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DESIGN FOR ALL

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Center for Human Centric Research
School of Planning and Architecture, Bhopal



School of Planning and
Architecture, Bhopal

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Prologue

Globally Universal Design has become a worldwide movement and Universal Design courses are found in universities all over the world. However, in India Universal Design Education finds little space in curriculum of design schools, as there are lesser awareness, soft laws, weak government policies and lesser career opportunities to back universal design. There are only a few efforts in universal design education and research, in architecture and design schools of India. Most of these are limited to the accessibility training workshops done for the design professionals and students by a few proactive NGO's in India.

The architecture colleges in India have several models, some are faculty of a university, and some are affiliated with engineering colleges or arts colleges, while a few are stand alone colleges of architecture. Out of these most are either state run or private funded colleges, whereas a few are central government funded with a status of institution of national importance. A regulatory body of called Council of Architecture was formed through Architects Act 1972, to control the quality of architecture education and practice in India. In 2006, the Council of Architecture made it compulsory to include accessibility in the existing curriculum, yet most of the schools still not have a full course on accessibility not to mention Universal Design. As per the norms of Council, most of the schools teach accessibility as a set of codes and guidelines developed by the Government of India. These guidelines are adopted from the western model and do not have any research base in the Indian context. There is an acceptance by the regulatory bodies that

it should exist in the existing architecture curriculum but the effort loses relevance without contextual understanding and application. There are only a small number of universal design initiatives, design studios and graduate researches in India, but overall universal design education in the country still lacks significant presence in academia and research.

School of Planning and Architecture, Bhopal is an autonomous Institute of National importance of Government of India by SPA Act. It is committed to the cause of value based architecture education and house research centers for the purpose. Centre for Human Centric Research (CHCR) at SPA-Bhopal is one such multidisciplinary research centre established in 2010. The center aims to bring awareness amongst future architects and planners to respond to the needs of diverse human population otherwise marginalized in the past design practices, for collective socio-economic and socio-cultural development in the country. The center has organized user-centric studios, special lectures, workshops, exhibition on universal design and offers an elective on 'Enabling Environments'.

The CHCR, conducted an one year long design studio under Berkeley Prize Teaching Fellowship-2013-14 on '*Universal Design for Cultural Interface in the Sacred Site of Ujjain*'. The studio focused on equal access to achieve universal design for a culturally rich site in India. This section shares the journey of the universal design education, from global to local, in the architectural design studio within the culturally diverse context of India, as revealed by a year-long project set in the riverside town of Ujjain. The result of this project is a human centered research and design process, for teaching universal design as part of the

everyday curriculum of architecture schools, both in India and around the world. The Teaching Fellowship was led by Dr. Ajay Khare, Chairperson of Center for Human Centric Research and then Director of SPA-Bhopal. The studio was supported by Dr. Rachna Khare, Coordinator, CHCR. Both are full time Professors in the Department of Architecture at the institute.

Ujjain is one of the seven sacred cities for Hindus and presents diversity in true Indian context. Apart from the rich tapestry of myths and legends, the city has witnessed a long and distinguished history with rich traditions. The city was called Ujjayini in ancient times (6th Century BC) and is referred to as Ozene by Ptolemy (2nd Century AD) (UMC, 2006). The city was a center of Buddhism and later Hinduism. It is also known for traditional astronomical sciences because of its unique geographical location at tropic of cancer. The city is a famous pilgrimage and visited by several people to pray for good health and well being, and a large number of them are vulnerable and deprived. This is also a site of mass Hindu pilgrimage or bathing festival called Kumbh or Simhastha which is celebrated in a cycle of twelve year at a certain celestial composition with Hindu calendar. It is the world's largest religious gathering and conglomeration of diverse population. Taking the opportunity of upcoming Kumbh in 2016 in this design studio, the students researched on the needs of diverse users, investigated heritage issues, explored site considerations and developed universal design solutions that offer equal opportunity to everyone at Ujjain.

In this one year long Berkeley Prize studio, four design projects (two every semester, one major and one minor) were conducted for

Bachelor of Architecture degree students. The two minor design studio projects were done as two flagship events of SPA Bhopal called Integral Studio and National Student Design Competition. These flagship events are annual events of the institute, Integral studios are time bound intense inter-class studio where as NSDCs are national level student design competitions. For both the semesters we followed B.Arch. curriculum of the institute and Council of Architecture norms.

This Design for All publication contains winning entries of the National Student Design Competition. We extended our studio theme 'Inclusive Design for Cultural Interface' to other faiths and other cities of India as 'student competition' at national level. We floated a 'National Student Design Competition' and asked students of other colleges to attempt 'universal design' for any one pilgrimage site in the country. We shared universal design resources with all of them and created virtual interaction forums for discussions and dissemination. Our students participated together with the students of other colleges on the same theme in the competition. With a challenge and opportunity for innovation, UD concept reached across the nation through this student competition, and accepted by design students of other colleges, even when it was not a part of their curriculum /academic credit. It also gave us an opportunity to share and compare our work with other architecture colleges of the country.

Letter from the Chairman's Desk



By Sunil Bhatia PhD

One day I was busy in my daily routine of morning walk in public garden and noticed a illiterate young man with shabby clothes was burning one end of dry grass by holding from other end was avoiding catching of fire and it was appearing from his action as interested in smoke for directing toward the bee hives attach to branch of high tree for allowing the bees to escape for safety from suffocation death due to smoke and aimed for climbing the tree for taking out the honey without harming any one. One of my friends advised not to go near the tree otherwise escaping bees would sting you. It is primitive practice and it was from the day person understood the role of fire in their lives and devised various application with byproducts of fire that is smoke. Smoke was harmful for humans and people might have died because of suffocation

but other side designed various products for progress where basic core was smoke. The holding of other end of grass and intention of producing fire that should with thick smoke and should have sustainable for that period where he could climb and take out honey. That information was passed from one generation to another and amalgamation of his personal experience resulted in succeeding for taking out honey. That small incidence compelled me to think for role of smoke in human progress.

Smoke is natural phenomena and it surfaced where there is fire . Our ancestors understood by observing that smoke was thick in initial stage as it catches fire as well at the time of dying of fire and low smoke comes out when fire was at peak. They made other observation that dry heavy logs once catches fire have capability to hold for longer as well with high intensity heats but difficulty was encountered in catching fire because of thickness . They devised techniques of using tinder that catches fire easily and placed thick logs over that helped in catching proper fire. Who guided them for designing such way for management of fire? Other peculiar observation for lasting fire was that it needed good amount of sustainable fire that was not possible with dry grass or tinder as well encountered problem of heavy smoke that was preventing in catching fire proved to be biggest enemy . They were not

aware that heavy smoke was responsible for not allowing fire to flare up because it blocks primary ingredient of oxygen but observed even sometime it proves reason of extinguish of fire . I think it was the human nature of designing its own virtual world out of real world was the basic ingredients for progress where animals continue to live in real world and never shown intentions of designing virtual world and we call it survival instinct where humans live in progressive world. A lateral aperture in a furnace for draught and the escape of smoke was the first design by humans for exploiting and management of fire has revolutionized the thinking as well human progress. When they used stone for side covering and open one portion of bottom for easy access of air and open the top for using of fire heat was the beautiful example of human creativity and later it changed to stove. Later introduction of chimney for escaping of smoke was exhibiting humans were constantly thriving for better world.

Manmade design for fire management was evolving humans and learnt in very initial phase that fire catches easily in dry wood or grass with the ignition of striking stones for generating spark or some natural plants were located for ignition, later learnt the art of flaring to sustainable and ultimately tricks of extinguished. They found in rainy season or great blowing of wind hampers in fire management and realized right

amount of air and no water is basic that should be properly controlled. Design of air management was in good progress but water was enemy and rain could extinguish fire at once that helped in understanding of better design for controlling broke of unwanted fire Side by side invented control of supply of air by throwing od sand for extinguishing blocking the supply of air as well energy of fire of logs diverted for killing water by creating steam . They were not aware that air has oxygen but more air helped fast catching of fire. Another was envelope of smoke that counters fire. They could not understand it has carbon dioxide that blocks supply of air. More supply of air they designed aperture at the bottom of stoves and used three stands at upper area for resting vessel but helps in allowing to go smoke into air without facing any blocked. Later iron smith realized more the air supply it helps in attaining high temperature for melting metal they designed leather bag with animal skins for pumping air. Later we designed manual fan for house hold for getting easily catching of fire with less smoke around. Even we designed pipe for blowing air from distance not our eye gets affected from smoke. As our knowledge improved we designed manual fan with palm leaf and later with discovery of electricity electric fan for pumping more air for proper fire management.

In modern times of industrial revolution we designed various types of chimney. Small chimney for household fire management was introduced by architects and even fireplace was in drawing room for keeping it warm and need chimney. Later heavy chimneys for mass scale production where ever fire kilns were used. I remember in our small village someone introduced the flour mills it was installed close to river bank and as motor rotates it ejects smokes and for keep it away from humans not to disturb it was with long chimney of MS steel. Its outlet was with movable flap and produces peculiar sound. That was sign that flour mill was open and functioning.

Envelope of smoke is designed to control the fire in jungle by deliberately starting fire from another end for creating smoke in air. When person lost in jungle or there is SOS message for help in absence of other means of communication, designed smoke out of fire and people at distance locate the lost person.

It is my hypothesis that it was the smoke that made us superior to other races because fire was in nature and humans wished to optimized its application and found supply of air and smoke blockade is the biggest enemy and to manage they designed various devices that made the man superior where animals failed in management and still threaten

with fire and never thought to manage for its own benefits. It is primitive practice of ignite the fire with stones or rubbing some plants with hard article produces fire.

Some potter used smoke for creating special effects of design on outer surface of pot at the time of placing in fire kiln. Some restaurants have designed some very special dishes with application of smoke and it is relished by customers and it is considered delicacy. Some rural doctors used the smoke of special medical plant for curing wound or diseases also. Every civilization has witnessed the role of tobacco and smoking that affects the lungs and allows its effects mix with blood for stimulation was most common practice. Smoke of incense for fragrance in air was common .Smoke detector are designed for controlling and avoiding fire that can destroy valuables. Electronic ignition in automobile was designed for controlling not to produce unburnt oil that turns smoke to harmful gas. Emission control is biggest challenge for modern mankind.

Biggest threats of home is stale air and to counter they designed ventilator that proved dual purpose As fire occupied place in home it needs management of smoke that can harm the occupants members so designed various devices like chimney or exhaust fan and latest chimney

at the top of gas hood and some houses are equipped with Air purifiers are designed. To control the insects we have designed the insects repellent that where a coil burnt and releases smoke and improved version is where plate heats and placed a dipped in repellent chemicals cotton releases smoke

I am thankful to Prof Rachna Khare and co-faculty and PhD student Mr. Sushil Solanki of SPA Bhopal, India for accepting our invitation of inaugural issue as Guest Editor and requested for submit publishing material in very short time and I am glad that they fulfilled their promise and made this issue possible.

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

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

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

Prosperous New Year 2019

With Regards

Dr. Sunil Bhatia

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Fourth coming Issue



February 2019 Vol-14 No-2

Architect Kavita Murugkar, an associate professor at the Dr. B N college of Architecture in Pune, graduated in 1998 from the Pune University, and completed her Masters in Archaeology from the Deccan College Deemed University, Pune in 2006. With over a decade of teaching experience, Kavita is recognized as a passionate educator and an active researcher and has handled various academic and administrative responsibilities as a faculty and



course coordinator successfully ever since she joined BNCA as full time faculty in 2006. Her academic interests and expertise lie in research and constant innovation in subjects like basic design, architectural design, history of architecture and architectural project. Her professional work experience majorly consists of residential and corporate interior architecture projects. She also has heritage related projects to her credit including the listing and documentation of all heritage buildings in Pune for the PMC and INTACH. Kavita has emerged as a strong proponent of Universal Design formerly identified as Barrier free architecture and has set up a Research and Training Centre for Universal Design at BNCA for promoting people centric and inclusive design education and practice. Her work on the subject of Universal Design has been recognized at State and National level. She is empanelled as an Accessibility Expert and Access Auditor by the Ministry of Social Justice and Empowerment and the Department for Empowerment of People with Disabilities. She is the first architect recipient of the AVISHKAR AWARD for best research project at the State level Inter-university research competition in 2012. She has also received the NCPEDP-MPHASIS UNIVERSAL DESIGN AWARD 2014, for the work done to promote accessibility and Universal Design in the built environment. She has been felicitated by the Indian Institute of Architects, Pune Centre and the Maharashtra association of Schools of Architecture with the Best Teacher's Award 2014 for her outstanding contribution to architectural education. She has also received the A3 Foundation Teachers Award 2016 at Chandigarh for her work in the field of

architectural education. She has been invited by prestigious institutions like National Institute of Design (NID), School of Planning and Architecture (SPA, Bhopal) as expert jury and for conducting courses on Universal Design Thinking.

March 2019 Vol-14 No-3

Friedreich's Ataxia does not affect my intelligence, but many do not believe this. But the reality 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. My PhD was achieved late into the progression of my



disease, when I was 43 years old. For me this was a huge achievement, especially when you consider the systemic beliefs among medical practitioners around Friedreich's Ataxia. At the time of my diagnosis, medical specialists told my parents that 'I would not live much beyond the age of thirty', let alone obtain a PhD! These days, I still perform research with the university as an honorary fellow. I have written and

published over 100 hundred articles and currently now authored three books.

However, there are many degrading effects, such as blindness, very poor speech, hearing impairment, poor heart and limited mobility and coordination. But in all spheres of life, I've always tried my best; the jury is out, but there is still some chance that my writings may create change.

April 2019 Vol-14 No-4

Ms Ruth J Clark, Fashion Moves will be the guest editor and she will highlight on special dresses



May 2019 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 Encyclopaedia 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.



Guest Editors

Rachna Khare is full Professor and Dean (Research and Faculty Affairs) at School of Planning and Architecture Bhopal. Prior to this she was a Senior Research Fellow with Jamsetji Tata Universal Design Research Chair at National Institute of Design, Ahmedabad and taught at Birla Institute of Technology, Mesra. Starting her career in the early nineties as an Exhibition Officer cum Designer in Jawahar Kala Kendra, Jaipur, she practiced for eight years in the field and then joined academia. She is a dedicated teacher and keen researcher for last Eighteen years. She was recognized as 'Inspired Teacher' by Hon'ble President of India and stayed Scholar-in-Residence at Rashtrapati Bhavan in 2016.



Rachna is a recipient of the prestigious Fulbright Fellowship and was affiliated with the Georgia Institute of Technology, Atlanta, USA during her PhD. Her research interests in the field of 'Universal Design' and 'Designing for Special Needs' have earned her grants and awards nationally and internationally. Apart from the Fulbright award, she is

recipient of IMFAR-2009, Professionals from Developing Country Award, Chicago; Friends of Fulbright India Grant-2008, Lewisburg; Universal Design Award for Working professional-2011 by NEPEDP-MPhasiS, India and R&D projects from All India Council of Technical Education and University Grants Commission in India. She works closely with the United Nations and consults internationally on disability issues and public access.

She has lectured extensively on Inclusive Design all over the world and has many papers in various National and International journals and conferences to her credit. Her papers appeared in the publications like Taylor and Francis, Sage, HFES, EDRA, RESNA and Archnet MIT. Her book 'Designing Inclusive Educational Spaces for Autism' published by the Institute of Human Centered Design, Boston, USA was released in 2010 at 'Build Boston', the book received 'Certificate of Merit' in ArchiDesign Award-2010. She has also edited special issues of internationally refereed journals called 'SPANDREL' on 'Social sustenance' in 2012 and 'ABACUS' on 'Architecture for All' in 2007. Some major events organized by her are 'Universal Design Workshop' and National Student Design Competition (NSDC-211) on 'Universal Design/Design for All'-2011 in collaboration with the National Institute of Orthopaedically Handicapped, Kolkata and NSDC-2012 on

‘Universal Design for Exploring World Heritage Sites in India’ in collaboration with the Archaeological Survey of India and UNESCO. She is one of the authors of **Universal Design India Principles** developed at the National Institute of Design, Ahmedabad in 2011. She serves as reviewer in many publications like EDRA, HFES, The Design Journal, and was also a jury member of Berkeley Prize Essay Competition-2013, endorsed by UC Berkeley, USA.

Other than her regular teaching and research at School of Planning and Architecture, Rachna founded and coordinated a Centre for Human Centric Research (CHCR) that aims to build a body of knowledge that responds to the design needs of diverse human population otherwise marginalized in the past design practices.

Sushil Kumar Solanki is a faculty member in the Architecture discipline at School of planning and Architecture, Bhopal. At the institute, he takes courses in Building design, Building construction and Building services. Sushil, who graduated in Architecture from M.I.T.S, Gwalior and attained post graduation in Building engineering



& management from S.P.A, New Delhi , worked in the construction industry for two years before he joined as faculty. Sushil has worked with various multinational companies as a design co-ordinator to execute different high-end projects in India. He is also recipient of G.A.TE. Scholarship in the year 2008. Currently, he is a member of various consultancy and research projects focusing on human centric design, teaching models etc. He is also pursuing his Phd on development of performance based universal design standard for India at S.P.A, Bhopal.

Universal design education in India; design challenge as design pedagogy

School of Planning & Architecture -Bhopal

Rachna KHARE

Abstract. In last decade the Universal Design education is being experimented by educators all over the world and people tried different ways to teach the concept. Though it has become a worldwide movement today but it has demonstrated limited acceptance amongst architecture, planning and design schools in India. There are no specialized courses on universal design in the country, this is perhaps because the benefits of designing in a more inclusive way are not immediately apparent and also because there are many other pressing issues that require attention. The Center for Human Centric Research (CHCR) housed in School of Planning and Architecture Bhopal organizes an annual National Student Design Competition on Universal Design (NSDC-UD) together with a Hands-on Workshop and Exhibition, to explore creative ways to offer universal design to the students of diverse design disciplines in the country. The center has organized three such events since 2010, and in 2014. The events provide an intense and experiential universal design understanding to the students. For educators they provide an opportunity to explore design competition as a pedagogical tool to meet educational objectives that the center is striving to include in academic curricula. The paper presents this annual academic event in

brief and summarizes the lessons learnt for the contextual aptness of universal design teaching and learning.

Introduction

Universal Design was originally defined by Ron Mace (Mace and Lusher, 1989) and since then the concept has been re-thought and re-defined by diverse writers around the world. Today, it is recognized that the goals of universal design must go beyond usability to address promotion of health and wellness and also the promotion of social participation for all citizens. 'Universal design is concerned with more than just removal of barriers, it seeks to eliminate discrimination by design and support full participation for all members of society' (Steinfeld, 2002). Unlike western countries where the concepts of accessibility and universal design originated, Indian disability is ingrained in poverty, rural life and social difference (Mullick, 2011). Furthermore in multicultural India rapid growth has taken place within the lifespan of only one or two generations. This has resulted in diverse challenging conditions. Also the different concepts related with design and disability (accessibility, assistive technology, universal design, etc.) have arrived almost together in India. For universal design to play an effective role, it needs to make itself relevant to diverse marginalized population in India, to be socially inclusive in Indian context (Balaram, 2002). Majority of the population lives in rural areas where built environment is either unplanned or underdeveloped. The high density urban places are also challenging for elderly, people with disabilities and children. Today there is an utmost need to develop an optimum physical environment for everyone including people with functional limitations, backed by laws, using cost-effective indigenous solutions, using local materials and skills. Larger goals can be realized only if there are trained design professionals and researchers to develop innovative solutions to the

problems. There is a tremendous need to have a holistic design education that addresses diversity and inclusiveness across the disciplines of Industrial Design, Architecture, Urban Design, Engineering, Transportation Planning, and Rural and Urban Planning (Mullick, 2011). Globally Universal Design has become a worldwide movement and Universal Design courses are found in universities all over the world (Christophersen, 2002; Welch & Staton, 1995). These courses are offered as specialized courses as well as are infused into the regular design curriculum. They are taught as theory courses and are part of design studio exercises at various levels of undergraduate and postgraduate courses. There are various methods adopted for teaching as well: user involvement, evaluations, role plays, user centric studies and many more. With change in technology, today such courses are available online too. However, in India Universal Design Education finds little space in curriculum of design schools, as there is lesser awareness, weak government policies and lesser career opportunities to back universal design (Balaram, 2002). There are only a few efforts in universal design education and research, in architecture and design schools of India. In 2006, the Council of Architecture made it compulsory to include accessibility in the existing curriculum, yet most of the schools still not have a full course on accessibility not to mention Universal Design (Gupta, 2008). Centre for Human Centric Research (CHCR) at SPA-Bhopal is a multidisciplinary research centre that aims to bring awareness amongst budding architects and planners to respond to the needs of diverse human population otherwise marginalized in the past design practices, for collective socio-economic and socio-cultural development in the country. The center has organized user-centric studios, special lectures, workshops, exhibition on universal design and

offers an elective on 'Enabling Environments'. The current paper describes an annual academic event of CHCR 'National Student Design Competition on Universal Design'. The center has organized three national competitions since 2010 and fourth one planned in October 2013. This academic event has a large impact and significant presence in academia and industry.

The design challenge: national student design competition on universal design (nsdc-ud)

As a subject in schools of architecture and design, accessibility and, by extension, Universal Design, are often far less glamorous than other technical subjects (James Harrison and Ken Parker, 2002; Balaram, 2002) thus it gets difficult to motivate students to take it as a subject of study. This attitudinal barrier makes it difficult to implement Universal Design Education in sustainable and effective way in an otherwise elitist and fashionable profession. Many teachers of universal design around the world have had to put more effort into promoting the subject than those who teach more traditional aspects of architecture and design (Christophersen, 2002). The School of Planning and Architecture (SPA), Bhopal, an autonomous institution of Ministry of Human Resource and Development, Government of India, is committed to produce socially responsible architects and planners and thus has embraced Universal Design as one of its priority research areas. Center for Human Centric Research in School of Planning and Architecture Bhopal organizes an annual event of National Student Design Competition on Universal Design together with a Hands-on Workshop to explore an alternative method for teaching universal design and to accomplish student

motivation for the subject. The school also takes this universal design event as an opportunity to explore Student Design Competition as a pedagogical tool to meet educational objectives that the school is striving to include in academic curricula. The overall objectives of the annual competitions are to-

- Create awareness about 'Universal Design' amongst budding architects, planners and design professionals to support social sustenance
- Provide hands-on experience to understand practical application of Universal Design to design Inclusive built-environment for everyone including people with functional limitations
- Develop contextual design examples through intense Universal Design Education
- Learn about Universal Design education, teaching and practice

The students are encouraged to think beyond the traditional practice of designing for an able bodied standard user, and design for real life diverse users with and without functional limitations. Though the clients are involved at every stage to give feedback and final evaluation, the competitions has pure academic purposes and lessons learnt are shared amongst all stake holders. The annual event consists of three related components:

- Universal Design Competition for architecture and design students of the whole country
- Universal Design Competition Judgment with Hands-on Universal Design Workshop for all those students who participate in the Competition

- Public Exhibition of Universal Design Competition Entries for students, professionals and all other stake holders

The Competitions are launched about six months before the hands-on workshop and the posters inviting participation are sent to all architecture and design schools in India. The competitions are further advertised in many other different forums in collaboration with National Organizations. The focus of the competitions is to understand diversity of human beings across age, sex, size, abilities and conditions, and to accommodate them as much as possible to create an environment in which no one is unfairly excluded. Teams consisting of maximum four students from undergraduate degree/diploma granting colleges in India are invited to participate from the disciplines of architecture, engineering, environmental design, industrial design, interior design, landscape architecture, urban design and urban and regional planning. Multidisciplinary teams are strongly encouraged to participate.

Universal Design Competition

The competitions are launched with flexibility to the students to take part in the competition either on their own, or to do it as studio exercise in their respective colleges with a faculty advisor. Posters are printed introducing the concept of universal design and with the competition brief. This is sent to all schools together with a web link with all resource material on Universal Design. Blogs and e-groups are prepared for virtual interaction during the competition, where Universal Design experts are available to answer all queries of the students. The resource material with list of books, articles, websites and other online material are sent to all schools, as well as, are available on the organizing institutes' websites and the competition blog. This helps students to make this competition an informed attempt. The competition brief states the site conditions, byelaws, design program,

submission requirements and the judging criteria. The registered teams are coded to maintain anonymity and remove bias in the evaluation stage. The evaluations are done in two stages, in first stage, expert team shortlists the design entries and at second stage, all shortlisted teams with their faculty mentors are invited to present for the final evaluation of the competition.



Figure1. Participating Students NSDC-2012-Universal Design for Exploring World Heritage Sites in India

Hands-on Universal Design Workshop with Universal Design Competition Judgment

Three day Universal Design Hands-on Workshop is planned as culmination for every Universal Design Competition where all student teams and expert team meet for a larger interaction. The final evaluation of the competition is clubbed with this hands-on workshop. Participant students, faculty advisors and interested students from the home college make a highly motivated and informed audience for the workshop. Universal design experts and representative members of all stake holders are invited for the evaluation and hands-on workshop. The workshop consists of hands-on exercises conducted by universal

design experts those use simulations, user involvements, environmental observations and group discussions to generate contextual understanding for Indian users. An open evaluation is held for the competition on the 2nd day of the workshop. The jury consists of academicians, researchers and practicing architects. Though entries are evaluated following the prescribed criteria, but it is not the product that is important for the judges but overall understanding and application of the concept.



Figure2. Hands on Workshop of NSDC-2012-Student Teams Interacting with Stakeholders to attempt Universal Design for World Heritage Site 'The Great Stupa' at Sanchi in India

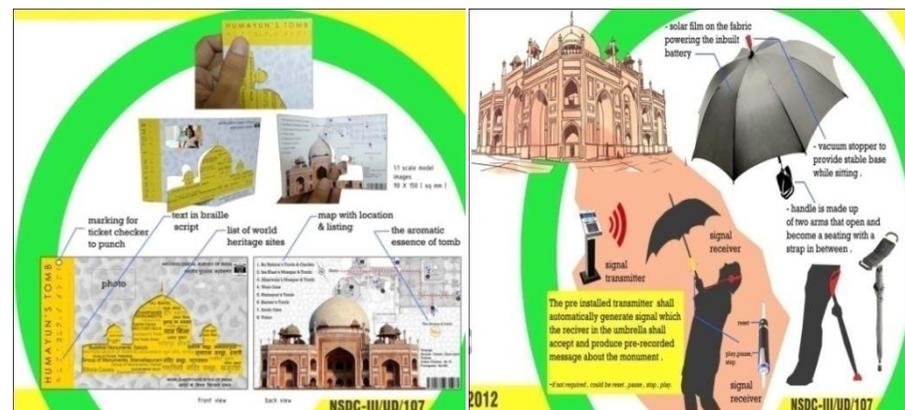


Figure3. The Winning Design (SPA, Delhi) of NSDC-2012-Universal Design Intervention (Entree Ticket and Interactive umbrella) for World Heritage Site 'The Humanyun's Tomb' at Delhi in India

Public Exhibition of Universal Design Competition Entries

All Universal Design competition entries are displayed as public exhibition for professionals and students during and after the workshops. This helps in further dissemination of the universal design concept. Film-shows, expert addresses, cultural programs and other informal events are organized by people with and without limitations together on a platform to further the ‘inclusion’ agenda and inspire the participants.

Till now the school has organized three competitions and received overwhelming participation from all over the country. The first NSDC was organized in 2010 with Universal Access as main focus with a model building development on a live site. The host institute received very good response for this competition with a grand welcome of the new idea of Universal Design. The second NSDC in 2011 experimented with a more accepted idea of Environmental Sustenance as main focus and Universal Design as an important component of value addition. The response to this was tremendous with five times more impact than the first NSDC (please refer figure-5). The third NSDC was organized in 2012 with an added challenge of designing in World Heritage Sites in India, in this the focus was Universal Design Principles (NCSU, 1997) and Universal Design India Principles (Khare & Mullick, 2012). For this the students attempted design interventions in one of the twenty two the protected world heritage sites in India (cultural). World heritage sites gave an extra edge to the competition with an opportunity to showcase universal design sensibilities on a globally recognized forum. The next NSDC planned in 2013 would bring focus back on ‘special user groups’ with Universal Design for second largest Indian elderly population in the world. The intent is to sensitize designers and develop contextual solutions for inclusion of Indian elderly in existing urban and rural settings.



Figure 4. Public Exhibitions of the Design Entries during NSDC-2012 and NSDC-2010

Table 1. Details of National Student Design Competitions on Universal Design (NSDC-UD)

NSD C - Year	Main Theme/ Subtheme	Collaborators	Total No. of Registrations	Total No. of Participant Institutes	Total No. of Entries Received	Impact outside SPA Bhopal	Impact within SPA Bhopal	Total No. of Prizes
	<i>Common theme of Universal Design(UD)+ Others</i>	<i>Organizations + National Association of Students of Architecture (NASA)</i>	<i>Teams who registered for the Design Competition</i>	<i>Indian Academic institutions participated in the event</i>	<i>Teams who worked on detailed designs</i>	<i>Students who went through the Universal Design resource material</i>	<i>Students who participated or took it in regular design studio</i>	<i>Winners plus special mention by jury</i>
NSD C-I-2010	UD/DFA	National Centre for Orthopaedically Handicapped	75	49	27	300	83	2
NSD C-II-2011	Nature and Buildings/ UD	M.P. Government Ecotourism Board	261	63	64	1044	145	4
NSD C-III-2012	UD/ World Heritage Sites	Archaeological survey of India ASI,	171	48	56	684	128	6

		DRONAH and UNESCO						
NSD C-IV-2013	UD/ Cultural Interface in Pilgrimage Sites	Berkeley Prize, DRONAH and UNESCO	Winning entries published in this news letter					

Conclusion

The National Student Design Competitions on Universal Design are incredible learning experiences for students, faculty members, center for human centric research and SPA-Bhopal (please refer Table 1). The exciting three days of the UD workshops transforms the school campus with positive energy of young minds in a way that no other academic course does. The annual event brings many disciplines together fading boundaries that help to break stigma about disability and special needs in design education. When combined with other subthemes in 2011 and 2012, it was not only taken up in accessibility/universal design class but also in design, sustainability and heritage conservation studios. Though there are countless achievements from the events, lessons from Universal Design Learning Universal Design Teaching are listed below,

Universal Design Learning

Students go through the reading material and on-line links provided to them during the competitions to understand the universal design concept. They do extensive pre-design research and undertake case-studies to better know the challenges and needs of persons with disabilities. They explore universal design concept with their young, unbiased and Indian minds that reflect in their design solutions and this is a big learning in itself.

- The students interpret universal design as an expanded concept and link it with the values of good design.

- When universal access is presented as a challenge, they do not take it as a constraint but as an opportunity.
- They not only make functional designs but are also creative and innovative in their design solutions.
- They do not compromise with the form development in the name of accessibility, and make aesthetically appealing design solutions.
- Students make design solutions inspired by Indian traditions rather than adopting universal design as it is from west.
- With universal design challenge transformed into design expression, they get to explore a world that they have never experienced before.
- Students raise contextual and systemic socio-economic issues in their interactions and discussions, which show their concern and quest to explore universal design concept for real life application in India.

Universal Design Teaching

Accessibility in India is not a very sought after academic course. It is still absent in most of the universities and so is the universal design (Shivani, 2008). When present, it has to compete with other flashy courses of otherwise fashionable and elitist profession. NSDCs present an intense and enjoyable opportunity to introduce universal design to students of various design disciplines. In the design competitions universal design is presented to the future designers in a creative way, which is full of positive energy, and at the same time is informal, easy, challenging, interactive, fun and compatible with their design training in their respective schools. The aim of the competitions is not to achieve a specific design solution but rather generate an experience that would

inspire their overall design thinking. Lessons learnt for universal design education are:

- In India, we are passing through a 'developmental chaos', and to fairly distribute the fruits of development it is essential to develop a design education that supports a sensitive approach to design that meets the needs of all intended users irrespective of age, ability, gender, class, caste, religion, poverty, urban/rural background.
- It is important to remove attitudinal barriers to promote universal design in India and it is best done in formative years of design education.
- Training for 'universal design' is better done as 'designing for diversity' in an academic course, where diversity is of value in itself and should be redefined in Indian context.
- Engagement of users in design at various levels is the best strategy for teaching universal design that rarely fails in any context.
- When universal design is taught together with other well established concepts in design education like sustainability or social needs, it becomes very popular.
- With a higher degree of challenge and opportunity for innovation, universal design concept has reached across the nation through NSDCs. It is accepted by design students even when it is not a part of their curriculum and they don't not receive any academic credit for it.

Discussion

National Student Design competition (NSDC) on Universal Design proves to be a successful alternative method for teaching a new concept to the design students, which is not available as regular academic course in their respective institutions. The challenges set in the design competitions are extremely motivating for the students, and interaction with peers and experts generate a high positive energy and supportive environment that lead to the acceptance of the new concept of universal design without inhibition.

'A design competition gives younger students a chance to "taste the dessert first" while they work their way through the demands of the curriculum' (Padgett, 1997). Live sites in NSDC and opportunities to meet clients, users and all stakeholders present real life challenges, and lead discussions about the real life applications of the concept.

For School of Planning and Architecture Bhopal, every competition becomes an enriching and insightful experience that has continuing effects, many students at SPA-Bhopal undertook universal design as seminar topics, universal design as part of their regular studios, and universal design concentration at undergraduate final year projects after the events. The school started a full time elective on 'Enabling Environments' at master's level. The school also has published topical issue of SPANDREL (SPA Journal) on 'Social Sustenance' focusing design for social diversity and social equity.

'The operation of a design competition stimulates the workplace in ways no course can, putting students up against the best other schools can offer, and making teamwork and organizational skill not just important, but critical. As you consider ways to improve your curriculum, consider sponsoring a design competition team – it's quite rewarding' (Padgett, 1997).

The National Student Design Competitions (NSDC) on Universal Design have a nation-wide impact and past events proved milestones in

universal design education in the country. Participation of multidisciplinary, multilevel student teams from multiple regions in the country lead to a contextual understanding and an enriched interaction about the subject. The National Student Design Competitions also proves to be a successful pedagogical tool to teach Universal Design that SPA-Bhopal has embraced in its charter, and is determined to include in academic curricula of architecture education.

Acknowledgements

Authors express their gratitude to the UD experts for their invaluable contributions in NSDC. The authors acknowledge the support received from NGOs and other Government Organizations. Authors are also thankful to all members of the organizing team of NSDC from SPA-Bhopal, who works very hard to make this successful every year.

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Shravanabelagola – The Temple City

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Introduction

A pilgrimage is generally, the journey by a pilgrim to his place of emotional and long-established faith. Traditionally, he accomplishes this on foot, a long journey that is reinforced by the experience during the journey. The experience attained throughout the journey is the base line on which the concept of pilgrimage was built on.

The present day context of pilgrimage has evolved gradually with changing diverse groups of users through time, centred on a constant space. This change can be attributed to the modern-day technology which has made life easier. This has resulted in a wide spectrum of end users creating new issues within this typology.

“There is no pilgrimage without a sacred site.”

That chosen sacred site is **SHRAVANABELAGOLA**, home of 2300 years of Jain heritage, in our case. This site encompasses a village nestled between two hills, namely, vindhyagiri and chandragiri, a 57 feet monolithic statue of lord bahubali on top of the summit.

This site is virtually a goldmine for students of history, architecture, epigraphy, art and religion for its history is spanning across centuries, resulting in a wide spectrum of end users.

The Mahamasthakabhisheka, the head anointing ceremony of the Lord Gommateshwara Sri Bahubali observed once in every 12 years, is when 250 Hundreds of devotees and tourists from different parts of the world would be participating in the ceremony being held over a span of 12 days, making this site one of the most-sought-after pilgrimage tourism sites. This popularity together with the above-mentioned diversity in the site makes it one of the ideal choices for incorporation of an inclusive design.

Inclusive Design:

“INCLUSIVE DESIGN enables people with reduced mobility to function independently and with equity and dignity.”

Inclusive design put people at the heart of the design process to create quality environments where people feel comfortable and secure, which are convenient and accessible to everybody.

Universal design is a way of thinking about design to eliminate barriers and make things easier to use. It is the best approach to designing things that are accessible and user-friendly for the entire population.

Several definitions of universal design have since emerged, but they all share the same goals: social inclusion, equality, and independence for the entire population: "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." (Source: Ron Mace, 1985)

"...design for **human diversity, social inclusion, and equality**"
(Source: Design for All Europe, 2008)

"Universal design is a framework for the design of places, things, information, Communication and policy to be **usable by the widest range of people operating in the widest range of situations without special or separate design**. Most simply, Universal Design is human-centred design of everything with everyone in mind. It is not a design style but an orientation to any design process that starts with a responsibility to the experience of the user." (Source: Adaptive Environments)

The word "inclusive" refers to the concept of "social inclusion." This is the opposite of the exclusion found in stereotyping, pity as a substitute for justice, and outright discrimination. (Source: universal design for inclusive tourism – PARSA)

When It Comes To Pilgrimage:

Today, the quantum of people with reduced mobility is growing fast as a result of various socio-economic processes and overall improvement in the living standards. Facilitating tourism needs of these tourists with reduced mobility- popularly known as 'accessible tourism or inclusive tourism'- is not only a legal requirement but also a well qualified proposition that it makes very good economic sense. Incidentally, economic opportunities emanate from the general and specific needs of this segment are also well acknowledged. Disabled people are faced with a variety of problems viz. finance, mobility, family support, and the like. Those get compounded when they plan to take a tour. Besides, their movement within vast attractions is equally cumbersome, especially vast monuments and historical sites of national importance; many of which happen to situate on hilly or elevated terrains. It is expected to assist in creating and implementing strategies that can remove attitudinal, social, physical and informational barriers that currently prohibit or reduce the travel options of persons living with disability of different types.

Generic Barriers and Constraints:

Three main types of barriers:

i. **Environmental:** including attitudinal, architectural, and ecological factors

ii. **Interactive barriers** relates to skill challenge incongruities and communication barriers

iii. **Intrinsic barriers** are associated with each participant's own physical, psychological, or cognitive functioning level.

Of those, intrinsic barriers are reported as the greatest obstacle (McGuire 1984; Murray and Sproats 1990; Smith 1987). Not less important is economic constraints, and some estimates suggests that holiday expenses for people with disabilities can cost between 30 and 200 per cent more than for the general tourists (Flavigny and Pascal 1995). Then, there is a strong case for creating conducive environment that can ensure increased participation of the tourists with reduced mobility in leisure activity. Such measures were thought to having the potential to create positive impacts amongst this sensitive segment, who live with a sense of generalized helplessness otherwise. Absence of effective measures only lead to furtherance of their reduced participation in future as well. Incidentally, most studies testify that first tourism experience is a major factor that determines whether an individual with a disability will continue to travel or not (Murray and Sproats 1990). Some other scholars who endeavoured to document

major constraints of tourists with reduced mobility in the leisure/ tourism participation categorised have those into three:

A. **Intrapersonal constraints:** These are associated with a person's psychological state, physical functioning or cognitive abilities (Crawford & Godbey, 1987; Smith, 1987). It covers themes such as stress, anxiety, lack of knowledge, health related problems and social effectiveness. These are also taken as antecedent constraints in that certain intrapersonal factors such as personality and socialization may predispose individuals to participate in or avoid certain leisure activities

B. **Interpersonal constraints:** These "arise out of social interaction or relationships among people within social contexts" (Scott, 1991). Those can occur during interactions with an individual's social network, service providers or strangers, or because one lacks a partner with whom to engage in some leisure activity (Crawford & Godbey, 1987).

C. **Structural or environmental constraints:** These are said to intervene between preferences and participation (Crawford & Godbey, 1987). Examples of structural constraints include financial challenges, lack of time, ecological influences, transportation difficulties and barriers due to regulations. Governments as well as other stakeholders acknowledge the following seven elements as essential components of effective

accessible tourism and take measures for each element, as recommended hereafter;

- a) Travel planning;
- b) Access to information;
- c) Inclusive transportation;
- d) Accessible tourism attractions;
- e) Accessible accommodation;
- f) Mainstream services for all tourists;
- g) Destination experiences;

Common Problems Faced On Site:

Problems	Domestic			Foreign		
	Index value	Rank	Response	Index value	Rank	Response
Toilets for P.C* not available/ available but unhygienic	4.565	1	413	3.170	2	55
Non-availability of public utilities- telephone, toilet, water tap etc.- at convenient places	4.155	2	396	2.255	6	38
Ramps are present but not all at required locations	3.564	3	316	1.781	8	30
Ramps not available/ level differences not addressed by alternative ramps	3.173	4	274	4.229	1	67
Insufficiently laid pathways	3.091	5	273	1.558	12	25
Street crossings are not present	2.600	6	246	2.118	7	38
Lack of access stairs/ lifts	2.397	7	219	2.972	3	50
Tracks are slippery/ coarse	2.269	8	203	2.320	5	41
Absence of location signage	2.195	9	205	1.592	11	27
Inconvenient reach points at attraction	2.184	10	205	2.562	4	44
Insufficient location signage	1.995	11	185	1.746	9	31
Absence of Audio-visual aids	1.549	12	145	1.482	13	26
Problems of viewing ranges	1.525	13	143	1.688	10	29
Car parking facility for the disabled is at inappropriate location	1.058	14	98	0.212	14	4

Hence, in general, it can be summarised that major bottlenecks of tourists with reduced mobility are many. The major ones observed in this study are lack of understanding about the problems of people with disability among the employees working in tourism industry and their inhospitable behavior, impediments came across during intra-destination travel, lack of destination related information and signages at appropriate locations, lack of proper facilities in the rooms, mobility constraints inside attractions and scarcity of public comforts and utilities at suitable locations. (Source: Problems and Prospects of accessible tourism in India - Ministry of Tourism)

Design Methodology:

With the gained knowledge about the mainstream service in a pilgrimage centre and the barriers encountered in there generally, an inclusive design has to be developed for the mob keeping in mind the Indian context. Indians do not travel alone. They travel with families, friends. An integrated solution is necessitated. However, the design cannot be approached with the only the above criteria.

India as a nation has a rich and varied religious and cultural beliefs towards pilgrimage. The increasing population, developing communication and transit facilities indeed increase the no. of people

visiting these pilgrimage centers. Though the purpose not being the same for all users, their destination is clear and cannot be denied in any way. The economical back ground, physical ability, their caste or religion can never be a refusal or a matter of question for their visit to these places in this modern era.

This in a sense calls for ***a solution which accommodates anyone everywhere***. There rises a demand for an inclusive or a universal design which need to be dealt as a responsibility of a society for its own assorted communities.

Though the inherent belief, physical ability, the topography of site, the patterns of visit, diverse users and their diverse needs play a major role in achieving an inclusive design solution for a pilgrimage site, the ***ethical values embodied in our cultural spectrum over powers the matter of acceptance***.

Design Approach:

The idea of inclusive design itself, shouts aloud the fact of designing for the unified mass of people out there without exception. No individual, however minor the population he belongs with is, should be thrown out of the umbrella. But, no absolute solution can address the entire mass and result in a gross product.

In order to address comprehensively, the individuals of the community, are to be read piece by piece, getting to know their perception towards their environment, the one to be designed, in association with the rest of the population. For example, a blind will connect him with the environment in one way, if the entire population is similar to him and in another way, if the rest are different from him. So, it is necessary to understand their affinity with the society, the whole, and their tie-ups with each other before designing for them.

Here comes the indispensable idea that ***“every inclusive design should be exclusively designed for every single individual”***. Keeping this ideology in mind and with the generated knowledge about these individuals and their interrelationships, the design evolved, addresses the issues and the challenges of the site.

The New Line of Thought:

The More Specific A Design Idea Is, The Greater Its Appeal Is Likely To Be.

Being non-specific in an effort to appeal to everyone usually results in reaching no one. But drawing upon a specific observation, poignant statement, ironic point, witty reflection, intellectual connection, political argument, or idiosyncratic belief in a creative work, can help you create environments others will identify with their own way.

Design a flight of stairs for the day a nervous bride descends them. Shape a window to frame a view of a specific tree on a perfect day in

autumn. Make a balcony for the worst dictator in the world to address down his subjects. Create a seating area for a group of surly teenagers to complain about their parents and teachers.

Designing in idea-specific ways will not limit the ways in which people use and understand your buildings; it will give them license to bring their own interpretations and idiosyncrasies to them.

(Source: 101 things I learned in architecture – Matthew Fredrick)

As a result, the solutions to the visitors' issues have been addressed through a series of elements designed throughout the journey rather than one solution that fits all.

“UNBIASED COMPLETE EXPERIENCE of the pilgrimage to ALL”

Two different experiences, the journey and the destination, are to be addressed. Further, this destination is experienced by people in different ways – Nature, Architecture and Sculpture, History and Heritage, etc. one of these being the subject of interest. On the whole, the aim is to provide enough opportunities for the various groups of people to choose what they want to experience and at the same time enhance that experience for them either objectively, in case of possibility or subjectively on the other case.

Design Solutions:

A. The Inception Point:

The crossing at the road to reach the temple tank has been made accessible with the help of curbs on the pavement. This curb is marked with the help of corduroy tactile flooring that enables the blind to acknowledge the presence of a crossing. It is also provided with a directional handle which will help the blind reposition themselves towards the crossing. The handle is made out of insulated galvanised steel for it is durable and easy to maintain.

In order to provide access to reach the waters in the tank for the people with reduced mobility, ramps of slope 1:10 have been provided at multiple levels, taking inspiration from ancient temple tanks with multiple staircases. The handrails along the ramps have a circular ring at both its ends to mark its beginning and ending points. Also, the ramp is defined by a change in flooring texture (tactile flooring) at both its ends.

B. The Difficult Terrain:

The journey from the foot of the hill to the top is supported by the existing staircase now integrated with a ramp in the design. The space between the two existing staircases is widened enough to a width of 2m and the width of the stairs is, in turn, increased along the other edges. The space between the staircases is flattened at points, for every 30 steps, and made a landing point, for the people to pause during their journey, marked with tactile flooring again. These landing steps are

made from granite from the hills for it camouflages with its surroundings and is easily available too.

The handrail bordering these staircases have galvanised steel bars running at three heights. One at 100mm from ground for the blind with walking sticks, the next one at 600mm for the children and the last one at 1000mm for the rest are provided. This handrail is again marked with circular rings at landing points.

The hot sun is managed with the help of shading devices at the landing zones. These shading devices are tilted at an angle of --- to counter the sun's angle and especially to not obstruct the view of the sculpture. This shading is done with a tensile fabric for its light weight eliminates the need for multiple structural members. This fabric is stretched to its maximum with the supports springing out in all directions.

The ramp has been sloped at a ratio of 1:12 for easy movement of wheelchairs as well as the weak. The hand rest at the edges are made wide enough to serve as seating with pause points every 9m, sticking to standards. This handrest has a groove running along all its length at a height of 600mm from the ground for the children and another one running at its top to help the elderly with weak hands to hold on to it while walking.

At every turn per 26m, there is a seating made out of the stone from the hills facilitating comfort during the tiring journey.

C. *The Unknown Revealed:*

The less frequented chandragiri is made accessible for a visit with the help of a deck on the vindhyagiri hills. This deck is 80m wide allowing a very broad vista. It is provided with handrails which forms a physical barrier but permits the shorter ones to view through it. At a point, the wall is recessed and inset for the wheelchair users to fit in and enjoy the view unobtrusively. Seating areas have been provided sumptuously, few with provision to hold walking sticks and like.

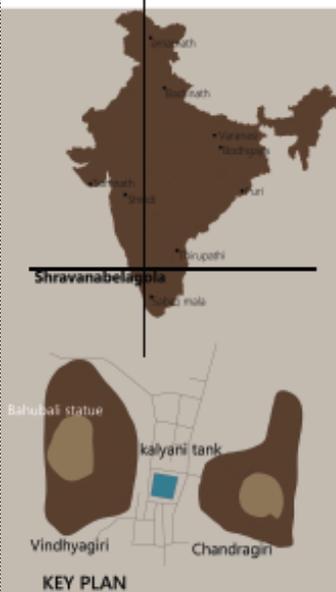
Conclusion:

The design, from the curb ramps to the viewing deck at the top, is sculpted to meet the ***specific needs of various groups of people***. Every detail is addressed to meet these needs. The term "inclusive design" has been interpreted in its very pure form and further elevated to an extent of human connections with the society, him being an object of importance, revered through the designed environment.

References:

- Universal design for inclusive tourism – PARSA
- Problems and Prospects of accessible tourism in India - Ministry of Tourism
- 101 things I learned in architecture – Matthew Fredrick

SITE: SHRAVANABELAGOLA



The chosen sacred site is SHRAVANABELAGOLA, home of 2300 years of Jain heritage, in our case. Shravanabelagola is located in Channarayapattana taluk of Haasana district in Karnataka. The name 'belagola' meaning, literally 'white pond' is derived from the beautiful pond present in the center of the town. 'shrava'Na' is a reference to a Jaina ascetic. Appropriately Shravanabelagola has been an abode of Jaina monks, monasteries and temples for more than two millenniums. Indragiri is at a height of about 3400 ft. above sea level. The smaller hill known locally as Chikkabetta rises about 175 feet above the plain and is 3,052 ft above the level of the sea. Both the hills and the village hold 24 temples within them distributed across the entire landscape. Almost all the temples are built in the Dravidian style of architecture, the oldest of them going back probably to the eighth century A.D.

Why Shravanabelagola ?



The site still withhold the journey by foot, making it an intact part of the pilgrimage even today. The serenity of the site is preserved under this idea, from encroachment by urbanism.



The Jains live a simple life with no extravagancies. Their principles always bind them to nature and a plain way of living. The Jains' ideology was the reason behind the selection of these hills as their sacred site and this reason reinforced their ties with nature, leaving them unattached to technology.

THERE IS NO PILGRIMAGE WITHOUT A SACRED SITE

Shravanabelagola is a lasting contributor to the culture of the world and a veritable treasure-house of all kinds of historical information of an authentic nature which is hardly found at any other single place in South India. Throughout its long continuous history, Shravanabelagola has been known as a spot of scenic beauty, a place of material prosperity and a centre of spiritual and educational activities.



Chandragiri on the opposite side of tank.



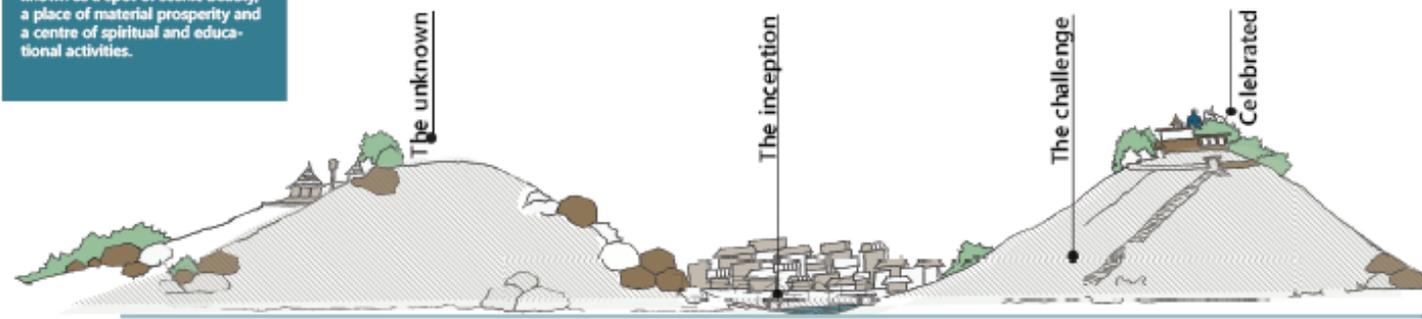
The tank nestles between Chandragiri and Vindhyagiri. It will become an added attraction for tourists and pilgrims.



The height of the mountain is traced through 615 steps.



The 57 feet monolithic statue of lord bahubali on top of the summit.



-  The only available mode of reach to the hilltop is the 615 steps long steep staircase.
-  The strip of staircase pauses at nowhere, giving no space to catch a breath.
-  The granite beneath the bare feet heats up under the unobstructed exposure to sun.
-  The ethical and cultural values of the site make things hard for acceptance and calls for consideration.
-  Various social issues like the location of a restroom within the sanctity of the site, the interruption of pilgrims by the ever growing numbers of tourists etc. needs attention.
-  The purity of the site is being stamped over by pollution due to the intervention of a large number of visitors into the site.

ISSUES/ CHALLENGES

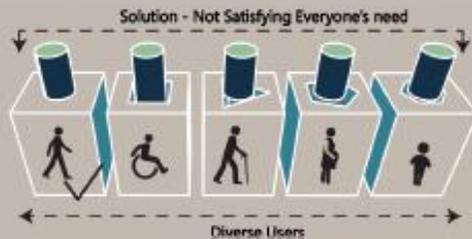
DESIGN APPROACH

The idea of inclusive design itself shouts aloud the fact of designing for the unified mass of people out there without exception. No individual, however minor the population he belongs with is, should be thrown out of the umbrella. But, *no absolute solution* can address the *entire mass* and result in a *gross product*.

In order to address comprehensively, the individuals of the community, are to be read piece by piece, getting to know their perception towards their environment, the one to be designed, in association with the rest of the population. For example, a *blind* will connect him with the environment in one way, if the entire population is similar to him and in another way, if the rest are different from him. So, it is necessary to *understand their affinity with the society*, the whole, and their tie-ups with each other before designing for them.

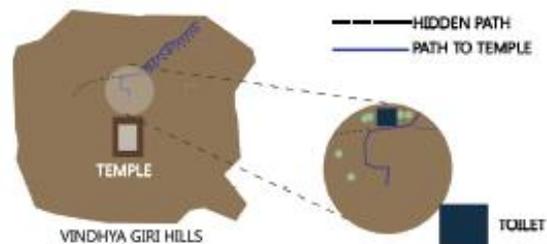
Here comes the indispensable idea that

"EVERY INCLUSIVE DESIGN SHOULD BE EXCLUSIVELY DESIGNED FOR EVERY SINGLE INDIVIDUAL".



Keeping this ideology in mind and with the generated knowledge about these individuals and their interrelationships, the design evolved, addresses the issues and the challenges of the site.

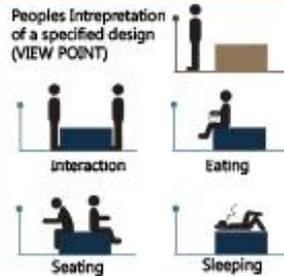
RESTROOM - Zoning



The Main issue in solving the mandatory facilities for a person is provision of toilets in a pilgrimage context. Because the structure looks odd or spoils the *imageability* of the site.

The toilet is placed at the top of the mountain at an accessible way which is not used predominately. So they are placed between the trees providing a *VISUAL BARRIER*.

Peoples Interpretation of a specified design (VIEW POINT)

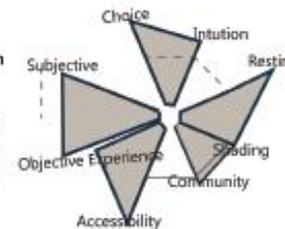


Being non-specific in an effort to appeal to everyone usually results in *reaching no one*. But drawing upon a specific observation, poignant statement, ironic point, witty reflection, intellectual connection, political argument, or idiosyncratic belief in a creative work, can help you create environments others will *identify* with their own way.

Design a flight of stairs for the day a nervous bride descends them. Shape a window to frame a view of a specific tree on a perfect day in autumn. Make a balcony for the worst dictator in the world to address down his subjects. Create a seating area for a group of surly teenagers to complain about their parents and teachers.

Designing in idea-specific ways will not limit the ways in which people use and understand your buildings; it will give them license to bring their own interpretations and idiosyncrasies to them.

The Definition of inclusive cannot be implied with an environment just by making it accessible. The more subjective needs of the varied users hail for more choice which in turn a more intuitive, flexible, simple, adaptable and ofcourse an accessible design idea which addresses the site in a holistic way. Thus the expression of design is made at all levels in the site making it comprehensive and complete.

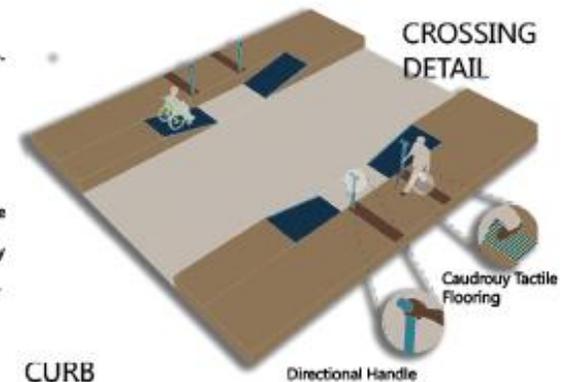
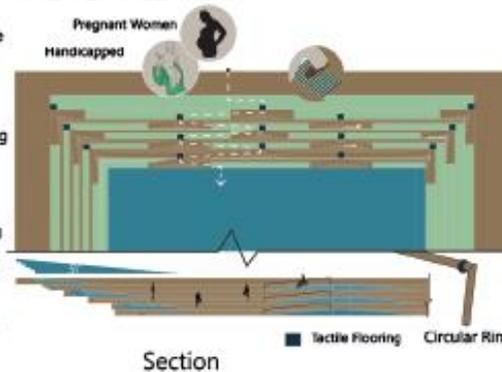


THE MORE SPECIFIC A DESIGN IDEA IS, THE GREATER ITS APPEAL IS LIKELY TO BE.

CIRCULATION IN THE TEMPLE TANK

In order to provide access to reach the waters in the tank for the people with reduced mobility, ramps of *slope 1:10* have been provided at multiple levels, taking inspiration from ancient temple tanks with multiple staircases.

The handrails along the ramps have a *circular ring* at both its ends to mark its beginning and ending points. Also, the ramp is defined by a change in flooring texture (tactile flooring) at both its ends.



CURB

The crossing at the road to reach the temple tank has been made accessible with the help of curbs on the pavement. This curb is marked with the help of *caudrouy tactile flooring* that enables the blind to acknowledge the presence of a crossing.

It is also provided with a *directional handle* which will help the blind reposition themselves towards the crossing. The handle is made out of *insulated galvanised iron* for it is durable and easy to maintain.



Temple Tank



DESIGN METHODOLOGY

The ramp has been sloped at a ratio of **1:12** for easy movement of wheelchairs as well as the weak.



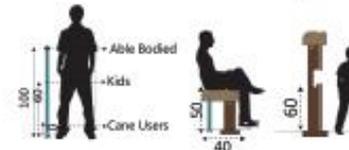
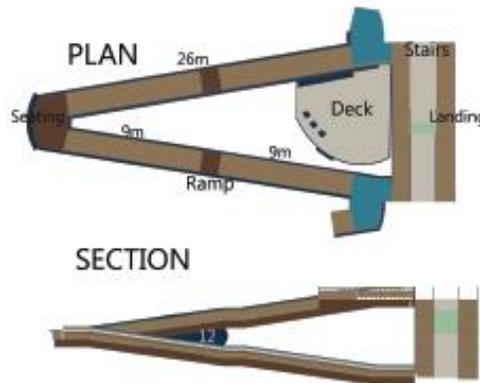
SECTION

Showing the distance between the shades

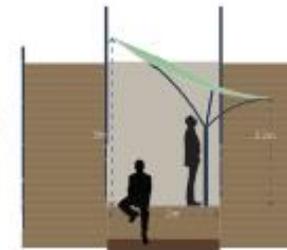
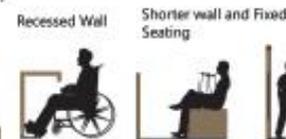
The space between the staircases is flattened at points, for every **30 steps**, and made a landing point, for the people to pause during their journey, marked with **tactile flooring** again. These landing steps are made from **granite** from the hills for it camouflages with its surroundings and is easily available too.

DESIGN CONSIDERATION

The design at each level is sculpted to meet the specific needs of various groups of people. The term "**inclusive design**" has been interpreted in its very **pure form** and further elevated to an extent of human connections with the society, him being an object of importance, revered through the designed environment. The existing system and site features are not disturbed, rather been **integrated** in the design. The more **interdependent nature** of our society than independent is considered and solutions were given based on the user groups. The **journey** makes the most important part of any pilgrimage, design is done in a way that it **prolongs** the journey with **flexible choices** there by **not segregating** any kind of user. The **way finding nature** of the site is undisturbed and the **visual connection** with the destination through their journey is maintained. Conscious **elimination** of **built up** structures and **energy consuming** mechanical system added more value to the existing. **Simplicity** was worked out for **refining** the site to accommodate everyone but **not redefining** its original context.



The hand rest at the edges of ramps are made wide enough to serve as seating with pause points every **9m**, sticking to standards. This handrest has a groove running along all its length at a height of **600mm** from the ground for the children and another one running at its top to help the elderly with weak hands to hold on to it while walking. At every turn per **26m**, there is a **seating** made out of the stone from the hills facilitating comfort during the tiring journey.

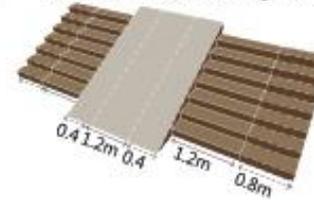


SHADING DEVICE

The hot sun is managed with the help of **shading devices** at the landing zones. These shading devices are tilted at an angle of **30** to counter the sun's angle and especially to **not obstruct** the view of the sculpture. This shading is done with a **tensile fabric** for its light weight eliminates the need for multiple structural members. This fabric is stretched to its maximum with the supports springing out in all direction.

EXTENSION

The journey from the foot of the hill to the top is supported by the existing staircase now integrated with a ramp in the design. The space between the two existing staircases is widened enough to a **width of 2m** and the width of the stairs is, in turn, increased along the other edges.



Upstairs with shaded Landing



View From Seating at Ramp Turns



View Of Chandragiri from deck



DECK



The less frequented chandragiri is made accessible for a visit with the help of a deck on the **vindhyagiri hills**. This deck is **80m** wide allowing a very broad vista. It is provided with handrails which forms a physical barrier but permits the **shorter ones** to view through it. At a point, the wall is **recessed** and insert for the wheelchair users to fit in and enjoy the view unobtrusively. Seating areas have been fixed have been provided sumptuously, few with provision to hold walking sticks and like.

RAMKUND - NASIK

Academy of Architecture, Mumbai

Ms. Sayee Mudholkar, Ms. Manjari Joshi, Ms. Richa Joshi, Ms. Sayali Pawar

Introduction

NASHIK is a city in western India in the state of Maharashtra. Nashik is located in the north-west of Maharashtra. It is located on the banks of the Godavari River, the holy river which flows through old Nashik. The Godavari River flows through Nashik from its source, which lies to the southwest of the city, in Trimbakeshwar.

The Ram Kund area has several temples like:

- SundaraNarayana Temple, the NaroShankaraMandir and the Kapaleshwara temple. Ram Kund is also called AsthiVilayaTirtha, which dissolves the bones of the dead dropped into it.
- This holy tank is 27 m by 12 m and was built in 1696 by ChitraraoKhatarkar. It is believed that Rama and Sita used to bathe in this tank during their exile. It is in this tank of holy water or kund that religious Hindus even today, immerse a dead

person's ashes so that the soul of the dead person can attain moksha or liberation.

- In addition to the ram kund there is the Lakshmandakund and the Sitakund which further on lead the water channel.
- The 'Ganges' of the south, Ramkund in the sacred river Godavari, draws countless pilgrims every year. The popular belief is that Lord Ram had his bath here, at some stage of his exile. To commemorate that the devotees frequent here to have a holy dip. In 1696, ChitraraoKhatarkar built a holy tank on the spot where it is believed that Rama and Sita took their bath. Devotees gather here to plunge their beloved's ashes on the strong belief that it will help the dead to get salvation. One among the alluring picnic spots, at Ram kund the river Godavari takes a 90 degree bend and that spot is considered as the most holy by the pilgrims.

Activities on site

- The ram kund is mainly used for asthivisarjan and the ghats are used for pooja and other rituals.
- There is an unclear distribution of activities in the pilgrim site which results in chaos for the pilgrims and visitors and creates problems for the disabled.

- The temples and shrines around the temple complex interfere with the ritual activities which are mainly the after death ceremonies.

Terrain and topography

- The entire site of the Ghats is a low lying area with several differences in levels and heights.
- There are multiple levels in the ghat with steps and slopes along the three main kunds.
- The differences in heights make it impossible for the disabled and elderly to access the temple complex and Ghats easily.

Entry to the complex

- There is no well-defined entry to the site.
- There is chaos of activities at the entrance.

Parking

- The parking has a very narrow and undefined entrance.
- There is no provision for handicapped parking in the allotted parking space.
- There is no direct entry to the Ghats from the parking.
- There is no drop off for the vehicles coming to the temple complex.

Entrance lobby

- There is no lobby space.
- There is pause space between the road and the temple complexes

Design Methodology

Universal Design Considerations: Diverse types of users under consideration for universal design

- Non-ambulatory: Impairments that, regardless of cause or manifestation, for all practical purposes, confine individuals to wheelchairs.
- Semi-ambulatory: Impairments that cause individuals to walk with difficulty or insecurity. Individuals using braces or crutches, amputees, arthritics, spastics and those with pulmonary and cardiac ills may be semi-ambulatory.
- Sight: Total blindness or impairments affecting sight to the extent that the individual functioning in public areas is insecure or exposed to danger.
- Hearing: Deafness or hearing handicaps that might make an individual insecure in public areas because he is unable to communicate or hear warning signals

Mobility devices

- Adequate space for persons using mobility devices.
- Adequate space should be allocated for persons using mobility devices, e.g. wheelchairs, crutches and walkers, as well as those walking with the assistance of other persons.
- The range of reach (forward and side; with or without obstruction) of a person in a wheelchair should be taken into consideration.
- Attention should be given to dimensions of wheelchairs used locally. Standard size of wheel chair has been taken as 1050mm x 750mm.

➤ Non-ambulatory disabilities

- Persons restricted on wheelchairs should use the facilities within the built environment alone without a helper's assistance.
- A wheelchair may be operated by the user alone or with a helper's assistance. However, wheelchair design must assume that the user should be able to operate the wheelchair without help.

- The width and length of the wheelchair, its control and the diameter of the casters decide the following:
- Width of entrances and exits (clear 900 mm). Width of the passage/corridor (min. 900mm). Slope of the climbing (min. ramp slope 1:12)

➤ Semi-ambulatory disabilities: Design requirements

- Width of passage for crutch users (min. 900 mm).
- Finishes of floor surface with non-slip floor material.
- Installation of handrail to support the body weight at critical places, for example staircase, toilet, ramp, passage with a change of level (800-850 mm).
- Extension of handrail on the flat landing at the top and bottom of the stairs (300 mm).
- To prevent a cane or crutch tip from slipping off the side of the stairs or ramp, install a 20 mm high lip on the exposed edge

Sight disabilities: Design requirements

Use of guiding blocks for persons with impaired vision to guide them within the buildings and facilities and outside the building. (Refer details of guiding/warning blocks). Installation of information board in Braille. Removal of any protruding objects and sufficient walking space for safe

walking. For persons with limited vision: use of contrasting colour arrangements. Hearing disabilities. Provision of information board in an easily understandable manner. Provision of illuminated signage's, layout diagrams to help people easily reach the desired place.

Hearing impaired

Design considerations

- Sensory reach.
- Space and proximity.
- Mobility and proximity.
- Light and colour.
- Acoustics.

Design Solutions

Road network

- A 12 m road is defined around the site to the temples uphill on the site.
- A pedestrian pathway 2 m wide is designed along the road.
- Zebra crossings are made from the pedestrian paths to the site entrance.

Drop off point

- A drop off area is designed for vehicles.

Parking

- Handicapped parking lots are defined at the entrance of the parking area. A separate ramp is designed as an entry to the Ghats from the parking.

Entrance porch

- A grand entrance porch is designed to accommodate the crowd that enters the site. A pause space is created between the road edge and the main entrance lobby.

Lobby area

- The lobby area is a large gathering space where all the activities on the site converge.

Access to the kund

- A sunk platform with a ramp of 1:20 is designed in such a way that a person on a wheelchair, the elderly and disabled people can touch and access the water at .

Access to pooja spaces

Temporary pooja platforms are designed in timber around a permanent concrete platform to facilitate flexibility of spaces. A sliding folding platform is arranged which allows the wheelchair bound and the elderly.

The ultimate intension of the design is to create a pilgrim site which does not discriminate between diverse users and invites all the people of the society to be an active part of the pilgrim site.

Our Aims and Objectives

- Pilgrimage sites hold great importance in Indian culture and context hence, it is essential to maintain the integrity of the sites but at the same time improve the site conditions for better utility by the pilgrims.
- Modules are created for micro designing of the functional spaces.
- Macro level changes are made in the site plan by defining the entry and circulations.
- The nature of the Ghats and the profiles of the temples are sensitively considered while redesigning the proposed structures.
- Universal design practices are incorporated in the design so that the pilgrim site now becomes accessible to diverse users.
- Economic changes are made in the design without wastage of materials and resources.

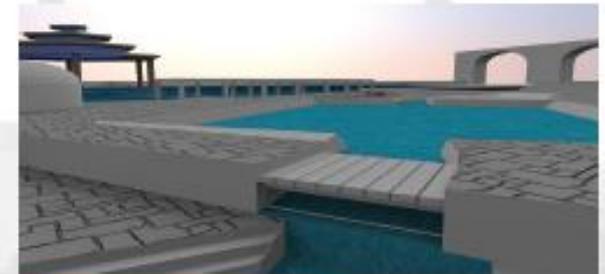
Changes and design interventions are kept simple and innovative keeping in mind their practical application on site.

DETAILS OF DESIGN ELEMENTS FOR THE HANDICAPPED



KAKPARSH MODULE

- **Use :**
 - These platforms are used to make religious offerings of food to crows.
- **Placement :**
 - These platforms are placed in isolation from the other activities on site to encourage more crows.
- **Design :**
 - The platforms are placed at different heights to allow both abled and wheelchair bound person to use them.
 - This feature facilitates universal design.



BRIDGE CONNECTING KUNDS

- **Use :**
 - These bridges allow easy access across the kunds and connect the ghats.
- **Placement :**
 - The bridges are placed across the narrow channels connecting the three main kunds.
- **Design Features :**
 - Two beams are placed over the steps of channel and concrete blocks are placed over it with gaps in between to allow draining of water.
 - The bridges are connected to a filtered screen below the water level which helps to maintain clean water and also allows easy cleaning of water body.

MODULE FOR INCENSE STICKS

- **Use :**
 - To allow people to offer incense sticks as a ritual in the temple complex.
- **Placement :**
 - These are placed around all the temple areas.
- **Purpose :**
 - These modules segregate the temple areas from the ghats and the kunds by the fragrance from the incense.
 - These are specially designed for the visual and the hearing impaired for them to identify space by their heightened sense of smell.

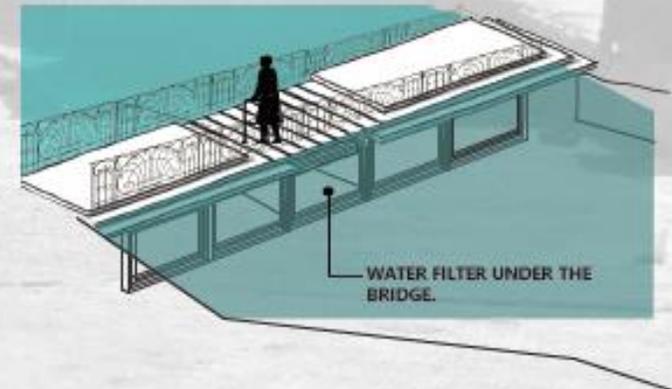


BRIGHTLY COLOURED FLAGS (PATAKAS)

- Strings of flags (patakas) are used to connect all the temple tops of each temple zone.
- This enables the hearing and speech impaired to maintain a constant line of sight.
- Thus they are able to navigate within the site independently.



KEY PLAN SHOWING THE VARIOUS DESIGN ELEMENTS

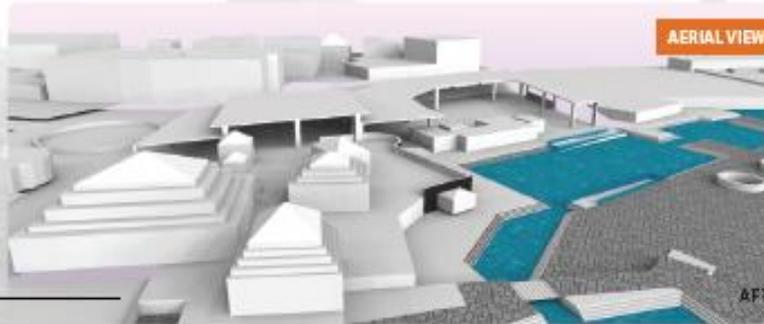


WATER FILTER UNDER THE BRIDGE.



DROP OFF POINT NEAR THE ENTRY

AFTER



AERIAL VIEW OF ENTRANCE LOBBY

AFTER



BEFORE



BEFORE

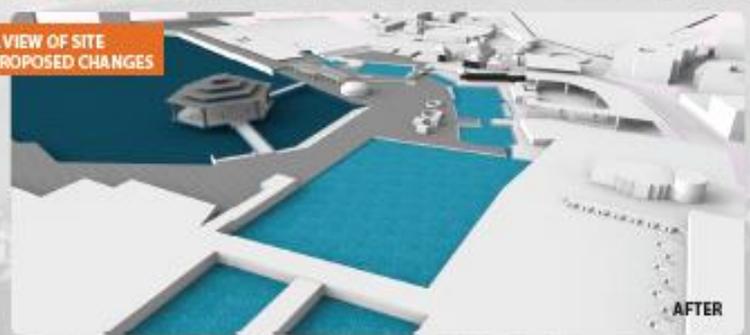


KEY PLAN (n.4.s)



BEFORE

AERIAL VIEW OF SITE WITH PROPOSED CHANGES



AFTER



HALL OF SILENCE



SECTION BB'

SECTION THROUGH THE ENTRANCE LOBBY SCALE 1:500



SECTION AA'

SECTION THROUGH THE SITE SCALE 1:500

CONCLUSION

MACRO LEVEL CHANGES ARE MADE ON THE SITE BY DEFINING ENTRY AND CIRCULATION.

MODULES ARE CREATED FOR MICRO DESIGNING OF THE FUNCTIONAL SPACES.

CHANGES AND DESIGN INTERVENTIONS ARE KEPT SIMPLE AND INNOVATIVE KEEPING IN MIND THEIR PRACTICAL APPLICATION ON SITE.

UNIVERSAL DESIGN PRACTICES ARE INCORPORATED IN THE DESIGN SO THAT THE PILGRIM SITE NOW BECOMES ACCESSIBLE TO DIVERSE USERS.

Reviving the cultural heritage of Ujjain keeping in mind the pilgrim: Case study of Ram Ghat, Ujjain

School of Planning and Architecture, Bhopal

Mr. Sarvochya Kumar, Mr. Ashik Raj, Mr. Sumit Kumar, Ms. Saumya Singh

Introduction

Ram ghat in Ujjain is located on the banks of river Kshipra in western Madhya Pradesh. It is the most ancient bathing ghat in connection with the *Simhastha* Mela celebrations. During *Simhastha*, lakhs of sages and devotees gather in the city from all around the country to take a holy dip in Ram Ghat and attain salvation. The NSDC brief talks about '*inclusive design for cultural interface in pilgrimage sites*'. Inclusive design means ensuring equality and self-sufficiency for all the pilgrims at pilgrimage destinations. A pilgrim site is a place of historical and religious importance where people of all age groups and economical background come to worship the deities. That's why we chose the pilgrimage site as Ram Ghat, a devotedly established patch of land on the banks of Kshipra River. Apart from its religious significance, Ram

Ghat is a mesmerizing place for a relaxing walk or for sitting on a river front.

Design Methodology

User study: Types of diverse users and basic interventions those are required for each kind of disability was enlisted before going for the site visit.

Historical study: We referred to a few books on the history and mythological importance of Ram Ghat and Ujjain to find more about the existing structures in the area around Ram Ghat, so that no changes that may affect the history of the place are made.

Site study: Only after visiting the site multiple times that our design methodology came out of the fog.

Site Analysis

Religious Importance of Ujjain:

Ujjain is one of the 7 important Hindu pilgrimage sites in India and is seen as the reference point of Hindu calendar. Mahakaleshwar situated in Ujjain is one of the 12 jyotirlings in India. The city is also enriched with many other religious destinations such as Harsiddhi temple, Ram Ghat, Gopal Mandir and many others. Since ages Ujjain became a centre of religo-cultural activities and a site for triennial kumbh festival. The commemoration of kumbh at Ujjain is known as 'Simhastha Kumbh

Mela'. It is a religious gathering of priests, ash-dubbed sages, and devotees blended with the roaring of elephants and camels. Major attraction of this festival is the 'Shahi Snan' (Royal Bath) which takes place on predetermined dates and attracts lakhs of pilgrims to the city.

Climatic Study:

Climate: Ujjain experiences a warm sub-tropical climate. Temperature varies between 24°C and 45°C. The air is dry except during monsoon. The relative atmospheric humidity is around 20% during summers and 30-40% in winters.

Soil and Topography: Black cotton soil underlain by basaltic lava and trap rocks on mounds and hills is found in Ujjain. Alluvial soil is found along Kshipra River. The general slope of the area is towards north and the river flows from south to north.

Problems and Threats

Accessibility and Usability:

- The accessibility to the Ram Ghat is hindered for the average users and topographical restrictions prohibit the physically challenged people from entering the Ram Ghat.

- The permanent and temporary encroachments for commercial purposes along the ghat further reduce the width of already narrow patch of land.
- No shaded seating spaces in the ghat creating discomfort for the people with less stamina like the old people.
- Critical condition of public toilets.
- Inadequate Street lighting at night reduce visibility.
- Slippery areas near water leading to accidents
- No signage for disabled people

Contamination of Existing Resources:

- River is polluted because of the lakhs of devotees dipping in the sacred river all round the year. River ablution and cremation ceremonies have added to the contamination level.
- The religious activities at temples and dharamshalas at ram ghat have adversely degraded the quality of air, water and soil in the area.
- Religious waste such as flowers, ashes, hair is all thrown into water.
- No proper waste disposal system for non bio-degradable resources.

- Direct mixing of untreated agricultural and industrial waste with the flowing water.

Problems during Kumbh:

- The existing spaces at ghat are unable to bear the load of the sudden influx of pilgrims and sages during Simhastha and religious gatherings. This results in acts like stampede and rush.
- No proper arrangements for the abruptly increasing floating population. Thus resulting in mismanaged crowd and space.
- No provisions of changing rooms or locker rooms for people bathing in the river.

Technological Advancements:

- The rapid increase in industrial and economic development has led to severe environmental degradation in Ujjain.
- The economics of environmental pollution, depletion and degradation of resources has been neglected as compared to issues of development and expansion.

Design Process



Design Solutions

Accessibility:

- Widening and improving the existing access roads along the two entrances to facilitate unobstructed ghat darshan for the pilgrims.
- Introducing ramps in stairs to ensure a barrier free design

- To enhance visibility of religious happenings and Kshipra pooja to a larger group of people various sight points were made for a view of the river ghat.

Usability:

- A bag is designed to tackle the problems of waste disposal.
- A kiosk was designed keeping in mind the needs of the local retailers and commercial area was restricted to reduce encroachment.

Improving the Experience of Pilgrims:

- Shaded sitting spaces were incorporated in design for the less-energetic and old pilgrims.
- Amrit varsha for the physically challenged devotees who cannot take dip in the Kshipra.
- A defined boating area for the pilgrims who want a ferry in the river.
- Mobile changing rooms to help the people taking holy dip in Kshipra.
- Toilets maintained at certain distances for the people.
- Lanterns and solar lights installed to ensure adequate light at night
- Proper signage and brails for the especially able people.

Sustainable Interventions

Visitor's Bag:

- A product is designed to tackle the problems of waste disposal and unavailability of lockers.
- Bag is taken from the pickup zone at the entrance to store the bought Prasad and flowers.
- Hearing aid and folded stick is initially kept in the bag for the disabled pilgrims.
- The bag has brailled strap with shloks engraved for the visually impaired pilgrim. While walking s/he can read and memorize the holy text.
- After Mandir darshan when the pilgrim wants to take a holy dip in the Kshipra, taken off clothes can be kept in the bag
- The religious waste is also put in the bag
- While going back this bag is submitted in the drop off zone.

Pervious Pedestrian Area:

- Sandstone is used to create porous pedestrians because the areas near water body became slippery due to algae formation.
- In sandstone the water percolates through the tiny gaps leaving the surface dry and free from algae.

Reusable System:

- Rag pickers are appointed to segregate the waste from the bag. The waste is sent for treatment and disposal and the bag is

washed for reuse.

Universal Design Interventions

Being an architect we should be able to translate individual and global requirements of old and disabled people into architectural design and functions. Maximum percentages of disabled users suffer from sensory or mobile impairments. To help these users having:

Visual Impairment and Blindness

Common visually impaired characteristics include restricted field of vision, reduced visual acuity, muscular degeneration (cataract), detached retina etc. Blindness is complete absence of visual senses.

Interventions for visually impaired:

- Areas of the ghat are bright but glare free.
- Steps, ramp edges and handholds are fitted in contrasting colours of same tone.
- Use of acoustic signals at check points.
- Provided orientation option with tactile plating.

Hearing Impairment and Deafness

Congenital hearing impairments and hearing difficulties because of old age are the two types.

Interventions for hearing impaired:

- Acoustic signals supplemented with flashing indicators

- Consistent acoustics created throughout the area to improve perceivability of noises and sounds.

Users Having Mobility Impairment

They have problem in moving from one place to other. Loss of one leg or both, lack of loco motor coordination etc are the types. Interventions for mobility impaired:

- Handrails fixed along stairs and ramps. Tactile aids on handrails at the top and bottom of stairs are made to identify the top and bottom of the flight.
- Outer handrails must project 30 cm horizontally at a height of 55 cm on the top and bottom of stairs.

Old people: the old people have difficulty in walking long distances at a stretch. They have low stamina and cannot tolerate level differences.

- Ramped stairs and levelled pedestrian are incorporated in design.
- Several shaded and unshaded sitting spaces are made along the ghat.

References

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- JNNURM, Urban Madhya Pradesh-The JNNURM Impact; Urban Infrastructure Development, Impact on existing resources and scenario during simhastha.
- Baseline Survey of Ujjain District, Madhya Pradesh

RAM GHAT

200 TEMPLES WITHIN AND ALONG THE SITE

HARSIDDHI TEMPLE

ONE OF THE SHAKTIPEETH 52

MAHAKAL TEMPLE

ONE OF THE JYOTIRLING TEMPLES 12

UJJAIN (EARLIER KNOWN AS UJJAYINI) IS LOCATED ON THE WESTERN BOUNDARY OF MADHYA PRADESH.

ACCORDING TO INDIAN ASTROLOGY, ZERO DEGREES OF PRIME-MERIDIAN BEGINS IN UJJAIN MAKING IT A IMPORTANT HINDU PILGRIMAGE SITE. SINCE ANCIENT TIMES, IT BECAME A CENTRE OF RELIGOCULTURAL ACTIVITIES AND A SITE FOR TRIENNIAL KUMBH FESTIVAL. AFTER EVERY 12 YEARS, A KUMBH MELA (SIMHASTHA) IS HELD ALONG THE PIOUS RIVER KSHIPRA.

SITE SELECTED: RAM GHAT

RAM GHAT LOCATED ON THE BANKS OF RIVER KSHIPRA IS THE MOST ANCIENT BATHING GHAT IN CONNECTION WITH SIMHASTHA MELA CELEBRATIONS. DURING SIMHASTHA, LAKHS OF SAGES AND DEVOTEES GATHER IN THE CITY FROM ALL AROUND THE COUNTRY TO TAKE A HOLY DIP IN RAM GHAT AND ATTAIN SALVA-

APART FROM ITS RELIGIOUS SIGNIFICANCE, RAM GHAT IS A MESMERIZING PLACE FOR A RELAXING

TO CATER TO THE EXPANDING POPULATION OF PEOPLE WITH VARYING DEGREE OF ABILITIES, THEIR DEMAND FOR RECOGNITION AND DESIRE FOR INDEPENDENT LIVING.

WHY UNIVERSAL DESIGN

75%

ACCESS TO FREE AND FAIR OPPORTUNITIES AND ACCEPTANCE IN SOCIETY.

TO ADD A NEW DIMENSION IN THE ACCESSIBILITY LANDSCAPE TOWARDS THE FIELD OF DESIGN

TO CREATE AN ENVIRONMENT ALLOWING PEOPLE WITH DIFFERENT LEVELS OF PHYSICAL AND /OR COGNITIVE CAPABILITIES TO MOVE INDEPENDENTLY SO AS TO INTEGRATE AS FULLY AS POSSIBLE TO THE MAINSTREAM OF DAILY LIFE.

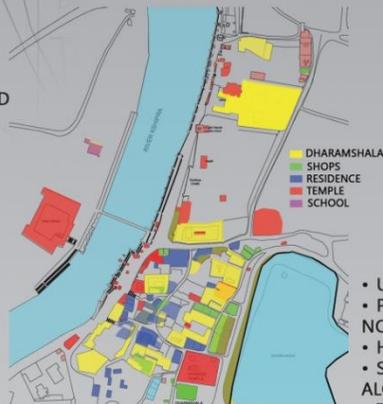
UJJAIN IS ALSO ENRICHED WITH MANY OTHER POPULAR DESTINATIONS SUCH AS KAL BHAIRAW, GOPAL MANDIR AND MANY DHARAMSHALAS.



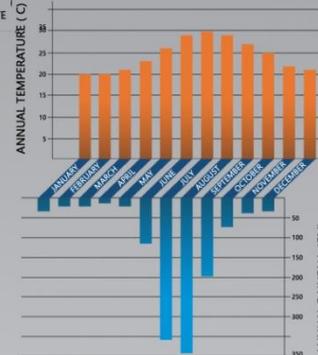
INFLUX OF PEOPLE DURING RELIGIOUS GATHERING



RAM GHAT



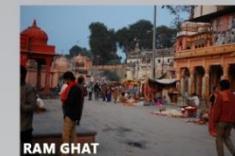
LANDUSE MAP



- UJJAIN HAS A WARM SUB-TROPICAL CLIMATE.
- PREVAILENT WIND DIRECTION: NORTH-EAST TO NORTH-WEST
- HUMIDITY - 20% TO 30%
- SOIL - BLACK COTTON SOIL ALLUVIAL SOIL ALONG KSHIPRA RIVER.
- TOPOGRAPHY- SLOPE TOWARDS NORTH



ACCESS ROAD TO THE SITE



RAM GHAT



HARSIDDHI TEMPLE



DESIGN METHODOLOGY



INTRODUCTION

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HINDERED ACCESSIBILITY TO THE SITE

ENCROACHMENT

SIGNAGE NOT PRESENT

NO SHADED SEATING SPACES

INADEQUATE STREET LIGHTING

SLIPPERY STAIRS AND ABSENCE OF RAMPS

PROBLEMS DURING KUMBH
-NO ARRANGEMENTS FOR SUDDEN INFLUX OF PILGRIMS
-STAMPEDE
-NO CHANGING ROOMS OR LOCKER ROOMS

NO PROPER VIEW OF THE KSHIPRA AARTI

CRITICAL CONDITION OF PUBLIC TOILET

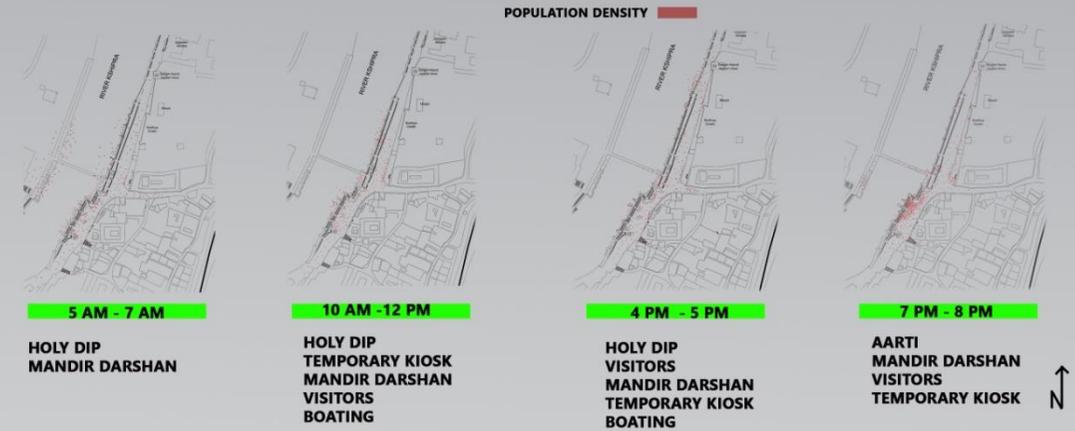
RIVER WATER POLLUTED BECAUSE OF-
-RIVER ABLUTION AND CREMATION CEREMONIES
-RELIGIOUS WASTE THROWN INTO WATER
-NO PROPER WASTE DISPOSAL SYSTEM

INDUSTRIAL AND ECONOMIC DEVELOPMENT HAS LED TO SEVERE ENVIRONMENTAL DEGRADATION



SPECIAL CHARACTERISTICS REQUIRING ATTENTION	USER GROUP							
	WHEELCHAIR USERS	VISUALLY IMPAIRED	ELDERLY PEOPLE	EXPECTANT WOMEN	PHYSICALLY IMPAIRED	HEARING IMPAIRED	INFANTS AND CHILDREN	OTHERS
DIFFICULTY IN INTERPRETING INFORMATION								
POOR OR COMPLETE DEGRADATION OF SIGHT								
POOR OR COMPLETE DEGRADATION OF HEARING								
PREVALENCE OF POOR BALANCE								
POOR CO-ORDINATION AND ORIENTATION								
INABILITY IN HANDLING								
INABILITY IN USING UPPER EXTREMITIES								
INABILITY IN USING LOWER EXTREMITIES								
LIMITATIONS OF STAMINA								
LIMITATIONS OF STRENGTH								
VERTICALLY AND HORIZONTALLY CHALLENGED								
REQUIRE FAMILY FRIENDLY FACILITIES								
USE OF MOVEMENT AIDS								
OTHERS	USE OF WALKING CANE TO DETECT OBSTRUCTIONS		INCREASED VISIT TO TOILETS	NEED RESTING SPACES				

ACTIVITY ANALYSIS - DAY/NIGHT ANALYSIS WITH PREVAILING ACTIVITIES



SITE AND USER STUDY

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THE GHAT LAYOUT HAS BEEN DEVELOPED BY IDENTIFYING THE CURRENT TEMPLES ON THE GHAT AND THE NODAL POINTS TO RESTORE THE CULTURAL VALUE OF THE PLACE



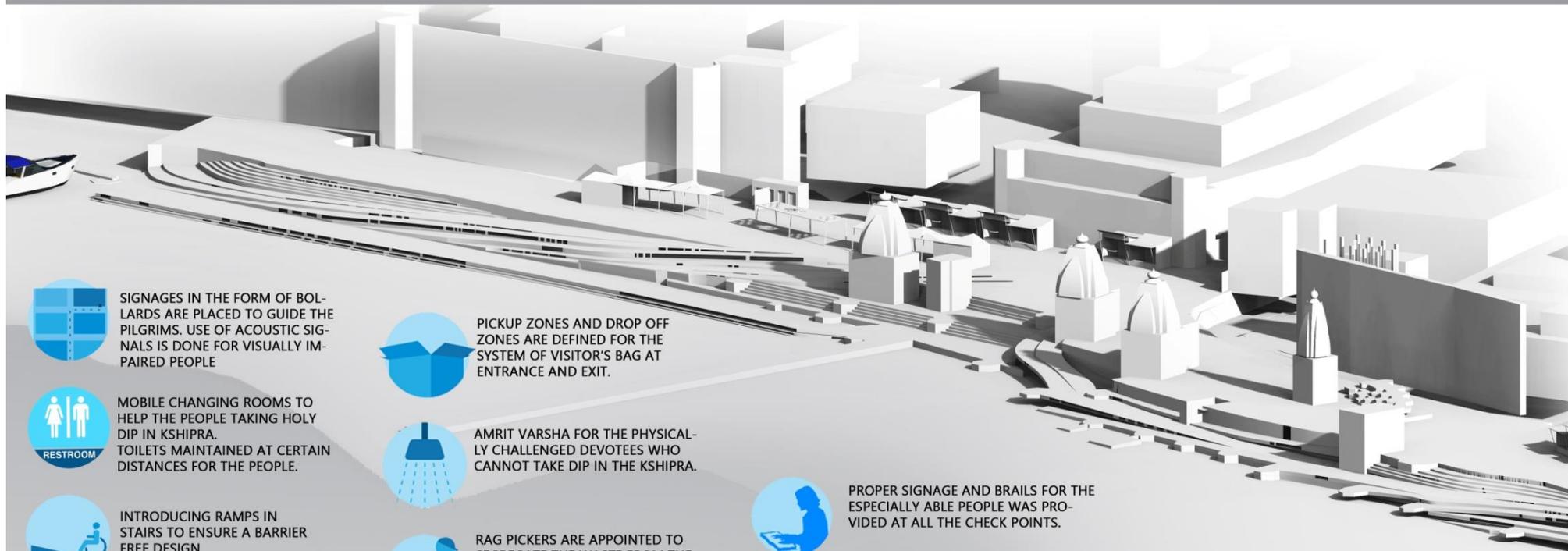
GHAT IS VISITED BY PEOPLE OF DIFFERENT ABILITIES AND AGES. TO MAKE THE GHAT ACCESSIBLE TO ALL, IT IS DESIGNED KEEPING IN MIND THE UNIVERSAL DESIGN PRINCIPLES AND GUIDELINES.



RELIGIOUS WASTE SUCH AS FLOWERS, ASHES, HAIR IS ALL THROWN INTO KSHIPRA. RIVER ABLUTION AND CREMATION CEREMONIES HAVE ADDED TO THE CONTAMINATION LEVEL. DESIGN ALSO CATERS TO THE ENVIRONMENTAL ISSUES THAT WE IDENTIFIED ON THE SITE.



RELIGIOUS AND TOURISM ASPECT OF PILGRIMAGE WAS KEPT IN MIND WHILE DESIGNING AND PROPOSING CHANGES IN THE LAYOUT OF EXISTING GHAT.



SIGNAGES IN THE FORM OF BOLLARDS ARE PLACED TO GUIDE THE PILGRIMS. USE OF ACOUSTIC SIGNALS IS DONE FOR VISUALLY IMPAIRED PEOPLE



PICKUP ZONES AND DROP ZONES ARE DEFINED FOR THE SYSTEM OF VISITOR'S BAG AT ENTRANCE AND EXIT.



MOBILE CHANGING ROOMS TO HELP THE PEOPLE TAKING HOLY DIP IN KSHIPRA. TOILETS MAINTAINED AT CERTAIN DISTANCES FOR THE PEOPLE.



AMRIT VARSHA FOR THE PHYSICALLY CHALLENGED DEVOTEES WHO CANNOT TAKE DIP IN THE KSHIPRA.



INTRODUCING RAMPS IN STAIRS TO ENSURE A BARRIER FREE DESIGN



RAG PICKERS ARE APPOINTED TO SEGREGATE THE WASTE FROM THE BAG. THE WASTE IS SENT FOR TREATMENT AND DISPOSAL AND THE BAG IS WASHED FOR REUSE.



PROPER SIGNAGE AND BRAILS FOR THE ESPECIALLY ABLE PEOPLE WAS PROVIDED AT ALL THE CHECK POINTS.



DUSTBIN ARE PLACED OUTSIDE EVERY TEMPLE AND ALONG THE RAM GHAT TO MAINTAIN CLEANLINESS OF THE AREA



PEOPLE ARE APPOINTED TO HELP THE OLD AND NEEDY IN PILGRIM PROCESS.



WIDENING AND IMPROVING THE EXISTING ACCESS ROADS ALONG THE TWO ENTRANCES TO FACILITATE UNOBSTRUCTED GHAT DARSHAN FOR THE PILGRIMS.



A BAG IS DESIGNED TO TACKLE THE PROBLEMS OF WASTE DISPOSAL. AND IS A STORAGE SPACE FOR HEARING AIDS, STICK AND OTHER BELONGINGS

- TO ENHANCE VISIBILITY OF RELIGIOUS HAPPENINGS AND KSHIPRA POOJA TO A LARGER GROUP OF PEOPLE VARIOUS SIGHT POINTS WERE MADE FOR A VIEW OF THE RIVER GHAT.
- A KIOSK WAS DESIGNED KEEPING IN MIND THE NEEDS OF THE LOCAL RETAILERS AND COMMERCIAL AREA WAS RESTRICTED TO REDUCE ENCROACHMENT.
- A DEFINED BOATING AREA FOR THE PILGRIMS WHO WANT A FERRY IN THE RIVER.
- LANTERNS AND SOLAR LIGHTS INSTALLED TO ENSURE ADEQUATE LIGHT AT NIGHT

PROPOSED DESIGN

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CONCEPT

OM OR AUM IS THE MOST SACRED SYMBOL IN HINDUISM. IN SANSKRIT KNOWN AS "PRANAVA"/LIT. HINDUS CONSIDER OM TO BE THE UNIVERSAL . HINDUS CONSIDER OM TO BE THE UNIVERSAL NAME OF THE LORD AND THAT IT ENCOMPASSES ALL OF CREATION. OM SYMBOLIZES THE SUPREME PERSONALITY OF GODHEAD PRABRAHMA. ITS FORM IS WORSHIPED, CONTEMPLATED UPON OR USED AS AN AUSPICIOUS SIGN WITHIN THE HINDU RELIGION. TODAY, IN ALL HINDU ART AND ALL OVER INDIA AND NEPAL, 'AUM' CAN BE SEEN VIRTUALLY EVERYWHERE, A COMMON SIGN FOR HINDUISM AND ITS PHILOSOPHY AND THEOLOGY. THE BLESSINGS ARE HERE PUT BEFORE THE CURSES. GOD IS SLOW TO ANGER, BUT SWIFT TO SHOW MERCY. IT IS HIS DELIGHT TO BLESS. IT IS BETTER THAT WE SHOULD BE DRAWN TO WHAT IS GOOD BY A CHILD-LIKE HOPE OF GOD'S FAVOUR. THE BLESSING IS PROMISED, UPON CONDITION THAT THEY DILIGENTLY HEARKEN TO THE VOICE OF GOD. THIS VERY BLESSING OF THE ALMIGHTY IS SYMBOLIZED IN HINDUISM BY A RIGHT HAND OPEN PAM. LET THEM KEEP UP RELIGION, THE FORM AND POWER OF IT, IN THEIR FAMILIES AND NATION, THEN THE PROVIDENCE OF GOD WOULD PROSPER ALL THEIR OUTWARD CONCERNS.THE BASIC CONCEPT BEHIND THE DESIGN IS DERIVED FROM THIS NOTION.

THE DESIGN FOCUSSES ON **RESTORING THE CULTURAL AND HISTORICAL VALUE OF RAMGHAT**. THE KEY IDEA IS TO MAKE IT UNIVERSALLY ACCESSIBLE WITHOUT DISTURBING THE RELIGIOUS AURA OF THE PLACE.



SHADING SPACE

RESTORING THE CULTURE

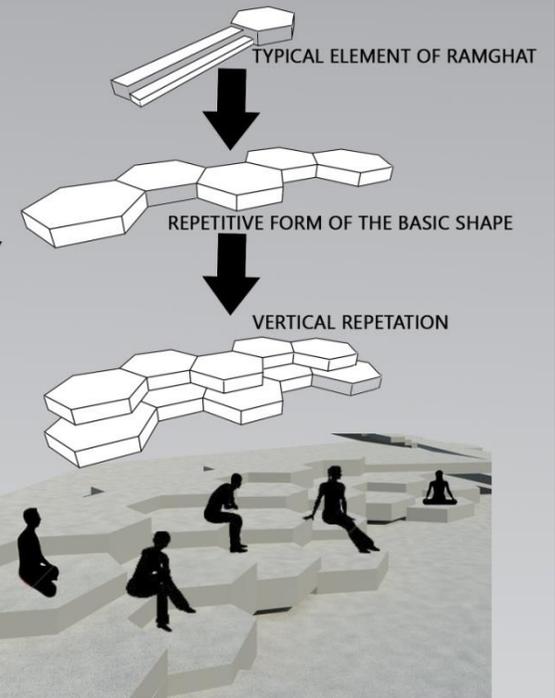
MAP SHOWING THE OVERLAY OF THE EXISTING GHAT AND THE PROPOSED DESIGN SHOWING HOW THE CULTURAL SIGNIFICANCE OF THE GHAT IS POTRAYED IN THE DESIGN BY IDENTIFYINGTHE MAJOR NODAL POINTS.



FORM FORMATION OF SITTING SPACE

DIVISION OF SPACE

THE GHAT HAS BEEN DEVELOPED BY DIVIDING IT INTO THREE FRINGES IN ORDER OF 120 MTR. EACH IN ORDER TO INCREASE ITS USIBILITY



UNIVERSAL DESIGN PRINCIPLES

- EQUITABLE USE
- FLEXIBILITY IN USE
- SIMPLE AND INTUITIVE
- PERCEPTIBLE INFORMATION
- TOLERANCE FOR ERROR
- LOW PHYSICAL EFFORT
- SIZE AND SPACE FOR APPROACH AND USE



SHADING AND CHANGING AREA

DESIGN CONCEPT

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VISITOR'S BAG:

A PRODUCT IS DESIGNED TO TACKLE THE PROBLEMS OF WASTE DISPOSAL AND UNAVAILABILITY OF LOCKERS.

- BAG IS TAKEN FROM THE PICKUP ZONE AT THE ENTRANCE TO STORE THE BOUGHT PRASAD AND FLOWERS.
- HEARING AID AND FOLDED STICK IS INITIALLY KEPT IN THE BAG FOR THE DISABLED PILGRIMS.
- THE BAG HAS BRAILED STRAP WITH SHLOKS ENGRAVED FOR THE VISUALLY IMPAIRED PILGRIM. WHILE WALKING S/HE CAN READ AND MEMORIZE THE HOLY TEXT.
- AFTER MANDIR DARSHAN WHEN THE PILGRIM WANTS TO TAKE A HOLY DIP IN THE KSHIPRA, TAKEN OFF CLOTHES CAN BE KEPT IN THE BAG
- THE RELIGIOUS WASTE IS ALSO PUT IN THE BAG
- WHILE GOING BACK THIS BAG IS SUBMITTED IN THE DROP OFF ZONE.

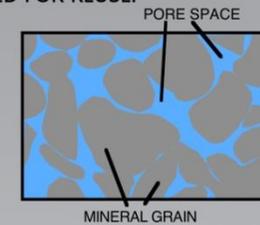
BAGVATI FOR PILGRIM'S



PERVIOUS PEDESTRIAN AREA:

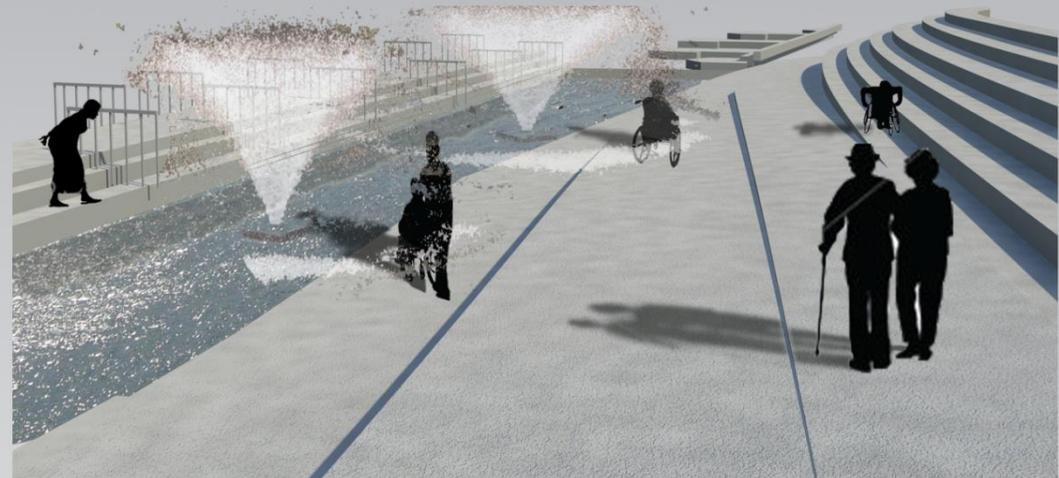
SANDSTONE IS USED TO CREATE POROUS PEDESTRIANS BECAUSE THE AREAS NEAR WATER BODY BECAME SLIPPERY DUE TO ALGAE FORMATION. IN SANDSTONE THE WATER PERCOLATES THROUGH THE TINY GAPS LEAVING THE SURFACE DRY AND FREE FROM ALGAE.

REUSABLE SYSTEM: RAG PICKERS ARE APPOINTED TO SEGREGATE THE WASTE FROM THE BAG. THE WASTE IS SENT FOR TREATMENT AND DISPOSAL AND THE BAG IS WASHED FOR REUSE.



AMRIT VARSHA

AMRIT VARSHA IS A ARRANGEMENT FOR THE PHYSICALLY DISABLES PILGRIMS AT RAM GHAT. SHOWERS ARE INSTALLED ALONG THE GHAT IN WHICH THE RIVER WATER IS SPRINKLED OVER THE PERSON STANDING BELOW. THE PEOPLE WHO ARE UNABLE TO TAKE HOLY DIP IN THE RIVER AND ARE STILL WANT TO PURIFY THEIR SOLE STAND UNDER THE AMRIT VARSHA.



PEOPLE TAKING HOLY DIP AND HOLY SHOWER (AMRIT VARSHA)

PRODUCT AND DESIGN

NSDC-IV/UD/189



Chaturshringi Temple

Dr Bhanuben Nanavati College of Architecture for Women, Pune

Ms. Megha Bilgi, Ms. Pavitra Lakshmi, Ms. Meghna Majethiya, Ms. Annie Aggarwal

Introduction

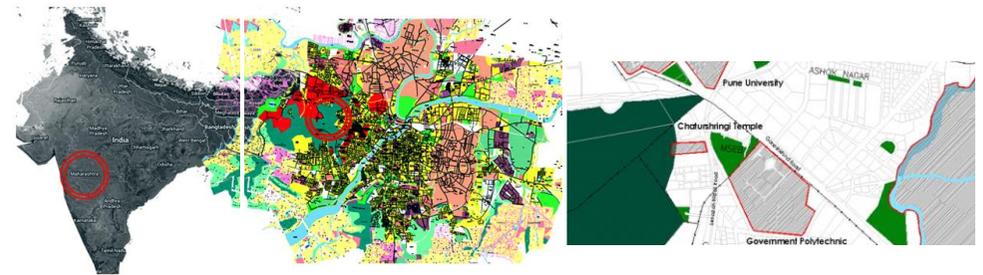
A pilgrimage is a journey of moral or spiritual significance to a shrine or other location of importance to a person's belief and faith. CHATURSHRINGI TEMPLE is one such Pilgrimage Site, of local as well as REGIONAL IMPORTANCE.

Site Justification

Chaturshringi Temple is a pilgrimage site which is also a grade 1 heritage site as declared by the PMC. The temple is located on a hill, making the access to the temple difficult and troublesome for a majority of people visiting the temple. One has to climb more than a hundred steps to reach the temple. Pilgrims from all over Maharashtra and various parts of India visit the temple in large numbers during the festival of Navratri. Even on a daily basis, thousands of people frequent the temple, making it a site in imperative need of a Universal design. People from all age groups and from all walks of life visit the temple as a

daily routine. A child with his family, a grandparent with a walking stick or a blind man following his faith, all kinds of people visit the temple. It is thus chosen for redesign, to incorporate Universal Design, to facilitate people from all walks of life to experience the temple, without facing barriers obstructing their path through the temple complex.

Location and Landmarks



Located on the bustling Senapati Bapat Road, amid huge IT companies and gigantic commercial complexes, is a serene, quiet and divine temple of Goddess Chaturshringi. Chaturshringi literally means four peaks.

Getting To Chaturshringi

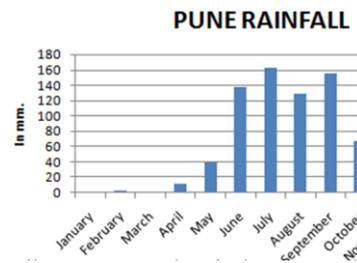
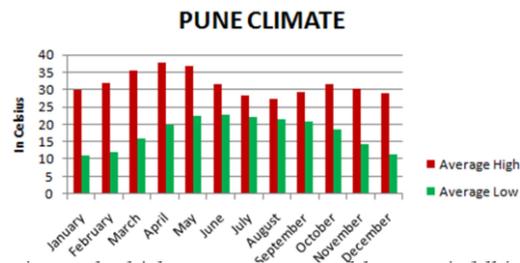
Chaturshringi is well accessible from most of the major locations in the city, though there is a lack of signage's for directions towards the temple. Distances from Important places are as follows:

- Parvati temple to Chaturshringi Temple: 4 km
- Pune Railway Station to Chaturshringi Temple: 8 km

- Shivajinagar Railway Station and Bus station to Chaturshringi Temple: 3 km
- Bus stand on SB road to Chaturshringi Temple: 1 km
- Pune University to Chaturshringi Temple: 3 km

Also, the Pune Darshan Bus includes Chaturshringi Temple as one of its attraction locations; the buses which start from Pune station and Deccan gymkhana make a stop at the temple.

Climate



Owing to the high temperatures and heavy rainfall in the city, climate responsive design to provide shade in extreme conditions should be employed.

Background and History

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.

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.

Ownership Status (caretaker): Private (Devadatta Angal Family)

Heritage Status: Grade 1 site under PMC

Universal Design Proposal for the Pilgrimage Site Of 'Chaturshringi'

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

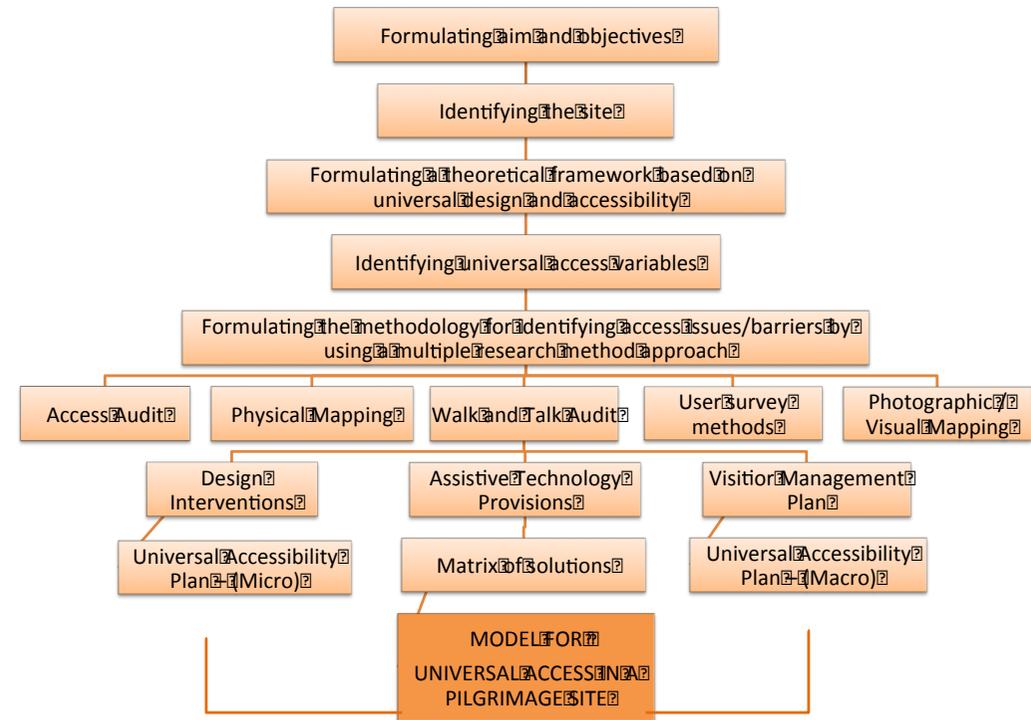
backgrounds can participate equally while ensuring that the authenticity and the integrity of the religious place is preserved.

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 analyze, infer and generate solution to enhance physical and intellectual access to all parts of the pilgrimage site at two levels:
4. The site – temple complex
5. The built areas
6. Think ‘out of the box’ to develop innovative solutions for expanding universal usability while preserving the cultural and heritage value of the site.

Methodology

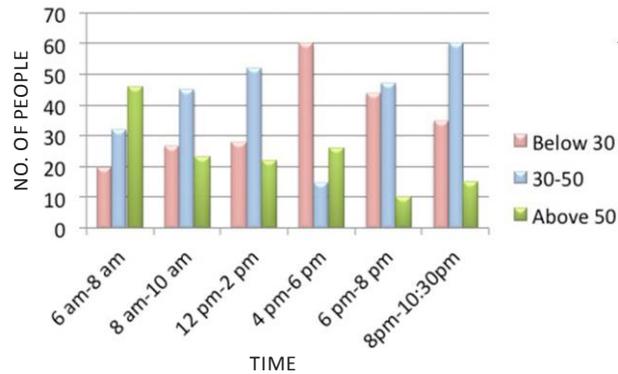
The site has been studied intensively to identify impediments, issues and supporting features to physical and intellectual access within the pilgrimage site.



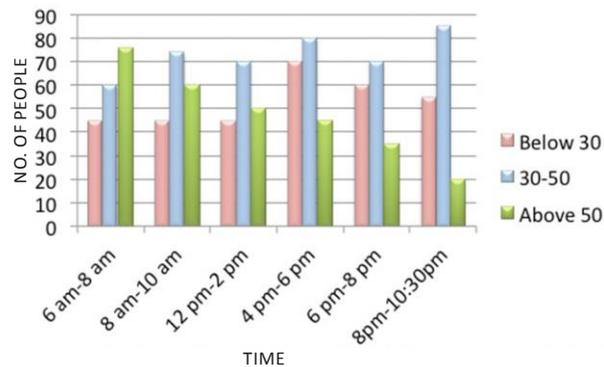
Tools Used For Surveying and Understanding the Site

1. INTACH listing format was used for historical and architectural data collection
2. CROWD MAPPING and surveys were conducted to generate statistics.

- 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.

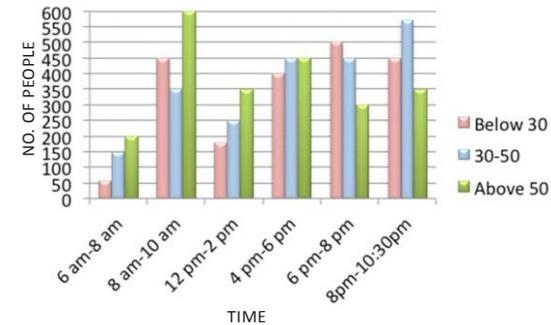


Regular Day



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.
- 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.



Festival Days

Activity Mapping Was Done On Site

An Activity Time chart indicative of the user profile that frequents the temple.

TIME	ACTIVITY	USER
6 am – 10 am	Morning walks, laughing club, 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

Accessibility Audit Was Conducted To Access The Physical And Intellectual Barriers Faced On Site.

SITE LEVEL ACCESSIBILITY			
ENQUIRIES	Y	N	COMMENTS
i. SITE ENTRANCE AND PATHWAYS TILL THE BUILDING			
1	Is the main entrance of the site accessible?	Y	Entrance from the main road.
2	Are staff available at all times to assist people with mobility limitations to gain entry via removable ramps or other access Aids?	N	No such provisions for assistance of people.
3	If turnstiles, gates or security systems are in use, are they accessible for a person using a wheelchair, a person with limited strength or a person with Short stature?	N	No security systems employed, the main gate is wide enough to accommodate even large no.s of people.
4	Are turnstiles or gates operated by beams or Touch sensors?	N	Fixed barricades, no touch

			sensors.
5	Is an accessible circulation route at least 1200mm wide with adequate manoeuvring space at changes of direction provided for wheelchair access through All parts of the site?	N	Adequate space but changes in level.
6	If access for all people is not possible to some Areas are audio visual presentations, displays or architectural models provided as an alternative experience?	N	No alternative provisions for display
7	Have all modifications to the site development intended to assist people with disabilities been designed and located in consultation with the State Heritage Office and the National Trust?	N	Modifications made are not sensitive to disabled people.
8	Are all areas clearly signed? Is there clear written and pictorial signage indicating accessible areas?	N	Lack of signage, general as well as historical information about the place.
9	Is there a plan of the building displayed showing the recommended route throughout the	N	No signage or leaflet available

	site and building? - near the entrance - on a leaflet or brochure printed on non-reflective paper with clear colour contrast?			
10	Is a continuous system of directions provided throughout the site indicating the recommended route in a consistent style of signage?		N	None provided
11	Are the directional signs easy to see from a seated position?		N	Directional signs are not available.
BUS STAND				
1	Is there a bus stand near the building?		Y	Bus stand is present near the temple.
2	If there is a kerb at the bus stand, then is there a kerb ramp leading to the pathway? And is there wheel chair space under the bus shelter?		N	No kerb ramp or wheelchair space
3	What all facilities are provided for benefit of persons with reduced mobility?		N	None provided
PARKING				
1	Is the parking accessible for people With disabilities?		Y	Parking is available. But no demarcation for people

				with disabilities or for wheelchair users.
2	Is the no. of accessible parking enough?	Y		Enough parking space.
3	Is accessible parking within 30 m from the Heritage site complex entry ?	Y		Parking within the complex.
4	Do kerb ramps connect accessible parking spaces with side kerbs?		N	No kerbs along the parking.
5	Are there pre-cast wheel stoppers or bollards to separate pathway from the parking?		N	Parking on tarred road, along walls.
6	Are there tactical marking at least 600 mm wide to separate pathway from parking?		N	No separate pathway.
7	Is the drop off area marked by signage?		N	No drop off area provided.
KERB RAMPS				
1	Are kerb ramps provided at all level differences, between the road surface and pathway level: a) Pedestrian crossings? b) Accessible parking space? c) Building entrances?		N	Not provided
PEDESTRIAN CROSSING				

1	Is the road surface even and slip resistant at pedestrian crossings?		N	Uneven road at the crossings
2	Are pedestrian traffic lights installed?		N	No provision of pedestrian traffic lights
3	Is there a speed breaker at the vehicular crossing?	Y		
4	Is there a legible zebra crossing made available at the junctions?	Y		
	GENERAL OBSTRUCTIONS			
1	Are there any protruding objects within the path of travel, not detectable by a vision-impaired person with white cane?	Y		Uneven stone pathway.
2	Are the protruding objects, marked with tactile warning at least 300mm beyond the projection area of the obstruction?		N	No tactile warnings.
3	Are all overhanging obstructions with the path of travel marked with contrasting colour?		N	No overhanging obstructions
	PATHWAYS			
1	Does the approach road have a pedestrian path, footpath / sidewalk?	Y		Demarcated footpath for pedestrians.
2	Is the pathway clear of all obstructions, steps and stair?		N	Vendors at the entrance, level differences.
3	Are there tactile guiding blocks, installed		N	None

	along the line of travel?			provided
4	Are there warning blocks around any obstructions?		N	None provided
5	Is the path at least 900mm wide?	Y		
6	Is the surface level, smooth and non-slippery?			Partially
7	Does the pedestrian path have enough space to allow for the passage of two wheel chairs?(1850 mm)	Y		Pathway too narrow to accommodate passage of two-wheelchairs at places.
8	Have dropped kerbs been installed at road intersections?		N	None provided
9	Is the surface of the sidewalk levelled, smooth and slip resistant?		N	Sidewalk is not slip resistant nor levelled.
10	Does the pathway have a different colour and texture than the adjacent surface?		N	No colour difference, only different material used.
11	Do hawkers/vendors occupy the sidewalk?	Y		Vendors occupy areas of the pathway.
12	Are signage's provided and are they clearly visible? i.e. informative and hazard signs		N	None provided

13	Does the sidewalk cross over vehicular indents?	Y		Vehicular crossings and turns.
14	Do the indents then have kerb cuts on either side connecting surface to the sidewalk?		N	Continuous kerb.
15	Does the sidewalk have designated zones for furniture, services and walking areas?		N	Street furniture and walking areas overlap.
16	Is there street furniture on the sidewalk? (Benches/post boxes/signage/planter etc)	Y		Street lights, post boxes, etc.
17	Is there tactile marking for street furniture?		N	None provided
18	Are all manholes places outside the pedestrian path of travel?		N	Manholes along the pedestrian pathway.
19	Is there an edge protection along the pathway,		N	None provided

BUILT ACCESSIBILITY				
1	Is the main approach to the building accessible?		N	Steps with inconsistent risers and a discontinuous ramp lead to the temple.
2	If NO, can it be altered to allow	Y		Ramps can be

	wheelchair without affecting the architectural/historic significance of the building?			provided along the stairs, leading to the temple.
3	Can an alternative accessible entrance be modified or built, that becomes the primary entrance for all visitors?	Y		
4	Is staff available at all times to assist people with mobility limitations to gain entry via removable ramps or other access aids?		N	No staff, though provision of palki system at times.
5	Are there any steps at the entrance and are they aided with hand rails?		N	No steps at the entrance. Entry at road level.
6	Are there hand rails on both sides?	Y		Lack of handrails along some flights of steps.
7	Is there a ramp and does it have handrail?		N	None provided
8	Does the accessible entrance permit access to an elevator?		N	None provided
9	Is there a tactile guiding/marker available till the entrance?		N	None provided
10	Is the landing surface non slippery and levelled?		N	Slippery surfaces ,partially
11	Is there buzzer available?		N	None provided
12	If turnstiles, gates or security systems are in use, are they accessible for a person using a wheelchair, a person with limited		N	Security system provided, but

	strength or a person with short stature?			not in use. Cannot be accessed by wheelchair users.
13	Are turnstiles or gates operated by beams or touch sensors? If a touch sensor is used is it within reach of a person using a wheelchair?		N	None provided
14	Is an accessible circulation route at least 1200mm wide with adequate manoeuvring space at changes of direction provided for wheelchair access through all parts of the building open to visitors?		N	
15	If access for all people is not possible to some areas (eg. upstairs rooms, cellars etc.) are audio visual presentations, displays or architectural models provided as an alternative experience?		N	None provided
16	Have all modifications to the building intended to assist people with disabilities been designed and located in consultation with the State Heritage Office and the National Trust?		N	No modifications undertaken.
17	Are all areas clearly signed? Is there clear written and pictorial signage indicating accessible areas?		N	Lack of signage.

18	Is there a plan of the building displayed showing the recommended route throughout the building?		N	None provided
19	Is a continuous system of directions provided throughout the building indicating the recommended route in a consistent style of signage?		N	None provided
20	Is information interpreting the historic/architectural significance of the building communicated in a variety of ways to aid people with sensory, visual or hearing disabilities?		N	No provision of information.
	RECEPTION /INFORMATION/TICKET COUNTERS		N	No reception counters.
1	vision panels/glazing manifestation		N	None provided. Wooden/metal doors.
2	entrance matting		N	None provided
3	lobby sizes	-	-	Wider than 1500mm
4	entry control/security systems		N	None provided. Security guard at the entrance
5	safety controls		N	None provided

6	thresholds, clear widths	-	-	>1500mm
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STEPS				
1	State the location of the steps?			
2	Is the minimum width of the stairs 1200mm?	Y		
3	Are there continuous handrails, on both sides, at a height between 760mm-900mm?	Y		
4	Is the handrail installed in the centre of the stair width more than 3000mm?	Y		
5	Is the landing length not less than 1200mm?	Y		
6	Do the stairs have a nosing?			
7	Are the steps edges of a different colour or texture easily identifiable by low-visions & vision impaired persons?			
8	Are there warning blocks installed at the beginning and end of all flights?			
9	Is the location of emergency (fire escape) stairs clearly identifiable?			
10	Is the height of the riser 150mm & tread 300mm?			
11	Do treads have a non-slip surface?			

RAMP				
1	Is there a ramp next to the stairs?		N	No ramps provided. Only a service ramp.
1	Are the handrails easy to grip?		Y	Smooth surface
2	Are the handrails painted at a height of 800-900mm?		Y	-
3	Is there tactile stripe identification on the handrails for emergency stairs?		N	Not provided
				though missing along some flights.

TOILETS				
1	Are there separate toilets for DISABLED PEOPLE?		N	Not provided
				None provided
				No colour differences or texture variations
				None provided

RESTING SPACES				
1	Where there are large spaces are resting facilities provided between 100 meters?		N	Some Benches, stone seating along trees and steps
				Varying dimensions
				Slippery surface.
2	Is there an adjoining space for wheelchair next to benches and public seats?		N	None provided.

Inferences

Positive Attributes of the Site

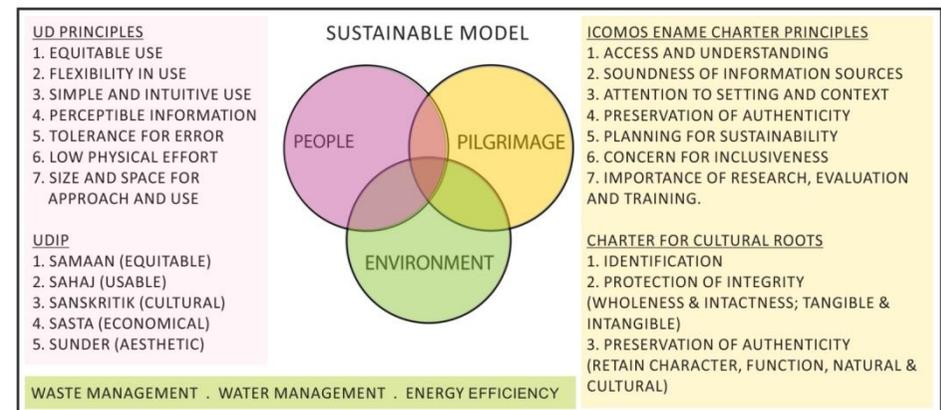
- One of the most popular and oldest pilgrimage site in the city of Pune with more than 1000 visitors per day.
- Easily accessible from transport nodes and centrally located in the city.
- Mixed-use activities observed on site apart from pilgrimage making the site very vibrant.
- Plenty of flora/fauna on site and lot of shaded areas under large trees.
- Typical Maratha style temple architecture.

ISSUES IDENTIFIED ON THE SITE

- Overlap of Vehicular and pedestrian traffic and insufficient parking.
- No information/ orientation booth/ signage throughout the site.
- Access and approach to the temple very difficult and only by steep and irregular flight of steps.
- Lack of basic facilities like toilets, drinking water fountains, resting benches, light posts, eating points, dustbins, etc.
- No consideration for needs of elderly, differently abled groups with special needs specifically pilgrims.
- Poor crowd management strategies during festivals and peak times.

- Incongruent and environmentally harmful on site activities observed like burning of waste
- Inappropriate design details like railing design, flooring material, etc. observed.
- No disaster management or emergency needs in place.
- Lack of covered resting spaces for protection from rain and sun.
- No separate provision for services or meds movement.
- Monotony in architectural character with no distinct visual cues to facilitate way finding.
- Confusing circulation, meandering staircases in different directions and uneven widths make physical access difficult.

Design Criteria and Strategies for a Sustainable Model of a Pilgrimage Site



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
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	FLEXIBILITY IN USE SIMPLE AND INTUITIVE USE PERCEPTIBLE INFORMATION TOLERANCE FOR ERROR
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	LOW PHYSICAL EFFORT SIZE AND SPACE FOR APPROACH AND USE

The design focuses on 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 focuses 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 have been incorporated across the complex at various nodes, which is facilitated by the meandering form of the ramps.

A continuous pedestrian movement has been achieved throughout the site. Though sufficient parking has been provided across the road, access from which is 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 is employed.

Apart from provision of ramps, tactile surfaces, sound cues, resting areas at regular intervals, sensory bollards and wrist bands, walking aid, wheelchair provision and children play areas, as well as basic facilities for drinking water and sanitation have been provided. For intellectual accessibility, information kiosks, panels with interpretative information, multi-lingual, pictorial and tactile signage, indication of distance left till destination, tourist information guides are incorporated in the design. Environmental considerations for Universal Design, such as water management- rainwater management, waste management-compost pits, septic tanks on site as well as energy efficiency-solar panels for lighting are a part of the design proposal.

Design Solution

USER BASED PHYSICAL AND INTELLECTUAL ACCESS PROVISIONS

TYPE OF USER	ENTRANCE		APPROACH		BUILT	
	PHYSICAL ACCESS PROVISIONS	INTELLECTUAL ACCESS PROVISIONS	PHYSICAL ACCESS PROVISIONS	INTELLECTUAL ACCESS PROVISIONS	PHYSICAL ACCESS PROVISIONS	INTELLECTUAL ACCESS PROVISIONS
ABLE-BODIED	WALKWAYS- RAMPS, SKYWALK	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, INFORMATION FLYERS, GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE, AUDIO VISUAL FEED	SPACES WITHOUT ANY LEVEL CHANGES TO MINIMIZE PHYSICAL EFFORT	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE, TACTILE MODEL
KIDS	WALKWAYS WITH HANDRAILS- RAMPS, SKYWALK ACCESSIBLE BY A LIFT	TACTILE MAP/MODEL, GUIDE, AUDITORY GUIDANCE- BIRDS	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS	INFORMATION PANELS, GUIDE, AUDIO VISUAL FEED, TACTILE SIGNAGES, AUDITORY GUIDANCE- BIRDS, FOUNTAIN, BELLS	HANDRAIL ALONG PATH, LEVEL CHANGES REMOVED	INFORMATION PANELS, GUIDE, TACTILE MODEL, AUDITORY GUIDANCE- FOUNTAIN, BELLS
ELDERLY	WALKWAYS WITH HANDRAILS- RAMPS, SKYWALK ACCESSIBLE BY A LIFT, WHEELCHAIR ACCESSIBILITY	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, INFORMATION FLYERS, GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE, AUDIO VISUAL FEED	HANDRAIL ALONG PATH, LEVEL CHANGES REMOVED	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE, TACTILE MODEL
PREGNANT WOMEN	WALKWAYS- RAMPS, SKYWALK ACCESSIBLE BY A LIFT	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, INFORMATION FLYERS, GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE, AUDIO VISUAL FEED	HANDRAIL ALONG PATH, LEVEL CHANGES REMOVED	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE, TACTILE MODEL
RURAL PEOPLE	WALKWAYS- RAMPS, SKYWALK	MULTI-LINGUAL INFORMATION PANELS, ACTIVITY BASED GRAPHICAL SIGNAGES	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS	MULTI-LINGUAL INFORMATION PANELS, ACTIVITY BASED GRAPHICAL SIGNAGES	SPACES WITHOUT ANY LEVEL CHANGES TO MINIMIZE PHYSICAL EFFORT	MULTI-LINGUAL INFORMATION PANELS, ACTIVITY BASED GRAPHICAL SIGNAGES
VISUALLY IMPAIRED	CURBS, TACTILE PATHWAY, GUIDE, WALKWAYS WITH HANDRAILS- RAMPS, SKYWALK, WALKING AID- SMARTCANE, SENSORY WRIST	INFORMATION FLYERS IN BRAILLE, TACTILE MAP/MODEL, GUIDE, BOLD AND TACTILE SIGNAGES, SOUND CUES- BIRDS	TACTILE WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS, CURBS, GUIDE, SENSORY BOLLARDS	BRAILLE, TACTILE MAP, GUIDE, TACTILE SIGNAGES, SOUND CUES- BIRDS, FOUNTAIN, WATER SCREEN, BELLS, KUND, AUDIO VISUAL FEED	HANDRAIL ALONG PATH, LEVEL CHANGES REMOVED, BOLLARD JUST OUTSIDE BUILT STRUCTURE,	BRAILLE, TACTILE MAP, GUIDE, TACTILE MODEL, SOUND CUES- FOUNTAIN, BELLS

	BANDS AND BOLLARDS				SENSORY BOLLARDS	
MOBILITY IMPAIRED	WALKWAYS WITH HANDRAILS- RAMPS, SKYWALK ACCESSIBLE BY A LIFT, GUIDE	SIGNAGES, INFORMATION PANELS, INFORMATION FLYERS, GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE, AUDIO VISUAL FEED	HANDRAIL ALONG PATH, LEVEL CHANGES REMOVED	TACTILE MODEL
SPEECH IMPAIRED	WALKWAYS- RAMPS, SKYWALK	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, INFORMATION FLYERS, SIGN LANGUAGE INTERPRETER/GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS	ACTIVITY BASED GRAPHICAL SIGNAGE, SIGN LANGUAGE INTERPRETER, INFORMATION PANELS, AUDIO VISUAL FEED	SPACES WITHOUT ANY LEVEL CHANGES	SIGNAGE, SIGN LANGUAGE INTERPRETER, INFORMATION PANELS, TACTILE MODEL
HEARING IMPAIRED	WALKWAYS- RAMPS, SKYWALK	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, INFORMATION FLYERS, SIGN LANGUAGE INTERPRETER/GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS	SIGN LANGUAGE INTERPRETER/ GUIDE, AUDIO VISUAL FEED	SPACES WITHOUT ANY LEVEL CHANGES	SIGNAGE, SIGN LANGUAGE INTERPRETER/GUIDE, TACTILE MODEL
COGNITIVE IMPAIRED	WALKWAYS- RAMPS, SKYWALK, CLEARLY MARKED WITH COLOR DIFFERENCE, SIMPLE AND INTUITIVE DIRECTIONS, VISUAL CUES	BOLD, CLEAR SIGNAGES, INFORMATION PANELS, GUIDE, INFORMATION FLYERS	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS, VISUAL CUES	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE, AUDIO VISUAL FEED	HANDRAIL ALONG PATH, LEVEL CHANGES REMOVED, SIMPLE AND INTUITIVE DIRECTIONS, VISUAL CUES	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE SIGNAGES, INFORMATION BOARD, GUIDE

Infrastructure Status

INFRASTRUCTURE PROVISIONS	EXISTING SITUATION	PROPOSED
DRINKING WATER FOUNTAIN	✓	✓
EATING POINTS	✗	✓
SIGNAGES	✓	✓
SOLAR LIGHTS	✗	✓
DUSTBINS	✓	✓
LIFT	✗	✓
INFORMATION KIOSK	✗	✓
SENSORY BANDS AND BOLLARDS	✗	✓
TACTILE MODELS / MAPS	✗	✓
TOILETS	✓	✓
CHILDRENS PLAY AREA	✗	✓
WHEELCHAIR PROVISION	✗	✓
WALKING AID PROVISION	✗	✓
COVERED WALKWAY (SKYWALK)	✗	✓
AMBULANCE / FIRST AID	✗	✓
POLICE KIOSK	✗	✓
VENDORS (FLOWERS /	✓	✓

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- <http://www.nda.ie/cntmgmtnew.nsf/0/34DFADB11792C0068025796B00370FA5?OpenDocument>
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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. CHATURSHRINGI TEMPLE is one such Pilgrimage Site, of local as well as REGIONAL IMPORTANCE.

SITE JUSTIFICATION

Chaturshringi Temple is a pilgrimage site that belongs among the various heritage structures in Pune city. The temple is located on a hill, making the access to the temple difficult and troublesome for a majority of people visiting the temple. One has to climb more than a hundred steps to reach the temple. Pilgrims from all over Maharashtra and various parts of India visit the temple in large numbers during the festival of Navratri. Even on a daily basis, thousands of people frequent the temple, making it a site in impermanent use of a Universal design. People from all age groups and from all walks of life visit the temple as a daily routine. A child with his family a grandparent with a walking stick or a blind man following his faith, all kinds of people visit the temple. It is thus chosen for the designer, to incorporate Universal Design, to facilitate people from all walks of life to experience the temple, without facing barriers obstructing their path through the temple complex.

LOCATION AND LANDMARKS



Located on the bustling Senapati Bapat Road, amid huge IT companies and gigantic commercial complexes, is a serene, quiet and divine temple of Goddess Chaturshringi. Chaturshringi literally means four peaks.

GETTING TO CHATURSHRINGI

Chaturshringi is well accessible from most of the major locations in the city though there is a lack of signages for directions towards the temple.

Distances from important places:

1. Parvati Temple to Chaturshringi Temple: 4km
2. Pune Railway Station to Chaturshringi Temple: 8 km
3. Shivajinagar Railway Station and Bus station to Chaturshringi Temple: 3 km
4. Bus stand on SBI road to Chaturshringi Temple: 1 km
5. Pune University to Chaturshringi Temple: 3 km

Also, the Pune Danantra includes Chaturshringi Temple as one of its attraction locations, the buses which start from Pune station and Deccan gymkhana make a stop at the temple.

CLIMATE



Owing to the high temperatures and heavy rainfall in the city, climate responsive design to provide shade in extreme conditions should be employed.

BACKGROUND AND HISTORY

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 Maharaj in the year 1706. The presiding deity of the temple is Goddess Chaturshringi, also known as Goddess Ambabai devi. The legend associated with the temple is that, once there was a rich and prosperous merchant named Dattabai with 16 members of his family who was an ardent believer of Goddess Chaturshringi. It is built in the typical Peshwa style of architecture.

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 premises hold a temple of Ganesha, which one has to pass before making it to Ambabai Devi's temple. Also, there are temples dedicated to Lord Shiva, Vishnu, Laxmi and Durga and miniature Ashviniyakshidhis. The access is through a wide umbrella like arch. One has to climb 100 steps to reach the main temple.

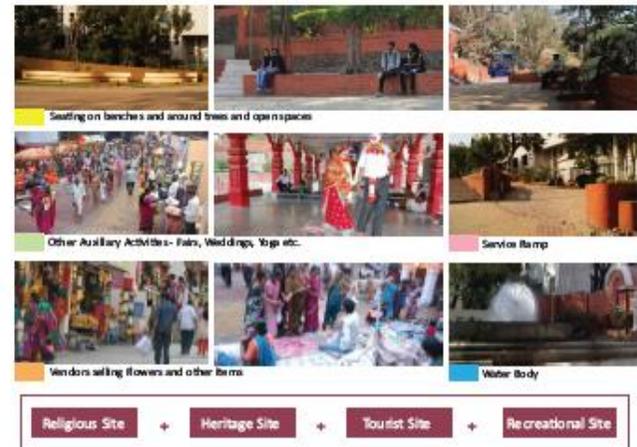
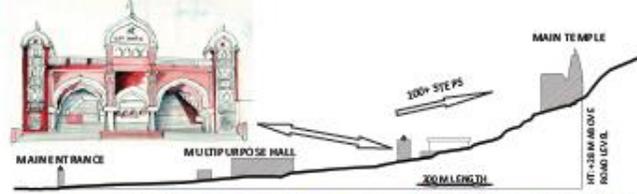
Ownership: P. S. Patil (Caretaker): Ph. V. Patil (Devalata Angal Family)
Heritage Status: Grade 1 site under P.M.C.

NSDC-IV/UD/081

NSDC-IV/UD/081

KEY FEATURES OF THE SITE

- One of the most popular and oldest pilgrimage site in the city of Pune with more than 1000 visitors per day.
- Easily accessible from transport nodes and centrally located in the city.
- Mixed use activities observed on site apart from pilgrimage making the site very vibrant.
- Plenty of flora/fauna on site and lot of shaded areas under large trees.
- Typical Maratha style temple architecture.

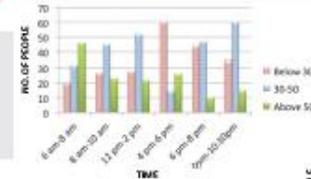


Religious Site + Heritage Site + Tourist Site + Recreational Site

VISITATION STATISTICS

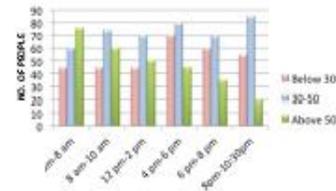
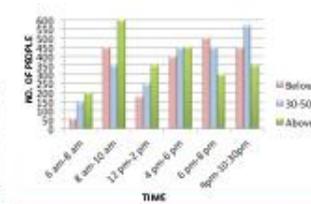
REGULAR DAY

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 recreation gateway 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 a huge crowd during festivals especially Navratri. Navratri being the Devi's festival. The temple is also visited with fairs and fests which brings 1000's of people to the temple.

ACTIVITY MAPPING

An Activity Time chart indicative of the user profile that frequents the temple.

TIME	ACTIVITY	USER
6 am - 10 am	Morning walks, lighting club, Yoga, flower stalls, to the temple	Elderly people (50 yrs. And above), People from close villages, 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/ Offi. staff, Vendors
4 pm - 7 pm	Temple activities, Recreation, flower stalls	Families - middle aged men & women, Children, Students (18-25 yrs), 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

MAP SHOWING EXISTING ACTIVITIES AND FACILITIES ON SITE



Seating Service Water Body Recreational Areas Vendors Parking

चतुश्रिंगी • Chaturshringi •

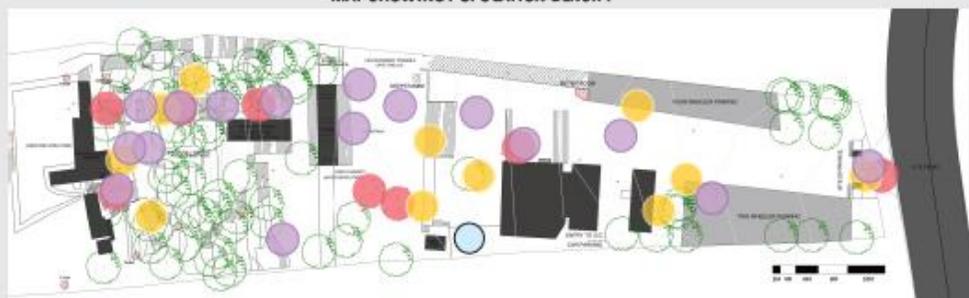


NSDC-IV/UD/081



PHYSICAL MAPPING

MAP SHOWING POPULATION DENSITY

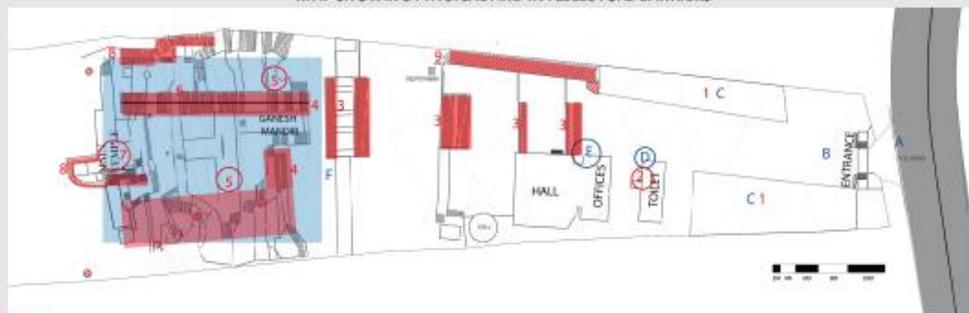


MORNING
 High crowd density areas during morning hours. Crowd concentration is mostly near the temple.

AFTERNOON
 High crowd density areas during afternoon hours. Crowd concentration spreads out due to increased recreational activities in the Temple Complex.

EVENING
 High crowd density areas during evening hours. The entire complex is filled with large number of people as temple provides for a tranquil space in the city.

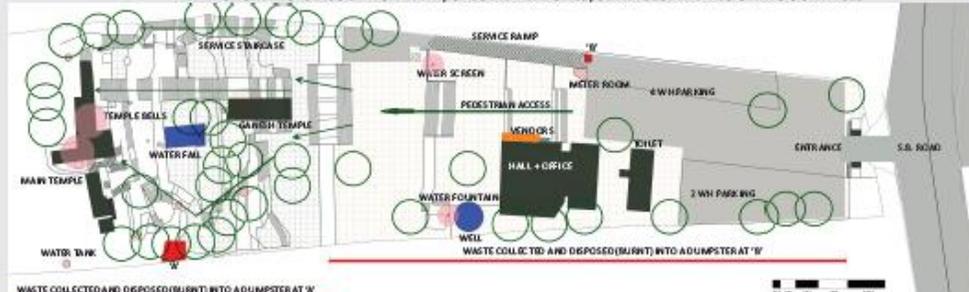
MAP SHOWING PHYSICAL AND INTELLECTUAL BARRIERS



PHYSICAL BARRIERS INTELLECTUAL BARRIERS

(Refer to photo doc underneath)

MAP SHOWING CIRCULATION PATH, SPECIAL FEATURES, SERVICES AND FLOORING SURFACES



WASTE COLLECTED AND DEPOSED (BURNT) INTO A DUMPSTER AT 'W'

SERVICES SOUND CUES VEHICULAR ACCESS PEDESTRIAN CIRCULATION PATH CONCRETE BLOCKS SHAHABAD STONE

PHYSICAL BARRIERS



INTELLECTUAL BARRIERS



ACCESS AUDIT & INFRASTRUCTURE STATUS

SITE LEVEL ACCESSIBILITY	Y/N	COMMENTS	INFRASTRUCTURE PROVISIONS		
			EXISTING SITUATION	TO BE PROPOSED	
1. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	DRINKING WATER FOUNTAIN	✓	✓
2. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	N	No sign	CANTEEN	✗	✓
3. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	SEATING / RESTING AREAS	✓	✓
4. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	N	No sign	EATING POINTS	✗	✓
5. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	SIGNAGES	✓	✓
6. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	SOLAR LIGHTS	✗	✓
7. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	DUSTBINS	✓	✓
8. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	LIFT	✗	✓
9. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	INFORMATION KIOSK	✗	✓
10. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	SENSORY BANDS AND BOLLARDS	✗	✓
11. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	TACTILE MODELS / MAPS	✗	✓
12. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	TOILETS	✓	✓
13. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	CHILDREN'S PLAY AREA	✗	✓
14. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	WHEELCHAIR PROVISION	✗	✓
15. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	WALKING AID PROVISION	✗	✓
16. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	COVERED WALKWAY (SKYWALK)	✗	✓
17. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	AMBULANCE / FIRST AID	✗	✓
18. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	POLICE KIOSK	✗	✓
19. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	VENDORS (FLOWERS / CULTURAL ITEMS)	✓	✓
20. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	SHOE STAND	✓	✓
21. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	PALKHI	✗	✓
22. Are the ENTRANCE AND PATHWAYS WELLSIGNED? Is the main entrance of the site accessible?	Y	Entrance from the main road	GUIDE	✗	✓

CRITICAL ISSUES IDENTIFIED

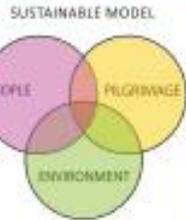
1. Overlap of vehicular and pedestrian traffic within the site and insufficient parking.
2. No information /orientation booth and signage throughout the site.
3. Physical access and approach to the temple is very difficult and only by steep and irregular group of steps. Absence of ramps.
4. Confusing circulation due to meandering stairs provided in different directions and with uneven widths.
5. Monotony in architectural character with no distinct visual cues to facilitate way finding and orientation.
6. Severe lack of basic facilities like toilets, drinking water fountains, resting benches, light posts, eating points, dustbins etc.
7. No consideration for needs of groups with special needs specifically the elderly and differently abled pilgrims.
8. Lack of covered resting areas for protection from rain and hot sun.
9. No separate provision for service areas/movement
10. Poor crowd management strategies during festival / peak times.
11. No disaster management / emergency needs in place.
12. Inappropriate design details and materials applied for flooring, railing, toilets etc.
13. Incongruent and anti-environment activities on site such as burning of waste etc because of poor waste and water management strategies.

Design interventions for universal accessibility at the site of Chaturshringi, is much required and can facilitate social inclusion of vulnerable groups like the elderly & disabled.



PROPOSED DESIGN CRITERIA FOR PILGRIMAGE SITE MANAGEMENT

- UD PRINCIPLES**
1. EQUITABLE USE
 2. FLEXIBILITY IN USE
 3. SIMPLE AND INTUITIVE USE
 4. PERCEPTIBLE INFORMATION
 5. TOLERANCE FOR ERROR
 6. LOW PHYSICAL EFFORT
 7. SIZE AND SPACE FOR APPROACH AND USE



- SUSTAINABLE MODEL**
- ISSUES/INTEGRATION CHARACTERISTICS**
1. ACCESS AND UNDERSTANDING
 2. SOUNDNESS OF INFORMATION SOURCES
 3. ATTENTION TO SETTING AND CONTEXT
 4. PRESERVATION OF AUTHENTICITY
 5. PLANNING FOR SUSTAINABILITY
 6. CONCERN FOR INCLUSIVENESS
 7. IMPORTANCE OF RESEARCH, EVALUATION AND TRAINING.

- CHARITIS FOR CULTURAL ISSUES**
1. IDENTIFICATION
 2. PROTECTION OF INTEGRITY (WHOLENESS & INTACTNESS, TANGIBLE & INTANGIBLE)
 3. PRESERVATION OF AUTHENTICITY (RETAIN CHARACTER, FUNCTION, NATURAL & CULTURAL.)

WASTE MANAGEMENT, WATER MANAGEMENT, ENERGY EFFICIENCY

PROPOSED DESIGN STRATEGIES

PIGRIMAGE	ENVIRONMENT	PEOPLE
INTENSITY	SUSTAINABILITY	UNIVERSAL DESIGN
HELVETIC APPROACH TO LANDSCAPE - INTEGRATION OF NEW AND EXISTING ELEMENTS INTO LIFE	WASTE MANAGEMENT - PROVISION FOR WASTE TREATMENT PLANT ON SITE, PROVISION FOR SOAK PIT & SEPTIC TANK	INCORPORATE NEEDS OF DIVERSE USERS LIKE ELDERLY, CHILDREN, PHYSICALLY DIFFERENTLY ABLED AND RURAL PEOPLE
FULL ACCESSIBILITY FROM THE ENTRANCE TO THE BUILDING	WATER MANAGEMENT - RAIN WATER HARVESTING, RECYCLING OF WASTE WATER FOR LANDSCAPE USES	ENHANCE PHYSICAL ACCESSIBILITY BY PROVIDING MULTIPLE CHOICES
THE REFRANGIBLE HILL OF THE PLACE IS RETAINED - EXISTING ACTIVITIES AND FUNCTIONS ARE ACCOMMODATED WITHIN THE NEW DESIGN	ENERGY EFFICIENCY - PROVISION OF SOLAR PANELS TO LIGHT LAMP POSTS, HARVEST WIND ENERGY	ENHANCE REFLECTUAL ACCESSIBILITY BY USING MULTIPLE MODES OF GYRUS - ANGLE OF VIEW

The design focuses on **Inclusive Planning**, hence giving the users choice 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 focuses on multiple approaches like **steps, ramp and 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 have been incorporated across the complex at various nodes, which is facilitated by the monitoring form of the temple.

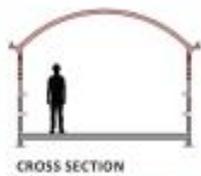
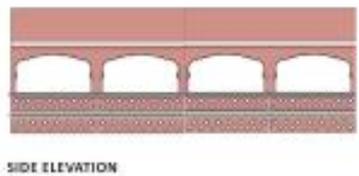
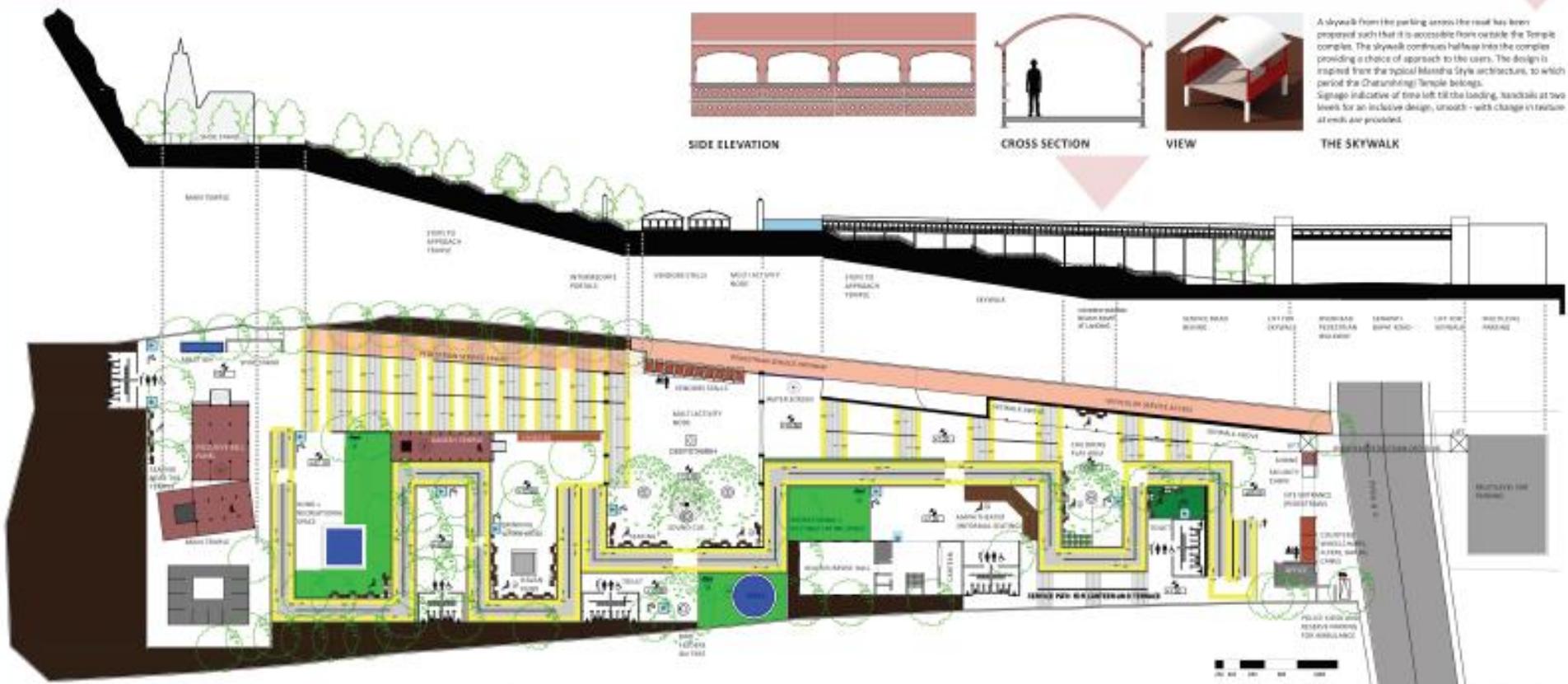
A **continuous pedestrian movement** has been achieved throughout the site. Though sufficient parking has been provided across the road, access from which is by skywalk.

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 wayfinding information is provided.

Apart from provision of ramps, tactile surfaces, raised curbs, seating areas at regular intervals, sensory bollards and wet lands, walking aid, wheelchair provision and children play areas, as well as basic facilities for drinking water and sanitation have been provided.

For intellectual accessibility, informative kiosks, panels with interpretative information, multilingual, pictorial and tactile signages, indication of distance left till destinations, tactile information guides are incorporated in the design. Environmental considerations for Universal Design, such as water management - rainwater management, waste management - compost pits, earth tools on site as well as energy efficiency - solar panels for lighting and a part of the design proposal.

PROPOSED SITE PLAN AND LONGITUDINAL SITE SECTION



THE SKYWALK

A skywalk from the parking across the road has been proposed such that it is accessible from outside the Temple complex. The skywalk continues halfway into the complex providing a choice of approach to the users. The design is inspired from the typical Mithuna Style architecture, to which period the Chaturshringi Temple belongs. Signage indicative of time left till the landing, handrails at two levels for an inclusive design, smooth - with change in texture at each use provided.

- TILET & BATHING SPACE MEN WOMEN & HANDICAPPED
- DRINKING WATER
- SOUND CLIPS
- SEATING
- SLEEPING/RESTING
- EATING SPACE
- INFORMATION KIOSK
- LIGHT POLES, WITH DUSTBINS & SIGNAGE
- AMBULANCE PARKING
- BUS STOP
- TACTILE INFOWAY WITH UNDERBIRD BLOCKS & GLASSING STEPS

चतुश्रृंगी • Chaturshringi •



NSDC-IV/UD/081

Design Concept and Proposal

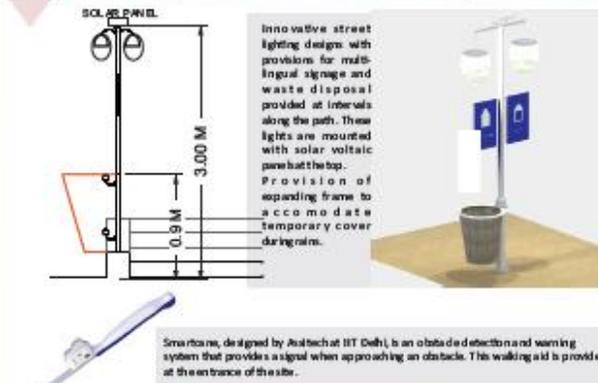
USER BASED PHYSICAL AND INTELLECTUAL ACCESS PROVISIONS

TYPE OF USER	ENTRANCE	APPROACH	BUILT
ABLE-BODIED	PHYSICAL ACCESS PROVISIONS WALKWAYS-RAMPS, SKYWALK	INTELLECTUAL ACCESS PROVISIONS ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE	PHYSICAL ACCESS PROVISIONS SPACES WITHOUT ANY LEVEL CHANGES TO MINIMIZE PHYSICAL EFFORT
	PHYSICAL ACCESS PROVISIONS WALKWAYS-RAMPS, SKYWALK ACCESSIBLE BY A LIFT	INTELLECTUAL ACCESS PROVISIONS ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, GUIDE	PHYSICAL ACCESS PROVISIONS SPACES WITHOUT ANY LEVEL CHANGES TO MINIMIZE PHYSICAL EFFORT
BLIND	WALKWAYS WITH HANDRAILS-RAMPS, SKYWALK ACCESSIBLE BY A LIFT	TACTILE MAP, GUIDE, AUDIO VISUAL GUIDANCE- BRIS	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS
ELDERLY	WALKWAYS WITH HANDRAILS-RAMPS, SKYWALK ACCESSIBLE BY A LIFT	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, INFORMATION FLOW, GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS
PROBAND WOMEN	WALKWAYS-RAMPS, SKYWALK ACCESSIBLE BY LIFT	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, INFORMATION FLOW, GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS
RURAL PEOPLE	WALKWAYS-RAMPS, SKYWALK	MULTI-LINGUAL INFORMATION PANELS, ACTIVITY BASED GRAPHICAL SIGNAGES	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS
VISUALLY IMPAIRED	CLIMB, TACTILE PATHWAYS, GUIDE, WALKWAYS WITH HANDRAILS-RAMPS, SKYWALK, SKYBRIDGE, SMARTCANE, DEPENDANT WALKWAY BANDS AND BOLLARDS	INFORMATION FLOW, BRIS, TACTILE MAP, VIDEO, GUIDE, ROAD AND TACTILE SIGNAGE, SOUND CUES- BRIS	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS, CANALS, SKYBRIDGE, SMARTCANE, DEPENDANT WALKWAY BANDS AND BOLLARDS
MOBILITY IMPAIRED	WALKWAYS WITH HANDRAILS-RAMPS, SKYWALK ACCESSIBLE BY LIFT, GUIDE	SIGNAGE, INFORMATION PANELS, INFORMATION FLOW, GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS
SPEECH IMPAIRED	WALKWAYS-RAMPS, SKYWALK	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, SIGN LANGUAGE INTERPRETER VIDEO	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS
HEARING IMPAIRED	WALKWAYS-RAMPS, SKYWALK	ACTIVITY BASED GRAPHICAL SIGNAGES, INFORMATION PANELS, SIGN LANGUAGE INTERPRETER VIDEO	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS
COGNITIVE IMPAIRED	WALKWAYS-RAMPS, SKYWALK, CLEARLY MARKED WITH COLOR DIFFERENCE, SIMPLE AND BOLD TYPE PRINTING, VISUAL FLUX	MULTI-CLEAR LANGUAGE, INFORMATION PANELS, GUIDE, INFORMATION FLOW, GUIDE	WALKWAYS- STEPS/RAMPS WITH HANDRAILS, SKYWALK, RESTING AREAS, VISUAL CUES

SENSORY BOLLARDS AND WRIST BANDS



STREET LIGHTING, SIGNAGE AND DUSTBIN DETAIL, SMARTCANE

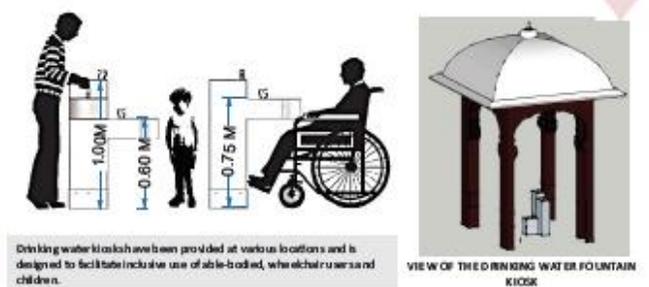


INCLUSIVE BELL PANEL



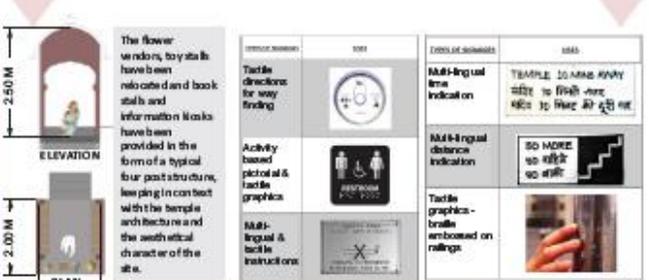
Ring the temple bells is an age old ritual. Traditionally its position, mostly suspended from the ceiling in a temple limits many people from accessing it. Here it has been which has been innovatively suited and designed to meet the needs of a wide range of users by providing bells of different sizes at different heights. In the panel consisting of number of bells provide along the sides of the area in the temple.

DRINKING WATER FOUNTAIN

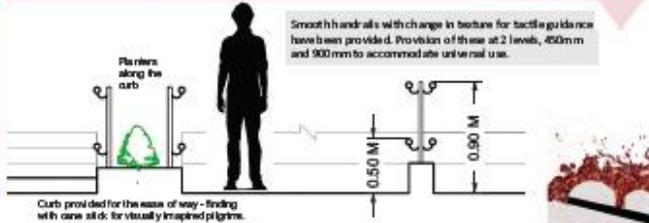


Drinking water kiosks have been provided at various locations and is designed to facilitate inclusive use of able-bodied, wheelchair users and children.

VENDOR STALL TYPES OF SIGNAGES



RAILING DETAIL



MATERIAL BOARD

RAILING - STEPS, RAMP, SKYWALK	STAINLESS STEEL	PAVING	STONE FLOORING	SKYWALK	STRUCTURAL STEEL
BENCHES	STONE SEATING	WRIST BAND	PAPER	DUSTBINS	PLASTIC
METAL	BOLLARDS	STONE	DURFIB	PRECAST CONCRETE	
DRINKING WATER FOUNTAIN	STONE	STREET LAMP	GALVANIZED STEEL PHOTOVOLTAIC CELLS	GRATINGS	PRECAST CONCRETE
	DUSTBINS	PLASTIC			
	STAINLESS STEEL / ALUMINIUM	TOILETS	ANTI SKID TILES		
	STONE OR GRANITE	PARING PAVING	PAVER BLOCKS		
	STAINLESS STEEL GRAB BARS	STEPS	STONE BLOCKS		
	BUILT	POLISHED, SMOOTH			
	RAVIF	STONE FLOORING			
	COLOR CONTRAST				



BIRD FEEDER AND MULTILEVEL SEATING



A universal design of seating has been provided for a variety of users. These areas have low, perforated slats for seating and more than 100mm clearances. These low backrests reduce the use of information panels in these areas. Bird feeders or trees provide a sound cue that help guide visually impaired user. They are also in coordination with the environment.



VIEW FROM THE TEMPLE LOOKING TOWARDS THE MAIN ENTRANCE



VIEW SHOWING GUIDED TRODS ON THE RAMP, TACTILE BOLLARDS AND RAILINGS



CHILDREN'S VIEW OF MAIN ENTRANCE, FROM S.E. ROAD



VIEW FROM MAIN ENTRANCE, LOOKING TOWARDS THE TEMPLE



COVERED OUTDOOR WALKWAY, RAMP AND STAIRS INCLUDING SMILING CHILD



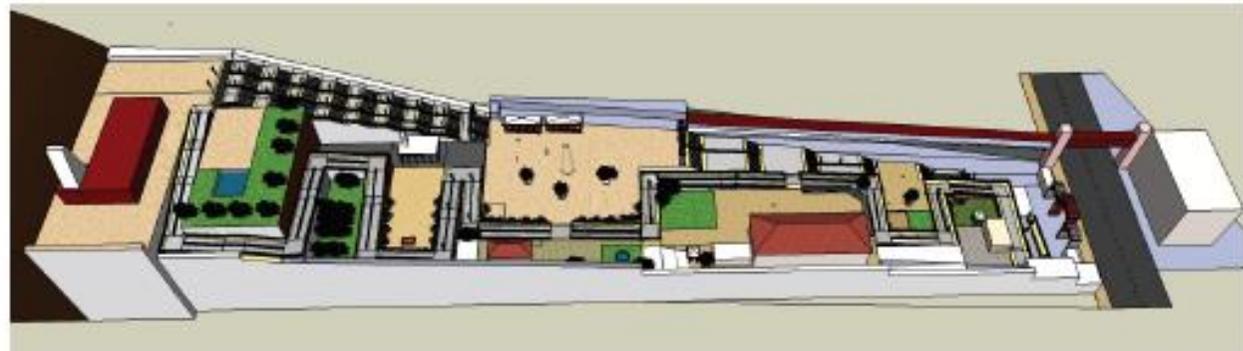
VIEW FROM THE MAIN ENTRANCE, LOOKING TOWARDS THE TEMPLE



VIEW FROM SIDEWALK, LOOKING TOWARDS THE MAIN ENTRANCE



VIEW LOOKING TOWARDS THE TEMPLE FROM THE SIDEWALK



ARCHITECTURAL VIEW OF THE PROPOSED SITE

RENDERINGS OF THE PROPOSED DESIGN



Sunil Bhatia

Design for All

Drivers of Design

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

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

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 Space planning dimensions for access using assistive devices such as wheelchairs and walkers.
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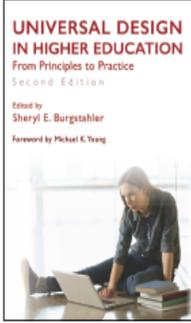
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From Principles to Practice, Second Edition

Edited by Sheryl E. Burgstahler
Foreword by Michael K. Young

384 PAGES
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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.

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

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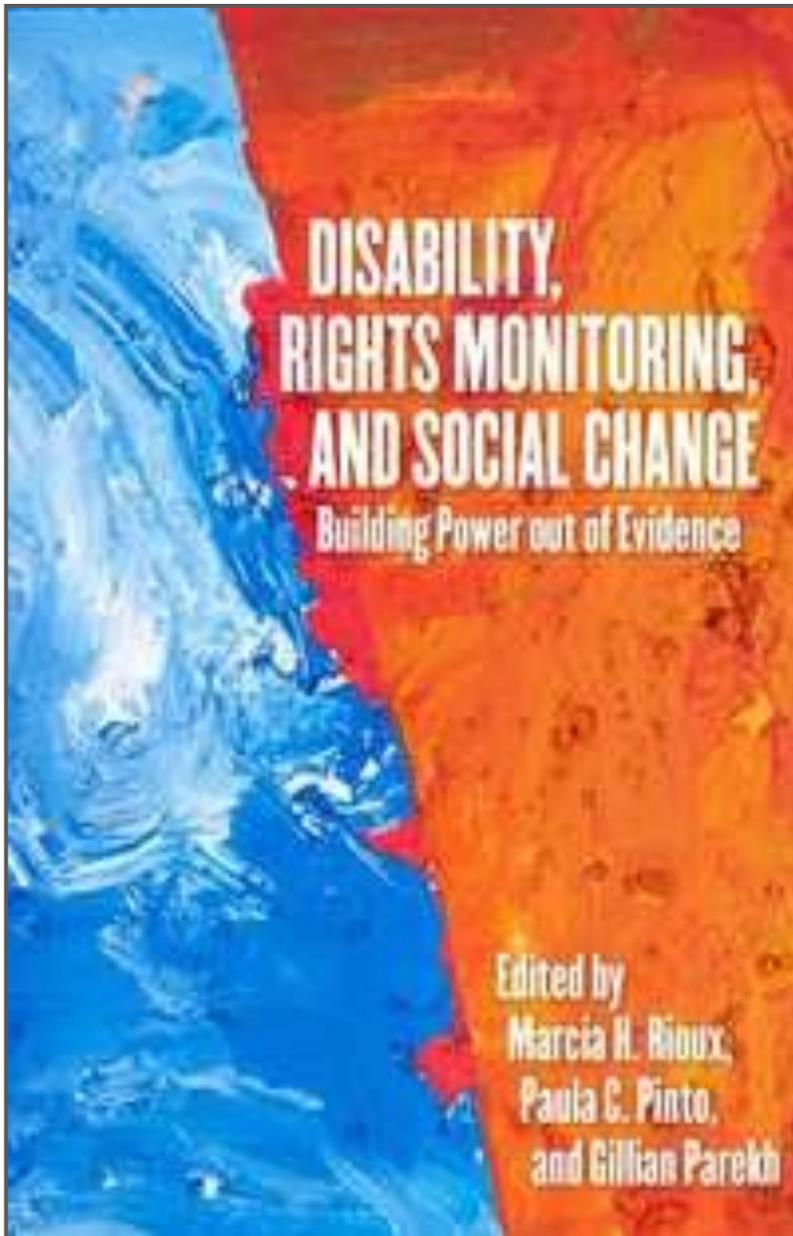
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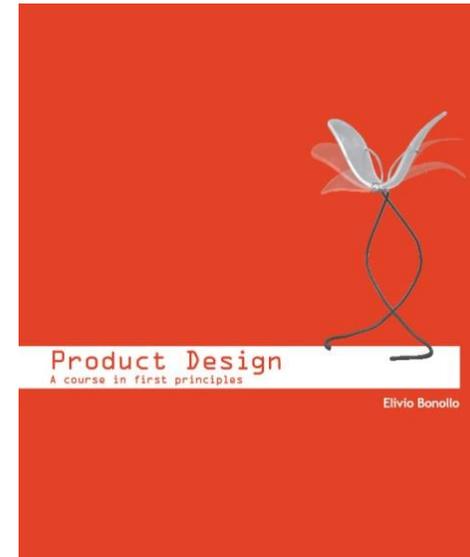
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New Update: ELIVIO BONOLLO (2015/16) PRODUCT DESIGN: A COURSE IN FIRST PRINCIPLES



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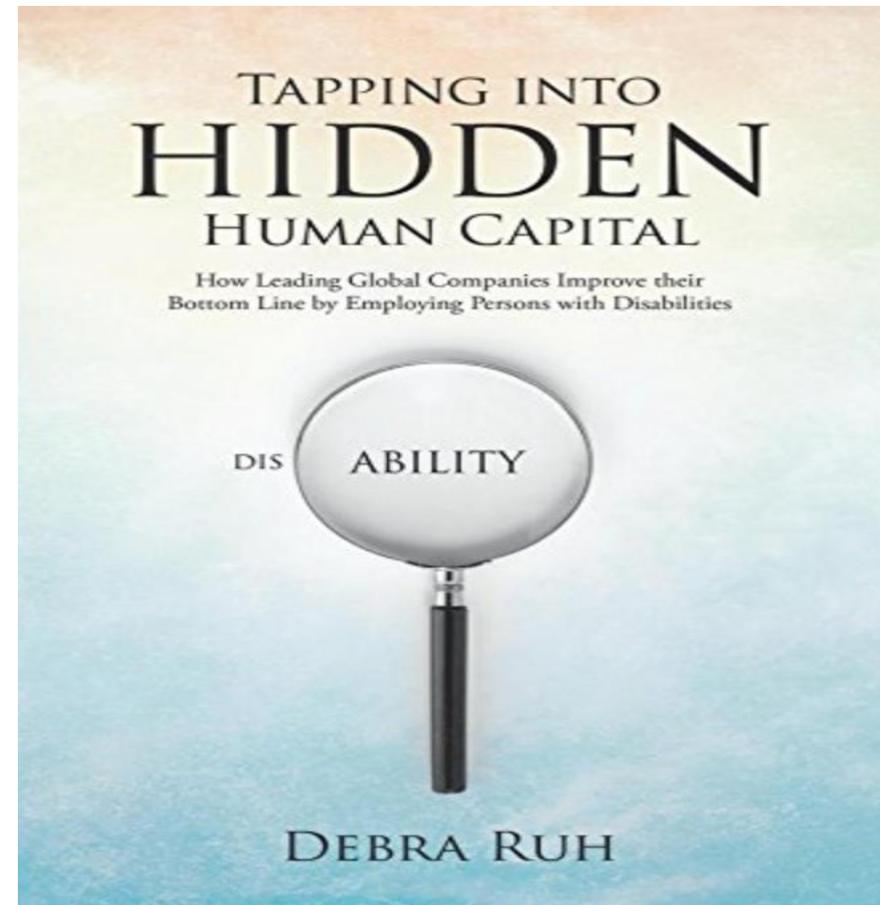
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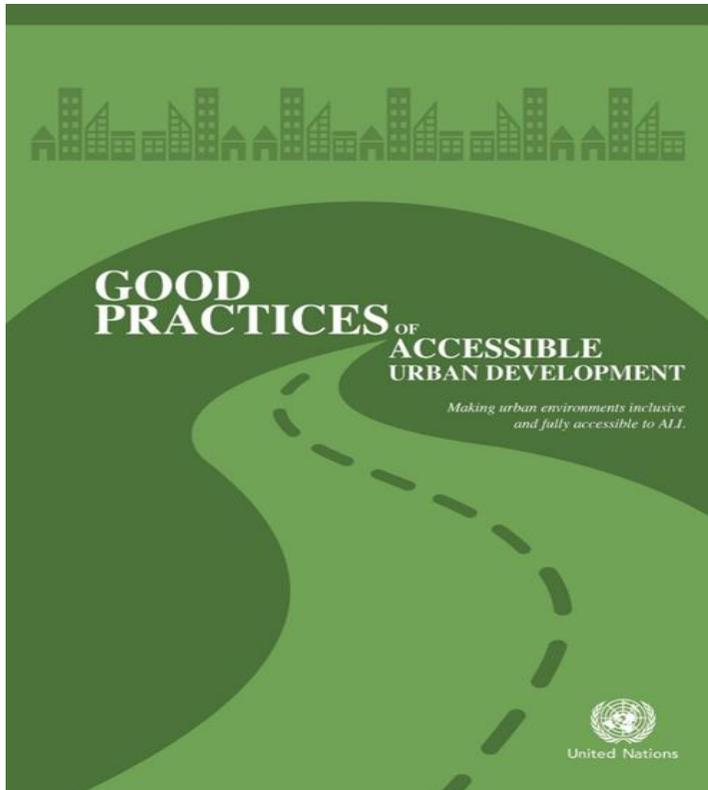
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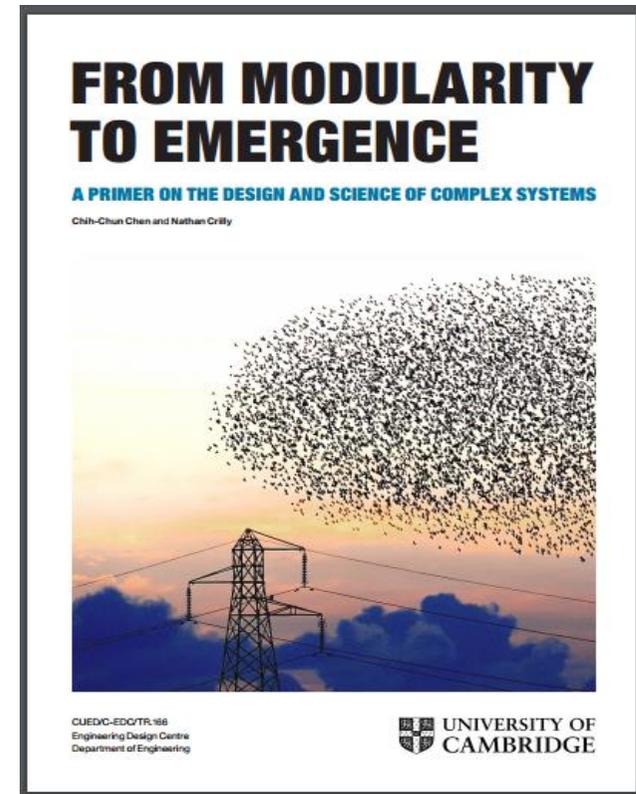
In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared a new publication entitled: “Good practices of accessible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

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

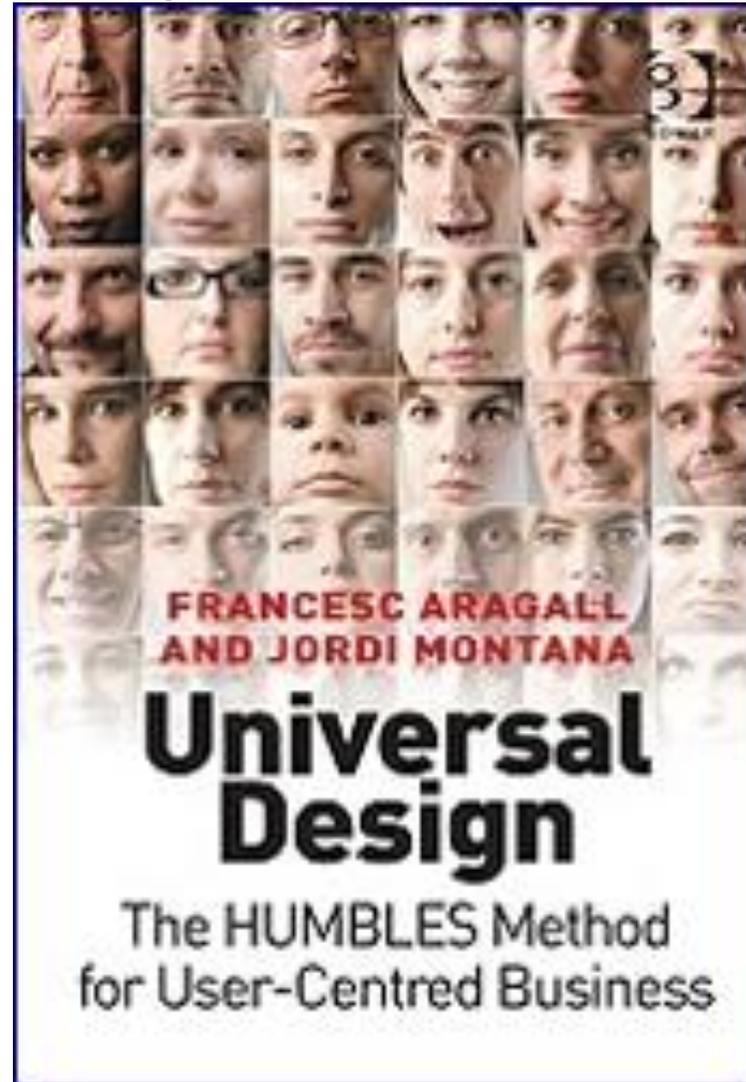
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Neo-liberalism, grief and the nation form



Universal Design: The HUMBLE Method for User-Centred Business

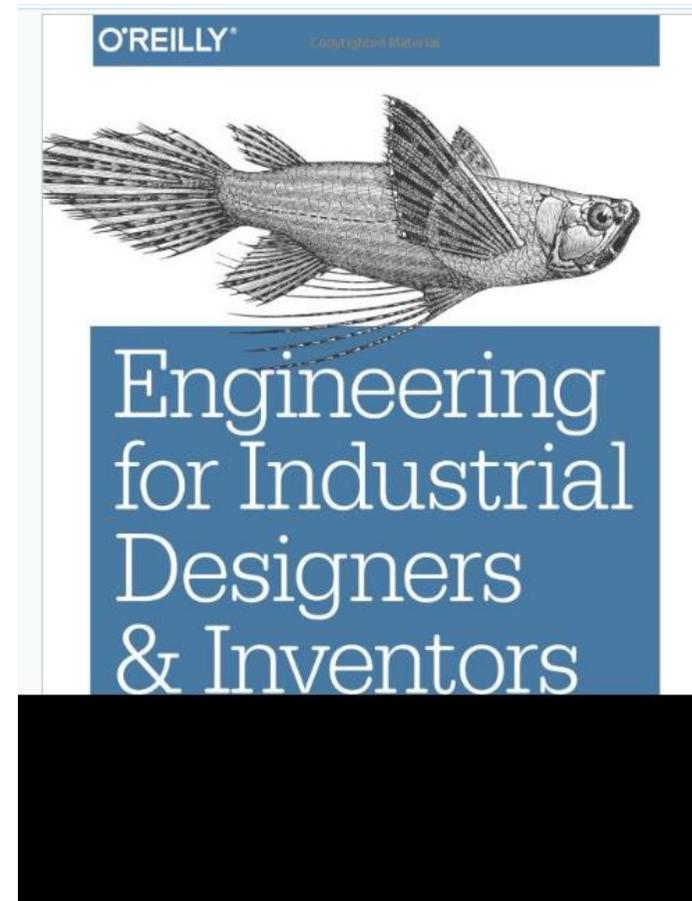


"Universal Design: The HUMBLE Method for User-Centred Business",
written by Francesc Aragall and Jordi Montaña and published by Gower,

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 HUMBLE method (© Aragall) consists of a progressive, seven-phase approach for implementing Design for All within a business. By incorporating the user's point of view, it enables companies to evaluate their business strategies in order to improve provide an improved, more customer-oriented experience, and thereby gain a competitive advantage in the marketplace. As well as a comprehensive guide to the method, the book provides case studies of multinational business which have successfully incorporated Design for All into their working practices.

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



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

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



News

1.

Chennai's Largest Disabled-Friendly Children's Park is Open to the Public Painted tiles on a street in Chennai

From therapeutic walkways with different textures to a raised sand pit for wheelchair users, Chennai's largest inclusive park has much to offer.

The Infinity Park, built by the Greater Chennai Municipal Corporation under the Smart Cities project, was opened to the public on Monday to a rapturous reaction.

The park is located at San Thome over a sprawling area of 15,000 square feet. It is also the first such park to come up on an open ground, says Kavitha Krishnamurthy, the person behind Kilikili, the campaign that aims to make inclusive playgrounds the norm across India.

THOUGHTFUL TOUCHES

The result is an inclusive park with many thoughtful touches for people across a wide age group. There are three zones – for 0 to eight years, children above eight years of age and for adults. There is even an herb garden that is accessible, says Jayashree Kamalan of CityWorks.

The herb garden can be accessed by wheelchair users and we have traditional table games that are ingrained in granite that can be accessed by people in wheelchairs.

“There is a basketball court with two hoops so people in wheelchairs can play the game too”, says Kamalan. “We also have an elevated sand pit for them because typically people in wheelchairs don't get to play in the sand, so this is at table height. The floor has tactile tiles so blind and low vision people can access it”.

There are Braille signboards, wheelchair-friendly toilets, and in the future, a light and sound show. For children who feel overwhelmed by too much noise, like those with autism, there are quiet corners as well as a sheltered space.

The best news is that municipal authorities plan to build such parks in more areas. “It was such a great experience working with the civic authorities”, says Krishnamurthy, who has helped design such parks in many other cities. “We found the contractor and mid-level officials very

committed to the idea. This was not just a project they had to implement”.

What makes this park so unique is that it has something for people in every age group, which is not the case with other inclusive parks, which mainly reach out to kids below the age of 10 years. Anuradha Srinivasan who has a 17-year-old son with autism, was among those present at the opening of The Infinity Park. “It is wonderful to see the facilities there. This is much needed and I am thrilled. It makes children and parents feel accepted and included. I hope they maintain it like this”.

The management of the park is likely be handed over to a private firm, so the maintenance and security aspect is dealt with better.

This is India’s eighth inclusive park, and hopefully a benchmark for what is to come.

(Source: News Hook)

2.

Phaze Concrete Explains the Benefit of Universal Design

[Universal Design](#) is an architectural term which is credited to Ronald Mace, an architect, product designer, and professor. Mace taught at the School of Design at North Carolina State University in Raleigh, North Carolina. He was the visionary behind Universal Design. He dedicated

most of his life to creating a more accessible world with the design. Now, this design is the bedrock of all architectural endeavors.

[Phaze Concrete](#) is proud of the advancements that have come from Ronald Mace’s work on Universal Design. The company uses this concept in their work daily and is now explaining the benefit of it. There are three basic concepts that make up Universal Design. The first is aesthetics, the second is accessibility, and the third is anti-discrimination. This trifecta has physically built the foundation of the building principals that are inherent in every building constructed today.

Aesthetics

Architects are artists, who ultimately, work for the people that use their buildings. Of course, everyone wants their buildings to look and function appropriately. Therefore, maintaining the look of a building, inside and out, is important. This is not only true for the architect, who wants to be proud of their work, but also the public. It is important that buildings look nice. It is important that they can be maintained properly and with ease. Plus, it is important that they are safe for everyone. That is where the addition of Universal Design steps in.

Accessibility

Universal Design takes an aesthetically pleasing design and makes it accessible to everyone. This design makes it simple for people of any

age or ability to be able to enjoy the building. Universal Design creates provisions that help people with disabilities or those that are pregnant, or elderly navigate a structure. This way, regardless of the restrictions a person faces, they are not restricted from enjoying or working in that structure. This helps promote anti-discrimination on a universal scale.

Anti-Discrimination

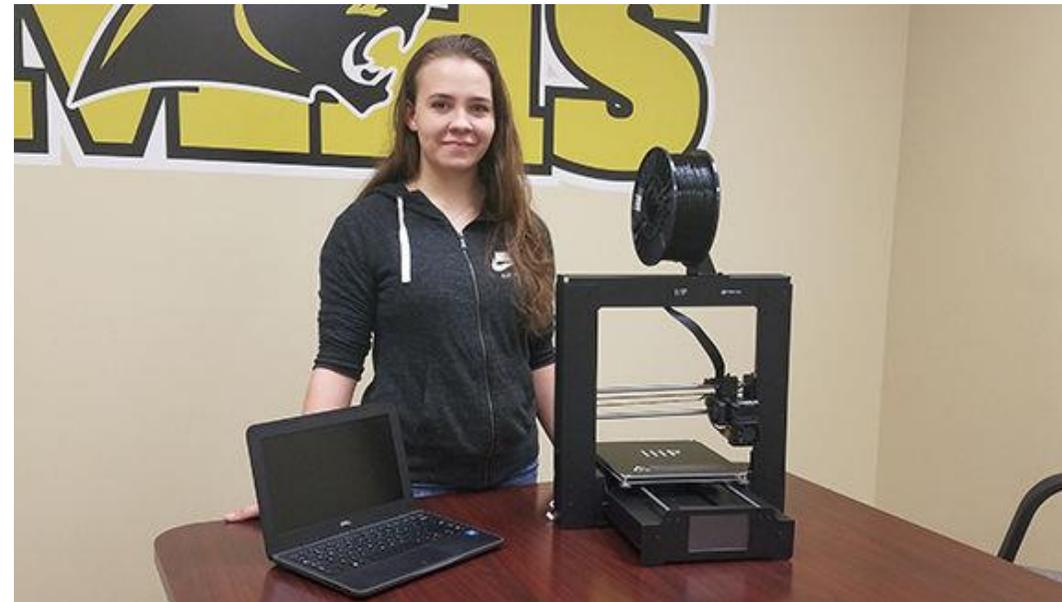
While many people now do not have much experience with structural discrimination, before Universal Design, it was a major issue. Before Universal Design, there were certain places that people could not go. The reason for this was simply because they had a handicap that disallowed them to enter. This made life extremely difficult for many people. Therefore, enacting Universal Design helped greatly reduce structural discrimination. In addition, the architectural movement helped to bring about change in other areas of the United States as well. The creation of Universal Design was a pivotal turning point in understanding and acceptance. To close, [Phaze Concrete works](#) hard to complete this balance of art and accessibility. After all, Universal Design strives to ensure each, and every person can enjoy structures with safety and ease. The story and subsequent practice of Universal Design is an important and highly relevant part of architectural history. It is a moment to be proud of and

a concept that deserves recognition. Additionally, it is proof that quality and accessibility does not overshadow artistic design. Instead, the concept determines that aesthetics and anti-discrimination practices can work in harmony to create something beautiful.

(Source: EIN presswire)

3.

Problem solved



Kimberly Smith used the engineering acumen she learned at Stone Memorial High School to put an end to leaky gas valves in the school's chemistry lab and snag first place in a 3D printer design challenge in Oak Ridge.

Kimberly Smith, a senior at Stone Memorial High School, used her engineering skills to solve a common high school problem: students toying with gas valves in chemistry classrooms.

The project not only earned her high marks in her engineering class but also took first place in the Oak Ridge Institute for Science and Education November 3D Printer Design Challenge.

“We wanted something small and compact that would be easier to remove and deal with,” Smith said of her design.

SMHS had a minor gas leak in the chemistry lab early in the school year. The student gas valves are controlled by a master valve, which developed a small leak. Though the problem was quickly identified and corrected, with no danger to students or staff, chemistry teacher Marcela St. Onge asked engineering teacher Tommy Tatum to help design a lock that could prevent those student valves from being turned on.

Tatum said, “I said I had the team for her.”

He assigned his Engineering 4 class to the project. The students worked as a design team.

“They interviewed the client and had them all create a solution. Even as a team, they each came up with their own ideas,” Tatum said. “We submitted those to the client, and she chose the one she liked.”

Smith said the first step was to research products already on the market that addressed the problem. They found three such designs but those

were designed for more industrial settings and not school chemistry labs.

The team needed a simple, effective and reusable design that would also be cheap to make. St. Onge requested the final design be made strong enough to withstand students trying to remove or break them but also sleek to retain access to electrical plugs. It needed to hold the knob of the gas valve perpendicular to keep it in the off position and while not required, a universal design to fight either right or left nozzles was wanted.

Smith began with a wedge that would pop onto the handle and the nozzle. That didn’t meet all the criteria, however. She changed the idea to a wedge that would encase the handle and work as a locking hinge. It could be used on either side.

“I made multiple designs and tested each one,” Smith said.

The first design didn’t work because the top holes were too short for the handle. Smith refined the design, with larger slots for the handle and a place to use a zip tie to secure the lock.

A fourth design further refined the design, offering a snugger fit on the nozzle and handle. The fifth design brought everything together with a sturdy product that met the project objectives.

3D printing provided an easy way to produce the locks, test their performance and make any necessary changes, though printing times ranged from 2 1/2 hours to more than 8 hours.

Smith learned about the Oak Ridge competition and submitted her work, winning first place in the high school category. She was awarded a laptop, a 3D printer and filament.

Tatum said, “My ultimate goal is to foster creativity and create problem solvers.”

He introduces students to design and teaches them to create designs and test their design performance. Students are first taught to use an open-source design program, Sketch Up. Then Tatum introduces the industry standard program, Solidworks. He’s working on getting his certification in the program and will then be able to certify students.

Smith began studying engineering her freshman year. She enjoyed it and signed up for more classes.

“I’ve always found it fun,” she said. “You’re always trying to improve on what you’ve done before...You try to be the best you can be with it.”

Tatum said Smith is a well-rounded student.

“That’s ideal for an engineer,” Tatum said. “I’ve been pushing her to go into engineering. She’s hands-on and can put things together and then sit down and work out the math.

“We’re super proud of her and can’t wait to see what she does in the next five years.”

Smith plans to attend the University of Tennessee next fall and major in engineering. She’s still exploring options available in areas of mechanical, biomedical or nuclear engineering.

Her father has rheumatoid arthritis, an incurable autoimmune disease that attacks joints. She has an interest in research in ways engineering could make life easier for individuals with rheumatoid arthritis.

(Source: Crossville Chronicle)



Programme and



The 7th International Conference for Universal Design in Bangkok 2019

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

Call for paper
IAUD, Japan collaborates with Faculty of Architecture, KMITL, Thailand, organise...

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

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

Sub-theme;

- Innovation for all
- Regional and urban development
- Sustainable inclusive city
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Submission full paper deadline: 20 November 2019

Typography Day 2019

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

2nd - 4th March 2019

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

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THE SEARCH FOR EXCELLENCE IN DESIGN

Good Design Australia is calling for Australian and international entries to the 2019 Good Design Awards. Through the annual Good Design Awards program, we recognise and celebrate excellence in cutting edge design and breakthrough innovation. Entries close 28 March 2019.
[Find out more about the 2019 Good Design Awards here](#)

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Conference topics

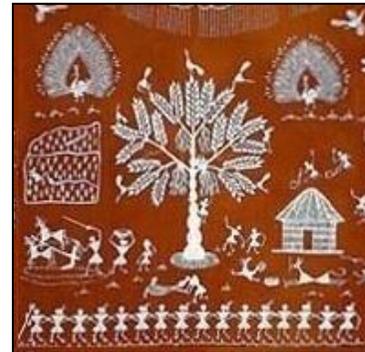
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- ↓ AT in education
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Job Openings

Job Opening

This is Dori Tunstall, Dean of Design at OCAD University. Come join me advancing the praxis of Respectful Design, which has as its underlying principles decolonization, diversity, inclusion, and equity! OCAD University's Faculty of Design is seeking to fill two tenure-track and two administrative positions.

We will begin to review application by Feb. 22nd, so for full consideration of the committee please submit materials by that date. If you have any questions about the positions, feel free to contact me via email at dtunstall@ocadu.ca If you have questions about the process, please contact OCAD University HR, hr@ocadu.ca The two tenure-track positions are in Illustration and Interaction Design.

In order to alleviate the under-representation of racialized and Indigenous tenure-track faculty, this position is open only to qualified racialized and Indigenous persons who self-identify as such in the application process. This initiative is a special program under the Ontario Human Rights Code.

FACULTY OF DESIGN

TENURE-TRACK

ASSISTANT PROFESSOR: INTERACTION DESIGN

The Faculty of Design invites applications for a full-time tenure-track teaching position at the rank of Assistant Professor in Interaction Design. The undergraduate programs in Digital Futures, Graphic Design, and Industrial Design are seeking candidates capable of enhancing existing and future curriculum and research areas in the design of new interactive digital products and/or objects, exhibits or installations. A broad conception of interaction design is desired to fuel cross-disciplinary efforts between programs at the undergraduate level. The successful candidate will address the

shifting political situations, financial structures, and ecological strategies that shape the contemporary practice of design through an engagement with speculative methodologies and emerging technologies. Under the ethos of Respectful Design, the Faculty of Design is committed to the decolonization of design in order to champion diversity, equity and inclusion and thus requires all applicants to demonstrate the same. This appointment is expected to commence on August 1, 2019 and is subject to budgetary approval.

For more details and to submit an application, please follow this link <https://trr.tbe.taleo.net/trr01/ats/careers/v2/viewRequisition?org=OCADU&cws=37&rid=1559>

FACULTY OF DESIGN

TENURE-TRACK

ASSISTANT PROFESSOR: ILLUSTRATION

The Faculty of Design invites applications for a full-time tenure-track teaching position within the Illustration Program at the rank of Assistant Professor. The undergraduate Illustration Program delivers studio-based education supporting the creation of effective, communicative and artful images that complement or transcend the written word. Students are supported in developing their own individual artistic voices to examine the world in which we live and critically reflect on society. In addition to technical studio-based activities such as drawing, painting and emerging technologies, the Illustration program focuses on conceptual thinking and problem solving; innovation; collaboration; communication; research; critical analysis; project management; engaging audiences; historical and social issues; ethics, contextual and theoretical awareness; and personal and artistic growth. Under the ethos of Respectful Design, the Faculty of Design is committed to the decolonization of design in order to champion diversity, equity and inclusion and thus requires all applicants to demonstrate the same. This appointment is expected to commence on August 1, 2019 and is subject to budgetary approval.

For more details and to submit an application, please follow this link <https://trr.tbe.taleo.net/trr01/ats/careers/v2/viewRequisition?org=OCADU&cws=37&rid=1558>

The two administrative positions are Chair of the Illustration Program at the rank of Assistant to Associate Professor and Graduate Program Director of the Design for Health Program at the rank of Assistant to Associate Professor.

These are open to all qualified persons but *in order to alleviate the under-representation of racialized and Indigenous tenure-track faculty, priority in hiring will be given to qualified racialized and Indigenous persons who self-identify as such in the*

application process. This initiative is a special program under the Ontario Human Rights Code.

CHAIR,

TENURE/TENURE-TRACK

FACULTY OF DESIGN

POSITION

(ASSISTANT/ASSOCIATE

ILLUSTRATION

PROFESSOR)

The Faculty of Design is seeking a dynamic, and collaborative academic leader to assume the position of Chair of the Illustration Program in order to facilitate the decolonization of Illustrative practices and theory. The undergraduate Illustration Program delivers studio-based education supporting the creation of effective, communicative and artful images that complement or transcend the written word. Students are supported in developing their own individual artistic voices to examine the world in which we live and critically reflect on society. In addition to technical studio-based activities such as drawing, painting and emerging technologies, the Illustration program focuses on conceptual thinking and problem solving; innovation; collaboration; communication; research; critical analysis; project management; engaging audiences; historical and social issues; ethics, contextual and theoretical awareness; and personal and artistic growth. Under the ethos of Respectful Design, the Faculty of Design is committed to the decolonization of design in order to champion diversity, equity and inclusion and thus requires all applicants to demonstrate the same.

For more details and to submit an application, please follow this link

<https://trr.tbe.taleo.net/trr01/ats/careers/v2/viewRequisition?org=OCADU&cws=37&rid=1561>

GRADUATE PROGRAM DIRECTOR (GPD) DESIGN FOR HEALTH (DHEA)

TENURE/TENURE-TRACK POSITION (ASSISTANT/ASSOCIATE PROFESSOR)

FACULTY OF DESIGN

The Faculty of Design and the School of Graduate Studies are seeking a dynamic, and collaborative academic leader to assume the position of Graduate Program Director of the Design for Health (DHEA) graduate program in order to facilitate the decolonization of Design for Health practices and theory. Reporting both to the Dean, Graduate Studies and the Dean, Faculty of Design, the Graduate Program Director position provides oversight, leadership, and teaching for the Design for Health (DHEA) graduate program as well as teaching within the design for health specialization in the undergraduate Industrial Design program.

The Design for Health graduate program has four interdisciplinary themes delivered primarily through design studio-based learning with clinical partnered projects: (1) Health context: Developing domain knowledge in health, healthcare delivery, communications, technology and innovation, (2) Research and application: Identifying,

designing, conducting and applying qualitative, co-design, and evidence based techniques to health challenges, (3) Design and innovation: Creating new, ethical, and sustainable solutions with health sector stakeholders, patients, and partners, and (4) Proficiency and leadership within interdisciplinary collaborations.

For more details and to submit an application, please follow this link <https://trr.tbe.taleo.net/trr01/ats/careers/v2/viewRequisition?org=OCADU&cws=37&rid=1560>

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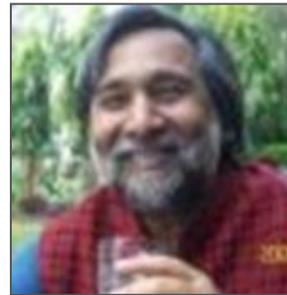
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