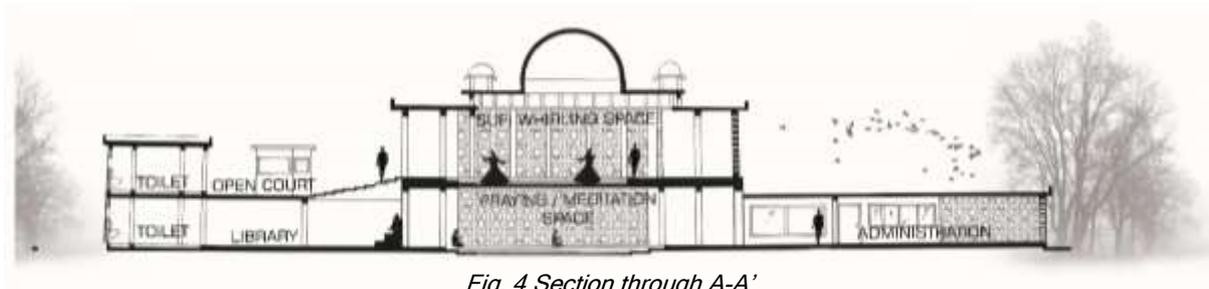


Fig. 4 Section through A-A'



Fig. 5 Section through B-B'

Continuing the spiritual journey into the Sufi Centre, one lands up to the main hall where the primary activity is Sufi Whirling and Singing. The facility of the toilet is located close to this central space for easy accessibility. Each of the toilet blocks hold an accessible toilet / family toilet. An accessible drinking water facility is provided close to it. In the Sufi Whirling space, one gets visual as well as auditory cues of the primary activity in the space. Due to the particular pattern of the whirling one also experiences, sense of motion and vibrancy in the surrounding. The sense of touch is enhanced with the help of 4 water bodies at the corners of this space. Sufism believes in the 5 major elements of nature (earth, water, fire, space & void) and worships Nature as its God. The space is partially enclosed with a stone Jali pattern giving way to filtered light and breeze from the South West Side - the windward side. This filtered light gives a sensation of openness as well as enclosure at the same time.



Fig.6 Glimpses of the structure from the feature wall

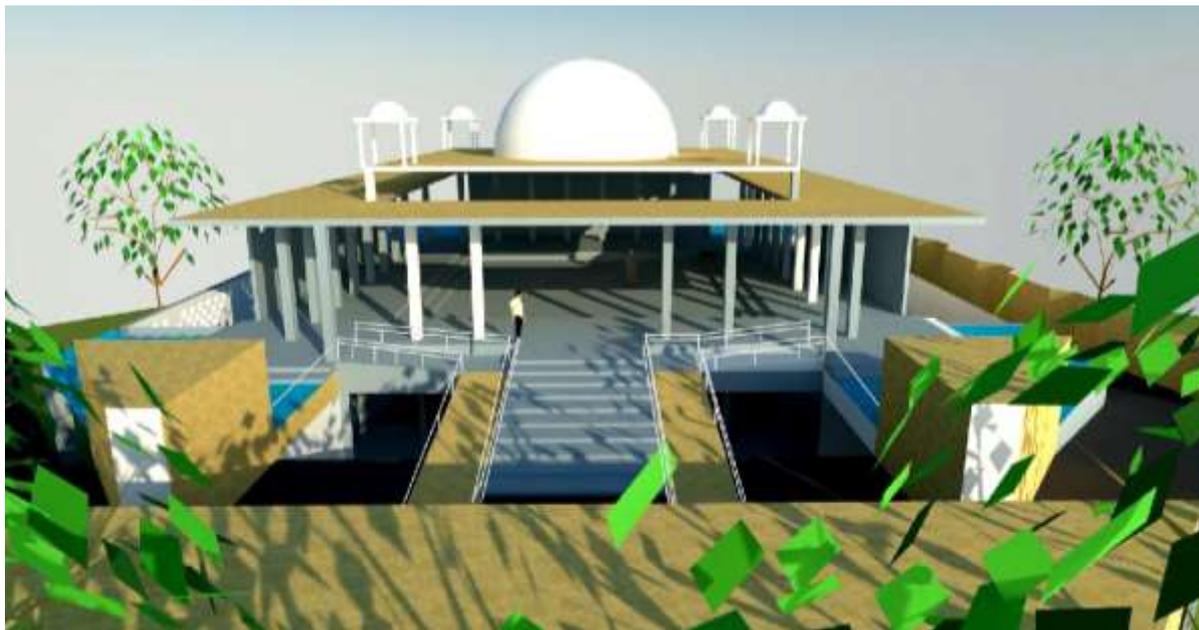


Fig. 7 View of the Sufi Centre

Moving on with the journey, one takes a ramp overlooking the Qibla wall (the wall of worship) to the West and a water body behind it giving it an ambient foreground during worship. The ramp leads the user to the Library space where there is learning and sharing of knowledge and ideologies. This area allows Sufi Saints from different orders from all over the country. The library is equipped with various books on Sufism for scholars, researchers and for enthusiasts who always have the will to keep learning. Moving to a more sacred space, one enters the praying space. Praying being the primary activity here, one can see people meditating at hours apart from prayer hours together with the principle of Sufism, universal brotherhood. After the calm and meditative experience, one comes into the souvenir / publication shop where he/she bids adieu to the space hoping for the “next time” to come soon and experience the space again, with a new perspective and view all over again.



Fig. 8 View of Qibla wall



Fig. 9 View of Meditation and Prayer Hall

4. UNIVERSAL DESIGN CONSIDERATIONS

The entire centre is accessible for all. The following considerations make the space usable to all users.

RAMP: An entrance ramp leads to the administration and further till the first level of the Main hall. The ramp has a slope of gradient 1:15 which showcases the exhibition space allowing easy movement without realizing that one is walking on a ramp. However, handrails are given on the sides of the ramp at two heights, 750mm and 900mm which gives flexibility of use.

AUDIO-VISUAL ROOM: The audio-visual room gives a chance to the people with visual impairment as well as people with hearing impairment to understand and interpret the knowledge shared.

TOILETS: The toilets on both the floors have an accessible toilet included within it and there is no discrimination with respect to the access and approach to the toilet.

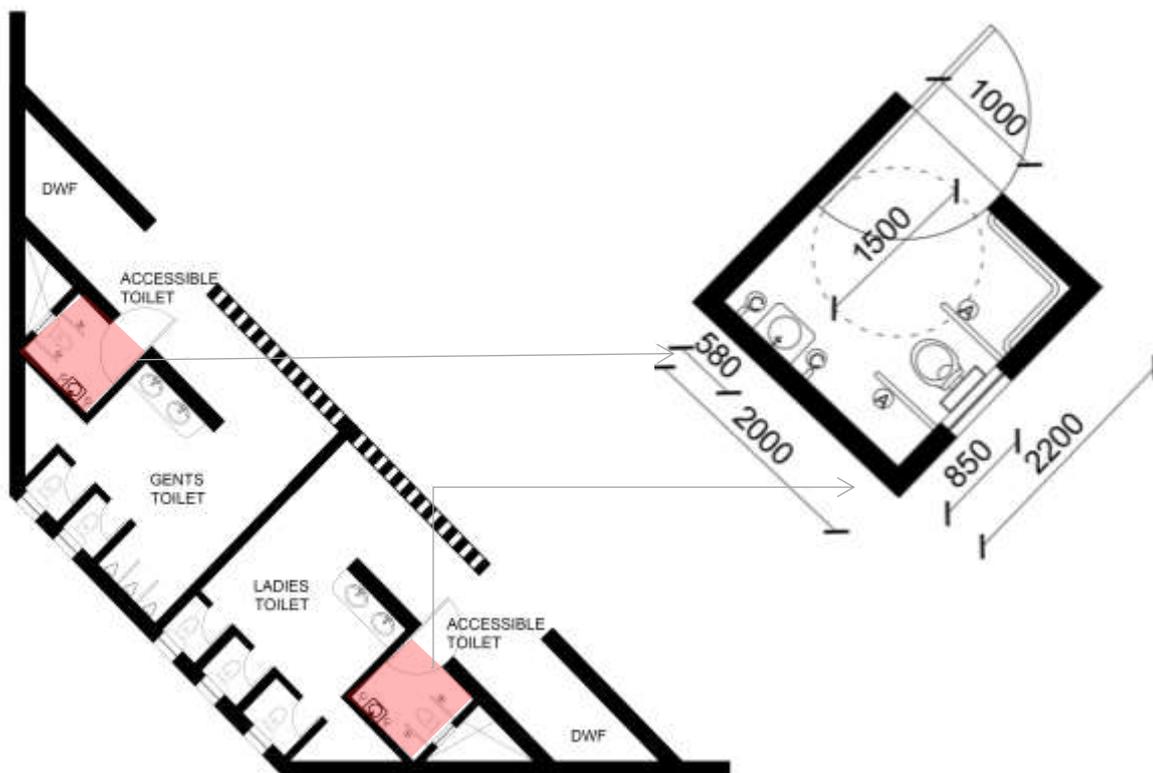


Fig. 10 Accessible Toilet

DRINKING WATER FOUNTAIN: An accessible drinking water fountain is provided near the toilet which has its basins at two heights to cater to the children, wheelchair users as well as adults.

5. CONCLUSION

“*MAAN* - A PLACE OF FAITH FOR ALL” which offers accessibility to ALL in the locality, brings people together, builds a community life in Fatehpur Sikri, revives the connection of their past roots of the Chisti order and creates a homely space for the people living around the centre. The backdrop of the Buland Darwaza at a distance

makes people aware of the rich and deep history their land and place are a part of. The Sufi Centre will be an addition to the historic identity of Fatehpur Sikri and bring the glorious days of Sufism back to the hometown of Saint Salim Chisti.

REFERENCE

- *(Dr. Alan Godlas, 2005, Sufism's Many Paths, University of Georgia USA)*
- *(National Disability Authority, 2012, <http://universaldesign.ie>, USA)*



04



School as an Ecosystem for Inclusive Learning

Jui Atre

Guided By - Prof. Kavita Murugkar

Ar. Jui Atre is an alumna of Dr. B.N. College of Architecture, Pune. She graduated in the year 2016. Since then she has been working on various Accessibility Projects for the Accessible India Campaign, under Ar. Kavita Murugkar who has been her mentor since her college days. She believes 'A little sensitivity towards design in the beginning makes a huge impact in the end'. Additionally every design should be the culmination of a thought, a thought that encompasses the needs of all individuals around us. Hence 'designing for all', is an opportunity to tailor a project to human diversity.



1. ABSTRACT

As the title suggests, the paper puts forth a Model of a School that aims at providing an environment for facilitating primary and secondary education for all children irrespective of their abilities and disabilities. A school in which children with and without disabilities share the space and learn together is the central idea of the project.

2. INTRODUCTION

India is an important educational centre in the global education industry. It has more than 1.4 million schools and more than 35,000 higher education institutes. This shows that we are becoming literate, but are we really becoming educated is the question. We are not as sensitive towards persons with disabilities as we should be. They are considered as a different section of the society and hence face many difficulties while obtaining education.

Currently, 2.1% of India's population is disabled. The national policy on education, states in its fourth part that 'the objective should be to integrate physically and mentally handicapped with the general community as equal partners, to prepare them for normal growth and enable them to face life with courage and confidence.' Similarly, according to chapter five of persons with disabilities act (1995), the removal of architectural barriers from schools, colleges and other institutions imparting vocational and professional training must be ensured.

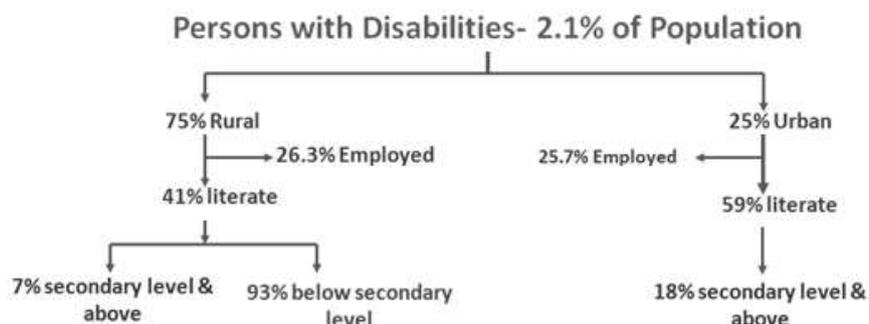


Fig. 1 Statistics of persons with disability in India

However, we still do not see any of this being implemented around us, hence many children with disabilities cannot even access the school and hence are deprived of education. Moreover, if a child with intellectual disabilities is admitted into a school, he/she finds it very difficult to cope up with his/her fellow classmates due to lack of teaching and learning aids. The child then becomes depressed, his/her confidence is shaken and may also lose interest in learning. Such children become isolated from the rest of the society.

In order to overcome this gap, 'inclusion' right from school is the answer. A school which caters to the needs of all kinds of children and puts them together right from the beginning, will automatically create a feeling of unity among the upcoming generation. It will strengthen the confidence of children with disabilities and build them a strong foundation. In order to cater to the needs of all kinds of students, the system of the school must work accordingly. Hence, the school will have 4 main blocks, namely the education block, vocational centre, therapy centre and research centre.

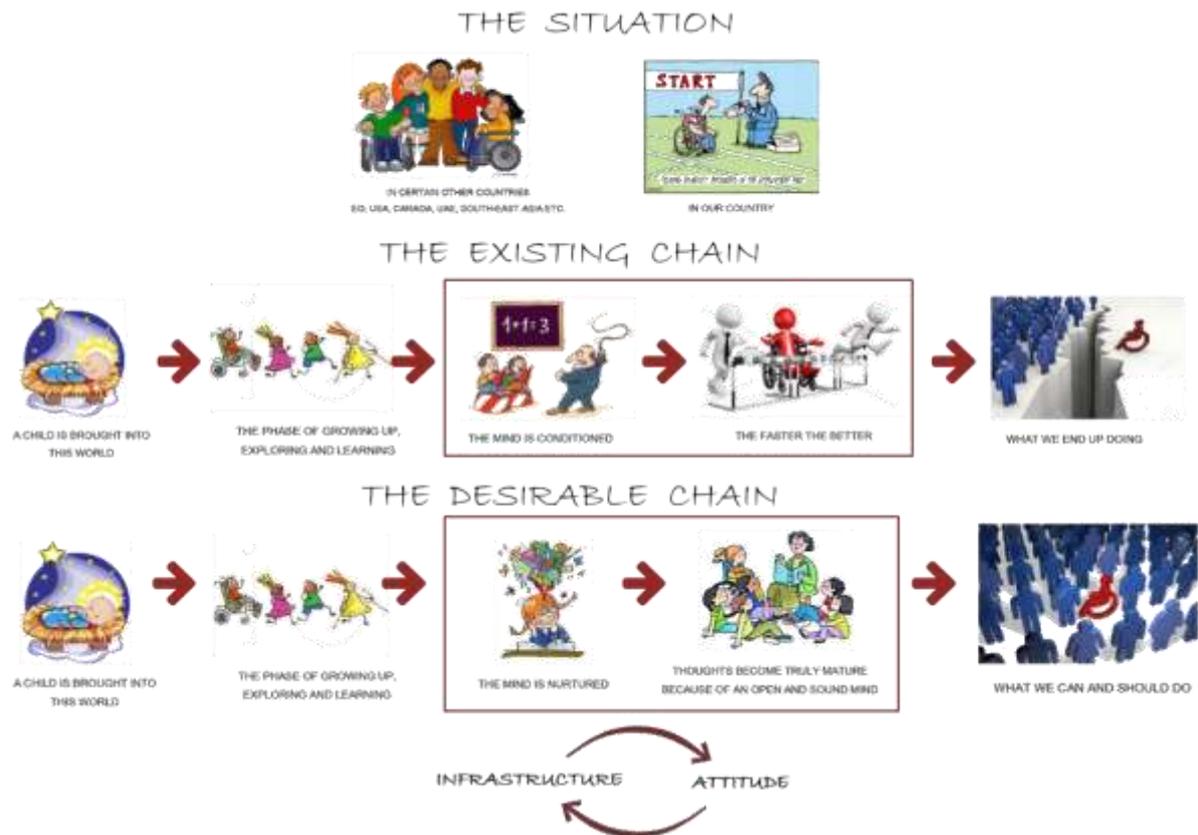


Fig. 2 Evolution of Topic

3. DESIGN PROCESS

The first stage of the design process began by laying down basic design principles. The following 7 principles of universal design formed the essence of the design project:

1. Equitable use: the design does not disadvantage or stigmatize any group of users.
2. Flexibility in use: the design accommodates a wide range of individual preferences and abilities.
3. Simple, intuitive use: use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
4. Perceptible information: the design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
5. Tolerance for error: the design minimizes hazards and the adverse consequences of accidental or unintended actions.
6. Low physical effort: the design can be used efficiently and comfortably, and with a minimum of fatigue.
7. Size and space for approach & use: appropriate size and space is provided for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility.

PRINCIPLE	DESCRIPTION	GUIDELINES
Equitable/ samaan	The design is fair and non-discriminating to diverse users in indian context	<ul style="list-style-type: none"> -Avoid prejudices against people of all age, gender, disability, size, caste, class and religion. -Consider different capabilities of users and build in many levels of engagement. -Provide choices in access and use through flexibility and customization. -Allow personalization through inclusion of adjustable and adaptable options. -Provide equality in challenge, opportunity and energy requirement.
Usable/ sahaj	The design is operable by all users in indian context	<ul style="list-style-type: none"> -Provide clarity in use, operation and maintenance to minimize instruction and avoid confusion and error. -Adopt simple means to overcome complex operation. -Follow cultural norms to address user expectations. -Offer multi-sensory feedback to point in the right direction. -Build in intuitive operation and innate understanding of problem. -Allow easy adaptation to facilitate use by people with diverse abilities. -Prevent costly mistakes and untended consequence from misuse.
Cultural / sanskritik	The design respects the cultural past and the changing present to assist all users in indian context	<ul style="list-style-type: none"> -For all castes and society levels. -Respond to local context and conditions. -Employ appropriate technology to match user expectations.
Economic/ sasta	The design respects affordability and cost considerations for diverse users in indian context	<ul style="list-style-type: none"> -Ensure affordability, durability and maintainability. -Use local materials for energy savings and cost effectiveness. -Focus on low unit cost through wide distribution. -Adopt modular approach to offer choice in features and price range.
Aesthetic/ sundar	The design employs aesthetics to promote social integration among users in indian context	<ul style="list-style-type: none"> -Employ aesthetics to enhance universal appeal and use. -Allow personalizing aesthetics through flexibility, adaptability and modularity of colour, form, texture and interaction. -Employ appearance to inform use and safety. -Bridge wide range of meaning and comprehension gaps.

Fig. 3 Universal Design Indian Principles

4. SITE SELECTION

Points considered while choosing the site:

- Location: it has to be situated within the city and not on the outskirts. Preferably in Kothrud, Karve Nagar, Erandwane, Fergusson College road area because such an institute is not present in this part of Pune.
- A hospital should be located nearby.
- Special features of the site will not be a priority because the necessary ones can be created by the architect.

5. FORMULATION OF THE BRIEF AND AREA PROGRAMME

The vision in mind while formulating the brief was to create a design model of a school where not only academic development of a child was the aim, but overall growth would be at the forefront and hence the design consists of the following blocks:

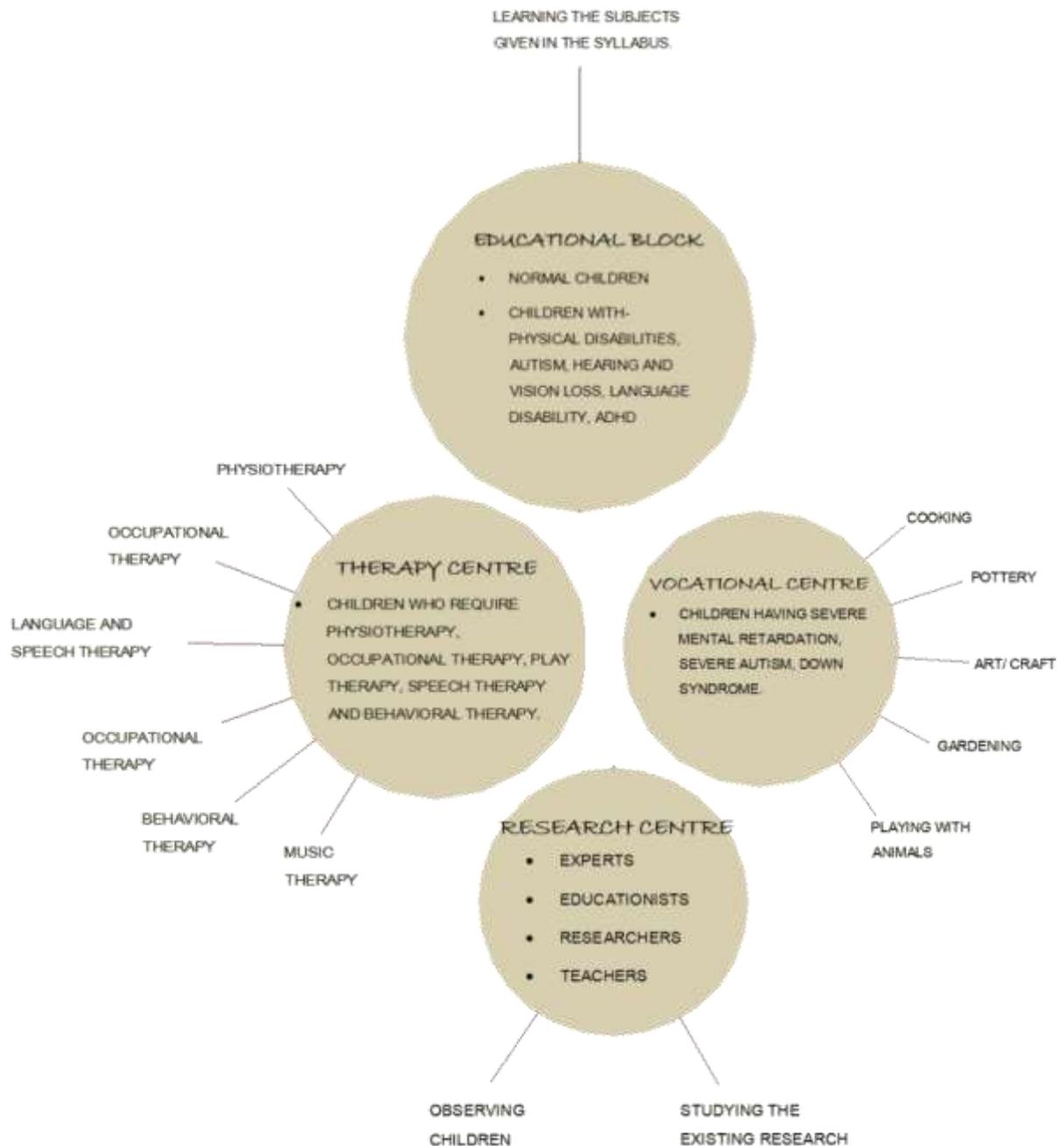


Fig. 4 Division of Spaces

6. PLANNING

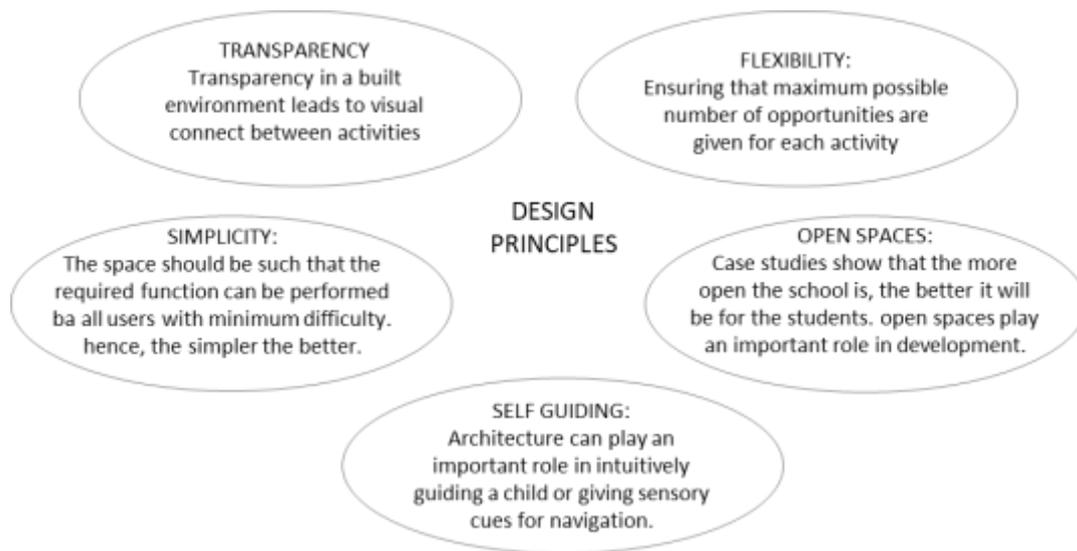


Fig. 5 Design Principles

In case of this particular design project, the Educational Block and Therapy Centre are considered to be those of critical activities as each has a specific purpose namely, imparting education and imparting medical therapy respectively. Planning has been evolved according to the nature of activities that would occur in each block. Thus, these two blocks must have specific modes of functioning thus requiring an array of public to private spaces of their own. The overlapping activities between these two blocks have collectively incorporated in the Vocational Centre, and accordingly the vocational block has been placed in such a way that it is easily accessible from both.

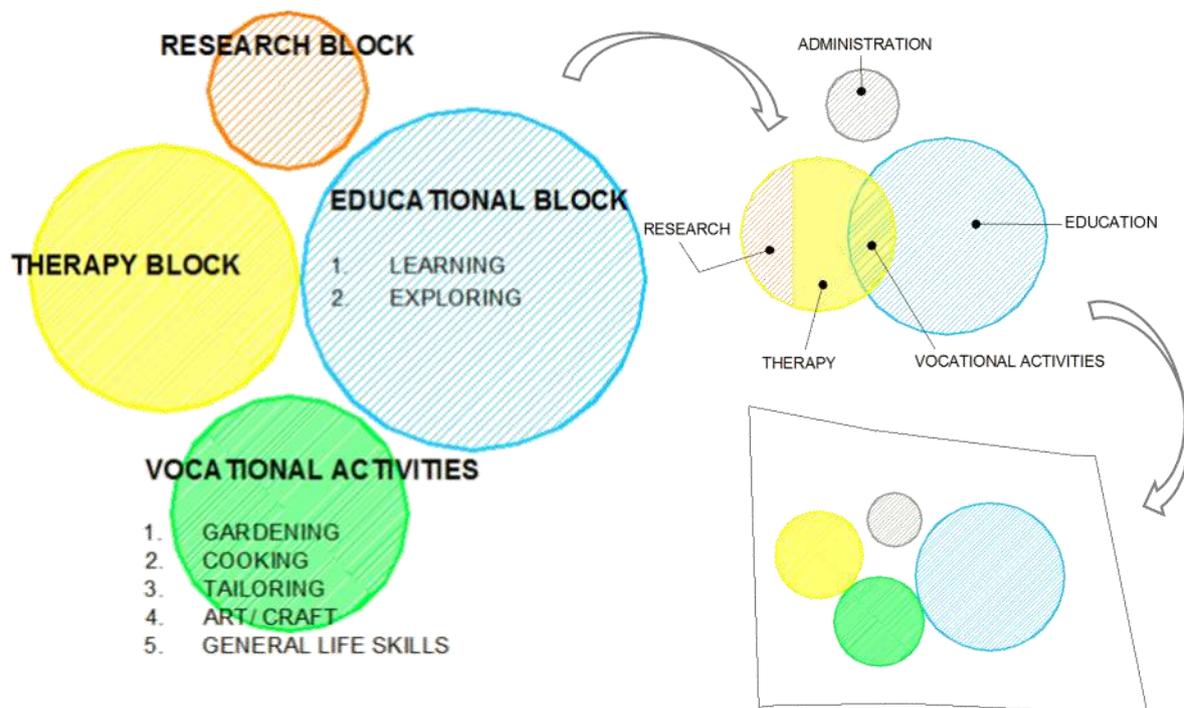


Fig. 6 Site Zoning

7. DESIGN PROPOSAL

7.1 THE CLASSROOM

The classroom is a space which is mainly used for teaching languages and mathematics. The main aim behind learning languages is being able to speak that language fluently and expressing oneself to the fullest potential. Thus, the classroom environment aims at giving many opportunities to express oneself. Opportunities go hand in hand with flexibility. Hence, the layout of the classroom has been made flexible by trying to provide audio visual modes of presentation, opportunities to enact or demonstrate anything, large white/ magnet boards on walls and flexible seating layout.

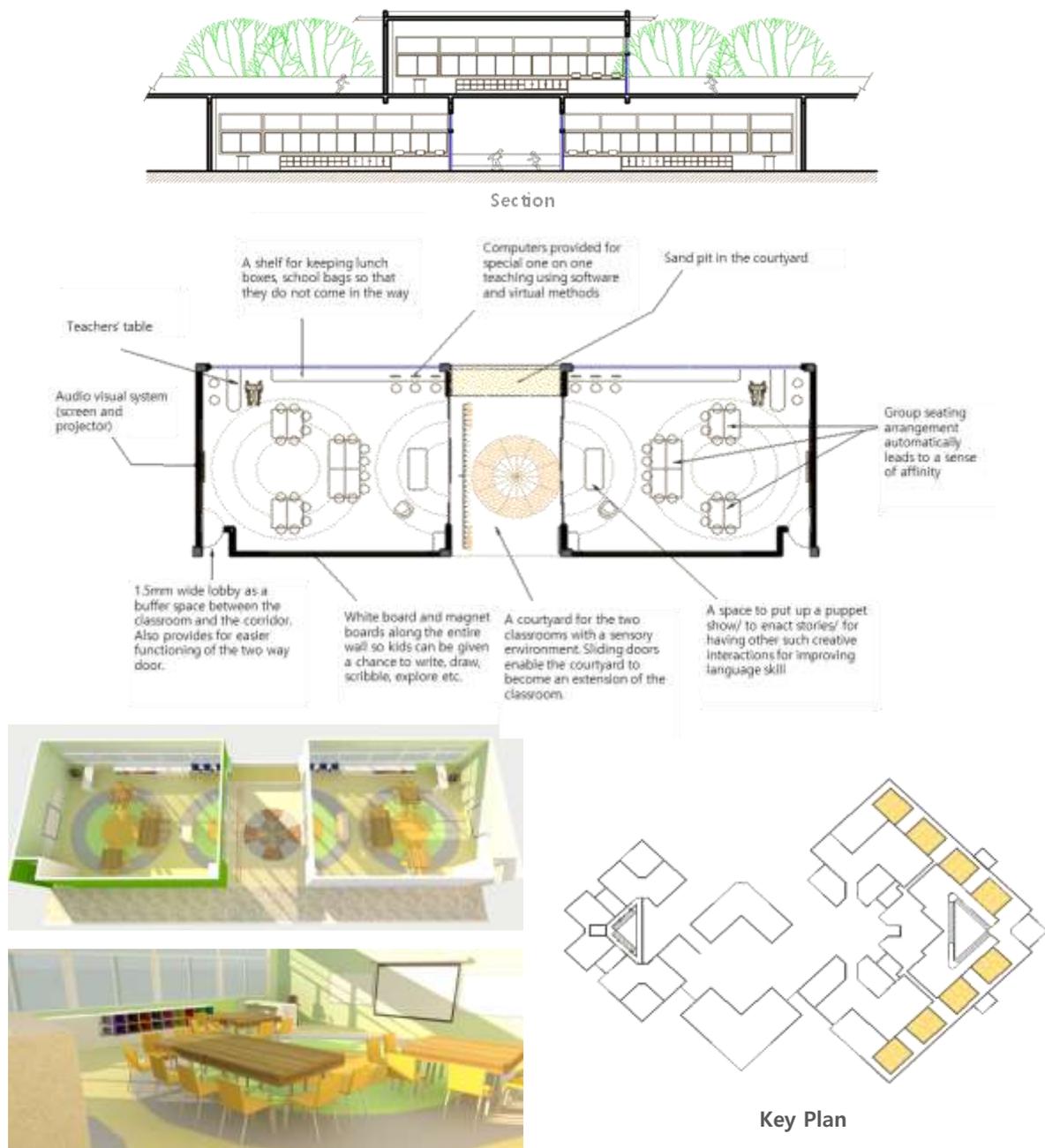
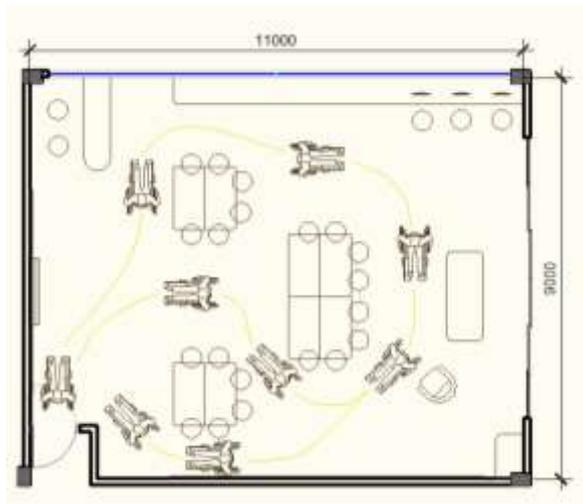


Fig. 8 Classroom Details



Wheelchair Movement Plan



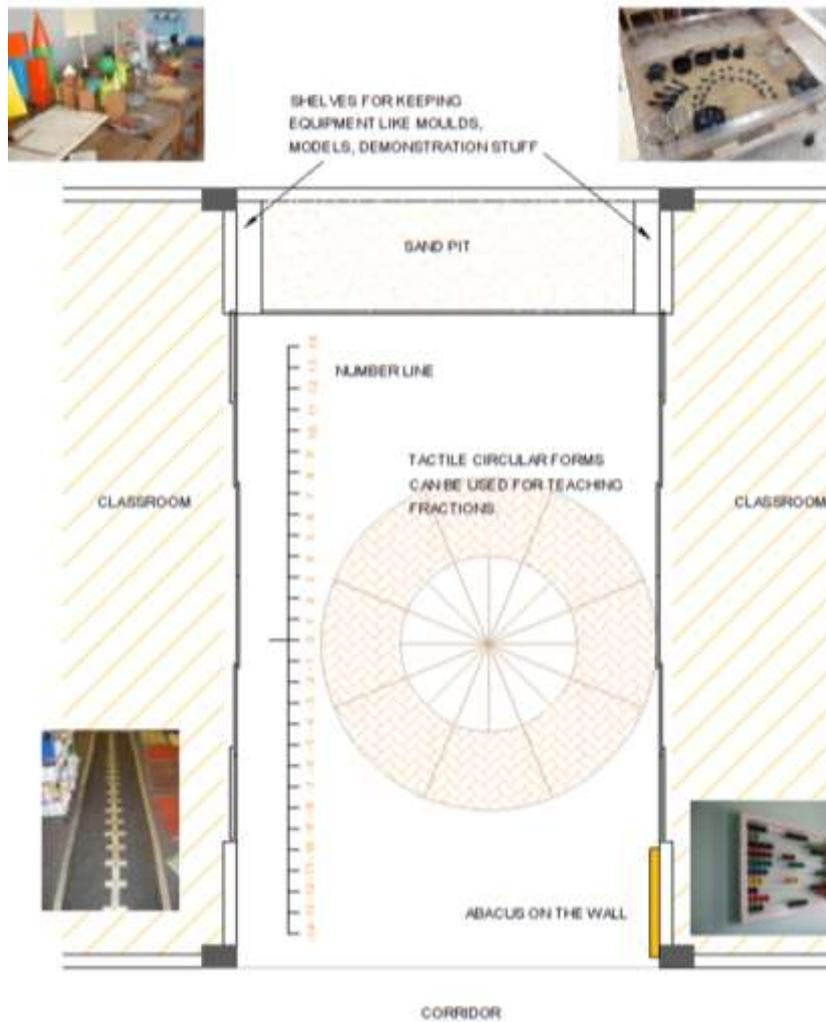
Audio Visual Learning Techniques



White Boards for Kids



Group Seating Arrangements



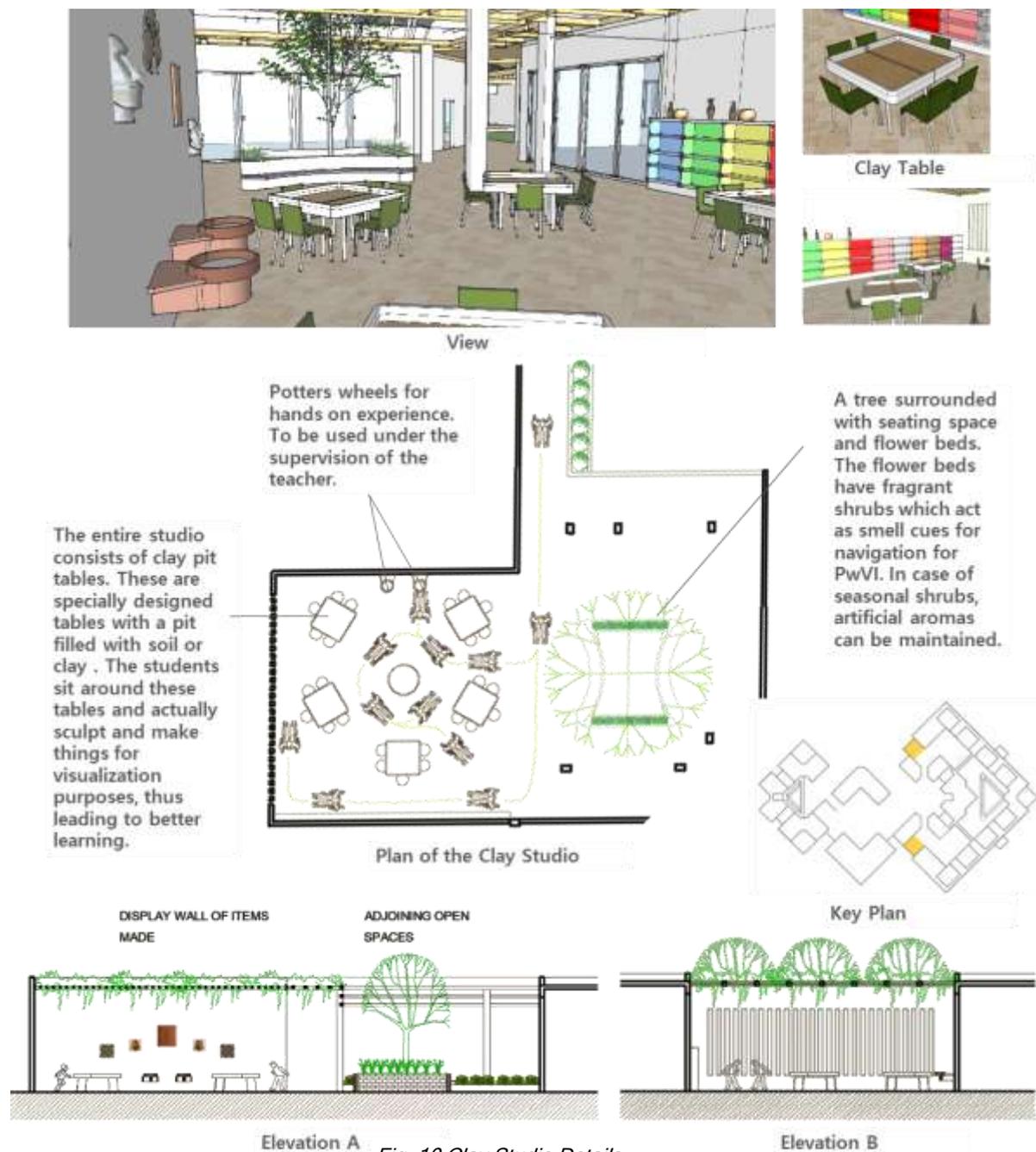
Example of the courtyard of a 3rd grade classroom based on the curriculum

Fig. 9 Courtyard between Two Classrooms

7.2 THE CLAY STUDIO

The clay studio is a unique part of the school. It provides opportunities for hands on learning. The main idea of this space is to minimize the use of textbooks and notebooks for learning and providing opportunities to teach through demonstrations and learn using one's own hands.

Clay and soil are very versatile materials. They can be moulded into various shapes and most importantly, they are 'fun'. This technique can be used for teaching almost any topic. For example, if the teacher wants to teach the structure of an atom, she can take the students to the clay studio, mould the clay into the shape of an atom and get it done from the children as well. This way, it is easier to visualize and easier to remember as it is done using hands.



7.3 THE GEOGRAPHY STUDIO

The geography studio tries to make geography interesting by providing various opportunities for inclusive learning. Tactile wall murals which show basic concepts like the solar system, the layers of the atmosphere, the layers of the earth, soil etc., are part of the studio.

Geography is a subject involving a lot of visualization of maps. Hence a tactile world map is provided on the floor. This will help kids co-relate whatever is being taught by the teacher right there on the map and map work can be taught innovatively using chalk to draw on the map, strings to join two places etc.

Apart from this, the geography studio also consists of a clay table which would be used by the teacher to demonstrate formation of landforms, glaciers etc. The students can then try to make those landforms themselves using clay.

An arrangement for audio-visual presentations is also made. Furthermore, certain important specimens like examples of types of rocks or models will be kept in the display area.



Fig. 11 Geography Studio Details

7.4 TOILETS

An accessible toilet cubical has been provided in each toilet in the school and in the therapy centre. Each accessible toilet cubicle has a size of 2200mm x 2000mm with a set of grab bars as shown in the figure below.

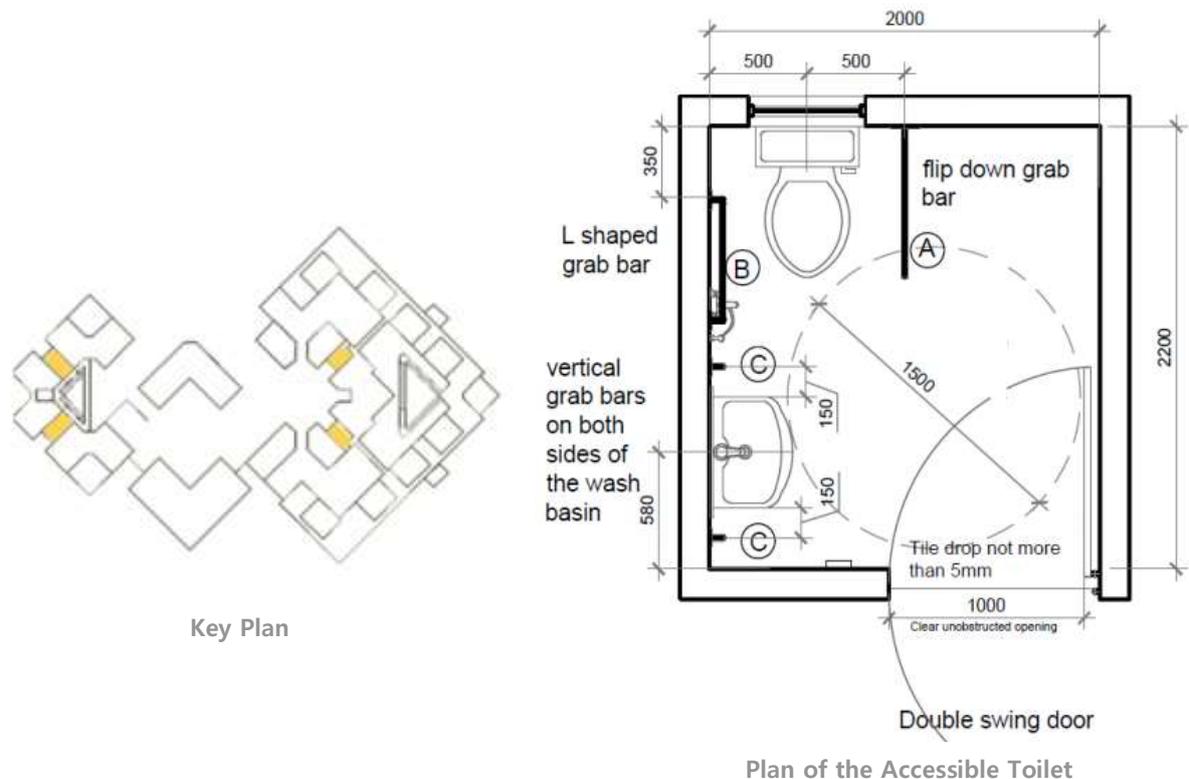


Fig. 12 Toilet Details

7.5 SENSORY CUES

Easy navigation is a prominent factor governing the usability of a built environment. In order to facilitate easy navigation and a sense of orientation, the entire campus has been tied up in with sensory cues such as tactile surfaces, olfactory cues and auditory cues. The cues have been strategically placed in common areas such as courtyards. For example, a bird cage has been used as a sound cue in the courts within the vocational block and academic block, the sound of birds chirping can alert a person with visual impairment and he/she can associate the sound with the courtyards thus giving him/her a sense of orientation within the campus.

Another example of this is the use of species of fragrant flowering plants or using artificial material such as incense sticks for creating aromas in certain pockets. Such olfactory cues have been used near the clay studios to demarcate the space through fragrance.

Other than this, elements such as tactile guiding surfaces, tactile signage and maps and handrails along corridors have been used in the design.

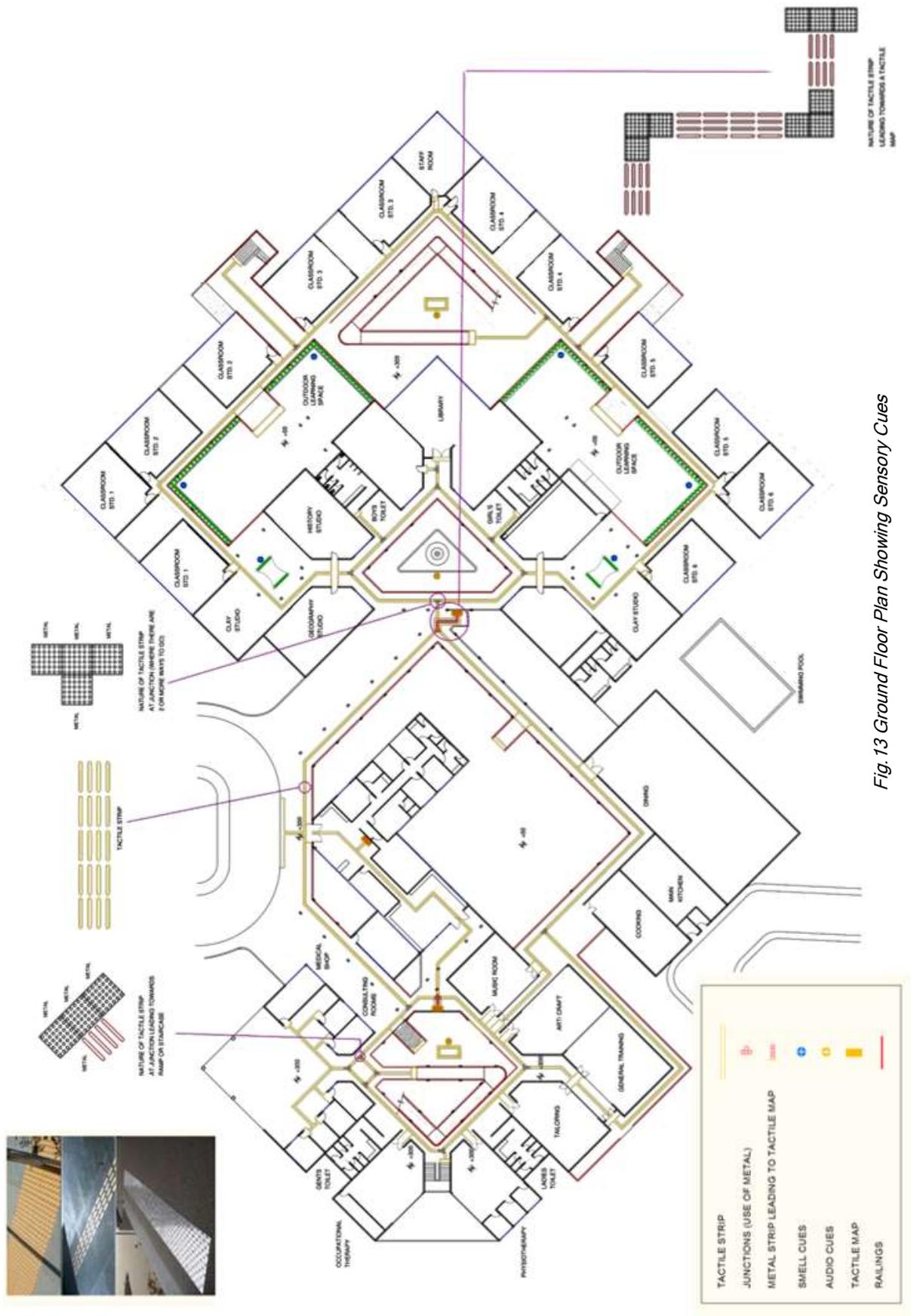


Fig. 13 Ground Floor Plan Showing Sensory Cues

7.6 THE THERAPY CENTRE AND RESEARCH CENTRE

The Therapy Centre has the joint activities for children from the school as well as children from outside. It also acts as a source of income for the school. The block consists of a medical shop and consulting rooms, which overlook a semi covered open space that can act as a waiting area for parents and also a space for common counselling for parents of all kids whenever necessary.

The therapies include occupational therapy, physiotherapy, tailoring, art and craft, general life skill training.

The first floor consists of music therapy and interactive speech therapy. These two blocks have been placed on the first floor because each of these activities may require a certain amount of seclusion. Each of these two therapy units consist of common therapy areas and one on one therapy cubicles. The first floor also houses the research centre. This centre mainly aims at conducting research and advancements in the field of disability and accessibility. Interaction of the research team with the school children forms a base data for the research centre.

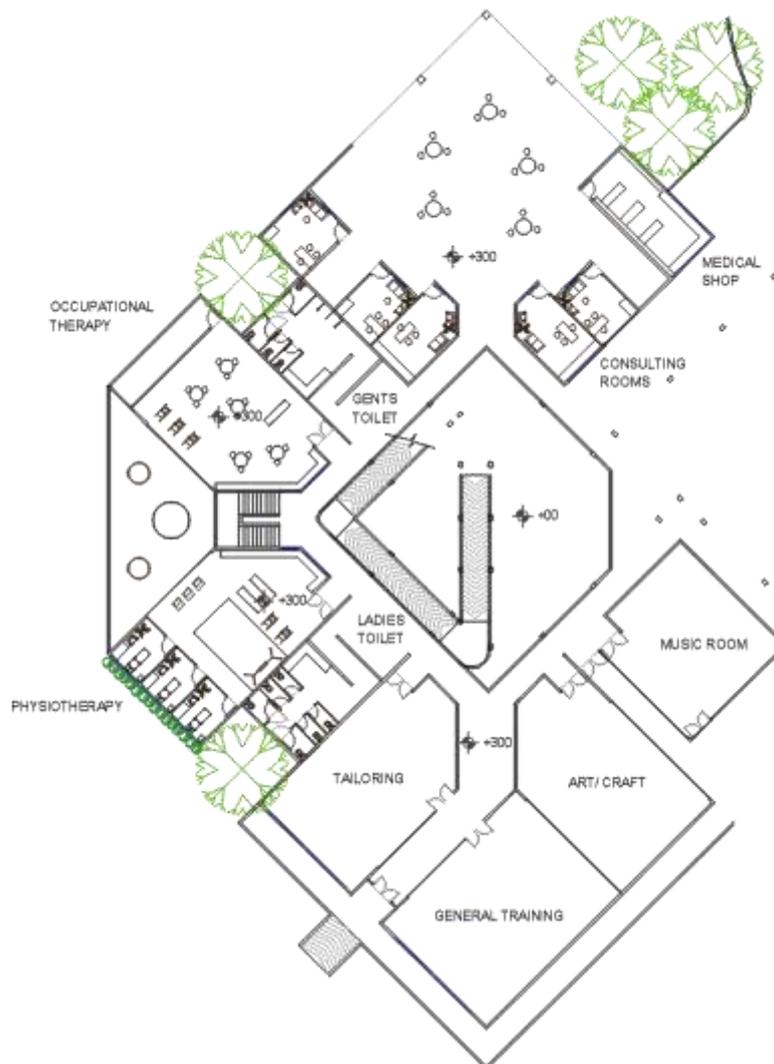


Fig. 14 The Therapy centre and Research centre - Ground Floor

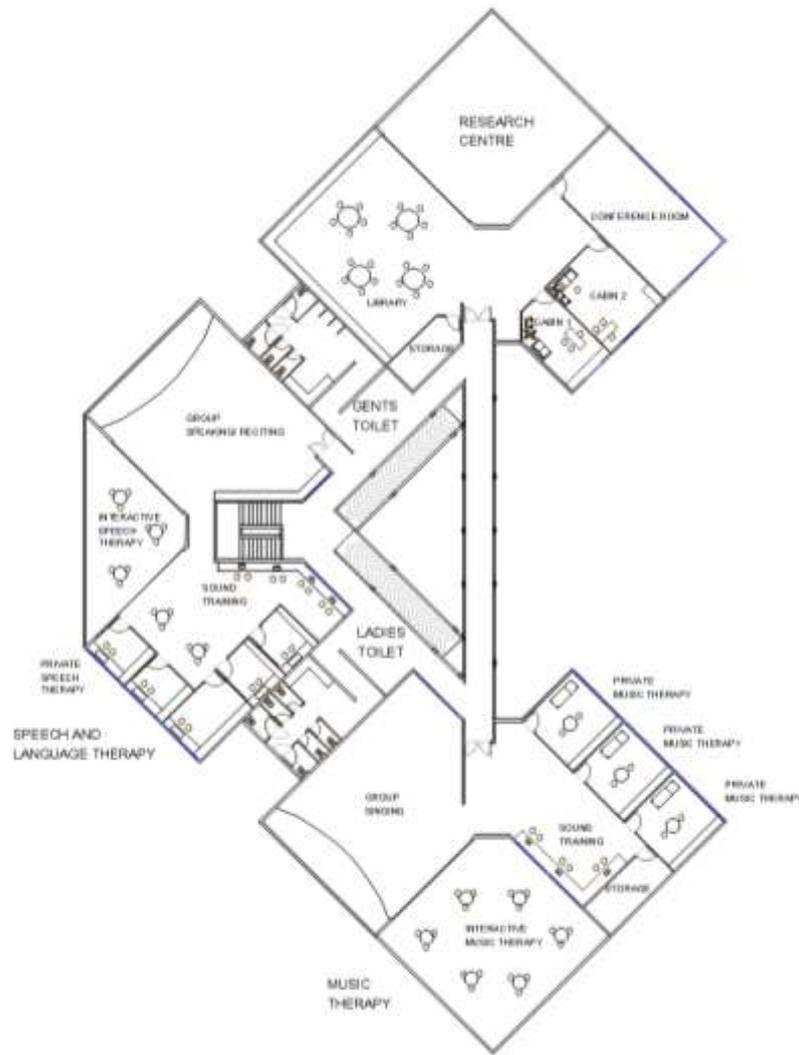


Fig. 15 The Therapy centre and Research centre - First Floor

8. CONCLUSION

I attempt to propose a model of an Inclusive School which not only creates a physically accessible environment, but also nurtures a thought in the minds of the children that 'everyone is different, and must be given equal opportunities'. The architecture of a given space influences the attitude of the people using it, hence, the aim of the model is not just to use architectural creativity for overcoming discrimination, but to mentally strengthen the upcoming generation to understand the current situation of discrimination and handle it with empathy, respect and dignity. Thoughts and values imbibed at an early age, or 'Sanskar' as they may be called, are the identity of any individual and of the entire generation per say. This school is an attempt to bestow the 'Sanskar' of 'Inclusion' on its children.

05



SAMMILIT- The Centre for Accessible India

Sheen Pandita

Guided By - Prof. Sangeeta Bagga

Ms. Monika

"Born in Delhi, Sheen had a chance to study in Doha, Qatar as well as Delhi, India and has always been interested in universal and sustainable approach to design. A 2018 graduate in architecture from Chandigarh College of Architecture. 'Center for Accessible India' is her bachelor thesis for the same. With intern experience from Zurich, Switzerland and Chandigarh, she is currently residing in Delhi and looking for future opportunities in the field."



1. ABSTRACT

An inclusive and unbiased society is the way of a happy future. People with Disabilities are also a part of our world yet the society in our country has excluded them. Little to zero access to their rights, facilities, jobs and happiness their future looks grim. Living an independent and normal life for them seems a taboo.

Conversation is limited to sympathy rather than their abilities and how to harness them. Awareness and sensitivity sometimes being the lowest among people providing help itself. In depth research on their need and improvement in their lifestyles is important. Increasing sensitivity, initiating conversation to increase awareness and research becomes the need of the hour.

The aim of this paper is to give a positive image to the disabled community and establish the significance of an inclusive society. The image through architecture would be a source of initiating conversations and building awareness amongst the people. It attempts to achieve sensitization by providing its user, a surreal experience of an enabling and disabling built environment, thus building more empathy and sensitivity in the visitors.

2. INTRODUCTION

Accessible India Campaign is the nationwide flagship campaign of the Department of Empowerment of Persons with Disabilities (DEPwD), Ministry of Social Justice and Empowerment. The aim of the Campaign is to make a barrier free and conducive environment for people with disabilities all over the country. It was launched on International Day of Persons with Disabilities on 3rd December, 2015. The physical, social, structural and attitudinal barriers prevent People with Disabilities from participating equally in the socio-cultural and economic activities. A barrier-free environment facilitates equal participation in all the activities and promotes an independent and dignified way of life.

The following year, after years of protests, the government also introduced Rights of Persons with Disabilities Act, 2016 which had a more universal definition and approach than in the past.

A society's self-image is revealed in how it treats those who are particularly in need of its support. As, for our country, accessibility is still a myth and discrimination is rampant with very little awareness. As per Census 2011, in India, despite rehabilitation and education centres for them, unequal participation and discrimination is evident through the fact that only 36% of disabled people work or have jobs at our country level while only 8.5% are graduates out of 2.68 crore disabled.



Fig 1 Accessible India Campaign logo by Ministry of Social Justice & Empowerment



Fig 2 Newspaper articles on accessibility

The biggest setback lies in the indifferent attitude and lack of awareness from and towards people. Policies do not reach people and society backlash forces them not to get proper help. Thus, creating awareness about sensitivity, solutions and future research become necessary.

A general feedback of people tells us how lacking the knowledge is as seen in attached newspaper articles. Even though it may exist in theory, practically very few are aware or going that little further to incorporate them.

The Centre for Accessible India, I propose here, thus aims to be an acceleration for mainstreaming inclusivity and accessibility for the present and future and initiate dialogue on this crucial subject. Discussion leads to better solutions, awareness and better understanding of the problem wherein universal design is not a special field but everyone’s need and must be omnipresent.

3. DESIGN PROGRAMME AND ACTIVITY ZONES

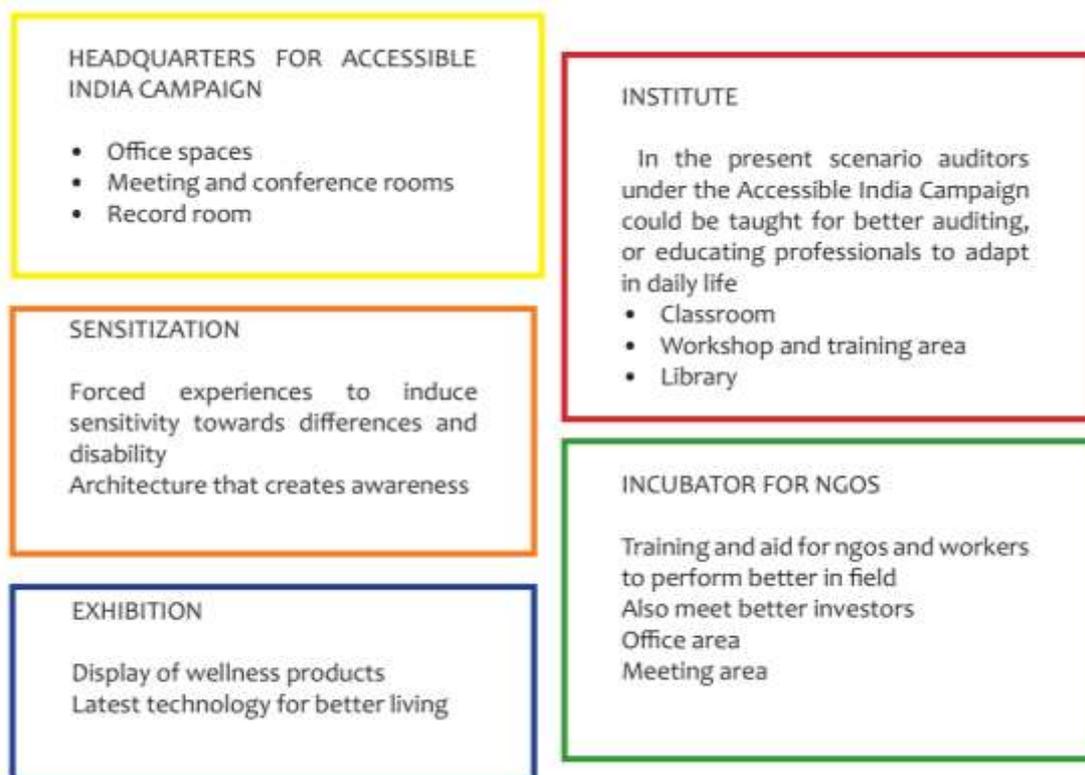


Fig 3 Design programme and activity zones

4. CONCEPT

The concept idea for the project is mainly focused on the question, how to bring about sensitization through architectural experiences. A lot of time was spent to find answer to the above question. After observing the present scenario and problems faced, the journey through this centre was divided into a 5- step process -

1.Society/ Hardships

Through a maze-like circulation while transcending through varying experiences of spaces that develop discomfort, the disabling nature of current practices in architecture will be put forth and the challenges faced by people with disabilities in inaccessible environments will be experienced closely.

2. Sight/ Light

With the help of technology like Virtual reality and a general play of extreme natural and artificial lighting to arouse discomfort.

3. Hearing/ Noise

In this experience, how a loss of hearing brings a fear of unknown is simulated using acoustical strategies and also inducing silence through anechoic chambers.

4.Mobility/ Tactile

This experience questions the anthropometry based on a standard average user and basis of design ideology followed in the present time with the help of displaying 'bad' design experiences to arouse discomfort.

5. Solution

The final experience would be the building itself as a whole, designed with a Universal ideology. It would answer all the questions generated with the earlier experiences in the site amongst the users.

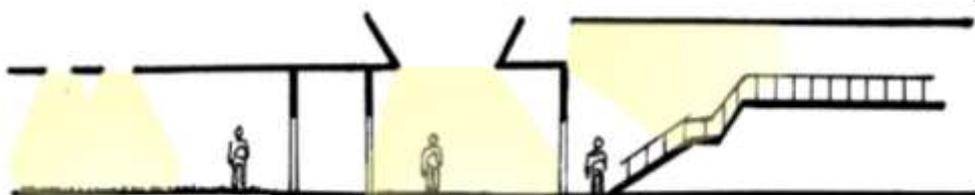
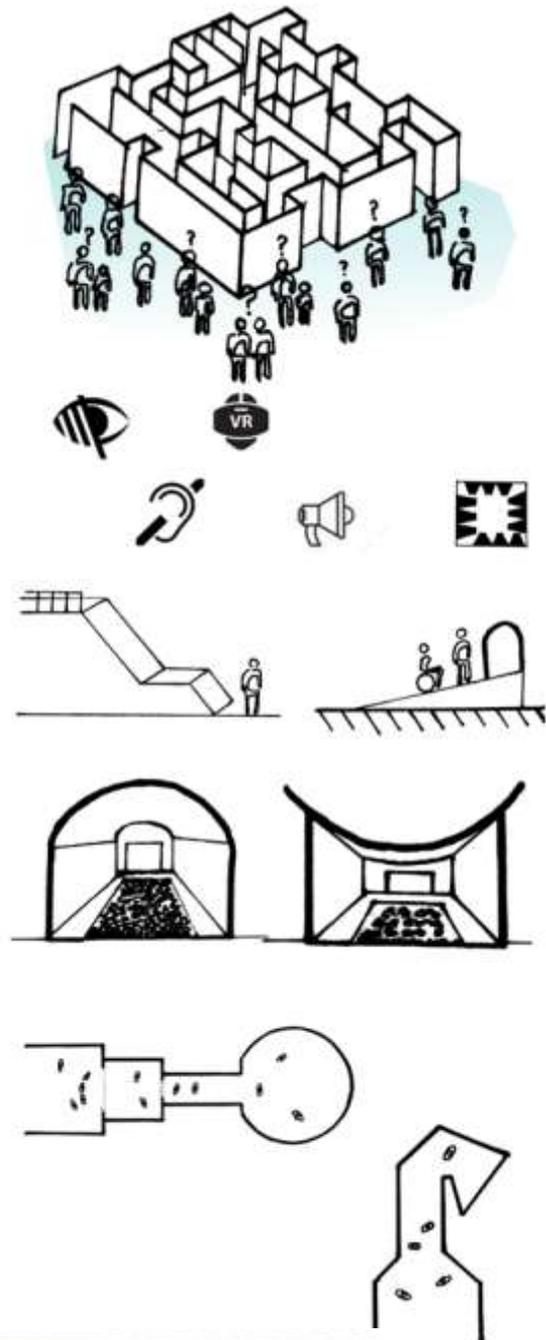


Fig 3 Sketches identifying with the 5 points of the concept.

5. FORM

The form was guided by the idea to make the building seem like an extension of the landscape around it, so as to not appear as a major intervention in terms of skyline of that specific area. Making the slope of the roof with a suitable ratio made it accessible for everyone also enforced the concept of extended landscape.

In the initial sketch, there evolved a singular form but which soon seemed overpowering and too concentrated. With site circulation and placement, it became clear to separate the clearly defined public and private domains created in the program for the project.

This was achieved by breaking the volumes into 4 parts -

1. Auditorium
2. Gallery
3. Office and incubator
4. Living and dormitory

These 4 volumes were opened up into a central space, very subtly, ensuring that they are not imposing in character.

Further the process was to work out the common spaces and underground circulation of the building, not only connecting them on the surface but also below the ground.

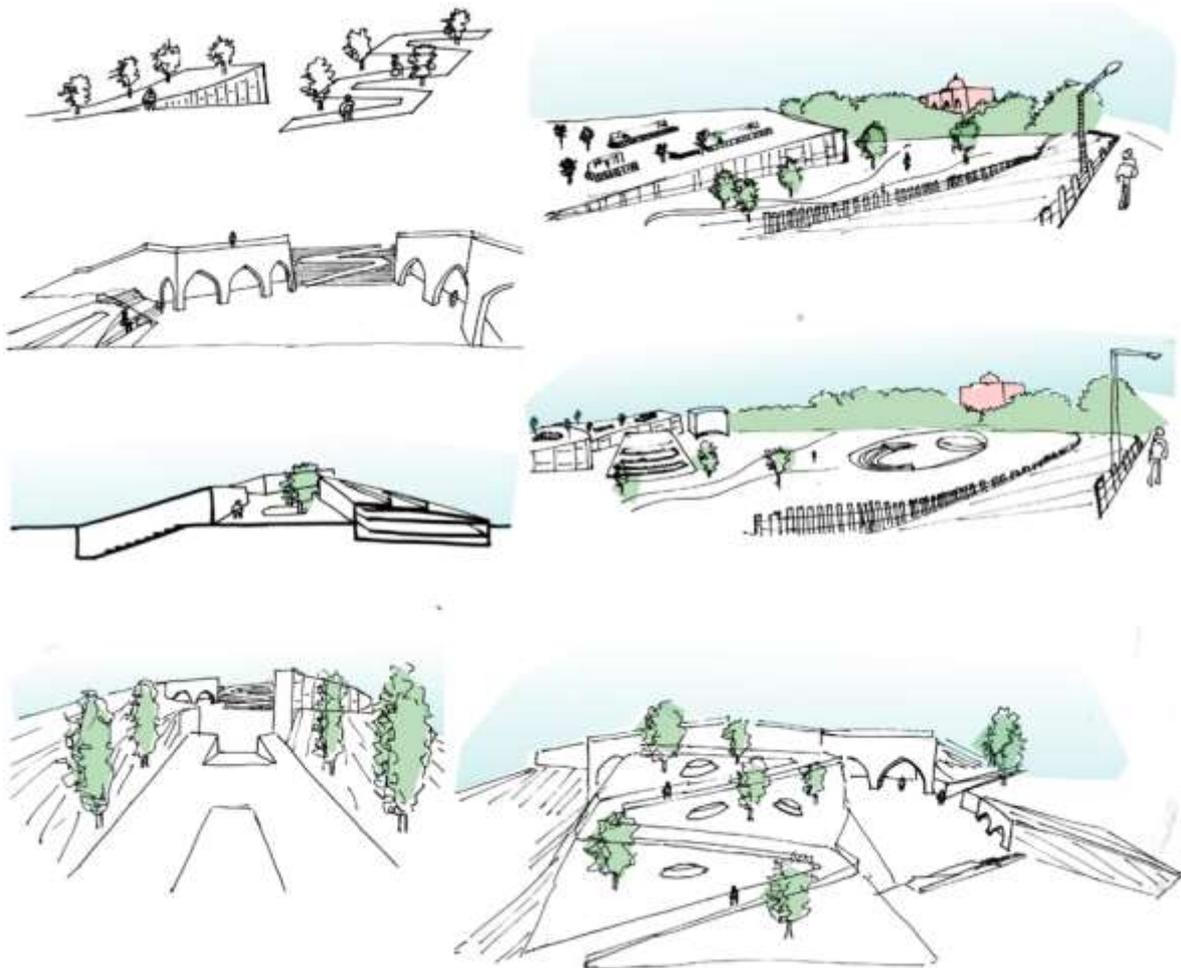


Fig 4 Concept visualization sketches for form and placement on site.



6. RELATION WITH SURROUNDINGS

The site is located between Pragiti Maidan, Purana Qila and the zoo in Delhi. The extensive green areas prompted the idea of an extension of greens into an urban park, which would attract people not only to the offices but also its added facilities. While exploring the urban park the users would stumble on the central plaza of the site and various experiential features in the interiors of building. Thus, paving a way for awareness on the issue of accessibility and encouraging discussion.

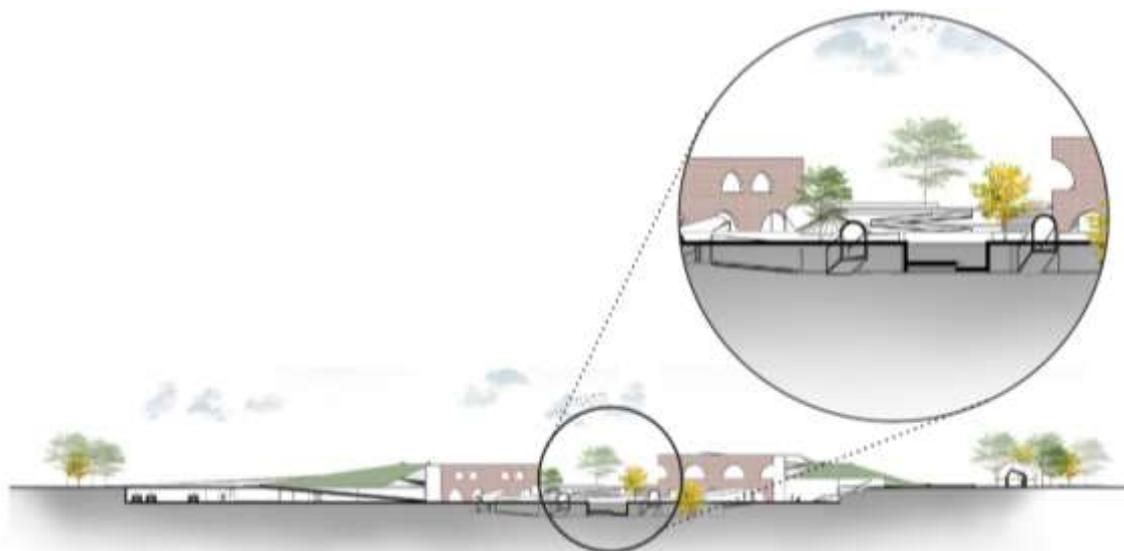
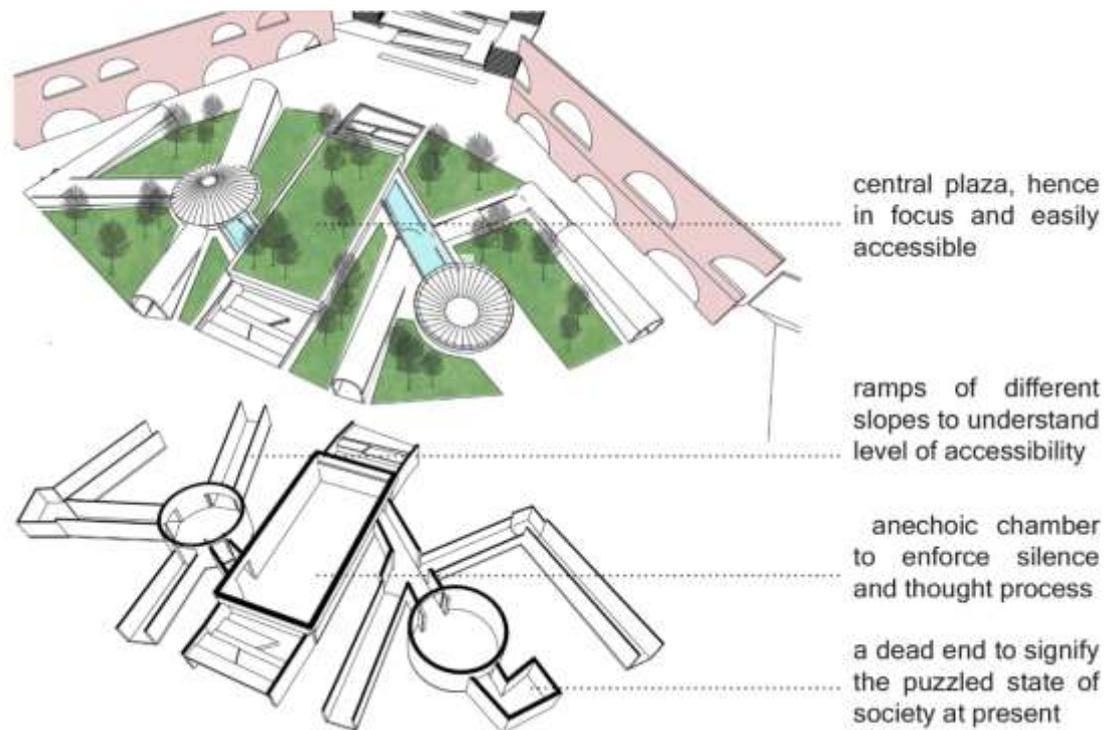


Fig 5 Site Plan, View & Section



7. CENTRAL PLAZA

The central plaza acts like a natural exploration zone for people. Different forms, ramps and lights make people exposing them to enabling and disabling situations. It could also be experienced with deliberate physical barriers which would fuel the users' experience creating more sensitivity in people for more inclusion. Based on the issues people with disabilities have to face because of inaccessible design, the circulation path is designed by disrupting the shortest possible routes from one space to another thus making them more difficult to access. In the focus of the plaza is the anechoic chamber as the central hall, giving the users silence for their thoughts.

The different forms below the surface aid to an interesting landscape pattern above it, creating nooks and corners for seating to discuss ideas, feelings and thoughts generated from the experiences thus leading to more sensitivity.



Fig 6 Rendered views of the Central Plaza

8. THE SOLUTION

The building referred to as ‘the solution’ in the concept aims to portray a different approach to solving common problems in design and how small changes in design process can solve large scale problems. Hence, it aims to accommodate as many types of users as possible. Here are some examples in circulation and toilets where a universal approach to design is applied.

In case of vertical circulation, the ramps and staircases are given equal importance and where ramps are not possible, lifts are proposed.

Similarly, for seatings in the urban park, varying heights and gaps are proposed to accommodate flexibility in use, creating an opportunity for the users to choose according to their comfort.

Toilets necessarily had to be paid attention to make them more accessible. Varying accessible heights to lavatory, sinks, dispensers and driers was provided to accommodate needs of maximum users.

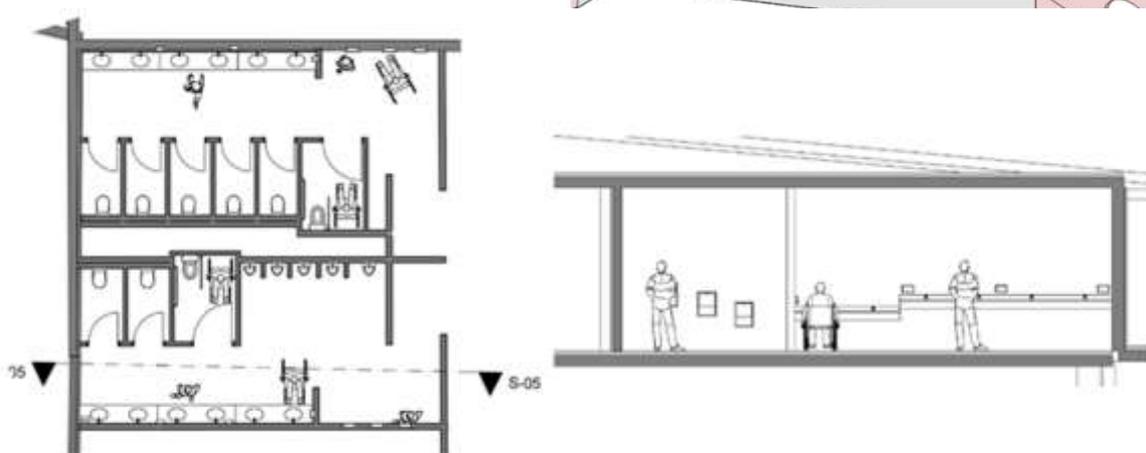


Fig 7 From top right to bottom left, ramp cum stairs for entry to central plaza; seating in park; another entry to central plaza; section and plan through a toilet

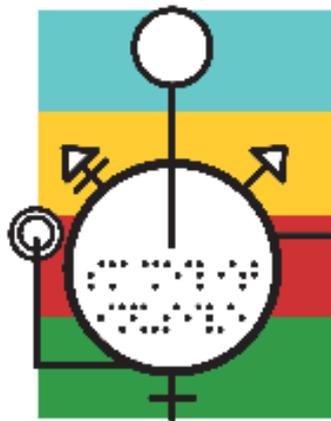
9. CONCLUSION

Sammit Centre aims to be an image to the accessibility movement in India. Perhaps a beginning to address the issues and problems related to accessibility thus advancing research for better implementation and to bridge the gap between the excluded users and privileged users who somewhat seem ignorant to the problem.

The main objective is to create sensitization, through experience of an enabling and disabling built environment, thus building more awareness and sensitivity in the visitors. The project while focusing on the accessibility of the built environment, is also a permanent exhibition centre showcasing the latest and affordable assistive tools, devices and technologies. The research centre would develop, test and validate new and existing products for their usability and functionality. Moreover, it would help any aspirant to study and further their work on Universal Design and facilitate inventors for coming up with more social innovations.

The incubator for NGOs helps in better outreach of the program providing individuals the much-needed support for procuring information related to matters such as funding and guidance on identifying social impact projects and areas for interventions.

The proposed project furthers and facilitates the aim and intent of Accessible India Campaign, thus serving as a key catalyser in the making of “Inclusive India”.



06



Paralympic Training Centre, Gandhinagar

Raj Charaniya

Guided By - Prof. Banani Banerjee

Ar. Mugdha Kulkarni

Raj Charaniya is an architect graduated from Sinhgad College of Architecture, Pune. Raj has a unique blend of both architectural and construction skills as he has also completed his Diploma in Civil Engineering. He has won several accolades in the last couple of years ranging from Best Paper Presentation awards to representing his college at NIASA. He has worked with renowned Architects like Ar. Nuru Karim, Ar. Nilesh Chopra and is currently working with Kalavishwa headed by Jayant Mulay. He has special interest in Parametricism and Computational design. Raj also won first prize in Rethinking the Future Award as part of Core Team Member with Nuru Karim (Nudes). He also presented Paper on “A Universal Approach Towards Smart City” which was selected for ‘Avishkar’ at Savitribai Phule Pune University. Apart from his regular professional work, his video on “Incredible India” also won first prize in Directors Cut Award short film making competition organized by Symbiosis College, Lavale.



1. INTRODUCTION

India made its Summer Paralympic debut at the 1968 Games. The Paralympic Committee of India (PCI) was founded in the year 1994. Since then, PCI has been working solely for the promotion of Sports amongst the people with physical impairment and visually impaired persons in India. In Summer 2016, India sent its largest-ever delegation in the history of summer Paralympic games i.e. 19 competitors in 5 sports. That was India's best performance in the history of the summer Paralympic games with a total of 4 medals won (2 Gold, 1 Silver and 1 Bronze) with Devendra Jhajharia breaking the World Record to win a gold medal at the Paralympics. This created a ripple in a field which was stagnant since 1968. People started to know more about the Paralympics. This resulted in a proposal of a centre of excellence for Para Sports in Gandhinagar by Government of India, which will be the first-ever training facility in the country dedicated to para-athletes. An attempt has been made to propose Universal Design Considerations for this Training Facility. The design considerations proposed are a result of extensive research in Universal Design, several interviews with concerned stakeholders, silent observations of the end users at various events and public places. Unique feature of the proposed project design is that it makes the entire facility suitable for persons with disability while keeping strict adherence to universal design considerations. It has potential to become a generic design option for all individuals irrespective of their ability.

2. RELEVANCE OF PROJECT & PARAMETERS CONSIDERED

Disability becomes more of an emotional burden than a physical burden due to the architectural environment. To bridge in the gap between the emotional connect and architecture, incorporation of different parameters becomes vital for the design to become user-friendly and not be limited to the challenges; specific users face. Different users have different needs which need to be justified by the design. The current architectural practice should determine sincere perseverance towards designing a holistic approach which would be universally designed as well as would help in getting the dignity of the special users back. This creates a sense of empowerment and equality amongst the users.

The new domain of computational design helps in considering and building relationships between the different parameters. The project aims to provide an iconic solution that offers accessibility for all through a computational design approach. So, inculcating the everyday parameters into one design while evolving through it, is what helped develop the design. The brief was derived by interviewing the officials of SAI Gandhinagar (Sports Authority of India) as they are the responsible authority for construction of the upcoming centre.

The space requirements were derived based on observation and interviewing the Paralympic players. It's observed that at major places the facilities are provided just for the sake of completing the requirements laid by the government without thinking much about the physiological and psychological aspects faced by people with disabilities.

The vision parameter added to the introduction of curves in plan resulting in a better vision to the visitors, **the height parameter** added to the curved roof satisfying the height every individual game demands, **the climatic parameter** resulted in openable

roof enhancing the thermal comfort by using the concept of thermal mass night ventilation, **the sun path parameter** resulted in different aperture openings which control the light intake in the structure.

The structure is a blend of these parameters which makes it a very sustainable one. The resulting shape was further smoothed gradually. The lines simply flow and let you feel one with the surroundings while standing out as well. Every curve every angle depicts a part of everyday phenomena like that of a human Skelton to that of the veins complex structure. That's how systems function. That's how the design functions.

3. BACKGROUND RESEARCH STUDY

Live Case Study: Snehalaya Education Society, Wagholi, Pune; Paraplegic Rehabilitation Centre, Kirkee, Pune; Sports Authority of India, Gandhinagar.

Book Case Study: Helpers of The Handicapped- Hostel and Rehabilitation centre, Kolhapur; Helpers of The Handicapped- Girls and Boys Hostel, Sindhudurg; Sports Complex in Tehran, Iran; Ability360, Phoenix, AZ, USA.

Interviews:

Dr.Ujwala Bhairagi is an assistant professor of MBA in finance at MIT College of Management. As an individual who has polio, she shared various technical issues and problems she comes across in day to day activities. She also talked about the need to be sensitive while designing buildings and how inclusiveness should be considered and rated.

Sweta Mantrii a content writer and a stand-up comedian has Spina Bifida by birth. Her, "THE RESTROOM PROJECT" displays her experience at various restrooms of restaurants in Pune. She stated how such conditions affect the confidence of a person.

Ar. Kavita Murugkar is a professor at BNCA's Universal Design Research and Training Centre, empanelled access auditor under Accessible India Campaign. She quotes "It is the responsibility of an architect to convince the client to opt for universal design. An architect would never allow a long span structure with the risk of falling even though the client requires it, ramps are equally important for a structure. Architects should start planning with a far-sighted vision". Her workshop gave many parameters an individual should take into consideration while designing spaces which are not only barrier-free but universal. The workshop depicted the present scenario of disability in the country and gave various parameters which helped shape the project and approach towards it.

V.K. Aggarwal, Table Tennis Coach at SAI (Sports Authority of India) stated that the amount of efforts put in by Paralympic players is very high compared to others as every player he comes across has the vision to achieve something in life. SAI helps them achieve this vision and helps them in every possible way. He being an active stakeholder was able to state very small technical details to be considered while designing a Paralympic Training Centre.

4. PROCESS

After having an opportunity to interact with the target audience through NGOs, when the time came for designing, the initial steps were all the same as any other project. First things first, selection of the site. Currently, Gandhinagar hosts events at their

National Sports Association wherein they set up temporary camps during major events to aid the participants. However, that isn't enough, and they find there to be a need for bigger and better grounds. The new site proposed by Sports Authority of India (SAI) is only 10 minutes away from the existing association grounds with the necessary transporting facilities. Observation states that the people prefer buses as their means of transportation. Now since the target audience had clearly specified, they wanted aesthetics with easy circulation, it seemed only fitting to base the design on the circulation. Minutest details have been considered such as location from the bus stop adjoining the site.

5. ZONING

- The zoning started with deciding the entrance gates.
- The gates were placed as near as possible to the existing bus stop and therapy centre which created a straight access helping in quick transport during emergency and easy access.
- The brief was divided into five parts -
 1. Indoor sports complex; 2. Outdoor sports complex; 3. Residential block;
 4. Office block; 5. Therapy centre.

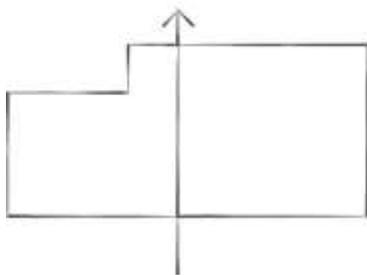


Fig1. Gates were decided according to the bus stop positions.

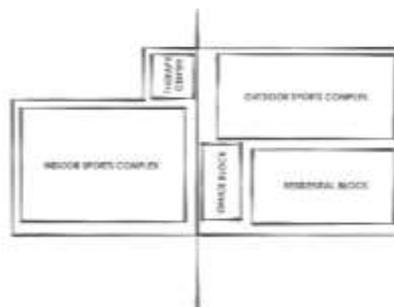


Fig2. The site was divided into 5 parts considering the accessibility and visual connection

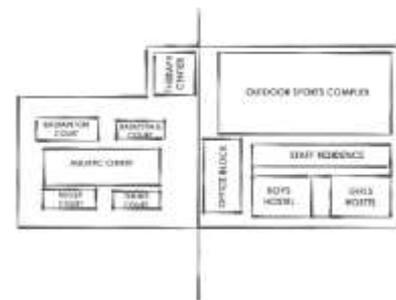


Fig3. The Sports centre was further subdivided according to the court sizes

6. INDOOR SPORTS COMPLEX MODULE

The indoor sports complex included 6 games viz- Badminton; Basketball; Swimming; Rugby; Table Tennis; Sitting Volleyball.

The height and area requirements for the various games were taken into consideration and the basic massing was done. The shape was further modified according to the viewing angle which resulted in introduction of curves. As in most of the games there is use of wheelchair which results in exertion and leads to gain in lots of thermal heat. To tackle this, a psychometric analysis was done considering the weather, clothing and the activities performed in the structure and it was observed that with use of passive cooling strategies like thermal mass night ventilation, a considerable amount of heat can be controlled.

This resulted in introduction of openable roof where all the windows and the roof will be open during the night, cooling the structure and will be closed during the daytime trapping the cold inside which results in reduced temperature during the day. On the other hand, there were repetitive skylights provided. The size of the skylights differs

according to the position of the sun with the help of sun path analysis. This invites controlled sunlight inside the structure and makes the building more sustainable.

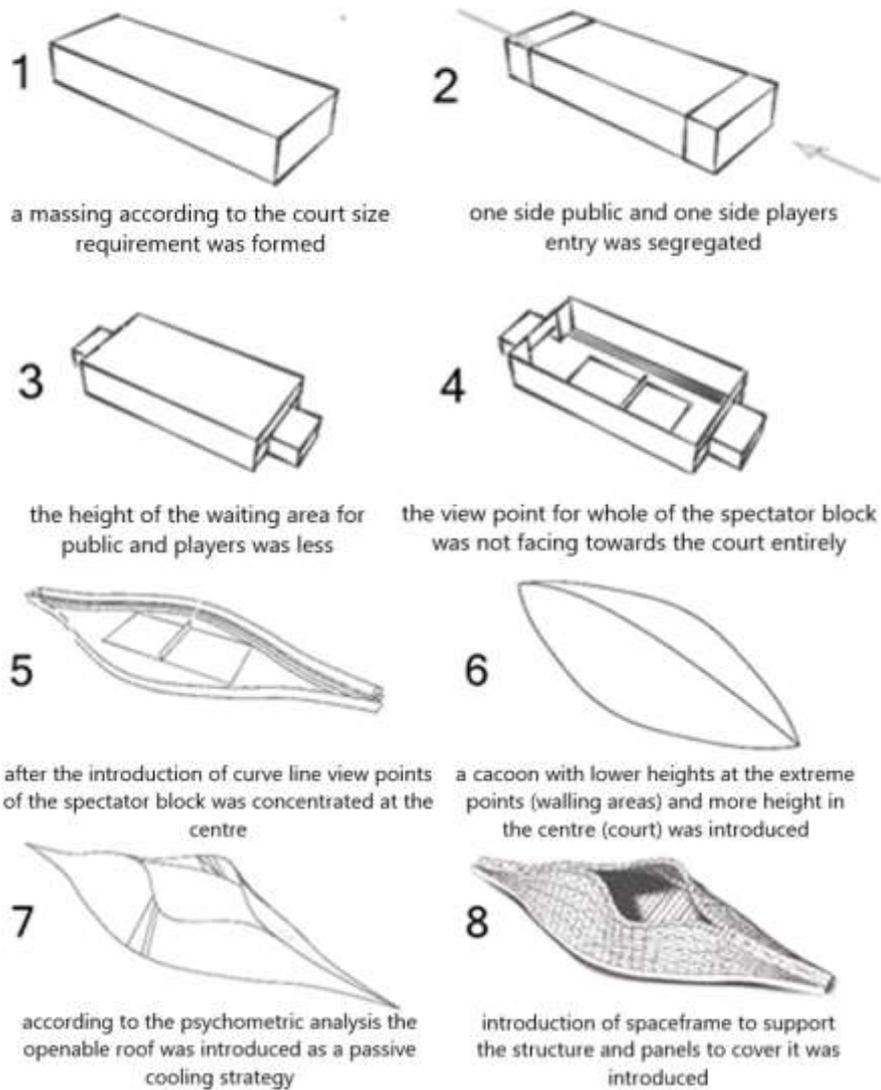


Fig4. Massing

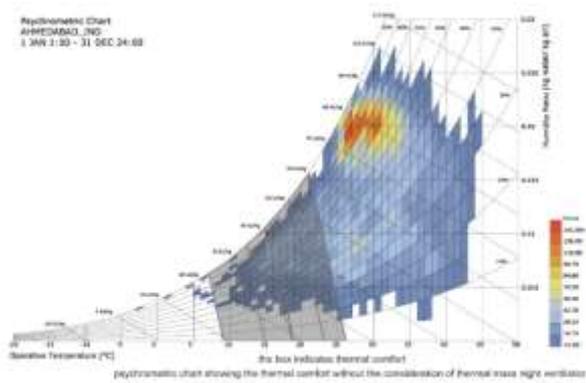


Fig5. Psychrometric chart showing thermal comfort without the consideration of thermal mass night ventilation.

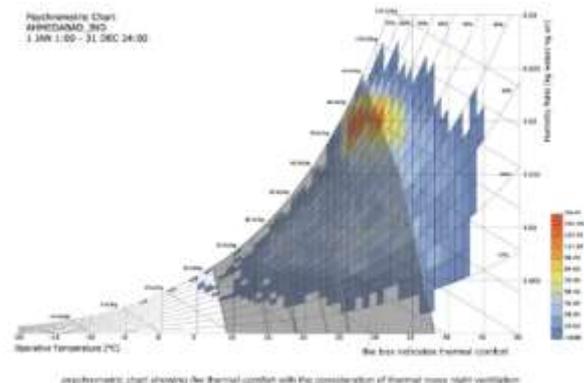


Fig6. Psychrometric chart showing thermal comfort with the consideration of thermal mass night ventilation.

7. UNIVERSAL DESIGN CONSIDERATIONS FOR A MODULE

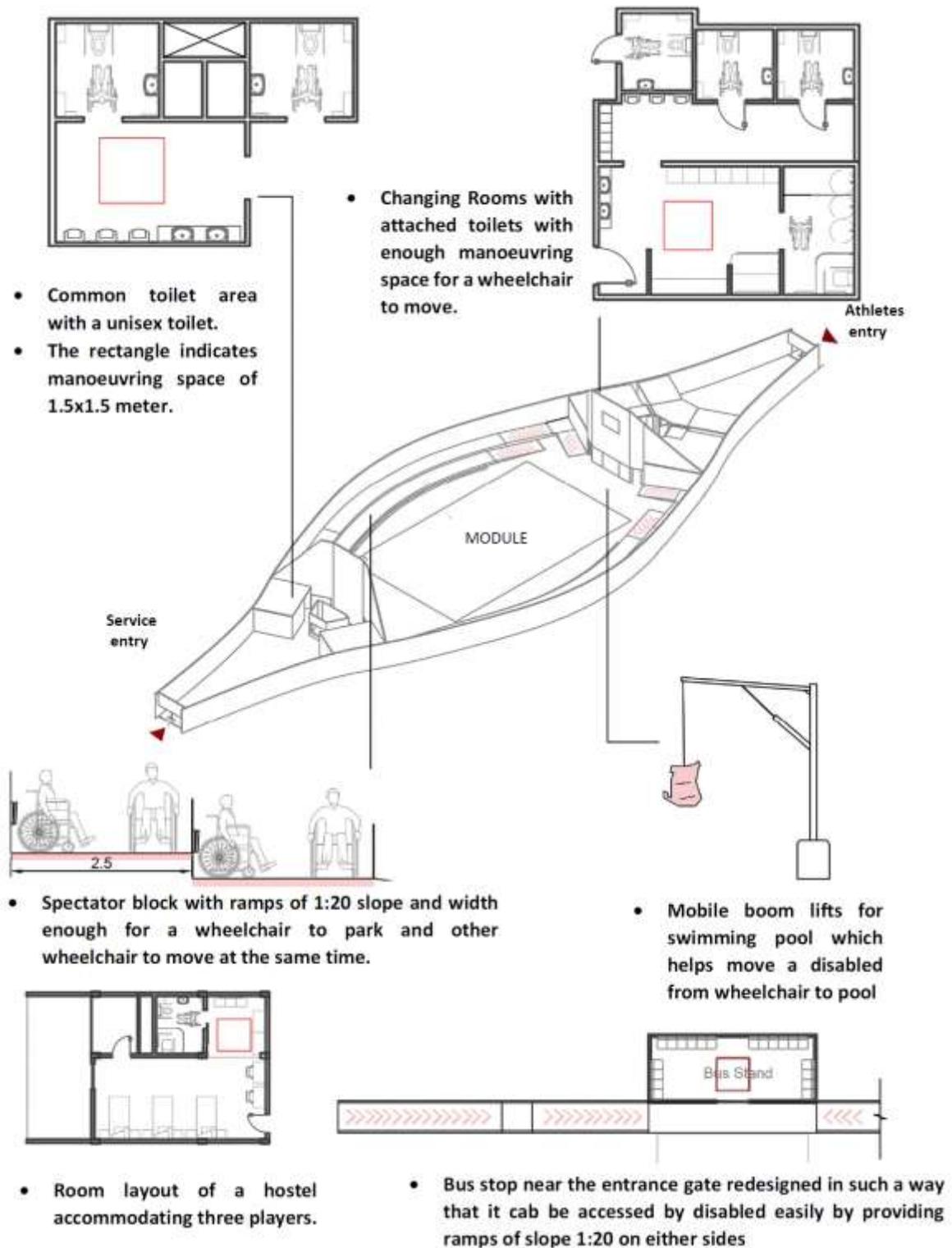


Fig7. The following diagram depicts examples of how the spaces and interventions are provided taking into consideration accessibility and free movement of users in a sports complex.

8. PROPOSED SITE LAYOUT

The proposed site layout depicts an arrangement of modules of the sports complex where the size changes according to the height and area parameters of different sport.

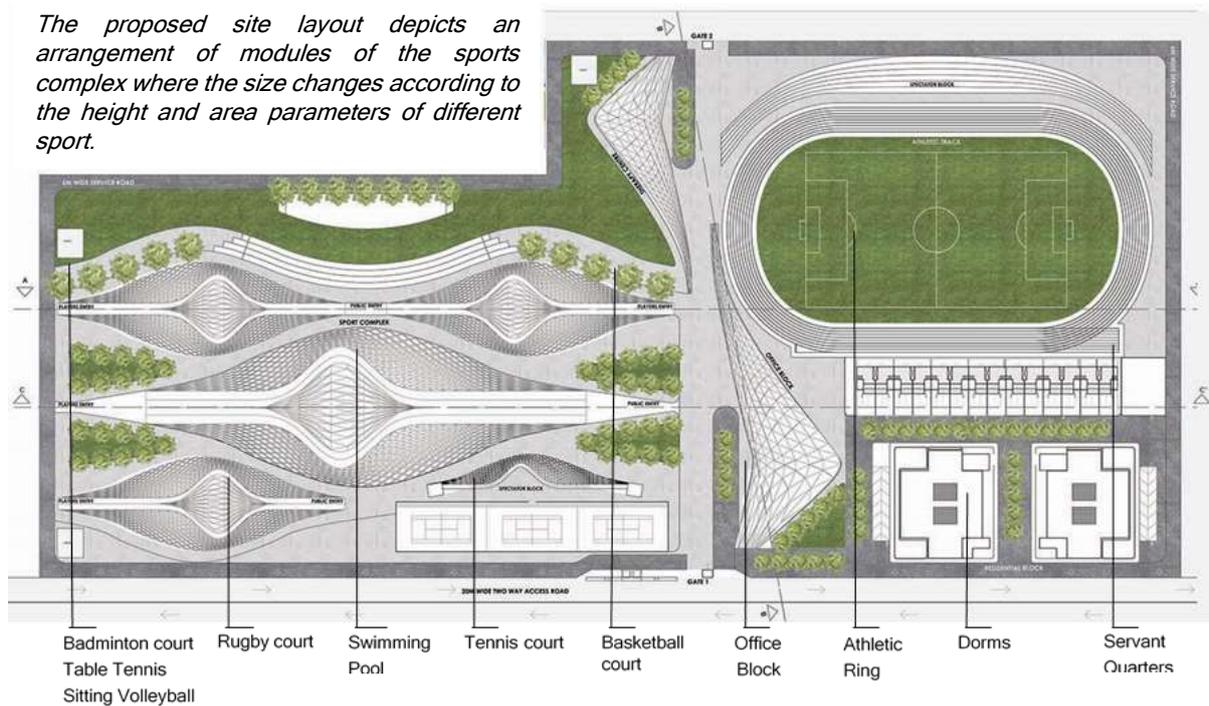


Fig8. Roof Plan

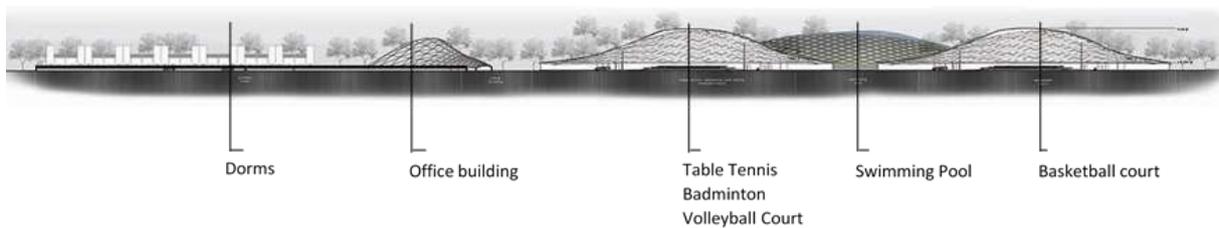


Fig9. Section AA'

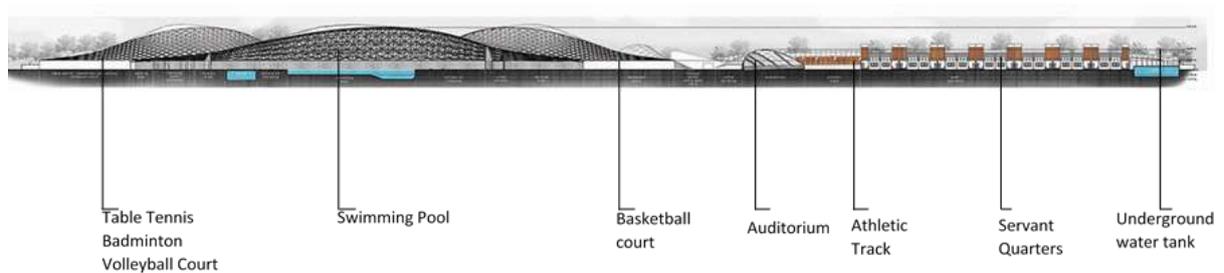


Fig10. Section CC'



Fig11. Ground Floor Plan



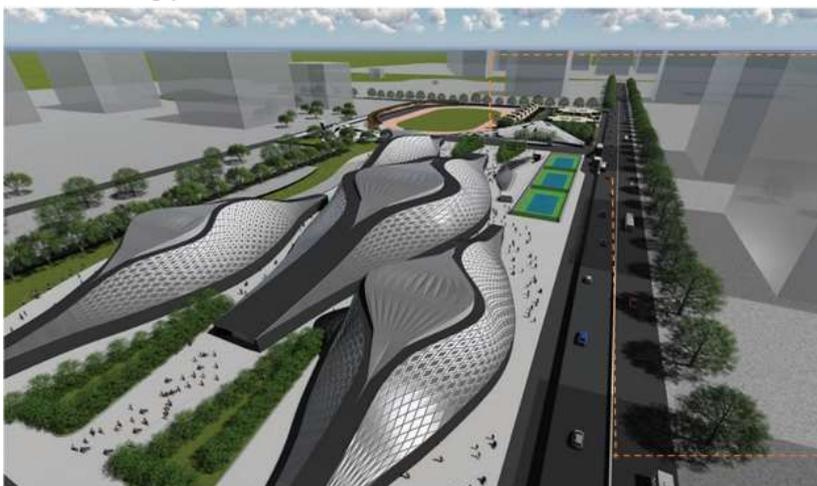
1 Swimming pool



2 Basketball court



3 Office Block



Athletic ground with temporary seating



Bus Stop and Entrance Gate

Fig12. Birds Eye View of the Site

9. CONCLUSION:

India has over 21 million Persons with Disabilities population as per 2011 census. This is approximately equal to total population of Australia. While Australia had a total medal tally of 1013 medals in Paralympics, India's is just 12. The idea of Paralympic Centre will certainly lay a seed to change these numbers.

This project is first of a kind in the country and is envisioned as an example of a Barrier free component of a Smart City. The Universal Design Considerations extended to

encompass needs of People with Disabilities, once implemented will certainly become a repeatable model and can be used across the country to spring out several more such facilities.

"I would like to conclude with following thoughts:

A Space does not discriminate, The Built & Surrounding walls do.

A Path isn't bias, the manmade steps are.

A structure welcomes all to be in its awe, regardless of who the spectator is.

All we need to do in fact, is not creating obstructions and bringing in an act."

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07



Inclusive Pilgrimage - A Case of Chaturshringi Temple Complex, Pune *Prof. Kavita Murugkar*

Kavita Murugkar, an Architect and Associate Professor at the Dr. B. N. College of Architecture (BNCA) Pune and is doing pioneering work in promoting people centric and inclusive design education and practice in the architectural fraternity. She has setup the Universal Design Research and Training Centre at BNCA and is identified as one of the most experienced Universal Access Specialists in India.



1. INTRODUCTION

A pilgrimage is a journey of moral or spiritual significance to a shrine or other location of importance to a person's belief and faith. India is dotted with numerous pilgrimage sites of varying scales and sizes, visited by thousands of devotees from across the country at various times and occasions in a year. A huge diversity is observed in the types of pilgrims visiting the site, in terms of ages, abilities, socio-economic backgrounds and rural/urban context etc. Amongst the total footfall, senior citizen groups and people with disabilities form a major group, who in spite of their functional limitations, manage to visit the pilgrimage site, coping with the barriers and difficulties that come in their way. In spite of being a considerable majority, the needs of these groups are hardly addressed in the planning and provisions available in a pilgrimage site, thus making their journey full of hardships and dependency. Also seen in recent years, is a sudden rise in the development of the pilgrimage sites in terms of the physical and social infrastructure. But most of the times, the development is mostly a beautification exercise, with least efforts taken to provide 'Universal Accessibility' as a layer to improve the equity, usability, comfort, mobility and safety of the vulnerable groups visiting the site.

Thereby, a design challenge was identified to take up as a studio exercise in the subject of Elective on Universal Design at Dr. Bhanuben Nanavati College of Architecture, Pune, attempting to retrofit a largely visited Pilgrimage site in Pune by applying principles of Universal Design to make it accessible for ALL, specially the people with disabilities and ageing population. The current paper is a graphical and textual narrative of one such proposal developed in the studio for the Chaturshringi temple complex, one of the most popular and oldest pilgrimage site in the city of Pune in India, of local and regional importance, with more than 1000 visitors per day. The design proposal explained through this paper, is an outcome of a joint effort by a team of faculty and students - the mentor - Prof. Kavita Murugkar, the author of the paper and a group of 3 undergraduate architecture students namely Meghana Majithiya, Megha Bilgi and Vinita Wagh.

2. BACKGROUND AND HISTORY

Chaturshringi - Chatur means four - is a mountain with four peaks. The Chaturshringi temple is 90 feet high and 125 feet wide and is a symbol of power and faith. The premise holds a temple of Ganesha, which one has to pass before making it to Ambareshwari Devi temple. Also, there are temples dedicated to Lord Shiva, Vishnu, Laxmi and Durga and miniature Ashtavinayaka idols. The access is through a wide umbrella like arch. One has to climb 100 steps to reach the main temple. Chaturshringi has a typical Maratha style temple architecture and is easily accessible from transport nodes and centrally located in the city. Mixed-use activities observed on site apart from pilgrimage makes the site very vibrant with plenty of flora/fauna on site and lot of shaded areas under large trees.

The temple is located on the slope of a hill on Senapati Bapat Road. It is said to have been built during the reign of the Maratha king Chhatrapati Shivaji Raje Bhosle in the year 1786. The presiding deity of the temple is Goddess Chaturshringi, also known as Goddess Ambareshwari. The legend associated with the temple is that, once there was a rich and prosperous merchant named Durlabhsheth Pitambardas Mahajan who

was an ardent believer of Goddess Chaturshringi. It is built in the typical Peshwa style of architecture.

3. AIM

To evolve design strategies and solutions to promote universal access in a pilgrimage site and optimize the whole religious environment so that all users regardless of their attributes, abilities and cultural/ economic backgrounds can access and participate equally in the pilgrimage, while ensuring that the authenticity and the integrity of the religious place is preserved.



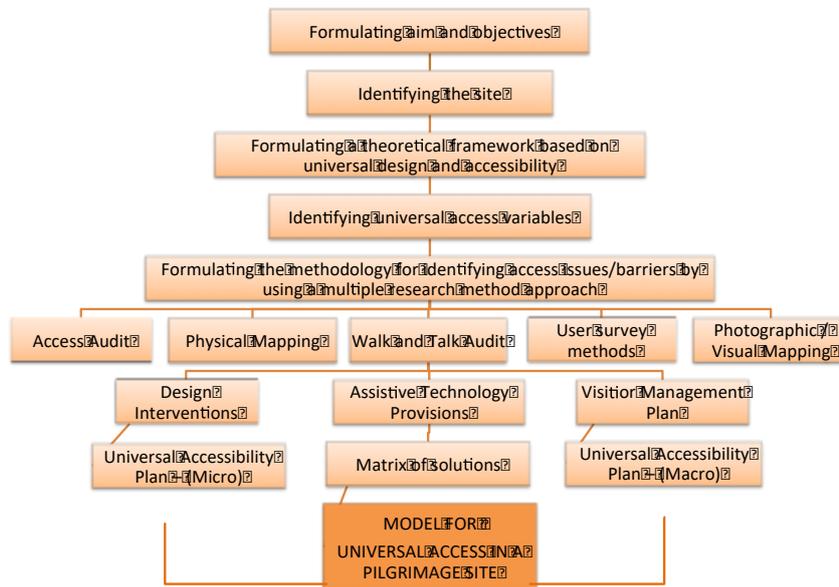
Fig.1 Key features at site

4. OBJECTIVE

1. To study and understand the nature of the pilgrimage site and its historical, religious and socio-cultural significance.
2. To identify and examine physical and intellectual barriers limiting equal access and opportunities in the pilgrimage site.
3. To analyse, infer and generate solutions to enhance physical and intellectual access to all parts of the pilgrimage site at two levels:
 - The site - temple complex
 - The built areas
4. Think 'out of the box' to develop innovative solutions for expanding universal accessibility and usability while preserving the cultural and heritage value of the site.

5. METHODOLOGY

The site was studied intensively to identify impediments, issues and supporting features to physical and intellectual access within the pilgrimage site. Following was the methodology used for the same -



6. METHODS USED FOR SURVEYING & UNDERSTANDING THE SITE

5.1.1 CROWD MAPPING and surveys were conducted to understand the activities and behaviour of the visitors in the site.

REGULAR DAY

On a daily basis close to a 1000 people visit the temple. The temple complex is particularly crowded few hours morning and evening owing to the Aarti timings: 10:00 am and 8:00 pm.

The temple serves as a recreational getaway for all age groups of people throughout the day.

AUSPICIOUS DAY AND WEEKENDS

Tuesday is considered as Chaturshringi Devi’s day, hence generating more crowd on the day. Also, the temple gathers large crowds on the weekends.

FESTIVE TIMES (NAVRATRI)

The temple sees huge crowds during festivals especially Navratri. Navratri being the Devi’s festival. The temple is alive with fairs and fests which brings 1000’s of people to the temple.

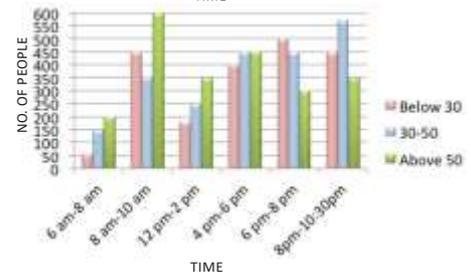
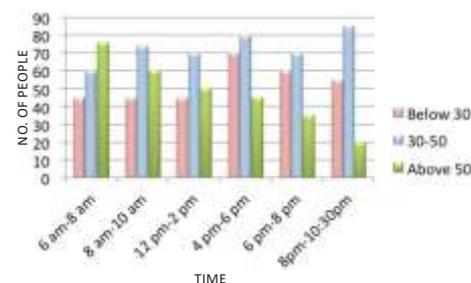
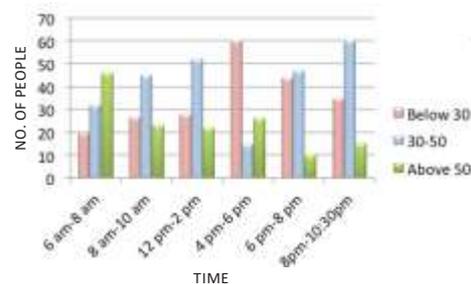


Fig.2 Visitation statistics

1. ACTIVITY MAPPING: An Activity Time chart indicative of the user profile that frequents the temple.

TIME	ACTIVITY	USER
6 am – 10 am	Morning walks, laughing dub, Yoga, Flower stalls, to the Temple	Elderly people (50 yrs. And above), People from close vicinities, Passers by on their way to work, Vendors, Temple staff (Pujari, etc.),
10 am – 4 pm	Temple activities (Aarti at 10am), Temple office work, Flower stalls, Recreation, Resting	Elderly people, Middle aged Women, Students after college, Temple/ Office staff, Vendors
4pm – 7 pm	Temple activities, Recreation, Flower stalls	Families – middle aged men & women, Children, Students (18- 25 years), Housekeeping staff, Vendors
7 pm – 10:30 pm	Temple activity (Aarti time 8pm), Flower stalls, Temple staff	People from all age groups (Families), after work crowd – people on their way home, elderly people, vendors, Pujaris
FESTIVAL TIMES	Temple activities, fairs & fests, food/flowers/toys/other items stalls	Large numbers of rural crowd from the entire region, local crowds from all age groups, lots of vendors, temple staff

Fig.3 Activity Mapping

3. PHYSICAL MAPPING to study existing circulation patterns, barriers, amenities and functions

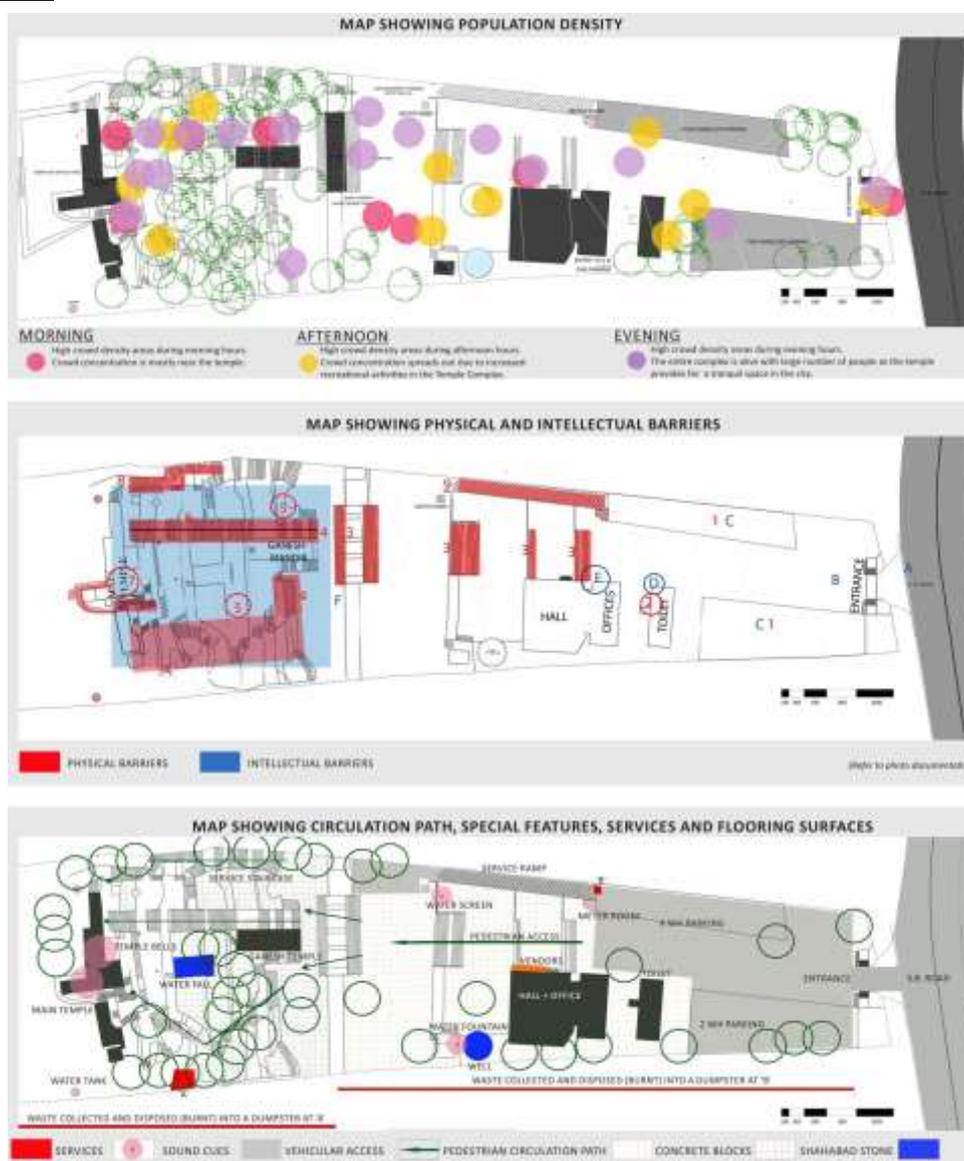


Fig.4 Physical Mapping

4. ACCESSIBILITY AUDIT was conducted to access the physical and intellectual barriers faced on site.

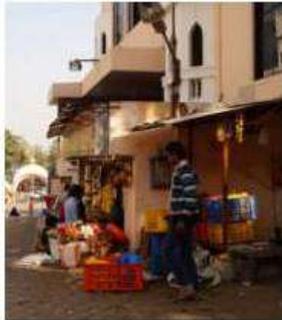
PHYSICAL BARRIERS	INTELLECTUAL BARRIERS
 <p>1. No provisions for disabled parking.</p>	 <p>A. Lack of directions to the Temple.</p> <p>B. No information desk/ reception at the entrance.</p>
 <p>2. Inaccessible toilet due to steps.</p>  <p>3. No railings along staircase.</p>	 <p>C. No demarcation of parking.</p>
 <p>4. Staircase risers and flights not consistent.</p>	 <p>D. Inadequate signage at the Toilets</p>  <p>E. Lack of information about the Temple.</p>
 <p>5. Inaccessible recreation areas.</p>  <p>6. Protruding supports from railing.</p>	 <p>F. Lack of Signage throughout the Temple Complex.</p> 
 <p>7. Level differences within built-up</p>  <p>8. Staircase flights too steep for easy access.</p>	 <p>F. Lack of Signage throughout the Temple Complex.</p> 

Fig.5 Accessibility Audit

7. ISSUES IDENTIFIED ON THE SITE

1. Overlap of Vehicular and pedestrian traffic and insufficient parking.
2. No information/ orientation booth/ signage throughout the site.
3. Access and approach to the temple very difficult and only by steep and irregular flight of steps.
4. Lack of basic facilities like toilets, drinking water fountains, resting benches, light posts, eating points, dustbins, etc.
5. No consideration for needs of elderly, differently abled groups with special needs specifically pilgrims.
6. Poor crowd management strategies during festivals and peak times.
7. Incongruent and environmentally harmful on-site activities observed like burning of waste.
8. Inappropriate design details like railing design, flooring material, etc. observed.
9. No disaster management or emergency needs in place.
10. Lack of covered resting spaces for protection from rain and sun.
11. No separate provision for services or meds movement.
12. Monotony in architectural character with no distinct visual cues to facilitate way finding.
13. Confusing circulation, meandering staircases in different directions and uneven widths make physical access difficult.

UNIVERSAL DESIGN PRINCIPLES (INCL. UDIP)	ENTRANCE	APPROACH	BUILT
EQUITABLE	✓	✗	✗
USABLE	✓	✗	✗
CULTURAL	✓	✗	✗
ECONOMIC	✓	✓	✓
AESTHETIC	✗	✗	✗
FLEXIBILITY IN USE	✓	✗	✗
SIMPLE AND INTUITIVE USE	✓	✗	✗
PERCEPTIBLE INFORMATION	✗	✗	✗
TOLERANCE FOR ERROR	✗	✗	✗
LOW PHYSICAL EFFORT	✓	✗	✗
SIZE AND SPACE FOR APPROACH AND USE	✓	✓	✓

Fig.6 Access Audit and Infrastructure status

8. DESIGN CRITERIA AND STRATEGIES FOR A SUSTAINABLE MODEL OF A PILGRIMAGE SITE

The design proposed finds its basis in **Inclusive Planning**, hence giving the users choices for approach to the temple. The location of the temple is on a steep hill, making the vertical transition from the road to the temple the most important aspect of design. The design thus focused on multiple approaches like **steps, ramps and a skywalk**. Chaturshringi, being more than just a pilgrimage site, is a hub of various secondary activities that support its primary purpose. Such activities include flower vendors, toy sellers, food stalls, etc. These activities were incorporated across the complex at various nodes, which is facilitated by the meandering form of the ramps.

A **continuous pedestrian movement** was achieved throughout the site. Sufficient parking has been provided across the road, access from which is provided by a skywalk. Keeping in mind the physical and intellectual barriers that people from various backgrounds face in the existing design, an efficient system of easy access and imparting information was employed.

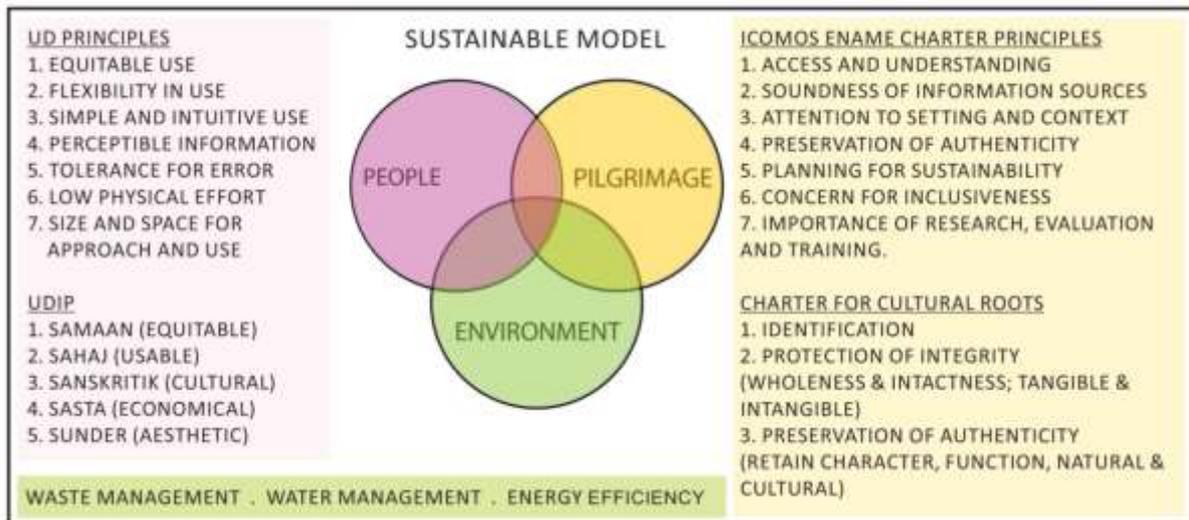


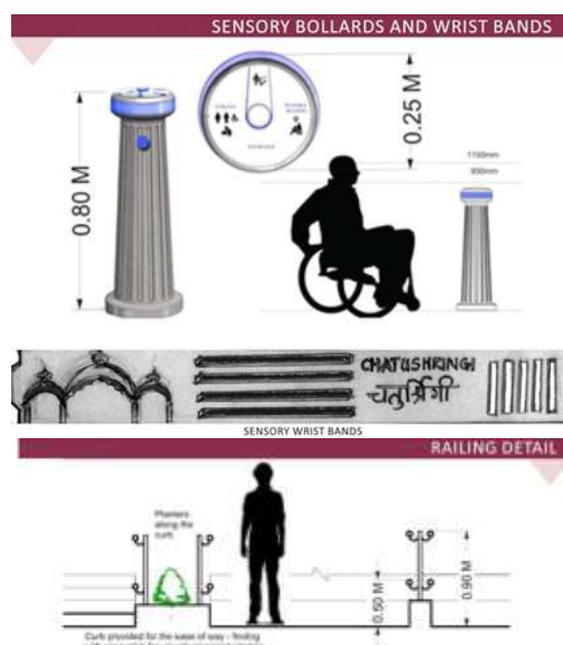
Fig.7 Proposed design criteria for pilgrimage site management

PILGRIMAGE		ENVIRONMENT	PEOPLE
INTEGRITY	AUTHENTICITY	SUSTAINABILITY	UNIVERSAL DESIGN PRINCIPLES
HOLISTIC APPROACH TO LANDSCAPE – INTEGRATION OF NEW AND EXISTING ELEMENTS INTO SITE	RETAINING THE ARCHITECTURAL VALUE OF THE PLACE – USE OF MATERIALS AND ARCHITECTURAL FEATURES	WASTE MANAGEMENT – PROVISION FOR WASTE TREATMENT PLANT ON SITE, PROVISION FOR SOAK PIT & SEPTIC TANK	EQUITABLE USE CULTURAL USABLE AESTHETIC ECONOMIC FLEXIBILITY IN USE
FULL ACCESSIBILITY FROM THE ENTRANCE TO THE BUILTUP	RETAINING THE NATURAL VALUE OF THE PLACE – RETAINING EXISTING FLORA AND USE OF LOCAL SPECIES	WATER MANAGEMENT – RAIN WATER HARVESTING, RECYCLING OF WASTE WATER FOR LANDSCAPE USES	SIMPLE AND INTUITIVE USE PERCEPTIBLE INFORMATION TOLERANCE FOR ERROR LOW PHYSICAL EFFORT SIZE AND SPACE FOR APPROACH AND USE
THE INTANGIBLE FEEL OF THE PLACE IS RETAINED – EXISTING ACTIVITIES AND ELEMENTS ARE ACCOMODATED WITHIN THE NEW DESIGN	RETAINING THE CULTURAL AND RELIGIOUS VALUE – PLACE OF PILGRIMAGE, ACCOMODATING EXISTING ACTIVITIES	ENERGY EFFICIENCY – PROVISION OF SOLAR PANELS TO LIGHT LAMP POSTS, HARVEST WIND ENERGY	

Fig.8 Proposed design strategies

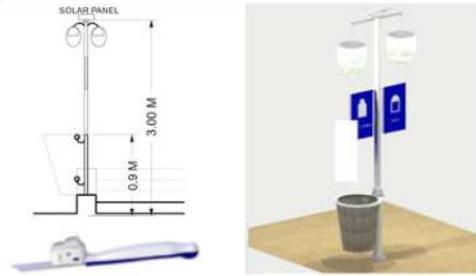
The complete redesign of the pilgrimage complex consisted of developing a design solution matrix and proposing architectural details for its implementation which included the following:

1. **SENSORY BOLLARDS AND WRIST BANDS** - Bollards have been designed at regular intervals so as to provide tactile information giving directions and sensors have been incorporated to activate the sensory wrist bands made available at the entrance. The bollards are designed with neon lighting for ease of visual access along the pathway. These are inclusive as the size accommodates restrictions of the wheelchair users.
2. **RAILING DETAILS** - Smooth handrails with change in texture for tactile guidance have been provided. Provision of these at 2 levels, 450mm and 900mm to accommodate universal use.



3. STREET LIGHTING, SIGNAGE AND DUSTBIN DETAIL, SMARTCANE- Innovative Street lighting designs with provisions for multi-lingual signage and waste disposal provided at intervals along the path. These lights are mounted with solar voltaic panels at the top. Provision of expanding frame to accommodate temporary cover during rains.
4. INCLUSIVE BELL PANEL- Ringing the temple bell is an age-old ritual. Traditionally, its position, mostly suspended from the ceiling in a temple limits many people from accessing it. Here it has been which has been innovatively suited and designed to meet the needs of a wide range of users by providing bells of different sizes at different heights. The entire panel consisting of number of bells is provided along the sides of the aisles in the temple.
5. DRINKING WATER FACILITY - Drinking water kiosks have been provided at various locations and is designed to facilitate inclusive use of able-bodied, wheelchair users and children.
6. VENDER STALL AND TYPES OF SIGNAGES - The flower vendors, toy stalls have been relocated and book stalls and information kiosks have been provided in the form of a typical four post structure, keeping in context with the temple architecture and the aesthetical character of the site.
7. BIRD FEEDER & MULTILEVEL SEATING - A universal design of seating has been devised for a variety of users. These areas have been provided at intervals as resting and recreational spaces. These also facilitate intellectual access by the use of information panels in these areas. Bird feeders on trees provide as sound cues that help guide a visually impaired user.

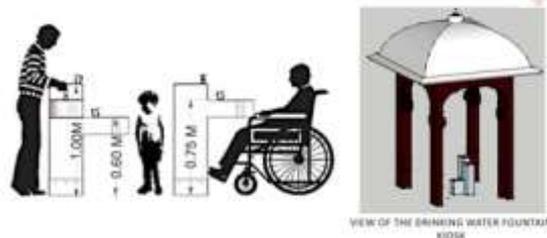
STREET LIGHTING , SIGNAGE AND DUSTBIN DETAIL, SMARTCANE



INCLUSIVE BELL PANEL



DRINKING WATER FOUNTAIN



VENDOR STALL

TYPES OF SIGNAGES



BIRD FEEDER AND MULTILEVEL SEATING



Fig.9 Design solutions



Fig. 11 First landing - covered drinking water fountain, toilets and inclusive seating cluster

9. CONCLUSION

Universal Design is a fundamental and core value in any design and development facilitating social and economic sustainability and find its application in projects ranging from product design to urban design. This paper, demonstrated one such attempt of applying universal design in a socially relevant public space, addressing all the above-mentioned design levels. It also aims to highlight the opportunities for innovation and out of box thinking, universal design approach opens out and offers to a designer. Specifically, the paper can serve as a good design reference for developing universally accessible and barrier-free pilgrimage environments catering to needs of all types of visitors irrespective of their age, abilities, language skills, socio-economic background and gender.

08



A HALT IN THE JOURNEY (PUBLIC TOILETS & MORE)

Mohini Bhosekar

Guided By -Prof. Kavita Murugkar

Mohini is a second-year student studying Architecture at Dr. Bhanuben Nanawati College of Architecture (BNCA) in Pune. She feels architecture and design have the power of simplifying people's life. And knowing that she has that power to make a change in the society, to give back that bit and contribute to the society ignited her interest in the field of Universal Design. She believes that before defining each other by any labels (abled/enabled/disabled) we all are humans first and hence she strongly stands by the idea of 'Design for ALL'. She has learnt Kathak- an Indian classical dance form and she feels that there is a sort of rhythm, compassion and humanity which brings together all the art forms including architecture, and that is exactly what she tries to seek in all her designs.



1. INTRODUCTION

Chanderi is a small town in Ashoknagar district of Madhya Pradesh. It consists of remarkable historical monuments and handloom sarees which are a tourist attraction. It consists of compact and chaotic settlements where the lack of awareness regarding hygiene and sanitation prevails. The absence of public toilets creates a major issue for tourists and incoming people from neighbouring cities.

Public toilets, are thus a necessity for a town like Chanderi. This type of space will lead to an increase in hygienic conditions and awareness regarding sanitation amongst the locals and ensure comfort and convenience for everyone. As the public toilet project addresses the immediate and urgent necessity of the locals and the guests of Chanderi, I would like to introduce you to the project '**Public Toilets - A halt in the journey**'

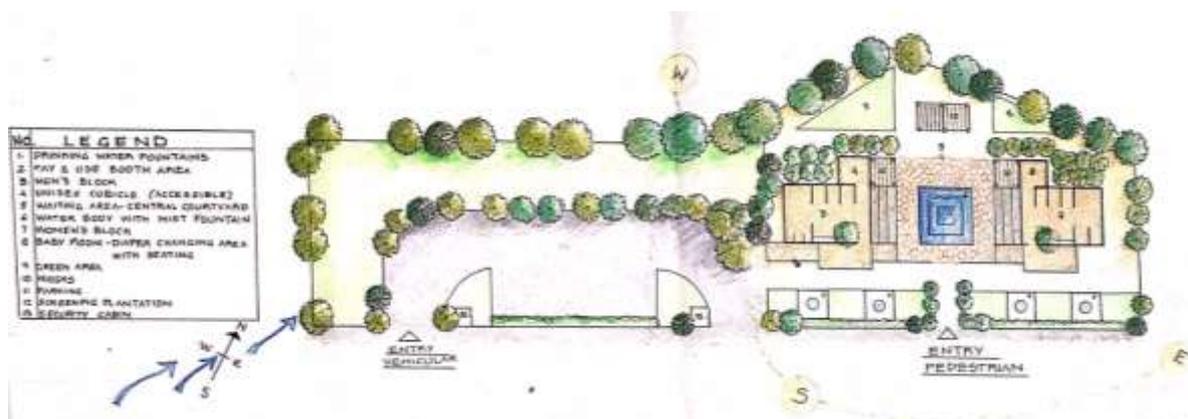


Fig. 1 Site Plan

2. SITE LOCATION

The site is located on the main road leading to Dilli Darwaza, a major tourist attraction in Chanderi. Apart from being close to Dilli Darwaza, the site is in close vicinity to a number of tourist places and also to the local dwellings. Thus, it is situated at a prime location with maximum footfall and easy access.

3. CONCEPT AND IDEAS

The main idea was to create a space that would blend with its surroundings, a space that feels like home and not something foreign to the locals and something that the tourists could relate to with the place - Chanderi

Besides serving the basic needs of a public toilet, An attempt to address a few other necessities that one requires at a halt or a stop in the journey has been made.

As the majority users would be tourists, people / workers from other parts of Chanderi and its surroundings and a few numbers of locals, the idea was to create a space which would serve as a 'halt in the journey'.

- The entire design is based on axial planning. The built-up and ground area are divided symmetrically by a central axis which passes through the entry, the central water body and the main specimen tree.
- Use of grid planning has been done to carve out all the areas.

- The central water body is the prime focus around which the whole complex has been developed. The water body is developed around the idea of 'kunds' or 'bawadis' observed in Chanderi. The water body is a mist-creating kund which will spread mist in the air, thus making the environment cooler for the people in the courtyard. The cooling effect will serve as a solution to the scorching heat of Chanderi.
- The idea of a complex being developed around a central courtyard has been adopted from the design of all the dwellings in Chanderi. This central courtyard serves the purpose of a waiting area and acts like a buffer zone between the two toilet blocks.
- The specimen tree beyond the water body will provide shade and make the air pure around the courtyard.
- The drinking fountains near the entrance and the food and shopping kiosks in and around the courtyard will make people's halt more comfortable and enjoyable.

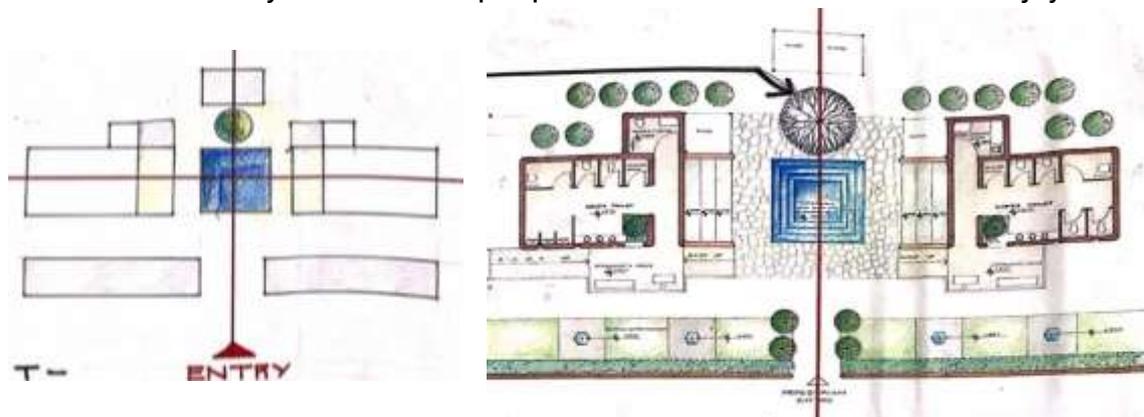


Fig. 2 Concept

4. ZONING AND CIRCULATION

ZONING OF SPACES

Zoning has been done by segregation and integration of the functional requirements. The gents and ladies toilet zones (shown in red) are segregated by the common waiting area (shown in yellow) which is integrated with the food and shopping zone (shown in lavender). The drinking water zone and green patches are also combined together.

INTERNAL CIRCULATION

The internal circulation is explained by showing the movement path of 6 users - gents and ladies in red, baby room users and unisex in blue and PwD users in orange. Gents, ladies

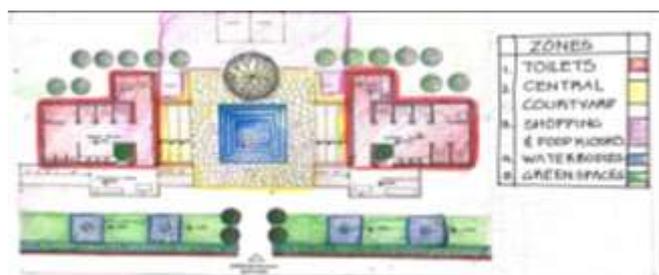


Fig. 3 Zoning of spaces



Fig. 4 Internal Circulation

and unisex toilets are wheelchair accessible.

VEHICULAR CIRCULATION

The vehicular movement has been shown with blue arrows indicating the movement pattern of a vehicle starting from the entry, to parking / drop off, to the exit.

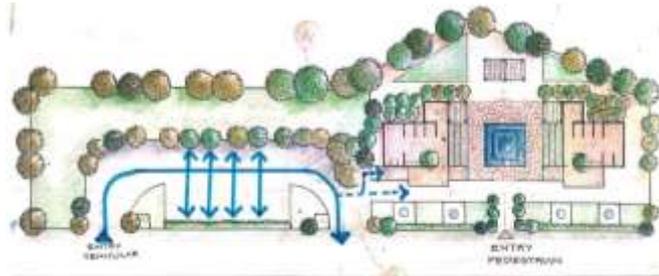


Fig. 5 Vehicular Circulation

PEDESTRIAN CIRCULATION

The pedestrian circulation shown by purple arrows indicate the movement pattern of pedestrians right from the entrance to the drinking water fountains, then from the waiting area to toilet blocks and food and shopping kiosks, leading to the green patches



Fig. 6 Pedestrian Circulation

5. INTERNAL PLANNING

The toilet blocks are each consisting of

- 3 wash hand basins, 1 PWD toilet, 1 store room, Men’s block having 2 WCs and 3 Urinals, Women’s block having 5 WCs.

Both the toilet blocks are adjoined by- men’s block having transgender toilet block with a separate entry and women’s toilet block having a diaper-changing-baby-room having a separate entry. This comprises of the whole toilet zone.

These zones are provided with ramps for entry and exit which lead to the parking area and courtyard.

Both the toilet blocks have a green pocket near the wash hand basin area. This green pocket can be viewed by the users right from entering the premises as it is allowed to grow through the puncture in the roof. The provision of a green pocket is done to create a cool and pleasing environment inside the toilet blocks.

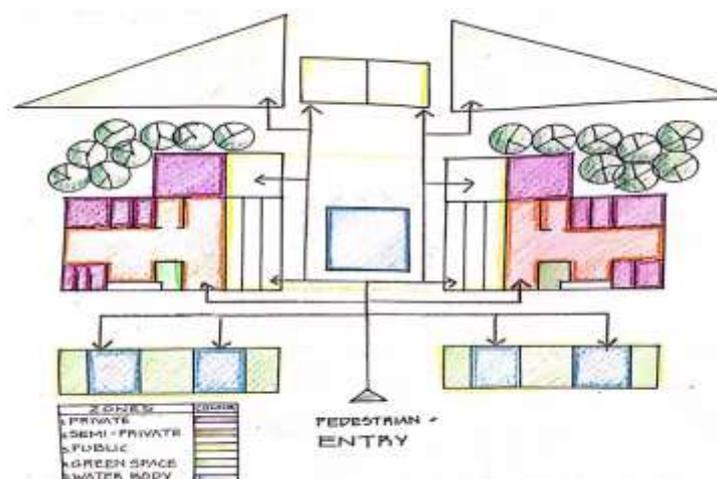


Fig. 7 Pedestrian Circulation

6. CLIMATE AND PASSIVE DESIGN STRATEGIES

The climate of Chanderi is hot and dry. The public toilet is designed by implementing climate-responsive passive-design strategies. Following are the strategies-

- Larger dimensions along north-south directions
- Central courtyard with water body provided for cooling refer Fig. 8 (1)
- Ventilation at higher level for escape of foul smell and for continuous flow of fresh air refer Fig 8 (2)
- Thick walls with cool pastel colours
- Shady trees along the south to reduce heat, to elevate humidity and accelerate wind speed.

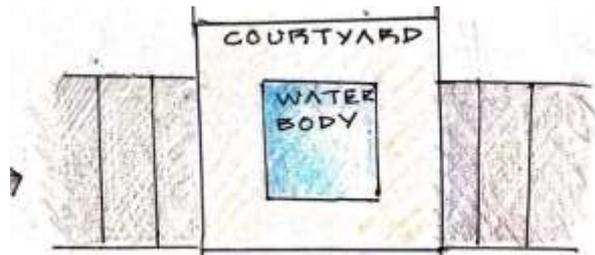


Fig. 8 (1)

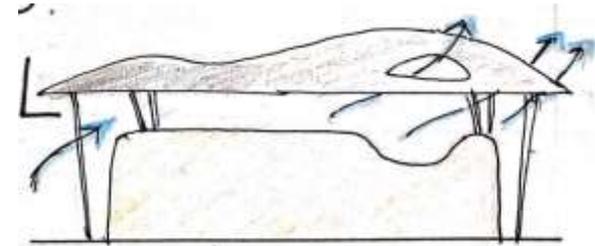


Fig. 8 (2)

7. UNIVERSAL DESIGN APPROACH



Fig. 9 Detail Plan

The whole project is designed keeping in mind all considerations for people with disabilities. Provision of ramps for entry and exit to all spaces, provision of tactile paths for the visually impaired throughout the campus, rounding off the corners to avoid hazardous situations. The main toilets for PwD in both gents and ladies block have been designed with all the necessary standards as shown above in the details.

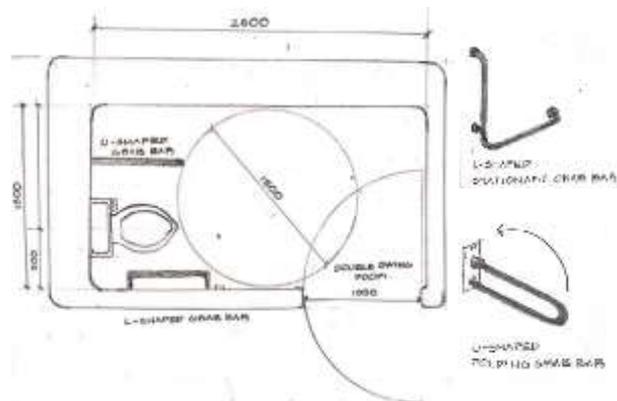


Fig. 10 Detail of PWD toilet block

The walls are mud plastered stone walls with curved corners taking inspiration from the dwellings commonly observed in Chanderi. These curved corners also prove to be safe for children and people with disabilities.

Small niches have been created in the walls which can be used to put up lamps and lanterns in the evening, something observed a lot in Chanderi.

Fragrant trees on the back side of the toilet blocks are provided to create a screen which will filter the smell that might come from the toilets.

The roof has been designed by taking inspiration from the undulating landscape forms of Chanderi, thus giving it an unusual yet familiar look, adorned with stone shingles which are a local material. This roof is detached from the walls and is supported on mild steel pipe columnade creating opening throughout the periphery which ensures ample light and ventilation which is necessary in a public toilet.

Another unique aspect of this roof is that it has a puncture through which a tree growing in the green pocket of the toilet block is allowed to grow above it, thus creating a harmony with nature.

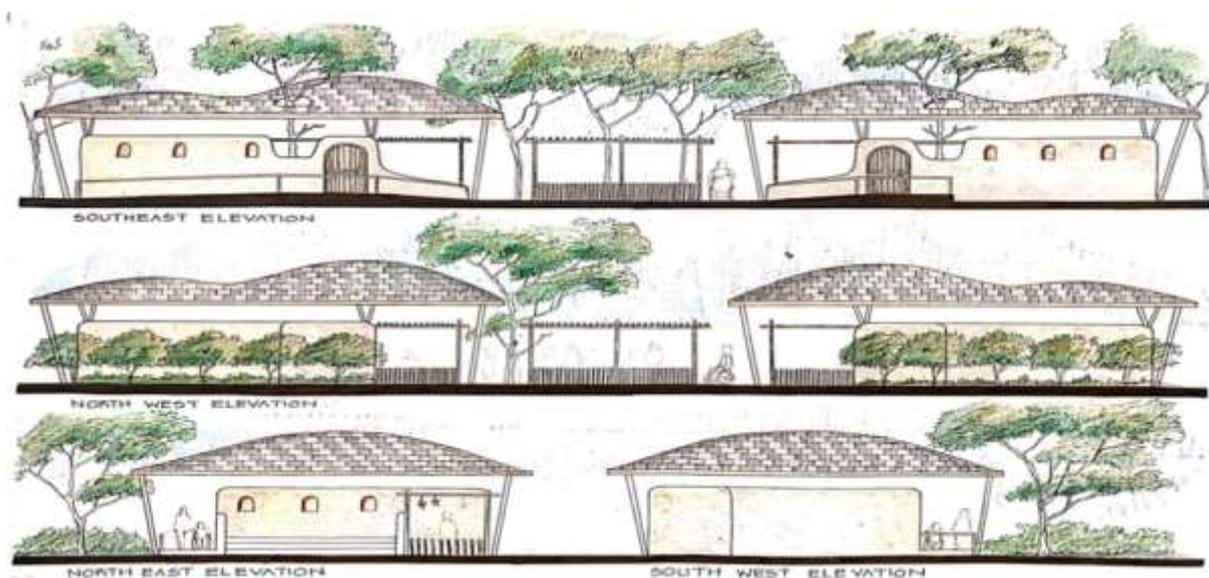


Fig. 11 Elevations

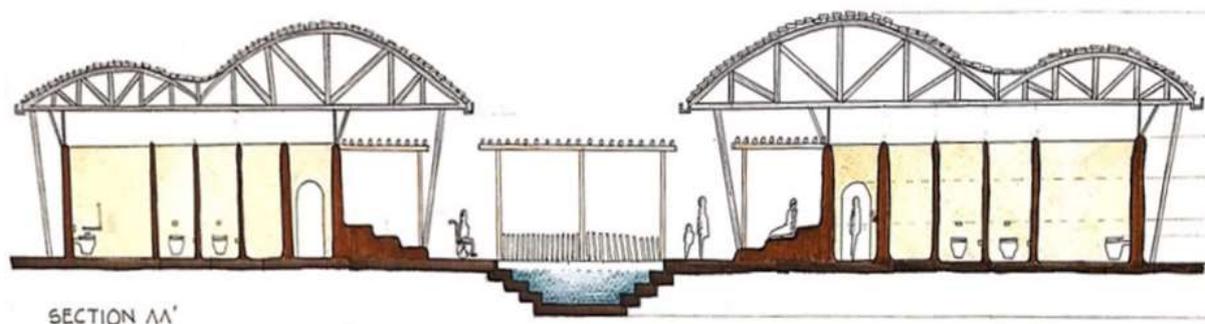


Fig. 12 Section AA'

8. ARCHITECTURAL DETAILS

The roof is made using photo voltaic and stone shingles fixed on a mild steel roof truss. Roofs made of stone shingles are observed all around Chanderi. These details explain the fixing of roof truss to post, shingles to truss, etc. Details of construction of stone wall plastered with mud with an alternative of earthship construction is also shown. Fixing of bamboo with bolts and screws is shown for the food and shopping kiosks over which Chanderi fabric will be put as means of providing shade.

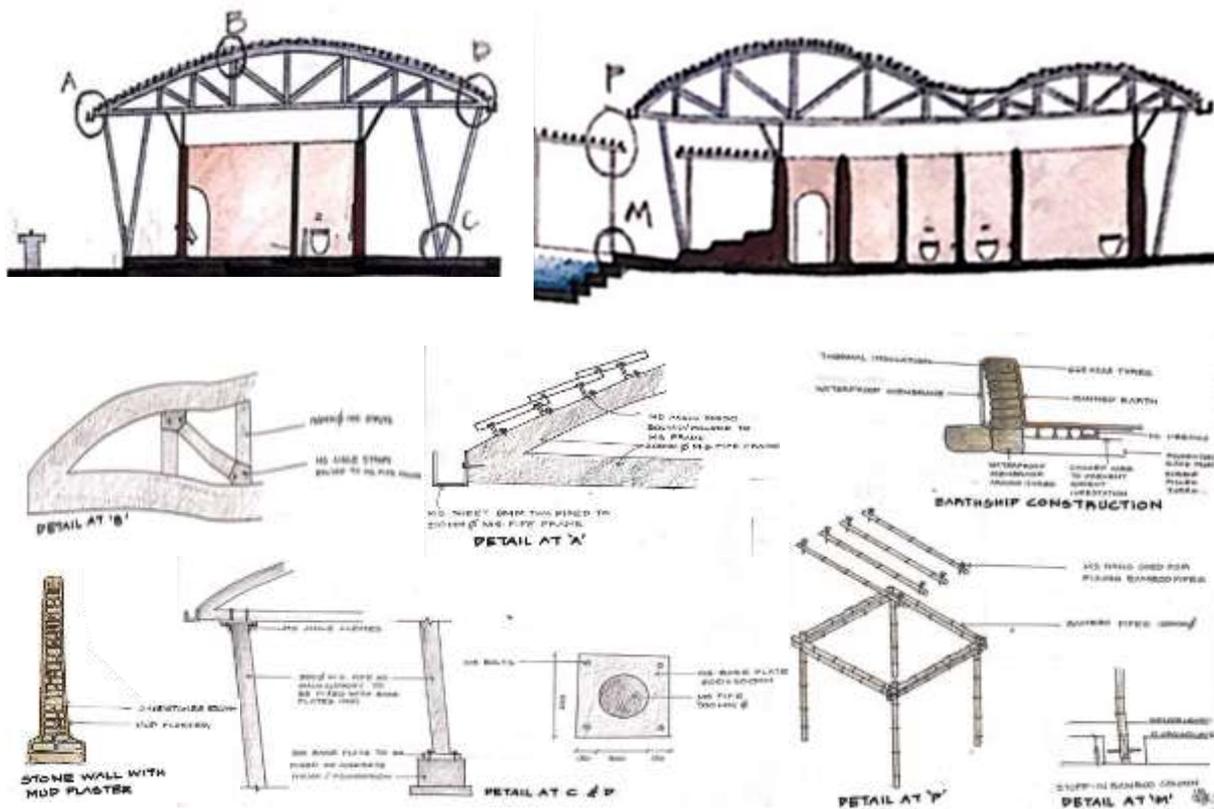
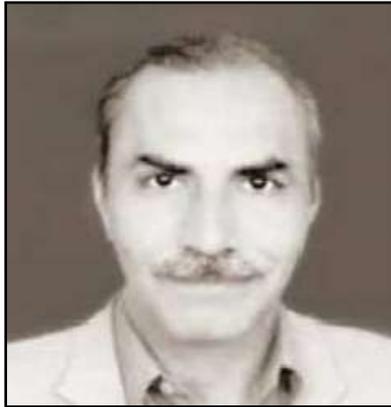


Fig. 13 Architectural Details

9. CONCLUSION

The 'Halt in a Journey' is a project aiming at providing a solution to the sanitation conditions in Chanderi, by creating a convenient and comfortable means of public toilets for ALL. Additional facilities like the water body, central courtyard, waiting zone with drinking water fountains, shopping and food kiosks all have been designed by getting inspiration from nooks and corners of Chanderi.

It is not a mere public toilet, but a complete experience in itself catering to the various needs of visitors. It is a design which will speak to its users and give them an essence of Chanderi. This multi-faceted, multi-functional space will thus be a quite enjoyable and definitely a memorable 'halt in a journey'.



Letter from the Chairman's Desk By Sunil Bhatia PhD

I am little bit confused when I think about of role and effects of design in human lives. Is it design that has effected or it was the effects that compelled for design or solution. It is popular phrase that mother of all invention is necessity but I believe other way round. The way small items have revolutionized the human progress it is unimaginable by any living beings. If branch of tree would have the same if it was not turned to arrow. This was the design that was beyond use of human body and turned the item that was not in shape of arrow was never existing into useful that was beyond human body. Imitation of function of hands or legs or voice or any other parts of body could be possible for designing but design of arrow was an attempt of imitating the nature and it was an attempt to think beyond where sharpness was existing in some other forms and attempt was to mould in desirous form for turning into sharp arrow for use in bow was excellent thought that further helped in designing various products that was not existing in its form. Animals might be improving and their progress is limited to their body only. Any animals cannot imagine of designing needle for stitching for joining .Animals can almost think of natural glue of plants for joining but humans have designed thread that was not thought by anyone to twist soft material of cotton for giving strength, located iron metal turned into needle and designed the process fo stitching .The whole concept was marevelous and reflected human efforts of designing.

The genius of human surfaced when they designed wooden nail for joining two planks by creating hole and fixed by pressure. The design of nail was little larger from hole and forcefully it goes inside that helped in holding. To make it more stronger nail and hole were replaced by design of mortise and tenon . I admire the ancient carpenter who were basically designer and designed not only tools but simplest process. Look at the design of wood planning push planer where cutting blade is fixed at slant angle in such manner if push forward it will cut the wood and they further improved of cutting the level of they added fixers and by hitting can fix the length of the blade.

Bicycle is the first transport means that invited females to enjoy ride and it was the first step of liberating woman from close wall.They ldid little modification like removed the bar of frame without compromising strength of the frame because female lifting leg backward was challenging so design at sit for peddling by lifting front by removing bar. I personally admire the design for side stands for stand of bicycle. Earlier male design was spring loaded and person to pull for standing on stand that require manual strength. That was not good design because it was not required to stand on stand but it should rest on stand. They design side stand by fixing metallic plates with bar cut from one end fixed with plates. Beauty is that small bent of metallic plates where small push upward crosses the threshold to allow the stand bar to rest in the air without falling on ground and small press downward allow the threshold to fall on the ground for stand sidewise. The introduction of horn that was loud and press the balloon for sound was replaced with mechanical ringing bell fix close to the handle bar where thumb can easily press the button for ringing and no need to leave one hand for pressing the horn . This design lower the chances of accidents because you need sound to alert others not by leaving

and peddling by controlling by one hand rather you should bicycle firmly for avoiding any eventualities. Press of mechanical ringing bell fix on handle bar at the distance where thumb can easily press the button was genius design.

I am discussing further a simplest design of muffler that lower the noise of the engine of automobile where number of plates are arranged in such way it takes longer possible path for fumes that is carrier of noise and absorption by arranged metallic plates arranged in such manner in case by striking with plates noise level gets lower. Have you ever thought that design of lock with key is mechanical design but concept is unique. Design of comb , rope and terracotta by using potter wheel expressed that our ancestors have given us a unique heritage and foubdatio n on that modern civilization is erecting.

Fire management by humans made the race superior in all respect with all living beings and match sticks proved fire is within his complete control and at will can ignite fire. I can. That small design has liberated the humans of struggle to keep fire alive at any cost to as and when need. Earlier people were borrowing fire or keeping under cover of ash for future use. Who has thought to design the earthen pot filled with oil and using wick dip one end in oil and fire at other end give burning longer the cotton wick so the light for longer time is another design that was the attempt of turning dark night to sun light day time. Gradually world moved for equal pace as in day and night. Electricity was an extension of light lamp and was bound for discovery by humans because of universal character. Electricity has helped design of various applications and ceiling fan is one of them. Safety and beauty of the fan is pin that holds the fan properly even at the time of rotation. That pin is the simples

design where a hard wire in bend is inserted in holding nut bolt . That nut bolt chances was high of opening when fan rotates so to hold it in place modern designer borrowed the centuries old idea of hole in bolt and inserted a pin that spread from the other side that simple pin has eliminated the chances of accident. It is my belief that only wheel was not deigned but to fix various ides were also emerged like use of wheel in cart fixing gave us pin of wood inserted in axel for lifting of water from well needed another design. How the idea surfaced in the mind of ancestors that water is in ground and by designing digging tools we can be benefited. That simple idea has changed the style of living and earlier humans were dependent on river and ponds, lakes and further humans added new facility for shifting civilization by designing well. Animals still relying on their body parts but humans began to imitate with better and useful design and protected himself not to hurt. They designed hoe that was extension of finger for diggings. Another best part of design was digging in circle because it was most stable design for preventing fall of soil in the dig part and ultimately abled to take out water from the ground. Ultimate design comes they succeeded in joining two concentric wheel one within the other by using design of spokes. That has given us freedom to design the products that can be stationary inspite of its movement. It was the design of floor that was design for storing the items but movement was stil relying on back of humans or animals but design of cart was extension of making floor dynamic

Arch Kavita Murugkar of Universal Design Centre of Design Bridge Foundation India has taken great imitative for establishing private Universal Design Centre that too without association with government agency and it is new chapter for Universal Design concept in India. She even asked Prof Abir Mullick to write foreword

who was one of the members in designing basic rules of universal design in India as well North Carolina State University .

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 esteemed readers, contributors and well wishers.

With Regards

Dr. Sunil Bhatia

Design For All Institute of India

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dr_subha@yahoo.com

Tel 91-11-27853470®



Forthcoming Issues

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/> 209 November 2018 Vol-13 No-11 Design For All Institute of India



April 2019 Vol-14 No-4Ms Ruth J Clark,

Fashion Moves will be the guest editor and she will highlights 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.

June 2019 Vol-14 No-6

Design for all specialist consulting public and private sector how to expand their innovation capacity and add value by deep understanding of people-centered design approach and qualitative research. Trainer on how to use human diversity to create social inclusion and develop sustainable solutions.



Experienced coach, passionate opportunity developer and visioner. Ivelina is the founder of Design for all Bulgaria Foundation, which is part of Design for all Europe. She is also the co-founder of Service Design Network chapter Bulgaria, member of Global Service Design Network. She is currently Research Associate at the Helen Centre of Design at the Royal College of Art in London. Ivelina has a vast experience in delivering training for professionals, business and non-government organisation on how to use design for social good and life improvement. Her projects include research in access to health information, creating a space for social innovation, conducting research for the first tourist wayfinding system in Sofia, Bulgaria, consulting inclusive playground, consulting technology Startup Company developing robotic devices for people with paraplegia and many more.

July 2019 Vol-14 No-7

GONZALO RAINERI BERNAIN

Assistant Professor | Design School

Universidad Finis Terrae | Chile

PhD (c) in Design

Universidad de Palermo | Argentina

More than 30 years of experience in all fields of visual communication design and 24 years of experience in the field of interactive design. Permanent formal education and continuous research in the fields of design, interactivity, experience design, new media architecture, market trends, new technologies, bioclimatic architecture and environmental issues among others. Advisor and consultant in strategic and communicational aspects for middle and large companies and organizations. Proactive entrepreneur in new trend media, creating the first Film Animation Festival, first cyber café, first 100% visual



magazine and first ECO friendly shop in Chile. Worked for companies and organizations in Amsterdam, Dublin, Madrid and Santiago. Graduate & postgraduate professor and lecturer in design related matters. Actual Product and Spatial Design Studios Coordinator, Member of the Research in Design Committee at Universidad Finis Terrae, Design School. O yeah! Did I say I'm doing a PhD in Design in Buenos Aires at the same time?

August 2019 Vol-14 No-8

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.

September 2019 Vol-14 No-9

"B.Arch (1999) from Government College of Architecture, Lucknow. Doctorate in Infrastructure Financing & Planning (2011) from Indian Institute of Technology Roorkee (IITR).



She has a professional experience of more than 18 years. Presently, she Professor & Acting Director in Amity School of Design, Amity University Noida. Apart from this, she is

researching extensively in the area of urban infrastructure development and policies she has conducted academic research in the area of 'Accessibility'. She is 'MASHAV' scholarship holder, granted by Republic of ISrael. Earlier, she had worked with Administrative Staff College of India, Hyderabad (ASCI, under Ministry of Human Resource Development, GoI), as Faculty in 'Centre for Energy Environment Urban Governance & Infrastructure Development'.

She has extensively indulged in 'training of trainers' for senior executives of the Central Government, State government and PSUs, as program director, coordinator and resource faculty.

Also, she has experience of leading the team for capacity building program organised by government and multilateral organisations jointly with ASCI in the area of PPPs in Urban Infrastructure. She had the privilege of working for the nomination process for social infrastructure projects for Prime Minister's Award.

She has worked with Central Government, State Government department and multi-lateral organisations. Prominent among them is Department of Economic Affairs Ministry of Finance GoI, ADB, Department of Personnel & Training GOI, Government of J&K, NTPCL, ULB of Bangaluru etc.

She has comprehensively reviewed the existing regulations and trends in the infrastructure sector both domestic and international at length. Further she has been closely scrutinizing the on-going national and state policies pertaining to regulatory issues.

She has published book chapters with renowned international publishers and refereed research papers in the scopus indexed journals.

New Books



ISBN 978-613-9-83306-1



Sunil Bhatia

Design for All

Drivers of Design

Expression of gratitude to unknown, unsung, unacknowledged, unappreciated and selfless millions of humans 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 not

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.

www.lap-publishing.com

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>

Six and a Half Years on a Dunghill

Life in Specialist Disability Accommodation



PETER GIBILISCO



The Ultimate Resource for Aging in Place With Dignity and Grace!

Are you looking for housing options that are safer and more accommodating for independently aging in place? Do you want to enjoy comfort, accessibility, safety and peace of mind – despite your disabilities, limitations and health challenges? The help you need is available in the Universal Design Toolkit: Time-saving ideas, resources, solutions, and guidance for making homes accessible.

This is the ultimate resource for individuals and professionals who want to save time, money and energy when designing, building, remodeling or downsizing a home. The Universal Design Toolkit will help you take the steps to design homes for your clients or yourself while eliminating the costly trial and error challenges you'd inevitably encounter if faced with this learning curve on your own.

Rosemarie Rossetti, Ph.D., teamed with her husband Mark Leder in creating this unique Toolkit. They bring ten years of research, design and building expertise by serving as the general contractors for their home, the Universal Design Living Laboratory– which is the highest rated universal design home in North America.

Within the Toolkit's 200 richly illustrated pages, you'll find:

Insights that distinguish *essential* products, services and resources from the *unnecessary*.

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Space planning dimensions for access using assistive devices such as wheelchairs and walkers.

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If you want useful, dependable advice and easy to implement ideas from respected experts who know the ropes, you'll love Rossetti and Leder's perspective. As a speaker, author and consultant who uses a wheelchair, Rossetti has helped hundreds of people design their ideal homes. Now her comprehensive Toolkit is available to help and support you!

Get the Universal Design Toolkit now to start your project!

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—STEPHAN J. SMITH, EXECUTIVE DIRECTOR, ASSOCIATION ON HIGHER EDUCATION AND DISABILITY

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**UNIVERSAL DESIGN
IN HIGHER EDUCATION**

From Principles to Practice
Second Edition

Edited by
Sheryl E. Burgstahler

Foreword by Michael K. Young



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SEPTEMBER 2015
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**UNIVERSAL DESIGN IN HIGHER
EDUCATION**

From Principles to Practice, Second Edition

EDITED BY SHERYL E. BURGSTAHLER • FOREWORD BY MICHAEL K. YOUNG

This second edition of the classic *Universal Design in Higher Education* is a comprehensive, up-to-the-minute guide for creating fully accessible college and university programs. The second edition has been thoroughly revised and expanded, and it addresses major recent changes in universities and colleges, the law, and technology.

As larger numbers of people with disabilities attend postsecondary educational institutions, there have been increased efforts to make the full array of classes, services, and programs accessible to all students. This revised edition provides both a full survey of those measures and practical guidance for schools as they work to turn the goal of universal accessibility into a reality. As such, it makes an indispensable contribution to the growing body of literature on special education and universal design. This book will be of particular value to university and college administrators, and to special education researchers, teachers, and activists.

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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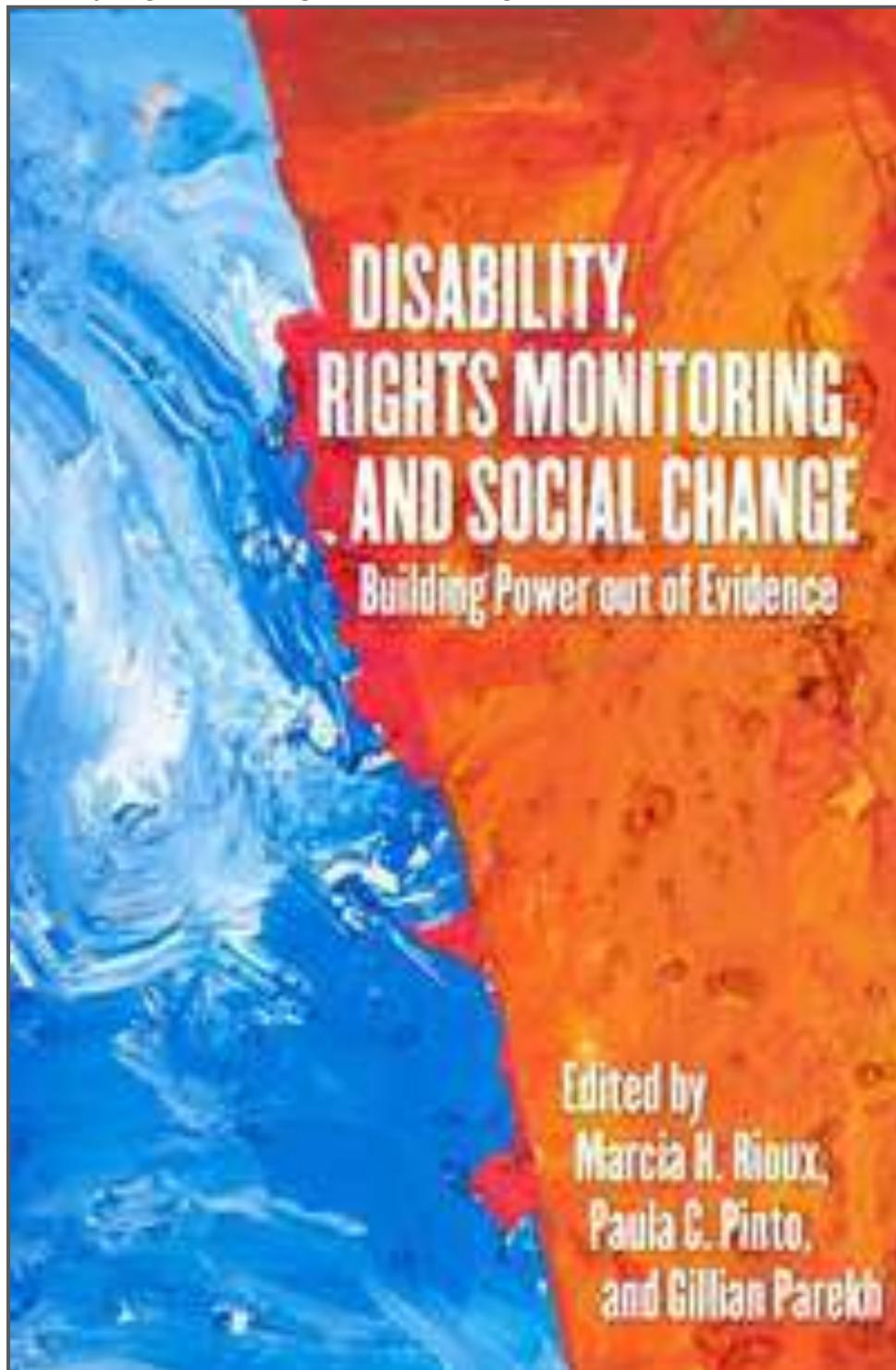
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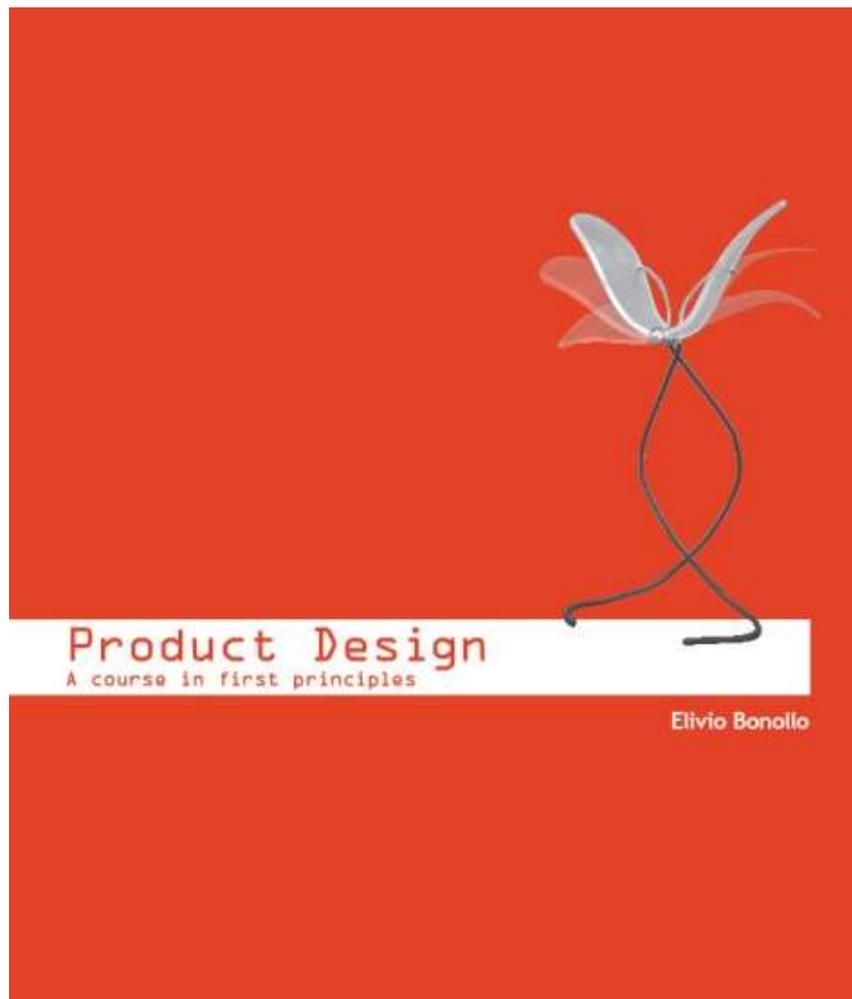
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The 2018, eBook edition is available in mobi (Kindle) and ePub (iBook) file versions on the amazon and other worldwide networks; including on the following websites:

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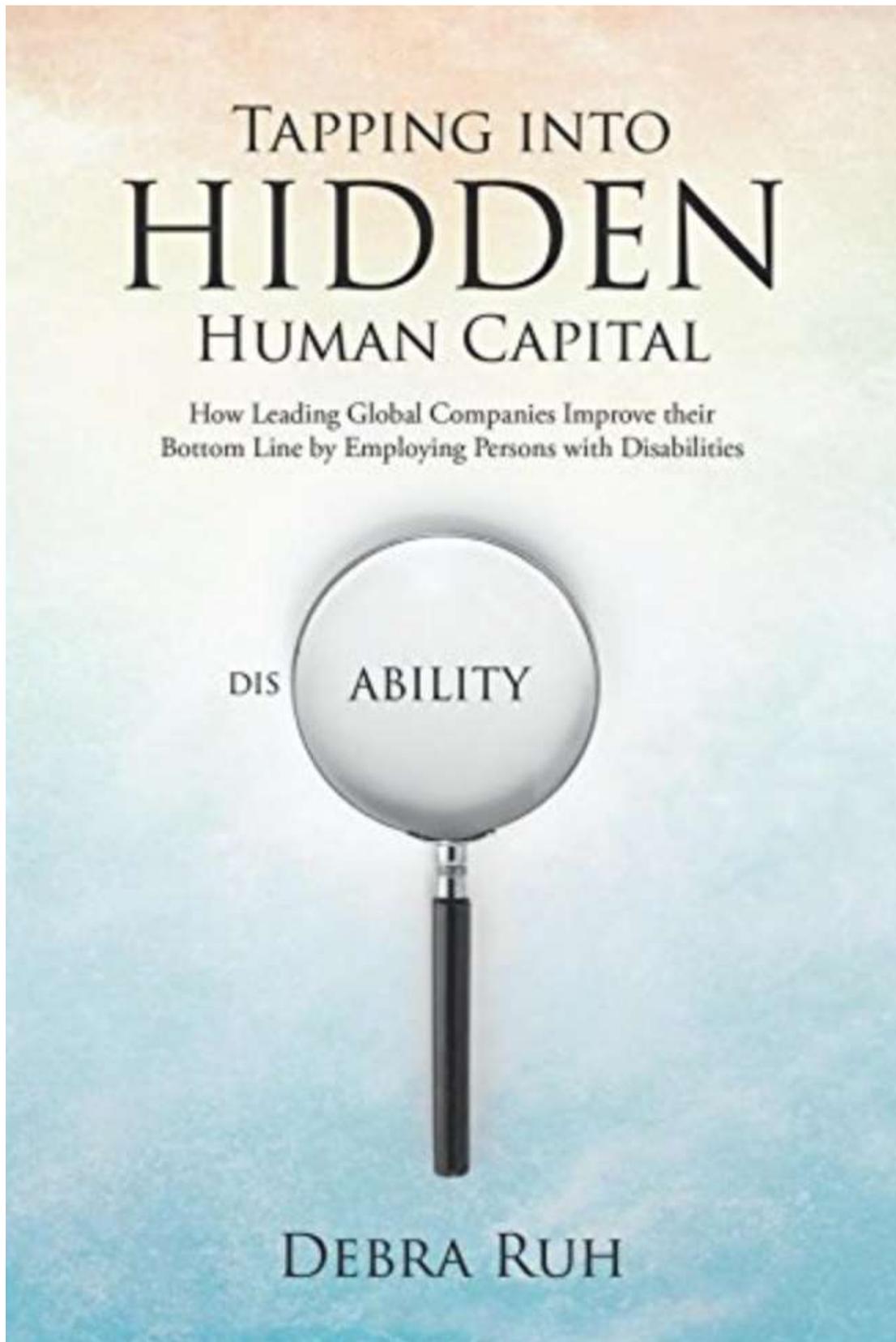
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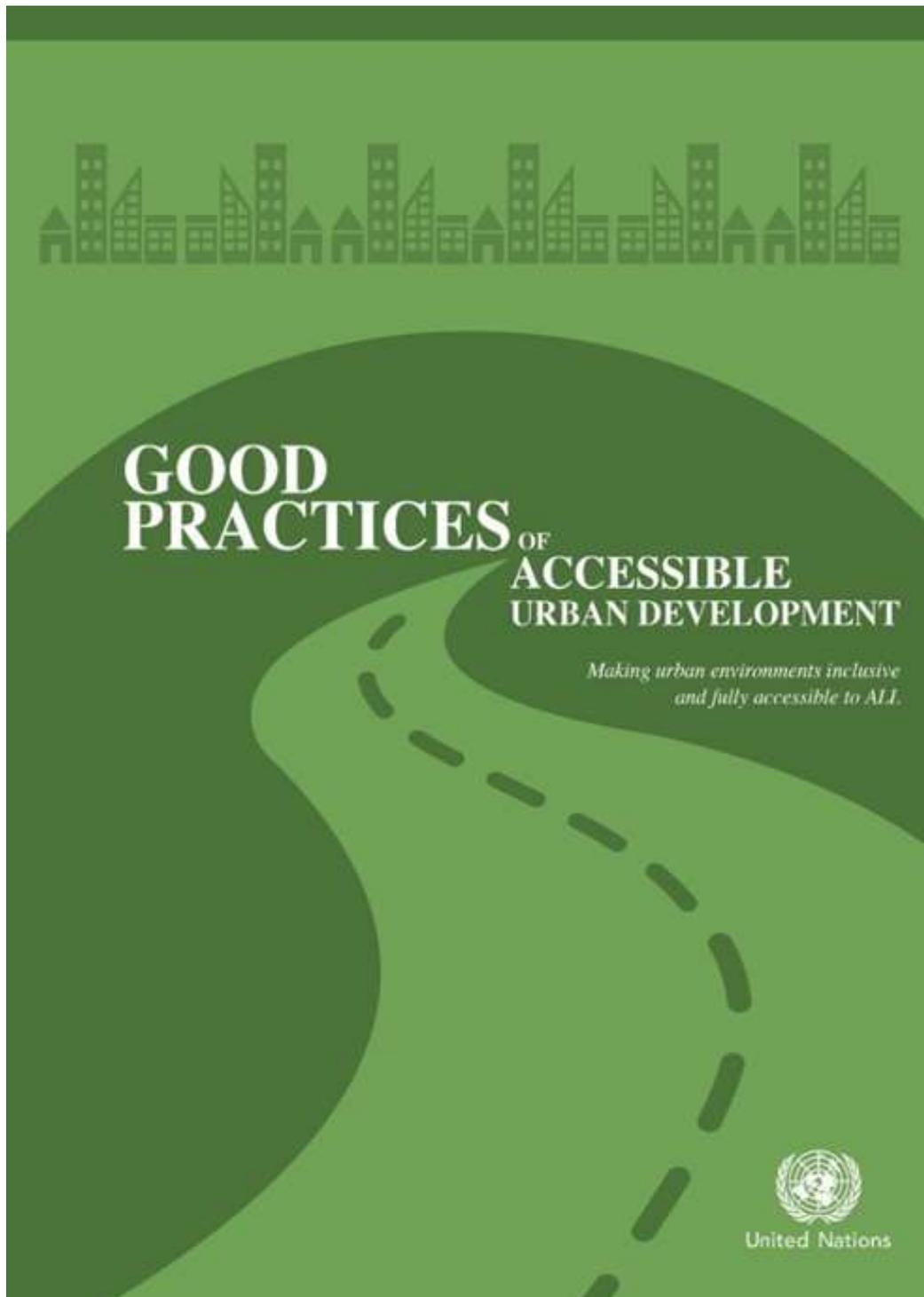
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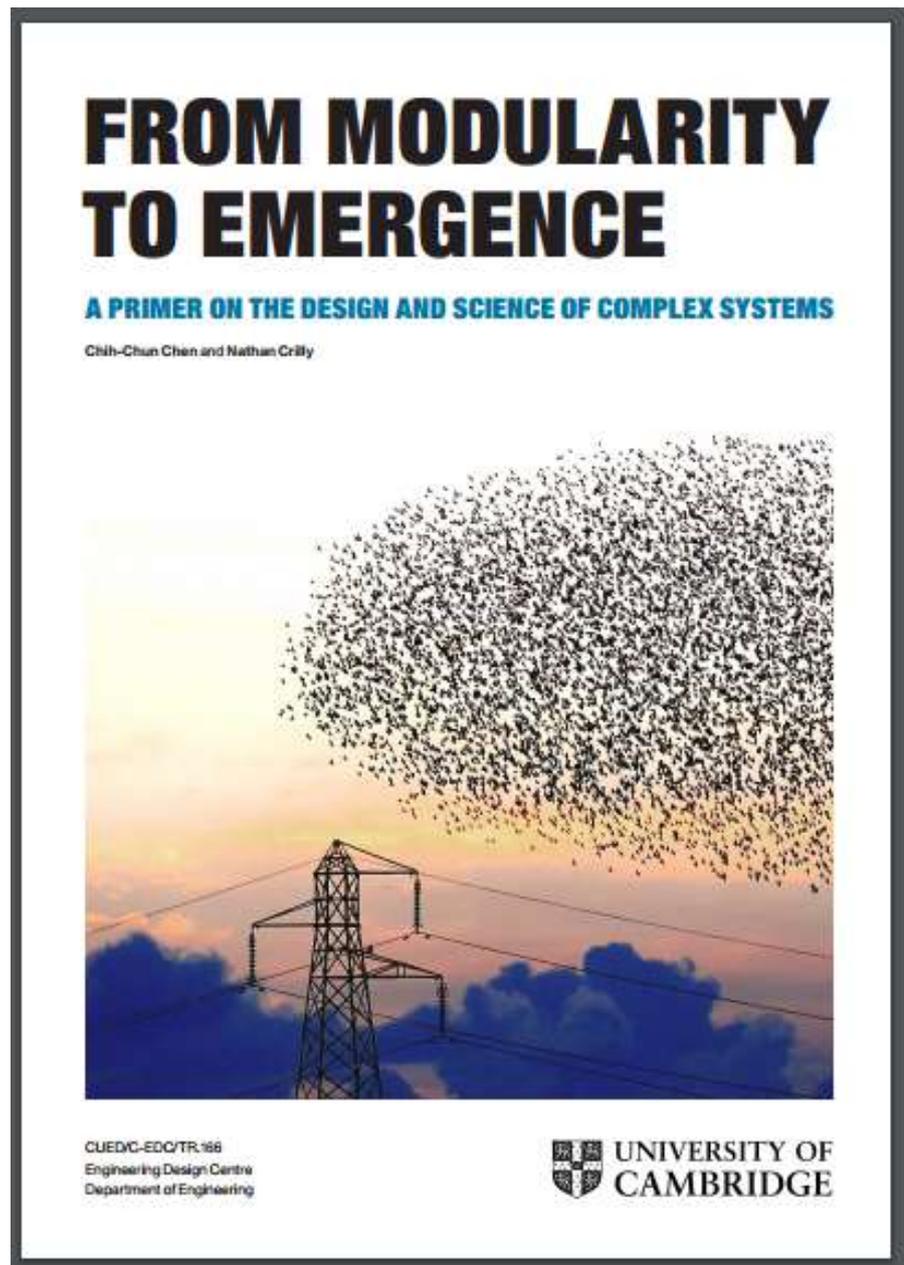


In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared a new publication entitled: “Good practices of accessible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

The advance unedited text is available at: http://www.un.org/disabilities/documents/desa/good_practices_urban_dev.pdf



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).

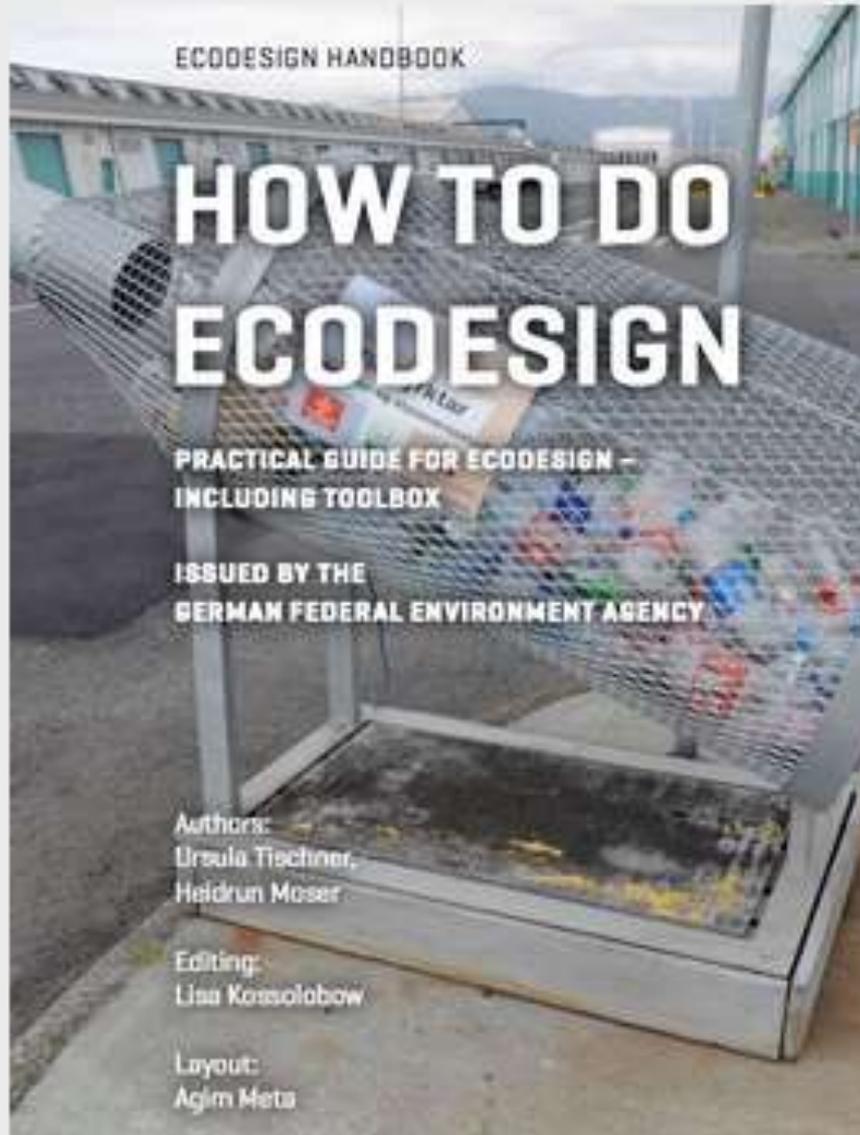
The book is available at URL:

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Changing Paradigms: Designing for a Sustainable Future

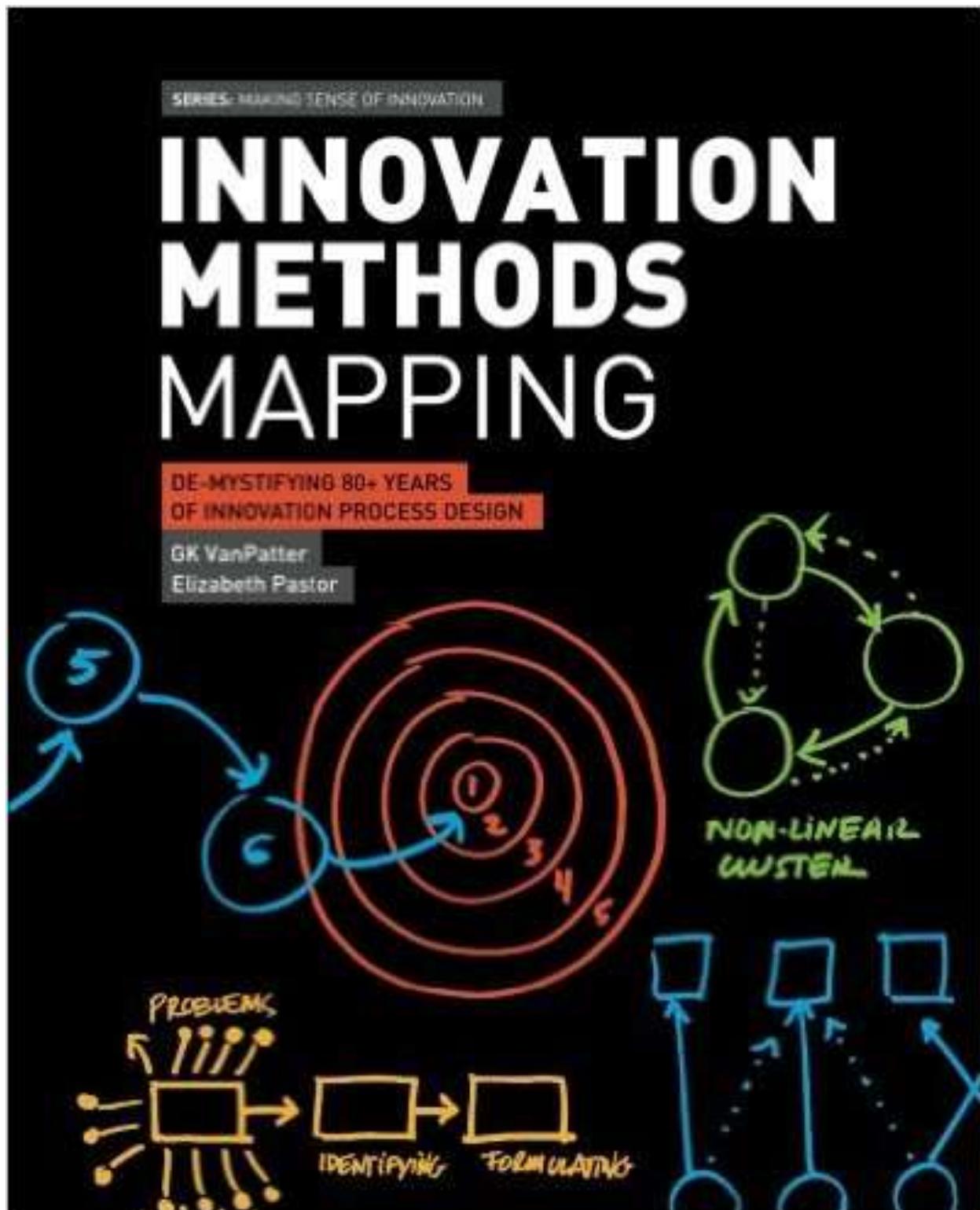


New iBook / ebook: HOW TO DO ECODESIGN



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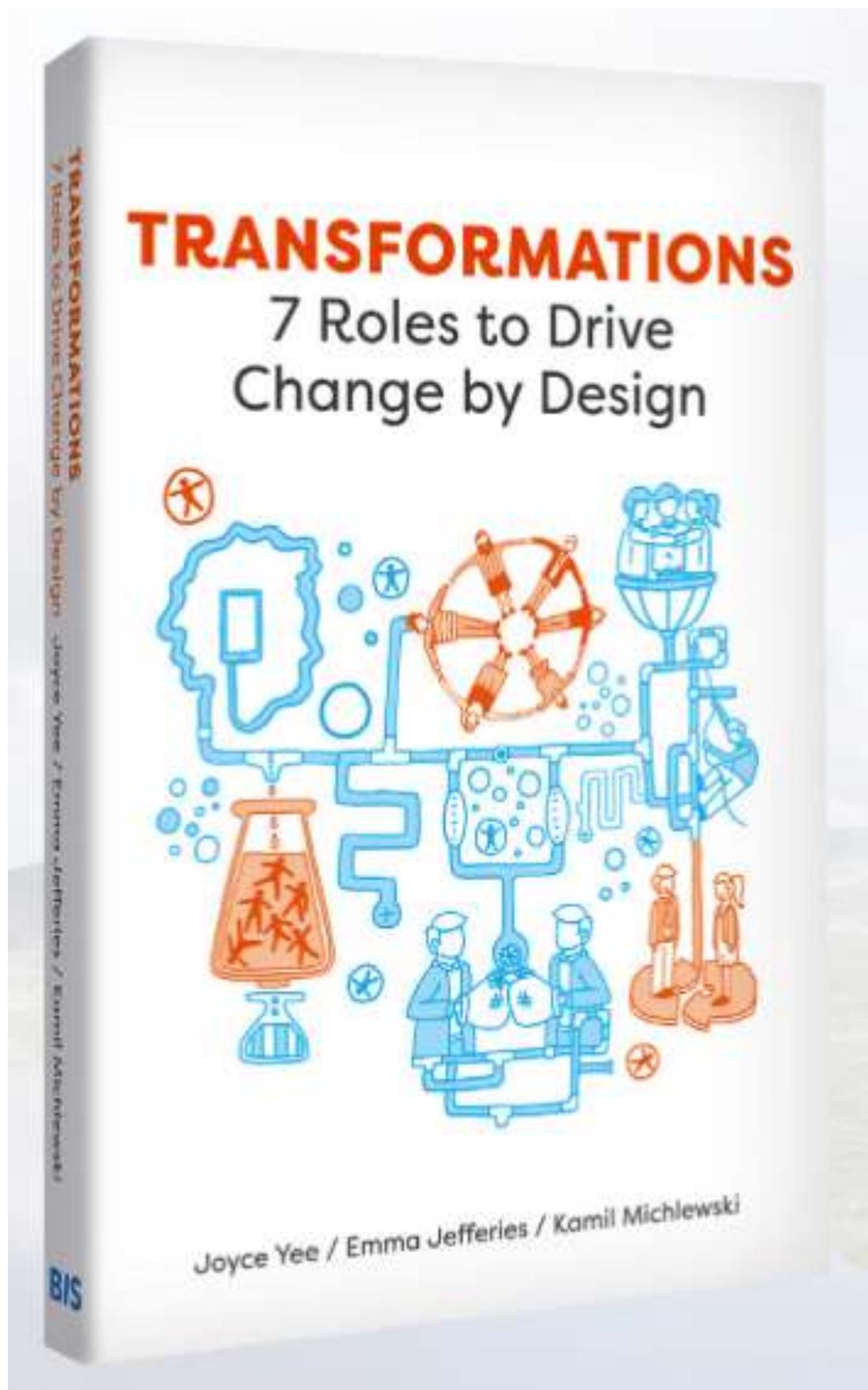


Humantific's new book: Innovation Methods Mapping has just been published and is now available on Amazon.

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:

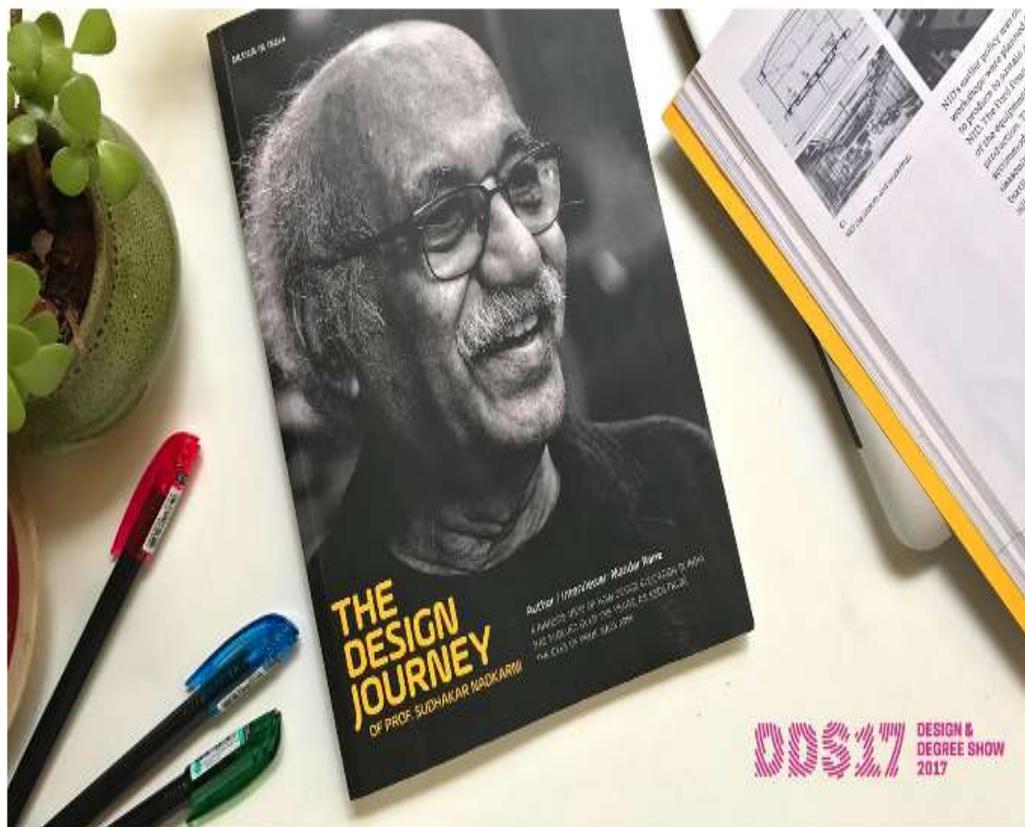
https://issuu.com/humantific/docs/innovation_methods_mapping_book_pre



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.

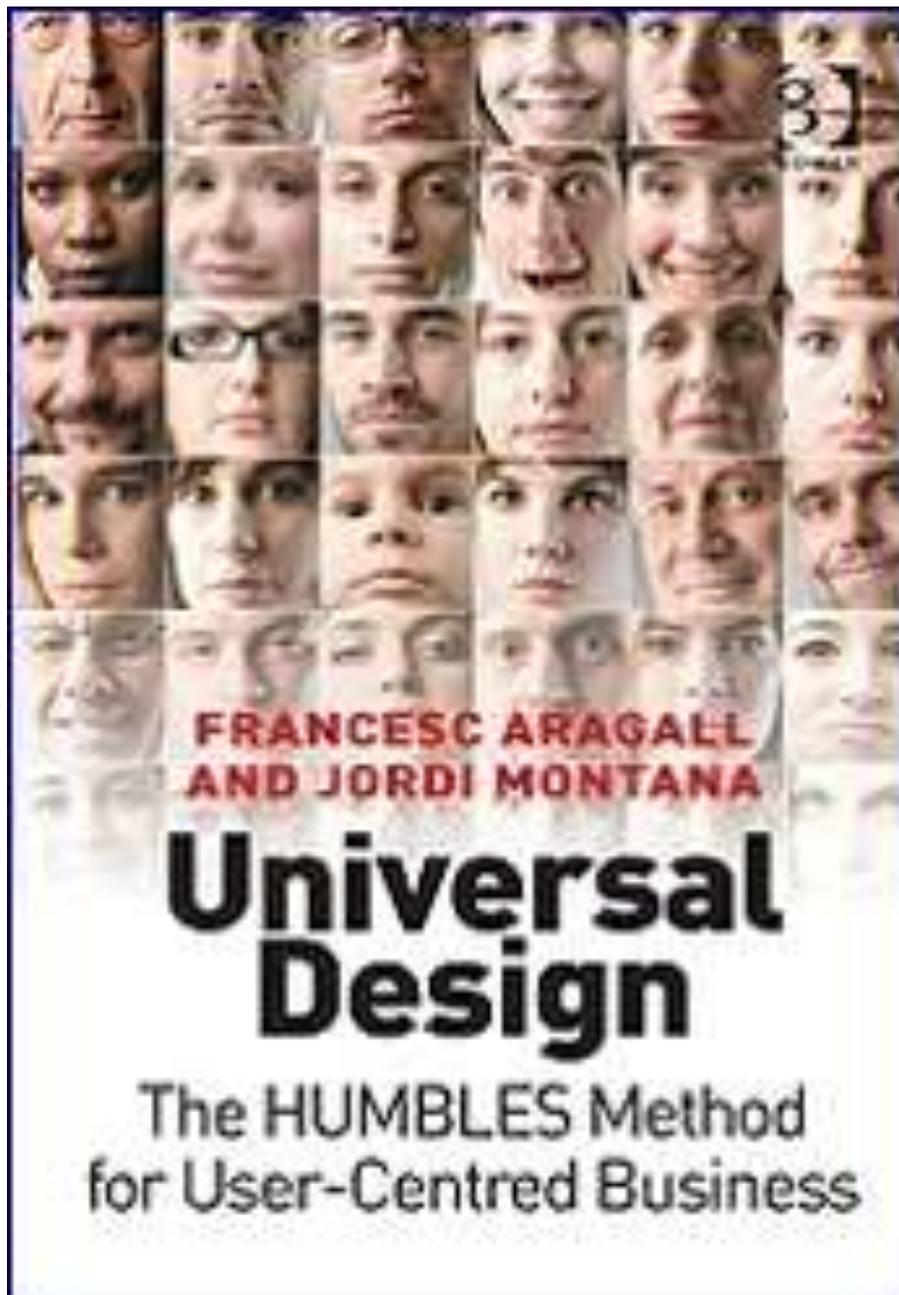
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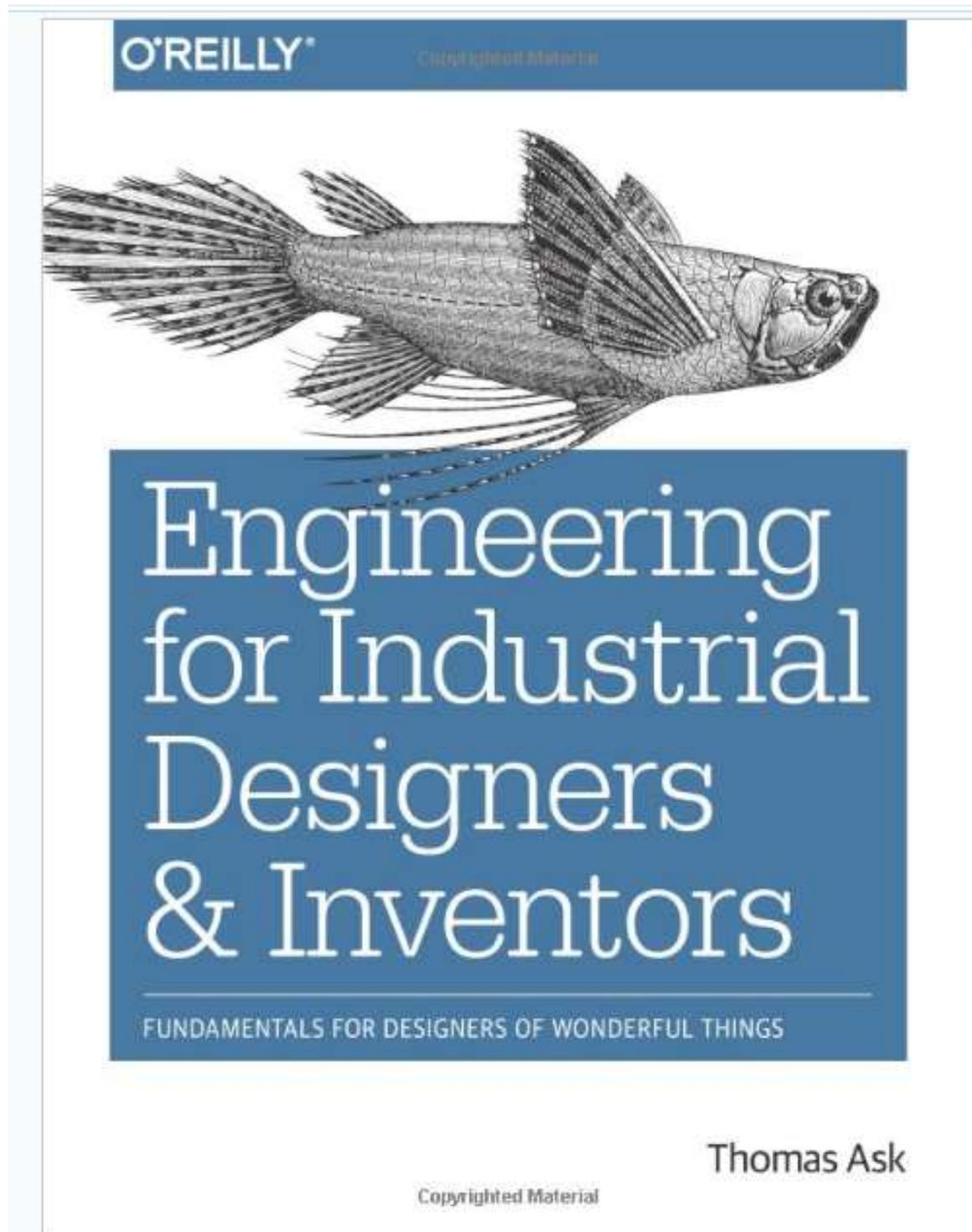
Universal Design: The HUMBLE Method for User-Centred Business



“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 businesses 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+inventors

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Benefits from key function areas on

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the main level of the house (you never know when an accident might happen!) features in the bathroom.

Benefits from BLD qualities along with custom accessibility elements. You too benefit from universal design!

However, most people don't realize how much easier their life could be with a BLD home.

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Your donation/support will allow:

- Six **BLD** demonstration homes in the next two years
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- Promotion of **BLD** to consumers and the housing industry: design, builders, appraisers, lenders, remodelers, manufacturers, retailers, realtors, etc.

Better Living Design is a 501-C3 non-profit. Your donation is a tax deductible contribution. Give before December 31, 2018, and help us reach our \$10,000 goal. Thank you!

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News

1.

Professor attends workshop on inclusive toy design

The 18th International Creativity Workshop “Toy Design and Inclusive Play” hosted by the Berlin-based, non-profit association “Fördern durch Spielmittel e.V.” (“Support and Challenge through Toys”) was held from Jan. 14-28. The 23 participants included designers, toy developers, artists, teachers, psychologists and therapists from around the world, including the only participant from the United States, University of Indianapolis Professor of Teacher Education Greta Pennell. According to the program’s application, the aim was to “develop new toys for children adults that increase their joy of playing, support inclusive education and contribute to ecological sustainability.”



Contributed Photo by Greta Pennell

Greta Pennell (left) and Surabhi Khanna (right) construct Pennell’s toy during her sabbatical trip to Germany.

The two-week workshop began with the participants explaining their previous work, getting 10 minutes each to present. Pennell talked about her First Year Seminar course, Gender in Toyland, where students learn about how children are socialized to understand gender roles through toys and toy advertisements.

After this, they were broken up into interdisciplinary teams of four or five and assigned one of four mentors. For her mentoring, Pennell worked with Surabhi Khanna, who is from India. She said when she first joined the International Toy Research Association, of which she is now Vice President, she met Khanna's father so she was excited to work with Khanna. The teams broke up and visited different institutions around Berlin to get varying ideas to go toward designing a new inclusive toy.

"So everywhere that people went—they went to places where there were people with disabilities," Pennell said. "The idea was to really use this notion of a universal design for learning or universal design in general, like how do we design to include everybody. And then we came back, shared our observations from what we had seen at our respective sites."

While some participants went to senior care facilities or schools specifically for children on the autism spectrum, others went to regular schools that had children with special needs mainstreamed in, which Pennell said is more common in Germany. This experience was supposed to inspire the participants own toy design.

Pennell said she did not realize that she would be designing a toy when she started the workshop and had no prior experience as she is a developmental psychologist that teaches about gender and

toys. Khanna had Pennell begin by sketching her idea, and Pennell said she wanted to design an invitational toy but that there was some confusion on what that meant.

“In explaining it, that’s when I kind of had my aha moment because I showed her [Khanna] what I meant,” Pennell said. “What I did is an old trick that I had done when I used to be at the Children’s Museum to teach kids about Newton’s laws of motion and inertia. And I’m sure you’ve seen it where the magician has the tablecloth, the table setting and rips tablecloth out from underneath. Well, I just did it on a really small scale.”

Pennell’s toy is called “Don’t Lose Your Head” and featured four stacks of small balls of varying heights and colors and a variety of fabric. The objective of the toy is put the fabric under the stacks of balls and then pull it out without knocking over the stack. The balls have a small hole drilled in the top and a tiny dowel rod out of the bottom to help hold them together, however, the stacks still wobble, which adds a level of difficulty. The stacks also have little hats on top and as they get taller they become more wobbly. The fabric ranges in difficulty due to thickness and type, with the easiest being a rainbow organza and the most difficult being suede leather. Each of the fabrics also has different edges to add another element.



Contributed Photo by Greta Pennell

Featuring stacked balls and different fabrics with varying edges, Pennell's toy has multiple levels of difficulty.

"So that if you really wanted to use it as a science teaching tool, there was a way then you could ask kids, 'So does it matter? Does the color of the fabric matter? Does the texture of the fabric matter? Does the shape of the edge matter?'" Pennell said. "And they could test that out so that you can use it with older kids in a more sophisticated way."

Participants presented their prototypes to each other to get feedback and then decided which to fully develop. Pennell said they worked from about 9 a.m. to 11 p.m. with time for lunch and dinner. On the final day of the workshop, an exhibition was held to showcase the results of the workshop. About 300 people came to the exhibition, including the mayor of Berlin who gave remarks and judges, according to Pennell.

Pennell said she has many ideas that she could bring back to UIndy, and learned a lot about other countries and how they do toy design. For example, she said in India one of the schools of engineering has a toy design research department, which she thought could be interesting to implement.

"One thing that I'm really interested in is how we might use what I've learned about toy design..." Pennell said. "In terms of the courses that I do teach, thinking about what did I learn about collaborative teams, design process thinking, how could I incorporate that into my courses."

Through this experience Pennell met many different people from all over the world. She said, if the timing works out, she would love to

Skype them into her classes so that they can share their expertise with her students.

“I think the best part of it was forming these collegial relationships,” Pennell said. “It’s amazing how close we all became in just two weeks and the depth of the discussions that we could have about what are our challenges that we’re facing in our home countries.”

(Source: The reflector)

2. A Tribute to Tom Hehir, HGSE's Voice for Inclusion

The special education expert and professor, who retired this fall after 19 years at the Ed School, was a leading advocate for the rights of disabled children.

Over the course of his long and influential career in public service, policymaking, teaching, and research, Tom Hehir has been a unique and vital voice for students with disabilities, their parents, and the educators who serve them. On the occasion of his retirement from HGSE, we asked his former HGSE student Melanie Perkins McLaughlin, Ed.M.'17 to reflect on what Hehir has meant to her and to the field.



In 2007, I was stunned by a prenatal diagnosis; our third child had Down syndrome and a congenital heart defect. When Grace was a baby, she looked like every other baby, she was adorable. As she grew, the gap widened and we began noticing the way she was treated

differently. We had to advocate for Grace to be included in our public preschool, learning the hard way that not everyone would be accepting of Grace's differences. I began a fellowship in disability leadership and became the co-chair of the Massachusetts Department of Elementary Education Special Advisory Council (SAC).

At one of my first SAC meetings, we discussed the *2014 Review of Special Education in the Commonwealth of Massachusetts: A Synthesis Report* by Professor Tom Hehir, Ed.D.'90, and associates. The report identifies three broad categories for improvement for students with disabilities in Massachusetts, including identification, placement in the least restrictive environment, and access to curriculum. It recommends collaboration between special education and general education departments and addresses issues of equity. The reality of what we were living everyday with Grace is echoed in the report: "The lack of equitable access to effective inclusive options... appears to be a major systemic issue in Massachusetts."

I was riveted by what the report referred to as "policy mechanisms" to create systemic change. I wanted to learn from Hehir how to help Grace and every student like her. I enrolled at the Ed School, where Hehir — or as most of us know him, Tom — became my adviser, teacher, colleague, and friend.

He has changed the life trajectory for my daughter and millions of children like her. As director of the Office of Special Education Programs at the U.S. Department of Education, he was responsible for implementing the Individuals with Disabilities Education Act, which serves 6 million children with disabilities across the United States. He's consulted with and written international reports on

inclusive education for countries such as Brazil and Sweden. He has authored four books and countless articles on the importance of including children with disabilities in every classroom through the use of universal design for learning and good old-fashioned best practices in education.

If you know Tom, you know his easy-to-approach persona. He started his career as a special education teacher and now considers himself a “teacher’s teacher.” For all that he has achieved, he remains a kind and generous teacher who understands the rigor involved in educating our next generation of leaders. He has also instructed thousands of Harvard graduates – teachers, principals, superintendents, and policymakers – on the importance of implementing meaningful inclusive education. At a place as focused on intellectual ability as Harvard, Tom has consistently reminded all of us that disability is natural, equity includes individuals with disabilities, and inclusion is more than an educational concept. It is a state of mind.

Melanie Perkins McLaughlin, Ed.M.'17, is currently an inclusive education consultant in Massachusetts.

(Source: Harvard School of Education)



Programme and Events

Typography Day 2019
IDC School of Design (IDC), IIT Bombay, Mumbai, India
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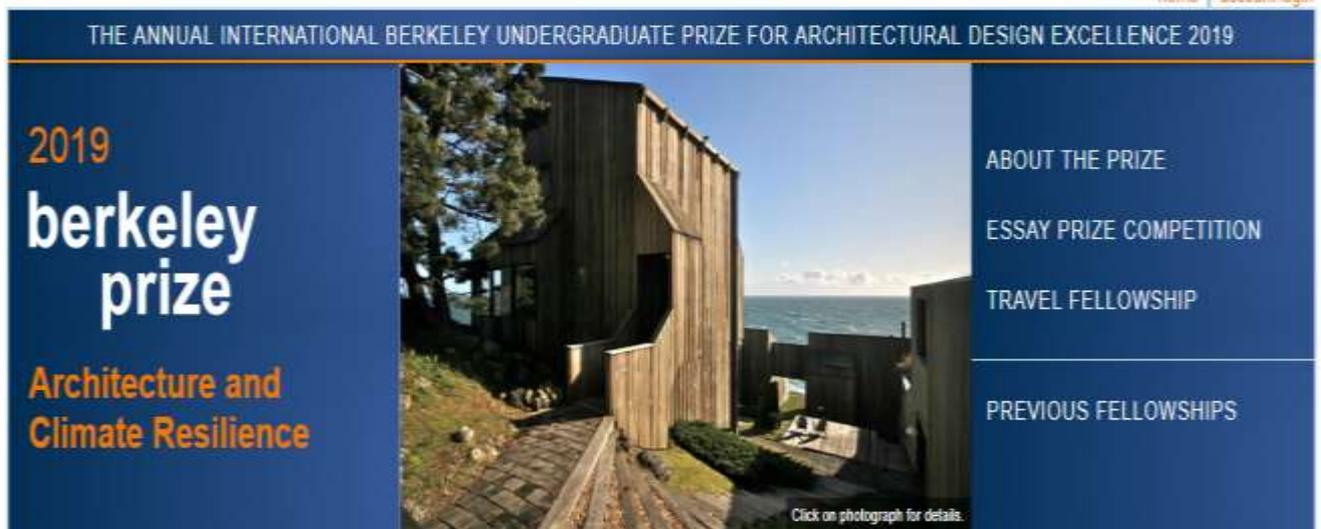
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The poster features logos for the University of Bologna, AAATE (Association for the Advancement of Assistive Technology in Europe), and AIAS (Association of Institutes for Assistive Technology in Europe). The main title is 'Global Challenges in Assistive Technology Research, Policy & Practice', held from August 27-30, 2019, in Bologna, Italy. It includes a 'Call for Papers' section with a submission deadline of February 28, 2019, and a 'Call for other contributions' section listing educational, policy, and product presentations. A list of conference topics is provided, covering areas like cognitive disabilities, service delivery, education, and smart environments. Contact information for the website, social media, and email is also included.

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28 February 2019**

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See website for deadlines

Conference topics

- ↓ Assistive technology (AT) for cognitive, sensory and motor disabilities
- ↓ AT service delivery systems, practices, quality and outcomes
- ↓ AT education, training and professional development
- ↓ AT in low- and middle-income countries
- ↓ Emerging and innovative AT
- ↓ Alternative and Augmentative Communication
- ↓ AT and social assistive robotics
- ↓ AAL, smart environments and IoT
- ↓ eAccessibility
- ↓ Universal Design
- ↓ Mobility and seating solutions
- ↓ Ageing and technology
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- ↓ AT, digital health and innovation in care
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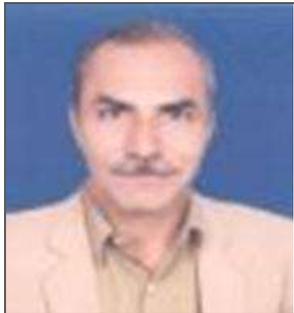


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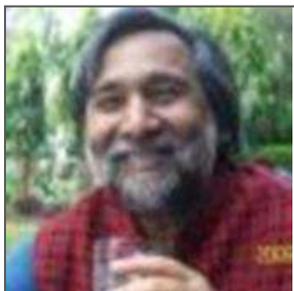
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