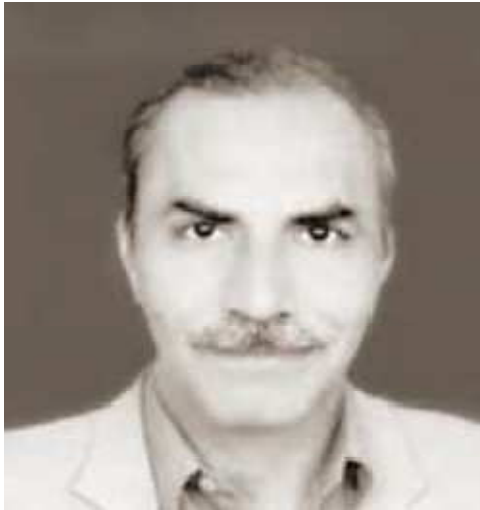


Design for All



Chairman's Desk:



Dr. Sunil Bhatia

One day a woman was crossing the road and I witnessed that she was clearing blockage in her throat by making sudden hoarse sound in vocal cord. It is natural for humans as well as for animals to clear the blockage in vocal cord by giving jerk by using air or sound or sudden shaking of muscle contraction technique and beauty is that it is inbuilt system . I also witnessed that woman after washing the crowning glory take out extra water from her hairs by giving jerk to her hairs by using long dry cloth or towel. Otherwise water continuously seepage from hair makes her dress wet and she even faces great difficulty in combing because of entangle hair that locks the comb to move freely and it is possible unless and until it has no extra water. She gives jerk after squeezing water from washed clothes before spreading for taking out possible remaining water for quick dry under sun and that also helps in removing wrinkles of clothes .It is habit we have imbibed from our ancestors . I noticed in cows or animals as bladder is about to finish urination they create

jerk by squeezing muscles so that last few drops of urine should not slide and wet body parts. Who made them to practice of urination finish by avoiding urine touches in body by creating jerks? Man does the same when empty the bladder. Who made them to use this technique of jerk for avoiding urine spread over the body parts? Problem worsens with old age when muscles fail to act. We pluck the fruits with sudden pull force to break by using application of jerks. It gives difficulty in plucking if we don't give jerk. How come they understood plucking by jerk makes their job easy? When gust of air suddenly strikes it changes the inertia of branches and weak or ripened fruits before realize in change of inertia from stationary to dynamic it falls because of experiencing jerks. A dog experiences something unusual in his throat he does the same what man does to clear his throat by using sound or air pressure or by squeezing lung or contraction of muscles technique for clearing with some kind of jerk. Jerk is embedded feature in human body. It has saved many lives when something accidentally enters in breathing pipe instead of food pipe and person may die of choking. It is the jerk that works involuntarily and clears the blockage and allows it coming back in mouth. A sneezing is involuntary defense act that clear the foreign elements in nostrils that might choke the breathing and person might die because of it and is using air pressure supported by jerk of body. I have never come across sneezing without fluttering of body .Jerk has contributed a great in designing but our acceptance for its role is limited.

Man has designed the winnowing fan to clear the dirt from the food grains that might harm the humans by giving jerks and allow grains being momentarily in air for force blow to light dirt to separate and remaining food grains should come back to fan without spilling on

the ground. Earthquake is some kind of jerk. Something dirt is struck on my shoes and I want to get rid by giving jerk by stumping my leg. A sudden moment that changes the inertia is called jerk. A student experiences of not writing by his ink pen his first involuntary act is to jerk for clearing the possible blockage in capillary for ink. A nurse administers the patient and before taking the temperature she does the jerk to slide the mercury to zero for correct measurement. To eliminate jerk during transportation and it led to design of wheel. Design of foot segment of lower limb prosthesis and objective is to provide smooth and active motion without jerk and give users normal walk. In vehicle acceleration receive great attention but it has inbuilt character of discontinuity of jumping and producing jerk because of uneven roads. It is biggest challenge for auto mobile engineers for minimizing jerks. Automobile engineers came to the conclusion after long research that jerk is further differentiation of acceleration when trying to find the analytical foundations for what passengers considered a comfortable ride. They assumed that minimizing vertical acceleration was the key but road testing said otherwise. They found that the rate of change of acceleration, or the third derivative of position, was the key factor. This was new mathematical term and they didn't know what to call the derivative of acceleration. Finally, someone suggested the term "jerk".

Our modern designers were aware about role of jerk in design and while designing the cycle pump they used the concept of jerk in best manner. They designed the valve for cycle rubber tube by using rubber tube to close the outlet of metal valve that work as inlet for air in tube and it opens when we give sudden pressure by giving jerk to piston of pump for inflating the covering rubber of valve to allow the air to go inside the cycle tube and as pressure is released it

cannot hold the valve rubber to remain open and it closes the outlet of valve not to air go out. Similarly peddle is designed where users peddle in continuously but transfer of power from one peddle to another is by using the jerk. Design of spring is to absorb and match the nature of jerk. Design of polyfoam that has air packets are designed to absorb jerks while sitting on sofa or bed. Similarly air bags are designed for safety in car for absorbing jerks at the time of accidents.

Entire packaging industry is to transport the materials in such a way that it can avoid the jerks that can possibly damage the products. Generally transportation means are automobiles vehicle that moves faster compared to bullock cart or hand cart and we do not expect roads are smooth everywhere and without pot holes, as vehicle failed to avoid the damage roads that can produce jerk and can damage products. Speeding vehicle has chance of generating possible higher level of heavy impact of jerks that can prove reason of severe damage of the products. To control the affects of possible damage they designed shock absorbers as well as parabolic spring leaf and even given proper thoughts for designing the packets with thermolcol and cardboard for absorbing any accidental jerks during manual handling as well vehicular jerks. In physics we call jerk as jolt, surge, or lurch and it is the rate of change of acceleration. Rapid changes in acceleration of a cutting tool can lead to premature tool wear and result in uneven cuts. This is why modern motion controller includes jerk limitation features.

Nature does not have jerk control limitation. Studies have shown that jerk is closely related to the physical mutation and destruction process. It has expression of jerks and majority of times it supports the human lives but sometime man works under the influence of

greed and it invites devastations and allow surfacing of jerks. Scientists are designing models and redesigning new model to find the true reason of devastations and at last they believe that earth has many plates and when it collides it is the reason of earthquakes but why does it collide is unknown . Some people are suggesting that physical models are inappropriate in predicating strike of earthquakes and we should focus on biological models of living beings sense of forecasting of earthquake for safety of their lives . That act of safety may help us in predicating possible strike of earthquakes. A minor jerk can threatens existence of living beings and we never gave any importance to jerk. Scientists believe that petroleum is nothing but living beings were buried alive because they experienced jerk of earthquakes and under high pressure of earth layer they are converted to petroleum or coals. Jerk is close to us yet we believe it is far from us and believe it will not reason of our death. It is clear that the amplitude of jerk changes dramatically and the effect changes with the distance from epicenter because of lower frequencies of spectrum of jerks. Hence, more research should focus on the characteristics of jerk.

A weightlifter when put himself under the barbell for lifting the weight he thinks for winning by applying sudden force for jerk that allow him to lift the weight for resting on his raised hands. To execute this exercise with perfection they need special shoes to manage the split of legs during lifting and run of the mill shoes or a boxer shoe that does not give proper help in optimizing force. It is the jerk that is responsible for designing special shoes for weight lifter. A kite player initially creates jerk by giving sudden application of force in thread that holds the kite to rise to next level in air and it is mystery who invented application of jerk for flying kite. Electric

ceiling fan experiences jerk in absence of capacitor as we put on but by introducing the mechanism of controlling jerk that can possibly shorten the life of fan designers achieved longer life fan compared to earlier models. Smooth starting of fan can be achieved by introducing double ball bearing that holds the shaft tightly from both end for prevention of jerk.

A slap for man or whip for animals that inflicted sudden pain by using jerk that reminds what you are suppose to perform you are not and it is kind of reminder or punishment. When person is sleeping and we wish to awake him we use alarm clock sound or by physically shaking to create jerk. When we run our muscles jerk to throw our body weight forward for helping in running but we do not experience the same in treadmill. Jerk is discrete motion in physical running where in treadmill it is designed for continuous motion through conveyer belt.

We are thankful to Dr Bijaya Sherstha who took the challenge of covering the developments of concept of Universal Design in Nepal and he has experienced great tragedy of Earthquake in recent time that has affected his thoughts and he arranged few authors to cover this recent tragedy. The moment he has submitted the publishing material and I submitted to our editorial team they jumped with excitement and inform me it is really international standard publishing material. I inform them where nation is small an individual moves as nation and Dr Bijaya has maintained that spirit. Nepal is constantly living under fear of earthquake and they are experiencing and struggling for genuine solutions for others it is news or history and emotional touch is missing. Those suffered and go through that experiences always work for community and their individuality vanishes from their thought process. I salute the

courage of Nepal for marching forward in the path of self reliant. Once again thanks to Dr Bijaya and his contributors for making special issue as reference issue for further research.

Dr. Sunil Bhatia

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Forthcoming Issues

September 2015 Vol-10 No-9

Samanta Bullock is residing in United Kingdom and she is Wheelchair Model, Tennis Player and Public Speaker, Self Employed will be guest editor



October 2015 Vol-10 No-10

Prof Ravi and Dr Ajanta Sen of Indian Institute of Technology Mumbai India will be the Guest Editor and theme of the special issue is Design and Children.



November 2015 Vol-10 No-11

Ewa Golebiowska, Poland is the president of EIDD Design For All and she has accepted our invitation of Guest Editor and she will invite the authors from European countries for special issue.



December 2015 Vol-10 No-12

Mara Kaplan is an educator, an advocate for inclusive play and a parent of a child with profound disabilities. She has more than 20 years' experience reviewing toys and designing playgrounds.

Mara's consulting business, **Let Kids Play!**, designs inclusive playgrounds, reviews and recommends toys and edits the website accessibleplayground.net, which includes a comprehensive listing of accessible playgrounds in North America.



Mara facilitated the creation and writing of the *Inclusive Play Design Guide* in conjunction with Playworld Systems. She has also worked with Playworld Systems to train their staff about inclusion and worked with their designers on new products.

Mara speaks around the country about her journey as parent of a child with disabilities as well as on topics such as universal design, inclusive playgrounds, and playgrounds for children with autism, and inclusion.

January 2016 Vol-11 No-1

Dr Peter graduated with a PhD in Sociology and since then he has researched as an honorary fellow at the University of Melbourne, writing over 50 articles. Peter Gibilisco, B Bus (Acc) Ph.D. (Melb).

Honorary Fellow University of Melbourne. His New Book: *The Politics of Disability* is out and available in market See my website <http://petergibilisco.com.au/> He will be Guest Editor for our inaugural issue of 2016



February 2016 Vol-11 No-2

Professor Jan Staël von Holstein

Visiting Professor at Hong Kong Polytechnic London, UK will be Guest Editor



March 2016 Vol-11 No-3

Dr. Shatarupa Thakurta Roy

is presently an Assistant Professor at the Indian Institute of Technology Kanpur. She is associated with the discipline of Fine Arts in the Department of Humanities and Social Sciences offering courses in Art Appreciation and Criticism and History of Art. She has been jointly associated with the Design Programme at IIT Kanpur teaching courses on Design Theory, Graphic Design, and several other courses on visual communication. She completed her art education in Kala Bhavana, Visva Bharati University, Shantiniketan followed by a PhD in Design from IIT Guwahati.



April 2016 Vol-11 No-4

Prof Beth Tauke is an associate professor in the Department of Architecture at the University at Buffalo-SUNY, and project director in the Center for Inclusive Design and Environmental Access (IDEA), the leading research center on universal design in the built environment in the U.S. Her research focuses on design education and inclusive design, especially the empowerment of minority groups through design. Tauke was principal investigator of the Universal Design Identity Program and Increasing Access to Universal Design to Meet the Needs of African American Communities, both sponsored by the U.S and Prof Korydon Smith is an associate professor and associate dean in the School of Architecture and Planning at the University at Buffalo-SUNY, USA.



May 2016 Vol-11 No-5

Prof Pekka Harni Artist ,Professor; architect and designer at Harni - Takahashi Ltd will be the Guest Editor. He is an architect MSc. and industrial designer MA., who works widely on applied art, furniture design and architecture.



He has been teaching at the University of Art and Design (now Aalto University) in Helsinki since 1988. He has been a visiting lecturer in several European design universities and a leader of several design workshops in Europe and in Mexico.

His study about morphological “object categories”, delves into the possibility of dividing basic home objects into seven main categories, that correspond to different functional and morphological categories of objects, has already been applied in several European design schools. This study is published by Aalto University in his book “Object Categories” 2010.

In 1999, he received the Design Plus Award from the Ambiente Frankfurt Fair. In 2011 he was awarded as “the industrial designer of the year” by the Finnish Designers association. Since 2012, he is Artist Professor for 10 years, appointed by the Arts Council of Finland.

June 2016 Vol-11 No-6

GAATES(GLOBAL ALLIANCE ON ACCESSIBLE TECHNOLOGIES AND ENVIRONMENTS) Mukhtar Al Shibani – President will be the Guest Editor for special issue



July 2016 Vol-11 No-7

Prof Cigdem Kaya Associate Professor at Istanbul Technical University, Turkey will be the Guest Editor.



August 2016 Vol-11 No-8

Julie Irish is an interior designer with long experience in both the public and private sectors in the UK specializing in universal design. She has an MSc in Inclusive Environments from the University of Reading, England. She currently lives in the USA where she is studying for a PhD at the University of Minnesota. Julie's research interest considers how the design of the physical environment could support children with autism spectrum disorder (ASD) in the educational setting. She is a strong advocate for evidence-based design. This special issue will focus on current and innovative design for children with ASD from a variety of perspectives.



September 2016 Vol-11 No-9

PROFESSOR YRJÖ SOTAMAA PRESIDENT EMERITUS University of Art and Design Helsinki and Cumulus Association, **ADVISORY DEAN AND PROFESSOR** College of Design and Innovation, Tongji University and **DEAN LOU Yongqi** of Tongji University will be the guest Editor



October 2016 Vol-11 No-10

David Berman Accessible design thinker, expert speaker, author (*Do Good Design*), UN advisor on IT accessibility, GDC ethics chair .Communications strongly believes that we can design a better world that leaves no one behind. We've been leaders in the online accessibility field for over 15 years, and we're eager to help you gain from the benefits of inclusive design. David is a senior strategic consultant to the Canadian government, as well as other governments on four continents



Guest Editor



Dr. Bijaya K. Shrestha received Doctoral in Urban Engineering from the University of Tokyo, Japan (1995-'98), Master in Urban Design from the University of Hong Kong, Hong Kong (1993-'95) and Bachelor in Architecture from the University of Roorkee (now Indian Institute of Technology), India (1983-'88). Dr. Shrestha has got working experiences of more than two decades. He had already served to the Department of Housing and Urban Development, Ministry of Housing and Physical Planning, Government of Nepal, United Nations Centre for Regional Development (UNCRD), Japan and various architectural schools in Nepal before taking the present job at Town Development Fund (TDF). He has initiated a new master program in Urban Design and Conservation at Khwopa Engineering College, Purbanchal University, where he served two years as Head of Post-graduate Department of Urban Design and Conservation.

Dr. Shrestha is the recipient of numerous gold medals for his excellent academic performance and decorated by 'Calcutta

Convention National Award 2006' by Indian Society for Technical Education for his best paper at the 35th ISTE Annual convention and National Seminar on Disaster – Prediction, Prevention and Management. He is also member of numerous professional bodies and life member of various alumni associations. He has already contributed more than five dozen of papers, published in various forms: book chapter, international journals, conference proceedings, local magazines and journals including in local newspapers. Moreover, he has been invited in numerous international conferences for presentation of his research findings. Finally, his field of expertise includes sustainable urban development, disaster management, and housing, local government capacity building and development control. He will focus on universal design concept on Nepal.

I am very much honored to be a guest editor for 'Design for All: A Publication of Design for All Institute of India,' August 2015 issue. I have gone through some of the past issues in detail and found all of them very much useful in different ways. Such publication has helped a lot not only in sharing the experience and knowledge on various issues associated with design but also in bridging among various professional involved in different organizations.

Design is a strong tool that not only confirms the users' comfort and convenient but it can also make their behavior change. It is not art of designing space, technological or investment objects but a social entity. Design is to some extent a cultural practice.

Though architectural history slowly evolved on incremental basis - from formal to romantic and then to classical styles - with each phase having strong roots in the previous era, modern architecture after the industrial revolution discarded the evolutionary process of the earlier development trend and cultural continuity. Considering city as a machine for living, modern architecture with faith on technology encouraged architects to design an architectural object (a building) for an ideal man rather than for real people and to seek for a universal solution. As building form was dictated by internal function and structural requirements irrespective of local culture, climate and geographical location, modern buildings did not enhance the local landscape but had isolated themselves in terms of architectural style, construction technique and other detailing.

Globalization of economy, international investment and labor distribution and advancement in telecommunication have changed

the fundamental qualities of space and time 'time space compression' thereby influencing the political-economic practices as well as the cultural and social life.

Integration of nature with culture in the built environment to fulfill human needs can be seen in the built environment of Nepal in the past. This is best illustrated by listing of Seven World Heritage Sites within the Kathmandu valley alone by UNESCO. Common lifestyle, use of locally available materials (brick, mud, wood, etc.) and similar construction methodology have led to the formation of singular composition on building facades with little variation on building bulk, architectural style, roof-lines, and so on thereby not only forming unifying street scene, enhancing volumetric definition and achieving sense of enclosure for pedestrian, but also strengthening social networking and community bond among the neighbors. However, rapid urbanization, shifting economic base from agriculture to commerce and service, gradual changing lifestyle of the people all have transformed the earlier settlements and buildings with numerous consequences.

Prediction of the great earthquake in the western part of Nepal from the last two decade became reality at 11.56am on 25th April 2015 with the strike of 7.6 rector earthquake with epicenter at 'Barpark' in Gorkha district, about 77km north-west side of Kathmandu. Within 72 hours, more than hundreds of aftershocks (greater than 4 rector scale) realized in the Kathmandu valley with the biggest one of 6.9 rector scale after 25 hours of the main strike. The casualties already reached 4,769 and injured of 8,547. This number is rapidly increasing. This destructive event further confirms the needs of

building a disaster resilient society and safer communities in Nepal in coming days.

The role of the designers is very much crucial in present context not only to regulate the growth, but also to accommodate people aspiration and present day needs. In a democratic society, the issues of inclusiveness, gender balance and local context can not be ignored. Above all safety is the first. Environmental management and heritage conservation can be delayed but not the natural hazard.

Hence, instead of coping the past, architecture should be responsive to the needs of the present and should aim to organize space to enhance human existence in structures expressive of domestic and social life. Moreover, buildings need not to be understood as free standing works of art like pieces of sculpture, created by a romantic artistic genius and are not to be judged via photographs of beautiful facades, as expression of pure geometry but they are the three-dimensional compositions designed for human use and their interior spaces are as important as their exterior masses. The primary role of architecture in the post-modern world is to comprehend individual nature and community and to create structures which break the monotony of the surroundings. Understanding of traditional architecture, honed immemorially by humankind's relationship to nature and integrating architecture with urban and landscape planning help achieve sustainable buildings and social justice.

As a complex relation exists between building form, function and social context, architecture, instead of going into luxury of whim or aestheticism should respond to culture, context and time including

linking nature and human kind, inner and outer realities and function and meaning. Therefore, the treatment of the 'transition space' between the public street (open space) and the private house, layout design of building on the plot and the architectural characters of dwellings that define the building density, shape the public space and express the socio-economic status of the inhabitants are equally significant as the interior space organisation.

This August issue basically comprises of six articles focusing on above mentioned issues of Nepal. The first two articles focus on the barrier-free design focusing children. The article written by myself highlights the needs of child, gender and differently-able school toilets in different regions of Nepal. Due to lack of such water and sanitation facilities, students in the schools are not able to practice despite theoretical knowledge from their text-books. The second paper by Ms. Kshitiz Gurung emphasis the need of universal design approach for planning and construction of hospital and rehabilitation centre for disable children in Nepal, which is severely lacking at present. There is a huge gap between the existing rehabilitation facility and the growing number of disable children in the country. Moreover, the architectural design and layout of the spaces (interior and exteriors) in the existing facilities are not easily accessible for the differently-able children. The third article on 'Assessing Road Widening in Kathmandu Metropolitan City' highlights the recent infrastructure development work carried out by the government of Nepal. Though it has facilitated smooth traffic flow and better linkages among different parts of the city, nonetheless, it has also made the buildings on both sides of the roads vulnerable to disaster due to haphazard reconstruction and destruction of structures. The

capital gain from widening of the road has been basically taken by the house owners rather than sharing with the government. Another interesting article on transformation of traditional town, taking the case of Lubhu highlights the rapid changing in social fabrics and building form, style and detailing. Failure to regulate such rapid changes has numerous socio-cultural consequences, besides increasing earthquake vulnerability. Again, another paper on urban signage in the streets of Kathmandu metropolitan city, taking the cases of New Road, Putalisadak and Thamel areas is very interesting. It has to do not only with beautification of the townscape, but also related with public health, safety and revenue of the local government, Kathmandu metropolitan city. Finally, the last article on Town Development Fund highlights the restricting of the institution to suit the changing needs of society and also proposes the key strategies to be taken in future for more effective service delivery. Town Development Fund, as a financial intermediately is supporting local governments (municipalities) by providing technical and financial supports for construction and management of infrastructure development from the last 27 years in Nepal.

It is hoped that this type of publication will surely bring greater public awareness among the decision makers, which help to rectify legal and institutional framework for achieving sustainable and safer settlements and societies. It links the past with present and paves the way for future course of action.

Last but not the least, I would like to thank all the writers for their important papers and articles. Surprisingly, all the five papers

except mine were written by female designers, which also indicates the growing concern of female designers in Nepal.



Bijaya K. Shrestha, Ph.D. MUD. B. Arch.

Kathmandu, Nepal

Designing Child, Gender and Differently-able (CGD) Friendly School Toilets in Different Region of Nepal

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Overview and Study Objectives

Among many aspects of sanitation, human excreta being the cause of many enteric diseases such as cholera, dysentery, typhoid, paratyphoid, infectious hepatitis, hookworm, diarrhoea and so on, is the most singular important factor and concern for the international communities. Over 50 infections can be transferred from a diseased person to a healthy one through direct or indirect routes from human excreta. In Nepal, only 25% of the population has access to excreta disposal facility with coverage of 21% rural population and 53% of the urban population. According to Nepal Living Standard Survey 2003-'04, the proportion of households with proper toilet facilities in their dwelling units was 39% in 2003-'04 as compared to 22% in 1995-'96. About 12% of households have access to sanitary (sewerage) system, but it is concentrated in urban areas (54%). Another joint study by the government, National Planning Commission (NPC) and UNICEF in 1996 reveals that the major reasons for not having a latrine among the households were: no perceived need (66%), resource constraint (31%), smell and privacy (3%). In this regard, design of toilet and hand washing facility in schools makes a lot of sense as students are not only

'change agent' but they are also vulnerable to various diseases due to unhygienic condition. Although water and sanitation facilities are being recognized as fundamental for hygiene behaviour and children's well-being, in practice, many schools in Nepal particularly in rural areas are confronted with extremely bad sanitary facilities. Conditions vary from inappropriate and inadequate facilities to the outright lack of toilets and safe water for drinking and sustainable hygiene practices. Compared to other spaces the toilet gets the least attention. In most cases, they are placed in a dark corner without sufficient light and ventilation; the fixtures are not in working order; and above all, they are neither clean nor hygienic, leave alone user-friendly. The problems lie not only in regular maintenance and daily cleaning alone but primarily on layout plan and architectural design.

High incidence of communicable diseases in Nepal, particularly among children, is due to poor personal hygiene practice, unsanitary environment as well as unsafe drinking water. Girls and boys, including those with disabilities, are likely to be affected in different ways by inadequate water, sanitation and hygiene conditions in schools, and this may contribute to unequal learning opportunities. If school children have access to clean and appropriate toilets, functioning hand wash facilities with soap, sufficient and safe drinking water and have developed adequate skills on hygiene, those children will be healthier, perform better in school, and learn about equal division of hygiene related tasks (cleaning of toilets, fetching and boiling water, taking care of sick people). Moreover, girls students will learn about menstrual hygiene and physical and emotional changes during puberty which will stimulate the girls to come to school during menstruation and will avoid menstrual odour,

discomfort and potential urinal and vaginal infections. It will have an even greater positive outcome for girls who often stay away from all dropout of school which do not have toilet facilities. Provision of toilet, hand washing and safe drinking water together with clean school environment is the 'right' of all children. As children are far more receptive to new ideas and can be influenced to cultivate the habits of good personal hygiene, schools can be considered as 'education and information centres' for safe water, sanitation, health and hygiene that can link teacher to child, child to child, child to parent, and parent to community. Children develop leadership quality due to rise in health and hygiene awareness as well as communication with other members of society and community. They will get the opportunities to take responsibility, to practice leadership and adult role, and to learn the skills of participation resulting in better pupil behaviour, better attendance, less delinquency and higher achievement.

Against such backdrop, this paper aims at developing various alternative design options of toilets and hand washing facilities for schools in different parts of Nepal. It has following specific objectives.

- (a) to critically review various literature on water, sanitation and hygiene to identify salient features of child, gender and differently-able (CGD) features in school toilet design including analysis of various national and international cases of school toilet design;***
- (b) to prepare various design options of toilets and hand washing facilities for three different regions of Nepal: Mountain, Hilly and Terai; and***
- (c) to draw a conclusion and suggest some recommendations.***

Study Methodology

This study is carried out by combining three different techniques (Fig. 1.1). First, it critically reviews various literatures (software and hardware) on water and sanitation in schools to identify salient features of 'child, gender and differently-able friend' school toilet. Such review will also be helpful in knowing the trend of toilet design and hand washing facilities in schools in different parts of the world. Second, it examines the design and hand washing facilities in different toilets, designed and constructed by various donor agencies in Nepal such as Plan Nepal, JICA, Nepal Red Cross Society, and UNICEF including Department of Education. Third, consultation in the form of workshop, seminars and meeting including interviews are carried out with various concerned stakeholders before proposing various toilet design and hand washing options for schools in different parts of Nepal.

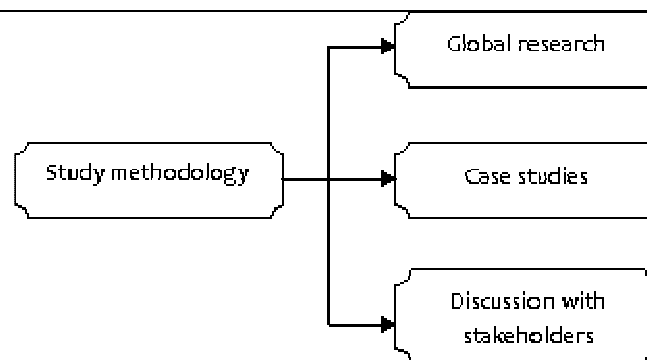


Fig. 1.1 Study methodology

Literature Review

Water, Sanitation and Hygiene in Schools refers to a combination of technical (hardware) and human development (software) components. Construction of toilet, hand washing and drinking water facilities in and around the school compound and their right

practices that help to prevent water and sanitation related diseases and worm infestation is essential. It has multiple impacts on students and school environment. Access to child friendly toilets is a fundamental human right and necessary for good health and well-being. Toilets are important. Everybody uses them. The child friendly approach to school hygiene, sanitation and water aims to design, construct and maintain facilities that are part of the learning environment, are hygienic and safe to use and can be sustained and maintained by the school community itself. Various aspects of child, gender and differently-able friendly sanitation facilities in school can be divided into three groups: space planning and construction detail, operation and maintenance and participation of the concerned stakeholders and users (Table 1.1).

Table 1.1 Various parameters of child, gender and differently-able sanitation facilities in school

<i>Space planning and construction detailing</i>	(a) Interactive spaces that stimulate children’s learning and development, (b) Appropriate dimensions and features for children, (c) Gender and differently-able related needs and roles, (d) Well considered location, (e) Enough capacity and minimal waiting time, (f) Affordable cost without compromising quality, (g) Environmental friendly and seismic resistant
<i>Operation and maintenance</i>	(a) Have operation and maintenance plan, (b) Encourage hygienic behaviour
<i>Participation of users and stakeholders</i>	(a) Participation of child, SMC, PTA and communities including girls students and ladies teachers

Children are smaller and less strong than adults and therefore facilities for children require different dimensions than those for adults. For young children the weight of doors, hole covers, strength needed to open tap and operate pump can make difference. Location of the facilities require considerations of site context, orientation

and cultural aspect, in addition to users' view, otherwise even a well-designed facility may face the risk of not being used. If the toilet is located far away from classroom, teachers may reluctant to let students out of class to visit the toilet. Toilets located away from classrooms present particular difficulties for students with special needs. Adapting designs for children is about making facilities accessible, safe and comfortable for them. Bright, colourful toilets boost morale. Soap dispensers that leak, awkward corners and cracked surfaces all contribute to a dirty environment. Urinals should be positioned so they can not be seen from outside the toilets when the door is open. Mirrors should be positioned so they do not enable people to see urinals or cubicles from the outer door. People at washbasins should not be facing those at urinals, or facing a mirror which shows urinals. Women and girls attending schools that do not have adequate sanitary arrangements (i.e., separate toilets for girls and boys, privacy, physical facilities to dispose of sanitary items or safe and clean facilities to wash sanitary cloths) are excluded in many ways. Many girls feel embarrassed to be in school during this time if the physical facilities are not there, the sanitary products are unaffordable and if the embarrassment is too much to bear. Too often special provisions for menstruation hygiene and differently-able needs are simply ignored in design of sanitation and water facilities. No separate facility is required but inclusion of their needs with little extra cost is possible. When there are not enough facilities, children search for other places to urinate and defecate, 'forget' to wash their hands, throw garbage on the ground or drink water from unsafe sources. Particularly in a school environment, the hygiene and sanitation facilities can provide the opportunity for the

interaction and are a potential extension of the learning environment.

A good operation and maintenance plan will not only indicates who is responsible for cleaning, maintenance and the costs involved, it will also ensure involvement of children, teachers, parents and the community in the continuous process of monitoring and improving hygiene practices at school. Hygienic behaviour comprises several small actions, each with its own range of necessary preparations. In particular for children, the complexity of these actions does not always enable and encourage hygienic behaviour without school rules and help from seniors. When properly coached and guided, potential users are perfectly able to assess their existing practices and find acceptable solutions for their own needs. Application of standard design can ignore the local site context and specific cultural needs. Therefore, water and sanitation facilities must be simple to use, provisions for hand washing and anal cleansing should be integrated into the entire package of facilities, and water and soap should be available at all times.

Children being the main users of sanitation facilities in school, their active participation in planning, design and operation are essential. In fact, participation is a child right guaranteed by the UN Convention on the Rights of the Child to have their opinions on matters that affect them. Moreover, it will not only help in empowering them in planning, construction, monitoring and resource finding activities but also enhance their analytical, negotiation and planning skills. Children will learn the accountability of duty bearers and equally be aware on their own responsibilities. Inviting students to design a mural for toilets encourages ownership

and pride. Finally, good design of sanitation facilities and effective action is impossible without participation of users (children). In addition to these, commitment from the government, non-government organisation, donor agencies and active participation of school management committee, parent teacher association including local communities is essential to achieve child friendly school environment.

Reviewing the School Toilet and Hand Washing Facility, Designed by Various Organisations

Many international non-government organisations such as Save the Children, Norway, Plan Nepal, and Nepal Water for Health (NEWAH) including Department of Education have produced typical school toilet and hand washing facilities. Some CGD features have been incorporated in those design scheme (Fig. 2). For instance, the layout plan of school toilet implemented by Save the Children has simple rectangular plan with provision of ramp for differently-able students. There is a separate room for urinal. Instead of individual urinal fixture, a wall (or simple platform) is used at Boy's (and Girls) urinal room, which makes the construction easy, simple and above all cost effective. However, the position of ramp in opposite direction (to separate entry to Boys' and Girls' toilet) means it requires more 'transitional spaces' on front and back of the toilet block (Fig. 1.2a). More space in the form of setback is required from the boundary wall. One has to take 'U' turn to enter into the Girl's toilet block, which is not convenient. Privacy level especially in the girl's urinal area is inadequate not only due to lack of partition wall but also because one has to pass by through this space to enter into the squatting pan. The problems of privacy and inconvenience are also

not well-addressed in other typology of girl's toilet block (Fig. 1.2b). While opening the urinal room, many portions of the urinating spaces are directly visible from outside. The doors of two the squatting rooms are directly visible from outside. Finally, fixing of wash basin adjacent to the door of squatting room disturbs both users.

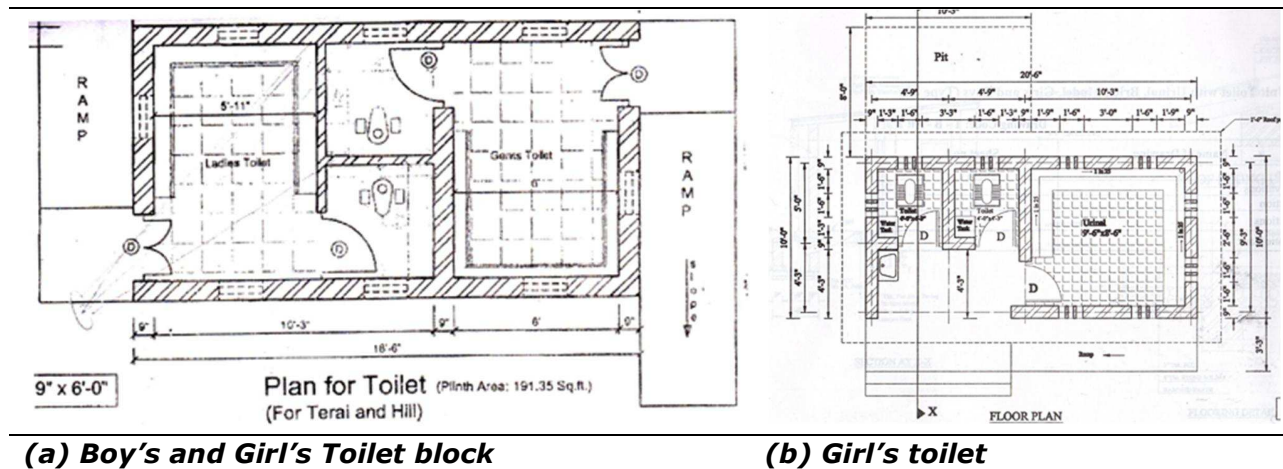
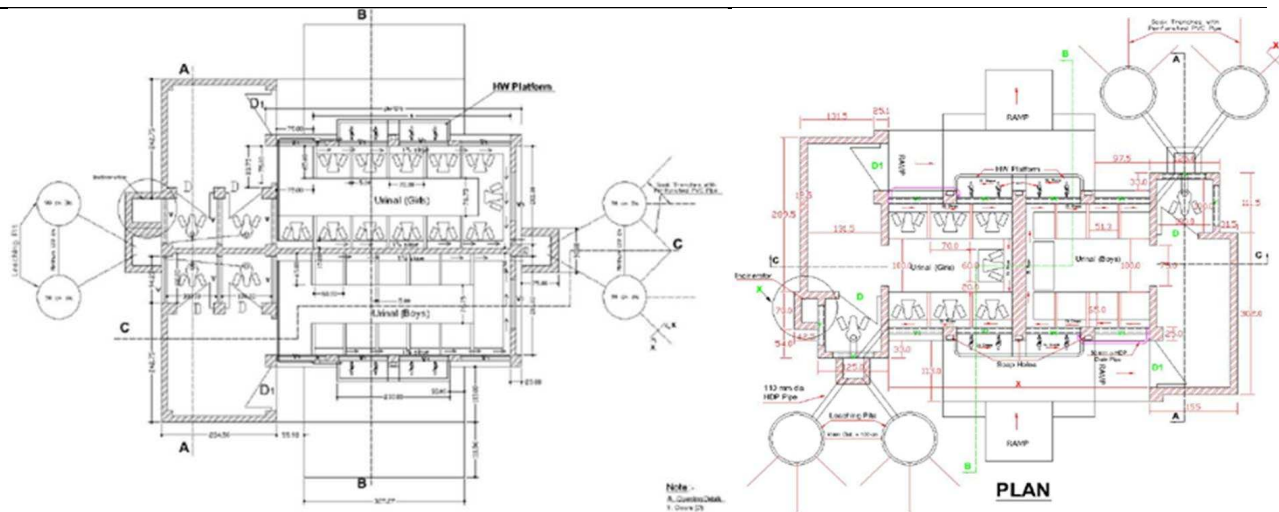


Fig. 1.2. Toilet blocks designed by Save the Children, Norway (also included at DOE's booklet)

With financial support from the Government of Nepal and UNICEF, Nepal, many non-government organisations have been designing and constructing school toilets in different parts of Nepal (Fig. 1.3). These planned toilets, much better than the owner built, however, have some shortcomings. Entry to girl's toilet block in both cases is from the back side, which is not desirable from safety and convenient point of view. Large circulation space in front of the squatting pans is of little use but it increases the cost unnecessarily. There are problems of light and ventilation in one of the squatting pan in each case. Lack of incinerator for dumping 'pads' or 'cloths' used by girl students during menstruation means they are less attractive for girl students.



(a) Boy's and Girl's toilet block for large schools

(b) Boy's and Girl's Toilet block for small schools

Fig. 1.3. Typical school toilet design by various non-government organisations

In addition to these, Nepal Water for Health (NEWAH), a non-government organisation has also published a booklet of 'Latrine design and types' for community and schools. Based on its experiences in the field of drinking water, sanitation, health and hygiene, NEWAH has proposed all together 12 toilet design options for schools. Despite simplicity, easy for construction, these design options also need some improvements. They have unnecessary large circulation area, inadequate number of wash basin and lack of sufficient light and ventilation in one of the squatting pan in each unit. Due to its linear form, such typology may not be suitable for schools located in mountain and hilly regions.

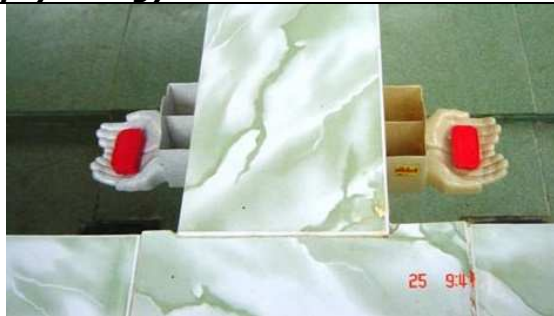
Child friendly features can be found in schools in 'Trichuri,' India. Display of cartoon inside the toilet, low partition walls between the squatting pans, bright and primary colours on squatting pans and so on are really child-friendly (Fig. 1.4). The hand shape of the soap case is another interesting feature to stimulate children in the school. Height of the water tank is kept low for child convenient.



(a) Display of pictures based on child psychology



(b) Low height partition and colour combination



(c) Stimulating shop case

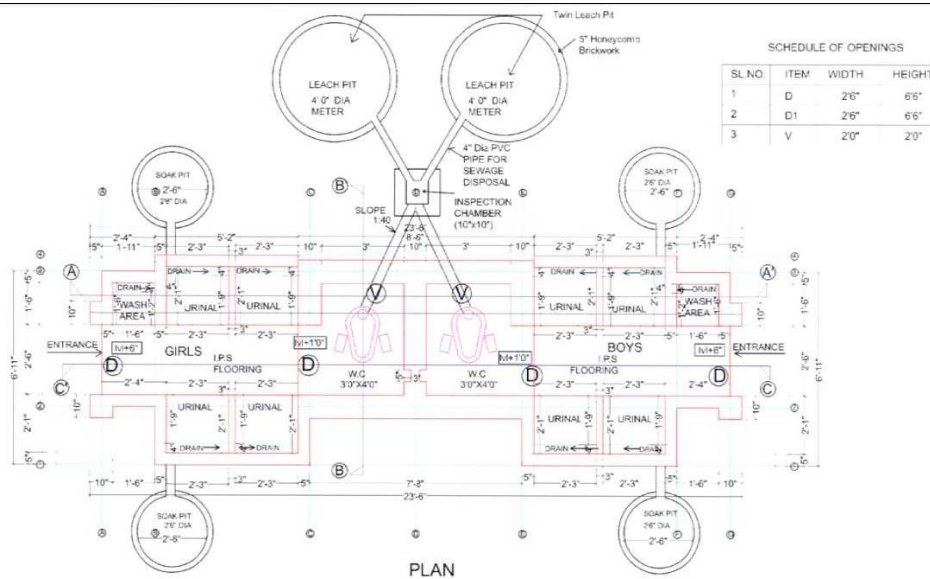


(d) Water tank and small jug for children

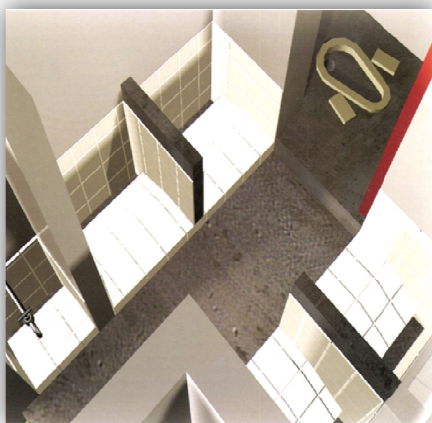
Fig.1.4. Child friendly features in school toilet in Trichura, India

Under school sanitation and hygiene education programme, Jharkhand Education Project Council, Drinking Water Sanitation Department, Government of Jharkhand with support from UNICEF has also developed a working guidelines on layout, design and estimate for 'Toilet Construction in Schools.' Such guidelines include cost estimate (labour cost and material cost), bill of quantity, criteria for site selection for toilet construction including maintenance and operation techniques, layout plan, elevation and section and other construction detail (Fig. 1.5). Break down of labour and material cost as well as inclusion of bill of quantity means the school management committees can adjust the total cost by using different materials and self-help schemes (instead of paid labour). Extra information of site selection and maintain hygienic environment has further helped the school community in smooth

operation of toilets after completion of construction. In addition to these, the position of 'soak pit' and 'leach pit' along with required diameter of pipes are also shown in the layout plan. All the three fixtures – squatting pan, urinal and hand washing facilities are incorporated in each unit (boys and girls toilet block) in such a way that the circulation area has become minimum. As a result, the construction cost is also economised.



(a) Layout plan of toilet block



(b) Interior spaces – urinal and squatting pan



(c) View of toilet block with soak pit

Fig. 1.5. Typical school toilet design – UNICEF, India

Similarly, the government of India with support from UNICEF, India has come up with a set of comprehensive document set. Part III of this document named 'preparatory Planning, Designs and Estimates' discusses the preparation necessary before planning sanitation facilities in schools, and presents a range of design options with corresponding cost estimates based on the norms and criteria discussed in the previous sections. It basically comprises of five sections: preparatory planning; understanding the designs, their attributes and features; design selection tool to decide which design is suitable for a scenario or situation; a set of 16 designs with their salient features, technical drawings and bill of quantities; and a set of designs from five states – Andhra Pradesh, Gujarat, Jharkhand, Madhya Pradesh and Orissa, which have been used as the base for developing new designs. The design options are classified as (a) Basic Core Designs (BCD) for boys and girls and for Expandable Core Designs (ECD) for Linear and Corner situations. For instance, the Basic Core Design for 40 Boys is suitable when there is need for only a separate boy's toilet block (Fig. 1.6). The hand washing facility is kept just outside the toilet block. This toilet block covering total built up area of 4.37 sq. m. can be used by four students at one time. Though this design option is economical in terms of minimum circulation spaces inside the toilet block, nonetheless, it is not suitable for differently able students. Also, inconvenient is the location of the hand washing facility, where one has to take 'U' turn. The location of storage for toilet cleaning tools just outside the toilet block is also not practical.

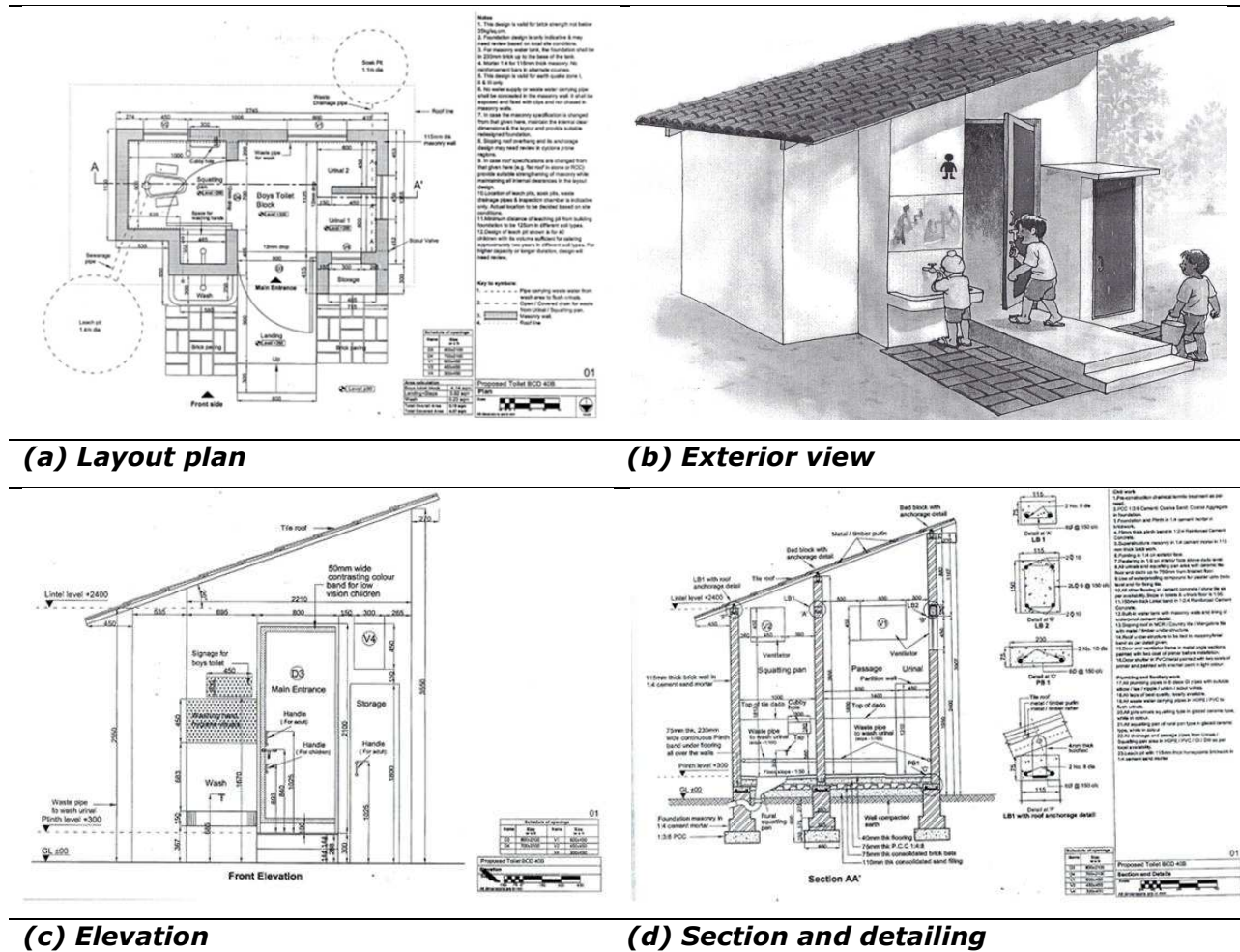


Fig. 1.6. Manual of school toilet design in India supported by UNICEF, India

Proposed Conceptual Toilet Design

Before proposing CGD toilet design for various parts of Nepal, series of meeting with UNICEF, Nepal and Department of Education, and government of Nepal including other agencies were carried out. Also, the earlier version of various design options were presented at three different regional workshop for engineers – Biratnagar, Pokhara and Nepalgunj and made necessary changes to accommodate various comments and suggestion received during the regional workshops. The layout plan and shape of the toilet unit was modified for future expansion when the number of students increase. It avoids construction of small toilet blocks at various

locations. It is also cost effective and beneficial from land utilisation perspective. Instead of designing toilet blocks based on primary, secondary and higher schools, it was decided to group them as per their capacity. Accordingly, the design options was categorised into three: Small (up to 200 numbers), Medium (200-400) and Large (400-800) (Table 1.2). Each category is further divided into three types based on the facility allocated to them as (a) Basic (with simple minimum requirements), (b) Moderate (better than the earlier one) and (c) Sophisticated (with all facilities inside the unit). It was also decided to make at least one squatting pan suitable for differently able person instead of planning a separate toilet for them. The same design option might be feasible for three different regions (Mountain, Hilly and Terai) but with changes in building materials and construction technology.

Table 1.2 Categorisation of schools and facilities

<i>S. No.</i>	<i>School categorization</i>	<i>Capacity of school</i>	<i>Facilities</i>	<i>Remarks</i>
1	SMALL	Upto 200	(a) Basic (b) Moderate (c) Sophisticated	Hand washing facility inside in sophisticated one and in the remaining it will be outside
2	MEDIUM	200-400	(a) Basic (b) Moderate (c) Sophisticated	Hand washing facility inside in sophisticated one and in the remaining it will be outside
3	LARGE	400-800	(a) Basic (b) Moderate (c) Sophisticated	Hand washing facility inside in sophisticated one and in the remaining it will be outside

The number of toilet unit and urinals are calculated as per following standard (Table 1.3). With the increase in number of students, there is no need of increasing the number of squatting pan but number of urinal will serve the purpose.

Table 1.3. Relationship between number of students and required toilet and urinal number

<i>No. of Students</i>	<i>Average Student Number</i>	<i>Unit of Toilet</i>	<i>No. of Urinal</i>	<i>Each Unit</i>
Upto 200	150	2	4	25
201 – 300	250	4	6	25
301 - 400	350	4	8	29
401 – 500	450	4	10	32
501 – 600	550	4	12	34
601 – 700	650	4	14	36
701 – 800	750	4	16	38
801 – 900	850	4	18	39
>901	950	4	20	40

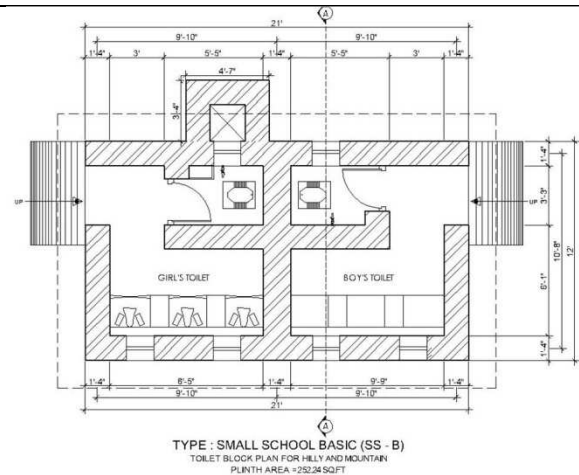
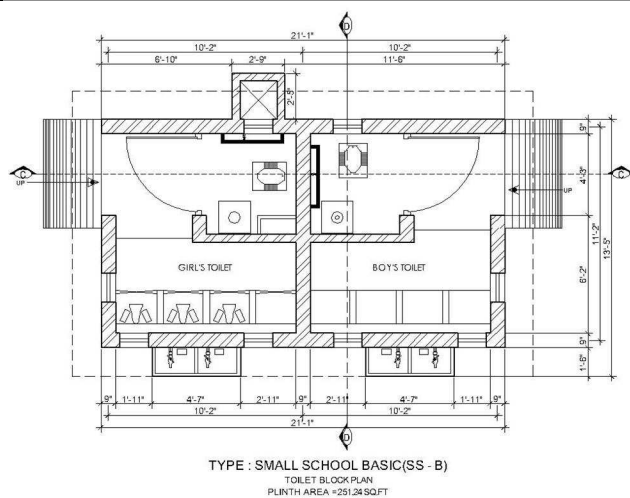
Salient features of each design option

Small School (Basic)

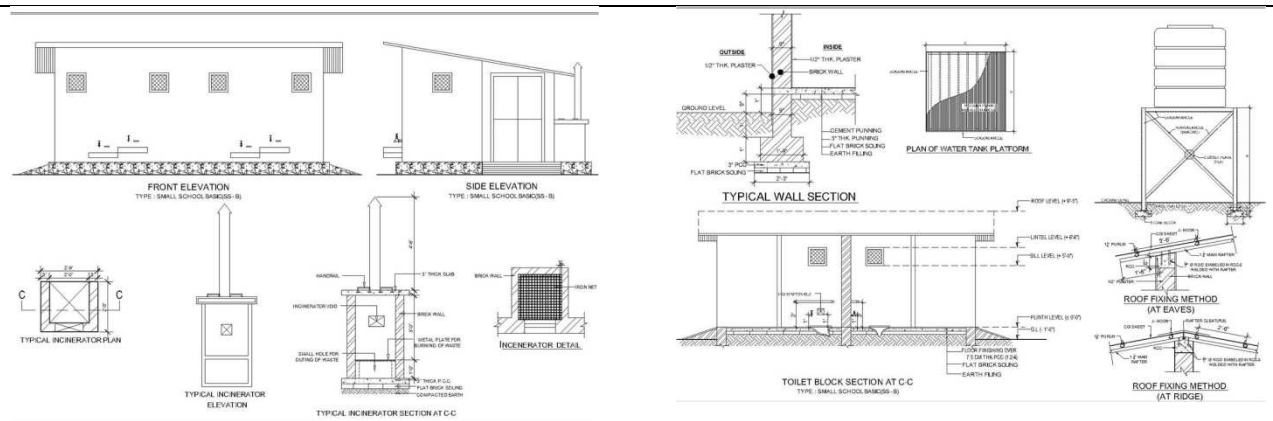
It has the following features.

- (a) 50- 200 students*
- (b)Urinals for both girls and boys with private doors and separation in girls urinals*
- (c) Toilet block is suitable for person with a disability as handrail and space is provided but not suitable for wheelchair access*
- (d)Washing platform and incinerator provided in girl’s toilet for managing menstruation*
- (e) Hand washing facility provided for teachers and small children (water from hand washing can be recycled to clean urinals)*

- (f) It is possible to include hand washing station as in design or attach soap-box to hand-pump on school ground depending on the local context and budget available**
- (g) Please note that building materials should be locally sourced**
- (h) Water tank is placed on reinforced cement concrete (RCC) but corrugated galvanized iron (CGI) sheet or other locally available light roofing, e.g. Slate, can be used for the rest of the roofing to decrease cost and for safety**
- (i) Please note that all taps, door locks should be at a suitable height for both teachers and small students and that locks are on the inside only**



(a) Small school: Basic [SS-B] Terai region **(b) Small School: Basic [SS-B] Mountain region**



(c) Elevations

(d) Cross section and detailing

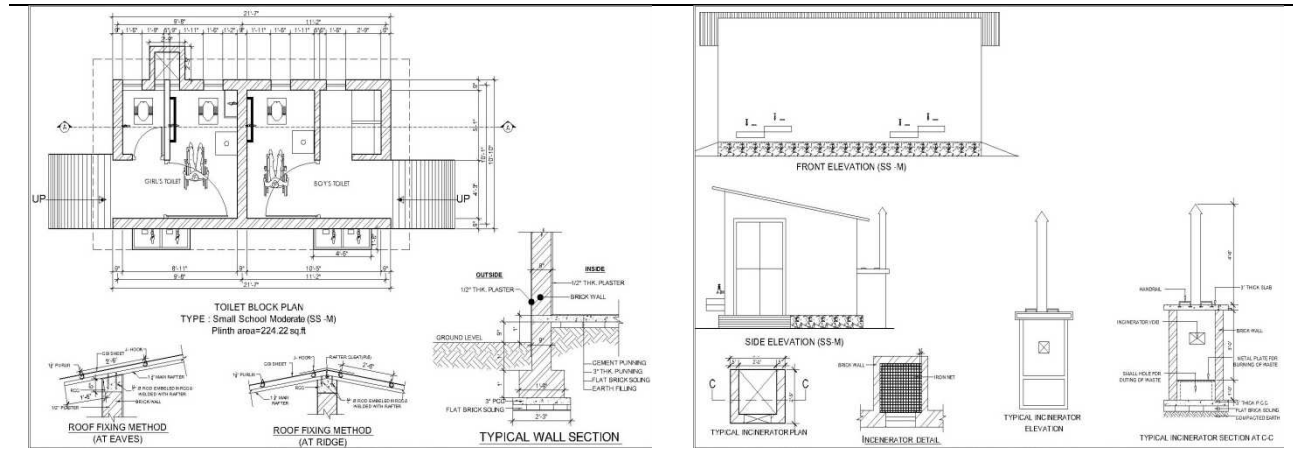
Fig. 1.7. Proposed school toilet design option [SS-B]

Small School – Medium

It has the following features.

- (a) 50-200 students**
- (b) Urinals for boys only when girl students are at early adolescent age (11/12 years plus) as girls may feel shy to use open urinals and require the privacy especially for menstruation**
- (c) There are two toilet pans for the girls and one toilet pan for the boys with two urinals**
- (d) Toilet block is suitable for person with a disability as handrail and space is provided and also for wheelchair access if needed**
- (e) Washing platform and incinerator provided in girl's toilet for managing menstruation**
- (f) Hand washing facility provided for teachers and small children (water from hand washing can be recycled to clean urinals)**
- (g) It is possible to include hand washing station as in design or attach soap-box to hand-pump on school ground depending on the local context and budget available**
- (h) Please note that building materials should be locally sourced**

- (i) Water tank is placed on RCC but CGI or other locally available light roofing, e.g. Slate, can be used for the rest of the roofing to decrease cost and for safety**
- (j) Please note that all taps, door locks should be at a suitable height for both teachers and small students and that locks are on the inside only**



(a) Small school: Basic [SS-M]

(b) Elevation and detailing

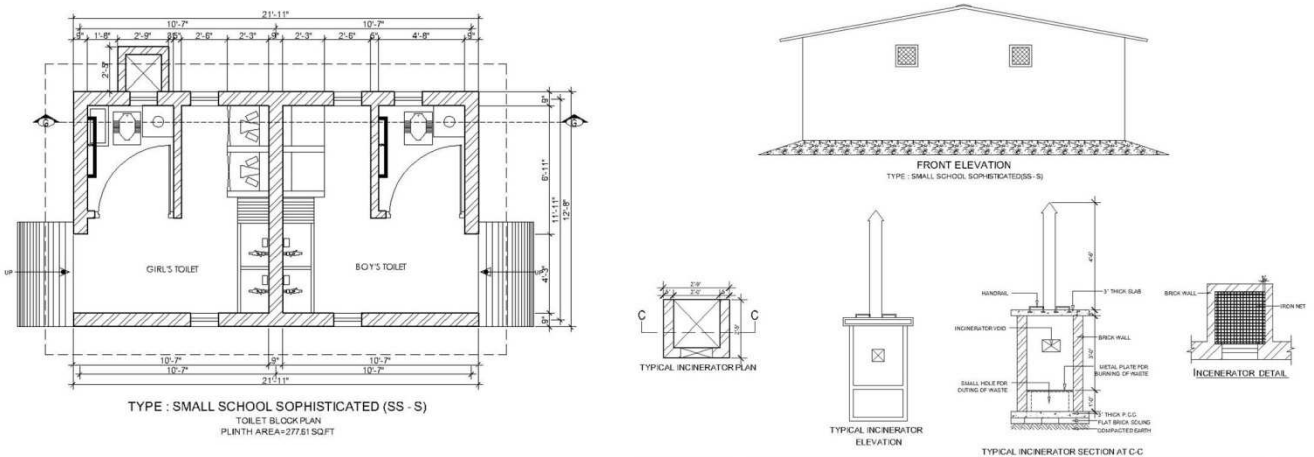
Fig. 1.8. Proposed school toilet design option [SS-M]

Small School (Sophisticated)

It has the following features.

- (a) 50- 200 students**
- (b)Urinals for both girls and boys with private doors and separation in girls urinals**
- (c) Toilet block is suitable for person with a disability as handrail and space is provided but not suitable for wheelchair access**
- (d)Washing platform and incinerator provided in girl’s toilet for managing menstruation**
- (e) Hand washing facility provided for teachers and small children (water from hand washing can be recycled to clean urinals) inside the toilet block for extra privacy**

- (f) It is possible to include hand washing station as in design or attach soap-box to hand-pump on school ground depending on the local context and budget available**
- (g) Please note that building materials should be locally sourced**
- (h) Water tank is placed on RCC but CGI or other locally available light roofing, e.g. Slate, can be used for the rest of the roofing to decrease cost and for safety**
- (i) Please note that all taps, door locks should be at a suitable height for both teachers and small students and that locks are on the inside only**
- (j) Cleaning cupboard is also provided for cleaning materials**



(a) Small school: Basic [SS-S]

(b) Elevation and detailing

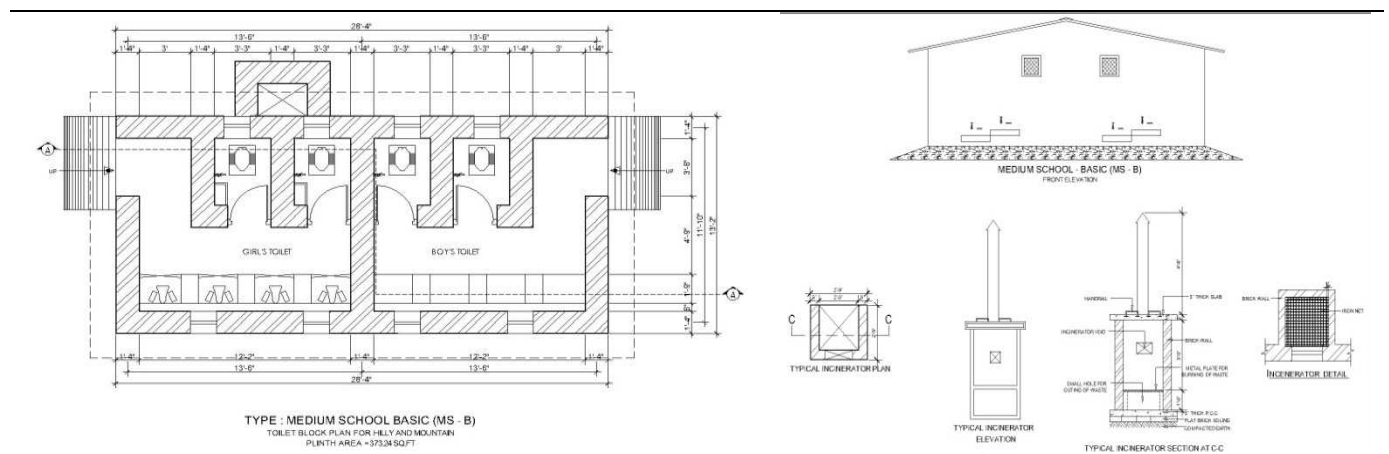
Fig. 1.9. Proposed school toilet design option [SS-S]

Medium School (Basic)

It has the following features.

- (a) 200-400 students**
- (b) Increase number of urinals for both girls and boys with private doors and separation in girls urinals**

- (c) Toilet block is suitable for person with a disability as handrail and space is provided but not suitable for wheelchair access
- (d) Two toilet pans are provided in each girls and boys as the school number has increased
- (e) Washing platform and incinerator provided in girl's toilet for managing menstruation
- (f) Hand washing facility provided for teachers and small children (water from hand washing can be recycled to clean urinals)
- (g) It is possible to include hand washing station as in design or attach soap-box to hand-pump on school ground depending on the local context and budget available
- (h) Please note that building materials should be locally sourced
- (i) Water tank is placed on RCC but CGI or other locally available light roofing, e. g. Slate, can be used for the rest of the roofing to decrease cost and for safety
- (j) Please note that all taps, door locks should be at a suitable height for both teachers and small students and that locks are on the inside only



(a) Medium school: Basic [MS-B]

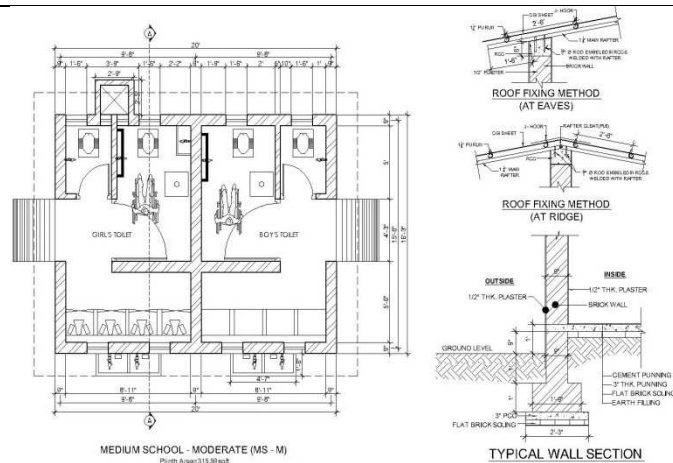
(b) Elevation and detailing

Fig. 1.10. Proposed school toilet design option [MS-B]

Medium School (Moderate)

It has the following features.

- (a) 200-400 students**
- (b) Increase number of urinals for both girls and boys with private doors and separation in girls urinals**
- (c) Toilet block is suitable for person with a disability as handrail and space is provided and suitable for wheelchair access**
- (d) Two toilet pans are provided in each girls and boys as the school number has increased**
- (e) Washing platform and incinerator provided in girl's toilet for managing menstruation**
- (f) Hand washing facility provided for teachers and small children (water from hand washing can be recycled to clean urinals) inside the toilet block for extra privacy**
- (g) It is possible to include hand washing station as in design or attach soap-box to hand-pump on school ground depending on the local context and budget available**
- (h) Please note that building materials should be locally sourced**
- (i) Water tank is placed on RCC but CGI or other locally available light roofing, e.g. Slate, can be used for the rest of the roofing to decrease cost and for safety**
- (j) Please note that all taps, door locks should be at a suitable height for both teachers and small students and that locks are on the inside only**



(a) Medium school: Moderate [MS-M]

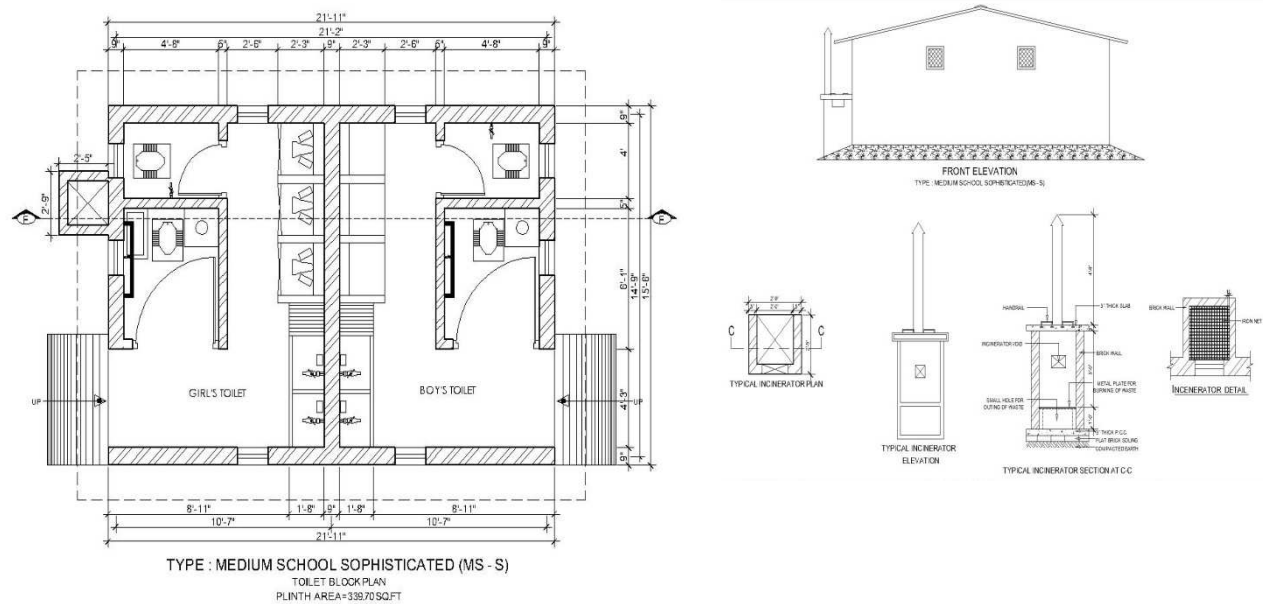
Fig. 1.11. Proposed school toilet design option [SS-S]

Medium School (Sophisticated)

It has the following features.

- (a) 200-400 students**
- (b) Increase number of urinals for both girls and boys with private doors and separation in girls urinals**
- (c) Toilet block is suitable for person with a disability as handrail and space is provided and suitable for wheelchair access**
- (d) Two toilet pans are provided in each girls and boys as the school number has increased**
- (e) Washing platform and incinerator provided in girl's toilet for managing menstruation**
- (f) Hand washing facility provided for teachers and small children (water from hand washing can be recycled to clean urinals)**
- (g) It is possible to include hand washing station as in design or attach soap-box to hand-pump on school ground depending on the local context and budget available**

- (h) Please note that building materials should be locally sourced**
- (i) Water tank is placed on RCC but CGI or other locally available light roofing, e.g. Slate, can be used for the rest of the roofing to decrease cost and for safety**
- (j) Please note that all taps, door locks should be at a suitable height for both teachers and small students and that locks are on the inside only**
- (k) Cleaning cupboard is also provided for cleaning materials**



(a) Moderate school: Sophisticated [MS-S] (b) Elevation and detailing

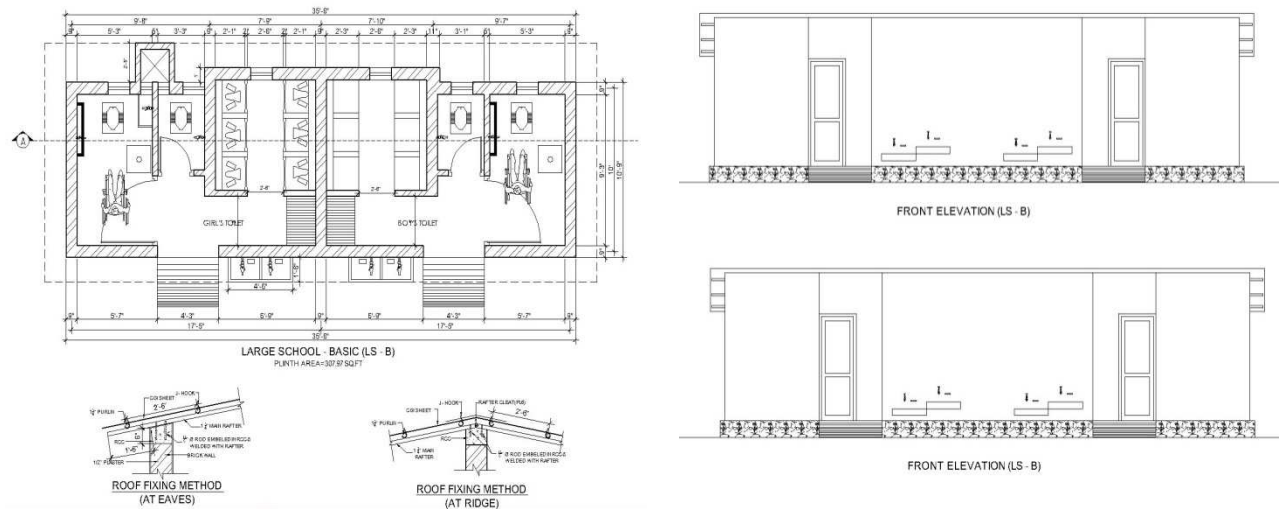
Fig. 1.12. Proposed school toilet design option [MS-S]

Large School (Basic)

It has the following features.

- (a) 400- 800 students**
- (b) Increase number of urinals for both girls and boys with private doors and separation in girls urinals**

- (c) Toilet block is suitable for person with a disability as handrail and space is provided and suitable for wheelchair access**
- (d) Two toilet pans are provided in each girls and boys as the school number has increased**
- (e) Washing platform and incinerator provided in girl's toilet for managing menstruation**
- (f) Hand washing facility provided for teachers and small children (water from hand washing can be recycled to clean urinals)**
- (g) It is possible to include hand washing station as in design or attach soap-box to hand-pump on school ground depending on the local context and budget available**
- (h) Please note that building materials should be locally sourced**
- (i) Water tank is placed on RCC but CGI or other locally available light roofing, e.g. Slate, can be used for the rest of the roofing to decrease cost and for safety**
- (j) Please note that all taps, door locks should be at a suitable height for both teachers and small students and that locks are on the inside only**
- (k) Cleaning cupboard is also provided for cleaning materials**



(a) Large school: Basic [LS-B]

(b) Elevation and detailing

Fig. 1.13. Proposed school toilet design option [LS-B]

Large School (Medium)

It has the following features.

- (a) 400-800 students**
- (b) Increase number of urinals for both girls and boys with private doors and separation in girls urinals**
- (c) Toilet block is suitable for person with a disability as handrail and space is provided and suitable for wheelchair access**
- (d) Two toilet pans are provided in each girls and boys as the school number has increased**
- (e) Washing platform and incinerator provided in girl's toilet for managing menstruation**
- (f) Hand washing facility provided for teachers and small children (water from hand washing can be recycled to clean urinals)**

- (g) It is possible to include hand washing station as in design or attach soap-box to hand-pump on school ground depending on the local context and budget available
- (h) Please note that building materials should be locally sourced
- (i) Water tank is placed on RCC but CGI or other locally available light roofing, e.g. Slate, can be used for the rest of the roofing to decrease cost and for safety
- (j) Please note that all taps, door locks should be at a suitable height for both teachers and small students and that locks are on the inside only

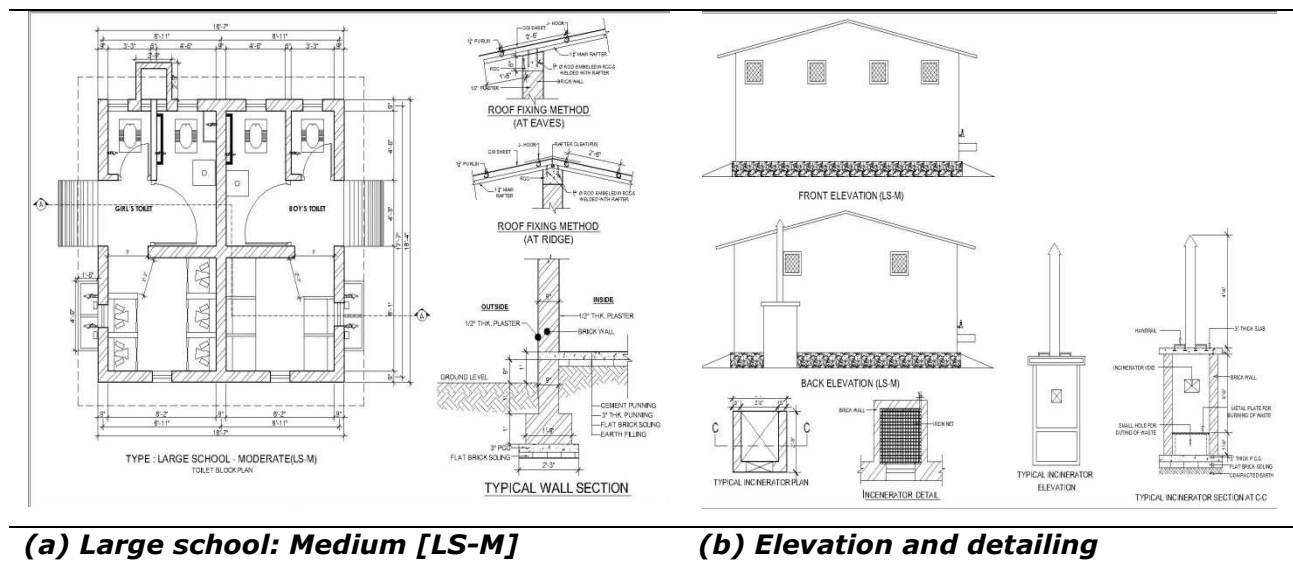


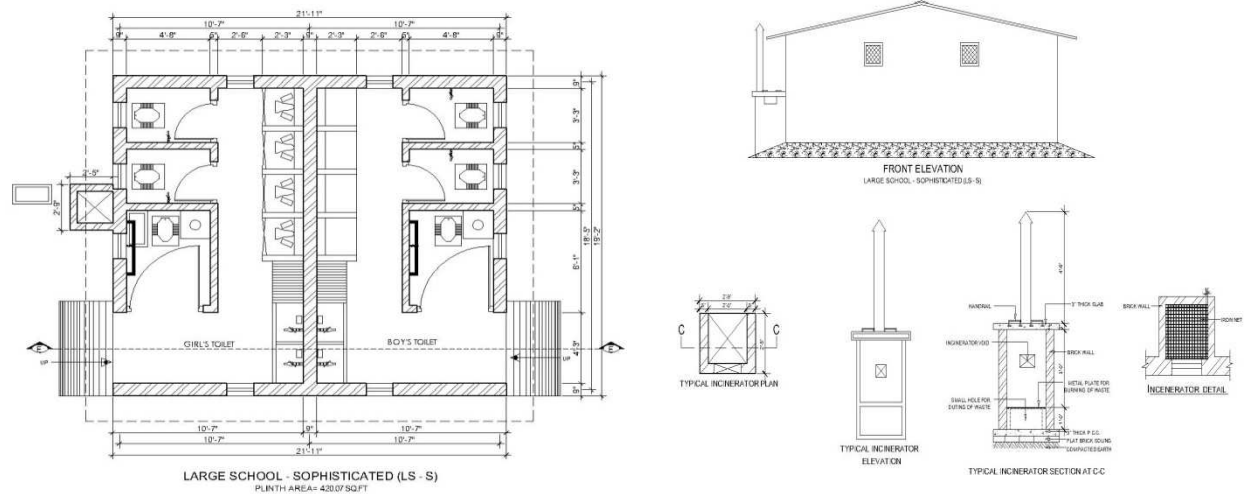
Fig. 1.14. Proposed school toilet design option [LS-M]

Large School (Sophisticated)

It has the following features.

- (a) 400-900 students
- (b) Increase number of urinals for both girls and boys with private doors and separation in girls urinals

- (c) Toilet block is suitable for person with a disability as handrail and space is provided and suitable for wheelchair access**
- (d) Three toilet pans are provided in each girls and boys as the school number has increased**
- (e) Washing platform and incinerator provided in girl's toilet for managing menstruation**
- (f) Hand washing facility provided for teachers and small children (water from hand washing can be recycled to clean urinals) inside the facility for extra privacy**
- (g) It is possible to include hand washing station as in design or attach soap-box to hand-pump on school ground depending on the local context and budget available**
- (h) Please note that building materials should be locally sourced**
- (i) Water tank is placed on RCC but CGI or other locally available light roofing, e.g. Slate, can be used for the rest of the roofing to decrease cost and for safety**
- (j) Please note that all taps, door locks should be at a suitable height for both teachers and small students and that locks are on the inside only**
- (k) Cleaning cupboard is also provided for cleaning materials**



(a) Large school: sophisticated [LS-S] (b) Elevation and detailing

Fig. 1.15. Proposed school toilet design option [LS-S]

Selection of Design Option

The above mentioned various toilet design options shall be selected based on the major three aspects namely size of school, need of facility and cost (Table 1.4). Moreover, the site context and the interrelationship of the proposed toilet with the other existing school facilities shall also be considered. Finally, some design modification may require in order to promote local material and indigenous technology.

Table 1.4. Design selection criteria

Major Criteria	
SIZE	School/Nos. of students/Future expansion
NEED	Basic/Moderate/Sophisticated/Differently able Facility/Incremental basis expansion
COST	Budget available/donation
Site Selection in the Schools	
Site context	- Topography - Orientation: Sun position/wind direction

Relationship with other activities	- Academic block/playground - Future expansion of site/building complex
Design Modification	
Material/Construction technology	- Use of local material/technology - Play with material to reduce cost
Comfort/ privacy/ convenient	- Accessibility/visibility/usability - Usable in all sessions
Safety/security	- Natural disaster/

While selecting the option of toilet design in prototype, following issues shall be considered:

Size of school and number of students

The proposed options of toilet design vary from 50 students to as high as 800 students. For instance, SS-B caters students between 50 - 200 whereas SS-S can accommodate as high as 800 students.

Region and location

Small size toilet shall be constructed in any region. However, large size toilet needs big flat land which may not be possible in the hilly and mountain regions. In such case, toilet block for Boys and Girls shall be separated

Local site context

The proposed toilet design shall be fitted in the local site context. In this sense, two issues are important. First, the entry to the toilet block shall be either from the front or from the side but never from the backside to achieve 'natural surveillance.' Second, the toilet block shall be oriented based on Sun position and Wind direction so

that each unit gets maximum natural Sunlight and bad smell moving away from school area.

Comfort, convenient and privacy

Toilet block shall be placed at optimum distance from the classroom. There should be adequate privacy to the users checking the entry point, ventilation position and so on

Safety and security

Toilet block shall not be located in low lying and sloped areas with difficulties in access. It should be at least 10m away from the source of drinking water.

Flexibility in design and material as per local context

Minor modification in design without hampering the spirit (and concept) of design is possible based on the local site context and needs. Similarly, change in building material is also possible, if locally available materials can be used against the proposed building materials. Moreover, there is flexibility in using either hand washing facilities within the toilet block itself or separated from it (when using hand pump in Terai region). Similarly, there is option for whether facility for differently able person with wheelchair is needed in each block (Boys and Girls) or shall be constructed in future, adjoining to the toilet block. There is also flexibility in finalizing the plinth height: in Terai flood prone region, it shall be more whereas in Mountain and Hilly regions, it shall be low. Finally, all proposed options are possible in all three regions (Mountain, Hilly and Terai); however, there needs some modification in design particularly in use of materials (and minor modification in width of the walls) and height of the toilet (Terai region needs more floor height for better

ventilation). Also, based on the availability of water, the design option shall be selected whether hand washing facility shall be kept inside the toilet block or outside (adjacent or separated).

A comparative chart with data on plinth area, number of users, area occupied per person including total construction cost (and cost per square feet area) has been prepared to facilitate the school management (Table 1.5). Moreover, the cost may vary from place to place due to variation in labour cost, material transport and so on. Due to difference in layout plan and facilities incorporated inside the toile unit, the area occupied per person varies in each case.

Table 1.5. Area occupied by each person in each design option

<i>S. N.</i>	<i>Toilet design</i>	<i>Plinth area (sqf)</i>	<i>User no.</i>	<i>Area/person (sqf)</i>	<i>Total cost</i>	<i>Cost per sqf</i>	<i>No. of students</i>
1	SS-B	251.24	10	25.12	334,836	1332.73	200
2	SS-B2	252.24	8	31.53	323,277	1281.62	200
3	SS-M	224.22	5	44.84	343,683	1532.79	200
4	SS-S	277.61	10	27.76	341,992	1231.91	200
5	MS-B1	333.55	12	27.79	381,258	1143.03	200-400
6	MS-B2	373.24	12	31.10	417,383	1118.26	200-400
7	MS-M	315.59	12	26.30	415,978	1318.09	200-400
8	MS-S	339.70	14	24.26	442,538	1302.73	200-400
9	LS-B1	307.97	16	19.24	432,081	1402.99	400-800
10	LS-B2	493.24	16	30.82	486,047	985.41	400-800
11	LS-M	400.17	14	28.58	426,878	1065.33	400-800
12	LS-S	420.07	18	23.33	447,318	1064.86	400-800

Conclusion and Recommendations

The proposed design options of child, gender and differently able toilet for schools in different regions of Nepal is the product of theory and practice. A strong theoretical framework was possible due to in depth study of various literatures, critical review of various case studies of the existing toilet design as well as international cases, which was further strengthened after serious of meeting and information discussion. On the practical side, the workshop held at Department of Education and recently completed three regional workshops provided a lot of practical and meaningful feedbacks, which ultimately helps to improve the design options.

Considering wide geographical regional, diverse school size and local context including available budget, the proposed 9 typology may not be sufficient. Nonetheless, many other options shall be easily prepared with minor modification in these design options. Moreover, after going through these design Manuel, one will be able understand not only the concept of CDG toilet design but also many other things including cost estimate and other engineering aspects. It is expected that after having such knowledge, one will not commit the blunder mistakes in toilet design and construction. Incorporation of female menstruation hygiene issues as well as provision for differently able students, it is believed that these proposed toilet designs are inclusive, gender friendly. Finally, the concept of CGD toilet design is new for Nepalese context, the following recommendations are suggested for effective implementation of these design options.

Recommendations

Being a new concept, it is essential to combine both 'hardware' and 'software' part together. As the need and requirement of school children is always dynamic and changing, it is always necessary to get the feedback from the users to improve these design option after sometime. More specifically, the following recommendations are proposed.

- (a) Orient the children, school management committee (SMC)/parent teacher association (PTA) and other associated stakeholders regarding concept of CGD toilet, their planning technique, monitoring of construction including smooth operation and maintenance;*
- (b) Get the feedback from users and incorporate them while reviewing these design options. The most appropriate time is after 2 years;*
- (c) Make the design options and supporting documents (or information) clear, short and readable by all;*
- (d) Arrange regional workshops for engineers and sub-engineers not only to orient them but also to get feedback from the actual construction sites; and*
- (e) Build network among various concerned stakeholders so that budget and programs shall be collaborated for effective use of budget and implementation of the programs.*



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Dr. Shrestha is the recipient of numerous gold medals for his excellent academic performance and decorated by 'Calcutta Convention National Award 2006' by Indian Society for Technical Education for his best paper at the 35th ISTE Annual convention and National Seminar on Disaster – Prediction, Prevention and Management. He is also member of numerous professional bodies and life member of various alumni associations. He has already contributed more than three dozen of papers, published in various

forms: book chapter, international journals, conference proceedings, local magazines and journals including in local newspapers. Moreover, he has been invited in numerous international conferences for presentation of his research findings. Finally, his field of expertise includes sustainable urban development, disaster management, housing, local government capacity building and development control.

Hospital and Rehabilitation Centre for Disable Children: A Universal Design Approach

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Contextual Background

Disability is present throughout the world. Every society have some disable children due to many reasons. As compared with an able-bodied person, a handicapped person is hampered in the mobility due to all forms of barriers. Disadvantaged should have equal opportunities in enjoying facilities provided by the government, which is not possible without a barrier-free environment. The term 'disability' refers to the consequence of an impairment that may be physical, cognitive, mental, sensory, emotional, developmental, or some combination of these. A disability may be present from birth, or occur during a person's lifetime. The degree of disability may range from mild to moderate, severe, or profound and can happen to new born baby to an adult. A person may also have multiple disabilities.

In the past, various 'guthis' and trusts were established to provide voluntary services to disabled children. However, they were not enough to care all disabled children in Nepal. During the reign of late

Kind Tribhuwan Bir Bikram Shah Dev, Tulsi Mehar established 'Nepal Gandhi Ashram Nidhi' in 1926. Similarly, a group of five people led by Daya Bir Singh Kansakar established 'Paropakar Aushddhalaya' in 1947 by collecting fund and donations to rehabilitate the disabled. At present, several types of government and non-government organizations are working for disabled children. They include CWIN, Child development organization, National Disabled and helpless upliftment Association, Disabled Human Rights Center, Nepal Apanga Sanga, Khagendra Nava Jeevan Kendra, CDCA, HRDC, ERC, and so on.

About 5% children are victimized by any kind of disabilities every year in Nepal. About 54% children fall prey to disability due to the lack of knowledge in their parents on nature and treatment of different common curable communicable diseases. Similarly, about 17% children are disabled due to different accidents whereas 29% children are disabled by birth. Many children have lost their lives and have become disabled in the armed conflict.

In addition to these, those disable children are the victims of violence of different forms. There are many cases of parents beating children who exhibit signs of mental illness, interpreting the behavior as disobedience and willfulness. Disabled children are being rejected emotionally in families and abused because of their low status. In other cases, such children being hidden away in the family home, treated like animals, sometimes even locked in cages, particularly in rural areas.

Nepal is a country where children are needed as economic assets within the family, and where it is assumed that a disabled child is incapable of making such a contribution, that child will inevitably suffer from low status, rejection and marginalization. The mortality rate of such physically impaired children is extremely high because only 17% children get proper health facilities, medicines, nutrition belonging from strong socio-economical background whereas 70% to 80% are deprived of their fundamental rights.

The existing rehabilitation and medical centre facilities available in Nepal is insufficient to meet the current and future needs of ever increasing population with the increasing number of impaired children. Impaired children must be cured and cared. Acknowledging all these facts, this study highlights the needs of a barrier free design for hospital and rehabilitation centre in Kathmandu with critical review of domestic and international case study analysis before proposing some architectural design criteria for future design.

Literature Review

Physical environment should not be a hindrance to the physically impaired children. They should have the right, not special privileges, to enjoy the freedom of movement, space and services within the society. Therefore, a barrier-free movement should be the prime concern in planning, organizing and designing of architectural space and form, instead of treating it afterwards. Removal of physical barrier would promote opportunities for the disabled to participate more activities, this would strengthen their confidence and

personalities, as well as helping to lift their psychological barriers, and encourage positive participation of activities.

Architectural and environmental barriers have gained increasing attention in recent years in the wake of efforts made to improve the accessibility of the environment for people living with disabilities of all ages. There are seven universal design principles:

(a) *Equitable use* – the design is useful and marketable to people with diverse abilities;

(b) *Flexibility in use* – the design accommodates a wide range of individual preferences and abilities;

(c) *Simple and intuitive to use*– use of the design is easy to understand, regardless of the user’s experience, knowledge, language skill or current concentration level;

(d) *Perceptible information* – the design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities;

(e) *Tolerance for error* – the design minimizes hazards and the adverse consequences of accidental or unintended actions;

(f) *Low physical effort* – the design can be used efficiently and effectively with a minimum of fatigue; and

(g) *Size and space for approach and use* - appropriate size and space is provided for approach, reach, manipulation, and use regardless of user’s body size, posture or mobility.

The disable’s experience in term of temperature, humidity, noise, colors, lighting, furniture, and carpeting can strongly affect their

personal feeling and adjustment. Other than anthropometrical fit, the ergonomics dimension can be important for a comfort area. The use of color can stimulate to the disabled. Usually, red and orange issued to cheer up the pathetic or depressed while the blue to quieten the excited or agitated. Color may also be used for form recognition and identification of elements of different function area. Some function should acoustically be separated and reverberate time should be control by the mounting sound absorbing materials. As the speech and hearing, music therapy prove its influence to the people, it is possible to utilize sound system as an integral part of the center for announcement and music appreciation. A brighter environment will be more pleasant and stimulating to the disabled. Therefore, activities area should have sufficient luminance. However, shadow provided is also important in three dimensional perceptions. It gives the space varieties. Even the visually impaired can feel such change through temperature variation induces by lighting effect.

Obstructions like street furniture, traffic signs, direction signs, street plans, etc. must be avoided as it causes problems for people with visual impairment & wheelchair users. All active routes required to accommodate persons using mobility aids, walkers, or persons accompanied by guide dogs, should be a min. of 1500mm wide; 1675mm. The maximum allowable protrusion of objects into any pedestrian route is recommended height of 2030mm is 100mm. All the permanent & temporary barriers that controls are firmly mounted to the floor, and are stable for seniors or other persons who might need them for support

Orientation difficulties are resulting from illegible directional signs, street names and numbering and/or the lack of them. Signs need to be simple, short, consequent & easily understood. Similarly, Symbols should be used to supplement written signs. Tactile signs (embossed letters, raised pictograms & directions arrows) should only be used where they can be easily reached, for e.g. lift controls, door numbers, lockers & W.C.'s doors. Likewise, Informational signs-close range, should be located at suitable height i.e. for the wheel chair user-1000-1100mm and the one's somebody standing 1400-1700mm. Maps and information panels at building entrances, along roads, and on public buildings should be placed at a height between 900mm and 1800mm. Signs with street names should be placed at a maximum height of 2500mm.

Routes should be clearly signed & include landmarks for orientation. Path edges should be defined. A width of 1800mm can accommodate any amount of non-vehicular traffic; 1500mm is acceptable on less busy routes; 1200mm is acceptable in exceptional sites. Slip-resistant blister surface should be used to identify crossings vehicular routes. Used wherever there is a difference in level on pedestrian paths or cross paths and it should be min. 1500mm wide. All main public entrances should be accessible to an ambulant disabled person and clearly identified using the international symbol of accessibility. Door mats should be avoided when use, upper surface of the mat should be level with the floor finish. Accessible parking space- minimum 3600mm wide, 5385mm long with pedestrian aisle of 1200mm (can preferably increase to 1500mm). Outdoor parking, accessible parking spaces should be located not more than 50 m from accessible building entrances.

Indoor parking, accessible parking spaces should be located right next to accessible elevators, or as close as possible to exits.

A ramp located in a barrier free path of travel should have a width not less than 870mm between handrails level area not less than 1500X1500mm at the top, bottom & where ramp makes 180° turn, 1200X1200mm where ramp makes 90° turn. Circular or curved ramps are not recommended. The ramp surface should be hard and non-slip. The maximum recommended slope of ramps is 1:20. Steeper slopes may be allowed in special cases depending on the length to be covered. Ramp can be a very distinct feature or even a symbolic element to disabled.

National and International Case Studies

Self-Help Cerebral Palsy

The Self Help Cerebral Palsy (SHCP) located at Dhapakhel, Lalitpur is surrounded by peaceful environment away for the center of the city especially for the physical impaired children. The building plans, room layout, furniture's design inside rooms, beds etc. are designed according children scale. There is no level change in academic block avoiding the physical barriers.



Fig. 2.1. Exterior and interior of SHGCP

Homely environment has been created through various decoration and coloring for children going under training. The courtyard has been used as a playground for safety. Excessive use of natural light and ventilation is another feature of this centre.



Fig. 2.2 Homely environment at SHGCP

Primary color are used in buildings, classrooms etc. taking consideration of child psychology. Decorative corridor and classrooms are designed. However, the elevation of building is monochromatic.



Fig. 2.3.Hard Playground at SHGCP and circular columns avoiding sharp edges columns

Though there are vocational trainings given to the children, lack of equipment and adequate spaces have constrained its effectiveness.



Fig. 2.4. Vocational training at SHGCP

Therapy like consoling, speech and physiotherapy are provided. The center seems to lack in healing or rehabilitation garden. There is absence of tactile warnings, safety handrails.



Fig. 2.5. Therapy at SHGCP

Hospital and Rehabilitation Centre for Disabled Children (HRDC), Banepa

Hospital and Rehabilitation Centre for Disabled Children (HRDC) located in Banepa was established in 1993. It covers about 4650 sq. m. (9Rop.) with all building height of 2 storied.

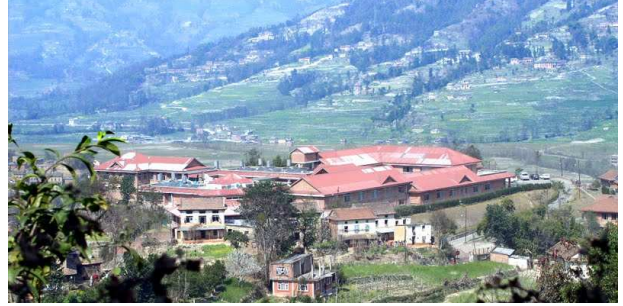


Fig. 2.6. HRDC. Banepa

The Main entrance of HRDC is from east and complex is divided into two zone i.e. main hospital zone and rehabilitation and service center zone Courtyard planning allow spaces for children to play. Architectural expression indicates harmony with the surrounding with adaptation of traditional 'Newari' style with modern use of hospital (3 courtyards: natural landscaping).

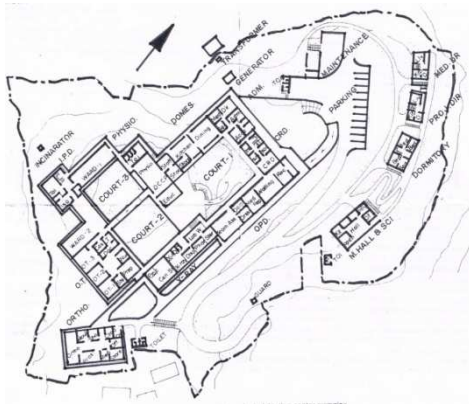


Fig. 2.7. Plan of HRDC

The building plans, room layout, furniture design inside room, beds etc. are designed according children scale. Well-designed ramp system allows easy circulation spaces for wheelchairs and other disable users.



Fig. 2.8. Playground according to child scale

This centre provides homely environment to children going under treatment. Courtyard used as a playground where children can play safely in proper guidance's (41% of open space). Excessive use of Natural Light and Ventilation can be found.



Fig. 2.9. Homely environment of HRDC

The color of building not seems to match the psychology of the children as rooms are painted white and outer wall are made of exposed brick. Likewise, the building elevation is monochromatic. Various training are provided to children however training given to child is not enough also, lack of equipment and space to provide vocational training. Therapy like consoling, speech and physiotherapy are provided. There is absence of tactile warnings, safety handrails.

International Case Studies

Cave Spring Rehabilitation Centre, Georgia, USA

Designed by architects of Winter and Co. Special Needs Studio, Cave Spring Rehabilitation Center with an area 161874.25sq m located at Georgia, Atlanta was completed in 2011. It is a voluntary organization rendering rehabilitative disable through a holistic approach of inclusive focused on academics, student life, and residential life. The center was designed to meet the needs of transition students. Addition to this training Center provides special amenities and school-wide community space nearer senior academic staff, the classrooms and the dining area.



Fig. 2.10Cave Spring Rehabilitation Center

The Master plan of Cave Spring Rehabilitation Center, consist of two zone i.e. campus and rehabilitation center. Planning shows the inverted Courtyard planning separated by an axis. Training Center concept calls for an outside landscaped terrace with seating adjacent to the student dining area, encouraging students and faculty to gather outdoors as well as indoors.



Fig. 2.11 Plan of Cave Spring Rehabilitation Center

The building is design for all age teenage children. Hand-held showerheads and ramps are provided. Provisions of large elevators for wheelchairs are there. Transportation vehicles with wheelchair lift and straps are located inside the building for vertical transportation.

Soft furnishings, interesting textures, thoughtfully placed works of art, and plants and objects from the natural world have turned a conventional classroom into a cozy, home-like environment. Enough natural light and ventilation is available in the building. Emotional safety in building is achieved by increasing transparency in windows and doorways that make a child feel safe.

Lowered peep holes are placed on the dormitory apartment doors. Use of sensory elements that are soft, such as beanbag chairs,

stuffed couches, carpeting, swings, clay, and water are other features of the centre.



Fig. 2.12 Homely environment of Cave Spring Rehabilitation Center

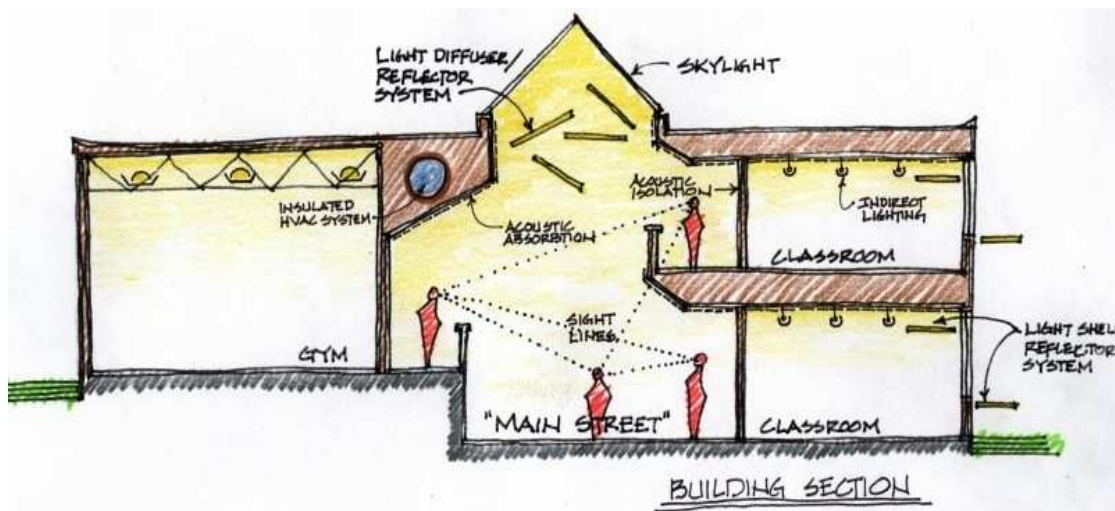


Fig. 2.13 Building section of Cave Spring Rehabilitation Center

Warm colors & acoustic material are used in buildings with decorative corridor. Elevated windows lowers glare in the classroom and can communicate to outdoor space.

White Top Centre, UK

The White Top Center is located at University of Dundee, U.K. with built up Area- 17.5m X 27.35m. It was designed by Architect Nicoll

Russell Studios, Dundee. It is one of the best an International example of rehabilitation center with concept of 'Care in the Community'. The center provides solutions to meet the inherent challenges posed. The White top Centre is conceived as a daycare centre for young adults with profound and multiple disabilities.



Fig. 2.14 White Top Center, UK

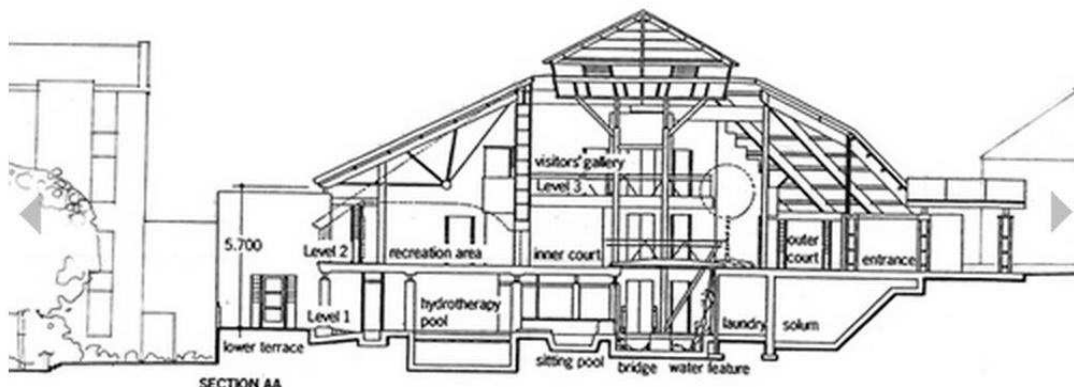


Fig. 2.15 Section of White Top Center. UK

The building has been designed for all age group of people and easily accessible. The White Top Center, enables users to experience a range of environment. Center garden Courtyard used as a place of interaction and every part of building is provided with excessive use of natural light & ventilation.



Fig. 2.16 Internal courtyard making homely environment

Warm colors are used in buildings with decorative corridor. Breakdown of elevation of building is done to give it interesting shape, size and volume.

Internal environment of the White Top Center is design in such a way that mostly open plan activity spaces lead off the internal garden over a waterfall providing refreshment. There is provision of hydrotherapy, rehab garden etc.



Fig. 2.17 Garden therapy and Hydrotherapy Pool



Fig. 2.18 Gallery on top floor

Rehabilitation Garden and Training Track for Disabled, Hong Kong

The Rehabilitation garden is located in Kowloon of Hong Kong. It covers an area of 3000 sq. m. It was designed by architects of Ltd and landscapes were designed by URO Consultants. The garden was built to treat the mind, sprit and body of the patient.

Pathways are made of anti-slippery/fall-safe material with specially designed gradients and slopes for training patients with mobility problems (e.g. persons with artificially lower limb, stroke patients).



Fig. 2.19 Loop of path

Area with the main loop with training and rest pockets allowing different types of rehabilitative activities.



Fig. 2.20 Participatory garden

Horticulture is for therapeutic gardening guided by occupational therapists.



Fig. 2.21 Horticulture

Specific functional spaces are for communal functions, nursing programs for space patients, psychosocial support group meetings. One of the open spaces will be furnished with children-safe cover materials to allow children group activities.



Fig. 2.22 Specific functional

Main amphitheater constitutes one of the large circular open spaces for group activities and group therapeutic activities.



Fig. 2.23 Amphitheatre

Lessons Learned

Numerous lessons can be learned from various literature review and case study analysis.

Understanding the problems of physically impaired (the ambulant & the wheelchair bound)

For the physically impaired, they usually are categorized as ambulant or as wheelchair bound. Their difficulties lie in mobility,

instead of sensory perception of space as the blind people. The ambulant are those who are able, with or without assistance, to walk on level and have problems when facing graded steps. Their mobility is not greatly affected and is compatible to normal people if suitable measures are taken when designing spaces. For examples, handrails to be provided along steps and non-slippery flooring is essential. Unlike their counterpart, the wheelchair bound disabled have greater motion difficulty. They rely heavily on the wheelchairs for mobility at all times. For this reason, they are able to go only to places where physical barriers are in absence. Frequently, because of the size of the wheelchair, access to buildings or other places can be restricted because not enough spaces are provided to meet the mobility requirement. Thus, according to size and space required by a wheelchair user as mentioned in chapter three, it should be provided.



Fig. 2.24 High Krebs is common barriers

Child scale

The physical dimension of a child is smaller compared to the adult. Every space we design must not be of greater height such that the child could not access the surrounding environment. In the cases of

physically impaired child the access to every environment must be lowered as compared to normal one as mentioned above.

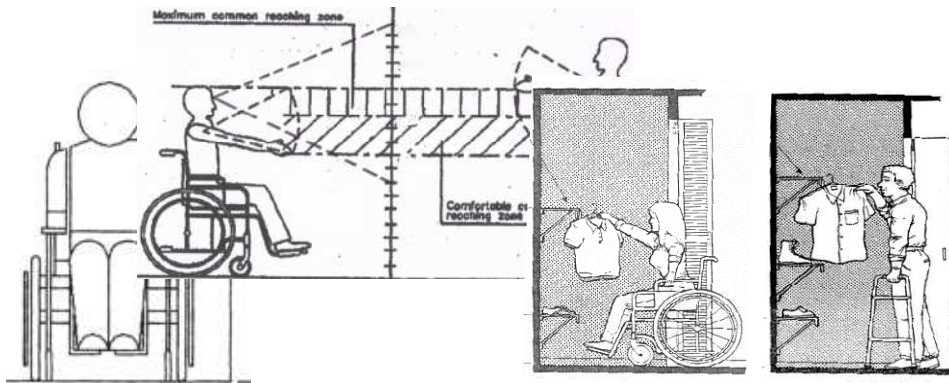


Fig. 2.25 Scale of physically impaired Child



Fig. 2.26 Scale of Child compared to adult



Fig. 2.27 Balance vs. Unbalance surrounding environment

Homely /family Environment

According to child psychology every environment we design must be homely, enhancing familiar environment where the child can feel

emotional, social and visual safety. Thus, such type of environment is maintained by use of familiar material. Similarly, other important factor that is to be maintained is indoor air quality with natural ventilation and lighting of spaces. The noise and visual control also must be done.

Maintaining the Indoor air quality

Good indoor air quality helps to maintain good health and fresh mind.

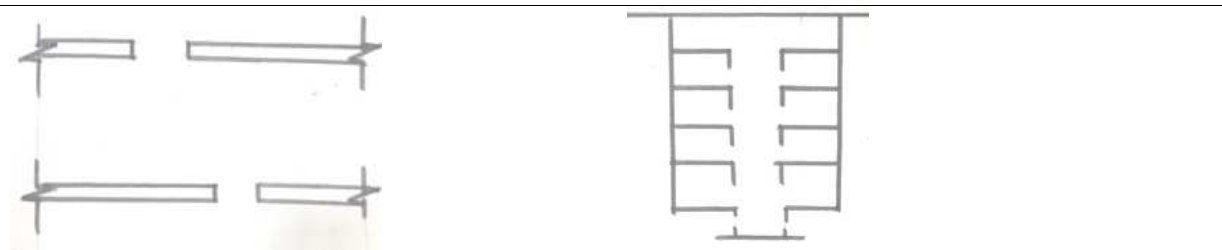


Fig. 2.28 Maintaining the Indoor air quality

Provision of natural lighting

Natural lighting can be provided through various techniques. Size, orientation, position, etc. of opening should be designed well.

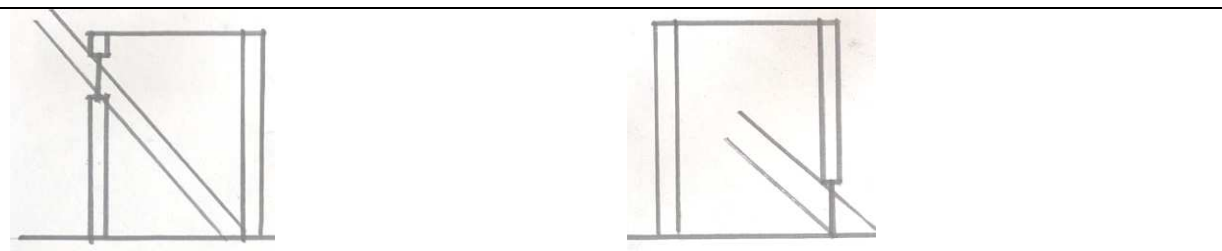


Fig. 2.29 Light to make the roof float vs. Light to make the Object appear near



Fig. 2.30 Various arrangement of pergola to create rhythms in shadow

Noise and Visual control

By the use of various barrier materials both the noise and visual can be control in outdoor as well as indoor environment as noise and visual pollution might distract the concentration of child.

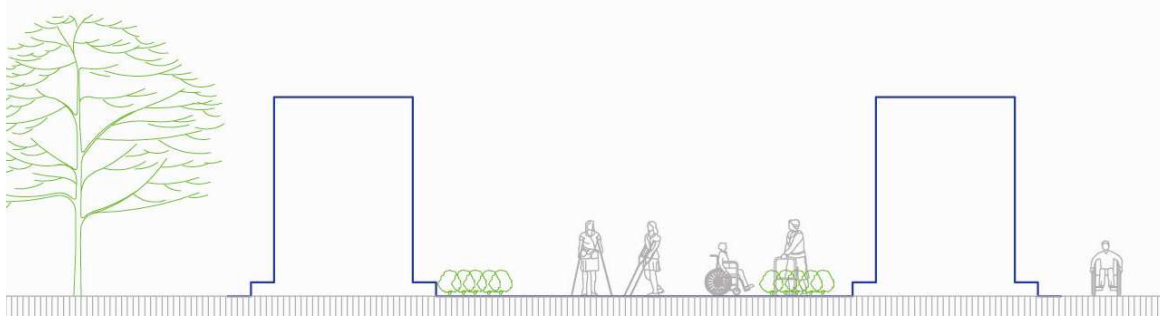


Fig. 2.31 Noise and Visual control

Understanding the Child Psychology

A basic dilemma of the physically impaired child is that of which group s/he belongs to, whether s/he should identity himself with the disabled with the disabled or to what extent s/he should consider himself part of normal society. S/He finds that he is a member of society but different front most other members.

The most possible it is for a mildly physically impaired child is to hide her/his disability, the more likely s/he is to have anxiety in a social situations. People with severe impairment often face

overwhelming problems giving up or becoming deeply depressed becomes easy. They must learn new ways to deal with simple everyday tasks and often have to make major adjustments in life-style.

Thus, treating the whole person – body, mind and spirit - is essential, which is why the physical environment in which these patients receive care is so important. It must promote healing and by its uplifting design expression, motivate patients to persevere. Views of nature such as a landscaped courtyard, backyard garden and rooftop garden will be most helpful in reducing the effects of depressions

As per to understand the child psychology following treatments can be adopted.

- i. Children love to be in tiny, thus provision of caves like spaces (Cozy spaces)*
- ii. For Visual enrichment use of bright colors and different shapes*
- iii. To increase the memories use of pictures*
- iv. For easy way finding use of landmarks or square*
- v. For social interaction spaces, efficient spaces for visitor meeting*
- vi. Good lighting and clear acoustics*

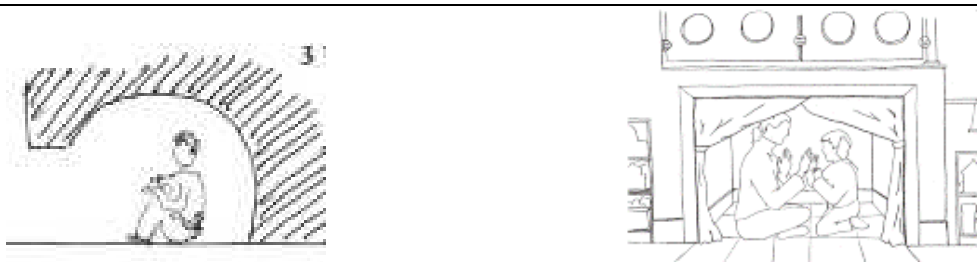


Fig. 2.32 Children love tiny spaces

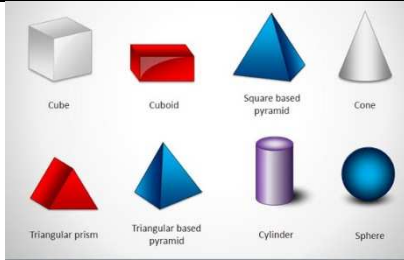


Fig. 2.33 Various shapes

Designing for children

Planning and Circulation

Children differ from adults in perceiving environments. The difference comes from the limited experience they have, the scale of their bodies and memories. Children intend to experience their surroundings to learn, through their senses. Since they are significantly smaller than adults, they take more time to reach to certain points. This also makes them more aware to environment, and more open to influences.

Plasticity vs. Memory

When our brains continue remodeling by our environments, the amount of impact is determined by the plasticity of our brains. Children had a greater plasticity compared to adults, which makes them more open to stimuli. While plasticity gives the children a high ability to adapt themselves to new environment and use their capacities, there are also some functions that children are lacking due to their age; such as memory and experience.

"Take the plasticity of adults and multiply it with four or more. Smallest changes in the environment can have a greater effect in children, and we can use it in a positive way in the design." By Michael Nilsson, Professor of Neurology

While children navigate in the buildings, it is also important to make them remember the routes themselves. Spaces, corners, directions can be designed to attract their attention so they will recall the images easily.

Memory and connections

Memory of space is the link connecting us to the place. When we are connected, we know the directions and feel comfortable when we navigate. Children with limited collection of memories fail to connect places to each other. They have difficulties in finding their way or remembering the routes alone. Therefore, spaces designed for children should be easily read and understood by children. Children's physical participation with the architectural features and natural landscape elements extend to satisfaction and the experience stay in their memory. Once children store the data, they tend to remember better, since they don't confuse it with other information.

A children's healthcare, in addition to medical rehabilitation are usually supported by environmental therapies, such as interacting with other children, socializing, or improving their skills thorough plays and enriched spaces. In order to have an efficient therapy, the spaces should enable concentration, relaxation and disable stress, Therefore environment should provide appropriate light, acoustics, volume, way finding, needs for privacy and relaxation while avoiding stress.

Maintaining Therapeutic environment

The focus of the therapeutic environment is primarily on incorporating plants and friendly wildlife into the space. The settings can be designed to include active uses such as raised planters for [horticultural therapy](#) activities or programmed for passive uses

such as quiet private sitting areas next to a small pond with a trickling waterfall.

Therapeutic Gardens can be found in a variety of settings, including but not limited to hospitals, skilled **nursing homes**, **assisted living residences**, **continuing care retirement communities**, out-patient cancer centers, **hospice** residences, and other related healthcare and residential environments. It plays an important role in treating the whole person – body, mind and spirit as mentioned above.



Ms. Kshitiz Gurung is a young, dynamic architect, recently graduated from Acme Engineering College, Kathmandu. After that she joined the Master Program in Urban Planning at Institute of Engineering, Pulchowk Campus, Lalitpur, Nepal. She is interested on art and architecture, which she believes as a creativity of an individual, not bounded by any rules but the way of expression what one perceives. She loves playing with architectural spaces.

Assessing Road Widening in Kathmandu Metropolitan City

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Introduction

Road widening has taken place in different parts of the world at different periods of time. It is done for various reasons; the traffic being the main one. Increase in population causes increase in the automobiles which require wider roads to accommodate them. In Nepal, vehicles were introduced during the 'Rana' period. This was marked by the construction of new wider roads instead of the narrow ones built during the 'Malla' period. With increase in vehicle import/use, road widening has become a common practice in Nepal. The current road widening project in the Kathmandu Valley started from 2068 B.S and is still ongoing. It is actively working in the acquisition of encroached lands and buildings along the roads. The work has, in general, been appreciated by a majority of the people. However, there are certain inevitable consequences of road widening.

In this study, the consequences of road widening are studied concentrating on the physical aspects of the impact. The impacts are seen in the streetscape, arboriculture, land use and road use. These

impacts are studied on the two major streets of Kathmandu – the 'Sorhakhutte' Road and the 'Lazimpat' Road.

Case Study

Sorhakhutte is a residential area that lies in ward 29 and 16 of the Kathmandu Metropolitan city. Thamel, the tourist centre of Kathmandu, lies to the south of Sorhkhutte whereas the new settlement of Naya Bazar lies to the west. Lainchaur and Narayanhiti Palace are located to the east and the old residential area of Golkhupakha lies to the north of Sorhakhutte. The Lazimpat area is well known high-end commercial, institutional and diplomatic area in Kathmandu for the different star hotels, restaurants, departmental stores, schools, colleges and embassies present in this area. It shares its borders with Thamel.

As per the bye-laws for Kathmandu, the both the roads are categorized as arterial roads with a clear width of 22m which include four lanes of roadway, footpaths on both sides and setback for building construction. However, after several protests by the local residents, and to minimize destruction of buildings along the road, only 18m clear width has been maintained during recent road widening process.

For the detail case study of road expansion, a 290m stretch of road is chosen along the main road of Sorhakhutte (from Sorhakhutte Pati to the Thamel/Golkhupakha node). Similarly a 255m stretch of road is chosen along the Lazimpat road starting from the node at Hotel Radisson to the node at the Embassy of Israel.

Data Analysis

The impact of the road widening has been studied by understanding the use of the buildings along the roads, streetscapes, vehicular traffic, vegetation, accessibility and their surroundings in detail. It has been done through observations at various times – before, during and after the road widening, interviews with the locals and a questionnaire survey. Following issues were identified through the survey study:

Arboriculture

We have witnessed the felling of trees along the roads. With no plan for new plantations, the streets look dry and dead. Unfortunately, there are no plans of planting trees along these roads nor are there any medians for green strips between the lanes.

In the bye-laws for Kathmandu Valley, there is no provision for vegetation to be provided along the roads. This lack of provision for trees or greenery of any sorts in the national guidelines for road design could be the reason for uprooting of age old as well as newly planted trees along the roads.

The stretch of Lazimpat road studied lost eleven monkey puzzle and pine trees of more than hundred years old whereas in Sorhakhutte, although no trees were lost, extensive trimming of branches, however, have taken place.

Land Use

Different commercial activities can be seen in Sorhakhutte which mainly serves locals rather than outsiders. However, it lies in the

vicinity of a major tourist area, i.e. Thamel. On the other hand, Lazimpat, being an elite zone of the city, serves mostly outsiders. The commercial activities in these areas changed after road expansion from local shops to the shops which are more the destinations of outsiders than the locals.

Changes in Shop Number and Character

The impact of road widening can be seen in land use in Lazimpat area. For the study of change in land use, the existing shop numbers and types are observed and also the number and type of shops that were present before road expansion was explored. The number of shops in the area increased from 49 before road expansion to 62 after road expansion. Increment in the number of shops is indicative of an increase in the commercialization of the area after the road expansion. Similarly the upper floors of the buildings have been changed from residential use to commercial use. There were only 4 shops in the upper floor before road expansion and the number increased 12 after the expansion of road.

Few shops' types are retained even after road expansion. 46 shops are either same shops that existed before road expansion or same type of shops which were opened up after road expansion. 14 locally serving shops have been replaced with shops serving outsiders and 2 vice versa. Now, there are 12 local shops and 50 shops serving outsiders which were 14 and 35 respectively before the road expansion.

This impact can be seen on the streetscape as well. Ground floors of almost all buildings have metal shutters today, in reconstructed modern buildings as well as the traditional buildings such as

'Mahaguthi.' While the front façades have been chopped out as a result of road widening, people increased the opening sizes and changed the opening type of the shops. Similarly, in Sorhakhutte area as well, changes have been observed in land use. From the data collected on the current land use, it shows that the commercial activities have expanded to the upper story besides the ground floor of the buildings along the street.

The number of shops added after road expansion is 6 as there are altogether 94 shops in the study area at Sorhakhutte. The commercial activities have risen to upper floors of the buildings. There were only four shops in the upper floor which have increased to 8 after road expansion. Altogether 75 shops have not changed the type of the shop even after road widening project whereas 12 shops have changed from local to outsider serving shops and 6 shops have changed from outside to local serving shops. Hence it can be said that the impact of road widening is seen in the number and type of shops and the expansion of the commercial activities from the ground floor to the upper floors of the buildings.

Rent

The building owners are very enthusiastic about the road widening project, and believe that this project will bring out more business and hence the rents of the buildings have increased drastically. On average, the rent has been hiked by 1.6 times after the project was commenced in Sorhakhutte and 1.2 times in Lazimpat. However the survey also shows that even though the rent has increased, the business has not increased but rather decreased; i.e. the chart of the customer flow is in contrast with the expectations of the people in the study area.

The survey also found that the road widening project is highly appreciated by a majority of those affected, whereas only a few are against it. The data is analyzed categorizing the respondents into two groups – building owners and shop owners. Upon analyzing the data, building owners are the ones who liked the road widening project more even though a majority of them had lost either a part or whole of their buildings.

The shopkeepers in the area shared that the flow of customers in the shops was more before road expansion than after the completion of the project. According to them, the widened road has discouraged people from crossing the road which has directly hampered their business. Thus, the negative impact of road widening is seen on the shop owners.

The liking of road expansion by the building owners is obvious because they got the opportunity to hike the rent price. It can be understood that liking of same by the shop owners despite decrease in their business and shop sizes is because they have now got wider displays as the smaller openings of the past have been replaced by big glass windows and doors with rolling shutters giving more visibility to the shops.

Loss of Property

In Sorhakhutte 8 buildings have remained unchanged whereas 46 buildings have changed partially or fully. Complete reconstruction was done in 22 buildings and 6 buildings were completely dismantled and have not been constructed yet. Similarly in Lazimpat, unchanged buildings due to road expansion are 10 in number.

Whereas complete reconstruction was done in 5 buildings and partial changes carried out in 20 buildings.

Table 3.1 Impacts on buildings due to road widening

<i>Location</i>	<i>Unchanged Buildings</i>	<i>Changed Buildings</i>		
		<i>Partially Reconstructed</i>	<i>Completely Reconstructed</i>	<i>Completely dismantled</i>
Sorhakhutte	8	24	22	6
Lazimpat	10	20	5	-

Buildings, due to the haphazard nature of demolition and reconstruction, have become more vulnerable to disasters such as earthquakes. During the questionnaire survey, the building owners were asked whether they had consulted the technicians – architects and structural engineers – during the dismantling of the building or during the reconstruction of buildings. Their response shows that a majority of the buildings have been dismantled and reconstructed without the advice of experts. This lack of supervision by and consultation with the experts means that most of the dismantled buildings have been reconstructed haphazardly without following the standard engineering norms. Thus, we can assume that such buildings are vulnerable and are at a very high risk during an earthquake.

Streetscape

The streetscape is studied in terms of the buildings, construction materials used, architecture and building height. The availability of new construction materials along with the introduction of modern technology and architecture has brought about drastic changes to the buildings along the roads.

Architecture (Building style)

The chosen street segment of Lazimpat consists of traditional building such as Mahaguthi building which has traditional façade and was constructed with traditional tools and technologies. There are other buildings as well in this segment that are recently constructed and in stark contrast with the traditional buildings. The commercial architecture is expected to rise with the increment in road width.

Two traditional buildings located at the slope of Sorkhahutte area have been demolished. The age old Sorhakhutte Pati is also in the process of being demolished and relocated. It is not sure where its new location will be but the Pati is going to be shifted from its original position and if proper conservation practices are not followed during its relocation, then we may see different architecture of the Pati in the future. As for now the Pati is in a highly dilapidated condition.

Temples

There have been several instances of road expansion when it has tried to clear religious structures. However the road expansion project and the locals have come to a point of agreement in most of the cases. Religious structures in Lazimpat are of smaller size although they are historically important. Hence a temple has been retained even by changing its location. The orientation of a small temple located opposite to the way leading to Hotel Radisson was changed while reconstructing in a new location. Now, however, one has to stand on the busy road to worship the deity exposing the worshippers to accidents. This could have been avoided with a little foresight.

Building Age

The architecture of a building in itself is an indicator of the time of its construction. The categorization of all the existing building in the two study areas is done according to the timeline of the amendment of the building bylaws for Kathmandu Valley. The bye-laws were first published in 2033 BS and its latest revision was in 2064 BS. From the data it is seen that most of the buildings were constructed between 2033 – 2050 BS in Sorhakhutte whereas most of the buildings are constructed before 2033 BS in Lazimpat.

Building Materials

Most of the buildings which have been altered during the road expansion have had their building materials changed. The materials were changed depending upon the availability of the construction material. Brick façade buildings have been displaced by buildings with curtain walls or plastered walls. The traditional timber openings changed to metal doors and windows in the upper floors and metal rolling shutters in the ground floor.

Level Differences

People took the road expansion as an opportunity to add storeys to their old buildings. It changed the uniform building levels of the past. The complication of level difference in the ground level is critical. There are numerous improvisations done to adopt this level of the building and the road.

Plinth level

The steps leading to the plinth level of buildings had been constructed in the setback area and were therefore demolished

during road expansion. It has forced building owners to either make temporary metal steps or change the entry of the buildings.

Roofline

Over the period of time, change in roofline is seen in the buildings. Although this is a slow process, within a couple of months, drastic changes have taken place due to road expansion project. Building owners have added more storeys to their houses. After road expansion, building height has been changed or storeys have been added. Only a few buildings have remained unaffected.

Road Use

The road widening project took place for the ease of the road users, be it the pedestrians or the vehicle users. The comfort level for the vehicle owners has increased with the road improvement due to lower traffic congestion whereas the pedestrians were more comfortable using the road before road expansion took place. It is due to lack of sidewalks, uncomfortable footpaths, and illegal structures in footpaths.

Adequacy of Expanded Roads

The most frequently heard criticism of road widening projects around the globe is that it is only a temporary stopgap solution that does not target the root of the problem but rather only encourages more and more vehicles to use the roads, thereby rendering any success in easing traffic congestion to be only temporary, the roads going back to their congested condition in a very short span of time. However, their efficacy in the short term cannot be disputed. Therefore, the concerned authorities should team road widening

projects with other measures to ease traffic on the roads which will increase the effective life of the widened roads as well.

In this regard, the latest traffic data for the Lazimpat and Sorhakhutte roads were collected from the traffic police headquarters at Baggikhana. Based on this data, and assuming an annual increase in traffic along these roads to be 7% (as recommended by the Nepal Road Standard), the duration for which the increased capacity of the roads will be able to cater to the traffic was calculated. According to the Nepal Urban Roads Standard (Draft), 2068, the capacity of four lane two way roads is 20000 Passenger Car Units (PCU) during the peak hour. Based on this standard, the Lazimpat road was calculated to be adequate till 2078 BS whereas the Sorhakhutte road was calculated to be adequate till 2077 BS.

This analysis has not considered the induced demand created by the widened roads. Therefore, the actual effective life of these roads will probably be lesser than this estimation.

Pedestrian Pathways

A field visit was conducted to observe the pedestrians and their behaviors. The pedestrians have been categorized according to the use of the footpath and the zebra crossings. In Lazimpat where the road has four lanes, the proportion of total pedestrians to those using zebra crossing is 7:1; i.e. in every 7 footpath users, there is only one using the zebra crossing. Since there is no such data from before road expansion, hence a site is selected in Pulchowk having similar commercial activities. The road there has only two lanes like

that of Lazimpat before road expansion. From the data collected it was found that in every 3.4 footpath users there is one using zebra crossing. The figure is more than double the value of Lazimpat after road expansion. Although more data needs to be collected before coming to a definite conclusion, this preliminary analysis suggests that people are more reluctant to cross wider roads.

Conclusions

The study of impact of current road widening on the various roads of Kathmandu has taught lessons to the building owners and the also to various departments associated with the road project. The following conclusions have been drawn from this study. Greeneries along the road not only enhance the beauty of urban roads but also give shades and healthy environment to the pedestrians. Unfortunately the roads are designed to prioritize the vehicles than the pedestrians and its basic accessories like trees and other vegetation. Rent has hiked by many folds but the business has not increased very much. Therefore shop owners have not had any remarkable benefit from road expansion at present. Number of shops has increased not only in ground floor but also in upper floors after road expansion and the shops have also changed from locally serving to serving outsiders. Change in land use from residential to commercial after the road expansion does not comply with the building code. Moreover these building are vulnerable as they have failed to consult experts while demolishing and reconstructing these buildings. Hence change in land use and vulnerability of buildings has to be considered together. Traditional buildings are either demolished or changed to modern look than traditional façade. The traditional look of the city is vanishing due to road expansion. The

protection of traditional buildings and historical monuments has to be considered seriously as well which has been lacking in the ongoing expansion project. A comprehensive assessment is a must to conserve the tangible and intangible heritages which have immense socio-cultural and religious values. Religious buildings are maintained but in a poor condition. It looks too forceful in doing that. Building materials are changed during road expansion which has changed the major built forms of a streetscape. Roofline variation has taken place. It seems suitable rules and regulations have to be promulgated to maintain the harmonious roofline of the buildings. High level difference between road and plinth of the buildings is inconvenient for the building users and pedestrians. Projection of future comfort in road use is highly disappointing since the comfort in road use may be lost after a short span of time. Thus the concerned authorities should team road widening projects with other measures to ease traffic on the roads which will increase the effective life of the widened roads as well. The greater the width of the road creates reluctance to the pedestrian to cross the road. Hence wider roads cater to and encourage the use of vehicles rather than the pedestrians. Effective measures to ease the pedestrian crossing are not considered when widening the road. It is highly imperative that alternative measures such as enhanced public transport system if not adopted immediately, we cannot avoid coming back to where we started – congested roads in Kathmandu – in a few years.



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Spatial Transformation of Traditional Town: A Case of Lubhu, Kathmandu

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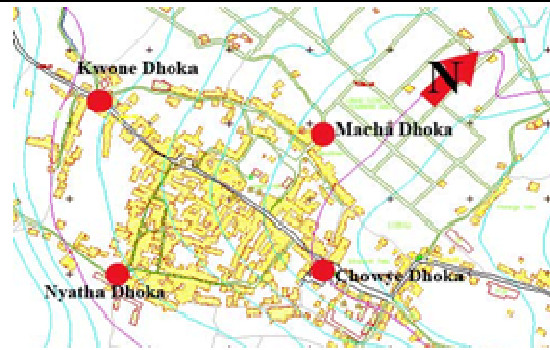
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Introduction

The cities that we acknowledge today are impermanent and are in a constant state of transformation. Visible and invisible forces are always there to lead the transformation. With the growing urbanization, spatial structures and forms are developed or replaced by the new forms in cities in the continuity of time. The towns located at the urban boundaries of the major city centers have always been the foremost targeted space to face such circumstances. Kathmandu Valley, the capital city of Nepal has been increasingly urbanizing after the country has adopted open door policy in 1951. The pressure of urbanization is intense and has been spilling over the peripheral towns which have easy access to the urban areas nearby. *Lubhu* (Study Area) is the representation of those small towns situated in the urban boundary of Lalitpur district; 6 km east from *Gwarko*, Ring Road in the Kathmandu Valley.



Location of Study Area



Town gates demarking traditional settlement

Fig. 4.1 Study area of Lubhu and its historical features

Source: (Modified from Lubhu VDC profile, 2008 and KVTDC, 2002)

It is one of the traditional towns having unique architectural history and spatial hierarchy dated 700 years back with the population of 7,610 and total households being 1,439 as per census 2001. It is predominantly a *Newar* society as 61.59% of total population belongs to the *Newar* community with total land area being 7.65 sq km (14,659 Ropani) where more than 50% of the land has being used for agriculture. Today, its proximity to the nearby urban centers is acting as catalyst to introduce the urban amenities and urban life styles in this traditional town which gradually transforming its built and social space. Moreover, the valuable agricultural land has also been transforming without any proper development strategy. Hence, the aim of the study was to understand the spatial transformation happening in such towns taking *Lubhu* as a case study and identify the issues that indicate the current trend of transformation.

In regards the spatial transformation, as Bobic (1990) explains 'when there is notable incompatibility between the rhythm of

activities and the form of the space, when it is not possible to adjust the existing with the new, then there is the spatial transformation.' The major characteristics of spatial transformation are changes in the size of activities, communications routes, general changes in the physical relationship between the space's dimensions and form etc. On the other side, 'non spatial transformations include changes in the type of activity, the manner of operation, i.e. changes in the way the existing spatial structure is used, thereby adapting the existing qualitative factors and time in the given space.' He defines 'Rhythm is the basic measure of urban dynamics expressed spatially and non-spatially by time intervals.

Although transformation is the natural phenomenon, Doxiadis (1982) argues that every urban structure has the capacity for internal dynamic equalization through the mobility of its components parts and interaction. The power of structure is of an auto regulative in nature which develops spatially in two ways. The first one is intensively as internal transformations where the characteristics of spatial structures change within the encompassed territory by becoming denser, changing the use of the space, reforming and replacing the existing spaces etc. The second is extensively and it happens outside the encompassed territory when the potentials of the structure are exhausted or when it is superseded by a new complex's basic characteristics. Either intensively or extensively, the auto regulation is just the temporal adjustment of the ongoing dynamism of spatial structures as he argues. The transformation in the Study Area is also going through both intensive and extensive transformation in course of time. The transformation in the existing built space within the traditional town boundary in term of spatial

structures, building use indicates the intensive one whereas the transformation happening in the vacant agricultural land beyond the existing town boundary signifies the extensive one.

Analysis

According to Pant (2002), there are three levels of hierarchy of spatial structures in the spatial organization of traditional *Newar* towns. In the spatial hierarchy, *Chhen* (Individual dwelling) is the lowest spatial unit., *Nani* (Residential square) is the area of a dwelling cluster with the inhabitants of same clan; usually rectangular in shape with central temple. *Tole* (Neighborhood square) is the highest one in the hierarchy and it is the group of *Nani*. *Chhen* is usually three or four storey residence built in hand made red bricks and timber with mud mortar. It is rectangular in plan having 15-18 inches thick outer walls. Houses are compactly clustered together and their end- walls are often linked or shared. These buildings have uniform scale and height and are capped with pitched and tiled overhanging roofs; which create pleasant homogeneity and the continuous façade towards the street (Fig. 4.2). Hosken (1974) describes that the sophisticated designs and detailing of windows and doors not only portray the artistic imagination but also create harmony in the streetscape and enhance overall spatial integrity of the towns. Unlike *Nani* which develops within private dwelling plots, the territory of the *tole* includes public spaces of the settlement and artifacts built by the community. The spatial organization of the Study Area also reflects the similar level of hierarchy. However the spatial structures within the hierarchy are found to be gradually transforming.



Traditional Newari house Traditional wooden doors and windows

Fig. 4.2. Traditional Newari house and its features

The Study Area where the traditional *Newar* houses used to be dominant, now 49% of the residences are built with Reinforced Cement Concrete (RCC) constructions where as 46% are traditional residences with load bearing system and 5% of the houses have changed the traditional façade. The façade treatment includes changes in construction materials from sun dried bricks to baked bricks, from lime or mud to cement mortar or from brick exposed facades to cement plastered or white washed and tiled roofs are being replaced by the Corrugated Galvanized Iron (CGI) sheets or RCC slabs. Similarly, addition of floors and changes in the window/door opening also affect the overall façade. The growing new constructions in the old settlements do not go along with the traditional fabric of the town resulting poor streetscape and irregular skyline in the entire residential quarters and neighborhood squares. Such piecemeal manner of changes not only disturb the aesthetic quality but also weaken their capacity to withstand lateral forces of earthquake and may make the whole community more vulnerable in the time of disaster.



Fig. 4.3. Transforming traditional newari houses – uses and density



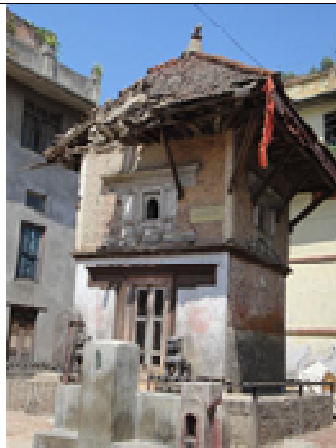
Fig. 4.4. Vertical division of traditional houses

In the Study Area, the vertical land use was very limited and the houses were solely for residential purposes few years back as cited by the local residents. Today, it has been noticed that the trend of having one floor commercial use such as retails, stationery and printing shops, finances etc., especially in houses facing the vehicular road is increasing accounting 30% of the total households. The commercialization on main streets caused the loss of the animated street life as the streets of traditional towns are not only the space for movements but the communal living rooms where activities like spinning; the sorting, drying and threshing of crops, washing clothes selling vegetables occur making the entire area vivacious. More than just a movement artery for pedestrians, they were the cradle for various activities and the spatial representation of the social space which binds people and helps them to interact with others. Moreover, the renovation of traditional components of neighborhood square such as temples, monuments, rest houses, water spouts or wells, public buildings, public square, market squares etc. using the modern materials not only wipes out the aesthetic quality of the space but further weaken the true spirit of the spatial organization. For example the traditional water spouts

which used to be brick exposed and stone cladding, are being renovated using cement concrete and the traditional roof of the rest houses has been replaced by CGI sheet and the external wall of the temple has also been plastered. Due to these unfriendly imposing, the traditional values and soul of these cultural artifacts are slowly disappearing despite of their existence.



Water Spout



Pati (Rest house)

Fig. 4.5. Renovation of traditional structures with modern materials

As mentioned previously, the Study Area is going through the extensive transformation also beyond the traditional town boundary in the agricultural land. Kivell (1993) argues land is one of major components of spatial structure which determines the settlement pattern of any city. From the household survey, it is found that there is growing trend of land fragmentation as cited by 80% of the respondents. Two major reasons are identified behind the situation namely inheritance property division also known as the owner led land subdivision practice and broker-led land sub division practice. The typical example of land fragmentation is shown below.

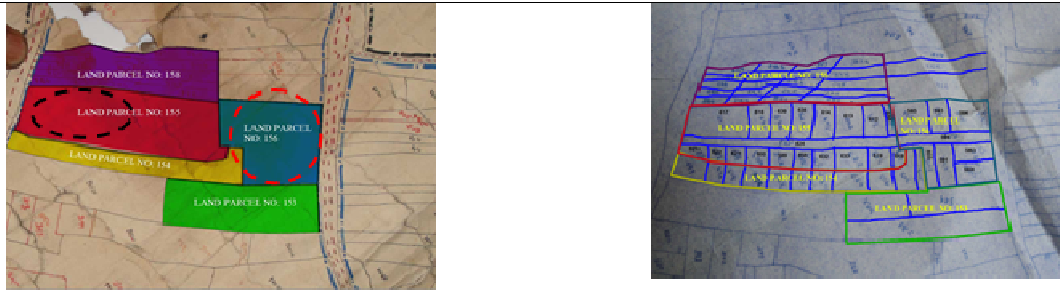


Fig. 4.6. Cadastral map for land parcels before and after land fragmentation

The land parcel 156 (encircled by red in fig above) is fragmented during the inheritance property division. The family tree and the division of land parcels are shown to illustrate how the land parcel has been divided among the siblings in one of the local families in the Study Area.

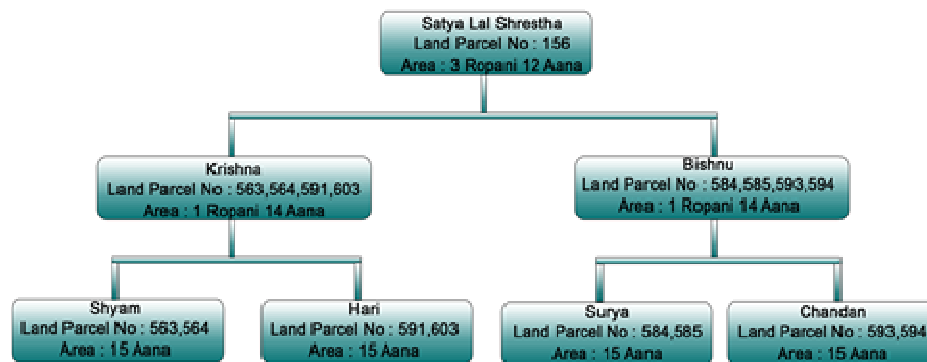


Fig. 4.7. Land fragmentation due to inheritance property division

Source: (Modified from Land and Survey Office, Lalitpur, 2010)

For the case of land parcel 155 156 (encircled by black in fig above), the group of brokers bought it from different land owners in partnership as cited by the local residents. The brokers divided the land into 19 smaller land parcels ranging from the area from 2.5 Anna to 12 Anna as shown in the following table. These land parcels are kept for sale.

Table 4.1. Area of fragmented land parcel number 156

S.N	Land parcel no.	Land Area in (Ropani-Anna-Paisa-Dam)¹	Area in (sq m)
1	585	0-6-3-0	214.59
2	584	0-8-1-0	188.76
3	593	0-5-3-3	262.27
4	594	0-9-0-1	288.1
5	603	0-7-1-0	230.48
6	591	0-7-3-0	246.38
7	563	0-7-0-1	224.51
8	564	0-7-3-3	252.34
	Total	3-12-0-0	1907.43

Source: (Modified from Land Survey Office, 2010)

The fragmentation of the land either owner led or broker led is happening entirely for the personal benefits rather than the comprehensive development of the community. The growing informal land business and individual efforts in development may have impact in the distribution and management of infrastructure in future. Apart from the land fragmentation, the land value determined by the informal private sector is comparatively higher than that of the value determined by the government. The difference in land values indicates the growing individual efforts in land business and also shows the growing demand of land in the Study Area. The growing land value has stimulated the land transaction and land speculation in the past 10-15 years as cited by the 95.6% of the respondents. The local people are found to be interested to

¹ *It is the legal land unit in Kathmandu Valley as defined by Land Administration Office. 1 Ropani= 16 Anna (508.72 sq. m); 1 Anna= 4 Paisa (31.79 sq m); 1 Paisa= 4 Dam (7.95 sq m)*

sell land because of the increasing land value as 29% of the respondents did so. At the same time the non-local people are being interested to buy land in the Study Area because it has good linkage with ring road and the 'Araniko' highway and speculate the land price to be increased so that they could sell with high profit.

Table 4.2. Area of fragmented land parcel number 155

S.N.	Land parcel no.	Land area (Ropani-Anna-Paisa-Dam)	Area (sq m)
1	588	0-2-2-0	79.48
2	612	0-5-1-0	166.9
3	613	0-5-3-0	182.8
4	614	0-5-2-0	174.85
5	638	0-5-1-0	166.9
6	639	0-5-1-0	166.9
7	616	0-5-0-0	158.95
8	617	0-11-1-0	357.64
9	624	0-12-1-3	395.39
10	523	0-2-2-0	79.48
11	622	0-2-2-0	79.48
12	621	0-2-2-0	79.48
13	600	0-2-3-0	87.43
14	599	0-3-0-0	95.37
15	656	0-3-0-0	95.37
16	632	0-5-3-0	182.8
17	633	0-5-1-0	166.9
18	619	0-3-3-0	119.22
19	618	0-1-1-0	39.74
	Total	5-10-1-3	2875.08

Source (Land Survey Office and Author's field survey, 2010)

The unplanned development efforts have also been carried out in the peripheral agricultural land where small grid roads are replaced by the blacktopped roads with segregated buildings scattered here and there reflecting the sprawl settlement. The low density sprawl built up areas is emerging without having full utilization of the land. This ribbon type of new development is lacking the open spaces and community spaces. This unplanned settlement may invite lots of chaos for installing the infrastructures for the concerned departments in future.

As explained by Bobic (1990), spatial transformation cannot take place without the non-spatial transformation. Changes in non-spatial activities act as driving forces causing spatial transformation. So, spatial transformation is the result of the incompatibility between the rhythm of activities and the spatial structures. For the Study Area, the rhythm of activities indicates the life styles of the people, the day to day activities they perform which have been gradually changing with time stimulated by different driving forces. Various factors like *Accessibility and Mobility, Modern amenities and changing life styles, growing trend of nuclear families*(67% of households have nuclear families), *Decreasing agricultural market*(Even being an agricultural town, only 16% of total respondents entirely relied on agriculture whereas 81% made agriculture as the supplementary occupation with their involvement in other professions), *Affordability and Weak local institutions* (cheap land price than the city area), *Individual development efforts* (the random fragmentation of land leading to the unplanned spatial layout) are accelerating the pace of intensive and extensive spatial transformation. Acknowledging the fact that spatial transformation

is the resultant of dynamic nature of time, it became necessary to address the ongoing spatial transformation in planned way and also minimize the adverse effects of the spatial transformation in the Study Area.

Different Planning interventions in terms of *building bye laws and policies, through growth management*(to have hierarchy of development rings such as conserved area, transitional area and newly developed area), Public awareness and Community Participation to enhance the sense of belonging or help local people to feel the ownership in the spatial structures and Institutionalization with respect to *Formalization of broker led land sub division practice , Amendment in Land ACT 1964* (to increase the land ceiling for land developers), *Enhancing the local agricultural economy* (introducing agricultural policy defining the new agricultural techniques and agricultural system) , *strengthening the local institution and conservation with development* are recommended from the study to address the ongoing spatial transformation.

Conclusion

This study was an effort to bring the situation of the traditional towns located at the proximity of urban boundaries of the Kathmandu Valley in lime light which has high possibility to cater the future urban growth taking *Lubhu* as the case study. It identified the issues of ongoing spatial transformation and the rationales behind those changes. The study also aimed to explore the impacts of transformation both in the traditional settlement pattern and the agricultural land which might be applicable to other similar towns

located in the urban boundaries of Kathmandu Valley. Thus, local and central government should proactively involve with different planning interventions, strong institutional setup and comprehensive policies ensuring the effective implementation through genuine community participation for planned and well-articulated spatial transformation in traditional towns like *Lubhu*.



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Urban Signage in Kathmandu Metropolitan City: A Critical Review

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Introduction

Urban design concerns the arrangement, appearance and functionality of towns and cities, and in particular the shaping and uses of urban public space. Urban design encompasses the preparation of design guidelines and regulatory frameworks and the legislation to control development and advertising (overlapping with urban planning). It may encompass the design of particular spaces and structures and in this sense overlaps with architecture, landscape architecture, highway engineering and industrial design. It may also deal with 'place management' to guide and assist the use and maintenance of urban areas and public spaces.

Signage on urban streets may be considered as a way for many people to contribute to the landscape. Signage enables people to navigate round the city; they draw attention through their words, symbols, and pictures. In the case of vibrant urban area/ city which have a street naming system, commercial signs on buildings. Some commercial signs stand as objects of interest in terms of their message and design. Historically signs have been prominent parts of the urban space, communicating through form and meaning.

Although their relationship to the city has changed along with urban forms, the distribution of signs on city streets has always been complex. The results can be stimulating and exciting or be overwhelming and confusing. There is little information to define when a site goes from exciting to overwhelming. There is even less to help designers to mitigate the process so that a unified, complimentary and individual character can be created. With more understanding of the effects of signs, designers can help to create the image of the cityscape.

Signage has been a part of urban life since ancient Egyptian and Babylonian market places. When goods could not be seen, merchants used a representative object to symbolize it or its function. The ancient Romans displayed these symbols as pictures on a signboard. During the early fourteenth century, many European cities mandated that signs be displayed on all store fronts. Such mandates contributed to the tradition of large numbers of signs in urban areas. Commercial signage has long been a part of the urban environment since the late nineteenth and early twentieth centuries in landmark cities such as Hong Kong, Las Vegas, Amman, Damascus and Karachi. Here giant signs, billboards and large opaque signs have become important types of commercial signage.

Signs can play a positive role in a city: they can be employed to create a corporate identity, and can also be used to link buildings and spaces together visually. Signs are indisputably an integral part of the visual identity of the city and can help to create a recognizable, distinctive public image which is necessary for the survival and growth of institutions within a city.

Through our perceptual processes we create a sense of place, i.e. a relationship between a sign and a building within a specific environment. The character of the cityscape, along with the design of its buildings, creates a human experience. Through experience and perception we create our own image construction of the urban environment. That image is the mental essence of people, landscape, buildings), for example, our perceptual impression common idea of Hollywood is impacted by our perception knowledge of the over-sized Hollywood sign that towers over the city from the Hollywood Hills. The size and position of the sign suggests power, money and 'larger-than-life' characters' lifestyles. The sign has an association with film-making, fame, and money. It is also a landmark, representing Hollywood to the world and attracting tourists.

Signage in Kathmandu and Legal provision

Advertisement and other means of identification is being used in Kathmandu since the pre-historic period to mark area of places, inscription etc. During Malla period (1200-1769 A.D.) inscription are used in order to give identification to any monumental buildings, temples, palaces, rest houses etc. so that local people get informed. In Rana period by writing the name of building on face of building was practiced. The practice of commercial means of signage came after 1951 A.D. when Nepal opened to outer world. The traditional skyline of Kathmandu transformed to the advertisement signage scenario thus polluting the Kathmandu environment as well as risking the built -form and other amenity of neighborhood. Technically Kathmandu Municipality can't object to people putting up advertisement signage on their private property even it is making city dull and ugly.

In Kathmandu putting of signage comes under Local Self Governance Act 2055, Advertisement Tax Guidelines 2064 and Town Development Act, and collect the revenue from them. It has restricted to put advertisement boards on roof from 2069/70 due to unmanaged completion to put hoarding boards' thus resulting beauty of city and structure vulnerability of the individual building. Some of legal provisions announced by KMC in 2070 are:

- a. To specify the places or location where one can put signage, way of fixing them and material to be used.***
- b. To conserve public land, historical sites and environment's protection.***
- c. To encourage to use modern material and new technology with respecting the social norms and values.***
- d. To restrict to put any kind of signage without prior legal permit from KMC at any places permitted by KMC.***
- e. To regulate all above mentioned criteria and help to increase the revenue collection.***

The factors which affect commercial signage in Kathmandu:

- i. A lack of a sign regulation system that provide clear, easy to read, directive signage to enhance the environment***
- ii. The variation of building facades in the new developed areas beside historic core***
- iii. Inappropriate sign display and location.***
- iv. The lack of environmental awareness of designers and clients.***
- v. Lack of attention to the scale and character of the building and its design components. There is no coordination within each development with respect to dimension, proportions, colors and spacing.***

Analytical Framework

From the analytical framework different aspects relate to signage is categorized and they are tried to study individually in case study. Major aspects that enhance the streetscape as well as advantages to road users are identified as (a) compactible with built-environment (noticeable or conspicuous from the background environment) (b) legible (where the viewer can easily read the text or graphics) and (c) recognizable (that is, the viewer can readily understand the sign's message). In other words, function of signage can be better promoted by notifying road user both pedestrian and motorist where they are in relation to, where they want to go, and assisting their entry to a street scape or any business premises, can be achieved thus enliven the streetscape.

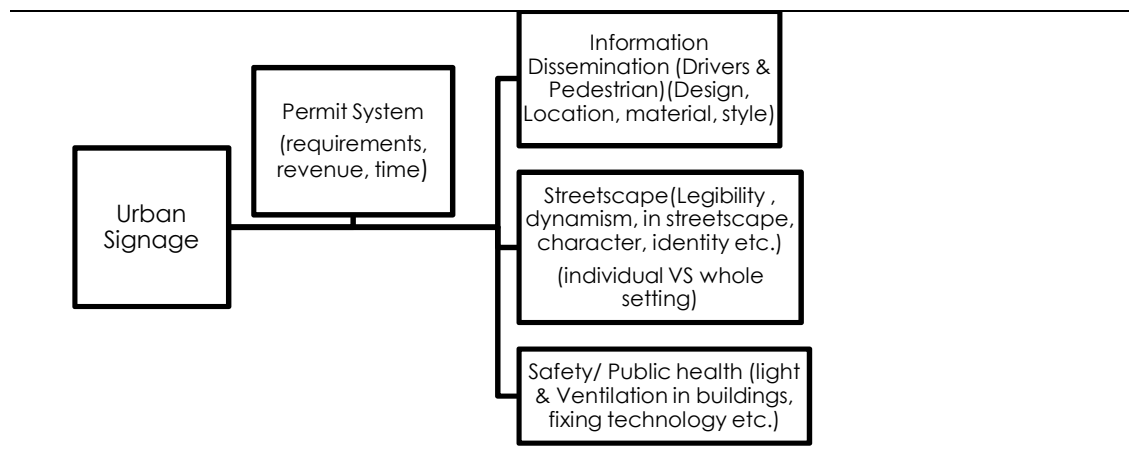


Fig. 5.1. Analytical framework

Study Methodology

This research is based on positivism / post positivism belief. In the course of study, it focuses on signage characteristics, problems and issues regarding pedestrian and motorist environment in urban area. Whereas in the methodological approach, the research on 'Regulating Urban Signage in streets of Kathmandu' raises practical

issues. The research is based on both inductive and deductive thinking. By observation on the condition of signage in Kathmandu's urban context, the data will be collected. Then it will prepare a standard questionnaire survey sheets for business houses and pedestrians in the case study areas. Finally, consultation is carried out with the government officials, experts working in different organizations and local communities involved in street design, management and urban signage. Interviews with road users and shop owners along with sign designers, public agencies personals are conducted. Around 116 walkers and 81 shops and offices around the study area are considered.

Study Area

For case study major commercial areas of Kathmandu is taken viz. New Road, Putalisadak, and Thamel (Fig. 5.2 and Table 5.1).The study stretch of New Road is 1870 ft. and it consists of 68 household with shops and commercial activities at ground and above floors and upper floors as residential. The street of this area has 8'-0" wide footpath and it lacks street amenities like street furniture, greenery, public signs. The stretch consists of 9 public signs like traffic signs, way finding signs. The traffic signs present are of variation in height, color painted faded not in readable condition. The traffic signs isn't working. The street lights are not in working condition.

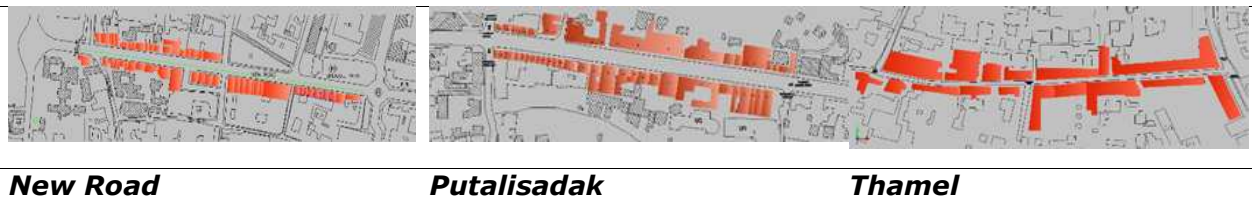


Fig. 5.2 Study area in Kathmandu metropolitan city

The study area Putalisadak is later development than New Road. This place is developing as business hub in terms of educational – aboard study consultancies due to colleges near its vicinity. Other shops like computer parts, auto parts also exist there. The study stretch is approximately 820’ long with 51 household. Total sign in linear observation are 356 while public signs are 9 where traffic sign, zebra crossing is working condition. The way finding signs is also present but other traffic signs are not in good condition.

Table 5.1 Feature of the case study streets

<i>Street cases</i>	<i>Total house no.</i>	<i>Total length (ft.) (approx.)</i>	<i>Total signage no.</i>	<i>Total public signage no.</i>
New Road	68	1870	479	4
Putalisadak	51	830	356	9
Thamel	26	970	212	4

Thamel has been the center of the tourist industry in Kathmandu for over four decades starting from the hippie movement when many artists came to Nepal. It comprises of guest houses, trekking shops, handicraft shops, and so on. It has narrow road of 17’ wide without footpath. It lacks many public signs necessary for tourist about the place. The length of study stretch is nearly 970’ having 26 building mainly hotels, office buildings, trekking offices. In 26 building there are 212 commercial signs. The public signs in this area is only 4, 2 way finding and 1 postal service information and 1 no parking traffic sign.

Issues and Analysis

Conveying message & Information dissemination

Street is the main public place, and vital organs-if city is thought Street comes in mind first. If a city's streets look interesting, the city looks interesting; if they look dull, the city looks dull. The main objective of signage should be conveying of right information and meaningful message in a proper way. Signage should be within the maximum limit of angle of vision that allow observer to view the information without difficulty for the placement of horizontal signage. An average person with 20/20 vision can accurately see and read text a few inches tall on a display 20 to 25 feet away.

People approaching a screen 20-25 feet away will take approximately 5- 7 seconds to reach it. As person`s vertical field of view is generally 75 degrees below eye level and 60 degrees above eye level as shown in figure 1.2 . A person`s field of attention is generally only 20 to 25 degrees of the field of view level and 60 degrees above eye level .

This not an exact science, however, if we assume the average height of our audience is 5'5" and we assume that they have normal vision, from 20 feet away the field of attention is 8.5 feet higher than they are tall. Field of attention plus the person's height (8.5+5.5=14). But this height can be considered up to the maximum limit of vision for the comfortless of the eye. Similarly, drivers' focusing points recede as travel speed increases. For example, at 65 km/h the closest point of clear vision lies about 25 meters ahead of the vehicle. At 100 km/h a driver can see clearly only that detail which

lies between 33 meters and 425 meters in front of the vehicle and within an angle of 40 degrees.

Public signage includes location maps, street name, identity, and way finding signs etc. These signs are important aspects of the street elements whether road users are being helped by them or not in terms of seeing that signs, understanding the information embed within it or not. When the engineers in the Traffic Management Unit in Department of Road was asked about such varying condition in public signage they answered that the writing were done in different time period and that gets new installation or re paint only if budget is available . For varying fonts, color and height it depends upon who have been appointed to do so under bid, and recent green color is adaptation of environment friendly color.

The study site New Road is widest among other 2 study site with footpath 8' wide and road approximately 60' so considering the visual angle of 22 degree the maximum height for the signage is 34'-8" from the ground level. The highlighted portion in the figure shows comfortable zone for putting the signs so that drivers and pedestrian can easily read the message.

In the street stretch of New Road, parallel commercial signs covering the whole ground and first floors can be seen with many signage perpendicular to building facade. In this area about 35% of houses have only parallel signs fixed on the façade and about 65% houses have both parallel and perpendicular signs hanged on façade.



Fig. 5.3. North wing of New road showing comfortable field of vision

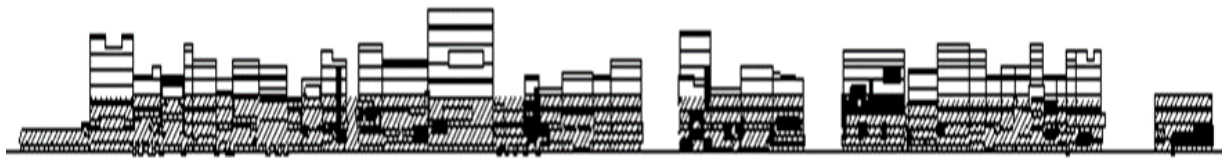


Fig. 5.4. South wing of New road showing the field of vision

The study stretch Putalisadak also has 8' wide footpath with approximately 60' wide road. So the viewing comfortable zone similarly 34'8" height from ground level. Putalisadak is institutional area where major buildings are occupied by abroad study consultancies in upper floors, ground floor being occupied by computer and gazettes shops, auto mobile parts, groceries etc. and above third floor we can see residences. The main difference in this area among other site is that, we can see big hoarding boards hanged on the building covering the whole façade. As this has wide foot path and road we can see about 90% of parallel signs hanged on façade only 10% of perpendicular signs on the façade of building.

Thamel has street of 17' wide without footpath, as it the place of tourist hub, lots of pedestrian flow can be seen so placing of parallel signage is very difficult and limited to 11'-3" only. We can see only perpendicular signage popping from façade of building above the head of walkers (Fig. 5.5 and 5.6).

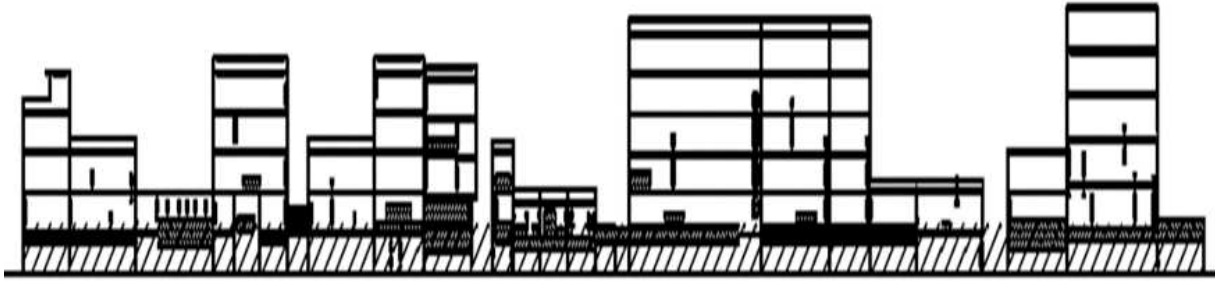


Fig. 5.5. West Wing of Thamel shading height up to which signage can be seen within field of vision

Thamel is tourist hub and it has different character with respect to two other case study sites New Road and Putalisadak. Due to its narrow roads we can see perpendicular signs popping out covering half the road widths.



Fig. 6. East Wing of Thamel shading height up to which signage can be seen within field of vision

In Thamel 38% of signs are perpendicularly hanged while 62% are parallel to façade of building. Here can see commercial signs of shops and hotels, restaurants related to tourist and can see a bit variety of signs than in New Road and Putalisadak. Due to narrow roads one will feel very hard to see the commercial signs, the perpendicular signs hanged on the road are blocking one another thus creating confusion and conflict. The placement of signs in these area seems a bit systematic and business houses or shop owners are also aware about the systematic placement of signs. Variety of material and logos shape and size has also being used in the area.

Table 5.2. Signage coverage on building facades in three cases

<i>Studied street section</i>	<i>Building frontage area (sq. ft.)</i>	<i>Area of all signs (sq. ft.)</i>	<i>All signs area/ building frontage area</i>	<i>% of building front covered by signs</i>
<i>New Road</i>				
New Road-North	84525.05	10948.89	0.12	12%
New Road-South	44796.68	7026.12	0.15	15%
New Road-Average	64660.86	8987.505	0.13	13%
<i>Putalisadak</i>				
Putalisadak-East	26954.19	5818.19	0.21	21%
Putalisadak-West	36115.97	6977.27	0.19	19%
Putalisadak-Average	31535.08	6397.73	0.2	20%
<i>Thamel</i>				
Thamel-East	38852.41	2689.2	0.06	6%
Thamel-West	26310.99	2489.21	0.09	9%
Thamel-Average	32581.7	2589.205	0.075	7.5%

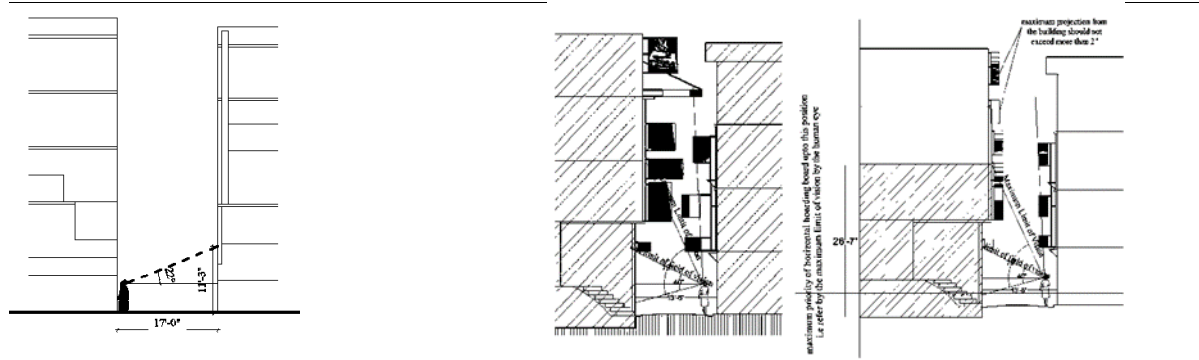


Fig. 5.7. Congestion of perpendicular (to the building facades) signage competing each other while viewing by pedestrians

Safety and Public Health

To promote ones business and sell services is anyone’s rights, while walking on the streets of Kathmandu we can see no concrete measures have been taken while fixing of signage in street. Business houses are just placing sign board on overhangs of building simply with nail and wire. Once installed or fixed they never attempt to check or maintain the same whether it being deteriorated with rust or not. In ‘Bigyapan Kar Nirdeśika 2064,’ (*Advertisement Tax Regulation 2064*) issued from Kathmandu Municipality, there is no mention about fixing of signs, and insurance provision or penalty for pedestrian. There is only mention of where they can put, up to what size they can put and finally business houses has to yearly renew the permit.

Placement of signs is to inform public about different things, the way they are fixed on wall, hanged or placed on footpath lots of care should be taken so that they don’t bring any accident to the road users. Fixing of signs against wind should be considered, it should not fall on the head of pedestrian. The type of material used should be durable, and environment friendly, it should be free from fire hazard.

The placement of signs should not block the light and air circulation in the room and at the same time blocking of window fully can cut off the natural surveillance of street which should be avoided. One must be able to view happenings, movement of people in the street, street must be lightened from room window in case street light is absent. It is very important issue how signs have been placed and fixed on different places.







<p><i>Box sign placed just above iron frame without solid fixing</i></p>		<p><i>Signs fixed with nail and wire above footpath</i></p>	
<p><i>Wire mess in Thamel</i></p>		<p><i>Overloaded signs in electric pole in footpath</i></p>	
<p><i>Whole façade covered by sign bards in Putalisadak</i></p>		<p><i>More signage means no interaction with street</i></p>	

Fig. 5.8. Issues related with safety and health

For the process of designing the normal signs, printing houses around the market are responsible for designing the signs. Owners go to printing press with their shops or product name and they suggest them what would be best color, font, official logo on the sign, it will be a kind of hit - &- trial. They mainly relay on their experience. When asked what they do for fixing font height, this also depends on their experience and hit and trail. According to them people don't try to experiment new material, design and style rather

they follow the common trend which have changed from cloth - metal - flex - sticker - metal text.

Findings and Conclusion

A sign is a placed-based 'speech' device, which visually communicates a message to its viewers. The face of Kathmandu along with its street is changing in a rapid pace in adaption of modern technology and happenings in the international market. The trend of showing the business for advertisement is one of example and it can be through different media like hanging signs in façade, street poles, inter-net, television or radio. Besides hanging of advertisement boards and other informative signs on façade of buildings have been always a problem and confusion unless they come under certain guidelines, polices and regulation. In our context signage under guidelines is lacking and people aren't following the existing also.

The whole elevation of the buildings is covered by commercial signage with numerous negative implications. It has not only increased the possibility of road accident but also make pedestrian confusion thereby creating congestion. Above all, it has created visual pollution by hiding the architecture and local character. The coverage of windows by big hoarding boards have tendency to create health hazard for the room users inside the immediate room as it blocks fresh air circulation and natural light. The haphazard placement of signage without regulation may deny the local government to collect the real amount of revenue from the placement of signage at random places without authorization. The placement of signs in wrong position like in junction, narrow lane

etc. may cause accidents, mobility problem, and traffic jam by attracting the motorist and pedestrian attraction.

Considering the analytical framework as base and analyzing different issues from site, we can say that the main function of information dissemination from different kinds of signage is lacking. The number of commercial signs are dominating the negligible number of public signs and the immediate environment/streetscape. The crowded amount of signs have created confusion and visual pollution that they haven't been able to relay the information for what purpose they have been placed. If these issues are controlled and bring within a framework of guidelines and police the trend of haphazard hanging can be reduced and a neat and clean, readable streetscape can be achieved. The public signs can be placed in sufficient amount in the street so the any people can get the required information at need time.

Other major thing is the consideration of health and safety of people. The way and trend / practices in fixing the signs in street lacks definite measure taken, which seems to be taken strongly from the concern authority. When considering the economic context of signs, a city administration should be sensible of what types, sizes, and number of signs work best for citizens and business in each zone.



Shanti Thapa Arua, born on 3rd April 1984 did Bachelor in Architecture from Khwopa Engineering College in 2007 and Master in Urban Planning from the Institute of Engineering, Pulchowk Campus in 2014. She is presently working as an architect in Scope Consortium MS and Buildings Pvt. Ltd. in Kathmandu. She has received training on national building code for architects (24 Nov – 30 Nov. 2014) in Kathmandu organized by Nepal Engineering Council with support from UNDP. She has also participated at 2nd Eastern Regional Conference at Science City, Kolkata, India in February 2006.

Town Development Fund's 27th Anniversary: Past Achievements and Future Challenges

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Since its establishment in 1987 as Town Development Fund Board (TDFB) and TDF from 1997 with its own act, it has been working to fulfil twin objectives of financing various municipal infrastructure projects and strengthening their clients' capacities. In the past 27 years, it had implemented many hundred projects of a wide range, financed by grants, soft loans and loan. No government budget is allocated for this organisation. Its only income is the service fee charged for grant mobilisation and interest rate spread (from Government of Nepal to municipalities) in loan investment. It has already collected NRs. 320 million in its revolving fund and NRs. 230 million as equity.

Though this institution was financed by the Government of Nepal (GON), International Development Association (IDA) and German Agency for Technical Cooperation (GTZ) total amounting NRs. 251.9 million in the early stage, the total value of eleven donor programs now have reached NRs. 6.8 billion. Loan investments of NRs 819.6 million in Secondary Town Water Supply and Sanitation Sector Project (STWSSSP-I already completed) with additional NRs. 1,500 million for the phase II (almost completed); of \$12.1 million for

Secondary Town Integrated Urban Environment Improvement Project (STIUEIP - ongoing), of SDR 8,594,000 for Integrated Urban Development Program (IUDP-ongoing) supported by Asian Development Bank (ADB); of \$1630 million for Urban Governance Development Program – Emerging Town Project (UGDP:ETP) funded by World Bank and \$42.8 million for GPOBA including the active role in Kathmandu Sustainable Urban Transport Project (KSUTP), all have clearly indicated the growing contributions towards infrastructure provision at local level thereby demonstrating TDF as an autonomous financial intermediary in Nepal. In addition to this, it has also enhanced municipal capability in project management, created jobs for national consultants and individual experts and established TDF as a reliable institution for debt financing. It went under restructuring in 2011 at two fronts: Preparation of a strategic Business Plan (BP) and common loan and grant policy, new organogram at strategic level and development of Standard Operation Procedures (SOP) and Key Performance Indicator (KPIs) for better service delivery at operational level. It aims to become a self-sustaining and complementary part of the intergovernmental fiscal transfer system by transforming itself into a financially sustainable, operationally efficient and a visible Urban Development Bank of Nepal.

However, challenges are numerous ahead. First, the present context of rapid urbanisation and increasing number of new municipalities together with huge urban infrastructure deficiency (in terms of investments and services) including increasing number of donor supported programs have urged this organization to be more professional, efficient and pro-active in working with various

development partners. Second, TDF's service product shall be widened by considering integrated infrastructure covering more than one municipality, land development and social housing projects including slums and squatter settlement upgrading, and financing for disaster resilient houses and settlements. In terms of implementation approach, it shall achieve the best design solution through design competition for prestigious infrastructure as well as implement the project on turnkey basis for quality and timely completion. Public private partnership approach along with collaboration with other financial agencies will also be necessary for loan investing in mega-infrastructure project. Third, as municipalities vary substantially in terms of settlement pattern and population density, area coverage, climatic condition and above all in their revenue basis and tax administration capacity, and their service delivery potentials and asset management capability, a flexible system of loan and grant mix is required for balanced and sustainable municipal infrastructure development in Nepal. Last but not the least, different interest rate, procurement system and terms and conditions on loan investment for similar types of infrastructure projects due to different donors' funding, lack of elected representatives in municipalities for more than one decade thereby hampering in taking ownership of the projects, lack of master development plans in most of the municipalities thereby causing infrastructure provision in isolation and poor resource base of municipalities are the major hurdles to be solved outside TDF.



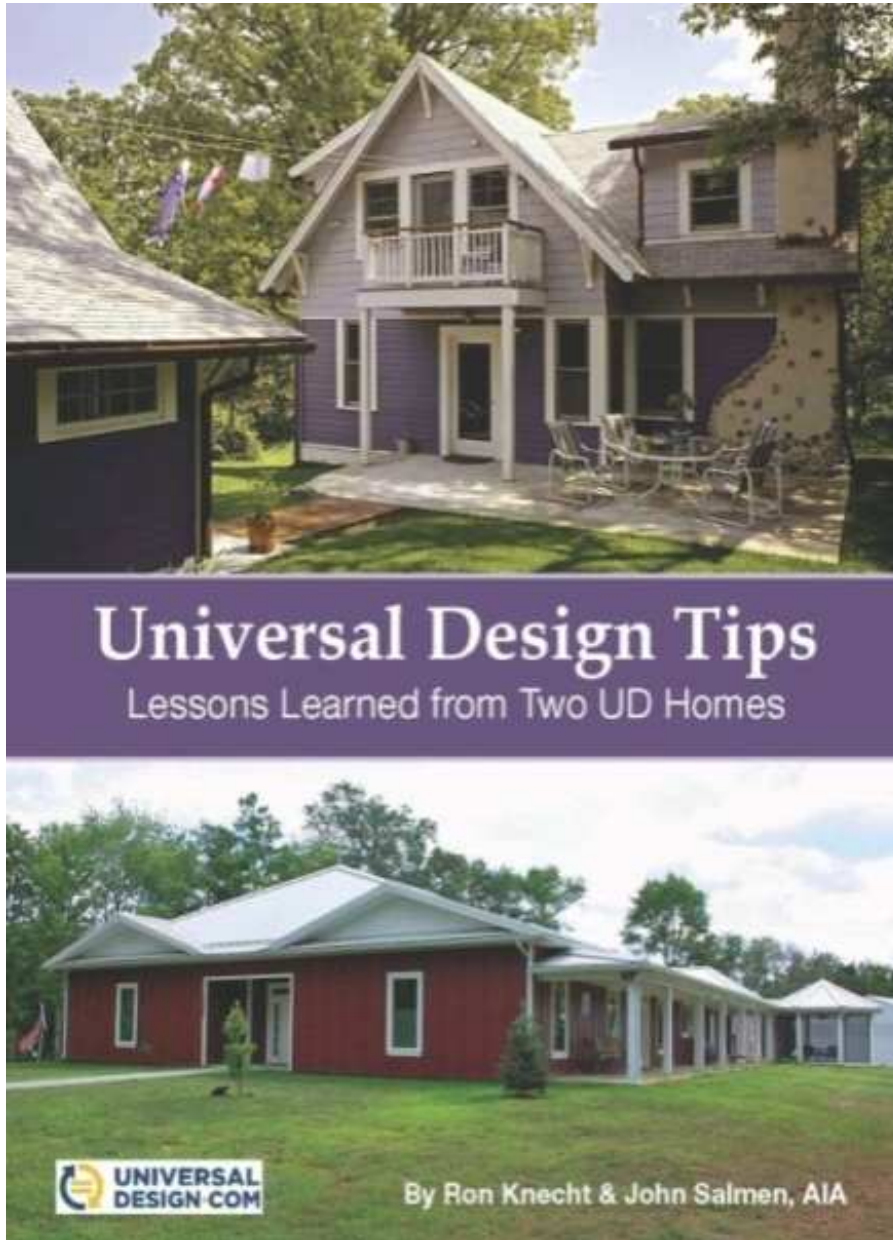
Reetu Shrestha has achieved Bachelor in Civil Engineering and Master's in Infrastructure Planning from Stuttgart University, Germany under Honorable DAAD scholarship program. She is also awarded with NFP Scholarship Program for short course "Urban Drainage and Sewerage" for one month on January 2015.

Currently she is working as Infrastructure Planner for extending consulting services for Municipal Support Team (MST) under Urban Governance and Development Program (UGDP): Emerging Towns Project (ETP) on behalf of MEH Consultants (P) Ltd. She has worked as Project Development and Appraisal Specialist in Town Development Fund (TDF) under Sub-National Governance Programme (SUNAG), GIZ for managing KfW funded programs in municipal level from 2012 to 2014. She has also worked as Assistant Project Manager in Fichtner GmbH, Stuttgart, Germany for Detail Engineering for Bujagali, 255 MW Hydropower Plant situated in Uganda from 2008 to 2010 . She has also worked as Design Engineer on behalf of China International Water & Electric Corporation (CWE) for Middle Marsyandi Hydroelectric Project 70 MW Hydroelectric Plant, Lamjung, Nepal.

She has comprehensive experience of 8 years in planning, promoting and managing different scale of sustainable infrastructure development both at national and international level with direct interaction with donor agencies, governments, and stakeholders.

New Books:

A New eBook from UniversalDesign.com



Universal Design Tips: Lessons Learned from Two UD homes

This new electronic book from UniversalDesign.com is filled with tips and ideas that will help guide anyone through the process of designing and

constructing their own Universally Designed home. The book was co-authored by John Salmen, AIA, the publisher of *Universal Design News* and founder of UniversalDesign.com, and Ron Knecht, whose durable, energy efficient Universally Designed house was featured in the [January 2012 issue of Universal Design News](#).

The first section of the book deals with the planning process, providing insight on how to choose a location for the house, consider activities of daily living during planning, best use various types of design professionals, finalize a floor plan and develop a building schedule.

The rest of the book is organized according to different areas or elements of the home (i.e. exterior doors, bathing, and kitchen counters, just to name a few.) Whether designing a whole house or simply remodeling one area, *Universal Design Tips* makes it easy to quickly refer to the relevant section and find valuable tips that ensure success. Each of these sections includes design tips, photos and important lessons that the two authors learned through their personal projects.

John Salmen has been working in the field of accessible architecture and Universal Design for over 30 years, and he put this expertise to good use when remodeling a historic property to create the Universally Designed house he and his wife hope to live in for many years. Salmen's "Home for the Next 50 Years" has been featured in various media outlets: including *The Washington Post*, *Fine Homebuilding*, AARP's television show *Inside E Street* and the book *The Accessible Home: Designing for All Ages and Abilities*. Now, readers will be able to explore Salmen's home in even greater detail and apply his experience to their own Universally Designed home projects.

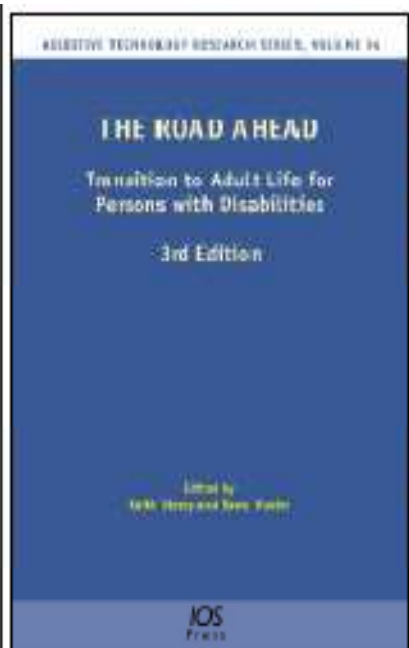
Ron Knecht's experience with Universal Design started after his wife of 46 years became ill with cancer. As her health worsened, Knecht learned first-hand the importance of accessibility for maintaining independence, safety and one's quality of life. Before Knecht's wife passed away, she extracted a promise from him that he would move to a Universally Designed house located closer to their daughter. Knecht was underwhelmed by both the houses that he saw on the market and the UD house plans that he found online; he realized that he would have to plan and build a custom house in order to fulfill his promise.

China Design Index 2014



China Design Index 2014: The essential directory of contacts for designers
Paperback – February 1, 2014 by Robert A. Curedale (Author)

The Road Ahead, Transition to Adult Life for Persons with Disabilities



The Road Ahead

Transition to Adult Life for Persons with Disabilities

Volume 34 Assistive Technology Research Series

Editors: Storey, K., Hunter, D.

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Successful transition from school to adult life has always been difficult for people with disabilities, especially in the area of employment. The vast majority of people with disabilities are either unemployed or underemployed with low wages and few benefits, and many governments are struggling to find a way of providing employment and benefits to people with disabilities without creating disincentives to work.

This book provides strategies and ideas for improving the lives of people with disabilities, exploring new ways of enabling a successful transition to an integrated adult working life by providing effective instruction and support. Following an introduction which outlines the importance of transition services and meaningful outcomes, topics covered in the remaining chapters include: person centered transition planning; enhancing competence and independence; employment assessment and career development; collaboration between agencies for a seamless transition; independent living and supported living; and community functioning skills.

The book will be of interest to all those who work with transition age students as well as those who work with adults with disabilities and want to enable them to have the best life possible. To paraphrase Helen Keller: "People with disabilities not only need to be given lives, they need to be given lives worth living."

Design for ALL, Aree DI Ristoro



Luigi Bandini Buti

DESIGN FOR ALL | AREE DI RISTORO | il caso Autogrill |

Maggioli Editore, 2013

<http://shop.wiki.it/risultatoricerca.aspx?indizioricerca=luigi+bandini+buti>

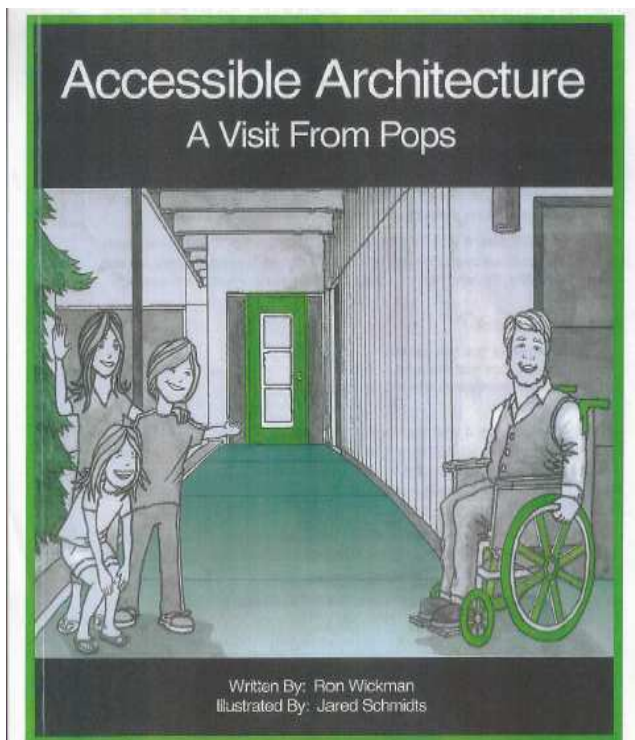
This book has been born following the collaboration with Autogrill that, for its new facilities "Villoresi Est", has developed an innovative, Design for All oriented project. We then realized that the cares foreseen for "all" would not be noted by "the majority".

If you are not on a wheel-chair, or blind, or you are not travelling with a large family or you don't have to look after your old grand-father, you will not be able to appreciate many of the attentions included into the project. It was therefore necessary to make more visible the virtuosity of the planning process and its results, which may not appear obvious to many people.

This publication is not meant to be a mere description, it is rather a critical analysis of the Villoresi Est rest area, included in a context that wants to examine in depth the methods and the means of Design for All.

Its main objective is therefore to use the "Autogrill case" to investigate the necessary steps to develop projects Design for all oriented, hopefully in an authoritative way.

Accessible Architecture



Edmonton Architect publishes - Adult Children's Book—Accessible Architecture: A Visit From Pops.

Edmonton Architect Ron Wickman launches his first book titled: *Accessible Architecture: A Visit From Pops* at the City Room in City Hall, Tuesday, March 15 at 5 p.m. Ron, son of the late Percy Wickman, MLA Edmonton-Rutherford 1989-2001, is a story written on the focus of Percy and his 3 grandchildren. Ron is best known for his accessible design. His most recent endeavor published by Gemma B. Publishing draws on his knowledge. Edmonton draughtsman Jared Schmidts illustrates with wit and precision the need for a house to be visitable by everyone.

As a child, Ron Wickman learned firsthand about the need for accessibility. His father became paraplegic after being injured by an industrial accident. Ron wheeled his father into many inaccessible places. A longtime Edmonton City Councilor Percy Wickman advocated for people with disabilities throughout his life.

Ron Wickman studied architecture in Edmonton and in Halifax, Nova Scotia, specializing in barrier-free design, designing houses and public spaces that were both beautiful and accessible.

Accessible Architecture: A Visit From Pops—is an adult children's book, which demonstrates the three principles for ensuring a house can be visited and enjoyed by everyone equally, including those with a disability. Following Wickman's design and renovation also enables homeowners to age in place.

Visitability principles include

- the front entrance must have no steps;
- all main floor doors must be at least 36" wide;
- an accessible washroom must be on the entrance floor.

Accessible Architecture: A Visit From Pops, by Ron Wickman, illustrated by Jared Schmidts and edited by Sarah Yates, is published by Gemma B. Publishing, a Winnipeg-based publisher. Gemma B. Publishing creates heroes and heroines living with a disability, in both fiction and non-fiction. The book will be launched at Edmonton City Hall, March 18 at 6 p.m. and available later at Audrey's Books in Edmonton.

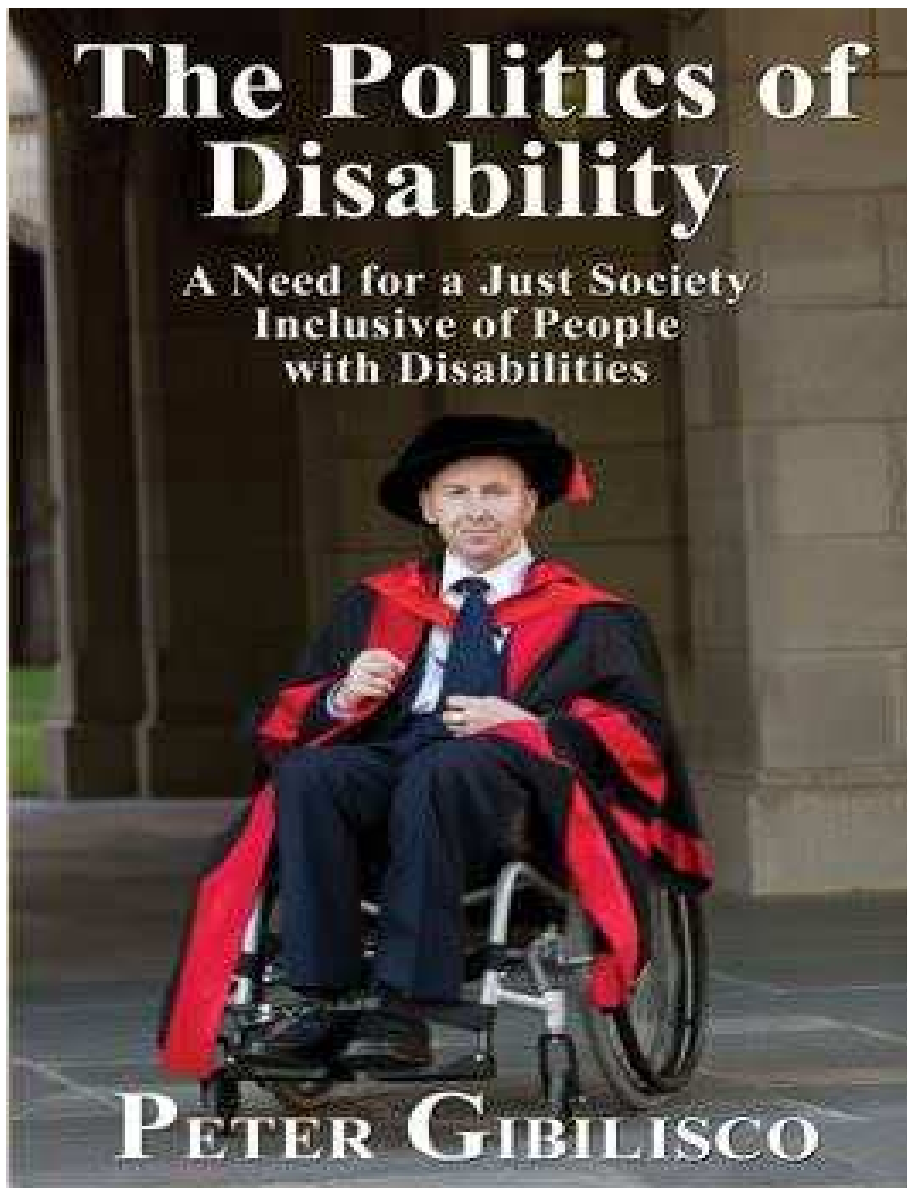
Ron Wickman will be available for interviews after the press conference at City Hall. His lecture at the Buildex Conference, Edmonton Expo Centre, Northlands will be held Wednesday, March 19 at 2:30 p.m.

Accessible Architecture: A Visit From Pops ISBN978-0-991697-0-8 sells for \$20.

- 30 -

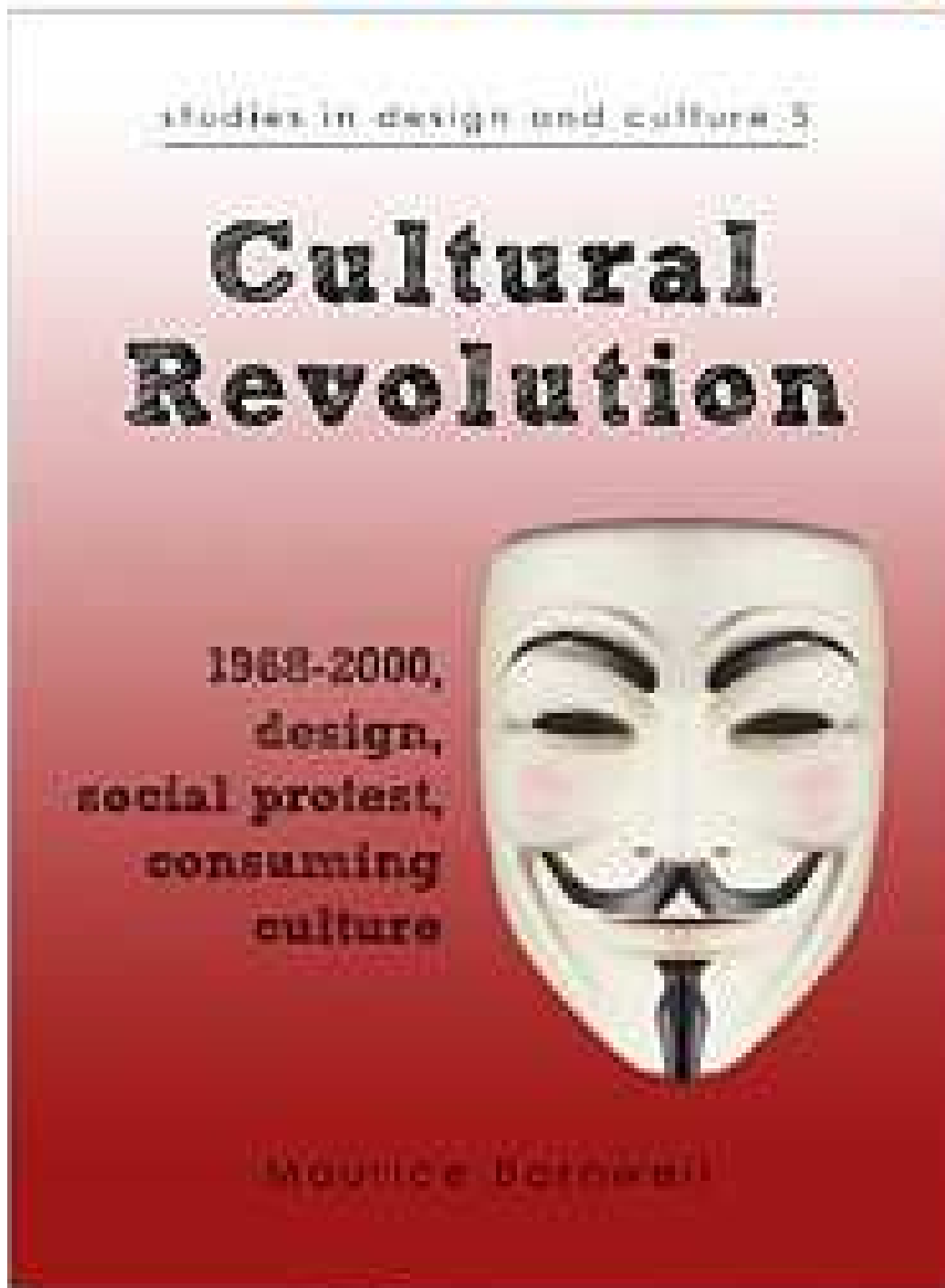
For additional information, contact:
Ron Wickman
Architect
780-430-9935
E-mail: rwickman@shaw.ca

The Politics of Disabilities, Peter Gibilisco



This book will retail for a recommended price of \$19.95 USD ISBN 978-1-77143-155-2, with an ebook version also available at a recommended price of \$7.95 USD ISBN 978-1-77143-156-9. You'll be able to buy it from all the usual places - Angus & Robertson, Bookworld, Fishpond, Amazon, Kobo, iBookStore, and Google's Play Store, amongst others.

Cultural Revolution by Maurice Barnwell (Author)



**Design For All – the project for everyone.
Methods, tools, applications Volume 1 – 2 (Steffan, 2012)**

Design for All – the project for everyone. Methods, tools, applications.
Volume 1- 2 (Steffan, 2012)

The publication highlights the multidisciplinary and cross-disciplinary of the Design for All approach, both in terms of issues addressed and of field of application. The accessibility of places and objects is nowadays a minimum requirement: it is only the starting point to allow their use by the widest range of people possible. Through professional experience and research, the paper tackles problems, methodologies and working tools, benchmarks.

The first volume covers the main areas of research and presents some examples at urban scale; the second volume illustrates examples of architectural design, products, services, university education.

The lack of compliance of the built environment and of the products, with needs that can be very different, causes a state of handicap. The lack of ability is a handicap only if the project has not taken it into account.

With these books we intend to stimulate debate, in-depth research, specialized studies, so that Design for All can be increasingly known and applied in more and more research and professional areas.



Published in Italian in December 2012 by Maggioli Editore (Santarcangelo di Romagna RN, Italy).

http://ordini.maggioli.it/clienti/product_info.php?products_id=8831 Volume 1

http://ordini.maggioli.it/clienti/product_info.php?products_id=8831 Volume 2

The on-line English version is also available since October 2014:

<http://www.maggiolieditore.it/ebook/tecnica/design-for-all-the-project-for-everyone-first-part.html>

<http://www.maggiolieditore.it/ebook/tecnica/design-for-all-the-project-for-everyone-second-part.html>

"Ideas, even good ideas, flourish only when practitioners commit to sharing their experiences, perspectives and aspirations. By organizing this publication and convening a distinguished international group of contributors, Editor Isabella Tiziana Steffan helps to establish the current state-of-the-art and affirms the significant potential of Design-for-All. She also delivers fresh inspiration to an expanded audience critically important to engage if Design-for-All/Universal Design is to realize its promise in the coming years.(...)We salute Editor Steffan for her passion, focus and hard work to bring this valuable contribution to fruition." (Valerie Fletcher)

NEWS:

1.

Geze Powerturn swing door drive wins top awards

The new fully automatic Geze Powerturn swing door drive won the 'Innovation Prize' at the recently held 2015 Plus X Award, a leading innovation prize for technology in the categories high quality, design and functionality.

In addition, the specialist jury awarded the 'powerful drive' with the title of 'Best Product of the Year 2015' seal of quality, said a statement.



The Geze Powerturn offers genuine added value with the Universal Design or barrier-free access convenience for all, high functional diversity, easy installation, creative freedom and outstanding design, it said.

It even opens large and heavy single and double-leaf doors easily and safely. Manual opening, which is effortless for any user at any time, is also made possible by the unique Smart swing function.

As a flexible component, the Powerturn can be integrated into a wide range of different door systems.

The Powerturn also enables customised, multi-function door solutions to be implemented - at the doors of prestigious entrances as well as at high value internal doors.

With its discreet design and an overall height of only seven cm, the Powerturn blends in with any installation situation, so it offers great creative freedom.

The Powerturn moves door leaves with widths of up to 1,600 mm and weights of up to 300 kg. The Powerturn version F/R for escape and rescue route doors combines innovation and design: the smoke control unit is invisibly integrated into the covering hood.

As a flexible, future-proof system component, Powerturn facilitates

the implementation of different door scenarios - whether in combination with motor locks, door control units such as Geze TZ 320 for controlling and monitoring of closing and opening processes in doors on escape and rescue routes, as fresh air opening in smoke and heat extraction systems, for natural ventilation or as part of the Geze security interlocking door systems.

It can also be integrated into building automation systems. Its reliability is MPA checked for 500,000 cycles. As a provider of complete solutions, Geze has created comprehensive tailor-made systems and special solutions.

Meanwhile, the installation is easy and flexible with six different types of installation carried out using a single version of the Powerturn: Transom installation or door leaf installation with link arm or roller guide rail - on the hinge side or the opposite hinge side. (Cortsey:- TradeArabia News Service)

2.

Westport's Elaine Ostroff is a champion of universal design



***Fall River native and longtime Westport resident Elaine Ostroff, left, is donating ...
[+]***

WESTPORT — If you hit your head frequently when you open your kitchen cabinet, cannot get into a public building with your wheelchair, or find the lights too dim at work, poor design is likely to blame.

When something is designed well, on the other hand, it functions and likely goes unnoticed.

Good design principles are used by professional home and commercial builders, product developers and others, so those things that go unnoticed are no accident.

Elaine Ostroff, chairwoman of the Westport Commission on Disability and a former Planning Board member, is much more than a local public figure. Ostroff is internationally renowned for creating universal design principles that are taught to architects and design students and used in construction and product development.

Ostroff, 82, has been an educator, writer and editor of good design for about 40 years. Her many materials written and collected will become part of the archives of the Smithsonian Institution National Museum of American History in Washington, D.C.

“I’m so happy it’s going somewhere where it will be used,” Ostroff said.

Ostroff is the co-founder of the Adaptive Environment Center at Massachusetts College of Art, now known as the Institute for Human Centered Design. In 2001, she edited the “Universal Design Handbook” used as a textbook in educational settings.

Twenty-five years ago on July 26, Ostroff was present at the signing of the Americans with Disabilities Act at the White House.

Universal design means making products, homes and buildings accessible to all people of all ages, with and without disabilities.

“There’s an interest in universal design principles,” said Cathy Keen, a Smithsonian archivist. “We’re excited to have this collection. (Ostroff) was one of the seven developers (of universal design). We’re, of course, interested.”

Founded in 1846, the Smithsonian is the world's largest museum and research complex, with 19 museums and galleries, the National Zoological Park, and nine research facilities, all "completely available to the public" for educational and research purposes, Keen said.

Keen said the subject is of interest to the Smithsonian Archives Center, especially in how it pertains to the Americans with Disabilities Act and the rights of people with disabilities.

Keen and Ostroff spent two days recently in Ostroff's basement packing up boxes of materials to be donated to the Smithsonian, before Ostroff moves to Natick in the next couple of months to be closer to her son.

A mother of three and grandmother of four, Ostroff grew up in Fall River and graduated from B.M.C. Durfee High School in 1951. She then graduated from Brandeis, where she studied psychology and sociology. She's lived in Westport for many years.

She started out organizing spaces for children with disabilities, which led her to offer educational courses for teachers and others, and finally to a full-blown career in universal design.

Ostroff has worked for the state Department of Mental Health, founded the Looking Glass Theater in Providence, and has won awards for being an advocate for human-centered design.

Her work, Ostroff said, is a passion and has allowed her to be herself, "be creative and be connected to the community."

To learn more about the Smithsonian, visit www.si.edu.

(Courtesy: [Deborah Allard](#) Herald News Staff Reporter)

3.

Grounded but flying high, Sandeep Kumar beats odds

The annual universal design awards given by National Centre for Promotion of Employment of Disabled People has three achievers

from the capital and one educational institution this year. TOI celebrates their endeavour and success.

Sandeep Kumar glides across the airport terminal in a powered wheelchair to assist anyone who seems in doubt or need. The 24-year-old IndiGo staffer is the first paraplegic (person with paralysis of the lower body) to be employed with the aviation industry in the country. Equally liked by staff at IGI Airport and regular flyers, Kumar has been selected for 'Universal Design Award 2015' by National Centre for Promotion of Employment for Disabled People (NCPEDP) and Mphasis in the category of "people with disability who have created an impact in accessibility universal design".

An engineering graduate, Kumar passed over an MNC job to work in customer service with special focus on passengers with disabilities. "I completed my graduation in 2013 and won a gold medal in web designing at the National Abilympics (north region)," he says. He started working as an IndiGo customer service officer on October 9, 2014. "I love the job. It helps me connect with at least 250 people a day and assist them."

He finds the role-reversal--a wheelchair bound person helping others--empowering. "Elders bless me and many young people have told me they feel inspired. Issues related to disabled people who are flying IndiGo are my priority ."

Kumar is from Jhansi. When he was five years old, a doctor's mistake changed his life irreversibly . "I was given an expired penicillin injection that left me in a coma for over a year. I was almost seven when I woke up and my life actually began then."

His education started late but determination and family support kept him going. Kumar is the youngest of four siblings and the first person from his family to work in the aviation sector. He is full of gratitude for IndiGo. "They have been very promising and supportive. My wheelchair that makes me mobile at work has been provided by them. I also get picked up from and dropped back home."

Kumar is ambitious — "I dream to attain a better designation in the same field" — and talented. He is a keen singer and a Paralympics contender. He founded Ally Foundation, an NGO working to empower people with disabilities. His latest project is an autobiography that he hopes to release next month.

His manager, Sameer Kohli, says Kumar is a "rock star" and an inspiration for hundreds at work. "Our regular flyers ask about him. He's there for everyone."

(Courtesy: Times of India)

4.

Sugamya Bharat Abhiyaan

Getting around the physical built-up environment is something most of which take for granted. Stairs, sidewalk, gratings, obstructions, curves, narrow passages etc. are barriers; we walk over, around, or through any routine course. But, for those with disability, a curb or few stairs can be a big barrier.



We seldom pay attention to traffic signals, audio announcements, signs which give us information or direction to use various facilities. Signs, no matter how well placed and how much information rich are users for persons with visual impairment or hearing impairment unless designed properly

We are all physically disabled at some time in our lives. A person with a broken leg, a child, a mother with a pram, an elderly gentleman etc. are all disabled in some way or another. Thus, Needs of the disabled coincide with the needs of majority, and all people are at ease with them.

As such, designing the facilities for the majority implies designing and planning for people with varying abilities and disabilities. An important aim of the society is to integrate persons with disabilities in the society so that they can actively participate in society and lead a normal life.

Ideally, a disabled person should be able to commute between home, work place and other destinations with independence, convenience and safety. The more persons with disabilities are able to access physical facilities, the more they will be part of the social mainstream.

With firm commitment of the government towards socio-economic transformation of the persons with disabilities there is an urgent need to create mass awareness for universal accessibility. India is a signatory to the UN Convention on the Rights of Persons with Disabilities (UNCRPD).

Article 9 of UNCRPD casts an obligation on all the signatory governments to take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas.

Subsequently, governments of ESCAP region gathered in Incheon, Republic of Korea from 29.10.2012 to 02.11.2012 and adopted the Incheon Strategy to "Make the Rights Real" for persons with disabilities in Asia and the Pacific. The Incheon Strategy builds on the UNCRPD and provides the first regionally agreed disability inclusive "Development Goals".

Goal No. 3 of the Incheon Strategy mentions that access to the physical environment, public transportation, knowledge, information and communication is a pre-condition for persons with disabilities to fulfill their rights in an inclusive society. The accessibility of urban, rural and remote areas based on universal design increases safety and ease of use not only for persons with disabilities, but also for all other members of the society.

Persons with Disabilities (Equal Opportunities Protection of Rights and Full Participation) Act 1995 under Section 44, 45 and 46 also categorically provide for non-discrimination in participation, non-

discrimination of the roads and built up environment. As per Section 46 of the PwD Act, the States are required to provide for:

Ramps in public buildings

Provision of toilets for wheelchair users

Braille symbols and auditory signals in elevators or lifts

Ramps in hospitals, primary health centres and other rehabilitation centres.

Department of Empowerment of Persons with Disabilities (DEPwD), Ministry of Social Justice and Empowerment, has formulated the Accessible India Campaign (Sugamya Bharat Abhiyan), as a nation-wide campaign for achieving universal accessibility for PwDs. The campaign targets three separate verticals for achieving universal accessibility namely the built up environment, transportation eco-system and information & communication eco-system.

The campaign has ambitious targets with defined timelines and will use IT and social media for spreading awareness about the campaign and seeking commitment / engagement of various stakeholders. The Department has asked various State Govts. to identify about 50 to 100 public buildings in big cities and also identify citizen centric public websites, which if made fully accessible would have the highest impact on the lives of PwDs.

Once identified, "Access Audit" of these buildings and websites will be conducted by professional agencies. As per the audit findings, retrofitting and conversion of buildings, transport and websites would be undertaken by various government departments. This will be supported by the Scheme of Implementation of Persons with Disabilities Act (SIPDA), an umbrella scheme run by the Department of Empowerment of Persons with Disabilities (DEPwD) for implementing various initiatives for social and economic empowerment of PwDs.

Department of Empowerment of Persons with Disabilities is collaborating with Ministry of Home, Ministry of Health and Family Welfare and Ministry of Tourism for creating 'Accessible police stations', 'Accessible hospitals' and 'Accessible tourism' respectively across the country. The Department is also coordinating with the Ministry of Information & Broadcasting for enhancing accessibility of

Television programmes by incorporating features like captioning, text to speech and audio description.

DEPwD is also in the process of creating a mobile app, along with a web portal for crowd sourcing the requests regarding inaccessible places. With the app, downloaded on his/her mobile phone, any person would be able to click a photograph or video of an inaccessible public place (like a school, hospital, government office etc.) and upload the same to the Accessible India portal.

The portal will process the request for access audit, financial sanction and final retrofitting of the building to make it completely accessible. The mobile app and portal will also seek engagement of big corporates and PSUs to partner in the campaign by offering their help to conduct access audit and for accessibility- conversion of the buildings/transport and websites.

As an offshoot to the campaign, Department has also sought Expression of Interest from IT firms to prepare a mobile app in all Indian languages to locate nearest accessible places. With this mobile app, any disabled person would be able to locate an accessible bank counter, restaurant, ATM or theatre (and similar facilities) nearby. The mobile app will also have provision of evaluating / rating the accessible place by the users.

(Courtesy: THE HANS INDIA)

PROGRAM & EVENTS:



endorsed by



Welcome to CII Design Excellence Awards 2015

In an ongoing pursuit to establish design as a tool for national competitiveness, CII initiated the 'CII Design Excellence Awards' in 2011. In its fifth year, we are pleased to announce that applications are now open for the CII Design Excellence Awards 2015.

Endorsed by The India Design Council, CII Design Excellence Award is a celebration of Indian Design which will present the emerging face of design in India and its newer manifestations. The award seeks to demonstrate the value of design to the Indian industry and will be a true acknowledgement of the prowess of Indian design, innovation and originality.

This Design Award is a perfect opportunity for your company to hog the limelight and gain increased appreciation for being a design-led organization.

32 AWARDS

4 CATEGORY WINNERS

28 SUB CATEGORY WINNERS

Eligibility

Design

- ▶ The entry submitted for the CII Design Excellence Award has to be designed for / designed in India and manufactured and or marketed in India
- ▶ Submitted by a company registered in India

Period

- ▶ Design must be fully commissioned and in market or usage at the time of entry
- ▶ The design must have been realized in the calendar year of 2014 or 2015
- ▶ Prototypes cannot apply
- ▶ The entries must comply with the mandatory applicable standards for the given entry

TypographyDay 2016

Focus on 'Typography and Education'

25 - 27 February 2016 at [Srishti Institute of Art, Design and Technology](#), Bangalore

Call for Logo (deadline 31 July 2015)

Call for Papers (deadline 30 September 2015)

Call for Poster Design (deadline 31 October 2015)

<http://www.tyopday.in>

RFT Awards



Transportation connects us all.

Whether it's simply getting from home to work or using products shipped over distances near and far, in every region of the world transportation impacts our daily lives.

At first glance, transportation may simply appear to be about the movement of people and goods. But looking deeper, it's also closely linked to equality, access to healthy food and good schools, and wildlife impacts, for example.

As the mobility demands of people and freight have grown, so too has the need for products, systems, and services that will make the transportation sector more life-friendly, for both people and the planet.

Registration is now open

Learn biomimicry and how to apply it while competing for cash [prizes](#) with students from around the world.

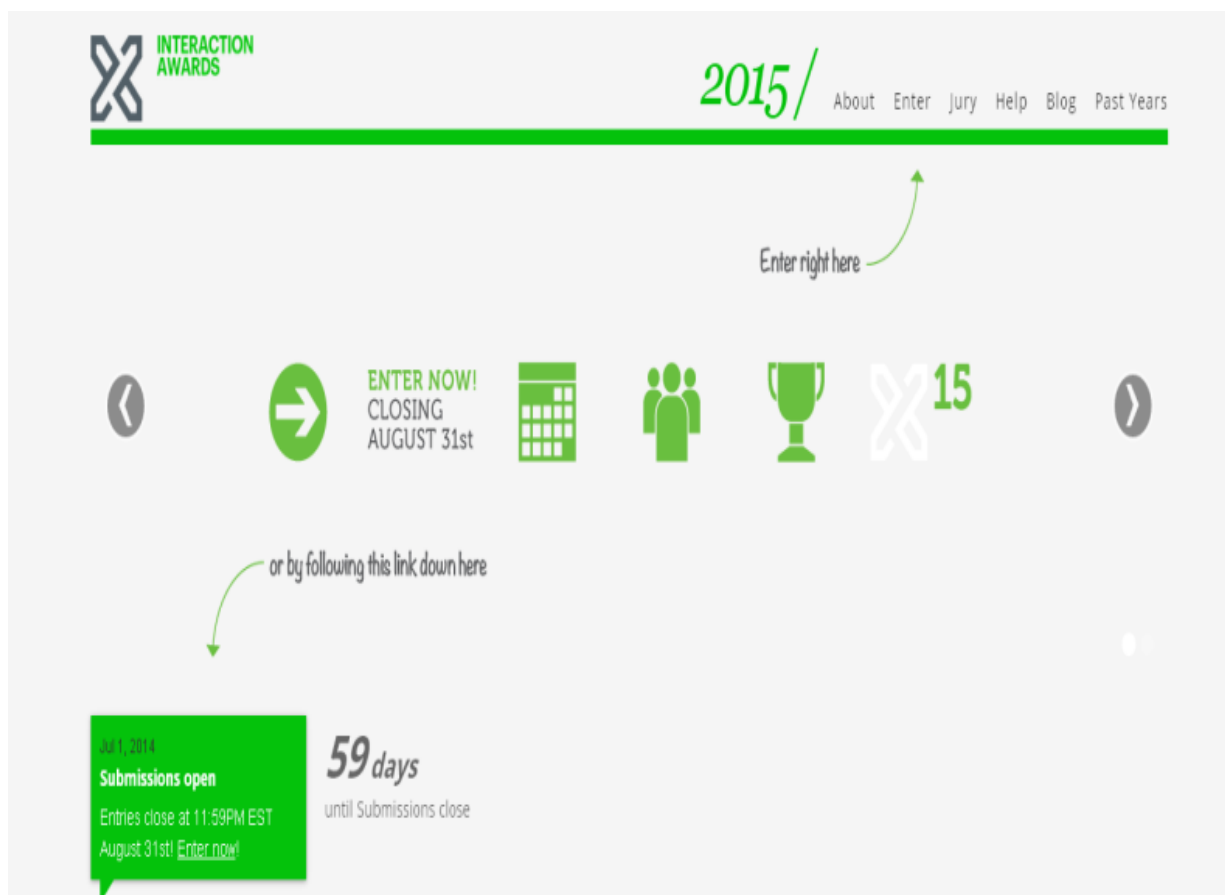
[Register](#) your team for immediate access to the [biomimicry design resources](#) and start developing your design solution today!



Transcend 2015



Interaction Awards 2015



EBU, The Vision for Equality Award



The voice of blind and partially sighted people in Europe

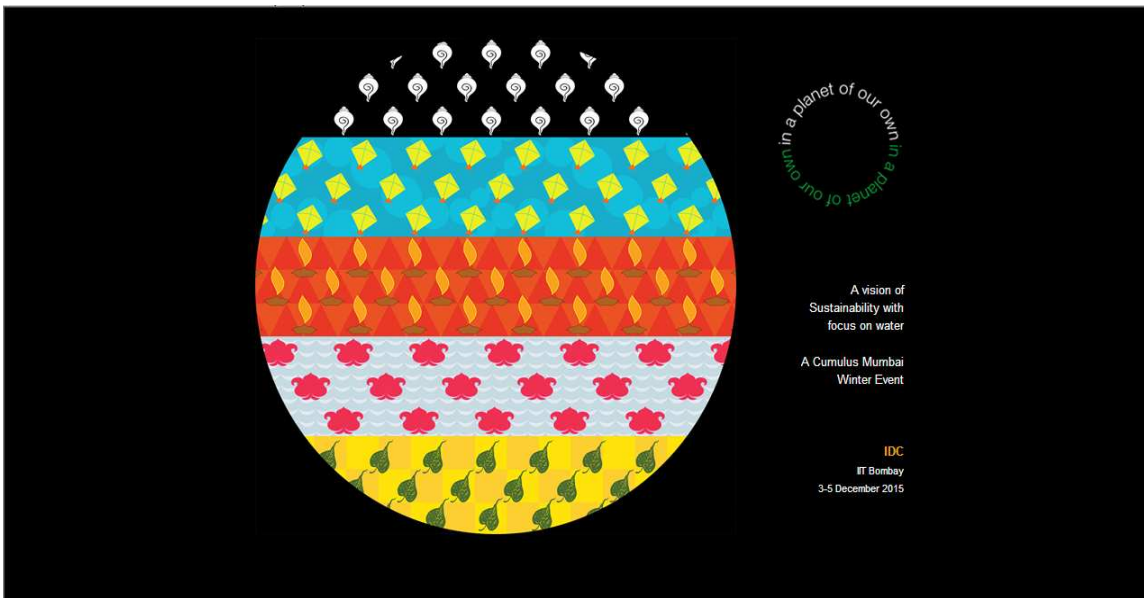
The Vision for Equality Award

The **EBU Vision for Equality Award** is given to European organisations, institutions, policy makers, enterprises or individuals in recognition of their commitment to protect and promote the rights of blind and partially sighted people and to improve their living conditions. The Award, which consists of a certificate and a piece of art by a visually impaired artist, is presented every four years on the occasion of EBU general assemblies.

Nominations may be put forward by EBU national members and are processed by the EBU Awards Working Group.

CALL FOR NOMINATIONS FOR THE 2015 EBU "VISION FOR EQUALITY" AWARD

A Planet of Our Own Cartoon Competition



Car
toon

Competition

We invite you to participate to showcase your ideas on sustainability during the Cumulus Mumbai 2015: In a planet of our own - a vision of sustainability with focus on water' by submitting a Cartoon created by you.

Design Cartoons on the theme of Sustainability with focus on Water

We invite cartoons which humorously communicate the seriousness of the theme, by rethinking sustainability with respect to water in terms of conservation, preservation and recycling. Rethink situations, rethink water, life, thirst, cleanliness, greenery, energy resources and everything else we use day in and day out to keep going. Rethink and depict how the saving of water that can fully give a new lease of life by either going back to nature or going back into the design process as a new paradigm that can affect our world..

Cartoonists are invited to interpret the theme of the event 'In a Planet of Our Own – a vision of Sustainability with focus on Water' as representations through designing of Cartoons. The **Winning Entries:**

- 1. The winning cartoons will be displayed as an exhibition during the event. We expect the exhibition to travel to other places as part of other events.**
- 2. The winning entries will also be published as part of a book to be released during the conference in December 2015.**
- 3. Each of the winning participants will receive 5 copies of the book.**
- 4. The winning participants will also be given the 'Certificate of Winning the Cartoon Competition'.**

**This competition is done in partnership with [Usability Matters.Org](http://UsabilityMatters.Org)
The Jury and the Judgment Criteria:**

The jury will be well-known professionals and socially active personalities. The names will be announced in due course. For judgment, the jury will use criteria such as creativity, humor, visual communication, presentation, persuasiveness, originality, cleverness, relevance of content and execution.

Submission Guidelines:

Entries : up to 5 cartoons per person

Size (hard-copy): A4 (210 X 297 mm) or A3 (297 X 410)

Size (digital): 300dpi and in dimensions of A4 or roughly 2500 x 3500pixels
Please make sure the resolution is 300 dpi so that it is suitable for printing

Technique: free - can be either hand drawn or digital using any medium

and email these with the subject line 'Cartoons' to:
contact@inaplanetofourown.net

or snail mail to:
Cartoons - in a planet of our own

IDC, IIT Bombay
Powai, Mumbai
400076
India

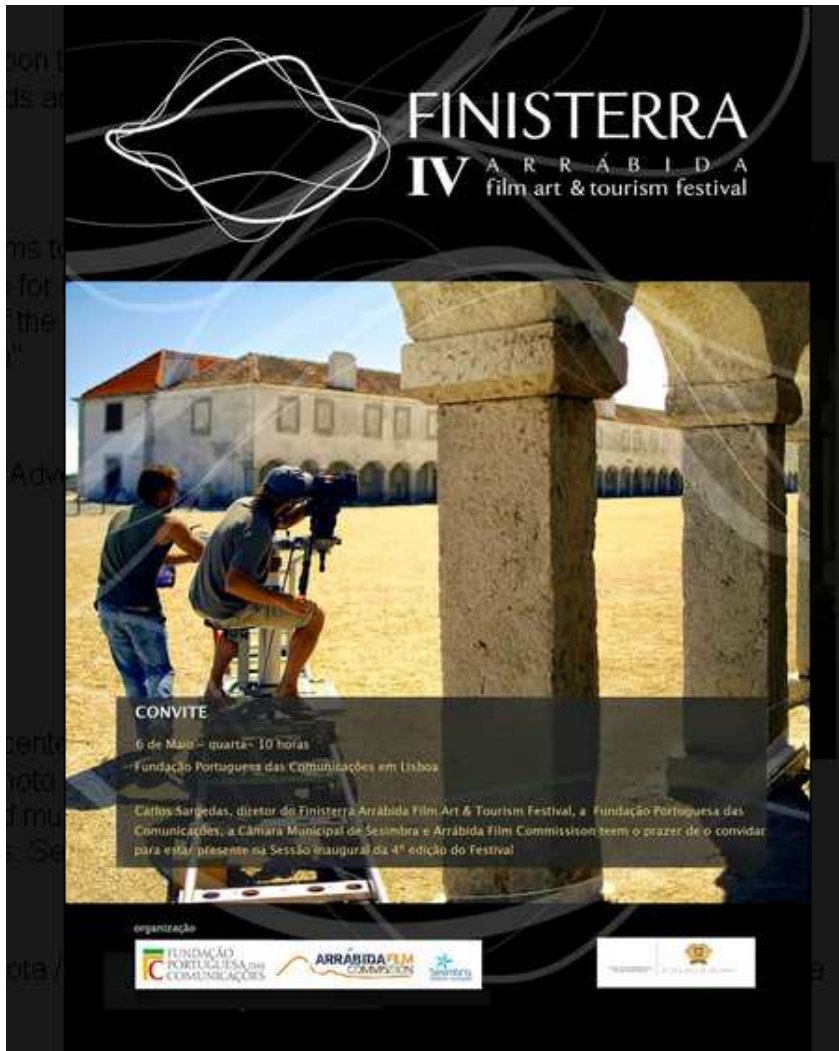


臺北設計獎 
Taipei International Design Award 2015



19th Triennial Congress of the
International Ergonomics Association
MELBOURNE • 9–14 August 2015
www.iea2015.org
Reaching Out



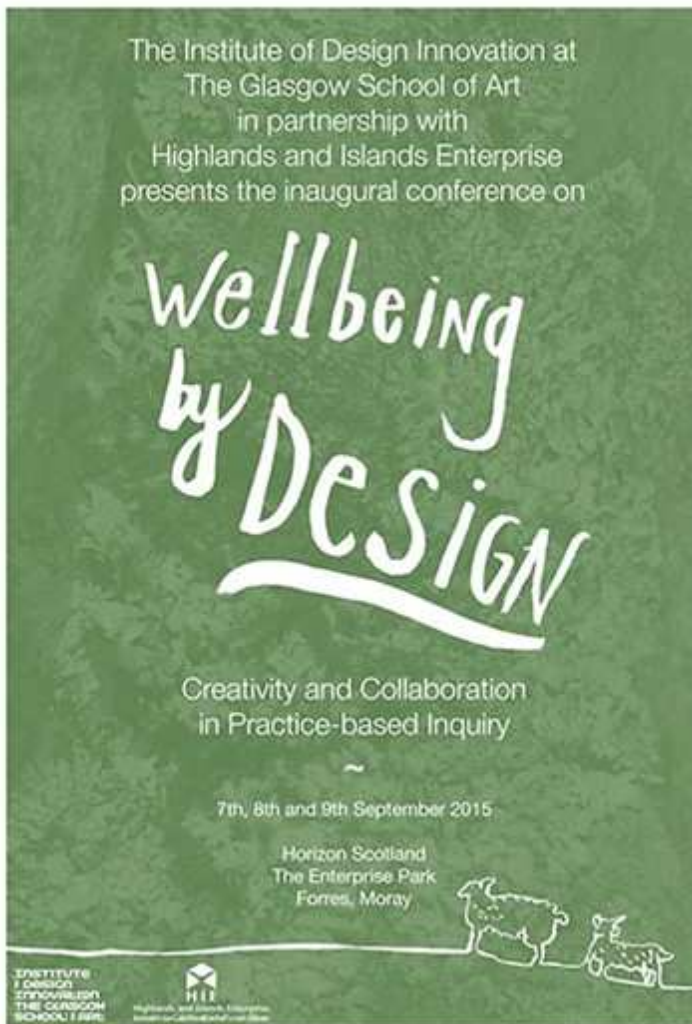




国際福祉機器展

Int. Home Care & Rehabilitation Exhibition

The 42nd International Home Care and Rehabilitation Exhibition 2015 will be held on October 7 – 9, 10:00 a.m. – 5:00 p.m. at Tokyo Big Sight, Tokyo International Exhibition Center, 3-11-1 Ariake, Koto-ku, Tokyo 135-0063, Japan.



Job Openings:

1.

There is an opening for Fashion Design Faculty at Vanita Polytechnic, Varanasi (Affiliated to SNTD Women's University).

Interested candidates may contact Dr.Anapurna Sukla (Director) at polytechnicvanita@gmail.com , Mobile: +91 9451887474.

2.

LeadSquared is looking for a Senior User Experience Designer who would be part of the engineering team at Bangalore.

What we do?

We build software on the cloud for marketers and sales professionals that help them accelerate the customer acquisition and revenue generation process.

Quick Facts about LeadSquared:

- Has been recognized as the No.1 Marketing Automation Software in India by NASSCOM.
- G2 Crowd Grid has recognized us as one of the top performers in Marketing Automation software.
- Featured in Deloitte's Technology Fast 50 India 2014
- We are in Red Herring Asia's Top 100 Finalists - 2014
- Has been ranked as one of the Top 20 Most Popular Marketing Automation Software Solutions by CAPTERRA
- Featured in India's Most Promising Startups in NextBigWhat List 2013 100+ Indian Startups

For more details about the product, please visit <http://www.leadSquared.com>

Here are some other online resources that you can look at:

<https://www.g2crowd.com/products/leadSquared/reviews>

www.facebook.com/leadSquared

www.linkedin.com/leadSquared

Profiles of founders

<http://www.leadSquared.com/team>

The Role

UX Designer will be responsible to identify, analyze and address user experience issues for new and matured users of LeadSquared. The designer will also work with product managers to design experience for new features and enhancements.

The role will involve learning from existing users and also bringing in fresh ideas on making LeadSquared the best platform for marketing and sales automation. Once problems are identified and prioritized, the role involves defining the proposed user experience and UI design. A graphic designer may or may not be involved in this exercise of doing the actual visual design.

Finally, after defining the UX/UI, the designer will work with developers and QA to make sure the improvements reach the final users.

Requirements:

- **Passion for designing and delivering world-class software**
- **Experience of at least 4 years in designing business applications, ideally in SaaS and Cloud environments**
- **Extremely organized and thorough in managing work items**
- **Ability to take full ownership of tasks and lead without authority**
- **Ability to work with graphic designers to finalize the visual design of features**
- **Experience of working on improving/designing at least one app end-to-end.**

If you are interested, send me your updated resume/portfolio or refer anybody you know at jobs@leadsquared.com along with the following details.

Manager - Talent Acquisition

LeadSquared

Enabling Lead Generation Success for Marketers.

www.leadsquared.com

www.leadsquared.com/blog

<http://help.leadsquared.com>

My Phone #: India: Desk: +91 080-6733 0913 | US: +1 404 461 9644

Sales & Support India: +91 90191 72733 | Sales US: (+1) 848-248-4002 & Support US: +1 848-248-4295

Please connect with me on linkedin: <http://in.linkedin.com/in/sridharangv>

3.

Some more vacancies for Full-Time Faculty have opened up in the following areas at GD Goenka School of Fashion & Design:

- FASHION Design, with expertise in Draping;

- **INTERIOR Design; and**
- **Industrial PRODUCT Design**

4.

Bosch UX Teams consist of user researchers, industrial designers, interaction designers, visual designers, prototyping experts and motion graphics experts, working across diverse domains and business segments. The Bosch UX studios in Stuttgart, Bangalore, Palo Alto and Shanghai have multicultural teams with a high level of collaboration between the studios. We are expanding our presence and are looking for energetic, motivated and talented members to join our Bangalore Studio.

1. Senior Interaction Designer

2. Senior Visual Designer

Since we are bringing in the best of user experience for all Bosch products we need people to lead projects, guide and mentor fellow team members and above all someone who can step in and do hands-on work as well.

RESPONSIBILITIES

Collaborate with Bosch business units, Product Management, Design and Engineering teams to design, evaluate, and iterate concepts

- **Deliver high quality design output for various phases of product development**
- **Provide project leadership, mentoring and guidance to other team members**
- **Provide artifacts like sketches, story boards, mock-ups and prototypes of varying fidelity as per the need**
- **Adhere to product style guide and color palette**
- **Communicate design concepts and strategies to stakeholders**
- **Promote design best practices within Bosch**

JOB QUALIFICATIONS

Background in Human Computer Interaction, Interaction Design, Visual Design, Fine Arts or related field

- **Experience level 6-10+ years**
- **Outstanding portfolio to substantiate experience and skill level**
- **Understanding of latest design trends, technologies and tools**
- **Focus on user centered design methodology**
- **Expertise in Adobe Creative Suite and other graphic software**

Both the positions are for our Bangalore Studio.

If interested please send your resume + portfolio (pdf/url) to Sonia.Jaidev@in.bosch.com

5.

We are a start up venture currently located in Jaipur. We are into education and would be needing a logo for our website which is dealing with selling project kits which are curriculum based, mainly science. We will be going live by the url projectsforschool.com.

We are also looking for interns for product design and development of science project kits. Interested candidates can drop in their cvs on wunderkindcare@gmail.com

6.

Am looking for a Mumbai based amateur sculpture/artist or a graduating student in the same field.

Need to get 2 works of 3D art for a new eye hospital. To be treated as an urgent job.

If anyone interested, please mail me directly or call 9920891536.

7.

We are looking to hire a specialist UX Consultant for a short assignment.

The consultant is required to review an existing app design and recommend any quick changes and also help redesign it.

This is intended to be short assignment not exceeding 3 days for the review and recommendations phase. Redesign would be on a longer term depending on the outcome of the review phase.

Reputed Design agencies and UX consultants only would be considered.

Please respond asap to me at prasadgururaj@yahoo.com.

8.

SAP Labs is looking for a UX designer to join one of it's teams in Bangalore.

About SAP: The market leader in enterprise application software, SAP helps organizations fight the damaging effects of complexity, generate new opportunities for innovation and growth, and stay ahead of the competition. The compensation is at par with the industry standards with other lucrative incentives.

Please go through the following JD.

1. Interaction Design – Should have excellent interaction design skills (based on sound knowledge of design methodologies); Should be able to convert business & user requirements into highly usable, innovative, contemporary and creative UI Designs (IA/UI architecture, navigation, layout, content, etc) Experience in designing for multiple devices/channels (responsive design) is mandatory.

2. **Visual Design – Good visual design skills is a must; Should be able to conceptualize and design visual design assets and themes that are appealing and contemporary (including design of hi-fidelity / finished looking UIs and icons)**
3. **Technical – HTML 5+CSS prototyping skills (desired but not mandatory)**
4. **Team work – Experience in working with a multifunctional team of UX Designers, Solution Managers/Subject Matter Experts and Development; especially since the role requires extensive collaboration between multiple stakeholders working in a globally distributed setup**
5. **Field Research – Experience in conducting user research using field research methods is desired but not mandatory. Experience with developing user profiles and scenarios is a must.**
6. **Delivery of UX assets – Create and deliver UX design assets such as wireframes, prototypes, design specifications, icons, etc to development team/stakeholders**
7. **Communication – Good English communication skills is mandatory**
8. **Soft Skills – self-motivated, creative & innovative, pragmatic, demonstrates maturity & emotional intelligence, Is knowledgeable regarding contemporary developments in the field of UX Design (Design + Technical)**
9. **Work Experience – 3 - 5 years of experience in Interaction and Visual Design**

Interested candidates can email on this address - sugunadew@gmail.com

9.

We are a funded product development startup looking for an experienced Wordpress Developer with hands on experience developing e-commerce applications to join us on a full time role.

Work location: Bangalore (Museum Road - Off MG Road/ Church Street).

The ideal candidate should have:

- **3+ years of experience working in web development and interface design**
- **Strong knowledge of WordPress and Wordpress Plugin Development**
- **Strong knowledge of current web development languages (including HTML5, CSS3, PHP/MySQL)**
- **Familiarity with web standards and usability**
- **Eagerness to identify, learn, and use new and changing technologies**

Requirement is urgent hence candidate willing to join immediately would be highly preferred.

Contact: agevenkat@gmail.com

10.

We are looking for a user experience designer with strong interests and capabilities in the design and development of engaging user experiences for mobile applications platform. The ideal candidate will thrive in a work environment that requires strong problem solving skills and independent self-direction, coupled with an aptitude for team collaboration and open communication. This individual excels at providing both highly analytical as well as highly creative ideas to a design engagement. The candidate will also have extensive experience in a fast-paced and innovative development environment. A thorough understanding of contemporary user-centered design methodologies is a must

- **Profile: User Experience Designer**
- **Department: Design**
- **Location: Azoi Mobile Technologies Pvt. Ltd • Koregaon Park • Pune, India**
- **Executing interaction design and visual design as a part of a multi-disciplinary team**
- **Researching interaction design trends, focuses on tasks such as conducting user interviews, interviews, behaviour analysis**
- **Information Architecture : how to organise site content, how search should work, what labels to use on menus**
- **Researching technology trends**
- **Performing other duties as assigned**

ROLE REQUIREMENTS

- **Two or more years of user experience design experience for software, Mobile applications which leverage emergent technologies, consumer electronics and/or mobile devices**
- **Strong conceptualization ability, strong visual communication ability, drawing skills and sketchbook technique, paper prototyping**
- **Exceptional design skills, production value and attention to detail**
- **Ability to create wireframes as well as visual design comps**
- **Strong working knowledge of Photoshop, Illustrator, InDesign, Fireworks, Sketch and associated design tools**
- **Experience with user interface design patterns and standard UCD methodologies**
- **Strong written and verbal communication skills**
- **Understanding of common software project management practices**
- **Understanding of common software development practices**

ADDITIONAL

- **Strong working knowledge of HTML, CSS, Rails, JavaScript/JQuery, ObjectiveC (iOS), C++ (Android) a plus**
- **Wireframes and application flow.**
- **Design for Digital Experience.**
- **Cater to the design of branding, getting deep into the concept. Finalizing the identity, making it suitable for print & web users**
- **Video and sound editing**
- **Bachelor's or Master's degree in interaction design, new media design or related design field**
- **Portfolio to accompany resume**
-

Please address your applications to work@azoi.com / girish@azoi.com

11.

We are looking out for a Graphic Designer for our organization. Am attaching the job description below.

JOB TITLE: Graphic Designer

Required Qualification/ Skills Sets

Required Qualification/ Skills Sets

- 1. A degree or diploma in web/multimedia/graphic design or design-related field**
- 2. Excellence in branding is a big bonus**
- 3. Well-versed with design tools Adobe Photoshop, Flash, Indesign, Illustratoretc**
- 4. Creativity is a must and the ability to create original designs is a bonus**
- 5. Comfortable working in a Mac environment**
- 6. Excellent communication skills and attention to detail**
- 7. The ability to work autonomously and collaboratively to bring projects to completion**

Activities/ Responsibilities

- 1. Designing concepts for cutting-edge, interactive websites and web applications.**
- 2. Supporting the design lead, or senior designer to help deliver client projects like websites, user interfaces, e-marketing collateral [digital fact sheets/case studies/flyers], multimedia, and any other collateral as required by the client**

- 3 Ideating and conceptualizing top-notch creative work for excellent clients – websites, user interfaces, e-marketing collateral, multimedia**
- 4. Work quickly on tasks especially when they involve adaptations of an established design**
- 5. Help define overall site styles and imagery, including page layout (screen schematics) and interactions (user paths)**
- 6. Create unique brand identities for the web and execute corporate re-branding projects**
- 7. Document brand and design guidelines for clients**
- 8. Continually evolve new design techniques as well as learn and research emerging front-end technologies that create significant value for our clients.**
- 9. Support the design of visual design themes and concepts for cutting-edge, interactive websites and web applications.**
- 10. Responsible for design production, image cropping, photoshop treatment, and any support required by the lead designer.**
- 11. Designing PowerPoint and Word templates to match client needs.**
- 12. Optimizing designs for special uses – high resolution for print and low resolution for web.**
- 13. Help in documentation for overall site styles and imagery, including page layout (screen schematics) and interactions (user paths).**

Interested candidates do mail me your updated cv and profile at this same email address. Also do pass on this message to someone else who may be interested

www.paperplane.net

12.

We are a leading manufacturer and exporter of herbal cosmetics and export to over 15 countries. Please forward this opening to friends and colleagues.

Position 1:

Required: Store Incharge for Our Manufacturing Plant located in Jhilmil Industrial Area (East Delhi, Near Shahdara)

Salary: Rs.12000 - Rs.15000 per month In Hand.

Leaves: 7 Casual Leaves and 14 Earned Leaves Per Year. Festival Holidays Extra.

Good Typing Skills and Data Entry is Required. Apply only if you have good typing skills.

Excellent Working Environment.

Position 2:

Required: Dispatch Clerk & Warehouse Executive for Our Mother Warehouse in Ram Nagar, Shahdara

Salary: Rs.10000 - Rs.12000 per month In Hand.

Leaves: 7 Casual Leaves and 14 Earned Leaves Per Year. Festival Holidays Extra.

Good Typing Skills and Data Entry is Required. Apply only if you have good typing skills.

Resumes to be sent to hr@vaadiherbals.com

Immediate Joining Required.

13.

Position: Associate - Visual Designer

Experience: 0-2 years

GlobalLogic Design Team

GlobalLogic , User Experience team is stationed at Noida and Bangalore. We have branded ourselves as the India Design Studio and we are well known as Aadya Design Group. We believe we are original thinkers and creators who mix disruptive ideas and practical wisdom to create innovative products. This is achieved through extensive user research, user centric design methodology, task analysis, definition of detailed use cases and end user personas, interaction design and extensive usability testing.

Skills and Knowledge

- **4-years BFA (Bachelors in Applied Arts) or other related discipline**
- **0 – 2 years relevant experience after 4 years Bachelors degree**
- **Experience in designing application for Desktop , Native, HTML 5 and Responsive Design**
- **Sense of Visualization and execution of graphic concepts, knowledge of the theory and techniques required to compose, produce visuals.**
- **Understanding of design process - from trend and design strategy to concept designing.**
- **Good working knowledge of latest versions of graphic design tools**
- **Outstanding presentation and interpersonal communication skills**
- **Experience working with global, cross-functional teams**

Key responsibilities

- **Assist in detailing out visual concepts/layouts from a visual mock-up or a wire frame.**
- **Assist in creating and interpreting standards, style guides, specification documents and applying them to detailed design.**

- Assist in development of icons and other visual elements with attention to detail.
- Keep abreast of current visual design developments and new methodologies.

Interested candidate can email their resume & portfolio at swapnil.arora@globallogic.com

14.

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Experience: 0-2 years

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Skills and Knowledge

- 4-years BFA (Bachelors in Applied Arts) or other related discipline
- 0 – 2 years relevant experience after 4 years Bachelors degree
- Experience in designing application for Desktop , Native, HTML 5 and Responsive Design
- Sense of Visualization and execution of graphic concepts, knowledge of the theory and techniques required to compose, produce visuals.
- Understanding of design process - from trend and design strategy to concept designing.
- Good working knowledge of latest versions of graphic design tools
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