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EDITOR'S NOTE

I take this opportunity to congratulate all the winners of election for the National Council, Chapters, Centres and Sub-Centres all across the IIA fraternity in India. We, at JIIA, appreciate the renewed outlook put forward by the previous Editorial Team of JIIA, and we assure that we will build upon the good work done by our predecessors.

The quest of knowledge, wisdom and truth has always been considered, in Indian philosophy, as the highest human aim. India inheres a rich and diverse traditional knowledge due to its diverse geographical and climatic conditions. These knowledge systems are based on value and ethics practiced through its cultural systems and shows the expertise in its crafts through traditional technological wisdom. Many of such knowledge systems are documented in ancient texts. In the continual aspirations of society towards 'modernity', there is the need to revive traditional knowledge systems, both classical and folk.

As the New Education Policy (NEP) suggests, Indian culture and philosophy have always influenced the world and these rich inheritances contributing to world heritage must be cultivated and conserved for the future, and researched, enhanced and adapted to new practices through our educational canvas.

Traditional Indian systems incorporate all of the structured disciplines of knowledge which were developed and evolved with sophistication from earliest times. These traditions and practices are those that various communities of India, including tribal communities have evolved, developed and preserved over generations. India's Colonial history led to the adoption of the western system of cultural and resource management. The Colonial hangover resulted in the obliteration or non-recognition and non-application of several traditional architectural knowledge systems in Independent India. Therefore, building on these knowledge systems is an essential task for protecting India 's cultural heritage.

In this context, JIIA has decided that we will explore the possibilities of revival of the beliefs in our Indian knowledge systems, and to explore them for their relevance in the current social-political scenario with various modern technological advancement.

The different sections of the Journal will try to address these possibilities, proposed or already conducted, through their research, design projects, travel, and others. We hope that our readers, whom we believe to be not only architects and our students, but also the general public, who we also aim to inspire through the content we propose to deliver through the forthcoming issues of JIIA.

We would also like promote the Cover Graphics of the Journal which address the legacy of this traditional knowledge system. The cover of the first issue of our term is dedicated to the confluence of water and its connection with architecture in Mandu, which is well explained in the note about the cover theme.

We seek your continual support in the evolution of the JIIA. Thank you and we look forward for your constructive feedback and contribution to our Journal.

Warm Regards
Prof. Vinit Mirkar
Editor

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PRESIDENT'S MESSAGE

Dear Fellow Architects,

Warm Greetings!

After the entire election process, we are now back together as a unified fraternity. With our combined strength and abilities, we look forward to growing together to increase the worth of this profession and contribution to society.

The Installation Ceremonies of the new Teams in all Chapters are testimony to their enthusiasm and dedication towards bringing value by their involvement to the IIA. The calendar of events for 2023 holds the promise of excitement. We look forward to several national programmes: In September 2023, we have The Leadership Training Programme in Odisha for all office bearers in the country and the 20th Asian Congress of Architects (ACA 20) in Phillipines; the Rajasthan Architecture Festival in October, and many new events which are going to be a great addition for our outreach with the fraternity.

It is inspiring to see the architects of Chapters, Centres and Sub-Centres come forward and work actively, with novel concepts and themes to augment and enrich the experience of IIA.

There have to be continual ways in which we can engage with society to increase awareness of what architecture can bring to it. Dynamic interaction and involvement between the stakeholders, experts and authorities is to be taken up sincerely and seriously. As we look towards the future, we are hopeful that we can, all together, work towards increasing the relevance of the profession in creating honest and effective built environments for India.

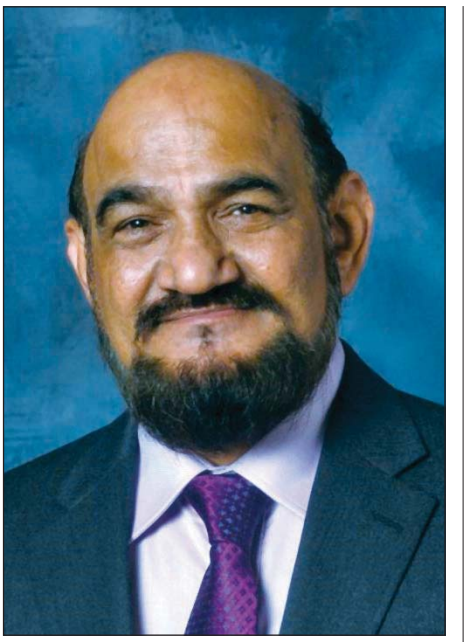
The new team of JIIA brings with it new ideas to add to and reinforce our knowledge of Indian knowledge systems as the main thrust of our Journal. This issue heralds their enthusiasm and diligence to uphold and improve the standards of our publication. The JIIA Correspondents of each Chapter can help to bring forward work done by our members and students of institutes affiliated with IIA.

An innovative addition is the Cover Theme. We urge the student community of affiliated architecture colleges to come forward to design the covers with concepts emerging from motifs and patterns of Indian architecture.

We are sure you will all contribute towards making OUR Journal even more successful.

Best Wishes

Ar. Vilas Avachat
President, IIA.



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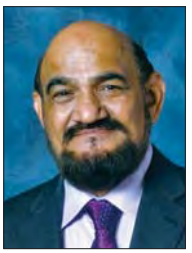

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Cover Theme

Water Channels of Mandu

The essence of the point consists in motion… its motion is most perfect in its nature… it must necessarily resemble a circular figure… the motion above described must be the perpetually circular… must proceed from the centre to the periphery, and from the periphery to the centre… it must necessarily be of a spiral figure…

Emmanuel Swedenborg

The Principia, First Principals of Natural Things (1734). Part I, Ch. 2, Sec. 20 and 21.

The cover design for this month depicts a graphical representation of the famous spiral water channel at the Neelkanth Palace at Mandu in Madhya Pradesh.

The systems designed for water supply at Mandu are well-known. Mandu, located at an altitude of over 600 metres on the Vindhya ranges, has no natural water sources, except through precipitation. This was preserved in nearly 1200 reservoirs of varying capacities, most of them still intact. The pool before the Neelkanth Palace is one such water body which has water channels running on intricate spiral forms. These were filled with sand to filter the water, and the winding form helped control its velocity and temperature before reaching the pool, used for bathing by royalty.

Swedenborg put forward that spherical motion is the very core of creation. The unique geometry of spirals, in this case, two interlocking spirals, has been utilised for its physical characteristics. Whether it is the water channels of Mandu, or the innovative interlocking spiral reinforcement details used to strengthen concrete structures for significant seismic overloads. Architecturally, the historic Tower of Babel and the Guggenheim Museum, NY both harnessed the design of the spiral to reach metaphoric heights. In mathematics, it gives rise to the Fibonacci Sequence and the Golden Ratio.

It is abundantly seen in nature – shells, spider webs, sunflowers, the galaxy, as the vortex of whirlpools and in the double-helix structure of the DNA molecule – both forms which transmit energy.

As ‘re-volution’ or ‘re-evolution’, the trajectory of the spiral has, from ancient times, represented spiritual development and progression in history and cultures the world over. The spiral has symbolic meanings on many levels. It represents the cycle of seasons in nature, of the regeneration of life, the spiritual journey from the ignorance of the outer ego to the awareness of the inner soul. The involution of the vortex and the spiral, through dynamic metamorphosis integrate dualities in transformative stages.

For us, at the JIIA, we look at this symbol of change and development, representing a never-ending journey towards awareness and understanding, through interconnections and interdependence and with a continuing, unfolding respect for our indigenous Indian knowledge systems.

Conceptualized by :
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Academy of Architecture
Mumbai

Designed by:
Krish Mewawala
M.Arch. Student, BSSA, Mumbai
B.Arch. (2023), Academy of Architecture, Mumbai

JIIA Call
for Papers, Articles, Projects

The Journal of the Indian Institute of Architects invites original and unpublished contributions from members **ONLY** (academicians, practitioners and students) under the following FOUR categories. Submission in each category is strictly only through the respective google forms.

In order to be accepted for publication, all material sent in these categories should have the following components:

1. MS Word document file with text only. Please do not format it in anyway. The numbered captions for all the images will also be in this document.
2. Folder with all images (minimum 300 dpi), numbered according to the captions given in your text file
3. Photograph of the author/s (minimum 300 dpi).
4. Author biodata – Maximum 50 words.
5. PDF (optional)– showing the intended layout. This pdf should include text and all images, with numbered captions.

Category 1 : Articles

google form link: https://forms.gle/7pDFva1HDH4hfUyj8

Essays, interviews, articles (1500- 2500 words), book reviews (600 and 750 words), travelogues, sketches and photo-essays in the areas of architecture, planning, urbanism, pedagogy, heritage, technology, ecology, theory and criticism, visual design, practice or any other relevant subject pertaining to the built environment. (Details of the format will be available on the JIIA website).

- For a design project, please include the 'Fact File' with the following details : Project Name, Location, Plot area, Total built up, Structural consultants, Project completion. Also please give the photo captions and credits. Please ensure that the image is referred to within the text. For eg, "As seen in Figure 1…". This is essential for the layout.
- For design projects, plans and sections of the project are desirable along with the photographs.
- Book reviews should be only of books by Indian authors. please include the "Fact File" with the following details: book title, author name, publisher, year of publication, ISBN, language the book is written in, genre (technical/ fiction/ etc.), no of pages, dimensions (in cm), type (Kindle/ paperback/ hardback), available at (amazon.in/ flipkart.com/ others).
- Please send a write-up of about 200-300 words along with sketches and photo-essays.

Category 2 : Student Work

google form link: https://forms.gle/hyhsCoK6QPe6qDJu8

Summaries of dissertations (2000-3000 words) at the level of B.Arch. & M.Arch., and theses at the Ph.D. level. The Guide for that work will be mentioned as the Co-author. (Format will be available on the JIIA website).

Category 3 : Contributions from Chapter Correspondents

google form link: https://forms.gle/Ru4JBLSHwaYEBTcg7

(a) *Chapter News:* This includes various interesting activities from the Centres of your Chapters (maxm. 500 words for the news from the *entire* Chapter).

(b) News of conferences by the academic institutes in your respective Chapters.

(c) *Obituaries :* Obituaries of IIA members should consist of the photograph of the departed soul, the dates of birth and death and a short 50-word note.

Category 4 : Research Papers

google form link: https://forms.gle/Z9YWQQMaw843N1eT6

Research papers (2000-5000 words) in the prescribed format. The research may be based on their ongoing or completed research. (Format is available on the JIIA website). All contributions in this category will be double blind peer-reviewed before being accepted for publication by academic experts of repute.

Category 5 : Cover Design

google form link: https://forms.gle/BSkuE5cApXdy7dX1A

Students from affiliated colleges are invited to design the cover page theme. This should be a graphic based on some aspect of Indian Knowledge Systems. The submission will include the graphic file (jpeg or corel draw); a theme note (with a title) of about 500 words explaining the concept of the graphic.

Please note that the image you send will be adjusted as per the layout requirements of the JIIA Cover.

Please note:

1. All submissions will be accepted only through google forms.
2. Submissions will **NOT** be accepted through email.
3. Any queries to be addressed to : jiiaeditorial@gmail.com.
4. When you correspond with us, please give your email id (that you regularly use) and your cell no. (preferably with WhatsApp).
5. It is compulsory to mention your IIA regn. No. Submissions will **NOT** be accepted from non-members.
6. The review process takes anywhere between 4-6 weeks. Since it may not be possible to respond to all authors who send in their work, we will definitely revert if and when your work is accepted.
7. JIIA does not charge any fees for publication of any
8. professional or academic work.
9. It is understood that submission from an author is an original work, unpublished anywhere else, and that IIA and JIIA are in no way responsible for any matter or dispute arising out of the publication of the same.
10. All authors are requested to refer to further detailed information available on the JIIA website.

RESEARCH

STUDY OF USAGE OF OPEN SPACE BY SENIOR CITIZENS

CASE OF RESIDENTIAL OPEN SPACES IN PUNE, MAHARASHTRA, INDIA

Ayush Prakash Hazare
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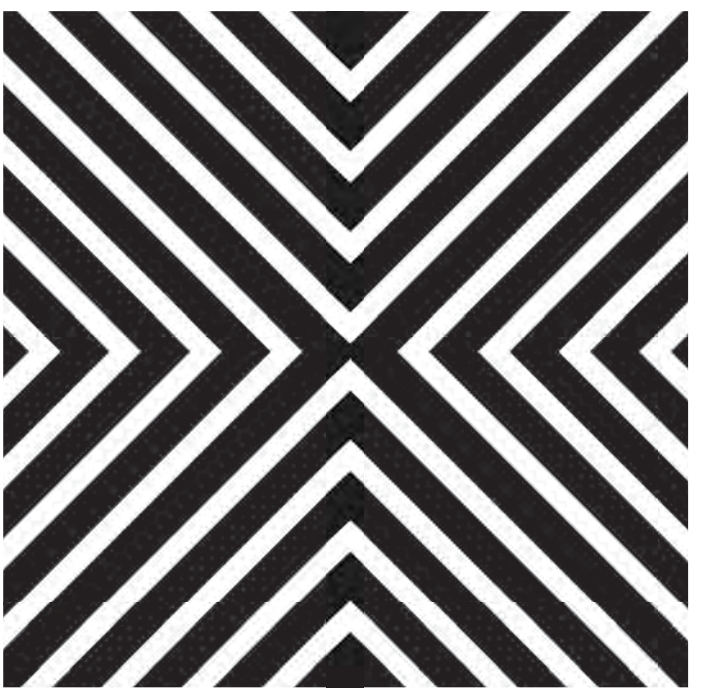


Abstract
For senior citizens, open spaces play a vital part in enhancing social interaction and active ageing. However, due to urbanization, the percentage of open spaces is reduced. This has an impact on senior citizens, both mentally as well as physically. This paper draws attention to the parameters of comfort level, safety and accessibility of senior citizens in open spaces and their interrelationship with their usage. Studies were carried out on 12 varied residential open spaces. Observations, questionnaires and interviews carried out showed that if 3 parameters were satisfied, then it could be inferred that the open spaces were effectively used by senior citizens. As the research advanced the interrelationship between these parameters developed, depicting the dependency of the effective usage of open space by senior citizens on these parameters. The research contributes to the amelioration of effective usage of residential open spaces for senior citizens by satisfying the 3 parameters.

Keywords: *Open space, Senior citizens, Safety, Security, and Comfort level.*

1. Introduction

People who are above the age of 60 are considered senior citizens. According to the Population Census 2011 there are nearly 104 million elderly persons aged 60 years and above in India. These include 53 million females and 51 million males. A report released by the United Nations Population Fund and HelpAge India suggests that the number of elderly persons is expected to grow to 173 million by 2026 (Sharma, 2022). Due to India's rapid population growth, there is a need to address the needs of senior folks in an urban setting. One of the most crucial elements is that the elderly have one or more ailments and have difficulty with movement or function. The basic human activities of the elderly are the same as those of other age groups. However, the ageing process necessitates arrangements for certain demands due to changes in the techniques of carrying out certain actions by senior citizens. Ageing causes bone weakening, muscle abnormalities, tiredness, balance and strength issues, as well as vision and hearing impairments. All these variables put the elderly at risk in urban contexts due to declines in their mobility, spatial awareness and mental capacity. Considering all these health problems, the senior citizens' expectations of housing and the environment are very different from those of other age groups (Turel, True, & Altug, 2007). With the aging of the global population, the World Health Organization (WHO) has put forward a policy of 'healthy ageing', with 'providing the aged with safe, inclusive and barrier-free public spaces' as the goal of global aging health strategy and action (Li, Luo, Xiong, & Zhu, 2021). Various activities are carried out by the elderly in these open spaces which become part of their life. These activities include talking with friends or reading the newspaper and listening to songs. These spaces can be open spaces with seating arrangements or spaces just formed due to the presence of some elements which convert the space into an interactive space for senior citizens. Living in urban areas in closed houses, the open spaces give senior citizens a chance to breathe fresh air and connect with the outer environment. In urban areas, open spaces are allocated for various purposes without giving a thought to the purpose it was intended for. For instance, open space is provided in an isolated area that is to be used as a park for senior citizens, but due to lack of accessibility, safety, comfort level as well as improper locations senior citizens do not use that open space. It eventually gets converted into an area where illegal practices take place or for parking. For the well-being of senior citizens, open space plays a vital role and there is a need to design open spaces which help them in healthy aging in urban areas.

2. Literature review

Senior citizens spend more of their time inside or close to residential housing as well as open spaces near them than any younger person (Sarkissian & Stenberg, 2013). Senior citizens like to spend some of their time often in open spaces rather than within enclosed spaces where they spend most of their time (Narkhede & Dharia, 2018). Senior citizens often spend their free time outside in the sun and breathing fresh air (Noon & Liat, 2018). Moreover, senior citizens like to spend time with people of the same age group. The open space is a place where they experience change from their day-to-day life. Being in the open space has a positive impact on their physical health and their well-being (Singh & Kiran, 2014). As senior citizens retire, their status moves more towards familial life, while their social and economic status also changes. Due to this many senior citizens tend to miss the work they had done previously. Their demand for social activities increases (Tian, Kim, & Wang, 2022). Many senior citizens enjoy mental tranquility and leisure time when they are close to nature. Lawns, ponds and garden areas are popular places (Li, Luo, Xiong, & Zhu, 2021). Street furniture like illumination and benches are especially liked by elderly people in public spaces. Optional furniture such as sideboards, and fountains also enrich a place and affect the elderly people's desire for using such outdoor spaces (Turel, True,

& Altug, 2007). While seated, senior citizens carry out various activities like reading, talking to their friends and viewing pedestrian movement as well as vehicular movement. The public spaces with street-facing seats are popular among senior citizens (Fang & Chul, 2017). The safety of the physical environment contributes to the social life of the elderly (Alidoust, Holden, & Bosman, 2014). Moreover, senior citizens prefer open spaces which have landscaped or green areas or accessibility through green areas or covered walkways (Wen, Albert, & Haaren, 2022). Open space also has a lot of benefits on health like walking as well as exercising. Also, it provides an opportunity for leisure activities (Lee & Maheswaran, 2010). Due to the global trend, people are focusing on the health of ageing and senior citizens and the improvement of open spaces (Li, Luo, Xiong, & Zhu, 2021).

3. Methodology

The research was carried out to understand and study the usage of open space by senior citizens. During the research, the parameters studied were accessibility, comfort level and security within the open space for senior citizens. To study all the parameters, various methods were used, like observations, interviews, photo documentation and case studies. The locations of the research area are shown in Figure 1.

Figure 1: Locations of study area where research was conducted *(Source: Authors)*

Figure 2 represents the accessibility of open space for senior citizens at the 12 selected locations. The thicker arrow represents the ease of accessibility. The dots each represent 15 minutes. The time spent by senior citizens in the open space directly implies the comfort level of open space.

From the data collected, it has been seen that the open space closer to the residential housing society is easily accessible by the senior citizens and they do not require to travel far to visit these spaces. Some spaces are further from their houses. They do not feel comfortable visiting these spaces, especially when they are required to cross roads. The comfort level of open spaces is dependent on the amount of time the senior citizens spend there. The more time they spend in it, the more comfortable it can be said to be.

The open spaces which are provided with seating made senior citizens feel more comfortable. A raised platform can also play a part in the usage of open spaces by senior citizens. For example, the raised platform connected and adjacent to a road in one of the locations selected for research afforded a view of the pedestrian as well as vehicular movement which helps keep the senior citizen engaged. Hence they prefer to spend most of their time sitting in such open spaces, just viewing these movements. Therefore the position and location of the open space also impacts the comfort level of the senior citizens regardless of whether sitting arrangements are provided.

Table 1 shows the seating provided in the open space and how the activity of senior citizens changes accordingly at different locations. The seating alone provided in some open spaces for senior citizens is not enough to make an open space comfortable. The arrangement of seating also plays an important role also the location of sittings provided affect the senior citizens. In the spaces where sittings are not provided, the raised platform acts as a seating area; at such places the workability of raised platform is dependent on the location of raised platform and its position as well. A place is comfortable if it also is shaded by trees or any artificial covering. The seating in some locations, as provided by the municipal authorities, was placed adjacent to the road. Hence, it had a clear view of pedestrian and vehicular movement. However, the drawback was that it was situated at the junction of three roads. Crossing the road is difficult for the elderly. Instead, they preferred to visit the space in the mornings, when the traffic was lesse, but felt unsafe after sunset. It was found that senior citizens felt comfortable in spaces near the temple because of the continuous public movement and its location just adjacent to the road and close to their houses. The places which do not have shaded spaces are unused in the afternoons and used only during the early mornings and evenings.

Figure 2: Accessibility and Comfort level of open space (at 12 different locations) for senior citizens.
(Source: Authors)

4. Results

Figures 3 and 4 show the safety of senior citizens in an open space at various times during the day. From these two figures it can be observed that the open space close to or adjacent to the housing society can be easily accessible by senior citizens. This is because it takes less time to reach the open space. Moreover, after sunset, it also becomes difficult for senior citizens to go out to visit the open space. But the open space nearer to their residential housing senior citizens feel safe visiting the spaces even after sunset. Though some spaces are away from their homes, senior citizens visit those spaces in the mornings on the way to their jogging for a water break or to read newspapers.

The comfort level of an open space is dependent on the amount of time an elderly person spends. Figure 2 shows that open spaces which are easily accessible by elderly people are more comfortable. Senior citizens felt more comfortable and spent more time in open spaces where the seating arrangement is provided facing pedestrian or vehicular movement. In the space where the vehicle movement or pedestrian movement was not visible senior citizens felt less comfortable and sat for a maximum of 15 to 30 minutes.

5. Discussion

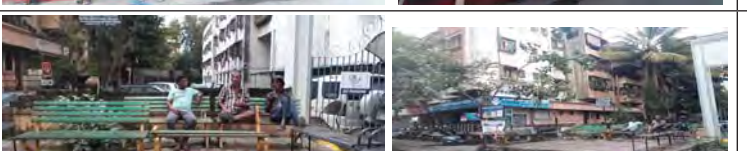
Due to urbanization, cities are expanding vertically instead of horizontally . There is a lack of open spaces in urban areas for every age group. The senior citizens felt this change most drastically, having previously lived in houses with lots of open spaces. These are, however, are evanescing and going missing in the current housing scenario, and getting distinctive in terms of area. Senior citizens feel caught in the vertical towers and the need for open space is felt. The role of open space in senior citizens' life plays a vital role. Not only does it it impact their mental health but physical also. For a senior to effectively use open space, all three elements must be operational. If any one of the parameters fails or is not implemented, the use of open space by senior citizens gets affected.

Twelve locations in Pune were taken into consideration for this study. Each of the 12 locations had different residential societies around it. Through studies, the interrelationship between the usage of open space by senior citizens concerning the location of the open space, the comfort level of the open space, the accessibility to the open space, and the safety and security of the senior citizens in that open space were developed.

Firstly, the accessibility of an open space plays a vital role in the usage of open space by senior citizens. It was seen that if the open space is not easily accessible by the senior citizens, their comfort level is affected and they spend less time in the open space, for hardly 15 minutes or 30 minutes. This usually constitutes a water break or just sitting for a few minutes after a long walk. This represents the relationship between open space and comfort level.

The comfort level of open space can be studied by the amount of time spent by the senior citizens in that open space. If the senior citizen spends more time that represents the open space is more comfortable and if the senior citizen spends less period in that open space, then it represents that the space is less comfortable. The comfort level depends upon the arrangements of seats provided in the open space, along with their location within the open space. Comfort levels are seen to be affected if the open spaces are provided at a dead end or at any location where there is little or no movement or of vehicles or pedestrians, or any activity happening this affects the usage of the open space.

Table 1: The 12 locations with seating provided in the open space. *(Source: Authors)*

Locations	Images of Provision of Seating	Provision of Seating
Location 1		NO
Location 2		NO
Location 3		YES
Location 4		YES
Location 5		NO
Location 6		NO
Location 7		YES
Location 8		NO
Location 9		NO
Location 10		YES
Location 11		YES
Location 12		YES

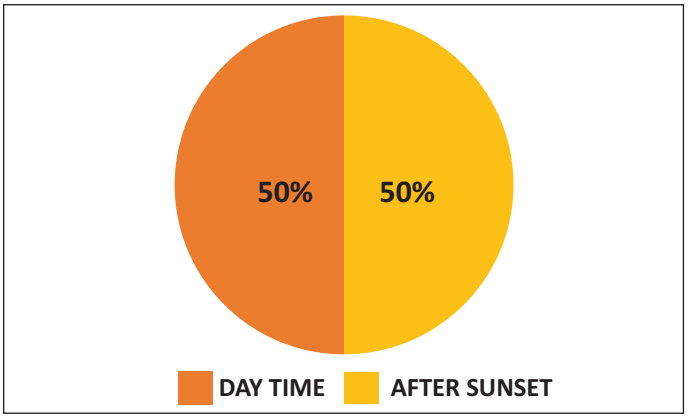


Figure 3: Percentage of senior citizens visiting an open space located away from their residential housing CT|
(Source: Authors)

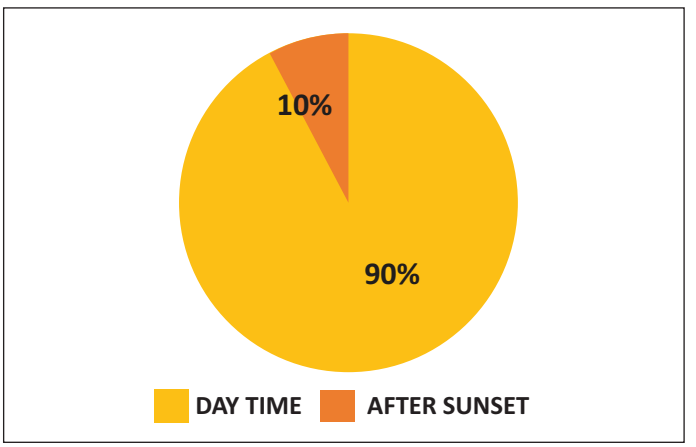


Figure 4: Percentage of senior citizens visiting an open space located close to their residential housing
(Source: Authors)

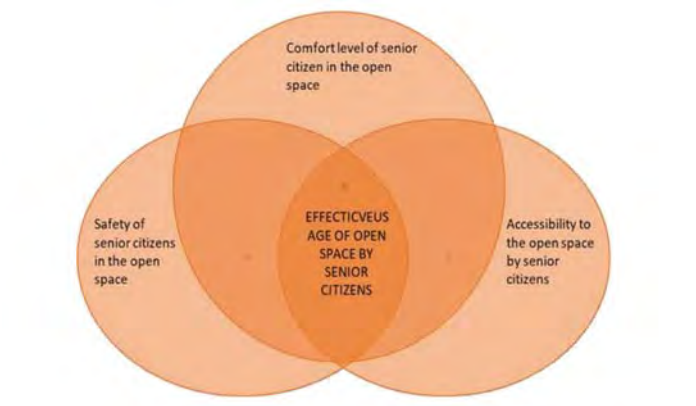


Figure 5: Relation between Effective usage of open space by senior citizens and Safety, Comfort level and safety of senior citizens in the open space
(Source: Authors)

Through studies, it has been found out that senior citizens like to view pedestrian and vehicle movement and they can sit for hours and hours in any open space. If it gives a view of pedestrian as well as vehicle movement. The spaces which were away from their housing society, the senior citizens were required to cross the road while crossing the roads as a result it affected the accessibility to the open space and safety of the senior citizens. Hence the spaces which were closer to the residential housing senior citizens felt safer and more secure in those places and they visited these spaces even after sunset.

6. Conclusion

The research investigated the interrelation between the three parameters and their impact on senior citizens. Urban planners, policy makers and designers must give a thought while providing open spaces for senior citizens. Taking into consideration the parameters will help satisfy the sole purpose of the open space and prevent it from being converted into parking lots or home for various illegal activities.

As important as the location of open space, is the allocation of space as well as the maintenance of the open space.

The furniture, landscape, illumination, etc. should be in good condition. Also, at the housing level builders and designers should critically understand the need for open space for senior citizens by learning about their needs and requirements. The open spaces for senior citizens shall be designed/planned by taking into consideration the mindset of the elderly and while doing so as shown in Figure 5 the three important parameters (accessibility, safety, and comfort level) should be considered only then the effective usage of open space by senior citizens can take place.

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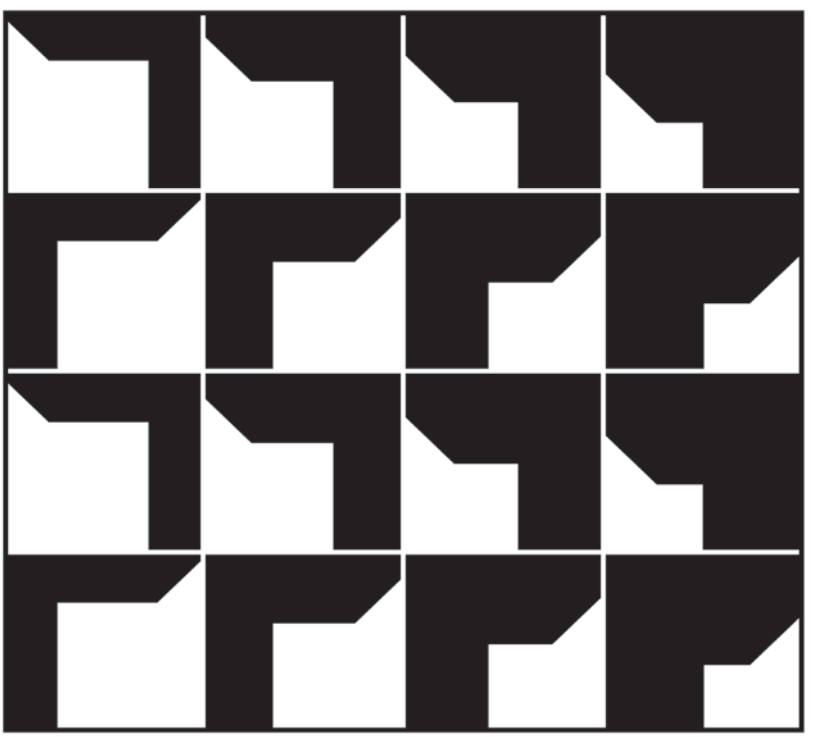
Improving Quality of Life for Patients with Serious Illnesses

Centre for Palliative Care at Pune.

Snehal Kinikar
Dr. Vasudha A Gokhale



Abstract

Palliative care (PC) is offering holistic comfort care to patients with incurable, life-limiting conditions and providing relief from distressing symptoms. In India, 60,000 people need a PC in a year but just less than 1% are able to get it. Terminally ill patients suffer from pain, depression and grief that has a disease that cannot be cured and has a range of days, months, or years of life expectancy that may eventually lead to their death. This B.Arch. the dissertation proposes a Centre for palliative care at Pune, which aims to provide a conducive healing environment and state of the art medical support based on WHO's expanded definition of palliative care that includes care for patient's emotional and spiritual needs and considerations for family members' and caregivers' health and well-being. The focus of this project is to provide physical, psycho-social or spiritual healing to patients to alleviate suffering and provide the best possible quality of life through architectural interventions. The facilities provided for actively engaging different cohorts of patients at any point in their illness trajectory and in their preferred setting to help them to live their life as fully and as comfortably as possible when living with a life-limiting or terminal illness.

1. Introduction

Palliative care facilities are still at a nascent stage of development worldwide, particularly in developing countries that need to include it in national health policies considering it a significant public health problem. This aspect adversely affected the patients in need of palliative care (PC). The World Health Organization (WHO) defines 'p*alliative care'* as an approach aimed at improvement of the patient and their family member's quality of life who suffer from life-threatening illnesses. It includes preventing and relief of pain and suffering through early identification and impeccable assessment, providing necessary medical treatment, and psycho-social and spiritual well-being. WHO considered palliative care focusing on pain relief essential for patients not responsive to curative therapy in the early phase. The definition is expanded to include care for patient's emotional and spiritual needs and considerations for family members' and caregivers' health and well-being (Sepúlveda, 2002). Palliative care represents a person-centred approach for people with advanced life-threatening illnesses provided by a team of competent medical professionals and caregivers addressing patients' physical, emotional, social and spiritual needs. It is an integrated, systematic preventive model of care based on the multidimensional assessment of physical status and identification of patient's values and preferences (Gómez-Batiste, 2017).

1.1 The Need for Palliative Care

The significant un-met need for palliative care is a common phenomenon globally. It is estimated that of the 58 million people dying annually, at least 60% (35 million) will suffer from an advanced and prolonged illness that needs palliative care (Stjernswärd, 2007). Although access to a palliative care facility is a crucial and integral part of universal health coverage, its existence in most of the world is alarmingly less. The lack of access to primary palliative care interventions like physical therapy and pain relief medication for more than 75% is a serious concern. According to the *Lancet Commission*, more than 61 million patients suffering due to terminal illnesses could be ameliorated by providing efficient palliative care (Radbruch, 2020).

1.2 The Concept of Total Pain

Understanding 'total pain' is fundamental to diagnosing and assessing suffering, the sum of the patient's physical, psychological, social, and spiritual pain. Physical pain, lack of social support and psychological distress render terminally ill patients vulnerable where the treatment of total pain becomes imperative, particularly at the end of life. Addressing the elements of total pain is required for optimal pain relief, requiring a multidisciplinary team that includes physicians and social workers to cover the different domains of total pain. Control of pain and related symptoms, motivating to achieve self-control, and finding meaning in life are significant aspects of palliative care. At an advanced stage of illness, patients and family, does tolerance to physical and psychological stress decrease perceived closeness to the threat of life. At this stage, the precedence of PC interventions focusing on restorative care is desirable (Shaiova, 2008).

1.3 Historic Perspective

The concept of palliative care was coined by Dr. Cicely Saunders in the late 1950s based on the careful observation of dying patients, believing that an interdisciplinary team could relieve the 'total pain' in the context of his or her family, and the team. In the 1960s, a psychiatrist in the United States, Dr. Elisabeth Kübler-Ross confronted fierce resistance to treating people at the end of life with respect, openness and honest communication through her book called *On Death and Dying*. In 1974, Dr. Balfour Mount, a surgical oncologist at The Royal Victoria Hospital of McGill University reasserted the term 'palliative care' to avoid the negative connotations of

the word 'hospice' in French culture, and introduced Dr. Saunders' innovations into academic teaching hospitals. In 1997, the Institute of Medicine report, *Approaching Death: Improving Care at the End of Life* documented glaring deficiencies in end-of-life care in the United States. *Wood Johnson Foundation* and George Soros' *Open Society Institute* launched palliative care in mainstream nursing and medical practice. Many clinical studies were carried out by the palliative care faculty, based on which, the *Clinical Practice Guidelines for Quality Palliative Care* were first released in 2004. This expanded the focus of palliative care to include not just dying patients, but also patients diagnosed with life-limiting illnesses. Taking its place in academic medicine, the new sub-specialty established to enable future generations of physicians to gain palliative medicine skills while advancing knowledge in the field with a noble cause of fulfilling the promise to patients and their families that society will not abandon them when medical treatments fail and that, at all times, there will be a persistent effort to relieve their suffering (Loscalzo, 2008).

1.4 Philosophy of Palliative Care

Advanced illnesses result in progressive deterioration, and death is inevitable, where PC aims to provide a dignified life and optimize the patient's quality of life before a peaceful death (Murray, 2005). Efforts to reduce child mortality have gained attention, leading to large-scale global efforts. However, the need for PC for children, who need PC for more extended periods than adults is, ignored significantly (Connor, 2017). In developed countries, cancer patients are provided with good palliative care facilities. On the other hand, developing countries like India, have unsatisfactory access to specialist palliative care (Hawley, 2017). In PC program instructions, directives are based on the patient's wishes, life goals, values and experiences considering their cultural, spiritual, and religious priorities (Moss, 2004).

2. Aim and Objectives

This project aims to provide well-equipped facility for a holistic palliative care for patients of all age and economic groups with life-threatening diseases from diagnosis to end of life.

The objectives are:

- Provide space offering holistic comfort for staying to different cohort of patients in light of their medical, psychological and social needs.
- To create facilities to motivate patients for participating in socialization, activities, to keep them engaged as coping strategy.
- Providing well equipped space for different therapies as a part of holistic care.
- Design of outdoor space to integrate the inside and the outside environment for a comfortable navigation through various spaces.
- Strategic landscape design with purposeful selection of plant material and soft scape.
- Addressing spatial needs of doctors, nurses, caregivers and accompanying family members.
- Create facilities for organizing seminars, lectures, training sessions, camps enhancing community awareness on palliative care.

3. Methodology

The project follows a five-step approach. The first step is the literature study to find the concept of palliative care, various physical psychological, social and spiritual aspects associated with terminally ill patients and current status of palliative care facilities. It is followed by case studies to see palliative care facilities in the real-world context, aimed to analyze various architectural aspects that may support and convey different ideas and approaches in design. Besides, informal interviews conducted with doctors and patients to gain more insight into palliative care phenomenon. In the next step an appropriate site is selected and analyzed with field survey and secondary data for demographic and climatic consideration. Based on case study and research the design programme is formulated. The final stage included design conceptualization, design development, detailing and presentation.

4. Case Studies:

Five case-studies were conducted. A comparative analysis was made on these cases having different location and environmental characteristics, in order to find the negative and positive aspects with the aim of contributing to the proposed design:

- Cipla Palliative Care Center, Pune.
- Nityanand Rehabilitation Centre, Pachane Branch
- Niwara Old Age Home, Pune
- St. John Rehabilitation Center, Toronto
- Beit-Halochem Rehabilitation Center, Israel

*4.1 Inferences from case studies and informal discussion with the stakehol***ders**

Living with nature is a prerequisite that need well designed open spaces for patients that motivate them to interact and help in reducing loneliness.

Constant assistance is the need for palliative care patients.

- Palliative care patients need various therapies such as, occupational therapy, music, dance, speech, language and physio-therapy.
- Pathways, corridors should be accessible for wheel chair and stretcher movement.
- Support staffs that include nurses, care givers need a good working environment, staying facility.
- Family members and volunteers help in care that need space to relax, keep their belongings.
- Minimum two resident doctors are required to give 24-hour care.
- A well-equipped facility is needed for providing hygienic / specialized food for patients and others.
- It is beneficial to keep patients busy in various activities to distract them from suffering.

5. Site Context

The site is located in Pune near Pashan lake, far away from the city but still in the city limits enabling the medical practitioners, volunteers and supporting staff to commute frequently. It provides a serene and clam environment with hills and water body in vicinity. It offers a good connectivity to Mumbai and Bengaluru as it is connected to the Mumbai-Bengaluru highway, yet is secluded due to its indirect connection and presence of a buffer space full of vegetation.

A detailed site analysis performed considering climate, micro-climate, orientation, urban design features etc. The site has a gradual slope with an area of 43,000 sq.m and has two approach roads on its north and west side. The site analysis is presented in fig.1

6. The Design : Healing Through Spatial Design and Space Allocation

This is a patient-centric design which aims to have pain management through four types of healing processes that include sociological healing, psychological / emotional healing, spiritual healing, and physical healing. For each various spaces are allocated as shown in fig.2.

6.1 Holistic Spatial Planning:

Palliative care involves a range of services delivered by a range of professionals that all have equally important roles to play including physicians, nursing, support workers, paramedics, pharmacists, physiotherapists, and volunteers in support of the patient and their family.

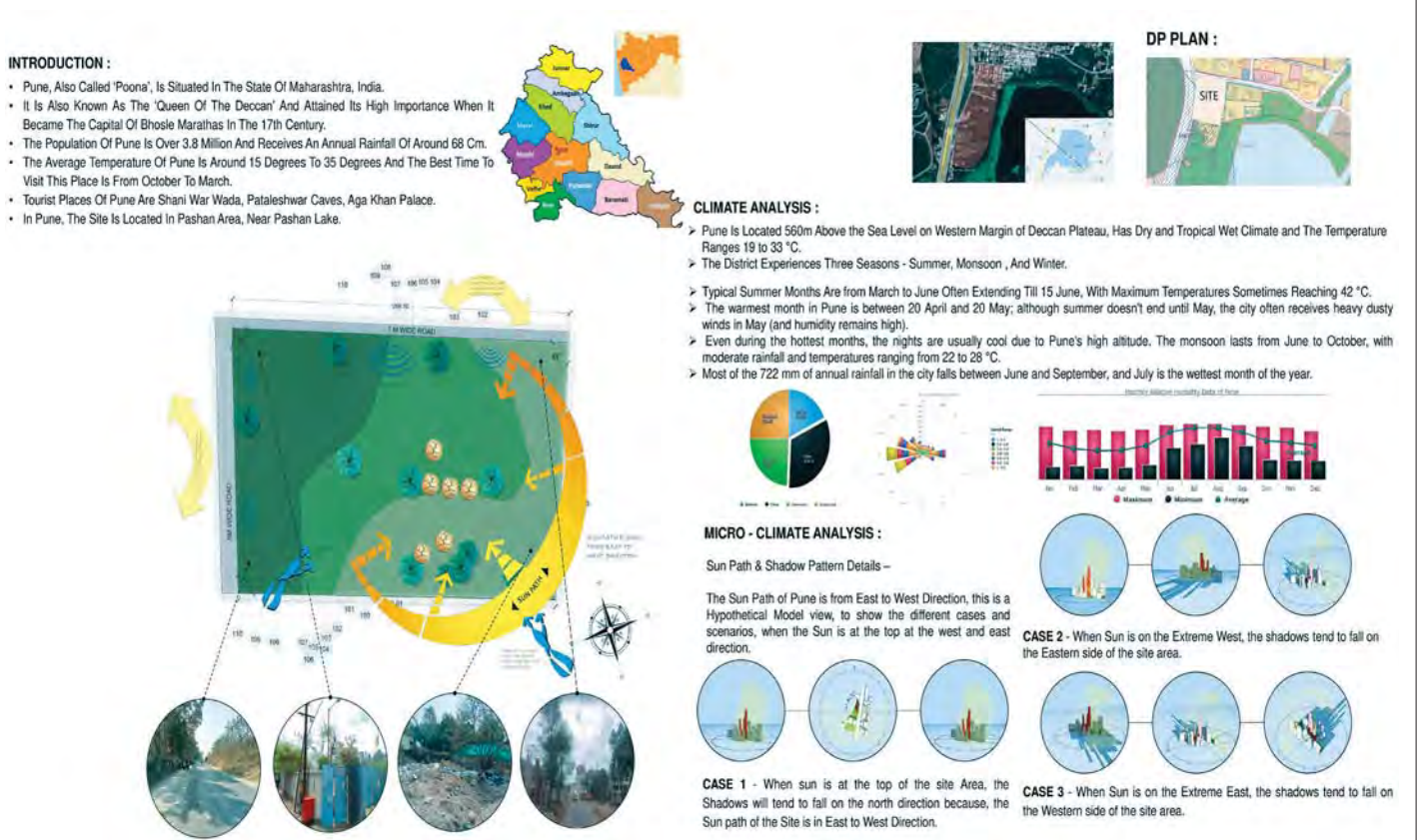


Fig. 1: Site Analysis

Fig.2: Healing and Space allocation

The spatial planning aimed to cater to the spatial requirement of patients with different age, gender and stage of disease, for medical staff, applying various therapies, space for support staff that are the backbone of palliative care and well-designed space for various activities and to house required ancillary services. The broad level classification of spaces is presented in fig.3

6.2 The Spatial Design

The design includes a specially designed staying facility for patient cohort, each of which includes a 20 bedded general ward, 20 bedded children's ward, 20 semi-private units, and 20 private units. The details of each are presented in the next section. A centrally located therapy center house various therapies with state-of-the-art facilities. A central multipurpose space with a stage and seating have effortless access to all the patients on foot, walkers, wheelchairs, or even stretcher beds intended to motivate them to participate in social and religious events. A multipurpose hall and adjoining Amphitheatre designed to host awareness programs, seminars, lectures, events, blood donation camps, etc. A dining hall/restaurant serving prescribed meals to patients and various food options for accompanying people and visitors. Other facilities include a pharmacy, blood bank and an administrative block that houses cabins for two palliative care experts, a respiratory specialist, a neurologist, and a psychiatrist, in addition to administrative staff and accounts. As family members play a significant role in palliative care, dorms and common rooms are designed to provide them with short-term accommodation; however, six fully furnished units provide a staying facility for family members who need long-term stays and promote medical tourism. Nurses and caregivers are lifelines of palliative care; hence a fully furnished unit is designed for – a number of nurses who are supposed to provide 24-hour care in addition to the residential facility for two doctors. The detailed layout is presented in Fig.4.

As the patients are the focus the three ward typologies were designed catering to the different patient's cohort considering their peculiar spatial, physical, social and spiritual needs:

- *General ward* is designed having two parts could have gender segregation with enough space

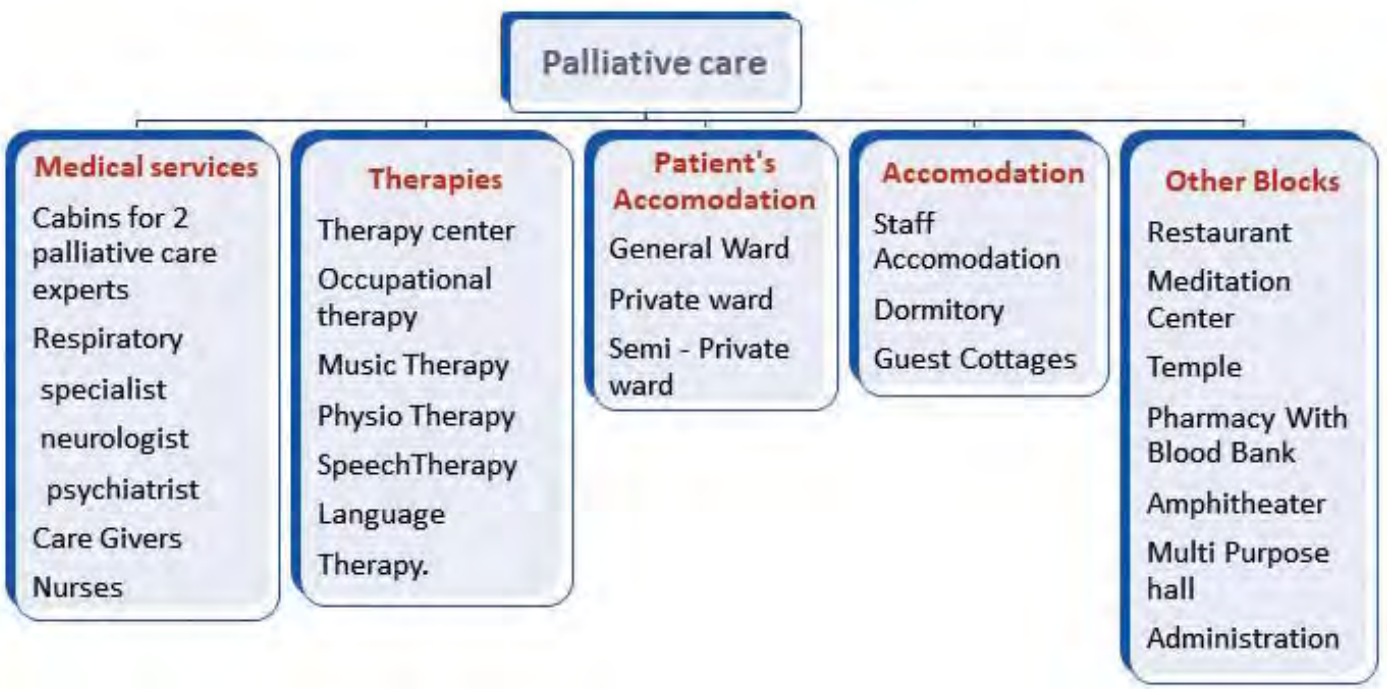


Fig.3: Classification of Spaces

Fig 4: Site Layout

for patients to move with wheelchair, walker and spend time with fellow patients. Many patients who need frequent assistance, do not have family member accompanying, not able to afford private accommodation are housed here. The centrally located toilet block with a refreshing landscaped area in front is to motivate patients to access them on their own keeping them physically active. The children ward have multiple indoor activity to engage throughout the day and connected with an outdoor playing area and located near accommodation for family members and nurses to keep an eye (see Fig.5).

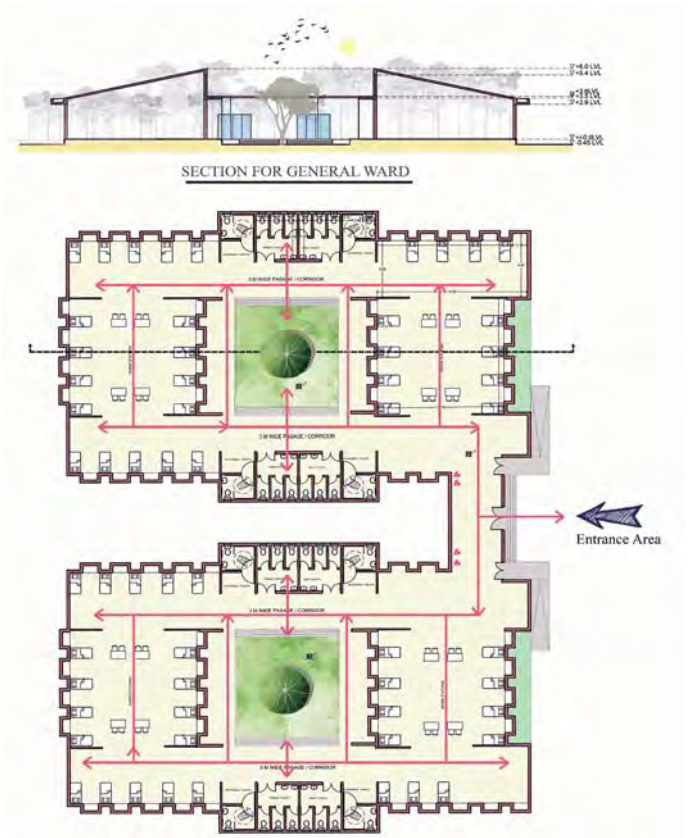


Fig. 5: General Ward

- *Semi-private* ward unit could be shared by two patients or with a family member as many times patents with severe illness fell comfortable with their beloved ones. The wards have a central courtyard a common space to pursue hobbies, spend time with peers and care givers or to have in-house social and therapeutic activities. (see fig. 6)
- *Private wards* are designed for the terminally ill patients who need long term accommodation. It is located near temple and have direct access to the yoga and meditation space as religiosity is increased at the end of life stage and having temple in vicinity provide a sense of strength and courage to accept the reality of life (see fig. 7).

7. Design Strategies

7.1 Healing Through Landscape Design

Landscaped spaces provided as a healing design factor that reduces stress and fatigue. The design of hard- and soft-scapes like shrubs, plants, water bodies, specially designed benches, and artistic features within the complex also assist the navigation for patients also act as local landmarks for them use to orientate themselves. Patients are able to view

Fig. 6: Semi-private Ward

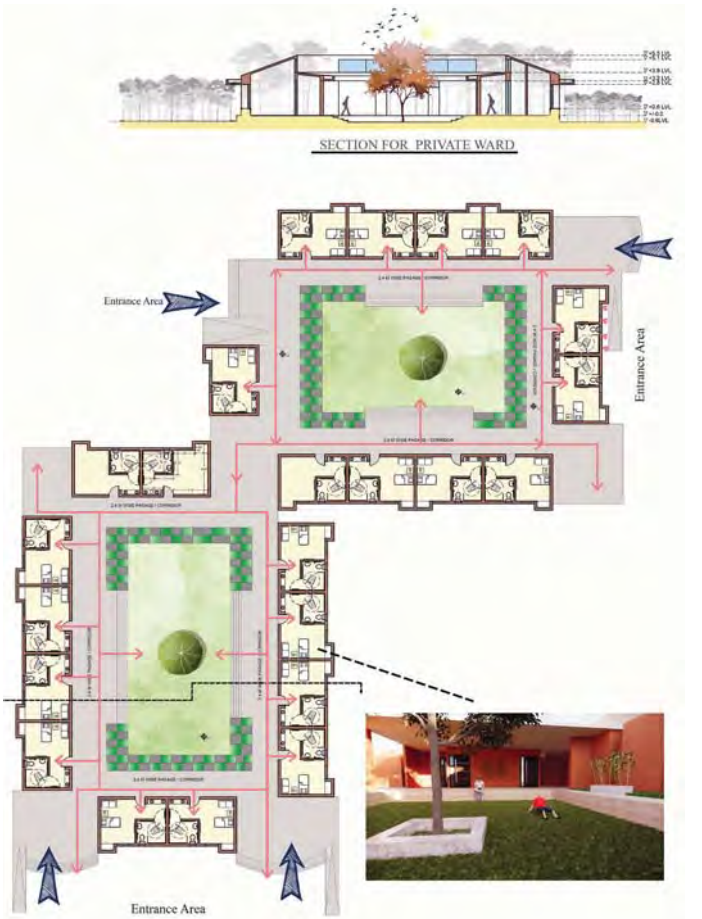


Fig. 7: Private Ward

natural scenery and navigate well-arranged gardens experience, so they have fewer post-operational complications, headache, nausea etc. Strategic selection of plant material included trees/ plants/ shrubs having medicinal and religious value that not only purify air but also support spiritual and religious healing. Many trees/ shrubs are associated with religious activities, rituals which often provide patients a motivation to engage in various activities that distract them from pain as well as giving a purpose to live or celebrate whatever life span. They have with peace and containment**.** Fragrance also supports psychological healing as well many flowers are associated with a deity or can promote activities like making garlands. Gajraas which a part of life of many Indian women. The selected plant material is presented in fig.8.

7.2 Climate Responsive Strategies

Climate-responsive strategies include day lit spaces through large windows considering the positive effects of daylight on the healing processes. The courtyard arrangement in each wards allows air movement through the spaces and provides a conducive living environment fostering socialization. The orientation of each unit is aimed to benefit from sunlight as the natural sunlight is known to delay the perceptions of pain, reducing depression and demand for medical intervention. However, south facing widows were screened with thick vegetation. Air-conditioning is provided as it is found necessary for some medical requirements, however keeping spaces naturally ventilated was a prime concern achieved through fenestration design allowing fresh air movements with open able windows, high ventilators, grills etc. Use of pergolas, selecting appropriate construction material and technology added to achieve physical and psychological comfort to the patients who are critically sensitive to climatic variations. Besides, active strategies like use of solar car park, solar panel on roof added to achieve sustainability to a larger extent. Various, climate responsive strategies adopted are presented in fig. 9.

7.3 Interior spatial Design

Patients' rooms are designed considering their comfort needs, adequate lighting, furniture, accessible toilet design and healing colour scheme as shown in fig.10.

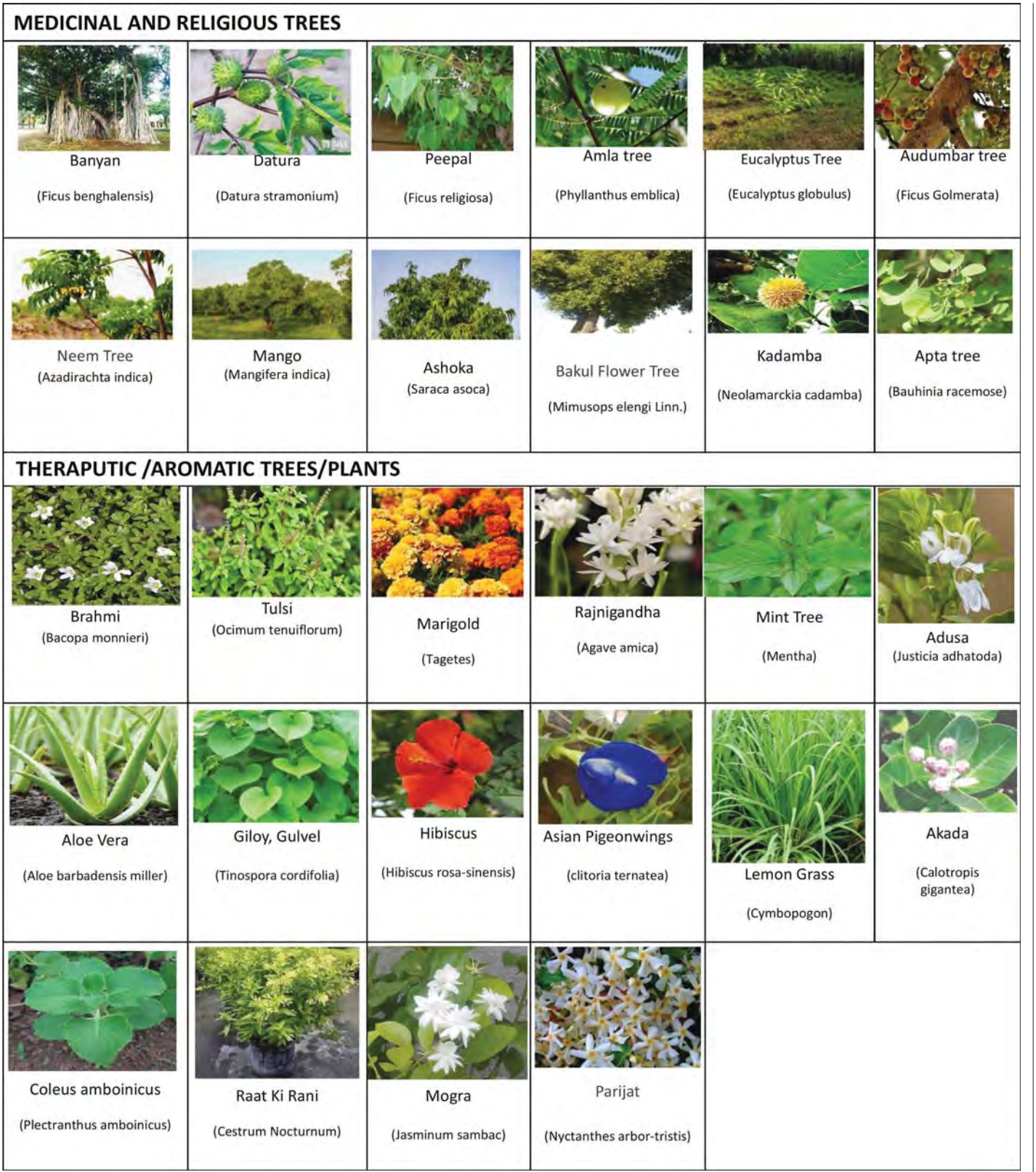


Fig. 8: Plant Material

7.4 Integration of Indoor and Outdoor Environment and Accessibility

Patients spend many hours in bed or sitting, with little to do. Therefore, rooms are designed with strategically located big windows so they can have a connection with nature. Wide corridors in front of each room allows patients on wheelchair and stretcher beds to reduce claustrophobia and feeling of isolation. The whole campus is made accessible for physically challenged patients facilitating effortless movement encouraging them to visit outdoors.

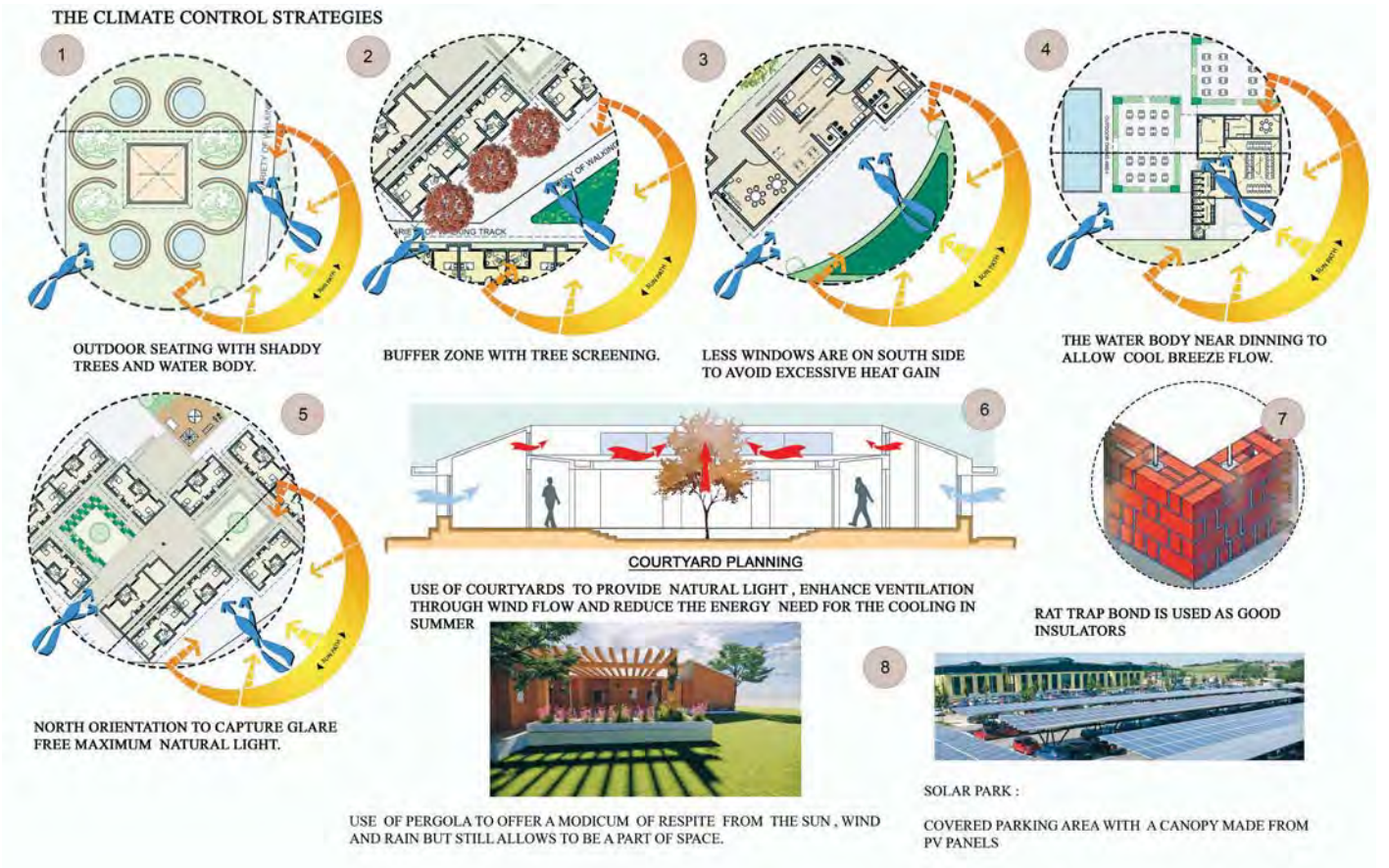


Fig. 9: Climate Responsive Strategies

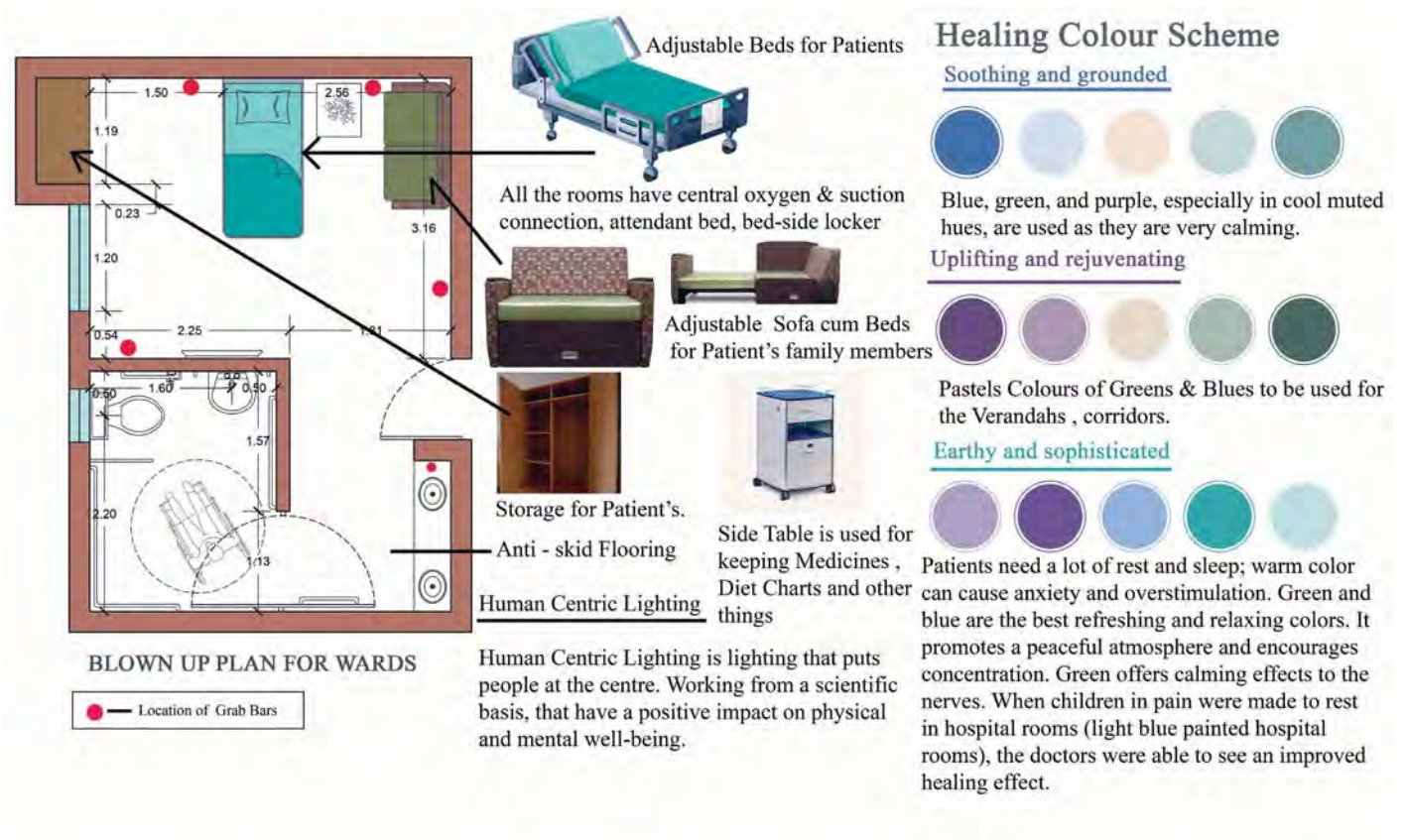


Fig. 10: Interior Design Aspects.

8. Conclusion

Palliative care is a complex facility due to the number and diversity of the users and the co-existence of multiple functions. A well-planned landscape design not only provide restorative or calming views of nature, but also can reduce stress and improve outcomes through other mechanisms, including fostering access to social interaction and providing opportunities for positive escape and a sense of control with respect to stressful clinical settings. The physical environment is of great importance since it positively affects the users, particularly patients; the appropriate designs can therefore have positive physical, spiritual and social effects on the individuals; such positive effects on the patient healing process can provide patients relief from pain and enhance their quality of life.

All Images Courtesy: Authors

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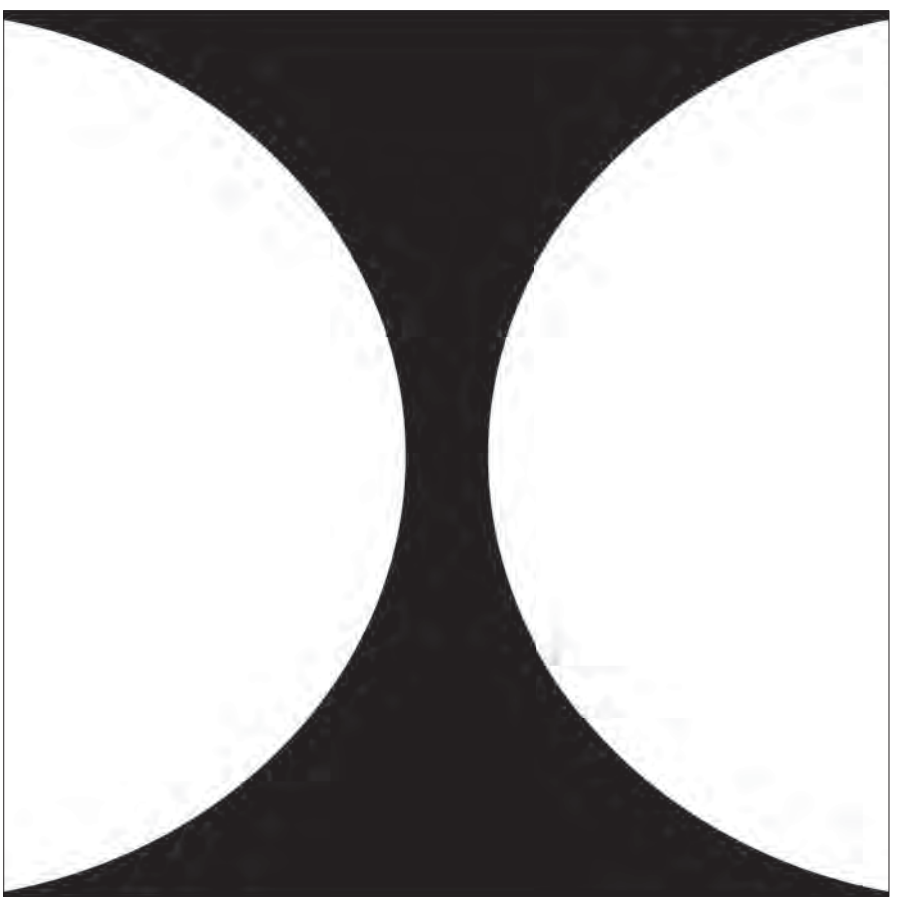
REVERSE CONTEXTUALISM

Ar. Ruchi Saxena



The 'context' influences the production of architectural design. The inverse is also equally germane. Architectural design, on its realization, influences the context.

Every architectural project, big or small has a potential of transforming the built environment around it. Every architectural project DOES transform the environment around it. At its basics, the mere presence of a piece of architecture can imbibe emotions in people, varying from delight, indifference to disdain. Architects, urban designers and urban planners produce built environments which people accept, consciously or unconsciously. The discipline exercises an impact on people's daily lives.

The impacts can be mundane. A simple school building impacts the morning traffic in the neighborhood, with buses, school vans, parents dropping off their kids to school transforming the morning street scene. The streets outside the school premises and the neighboring residential colonies, become parking spots for cars during days when a parent-teaching meeting is planned, or the annual function carried out.

Or the impacts can be far-reaching. A school building itself, in a neglected or underprivileged setting, can herald social change.

The *Oxford Dictionary of Architecture and Landscape Architecture* defines 'contextualism' as *an architecture that responds to its surroundings by respecting what is already there, unlike Constructivism or Deconstructivism which deliberately work against established geometries and fabric*.

Pre-design study phases require architects to understand the context well before plunging into design production, and rightly so. The social, cultural, political and economic context helps in the creation of architecture than fits well with its surroundings. However, this process helps architects understand "what" can shape architecture? And perhaps "how" and "why". Why is the study of the context relevant in design production? How does context play an important role in future architecture? What factors of the context are likely to influence the design production process more? Our current model of architectural pedagogy and architectural practice promotes contextualism but is still, too narrow-minded, severely limiting our potential impact and reach. While readings of the context are an essential part of architectural design, it doesn't encourage an architect to think the reverse.

The question we should be asking is:

How will architecture, upon realization, shape the context in which it is being produced?

And this question perhaps, is the turning point in design thinking. Architecture is not a sculpture or an isolated endeavour. It is a part of the whole and it can perhaps never fully meet the needs of a society if it does not consider the impacts it has on the environment. Architects need to see their project as a part of a larger setting, from a holistic viewpoint, from the macro-scale of the city. The profession requires complete openness towards each new project. Apart from context studies, an architect should be able to envisage and convey the impact a new project will have. Their task is to discover these potencies and make them visible by means of certain interventions. The next sections of this article examine the ways in which architecture can and has impacted its context: its neighborhood and in some instances, the city. A better understanding of how architecture is likely to impact its surroundings once it is realised, can be an opportunity for exceptional creation.

1. Architecture can invite. Architecture can discourage.

The way architecture converses with its context can create imprints of invitation or hostility. An inward-looking architectural design can exclude the public on the street. High walls, minimal façade transparency, inappropriate scale creates a cold vibe for the person on the street. Exciting architecture behind walls does not generate enthusiasm for the person on the street. It remains elusive and exclusive. Then there are buildings that invite the random stranger on the street to be a part of its vibrancy.

One such example, the winner of 2017 Congress for the New Urbanism Charter Award, Plaza la Reina, located in historic Westwood Village, Los Angeles is a hotel above retail organised around a public courtyard (Fig 1). The exciting building massing and a complex roof profile is complemented by a ground floor design that inspires experiencing the building up-close. The entrance to the hotel and the notable steps leading to the courtyard contribute to the pedestrian-scale character of the neighbourhood. It is a 'welcome respite from the many large-scale buildings that have sprung up in the Westwood Village neighbourhood in recent years.' (Jury citation)

Museums have always been distanced from people on the street. The Victoria and Albert Museum's new extension: *The Exhibition Road Quarter* addresses this issue of accessibility (Fig 2). The first move of London-based *Amanda Levete Architects* (AL_A) was to unlock the potential of bringing in new audiences

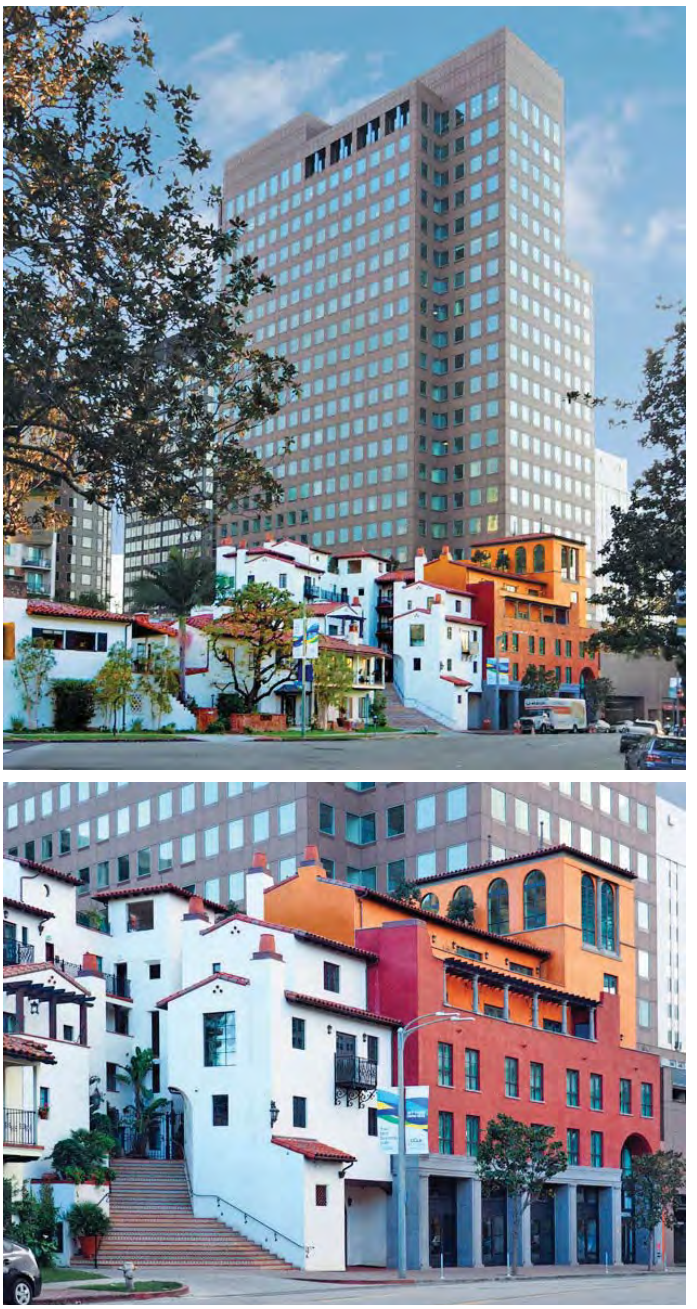


Fig 1: Plaza la Reina, Los Angeles
Above : (a) The building masses step in height in order to serve as a transition between a 23-storey office tower to the west and a historic two-storey court to the east.
Below:(b)Thealluringstairsleadinguptothehotelandtheground floor retail on the right.
(Pic courtesy: Moule & Polyzoides)

(curious passers-by, people strolling around the city) by creating a relationship between the museum and the street that did not exist then. The *Exhibition Road Quarter* is a significantly more user-friendly space. The interface is consistent with the property boundary and adjacent to potential pedestrian flows. One enters or exits this space with little formality. The treatment of the Sackler Courtyard is very light. It is open for engagement and truly welcomes urban life into one of the most important museums in London. The project, winner of RIBA London and RIBA National Award 2018, is truthfully transformational for the V&A.

There are numerous such examples where architects have made the boundaries of their sites, the public-private interface more permeable, more porous, imbibing vitality in the neighbourhood. These transparent, porous spaces extend the public gaze from the street into private space, permitting social and/or commercial exchange. Architects and urbanists are urged to deliberate on the socio-spatial insinuations of boundary walls and decisively contemplate on them as inclusive elements rather than 'limits.' Architectural / Urban boundaries can be made more inviting and malleable rather than being fixed objects separating two environments (Saxena, 2022).

Though architecture cannot force people to connect, it can create the setting for chance encounters and social interactions, thus fostering community building and influencing the fabric of our social culture. Architecture can invite and it can discourage. It is for us architects to recognise this possibility and use it to the best advantage of the project *and* to the best advantage of the city.

2. Architecture can excite. Architecture can dampen. People exist in space; they conduct their day-to-day activities, move through, spend time, linger around spaces that is designed or shaped in some way, space that surrounds them. The shells of the buildings act as screens between the inside and the outside, between private and the public, between exposed and secluded spaces. Architecture's form and spatial configurations, its placement on the site, its relationship with the street regulates its constructive as well as undesirable effects on the built environment as a whole, which everyone can experience in their own way. Built spaces generate a considerable sensory imprint in all human beings, which supplements their actions and reflections.

In a June 2017 report, BBC quoted Colin Ellard of the University of Waterloo, Canada that people are strongly affected by building facades. Complex and interesting facades affected people in a positive way while simple and monotonous had negative associations. For example, when he walked a group of subjects past the long, smoked-glass frontage of a Whole Foods store in Lower Manhattan, their arousal and mood states took a dive, according to the wristband readings and on-the-spot emotion surveys. They also quickened their pace as if to hurry out of the dead zone. They picked up considerably when they reached a stretch of restaurants and

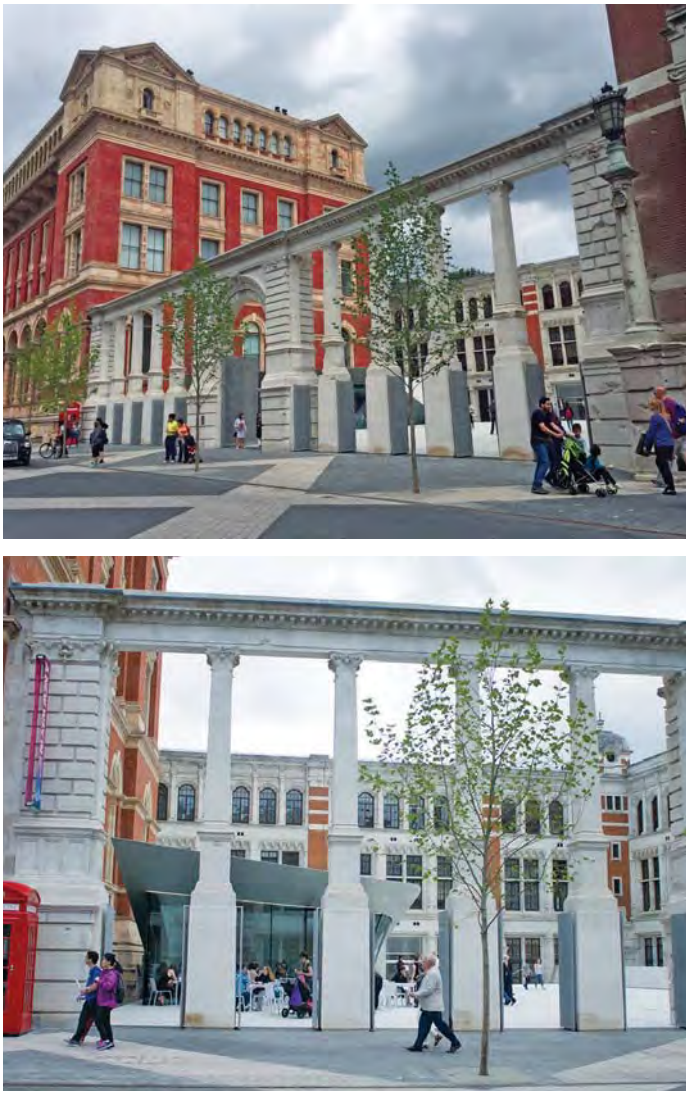


Fig 2: The Exhibition Road Quarter of V & A Museum, London. Direct views of the Sackler courtyard from the street offers an open invitation for engagement.
(Pic courtesy: Diamond Geezer + Flickr is licensed under CC BY-NC-ND 2.0)

stores, where they reported feeling a lot livelier and more engaged.

Negotiating through an area enclosed by beautiful architecture is delightful and appealing, while dark and incomprehensible architecture takes us to despair, feels unfriendly and dampens our mood. A building's distinctive character can complement a streetscape, fit in well or stand out from its context and in doing so, affect passers-by and attract them without them having or needing to enter the premises. This understanding of spatial perception of built-up spaces is vital. Architects are urged to understand how architecture impacts issues such as the mobility of people and perceptions about safety and apply methods that can change the way people relate to an area.

3. Architecture can elevate cities.

Iconic architecture, star architecture or starchitecture has demonstrated the value of the transformative landmark and their contribution in city branding. What Sydney Opera House did for Sydney, the Pompidou Centre did for Paris and the Guggenheim museum did for Bilbao, giving rise to the so-called, now famous 'Bilbao Effect'. This term describes the potential of iconic architectural developments (IADs) designed by world famous architects to act as a catalyst for economic revitalization and transformation within neighbourhoods or regions. Bilbao's Guggenheim Museum, designed by Frank Gehry, managed to regenerate a declining industrial area, afflicted by Basque separatist terrorism, become a destination that benefitted the local tourist economy and ended up putting Bilbao on the international cultural map. Today, the area around Guggenheim is one of the city's most valuable landscape and houses four- and five-star hotels, high end residential property and restaurants.

Matt Patterson (2020) tested the Bilbao effect through a quantitative analysis of 142 IADs completed in Canada and the United States between 2000 and 2009, on parameters that measured neighbourhood level economic and cultural changes during this period: population, rent, the number of local arts establishments and the number of cultural workers living in the area. The analysis established that neighbourhoods with IADs generally experienced more economic and cultural growth than non-IAD neighbourhoods during this time period.

As Walter Gropius once said, "Society needs a good image of itself. That is the job of the architect." Appreciating and comprehending the interaction between human beings and spaces requires exploration and personal participation. Spaces need to be observed with multiple perspectives and interpreted in novel ways. Understanding societal changes and new trends are prerequisites for recognising current needs and anticipating future demands. When we start to explore the impacts a piece of architecture has on the city fabric, on how people perceive it, and how it can positively make a difference in the economic, social or cultural fabric of the neighborhood, we realize the change both, iconic and everyday architecture, can bring about and the ways in which it can contribute in the city-building exercise.

4. Architecture can be a catalyst of growth

We have seen how the Guggenheim Museum became an icon of change for Bilbao. Architecture, iconic or every day, has demonstrated its catalytic attributes time and again. The term catalysts can be traced back to the book *American Urban Architecture: Catalysts in the Design of Cities* (1989) that put forth that architectural projects are valuable as they can spur further building activity. Catalysts are facilities – usually buildings – that generate urban development in their immediate surroundings. The book suggested putting high priority to those developments that cause still more development.

Most buildings that act as a node and have the ability to converge people or concentrate people in a geographic location invariably attract informal economic activities. The examples are numerous: public parks and entertainment districts pull in hawkers selling cotton candy, *bhelpuri*, balloons or toys. Office buildings attract informal economies of photostat, fax and printing facilities, but also eateries. Residential colonies attract streetside vegetable vendors and fruit sellers to set up temporary shops. Even a bus stop has shown to attract vendors selling water or little snacking items. If a building is undeniably to spur further land and building development, then the building must be properly sited, designed and linked to its surroundings. This would require a thorough analysis of the existing context and possibilities of connections to surrounding establishments.

We already know how architecture can accelerate economic growth and development of a city by promoting tourism. We are also aware of how architecture can impact land values in its neighbourhood. The building's presence may shape investor' perception, increasing confidence and prompting additional investment, especially if the building replaces a desultory or a previous condition of uncertainity (Sternberg, 2002).

In the rapidly globalizing world, architecture has been used as a marketing device to create competitive advantages for cities. Last few decades have witnessed the tremendous growth of cities like Shanghai, Singapore or Dubai (Fig 3), that have successfully demonstrated that architecture can be an effective instrument in enhancing the city image, in contributing towards economic growth and in playing a vital role in positioning their city on the global map. The onus on architecture is then, not just limited to aesthetic attraction, but also in its capacity to bring about this economic change, which leads to the development of cities. Architecture, when practised in the right manner, can become the catalyst for not just economic growth, but also social and cultural change.

Fig 3: Dubai: Architecture as an effective instrument for city branding.
(Pic courtesy: Zicarlo van Aalderen + Flickr is licensed under CC BY 2.0)

5. Architecture has the potential of bringing about social and cultural change.

Le Corbusier, in common with many architects of the Modern Movement, was convinced of the social role of architecture. In an era of great social and political change, Le Corbusier perceived architecture as a crucial instrument in addressing the ills of contemporary society. This was however, contradicted by Foucault, who believed that architectural form cannot in itself resolve social problems. It is only politics that can address them. Foucault furthered, 'I think that [architecture] can and does produce positive effects when the liberating intentions of the architect coincide with the real practice of people in the exercise of their freedom.' (Leach, 1996).

It is this transformative quality, that has brought collaborations and co-creation with the community in the foreground. The idea of working with communities instead of working for them, is increasingly being applied in both architectural pedagogy and practice. Students and practitioners have been working with the community to achieve the larger goal of community development. In working with community-based NGOs, the designers have learned to engage the organizational dimension, thereby allowing community members themselves to identify problems (Markiewiscz, 2003). Working under many names; public participation, co-creation, collaborative design, public interest architecture, social partnership and many more, the approach can leverage projects that deliver a deep and sustained social benefit. This approach has been successful in producing meaningful projects which reflect people's actual needs and aspirations, with a better level of community stewardship. Sensitively applied, this approach can create both culturally and economically sustainable solutions.

One such well-articulated example is the modest primary school in Gando (Fig 4). The architect of the project, Diebedo Francis Kere and his fellow villagers shared the same vision for their community, and as

Fig 4: Primary school, Gando. The organizational dimension and the partnership with the community informed the cultural and economic sustainability of the project.
(Pic courtesy: Helge Fahrnberger / www.helge.at is licensed under CC BY-SA 3.0)

Fig 5: UVA de La Imaginacion, Medellin. Shaping a new image of sustainable design and urban architecture by re-purposing the places that were once centres for violence and conflict. *(Picture courtesy: de EPM)*

such organized themselves to engage in the process together. Using locally made materials, indigenous construction methods and technology and passive strategies of climate comfort, Kere's school for Gando was awarded the Aga Khan Award for Architecture in 2004 wherein the Jury appreciated its 'transformative value' and 'elegant architectonic clarity achieved with the humblest of means.' The way in which Gando organized itself for this project also served to inspire two other nearby communities to build their own schools as a cooperative effort. Since the completion of this project, School Bricks for Gando has gone on to design and build teacher's housing and a school extension - both using stabilized earth bricks and participatory management and construction methods. All of these projects are being developed in partnership with the community, and serve to further underline the primary school's transformative quality (Carter).

Designated by *Time* magazine as the most dangerous city in the world in 1988, Medellin is a South American city transformed through architecture. Promoting the renewal of some of the poorest and most underprivileged districts in Medellín in Colombia, major investments were made in public infrastructure and civic architecture. Architecture symbolizing concern, devotion and looking forward to a good future acted as an integrating and holding-together factor in the local communities.

Good quality community cultural centres were constructed that were inclusive and socially equitable, to provide better connections throughout the city and its urban fabric. The network of UVAS or Articulated Life Units, a project that featured in the 2016 Venice Biennale of Architecture, is worthy of mention here (Fig 5). Initially built as water tanks that now found themselves completely surrounded by the informal settlements of the Aburra Valley, these areas had become focal points for violence and insecurity in neighbourhoods bereft of public spaces and basic infrastructure. The UVAs, a total of 12 throughout the city, were projects that took advantage of the water storage tanks and re-purposed them as cultural and recreational centres. In a beautiful ad hoc metaphor for the times, the walls around the water tanks were torn down to allow access to the community surrounding them (Valencia, 2020). Medellín has demonstrated how visionary approaches related to architecture can improve urban life, address very complicated situations of urban crime and informal population settlements and lead the process of cultural transformation for its people.

6. Architecture will contribute to Climate change

According to the United Nations Environment Program (UNEP), buildings and their construction together account for 36% of global energy use and 39% of energy-related carbon dioxide emissions annually. Globally, building operations and routine energy usage in the form of lighting, heating, cooling etc. account for about 28% of emissions annually, and the embodied carbon of a buildings (manufacturing, transporting building materials and actual construction processes) account for about 11 percent of emissions.

The Paris Climate Agreement aims to limit global temperature rise to 1.5 degrees celsius by 2030. To achieve this goal, the built environment's energy intensity (a measure of how much energy buildings use) will have to improve by 30% by 2030. Though the energy intensity of the building sector is improving by about 1.5% every year; however, the number of buildings is also on the rise- global floor area grows by about 2.3 percent annually—which offsets some of those energy intensity improvements. Carbon emissions related to buildings are expected to double by 2050 if action at scale doesn't occur. It becomes imperative for architects to look for possible actions at varying stages and scales, to minimize the carbon footprint and help create more sustainable urban environments.

Conclusion

Architecture is an agent of change.

Just like a post-occupancy evaluation in architecture is encouraged, wherein buildings are analysed on their functionality and comfort after users have been occupying it for some time, this analysis should be expanded to include the impact of the built environment on the neighbourhood or the city as a whole. When we recognise and address the change architecture can bring about, we can design better buildings. This understanding of the context, in reverse, is essential and opens up opportunities of creative explorations. From a simple change in the way the plot boundary is established, to far-reaching effects of iconic architecture, we have seen how a change of perspective allows the architect to identify pertinent themes and break from conventions.

This requires architects to read and interpret architecture's potential impact on people and the built environment around it. Architects need to also include in their pre-design study phases, the possible positive and negative qualities a particular space is likely to impart, look into it from many different perspectives and then work on enhancing the positive opportunities while mitigating the negative possibilities. Presented below is a framework of analysis for architects for an architectural project's possible impacts:

1. *How is this project likely to affect the person walking down the street?*
    a) Can this project open up opportunities for social engagement and networking?
    b) In what ways can this project contribute to an enhanced street experience and opportunities of walkability?
    c) Can the project be designed in a way that improves the urban environment quality? Will this improvement be visual/ physical or psychological?
    d) Is this project, in any way, causing a negative impact on the person on the street? If yes, what and how can the impact be mitigated?
    e) Can the project be made inclusive? If yes, how? Is this inclusivity symbolic, visual or physical?
2. *How can this project generate economic opportunities in its neighbourhood?*
    a) Can the project be linked with existing economic networks/ nodes in a manner that enhances economic opportunities?
    b) How can the location of entry/ exits points of this project spur economic transformations or create new nodes of activity?
    c) If this project is a catalyst, how can we direct the transformations around it?
3. *Can this project improve urban life?*
    a) How can this project impact the social and cultural well-being of its neighbouring communities?
    b) Whose life can it impact the most and in what manner? (In terms of Age, Gender, Income group etc.)
    c) How can this project address issues like urban crime, perceptions of safety etc.?
    d) Can this project instil a sense of pride in the community? If yes, how?
    e) How can this project address concerns of equity, of segregation etc.?
4. *How can this project be made environmentally sustainable?*
    a) Are there local materials, construction methods and technologies that can be effectively used?
    b) How can the carbon footprint of this project be minimised?

It is not necessary that every project will or can influence on all the above parameters. The impact is dependent on many factors like building type, its location, site area, client requirements and preferences etc. Nevertheless, architects and urbanists are advised to ask these questions during the pre-design stage to ensure considerate and thoughtful design outcomes.

As architects, we also need to record the impact of our interventions. We need to audit the quantitative and qualitative implications of architectural services. If we can efficiently implement these changes, the architect will gain a more prominent seat at the table making large-scale decisions about our communities and play a much more crucial role in addressing the overarching social, economic and environmental challenges of our time.

All Pictures Courtesy: Author

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DESIGN PROJECT

SJVN Corporate Headquarters
A Green Building Initiative

By Er. Sushil Sharma, Er. Rajeev Kumar, Ar. Ajay Sharma, Ar. Gouri Sood

Fact File

Project Name	SJVN Corporate Headquarters Building, Shimla, Himachal Pradesh
GRIHA Project Code	21EB0004
Location	Shimla, Himachal Pradesh
Plot area	29835 sq.m
Permissible F.A.R. = @1.5 of plot area (sq.m.)	44752 sq.m
Permissible Ground Coverage = 60% of plot area	17901 sq.m
Ground Coverage	9737.60 sq.m (32.63%)
Area under Internal Roads	5267.46 sq.m.
Number of building blocks	03
Built-up area	31733.03 sq.m
Green Area	14829.94 sq.m

Introduction

The two most significant environmental challenges of today's era are global warming and climate change. Urbanisation and population growth have increased the demand for resources. There is a need for environmental and resource conservation strategies. Buildings have significant environmental impacts throughout their lifetime (Dubey & Kamal, 021). However, the impact is largely determined by the use phase, or the demand for energy and water during their operation. Consequently, it is essential to design a green building that addresses these concerns in an integrated and scientific manner. Green Buildings are slightly expensive to design and build than conventional buildings, but considering the life cycle cost of a building, they are less expensive to maintain, have significant environmental benefits, and provide a better living or working environment for their occupants (Mokal, et al, 2015).

This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort (US EPA, n.d.). Resource utilisation efficiency including energy, land, water, material, etc., is of prime importance while designing a green building. Green building technology focuses on low consumption, high efficiency, economy, environmental protection, integration, and optimization, maintenance, renovation, and demolition (Ming, et al, 2021).

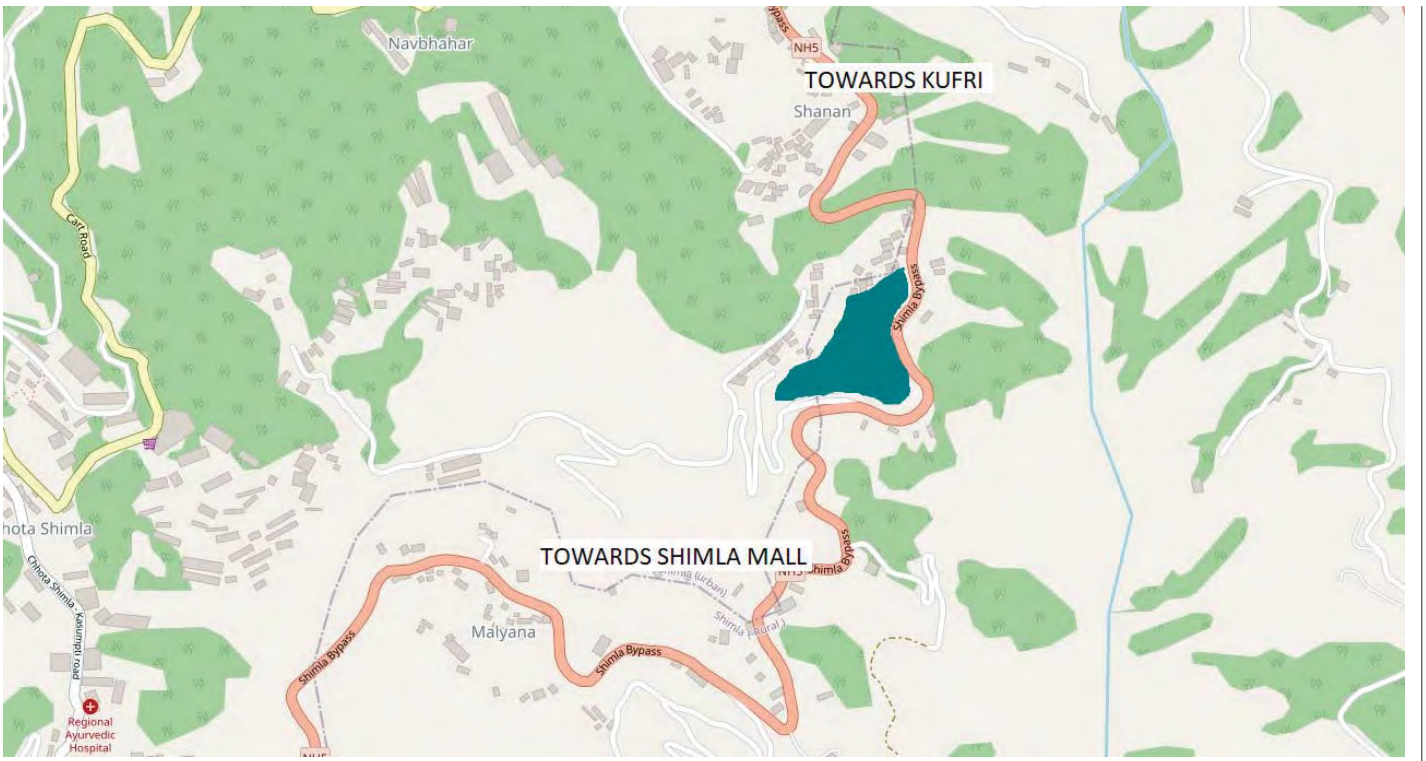

Figure 1: Map showing location
(Source: Authors)

Figure 2: SJVN Corporate Headquarters
(Source: Authors)

The implementation of the sustainable (green) building needs utilising green technologies that are more involved in the development and utilisation of products, equipment and systems that conserve the natural environment and resources. These technologies have the potential to improve building performance in terms of the environment, people, and the economy.

SJVN Limited Corporate Headquarters, Shimla, Himachal Pradesh, India

SJVN Limited Corporate Headquarters consists of three buildings which are office, guest house and auditorium. There were two stages of construction, the first stage consisted of an office building and in the second stage a guest house and auditorium are being constructed. The first stage started in 2011 and was completed in 2016. The second stage started in 2019 and is still under construction (as of 2023).

SJVN is very cautious about the environmental impact of its projects considering this, the whole project is being developed as a green project. As the office building was completed before the registration in GRIHA, it was registered in the GRIHA Existing Building category. The guest house and auditorium is registered under GRIHA - new projects as these buildings are under construction. So this paper only discusses about the first stage i.e. office building as it has been certified under GRIHA Existing Building.

Project Brief

The project is located on NH - 22 on Dhalli and ISBT bypass at Shanan in Shimla, Himachal Pradesh. The location map of the project (see Figure 1) and office building picture (see Figure 2) are displayed below.

Figure 3: Proposed sketch of SJVN
[Source: RA, SJVN Shimla. (n.d.). Raja Aederi Consultants. Retrieved April 26, 2023, from http://www.rajaaederi.com/wp/?page_id=244]

Figure 4: Site plan of SJVN building.
(Source: Authors)

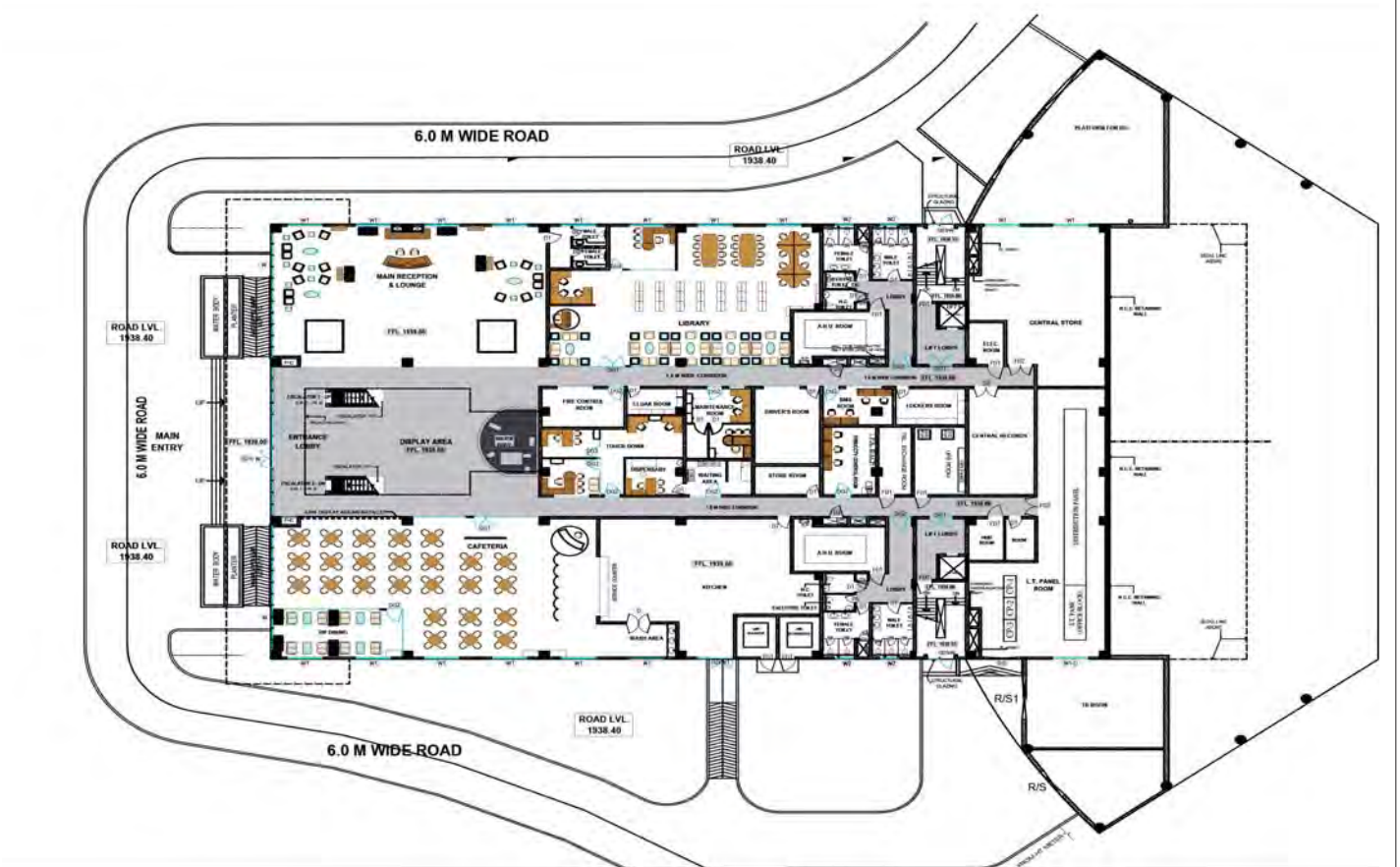

Figure 5: Plan of Level 1 of office block
(Source: Authors)

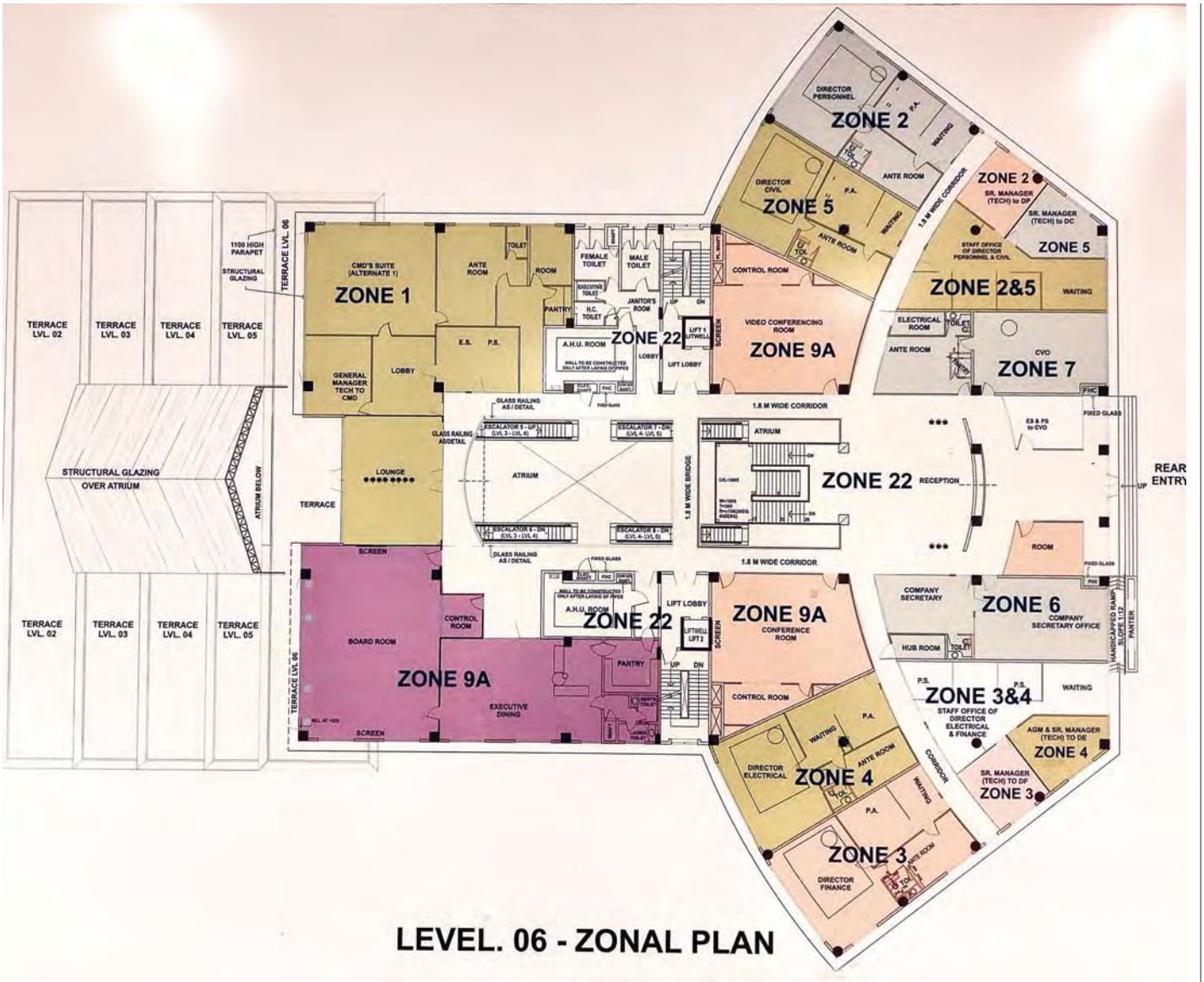

Figure 6: Plan of Level 6 of office block
(Source: Authors)

The project consisted of three main blocks spread over seven levels, along with a terrace:

- Office [14033.48 sq.m]
- Guest house [11406 sq.m]
- Auditorium [6293.55 sq.m]

Project Explanation

Table 5 shows the proportion of various measures taken.

Waste Management (20% weightage)

The facility management team takes care of collection of waste in colour coded bins. All recyclable waste is being sent for recycling by maintaining contracts with local recyclers. The landscape and food waste is treated on-site using the organic waste composter. The project team needs to demonstrate that the waste is handled sensibly on site such that the stress on the landfill is reduced. Amount of organic waste (landscape + kitchen) generated : 0.14kg/capita/day (Fig. 7).

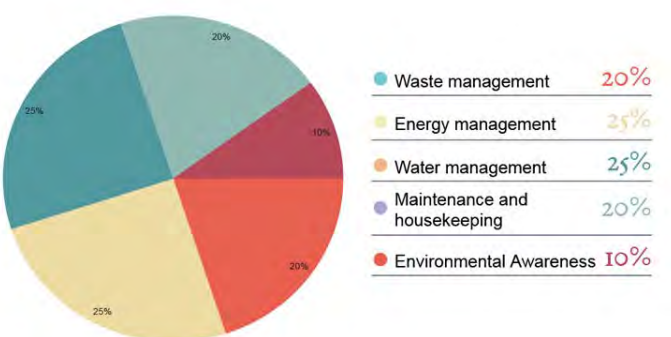

Figure 7: Categorization and weightage
(Source: Authors)

Table 1: Energy Management
(Source: Authors)

Energy consumption Details	Quantity
Total annual energy consumption is offset through installation of renewable energy sources on site (source, on-site and off-site generation)	97.16%
Reduction of energy consumption is achieved	15.46%
Total annual energy consumption EXISTING CASE – 2001	11,50,190.45 KWh/year
Total annual energy consumption BASE CASE	13,60,515.75 KWh/year

Table 2: Water Management *(Source: Authors)*

Water Details	Quantity
Water Demand side reduction	64.29 %
Irrigation Demand side reduction	83.25 %
Quantity of treated water generated (Fixture, Cleaning, Vessel Washing & Misc. capacity of STP	13 kld, 90%
Percentage of water treated	100 %
Water Footprint (Plumbing Fixture)	2.94 kl / capita / day

Energy Management (25% weightage)
The facility management team conducts regular preventive and corrective maintenance operations to ensure efficient working of the system and avoid energy loss. Additional third party energy audits are carried out frequently and the recommendations are carried to improve the energy savings of the facility. Policies are drafted to procure green and energy rated products. The project team needs to demonstrate optimization of energy consumption by the use of efficient appliances, use of renewable energy, etc. (See Table 1). Along with an on-site solar PV of 120kw, there is also an off-site solar plant Charanka Solar Park which generates 1500 kw which is utilised exclusively for SJVN out of a total of 5600 kw.

Figure 8: Onsite - Organic Waste Converter
(Source: Authors)

Water Management (25% weightage)
The facility has installed water efficient plumbing fixtures. Smart water metres are installed to log the water consumption pattern and to check leaks. The waste water generated is treated using an on-site STP plant and the treated water is re - used for irrigation. The project team has demonstrated the water saving, recycling and reuse on site (towards net zero/ net positive approach) with the help of rainwater harvesting. (See Table 2)

Maintenance and Housekeeping (20% weightage)
Utilisation of CFC/ HCFC free refrigerants and insulation to reduce impact on ozone depletion. The fire extinguishers used are halon free as well. All the cleaning products used are green certified and environment-friendly. Annual maintenance contract has been maintained for all electro-mechanical items used in the facility. The project team ensured good practices for maintenance and green procurement as a step towards sustainability. CFC-free HVAC and cooling equipment is used in the building.

Environmental Awareness (10% weightage)
In-house and neighbourhood activities to increase environmental awareness are being carried on a regular basis. Many tree plantations have been

Table 3: Points scored in GRIHA *(Source: Authors)*

Criteria Points	Maxm. Points	Points Scored
C1 : Accessibility to Basic Services	2	2
Basic amenities	1	1
Collective Transport Service	1	1
C2 : Microclimatic Impact	4	2
Numbers of trees	2	0
Urban Heat Island Reduction	2	2
C3 : Maintenance, Green Procurement & Waste Management	7	7
Environment Friendly Cleaning Chemicals	1	1
Policy-Purchase of BEE star rated appliances	1	1
Multi-Coloured Bins	1	1
Space to Segregate & Store Waste	1	1
Contractual Tie-Ups- Waste Recyclers	1	1
treat Organic Waste On-Site	2	2
C4 : Metering & Monitoring	10	6
Advanced Metering - Energy	1	1
Advanced Metering - Water	1	1
Advanced Metering - Air Quality	1	1
One-Way Meter	3	3
Two-Way Meter	4	0
C5 : Energy Efficiency	20	7
EEM - Implemented	5	5
Reduction in Energy Consumption	15	2
C6 : Renewable Energy Utilisation	15	15
C7 : Water Footprint	15	13
Reduction in Building Water Consumption	3	3
minimise lawn area	2	2
water efficient irrigation system	2	2
On-Site STP	4	4
Rainwater harvesting	4	2
C8 : Reduction in Cumulative Water Performance (not attempted)	10	0
C9 : Achieving Indoor Comfort Requirements (Thermal, Visual and Acoustic)	8	8
Thermal Comfort	2	2
Artificial Lighting	2	2
Daylight Factor	2	2
Indoor noise Level	2	2
C10 : Maintaining Good IAQ	4	4
Fresh Air Quality	2	2
Fresh Air Quantity	2	2
C11 : Universal Accessibility & Environmental Awareness	5	5
Universal Accessibility	2	2
Environmental Awareness	3	3
C12 : Bonus Points	4	4
Organic waste management	2	2
Bio-diversity park	2	2
Total Points	**104**	**73**

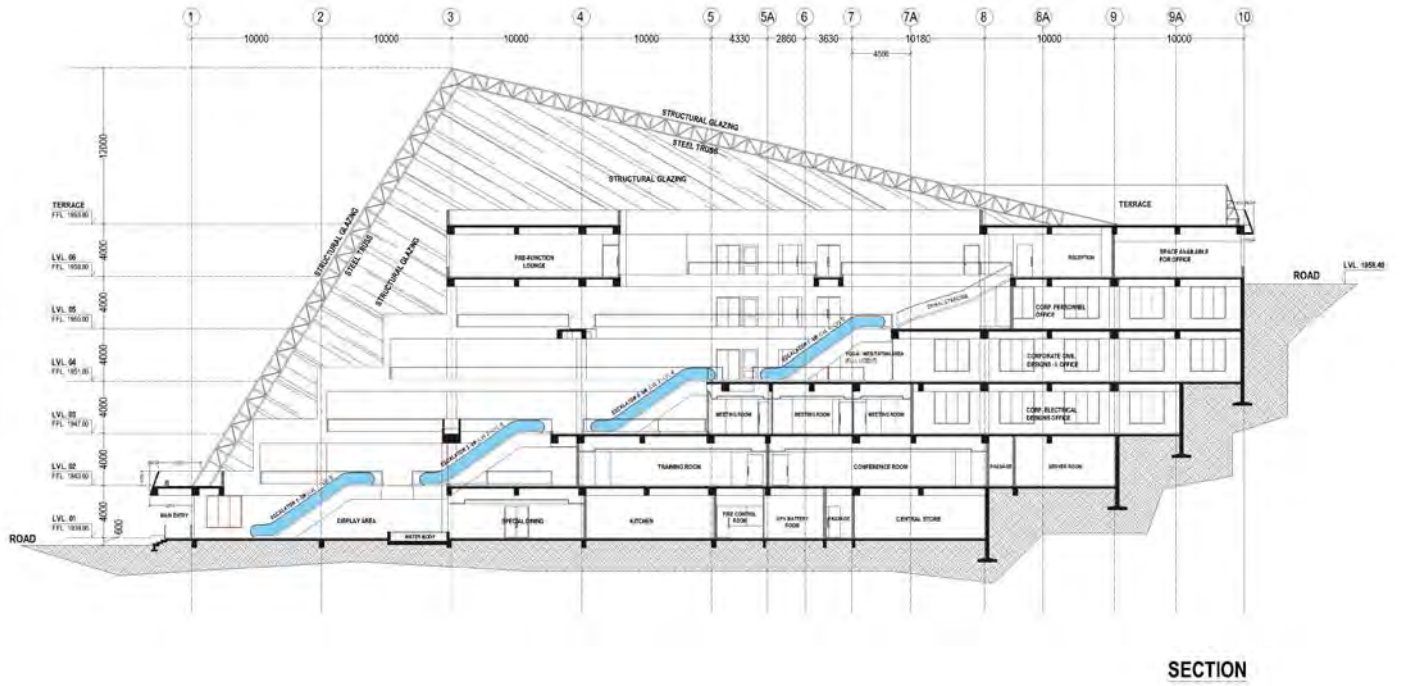

Figure 9: Section
(Source: Authors)

carried out as part of CSR activities. Measures such as putting up green education, signage and labelled water pipelines are maintained to increase awareness and responsible usage of resources by the building occupants. The project team submitted strategies to promote environmental awareness. The building uses EKAM-CARE products which are non-toxic and made from natural ingredients. The company is CII - IGBC (Indian Green Council) Green Pro Certified.

Appraisal Point Table

SJVN office block scored a total of 73 points out of the total 104 points. With this the building was awarded a four star rating by GRIHA for Existing Building According to the GRIHA rating system for existing buildings. (See Table 3).

All Images Courtesy : Authors

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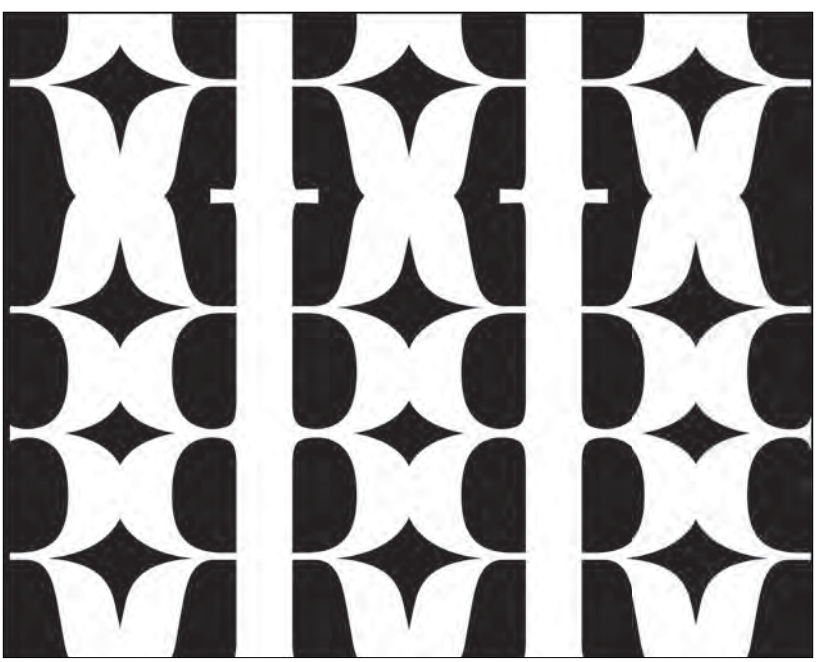
A PEDAGOGUE'S PERSPECTIVE

ARCHITECTURE GRADUATES AND PLACEMENT OPPORTUNITIES

CHANGE IS THE NEED

Ar. Smit Goghari & Prof. Dhiraj Nandkishore Salhotra



Background

Graduation is seen as a benchmark of employability. It is a universal standard that recognizes a student's ability to understand the basic academic concepts. Ideally, a graduating student should be able to join the workforce at the junior level of their domain. A few years of on field experience and the society should gain a self-reliant tax payer. Institutions take up the responsibility for developing competency amongst the students to be absorbed in the job market and also be able to emerge as entrepreneurs, by setting up start-up practices. The rigorous five-year programme of architectural education, that includes an internship period, is fundamentally a good indicator of the preparedness that the graduating student possesses by the end of the programme.

Fig. 1: Placement interviews

Challenges

The challenge that comes to the forefront is that graduation across various fields is very different. Basic courses take about three years to complete. Engineering courses, the most sought-after, take about four years and professional courses like architecture take up to five years. This itself complicates the pressure felt by an architecture graduate amongst peers in achieving financial independence.

The interim period, from the date of graduation till registration with the Council of Architecture, varies between six to nine months, depending upon the universities around the country releasing the degree certificates. During this phase, they are neither students nor professionals. It is in such a phase that many fresh graduates are not able to choose the right office or are often found skipping jobs, creating a general perception of current graduates being 'fidgety', 'careless', 'without focus', 'in a hurry' and 'not prepared to learn'. In this interim period, most may be offered piecemeal remuneration for their services for a paid apprenticeship. Another challenge faced is that the expectations of the employers many times are not stated and thus the applicant graduate is not clear about the work, and expectations often mismatch.

Competencies

This happens in spite of the fact that students, at the time of graduation, are equipped with skill sets that they acquire, through self-learning or certifications, during their ongoing undergraduate programme. The various domains of expertise that they acquire range from a good knowledge of software (2D and 3D) ranging from basic CAD to advanced rendering on Lumion, V-Ray, 3D-Studio and others. In addition to these, the current graduates are also well-versed and efficient, with presentation software and have a good command of Microsoft Word, Excel and PowerPoint.

Students are well-equipped to present their ideas in a variety of ways such as diagrammatic sketches (hand-done as well as innovative software-based modelling techniques), presentation drawings through renders using colour washes (by hand or software-based on Photoshop) is something that the current genre of graduates are easily able to demonstrate. In fact, a few graduates today are equipped to work with advanced software such as Revit, BIM and other environmental analysis software with equipped learning levels that can be advanced through opportunity to perform. At the end of the programme, most graduates prepare their portfolios as a showcase of their abilities and credentials of achievements, that may include the certificates of participation in workshops, training programmes, competitions, winning awards or positions in core or allied areas.

These graduating architecture students, may have most or some of the above characteristics, with varying levels of knowledge and competencies.

Need for Change

The key reason that most graduates do not join or continue with their services in an office is because

Fig. 2: Career guidance programme on career progression

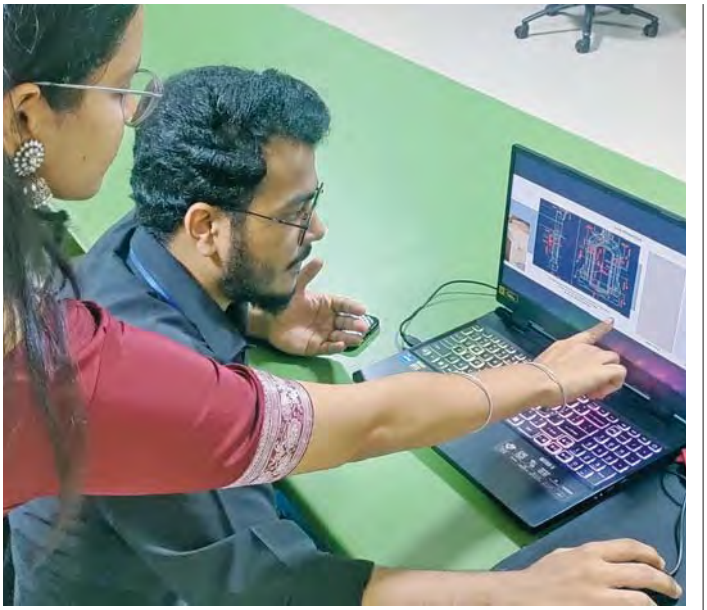


Fig. 4: Portfolio preparation

they don't see a sense of security and or growth, due to the level and conditions in which they are placed. The employers could present a clear growth chart of accomplishment, benchmarks and perks to keep the candidate interested and offer opportunities for developing the young employee in collaboration with the team that he/ she has joined.

The employers can either trust the competency levels on the basis of portfolios submitted or verify the same through interviews and skill tests for gauging them. Employers seeking specific skill sets should do so clearly while stating the job profile and scope, and invite candidates by asking them to self-check prior to applying. The shortlisted candidates can then be screened through tests for gauging competency in the expected job profile. If employers cannot invest efforts in this process, then the Institutes could be entrusted to conduct the shortlisting process and recommend suitable candidates for the specific job profile requirement of the company.

Fig. 3: Software training, as value-added programmes

Role of Institutions

Institutions can play a catalytic role in the professional lives of graduating students through Career Advisory Cells and Entrepreneurship Cells. These cells can focus on imparting the right blend of requisite skill-sets and competencies. The institutes and industry can play a collaborative role in setting up a culture of professional ties, by empowering the initiatives of the Placement Cell in institutes. The future and growth of the profession is as safe as the fresh graduates are allowed to find a foothold and create a position for themselves ... and as a step towards achieving an *atma-nirbhar* Bharat.

All Images Courtesy : Authors

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PHOTO ESSAY

A Short Glimpse of EXPO DUBAI 2020

By Ar. P.Ragunath

The photographer has the power to freeze time.

Architecture inspires everyone. To me, during my visit to the Expo, each pavilion reflected the ethos of their countries in miniature, expressed through their amazing forms and fascinating facades.

Sustainability Portal-Entrance

Terra- The Sustainability Pavilion

Al Wasl Plaza

Bahrain & Iraq Pavilion

UK Pavilion

Sustainability Pavilion-Indoor

Spain Pavilion

India Pavilion

Japan Pavilion

Saudi Pavilion

All images courtesy: Author

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Genre of Olfactory Aromatic Heritage & Cultural Tourism of Kannauj

Dr. Nirmita Mehrotra

Indian perfumery is age-old and dates to the Indus valley civilization. This cultural heritage has significant value to the local community and needs revival through engaging cultural tourism. *Ittar* or *attar* are the finished aromatic products, which are the hydro-distillate of flowers or herbs and spices/ baked earth fixed on sandalwood oil. *Attar* means smoke, wind, odour and essence. With changing technologies, Kannauj, the perfume capital of India and its traditionally manufactured *ittar* are on the verge of extinction. *Hina, Shamama* or *Khus* are unique products which are very intricately woven with the history of Kannauj. Kannauj lies on the historic Ganga Yamuna Doab, 80 km northwest of Kanpur on the Grand Trunk Road. It has little semblance to the 7th century capital of Emperor Harsha. It is time to engage cultural tourism for the rejuvenation of this ancient town.

By the 12th General Assembly, ICOMOS adopted the International Cultural Tourism Charter in 1999, which states the management of tourism required at places of heritage significance. The World Trade Organization (WTO) classifies six categories of cultural tourism based on handicrafts, culinary, social practices, music and performing arts and based on knowledge and practices in association with nature.

Of these, cultural tourism specifically relates to the cities' age-old customs, products, crafts, architectural heritage, cuisines, etc. It enables visitors to take part in local cultural celebration in process and products of various artifacts, giving it identity on a global map.

Gandha Shastra

Indologist P.K. Gode discusses the *Gandha Shastra*, the well-established science and art of using fragrance to make cosmetics. This was an integral part of the Indian Materia Medica which focused on and used *gandhdravya* or aromatic ingredients. These formed an integral part of all customary practices for social, religious and medicinal purposes. Anthropological studies suggest that primitive perfumery began with burning of herbs and vegetal resins and gums. The development of perfumery continued to evolve during the Vedic period as mentioned in Ayurved. Ramayan and Mahabharat also mention perfumes, cosmetics and incense. Nagarjuna, a scholar of South India in 100 BCE wrote a treatise on incense candles. Under the Mughals, *attars* were manufactured for use by Delhi Emperors. A *khushbu-daroga* was appointed to supervise and arrange for the proper supply of attars. (See Table 1).

Though perfumes were also used in cosmetics and beauty aids, medicinal values of many perfumes and essential oils were also known to ancient Indians and were used in both rituals and to treat various ailments. In *Charaka Samhita, Sushrut Samhita, Ashtanga Hridaya, Ashtanga Sangraha* etc., many scented materials and perfumes were used for improving the complexion and also as deodorant. Kautilya's *Arthashastra* has described many fragrant drugs like sandalwood, and *taila parnika* (eucalyptus) which were used in cosmetics. *Dhupan* or medicated fumigation was an advanced method for medicinal purposes. *Anulepan* was the anointing of various body parts with perfume. Chewing betel leaves along with fragrant material like nutmeg, mace, etc. called *tambulam,* was used as a mouth cleaner and freshener. *Abhyanga* is the usage of scented oils to massage the body to keep the skin smooth, healthy and invigorated.

Historical Background

Kannauj has been strategically located on the Gangetic Plains (see fig. 1). The three dynasties – Rashtrakutas in Deccan, Palas in Eastern India and Pratiharas in eastern and central India, struggled to capture Kannauj in the historic Tripartite Struggle. Being one of the chief towns in the Ganga Yamuna Doab Region, Kannauj was connected with Banares and Kolkata along the waterways. This traffic route was a significant factor for continued growth and

Fig. 1: Map showing influence of Kannauj during Harshvardhan's empire

Table 1: Raw Materials and Sources used in Ittar Industry
(Source: Compiled by Author)

S. No	Different Raw Material	Source
1.	Rose (Rosa damacena)	Hathras and Aligarh (UP)
2	Kewada	Ganjam (Odisha)
3	Khus (vetiver grass)	Mathura (UP) Bharatpur Raj.
4	Mariegold & Genda	Raebareli (UP)
5	Heena or Mehndi (Lavsonia inermis).	Kannauj
6	Raat Rani	Bijnor
7	Chameli . Tulsi (Ocimum basilicum)	Chandoli,
8.	Lemon Grass, Citrenella Grass (Odomass)	Kannuaj
9.	Bela or jasmine (jasmine sambac),	Kannuaj & surrounding region
10	Jatamansi, sugandh bala. kapoor kachri Nagarmotha	Kannuaj & surrounding region

Table 2: Parts of a plant which are used to develop perfume and its diverse impacts
(Source: Adapted from Jyoti Marwah,2002)

S. No	Part of Plants	Common Species used	Usage
1	Flowers	Roses, Jasmine, Saffron, Champaka, Marigold	sedating and relaxing
2	Leaves	Basil, Khus (vetiver). Hina	cooling and close to the hemoglobin structure
3	Resins and barks	Bark of cinnamon tree, Sandal wood	heating and make body fluids move
4	Roots	Nagarmotha.Vala, Jatamassi	grounding and help develop confidence
5	Fruits	Poppy, Nutmeg, Cardamom, clove	growth oriented and produce stimulating effect
6	Wood and other products	Musk, Honey, Sandal wood	Base oil

Table 3: Principle of Cultural Tourism Charter
(Source: www.icomos.org)

Principle of Cultural Tourism Charter

1. The natural and cultural heritage is a material and spiritual resource, providing a narrative of historical development.
2. **The relationship between Heritage Places and Tourism is dynamic and may involve conflicting values. It should be managed in a sustainable way for present and future generations**
3. **Conservation and Tourism Planning for Heritage Places should ensure that the Visitor Experience will be worthwhile, satisfying and enjoyable.**
4. **Host communities and indigenous people should be involved in planning for conservation and tourism.**
5. **Tourism and conservation activities should benefit the host community.**
6. **Tourism promotion programs should protect and enhance Natural and Cultural Heritage characteristics.**

Fig. 2: Map of Kannauj and its surrounding districts
Source: brandbihar.com

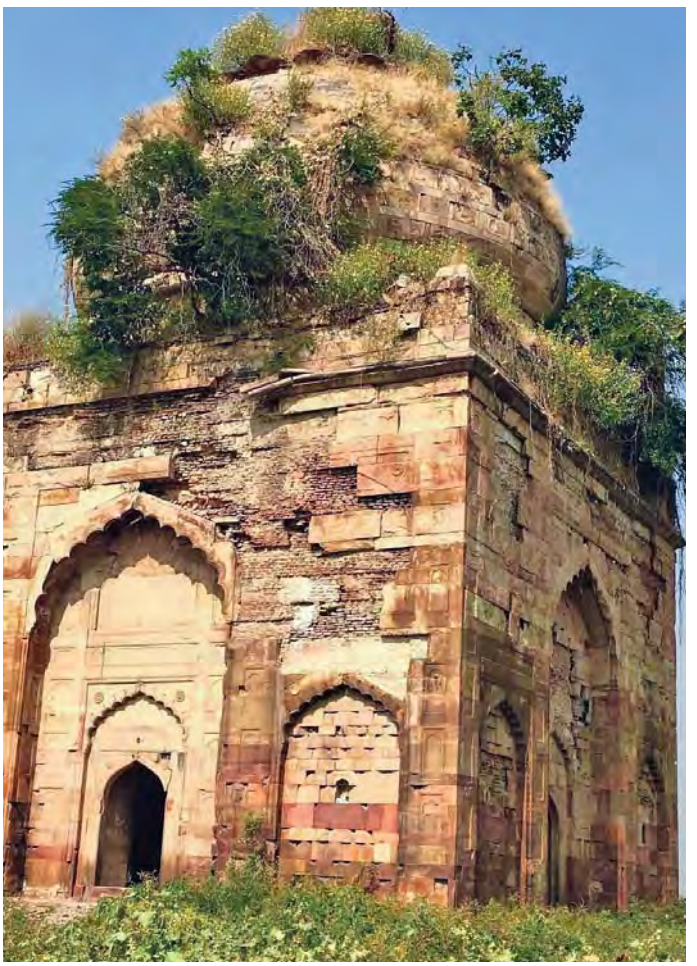

Fig. 3: Fort Vishnupuram Kanauj in dilapidated stage

commercial prosperity of Kannauj. Under Harsha, it became an important city of the empire, to supplement Pataliputra since the time of Buddha. In fact, it is said that because of the production of *kewra* used in *attar* production , that Harsha invaded Ganjam (Kongoda) in Orissa in 643 CE. It was the capital of Hind, with its seven forts and 10,000 temples until Mahmud Ghazni's invasion in the 11th century, who destroyed the city to ruins. (See. Figs 3 & 4).

Fig. 4: Gateway depicting prosperity of Ittar makers in Kannauj

About Kannauj

Kannauj is the administrative district of Uttar Pradesh along the River Ganges (See fig. 2). It was carved out of the Farruqqabad district in 1997 and lies northwest of Kanpur. Presently Kannauj district covers an area of 2093 sq.km with an approximate population of 16 lakhs. According to the *Skill India Plan 2020-21*, there are two clusters in Kannauj :

- Essential oil and attar industries - There are 375 units with 50,000 employees and an annual turnover of Rs. 400 crores.
- Agarbatti industry - This has an annual turnover of 140 lakhs and 10,000 people employees.

The Deg Bhapka Methodology of Making Perfume

Kannauj has been concocting *attar* by using the traditional *deg bhapka* method (see figs 5.1 to 5.6) where wood and cowdung are used as eco-friendly fuel:

Copper stills called *deg* and are used for heating. Their holding capacity ranges from 10- 160 kg of floral/ herbal materials.The *deg* is covered with a *sarpos,* a copper lid, which has openings for connections to the receivers called *bhapka*. This is a peculiar feature of *attar* distillation which acts as both, a condenser and a receiving vessel. The unique odour of *attars* is obtained by condensing vapours into the base material, mainly sandalwood oil pre-loaded into the *bhapka*. The round-bottomed copper receiver has a long neck and connects with the *deg* by means of the pipe-like *chonga* made of a hollow bamboo pipe. It is wrapped with twine for insulation so that the steam does not condense in transit. It fits into the *sarpos* at one end and into the mouth of the receiver at the other. Both ends are sealed with *multani mitti*

(Fuller's earth) to render them air-tight. The *bhapka* in a place called *gachchi,* with water tanks. This helps in cooling the distillate obtained from the *deg*. The tank is at a lower level.

The *deg* are manufactured in the Faruqqabad district of Uttar Pradesh. The traditional copper is now substituted by steel. Khus essence extracted in copper vessels were an alluring green, whereas essential oils extracted in steel vessels turn an unattractive brown.

The *bhatti* is a traditional furnace fueled with wood, dried plant residue or coal. The fires are manually controlled by semi-skilled workers called *dighaas.* Water in the cooling tank is changed to maintain the required temperature. After obtaining the desired amount of fragrance from the *bhapka,* the *degs* are cooled with wet cloth to stop vaporization. Bottles called *kuppi,* made of camel leather are semi-permeable containers used for removing moisture from the *attars.*

Chhoya or *nakh chhoya* is a process of dry distillation unique to Kannauj. The technique of extraction is slow and not very viable commercially. It is used only in India for distilling *nakh* or sea-shell and *loban* (frankincense) for making aromatic extracts used to make *shamama attar*. *Gadd* is the by-product of the *attar* industry. Highly fragrant, it is used to make incense sticks, *dhoop* cones, *havan* and *yagna* material, *hukka* incense. Rose water, *gulkand* and essences for beverages are also allied industries.

Spices in Attars

Use of spices in *attars* is an important part of the industry. This eight-fold classification is the essence of the modern understanding of perfumery which visualizes the effects of essential oils on the individual and is therapeutic, sedating and relaxing, cooling and close to the haemoglobin structure, heating and make body fluids move, grounding and help develop confidence growth oriented and produce an expanding and have a stimulating effect.

Uniqueness of Indian Perfumery

The *attars* of India are unique for a number of reasons. Unlike the modern perfumes which have alcohol as carrier or solvent, *attar* traditionally uses sandalwood oil, making it greasy, absorptive and gives it a long-lasting aromatic experience with medicinal benefits. In the process of distillation, condensation, blending and maturing, sandalwood absorbs the fragrance of flowers and other aromatic charges to create a product which is exotic and medicinal in nature. The extraction technique of *deg bhapka* distillation is environment-friendly, simple and sustainable. Being labour-intensive, it helps in

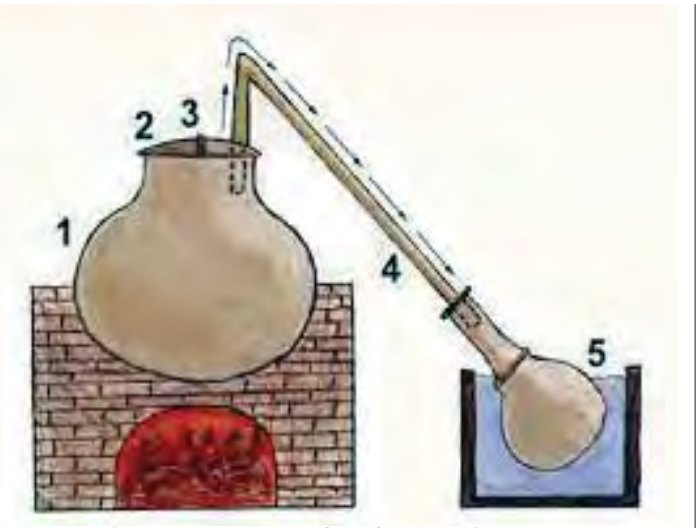

Fig. 5.1: Schematic Diagram of Perfume Making

Fig. 5.2: Fresh Flowers put in Deg

Fig. 5.3: Fixed deg over the kilns

enhancing employment opportunities in the rural sector and promoting cottage industries.

Attar formulations, being indigenous and unique to India, perfumes manufacturers developed secret recipes which they carried over centuries till today. The special processes and techniques are unique and production operations are kept under wraps. In

Fig. 5.4: Copper vessels or bhapka bamboo pipes or chonga

Fig. 5.5: Gachhi

Fig. 5.6: Kuppi- camel skin bottles to store perfume

today's world of open competition and challenges, there is a need for updating these methods too. The survival of this labour-intensive industry depends on the understanding and willingness of producers to participate in competitive open markets.

REJUVENATION OF OLFACTORY HERITAGE

To bring the perfume capital of India onto the global map, Perfume Park and Museum has been constructed at Kannauj by the Uttar Pradesh Industrial Development Corporation (UPSIDC). The museum was built in agreement with *Grasse,* the French centre of the perfume Industry, as an interaction and leisure space, with a skill development centre and common facilities like distilleries for *attar* craftsmen. Due to lack of institutional support the indigenous *attar* manufacturing is on verge of extinction. There are five significant issues which caused stagnation and deprivation of the artisans :

1. Lack of maintenance: of traditional *deg* copper vessels. These are now replaced by giant steel cylindrical containers for extracting oil mechanically. Rising cost of raw material and lack of connectivity reduces its market demand.

2. Ban on cutting sandal trees: In UP, cutting of sandal trees and trade of sandalwood was banned 20 years ago, causing a setback since 80% of the industry used sandal oil as a base. Several manufacturers shut down, diverted to other businesses or migrated to Karnataka or Madhya Pradesh. The industry shrank due to rising demand for cheap alcohol-based fragrance, coupled with the high cost of production.

3. Tax Holiday- High taxation increased the grievance of artisans. This needs to be reduced and optimized to support production. For example, products like *kewra* and *gulab jal* have now been made tax-free.

4. Standardization- Though there are more than a hundred Indian standards published for testing essential oil raw material quality, there is a lack of standardization for many herbal products. For example, sandal wood is replaced with petroleum products such as di-octyl phthalate (DOP) or liquid paraffin.

5. Diversification - In the absence of government support to traditional *attar* artisans, even two or three generations old, have diversified into manufacture of sugar cubes and cold storage units.

R & D FOR REVIVAL OF PERFUME INDUSTRIES

The industry needs latest research in agro-forestry for increasing yields of raw materials and provisions of common facilities like testing laboratories. There is scope for horticulture as an agri-business, through

training and capacity-building of flora-culturists. This will also be useful for *attar* and essential oil producers. Laboratory support is also required in terms of fragrant raw materials and facilitation of apparatus and equipment for processing of natural essential oils, isolates, resinoids and aroma-chemical. Though the Fragrance and Flavour Development Centre (FFDC) was established in 1991 by the Uttara Pradesh government with the assistance of UNDP/ UNIDO, little impact is visible on the shrinking perfume industry. *Attar* artists require technical expertise as well as marketing support to survive in local and international markets. Under *One District One Product* (ODOP), the government of Uttar Pradesh, efforts are undertaken to preserve the local craft and skills, transform the products in an artistic way so that these traditional industries do not lose their identity and preserve their place in their traditional market.

Besides the technical and policy instruments, Kannauj city requires cultural tourism for its global identity and rejuvenation of this heritage craft of *attar* making. The Pushkar Fair in Rajasthan, Suraj Kund Mela in Haryana, the Taj Mohostav of UP are some examples where cultural tourism has helped the survival and revival of local indigenous cultures of craft and festivities. Table 3 explains the six principles of Cultural Tourism by ICOMOS charter.

WAY FORWARD: Enhancing Cultural Tourism

Though there is a need to create awareness about the genre of olfaction, health and psychological benefits of this rich cultural heritage, it's also required to regenerate its identity, belongingness and commercial viability through engaging sustainable tourism. In this context, an *Ittar Mela* should be an integral part of the city development plan. This may enable visitors to take part in local cultural celebrations, attend live demonstrations of perfume-making and understand aromatherapy for treatment of varied ailments. Preservation of historical buildings and the traditional lifestyle products will regenerate the local economy and promote exports.

Every effort should be made to revive this age-old cultural heritage for new generations. Promotion of products like herbal essential oils which are all natural and pure and possess high medicinal values will not only preserve the ancient lifestyle system of olfactory culture but also help new generations to build their immune system based on ancient aromatherapy.

All Images Courtesy : Author

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NEWSLETTER JULY

OBITUARY

Ar. Rakesh Singh Kushwah

(23 June 1969 - 3 August 2023)

Ar. Rakesh Singh Kushwah, the Gentleman Genius, left us suddenly and untimely on 3 August 2023. He is survived by his wife Reena Kushwah and two children. All three are architects.

As a person he was impressive and as an architect he was much more than that. In the words of our senior, Manoj Misra-ji, "He had an excellent command over scale and proportion and was almost flawless in his understanding about architecture."

His journey was full of some of the most difficult challenges faced and succeeded. He practised since 1997, leading his firm *Kushwah and Kushwah*, providing a wide range of services which included comprehensive site planning, architectural design, building engineering and construction management for urban, cultural and commercial projects. These included hotels, office parks, educational institutions and government buildings, which had won many prestigious awards.

He will always be regarded as an important figure in architecture in Central India and adored for his consistent and impactful contributions as a mentor of young architects. His farsighted vision and courteous nature was anchored upon the deep insight into the pedagogical side of the profession, especially from the influences during B.Arch., at Maulana Azad National Institute of Technology between 1985 - 1990 and during M.Arch., at Kansas State University. Consequently impressions of his unique and impressive style in his projects and his lectures impressed all in the industry. He was a genius in design and execution, an educator and also a builder. His design expression was impeccable.

His wisdom was recognised by various institutions and he served as a member of Board of Governors of SPA, Bhopal in 2012-2014. In 2018, he became the first chairman of IIA Bhopal Centre. Later he served as Member of Council of Architecture to represent the state of Madhya Pradesh. It was under his extraordinary coordination that the IIA National Convention was conducted in Bhopal.

He was one of the very few who can truly be called 'Master'.

National Conference

Built Environment and Beyond 2.0: Theory and Practice

Dates: ***2 and 3 November, 2023***

Mode: ***Online***

Organized by : *Maharshi Karve Stree Shikshan Samstha's Dr. Bhanuben Nanavati College of Architecture for Women , Pune*

The built environment today is not limited to just individual buildings but also encapsulates the surroundings, urban patterns and morphology, social and political circuits, services and innovations in technology. The multidisciplinary nature of the built environment has brought a paradigm shift in the way we perceive architecture and the environment around. With this, there have been transformations in architectural practice, theory and pedagogy. This shift has presented various lenses and tools to explore the tangible and intangible aspects of built-unbuilt environment.

This Conference aims at addressing this multidisciplinary nature of architecture and allied disciplines. Papers are invited from academicians, professionals, students and research scholars and encourages them to explore this multifaceted nature of the built environment through the themes:

- *Architecture and Planning*
- *Landscape and Ecology*
- *Art and humanities*
- *Environment*
- *Cultural and heritage conservation*
- *Emerging technologies and services.*

For more information: *https://bnca.ac.in/national-conference-built-environmet-beyond-2-0/*

IIA-Himachal Pradesh

Last General Body meeting (GBM) of term 2020-23 and First GBM for term 2023-25.

The last General Body meeting of term 2020-'23 and the first GBM for the term 2023-'25 of IIA HP Chapter was held online on 15 July, 2023 at Shimla. It was online due to adverse conditions caused by heavy rains in the state.

***Ar. Nand Lal Chandel Chairman IIA HP Chapter during lamp lighting ceremony* of Chandigarh Chapter on 29 July, 2023**

At the very outset, Ar. Shushil Sharma, Joint Hon. Secretary, IIA HP Chapter welcomed all members and read the Progress Report for the term 2020-2023. After this, Ar. Neeraj Raghuvanshi, Treasurer read the Financial Status Report and informed that the financial conditions of the Chapter had improved during the term 2020-'23, and hoped the trend to continue in the new term of 2023-'25.

The meeting was chaired by the Ar. Nand Lal Chandel, Chairman, IIA HP Chapter. Around 59 architects from all across the state witnessed the installation ceremony of the newly elected team of IIA HP Chapter. The team includes:

Former Architect-in Chief, Ar. Nand Lal Chandel as Chairman, retired Senior Architect, Ar. L.M. Mastana as Vice Chairman, Retired Architect, Ar. Sarojani Sharma and Ar. Shushil Sharma as Joint Secretary and Hon. Secretary. Beside this, Chief Architect, HPPWD Shimla, Ar. Rajiv Sharma, Senior Manager SJVNL Shimla, Ar. Ajay Sharma, Director, Creative Square, Ar. Abhinav Koundal, Assistant Architect, HPPWD Mandi, Ar. Vijay Thakur, Director, Vastu Rachna, Ar. Salochna Dhiman, Assistant Architect HPPWD Shimla, Ar. Vijay Rana, Ar. Lekhraj, Assistant Professor, NIT Hamirpur, Dr. Venu Shree were elected as Executive members of IIA HP Chapter. In addition to above, retired architect, Ar. Kahan Singh Chauhan and Principal Govt. Polytechnic for Women Rehan and Head School of Architecture, Nagrota Bagwan, Dr. Satish Kumar Katwal were also included as executive member in the team of IIA HP Chapter.

Ar. Nandlal Chandel while addressing various professional highlighted the role and importance of IIA and its members in the various planning activities related to the building and infrastructure of the State.

Ar. Nand Lal Chandel Chairman IIA HP Chapter along with his team attended installation Ceremony of IIA Chandigarh Chapter on 29 July, 2023.

Ar. Nand Lal Chandel Chairman IIA HP Chapter along with other distinguished members of IIA HP Chapter actively participated in installation Ceremony of IIA Chandigarh Chapter on 29th July, 2023. Ar. Chandel stressed upon the need to unite all Northern State Chapters so as to bridge the gap between practice and academia. He further added that all Northern Chapters should form a joint venture to address the various issues pertaining to architecture and its fraternity.

IIA-Haryana Chapter

The first General Body Meeting of Haryana Chapter was held on 9 July 2023 at Hotel Golden Tulip Suites, Faridabad – Gurugram Road, Gurugram. The meeting was chaired by Chapter Chairman, Ar. Vivek Logani. Outgoing Chapter Chairman Ar. Punit Sethi congratulated the newly-elected team and handed over the charge to Ar. Vivek Logani. The GBM was attended by approximately 75 architects from all Centres and Sub-Centres.

Ar. Vivek Logani announced a detailed program for the term 2023-'25. Areas of focus to work on during the tenure included:

1) Welfare of Member Architects
2) Membership growth
3) Coordination with local bodies regarding Online approvals and building bye laws
4) Coordination with various architectural colleges of the state for improvement in architectural education, Lecture sessions, creating awareness about IIA and enrolment of student members.

All four Centres and three Sub-Centres of the Haryana Chapter held their First General Body Meeting successfully with active participation of members.

The Executive Committee Meeting (2023-'25) of Haryana Chapter was held on 30 July 2023, at Hotel Crown Ceremonies, Faridabad. It was attended by 25

First GBM of Haryana Chapter

members including Co-opted Members and Special Invitees. The Action Plan was discussed in detail and various Ccommittees were formed for the execution of the same. These included:

1. Architect Welfare Committee
2. Membership Development Committee
3. Government Interface Committee
4. Cultural and Events Committee
5. Sports Committee
6. Building Infrastructure Committee
7. Journal Publication Committee

IIA-Uttar Pradesh Chapter

First GBM and installation Ceremony Event at The Centrum hotel.

Date: July 15, 2023

Timing: 1 pm onwards

The installation ceremony was held at The Centrum hotel to warmly welcome the new team of the Indian Institute of Architects (IIA). The event was filled with a mix of joy and nostalgia, as the old team bid farewell and embraced the new team members with open arms. The esteemed members of the new team includes the Chairman, Ar. Sandeep Kumar Saraswat; Vice Chairman, Ar. Ajay Srivastava; Treasurer, Ar. Anuj Tondon; Joint Honorary Secretary, Ar. Sandeep Negi and Devesh Mani Tripathi and the Executive Members- Ar. Paarul Saxena, Ar. Arun Kapoor, Ar. Tabish Abdullah, Ar. Rajnish Raghav, Ar. Dr. Nirmita Mehrotra, Ar. Shashank Arun, Ar. Babika Goel, Ar. Gaurav Saini, Ar. G.P. Bhatnagar and Ar. Rajeev Kakker.

The highlight of the evening was the presence of the new Chairman, Ar. Sandeep Kumar Saraswat, an eminent personality and former Chairman of the Indian Institute of Interior Designers (IIID). In his speech, he xpressed his commitment to his duties in the IIA, emphasizing the importance of collaboration between the seniors and the new generation. He highlighted the need for innovation, creativity, and sustainability in the field of architecture and pledged to lead the IIA with unwavering dedication.

The event was attended by distinguished guests, including renowned architects and esteemed members of the architecture community. It provided an excellent opportunity for networking, fostering new relationships, and sharing ideas that will contribute to the growth and development of the architectural landscape. The Indian Institute of Architects looks forward to a fruitful tenure under the leadership of Chairman Sandeep Kumar Saraswat and the new team. Their collective expertise, vision, and passion for the field will undoubtedly propel the IIA to greater heights and cement its position as a leading institution in the architectural domain.

IIA-Maharashtra Chapter

After the recently-held elections, Maharashtra Chapter saw the installations of its various Centres. The Chapter installation took place in Navi Mumbai Centre with Ar. Sandeep Prabhu from Thane as the Chairman, Ar. Sunil Bhale from Sambhajinagar, Aurangabad as Vice Chairman, Ar. Shekhar Bagool from Navi Mumbai and Ar. Upendra Pandit from Satara as Joint Honorary Secretary and Ar. Raviraj Sarwate from Nagpur as Treasurer. This function was held on 21 July in the First EC Meeting of Maharashtra Chapter.

Navi Mumbai Centre Team

Out of the 24 Centres, Pimpri Chinchwad held their Installation Ceremony on 1 July, Kalyan-Dombivali Centre on 15 July while Sangli and Satara on 28 and 29 July respectively. Pune held their installation Ceremony on 9 August.

The formal Last General Body Meeting of the previous team and the First General Body Meeting of the new team have been held. Other regular EC meetings at the Centre levels have also been held.

First Council Meeting Held at the Head Office, Mumbai on 22 July, 2023 for the Term 2023-2025

Sr.No.	Assoicate to Fellow	Membership No	Place
1	Ar. Kosalaraman C J	F11549	Tamil Nadu
2	Ar. Rajinder Singh Sandhu	F13887	Patiala
3	Ar. Balakrishna Thati	F12735	Telangana
4	Ar. Abraham George	F06797	Kerala
5	Ar. Sanjeev Bumb	F07539	Indore
6	Ar. Sonal Maheshchandra Patel	F10486	Ahmedabad
7	Ar. Pratik Manna	F15534	West Bengal
8	Ar. Irshad Majid Dar	F18731	Jammu & Kashmir
9	Ar. Harbinder Pal Singh	F17951	Jammu & Kashmir
10	Ar. Sameer Murari Valimbe	F09110	Pune
11	Ar. Sushil Kumar Sharma	F11551	Himachal Pradesh
Sr. No.	**Direct Fellow**	**Membership No**	**Place**
1	Ar. Safiullah	F27221	Uttar Pradesh
2	Ar. Milind Jaysing Pawar	F27222	Navi Mumbai
3	Ar. Shashidhar K	F27223	Karnakata
4	Ar. Pradeep Kumar Yadav	F27224	Uttar Pradesh
5	Ar. Piyush Tandon	F27225	Uttar Pradesh
6	Ar. Tushar Gaur	F27226	Gurgaon
7	Ar. Arivumani V	F27227	Chennai

Sr. No.	Associate	Membership No	Place
1	Ar. Sayed Mohmmad Wasil	A27228	Jammu & Kashmir
2	Ar. Syed Ather Qayoom Tahira	A27229	Jammu & Kashmir
3	Ar. Tarika Panjabrao Mohite	A27230	Nagpur
4	Ar. Jacob C Jacob	A27231	Kerala
5	Ar. Greeshma Jos	A27232	Kerala
6	Ar. Geevarghese S Kiluthattil	A27233	Cochin
7	Ar. Mandar Bodkhe	A27234	Nagpur
8	Ar. Mallika Madhukarrao Lanje	A27235	Nagpur
9	Ar. Gopal Sahu	A27236	Uttar Pradesh
10	Ar. Kunal Bhupendra Wani	A27237	Nandurbar
11	Ar. Ravinder	A27238	Haryana
12	Ar. Atul Kumar Agarwal	A27239	Gurgaon
13	Ar. Sudip Subhash Bharsakale	A27240	Amravati
14	Ar. Anuprita Ajay Potdar	A27241	Kolhapur
15	Ar. Priyanka Kiran Kalamdani	A27242	Pune
16	Ar. Beauty Narzary	A27243	Amravati
17	Ar. Adel Abubacker	A27244	Calicut
18	Ar. Farooq Muzaffar	A27245	Jammu & Kashmir
19	Ar. Rasitha Peter	A27246	Cochin
20	Ar. Seethalakshmi S	A27247	Cochin
21	Ar. Muhammed Ashir	A27248	Kannur
22	Ar. Rabeeca Thomas Easaw	A27249	Cochin
23	Ar. Soumya K Aspalli	A27250	Karnataka
24	Ar. Samreen Aara	A27251	Kalaburagi
25	Ar. Varsha Dinkarrao Mahajan	A27252	Pune
26	Ar. Kavya Chandrashekar	A27253	Karnataka
27	Ar. Shubham Jalindar Raut	A27254	Pune
28	Ar. Hrishikesh Ashokrao Gire	A27255	Maharashtra
29	Ar. Maithreyi Kiran Bulgannawar	A27256	Kalaburagi
30	Ar. Amit Kumar Sharma	A27257	Rajasthan
31	Ar. Pashmeena Ghom	A27258	Pune
32	Ar. Shreyas Pramod Vijaya Bharule	A27259	West Bengal
33	Ar. Tamanna Bhardwaj	A27260	Faridabad
34	Ar. Kunal Deori	A27261	Uttarakhand
35	Ar. Abhay Gandhi	A27262	Uttarakhand
36	Ar. Sundara Varadhaan V S	A27263	Tamil Nadu
37	Ar. Sowndharya P B	A27264	Tamil Nadu
38	Ar. Chetan K S	A27265	Karnataka
39	Ar. Abhinav Tripathi	A27266	Kapurthala - Hoshiarpur
40	Ar. Girish Vidyadhar Brahme	A27267	Maharashtra

41	Ar. K Vinodhini	A27268	Chennai
42	Ar. Kapil Vitthaldas Sedani	A27269	Pune
43	Ar. Rupesh Devidayal Chourasia	A27270	Pune
44	Ar. Surendhar K	A27271	Coimbatore
45	Ar. Ashutosh B	A27272	Karnataka
46	Ar. Rina Diwakar Salvi	A27273	Pune
47	Ar. Mrunal Ravindra Dandekar	A27274	Sangli
48	Ar. Narendra Narayan Madas	A27275	Pune
49	Ar. Rahul Ashok Nawle	A27276	Pune
50	Ar. Nikhil Prabhakar Mehare	A27277	Pune
51	Ar. Chandrima Das	A27278	West Bengal
52	Ar. Chetan Sachdeva	A27279	Punjab
53	Ar. Anmol Sharma	A27280	Punjab
54	Ar. Ishween	A27281	Punjab
55	Ar. Jagdeep Singh	A27282	Punjab
56	Ar. Sangeeta	A27283	Punjab
57	Ar. Kamalpreet Kaur	A27284	Punjab
58	Ar. Tara Bhusla	A27285	Punjab
59	Ar. Sumit Sushil Waykos	A27286	Punjab
60	Ar. Manu Chaudhary	A27287	Punjab
61	Ar. Rajat Nainwal	A27288	Punjab
62	Ar. Deva Narayanan B	A27289	Punjab
63	Ar. Santosh Kumar	A27290	Punjab
64	Ar. Gaurav Hemendra Manjrekar	A27291	Nashik
65	Ar. Japneet Kour	A27292	Jammu & Kashmir
66	Ar. Raveena Rahul Deshpande	A27293	Goa
67	Ar. Tabie UI Mursaleen	A27294	Jammu & Kashmir
68	Ar. Tejas Pradeep Vyawahare	A27295	Dhule
69	Ar. Deesha Deepak Ahire	A27296	Dhule
70	Ar. Raghvendra Harshad Deshpande	A27297	Dhule
71	Ar. Vasu Mailk	A27298	Faridabad
72	Ar. Sahitya Baljeet Phogat	A27299	Faridabad
73	Ar. Karan Kohli	A27300	Jammu & Kashmir
74	Ar. Aviral Mahajan	A27301	Jammu & Kashmir
75	Ar. Karan Badyal	A27302	Jammu & Kashmir
76	Ar. Vedika Rajesh Gadre	A27303	Brihan Mumbai
77	Ar. Mona Aggarwal	A27304	Telangana
78	Ar. Yogesh Apa Teli Pednekar	A27305	Goa
79	Ar. Aayush Singal	A27306	Gurgaon
80	Ar. Koel Jain	A27307	Faridabad
81	Ar. Hitesh Rana	A27308	Haryana
82	Ar. Sonali Kaur	A27309	Punjab

83	Ar. Smit Ketanbhai Ghodasara	A27310	Saurashtra
84	Ar. Sanjeev Kumar Singh	A27311	Uttar Pradesh
85	Ar. Shrish Pratap Singh	A27312	Uttar Pradesh
86	Ar. Sinan Muhammed E	A27313	Kerala
87	Ar. Indrajith K	A27314	Calicut
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