

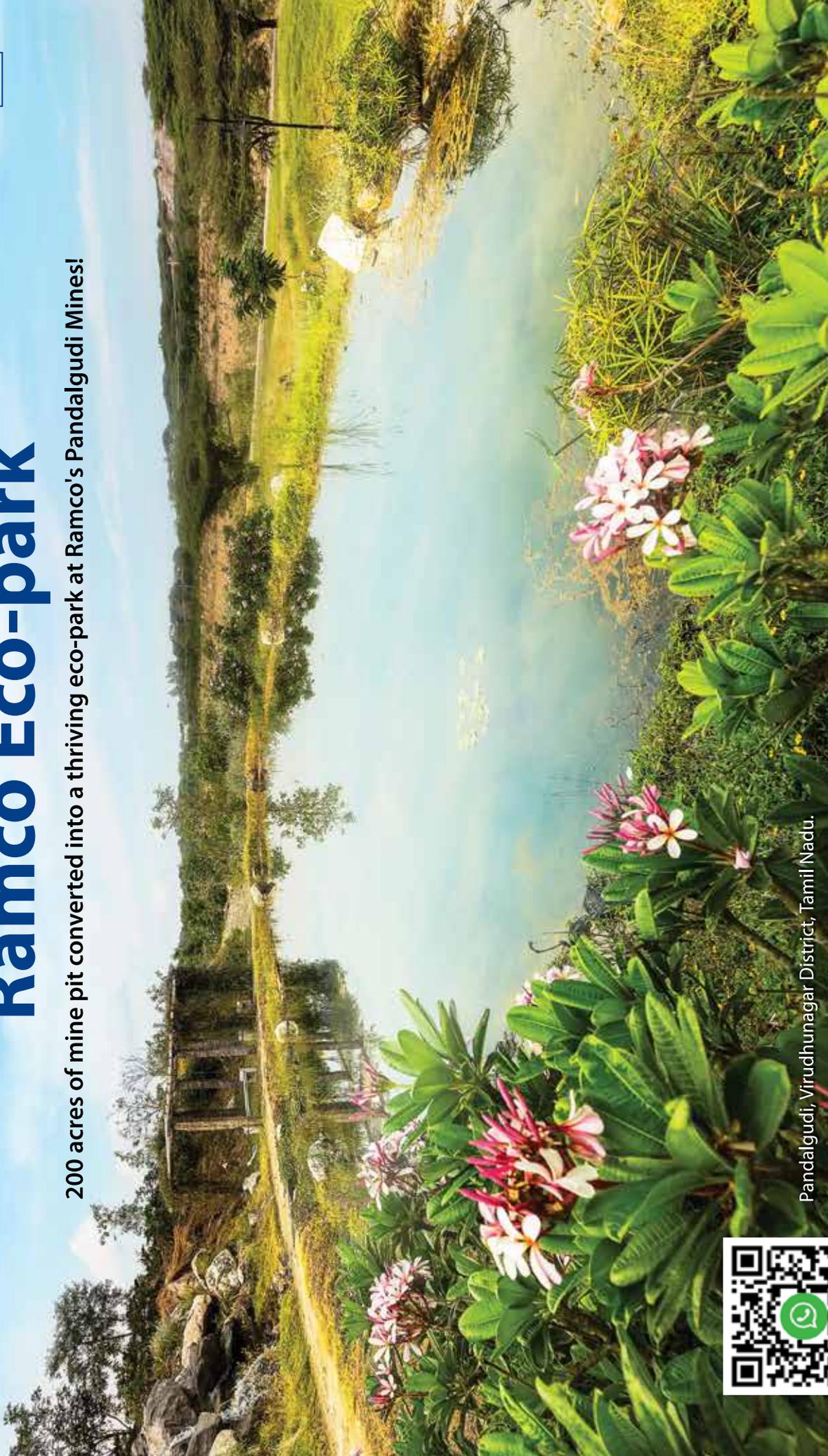
JOURNAL OF THE INDIAN INSTITUTE OF ARCHITECTS
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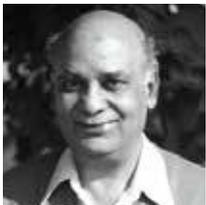


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Printed & Published by Ar Lalichan Zacharias on behalf of The Indian Institute of Architects.

Designed by **November**
Printed by **Arihant Digiprint**
Shed No.1, Ground Floor, CTS No.15, 16, 20, 21 & 37, Italian Compound, Dindoshi Village, Ittbhatti, Goregaon East, Mumbai-400063.

Published at The Indian Institute of Architects, Prospect Chambers Annexe, 5th Floor, Dr D N Road, Fort, Mumbai-400001.

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Cover page designed by **November**
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JIIA IS REFEREED JOURNAL
ISSN-0019-4913

REGISTERED UNDER SOCIETIES
REGISTRATION ACT, XXI OF 1860

JOURNAL OF THE INDIAN INSTITUTE
OF ARCHITECTS
VOL.88 • ISSUE 02 • FEBRUARY 2023

www.indianinstituteofarchitects.com

The February issue of the Journal is on architecture 'UNBUILT'. We find that many Unbuilt projects display an array of interesting ideas, which are not published or seen by others. Many designs remain Unbuilt for various reasons beyond architecture. We, in this issue, are featuring a few Unbuilt design projects .

Ar Surabhi Patil is in conversation with Ar Sandeep Patil, who recently raised his voice against the illegal practices in the real estate business.

We carry the Photo Essay by Ar Anika Mittal Dhawan, on Cambodia.

We carry a report on the just concluded IIAPL Golf held at Cochin.

Ar Brijesh Shijal writes the theme note on 'UNBUILT'. We are with our regular columns and Research Papers.

It's important that members contribute materials for publication regularly.

Enjoy Reading...

Warm Regards
Ar. Lalichan Zacharias
Editor

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Ar. Lalichan Zacharias



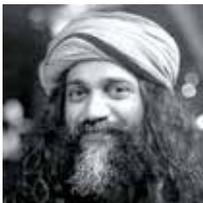
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PRESIDENT'S MESSAGE

Dear Members,

Greetings!

It is a matter of great pride that some Architects, especially the young, are leaving imprints of their architectural practice through their work, thereby enhancing the architectural awareness in the community. But there are some who hesitate to take ownership of being the author of their design or fulfill further professional responsibilities and fritter it away to many down the line creating a distrust for the profession and its goals.

We have to keep sensitizing ourselves of our role and responsibility for a healthy growth of the profession.

It was interesting to see a programme organized once in two weeks by the Chennai Centre/TN Chapter involving young Architects with presentations, discussions & sharing of ideas and issues with an enthusiastic participation & attendance. I urge every Chapter/Centre to take such programmes, if there are not, to keep engaging the members.

The IIAPL Golf Tournament, a maiden initiative by the IIA Sports and Cultural Committee, was hosted and organized by the IIA Cochin Centre at CIAL Golf Club in Cochin. The tournament was well organized with practice sessions for new golfers, a Golf Clinic and participation of 40 Architect Golfers from across the country, with the 18 hole format. The efforts of the Convenor Ar. Binesh Sukumar, Ar. Vijith Jagadeesh, Chairman, IIA Cochin Centre and the organizing team are highly appreciated.

The IIA National Awards for excellence in Architecture, hosted by the Telangana Chapter at the sprawling Ramoji Film City in Hyderabad was witness to some of the works of excellence from Architects across the country with all the shortlisted Architects making live presentations before an eminent Jury. The award ceremony was the highlight with a lot of cheer and excitement amongst the awardees and the delegates. We need to increase the footprint in the forthcoming years.

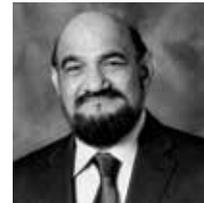
Kudos to IIA Telangana Chapter Chairman Ar. Uday Shankar Dhoni, Chairman IIA Awards committee Ar. Muralidhar Reddy and the entire organizing committee under the guidance of Ar. Vilas Avachat & Ar. Leena Kumar for their untiring efforts in making it a very successful programme to cherish.

With best wishes,

Ar. C. R. Raju
President, IIA



Ar. C.R. Raju
President, IIA



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THEME

THE IMPORTANCE OF UNBUILT PROJECTS IN ARCHITECTURE

Architecture is a discipline that is defined by the built environment. However, the role of unbuilt projects in architecture is equally significant. Unbuilt projects are designs and concepts that have been created by architects but have not been constructed. These projects are often seen as speculative or experimental in nature, and they play an important role in the evolution of architecture as a discipline.

One of the key benefits of unbuilt projects is that they offer designers the freedom to explore new ideas and concepts without the constraints of practical construction. Architects can experiment with new forms, shapes, and materials, and create designs that challenge conventional thinking about what is possible in architecture. This creative freedom allows architects to push the boundaries of the discipline and explore new avenues of innovation.

Furthermore, unbuilt projects can be approached equally by amateur and professional designers. Unlike built projects, which require significant financial and logistical resources, unbuilt projects are often created as part of design competitions, academic projects, or personal explorations. This accessibility allows designers of all backgrounds and skill levels to engage in the discipline and contribute to its evolution.

In addition to offering creative freedom and accessibility, unbuilt projects are also important in terms of architectural education and discourse. These projects often serve as a platform for architects to share their ideas and visions with the wider architectural community. By presenting unbuilt projects in exhibitions, lectures, and publications, architects can inspire and influence others in the field, and contribute to the development of architectural theory and practice.

Unbuilt projects also have an important role to play in the history of architecture. Many of the most significant architects throughout history, including Frank Lloyd Wright, Le Corbusier, and Mies van der Rohe, had a number of unbuilt projects throughout their careers. These projects are often seen as key to understanding the evolution of their ideas and the development of their design philosophies.

The potential for unbuilt projects to push the boundaries of imagination in architecture can be seen in the work of many visionary architects throughout history. Consider the case of Frank Lloyd Wright, whose unbuilt project for the Gordon Strong Automobile Objective in 1924 was a radical departure from traditional architectural styles of the time. Wright's

design featured a striking circular building that wrapped around a central courtyard and incorporated a rooftop garden and reflecting pool. While the project was never realized, its influence can be seen in Wright's later work, as well as in the work of many other architects who were inspired by its innovative design.

Similarly, the work of architects such as Zaha Hadid and Frank Gehry demonstrates the incredible potential of unbuilt projects to explore new forms and shapes in architecture. Hadid's design for the MAXXI National Museum of the 21st Century Arts in Rome, Italy, was a radical departure from traditional museum designs, featuring sweeping curves and angular planes that seemed to defy gravity. Although the project was eventually built, it demonstrates the incredible degree of artistic freedom that Hadid had in designing the building.

Gehry's unbuilt project for the Lewis Residence in Lyndhurst, Ohio, is another example of how unbuilt projects can explore new forms and shapes in architecture. Gehry's design featured a striking asymmetrical facade made up of an undulating series of planes that seemed to float above the ground. Although the project was never realized, it influenced Gehry's later work, including the iconic Guggenheim Museum Bilbao.

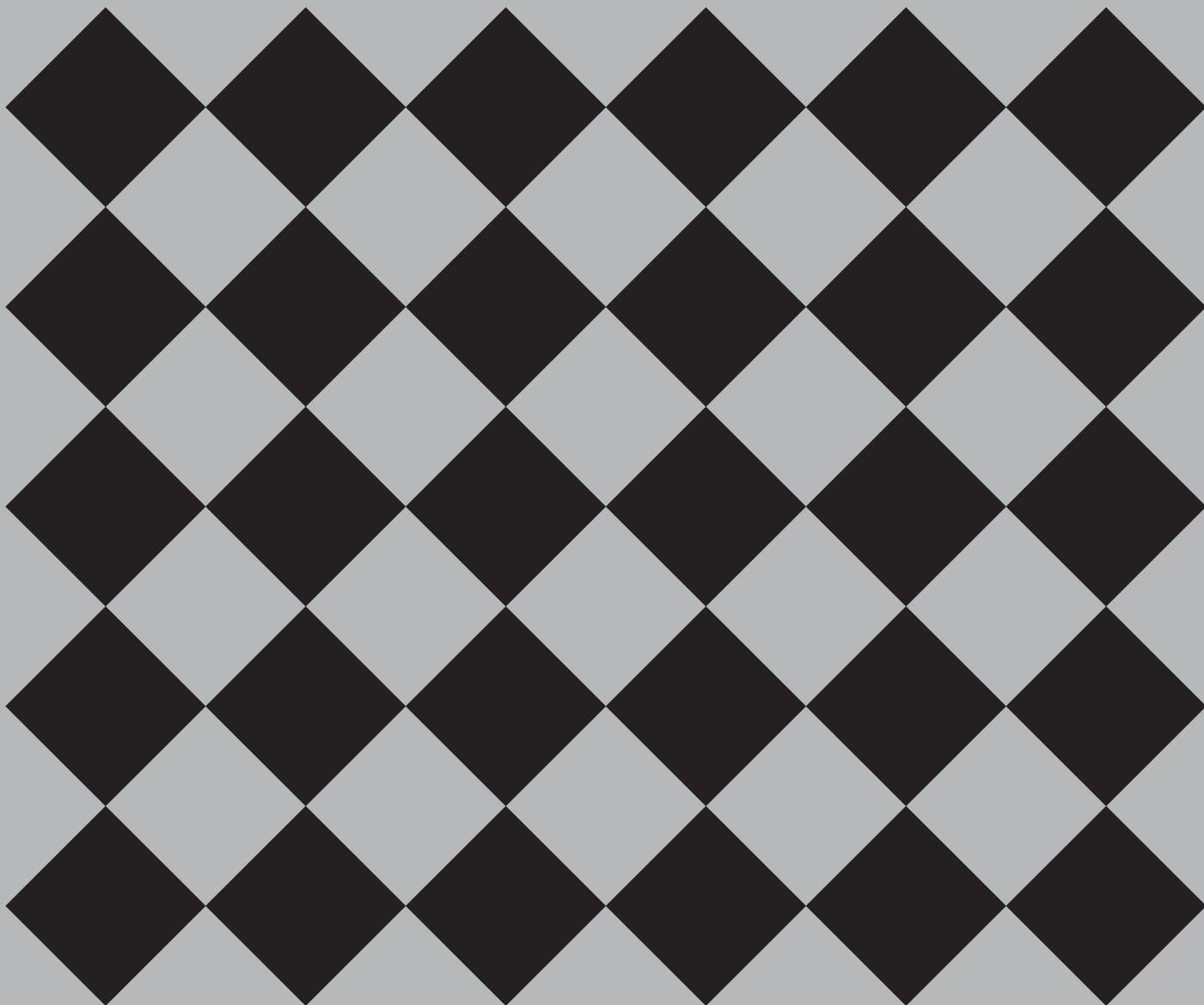
Furthermore, unbuilt projects are often re-visited and re-imagined by architects in later projects. For example, the unbuilt project for the Tribune Tower in Chicago by Walter Gropius and Adolf Meyer has been cited as a major influence on the design of other iconic buildings, such as the Seagram Building in New York City.

Finally, unbuilt projects also have the potential to inspire and shape the built environment in the future. Many unbuilt projects that were once considered radical or futuristic have now become a reality, and have had a significant impact on the built environment. For example, Le Corbusier's unbuilt project for the Palais des Nations in Geneva, Switzerland, has been cited as a major influence on the design of the United Nations Headquarters in New York City.

In conclusion, the role of unbuilt projects in architecture is significant and multifaceted. These projects offer designers the freedom to explore new ideas and concepts, contribute to architectural education and discourse, serve as a key to understanding the evolution of architectural ideas, and inspire and shape the built environment of the future. Unbuilt projects can be approached equally by amateur and professional designers, and they offer a platform for experimentation and innovation that is not always available in built projects. Let us continue to create more creative unbuilt projects, so that they can become a reality in the future and continue to shape the built environment for generations to come.



Ar. Brijesh Shaijal



RESEARCH

Effectiveness of Use of Physical Models in Site Planning
Ar. Paranjyoti. R. Patil, Ar. Shobha Dastapur



Is Mid-journey- AI a new Anti-hero of Architectural Imagery and Creativity?
Ar. Mohesh Babu Radhakrishnan

EFFECTIVENESS OF USE OF PHYSICAL MODELS IN SITE PLANNING

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ABSTRACT

This paper aims at exploring the effectiveness of use of physical models in site planning in architectural design studios to generate site responsive design in the present days where digital media with virtual models has dominated the architecture profession. In this experiment with B.Arch. students of Semester 5, design pedagogy adopted was to make physical models of hypothetical sites and building blocks. Students were asked to generate a number of alternatives for the proposed site layout using physical models. Feedback from students on their experience with physical models and feedback from faculty on site plans was taken. The analysis of both feedbacks demonstrated that working with physical models still works even in a computer-dominated era in experiencing the site and generating a good site plan. This pedagogy helped students to become sensitive towards landscape features of the site and develop sustainable site plans and creation of place identity with unique characteristics of the site in their design. This architectural pedagogy is one of the means towards developing a site responsive sustainable design solution at site level. This experimentation was in response to the problems faced by students in understanding site and landscape features at site planning and architectural design level.

Key words: *physical models, site planning, response to site, architectural design pedagogy.*

Introduction

Architectural design studio is a crucial period of study in the architecture course where students learn the creativity, procedure of design, critical thinking, social relevance, relationship with site and surroundings, technical aspects, material knowledge and many more in a multi-layered form. Teaching all these in a systematic manner is definitely a challenge to teachers even when these are tackled stage-wise throughout the course. Out of the many skills and techniques learnt to solve the problems in developing an architectural design, responding to site and surroundings is one of the major issues that needs to be taken care of. Though many aspects of the site and surroundings are touched upon as theory subjects in course of study, students will be able to understand better when these are applied in architectural design studios.

There are a few problems that students face during the site planning process which can be seen at two levels: one is understanding and feeling the site and the other is a preconceived idea of site layout. Generally, when students are introduced to larger sites for the first time, it is quite challenging for them when site is complex with few strong features such as undulations, existing structures, water bodies and trees or easement rights and certain major services passing through, etc. It is difficult for them to read the extent of the relativity among the various site features through drawings. Feeling the site, which is equally important, will not be experienced only through drawings until they are taken to site. Appropriate site planning is new challenge to the students in the lower classes and requires proper study on site planning which includes site study, analysis and synthesis and completing the design with the site plan. When students see some good and attractive site layouts, they get carried away and would like to put in similar way in their upcoming

design problems. These preconceived ideas of layout will be forged on the proposed site irrespective of its features. They hardly make use of the potential of the sites and try to convert the constraints into potentials. (This is a general observation made while teaching students.) In such cases an opportunity to design and make use of the features offered by the site will be lost. This practice of neglecting the site's features and planning the entire layout as though it is a flat ground leads to serious problems in the profession. Hydrological activity and vegetation of the site will be seriously disturbed and leads to an unsustainable and ecologically disturbing condition. It also adds to additional cost on site development. Regulating and guiding bodies insist on not disturbing the site conditions in order to be a part of the whole ecological system which leads towards sustainability and ecological sensitivity. Apart from this, if not sensitively attended to site features, the identity of the site will be lost forever.

It is not possible to take students to the site every time. Many times hypothetical sites are given in order to achieve objectives defined in the curriculum. Hence experiencing and feeling the site is not possible in all situations. Responding to a site only through drawings in the site planning process has a lot of limitations. Two ways of addressing this problem are: one is making a physical model as it was done decades ago, and another is using digital models which are very much in vogue in recent decades. Both have certain limitations and scopes. Many researchers have tried on both methods and have put forward their opinions in using these two types of models.

The aim of this paper is to understand how students can be made to feel the site and its complexities and respond to it such that they generate a suitable site plan.

It is hypothesized that working with physical models at the site planning level generates creative, site-responsive and pragmatic layouts when the site has complex conditions.

Objectives

- Understanding the pros and cons of using digital models and physical models through literature study, and choosing a method that gives the feel of the site.
- Experiencing the site features by and while making site models.
- Understanding the aspects, potentials and weaknesses of the site for a specified purpose while generating the alternatives of the site layout by making use of block models of buildings and site models.
- Identifying the numerous possibilities of generating site layouts in a very short period by changing the building block positions and circulatory systems on site model and also understanding the possibilities of turning the complexities of site into advantages by altering the usage.
- Understanding the effectiveness of the pedagogy through the experience of students in using physical models and also from the observations of other teachers.

Scope and limitations of the study

This study was conducted for one section of the B.Arch. students of Semester 5, having exposure to two dimensional drawing (in majority) and dealing with large scale projects for the first time. They were being taught about landscape architecture and site planning simultaneously in the same semester. As moving around the city was limited due to the COVID 19 situation, a hypothetical site was introduced instead of a live site. Keeping the boundaries the same, the internal conditions of the site were changed to make students understand the influence of site conditions on site planning and architectural design. This experiment was limited to site planning level only.

Literature review

Digital Models vs. Physical Models:

Digital media has replaced most of the physical works of the architects from last few decades. Learning softwares related to architecture is one of the courses in education of architecture. Many softwares which give realistic virtual models are of great attraction to students. Models of any scale can be generated. When it comes to seeing each and every part of model from different angles, it provides endless number of views. Initially acquiring skills requires a good amount of time for learning and making models, which, with practice, takes less time and cost. However, the resultant is far more superior as compared to physical model. Karim Hadjri (2006), in his paper on *Bridging the Gap between Physical and Digital Models in Architectural Design Studios* concludes that making physical model is time-consuming. In the present scenario, there have been a huge number of softwares developed and dedicated to only 3D modelling. With the rush of many more plugins, the digital model is getting much more refined.

However, certain architects yet feel that the experience gained through physical models cannot be equalled with digital model. Lei Sun and others (2014) in their paper *Differences in Spatial Understanding between Physical and Virtual Models* concludes that physical models are more accurate, easier and faster and more intuitive to use in spatial understanding, than virtual models. In reinforcement to this idea, Dr. Levent Kara (2015) finds that physical models are still required for 'seeing, thinking and making space which cannot be cultivated through digital environment alone; thus the manual production, hands on making of one-to-one drawings and models still form the core of architectural thinking and must be kept as a part of the foundational curriculum in the architectural education.' In regard to experiencing the space, Kara (2015) further opines that 'hands-on making sets and calibrates an immediacy that digital tools cannot, and cultivates a sense for space, scale and possibilities of phenomenal experience that digital tools can express in their use but cannot cultivate in their application.' Greg Lewis (n.d.) from SHP states that physical models are more accessible, real and tangible and stimulate further ideation which a digital model sometimes don't. He feels that with a physical model, people can interact with the design, change features as required elevate design and lead to improved solutions through

open discussions; physical model allows designers to completely manipulate the design in just a matter of minutes using only their hands and the materials in front of them. Sun et al (2014) and others observed that 'People more easily ascertained the physical parameters of space when looking at the physical representation than they did the digital representation.' Gavin Henderson (2016) says, 'Making by hand explores thoughts that are unpremeditated, pre-verbal, non-linear. The idea evolves before the brain has had time to set boundaries, enforce preconceptions. The craft of making things whether drawings or models is the essence of design.' He further mentions that Juhani Pallasmaa's observations in his study, *The Eyes of the Skin* (2012), says that 'Computers create distance between the maker and the object, whereas drawing by hand as well as model-making put the designer into haptic contact with the object or space.' Gavin Henderson (2016), as a director at Stanton Williams, says 'Exploring the subtle unfolding of spaces and play of light a way of "being there" and sensing the feeling of the spaces we are designing in all their tactile and sensory complexity.' Affify, et al (2021) conclude that 'the physical models play a significant role in the development of students' performance throughout the entire process of project design.' While the author of *Architect Two Cents*, Matthew's (n.d.) blog reminds us of the age-old tradition of making physical models right from 4600 BCE, enlists a number of advantages over digital models. These, being sensory inputs, aiding comprehension, possibility to test design buildability, adding human element, engaging the architect and all stakeholders, giving a scope for better feedback and improvement from co-workers and so on. He further adds saying that more learning happens when more senses are involved; working with a tangible representation of an idea, one becomes more familiar with it through the added sense of touch. Tommy Minh Nguyen (2020) justifies the use of physical models for their very inherent character of being tangible, flexible and capable of giving a scale sense. *Kariouk Architects* prefer to make models even today for their immediacy and reality to new concepts. They feel that digital models fail in giving a full grasp of the look of the project and organization of space (*Kariouk Architects*, n.d.).

This paper discusses the procedure adopted during COVID 19 restricted movement situations to develop a design strategy for a housing project while responding to a hypothetical complex site. Use of digital media for site planning and building planning at lower level raises questions on its suitability. Moreover, the feel of the site and its features does not seem to be possible through software.

Methodology

The overall frame of methodology was as below:

1. To give two different site conditions to two equal groups of the class.
2. Then ask them to work with models for site planning and record all alternates and finally select one after critically analysing the alternates.
3. Taking feedback from students on their experience

of working with physical models.

4. Taking feedback from faculty who were asked to examine the site plans of the students.
5. Analysing the feedback from both students and faculty to identify the effectiveness of use of physical models.

The Semester 5 class was divided into two groups of similar nature in terms of their performance in architectural design. This was to keep samples almost the same. This was based on their performance the previous semester. Both groups had low- and high-performing students. Each group was given

hypothetical, different types of site with similar boundaries but with different site conditions. Apart from this, both groups had different clientele having requirement of housing for two different groups. Drawings of sites were given to students. Physical models of site were asked to be prepared by each one along with a study on housing types and principles. Site planning principles advocated by J. O. Simond's book *Manual of Landscape Architecture* was followed partially to suit the hypothetical programme and site. Students were asked to come up with a number of site layouts with the help of physical model of the site and block models of the buildings (see Fig. nos. 1 to 10).



Fig. 1: Student's working on block models (Source: Authors, 2022)



Fig. 2: Students' arranging block models (Source: Authors, 2022)



Fig. 3,4,5&6: Alternates of site layout generated by student (Source: Shakti Rani, 2022)



Fig. 7&8: Alternates of site layout generated by student (The source: Gourishree 2022)

Fig. 9 & 10: Alternates of site layout generated by students (Source: Summaiya Jabeen, 2022).



Fig. 11&12: Block model views (Source: Aayushi Shah, 2022)

Instructors helped students to understand the impact of slopes in laying roads and placing of blocks. Further, they also explained the relation between the housing units, water bodies and existing trees. Certain site conditions such as high tension lines running across the site, easement rights raised by the neighbouring site were discussed in detail along with its impact on site layout. Each alternative of the site layout was recorded in the form of pictures from their mobile cameras. All these are compared with each other analysing the advantages and disadvantages of each layout. Finally, each student identified one of these as the best layout and proceeded with further final modifications. Architectural designs of buildings were generated with relation to the location of the block and surroundings.

Hypotheses testing

Students were given a set of questions to record their experience in site planning with a 3D model. The questionnaire mainly focused on the procedure adopted to deal with site planning making use of a physical model. The questions were about the ease or difficulty of using a physical model as compared to the method of using 2D drawings. Aspects such as reading topographical variations, ease of generating alternate site plans, feel of the site, response to complexities of site, massing with respect to open spaces, analyzing different alternates, making use of landscape features

to their advantage, use of views, conservation of landscape features etc. were dealt within the questionnaire.

Similarly, in order to understand effectiveness of the pedagogy on the performance of students, the faculty were asked to assess the final designs of the students. A set of questionnaires was prepared focusing on the site planning. This included aspects such as the response to natural landscape features, use of topographical variations, utilization of the potential of the site in site planning, addressing man-made constraints, roads and pathways with respect to topography, placement of blocks with respect to site features, making use of views, micro climate modulation through landscaping, appropriate parking with respect to site conditions, open space activities in response to site features and building locations.

Discussion

(A) Pedagogy with physical models

In the pedagogy that adopted physical models for site planning, 28 students of Semester 5 fifth participated. Each one was asked to make site models individually and building block models. Hence it was entirely individual experiences and not group work (See fig. 13). Different aspects of site planning were identified with respect to the use of physical models and are discussed in detail below.

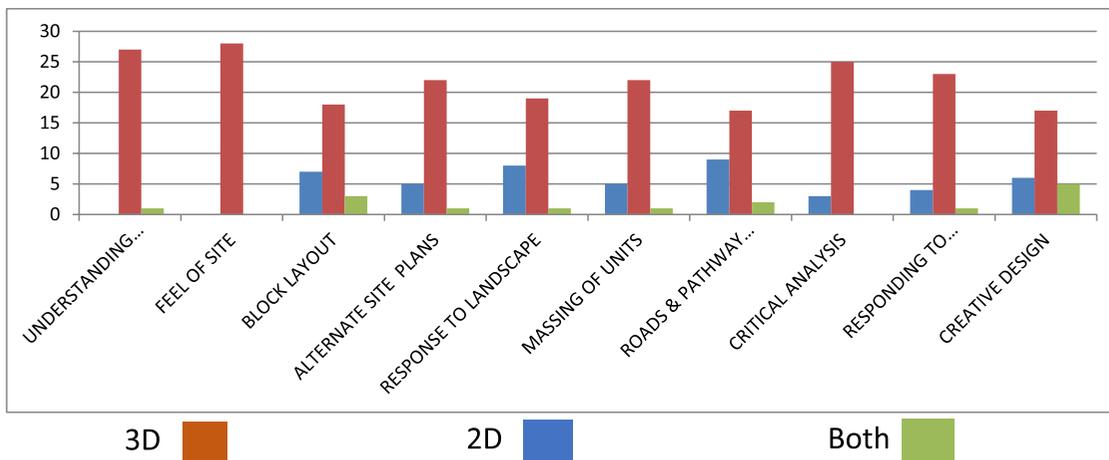


Fig. 13: Students' Feedback chart on preference of working with 2D, 3D and both (Source: Authors 2022)

i) *Understanding site features:* In understanding topography and other existing site features, most of the students felt that 3D physical models were easier. As students make their own models, each and every contour line is observed and layers are cut and made for model making as per the drawing. Likewise creating ponds with observation of slopes, locating trees and other features as per site drawings give a clear understanding of relation between site and its other features. Viewing these features from different corners of the site and also at different angles from different levels establishes a good understanding of the site.

ii) *Feeling the site:* As a hypothetical site was given due to the COVID 19 situation, having a feel of the site was really difficult. Students suffer from not getting a feel of the site, until and unless a site is experienced. By making a physical 3D model, every student was able to feel the undulations on a smaller scale. By observing the site model from every corner and different angles, one comes closer to the feel of the site but not the real experience. Though all students agreed upon getting the feel of the site, a real experience cannot be replaced by any means. However, as compared to 2D drawings, a small scale physical 3D model seemed to be better.

iii) *Understanding site layouts:* Nearly 25% of the students preferred 2D drawings for understanding different site layouts. However, nearly 11% of them were comfortable with both methods. It came to the understanding of the authors that these students were working upon drawing sheets in previous classes and this was their first exposure to large-scale design and the method adopted. Students found it difficult to adapt to different methods when introduced at higher classes.

iv) *Generating multiple alternates:* While generating the site plan, it is quite natural that many alternates pop up in the mind simultaneously. With a 3D physical model, one can generate multiple alternate lay out designs and record each one of them by taking pictures with their cell phones immediately. This method is fast and students can be sure of not missing any of their ideas. More than 78% students agreed that it is very easy to generate different alternate site plans with 3D models. However, about 17.86% of the students preferred to work on drawings. They found that exact location of blocks was possible with 2D drawings and it was easy to understand the scale while working with drawings.

v) *Sensitivity towards landscape features:* This aspect becomes of utmost importance for site planning while addressing a sustainable design. Responding and conserving these features lead to a better sustainable design. Nearly 67.86% of students found using physical models helped them develop a better response to existing landscape features. They could feel the topography and could understand the amount of cut-and-fill required. They also felt that working only with drawings would make them forget the topographical variations and other features of the site and would result with more disturbances to topography and neglect of some fine features and their advantages. But nearly around 28.57% felt that working with drawings is more comfortable as they don't find

any obstruction in developing a free flowing design. They experienced a sort of uncomfortable congestion while working with a physical model.

vi) *Massing of units and feeling built and open spaces:* Massing of units comes into picture when we try to interrelate built and open spaces. Scale of built forms with each other and to open spaces need to be in proportion to experience a harmonious relation between the two. In order to establish this harmonious relation, the designer has to think and visualise the spaces in three dimensions. Physical models seem to be of greater help to visualise this arrangement of massing with respect to open spaces. Physical models give options for a wide variety of arrangement in massing and as well as in scaling down the masses and open spaces to establish the relation. Many students (78.57%) preferred the physical model quoting the above reasons and as well as the kind of shadow that is cast due to the massing over the open spaces. However, the remaining students, though they agreed on the advantages of the use of a physical model, felt that working on 2D drawings is more precise in case of massing.

vii) *Generating more alternates of roads and pathways:* Pedestrian safety from vehicular movement and varying topography for laying roads pose challenges in developing a suitable design. Students were asked to make use of thick and thin ropes to identify roads and pathways respectively. Less than two-third of the class felt the physical model was the best means. But one-third of the class were comfortable generating alternatives with drawings in contrast to our assumption. On enquiring, it came to the light that they were well-versed with the scale of the 2D drawings but not so with the physical model. The exact width of the roads was not easy to assess with a physical model due to the use of ropes which did not match the width of the road, nor of the pathways. It was difficult for them to fix the ropes as per the proposed layout. However, physical models helped them to understand the slopes while placing the ropes.

viii) *Quickness in generating alternates:* All alternates were recorded in the form of pictures from students' own mobiles and were asked to take prints. All these were put together to compare with each other and chose the best possible solution with further modifications. Nearly 90% voted for the physical model method as it was fast to generate alternates.

ix) *Speed in site planning for complicated sites:* Complex site configurations call for careful and detailed analysis of the site. Slopes, water flow, existing trees or any other structures need to be taken into consideration. The physical model helps in understanding these various elements and their inter relationships. More than 82% preferred a physical model for dealing with complicated sites as they could finish the site planning process in a very short time as compared to their previous design problems. Reasons for not choosing the physical model was the scale of the model which posed a problem for students in placing the blocks as it was found to be small in size. They found it to be a congested situation to play freely in design generation.



Fig. 15: Site plans (Source: Aayushi Shah, 2022)



Fig. 16: Site plans (Source: Shruti Parmar, 2022)



Fig. 17: Site plans (Source: Shakti Rani, 2022)



Fig. 18: Site plans (Source: Summaiya Jabeen, 2022)

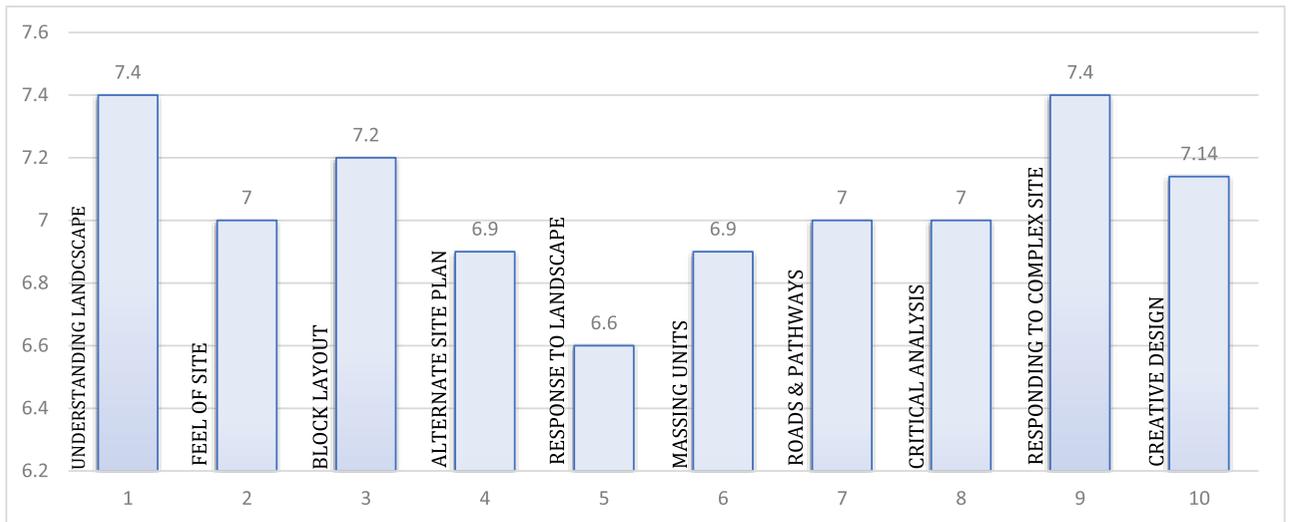


Fig. 14: Faculty Feedback of observations of students' work related to site planning (Source: Authors, 2022)

x) Creative design generation with response to landscape: Our assumption was that through a physical model, one can generate a site plan that is more creative and more responsive to landscape features. Contrary to our assumption only around 60% preferred the physical model. And 21.43% preferred only 2D drawings. However, 17.86% were comfortable with both methods. On digging into the causes for preferring only 2D drawings, we came to know that freeness in designing on 2D drawing was the most common reason.

(B) Faculty feedback:

Apart from students' experience feedback, even faculty's feedback was taken on the performance of the students' works (see figs. 15, 16, 17 & 18). The entire focus was to assess students' response to site conditions and sensitivity to site planning. Interval scale measurement was adopted to know the effectiveness of the method adopted. Ratings received from each faculty were noted in the form of average score for each question. The scores ranged from 7.4 to 6.6 for the questions (see fig. 14). The questionnaire included aspects such

as: consideration of site features in site plan, response and utilization of slopes, utilization of site features to their advantage, addressing to site constraints, roads and pathways addressing slopes, massing of blocks in response to site condition, micro-climate modulation through landscape, response to the views of landscape within the site, formation of open spaces in response to site features and building blocks, appropriate location of parking areas. Faculty found that students' performance was low when it came to design of roads and pathways with respect to slopes or topographical variations. This is the lowest score as compared to other aspects (which is 6.6). However, students' performance was found to be good in the case of consideration of site features and placement of open spaces with respect to site features and proposed buildings (which is 7.4). On an average, 7.045 out of 10 were the total score. This score represents the performance of the entire class which means that there is a need for further improvement in students' performance and as well as design approach and pedagogy adopted by instructors.

Conclusion

In the era of computer software, use of physical models is considered to be an out-dated or age-old

pedagogy in architecture. When it comes to site planning for medium to large scale projects and to develop a response to site conditions, understanding and experiencing the site and establishing relation between various landscape features and developing a suitable design is of utmost importance. The design pedagogy adopted to develop a site plan using physical models has shown in our study that use of physical models is still relevant in the present day of the digital era. Students understand, experience and develop a site responsive design quickly with the help of physical models and with analysis of various alternatives of site plan diligently. Through the study we understand that introduction of physical models at an early stage helps students to think in 3D models and understand the scale of the spaces being created. Scale of the model is important to understand the variation in topography and in massing as students feel the spaces. It also came to the light that selection of materials used for making of the model also play an important role as they need to be flexible to suit appropriate size and scale such that students can play with it easily. This gives further scope for one to explore the kind of materials suitable to make physical models for site planning study.

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Acknowledgements

Authors are thankful to all B.Arch. students of Semester 5, A Section (2022) of Poojya Doddappa Appa College of Engineering, Kalaburagi (the Department of Architecture is now renamed as Poojya Dr. Shivakumar Swamiji School of Architecture) for participating in this experiment and sharing the images of the models. The Authors are also thankful to all those teachers who took part in reviewing the drawings of the students and for giving their feedback.



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IS MID-JOURNEY- AI A NEW ANTI-HERO OF ARCHITECTURAL IMAGERY AND CREATIVITY?

AN ATYPICAL ERA OF AI-BASED REPRESENTATION
AND ITS EFFECT ON CREATIVITY IN THE
ARCHITECTURAL DESIGN PROCESS

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ABSTRACT

By nature, technology such as artificial intelligence (AI) brings boon-bane situations during advancement in any field. However, AI has begun to tamper with one such area: the creative process of creating art and architectural imagery. During mid-2022, AI-Art tools like Mid-journey and DALL-E aimed to effortlessly replicate the creative human mind by enabling digital responses based on text-based prompts. However, though this AI-Art thrives in art, the architectural field raises concerns. Research indicates that AI-Art's drawbacks are: a shallow understanding of sublimity in architecture, relevance, thoughtfulness and even job replacement. Therefore, the paper raises the question whether Mid-journey-AI is a new anti-hero of architectural creativity?

Methods used for this research are literature review and a live and digital experiment to provide a more thoughtful interpretation. Finally, the study concludes on the note of mindfully using AI and the importance of architectural pedagogy to teach and help such mindful usage of AI for upcoming art and architect generations.

Keywords: Artificial Intelligence; Creativity; Architectural Representation; Mid-journey; AI-Art.

1. Introduction

Expansion in technology has both benefitting and adverse effects. Nevertheless, the prospects of now-age art and creative searches are continually expanding-exclusively with the upcoming technologies like Artificial Intelligence (AI). This has become more powerful and is multi-layered with technological advancement. Ranging from simple computers and machine learning, artificial intelligence continues to improve daily. Computation and AI are regularly experimented with various streamlines like computing, IT and even art. Whereas recently, AI has shown evident cases of interrupting the authenticity of original expressions of human thought processes, that is, creativity. These novel experimentations have expanded into art and art-related streams forming AI-Art that indirectly affects the creative aspects. AI-Art is artificial intelligence used to create art and artistic expressions digitally. AI-Art evolution takes on a storm to art and artists, causing ripples of disturbances to creativity in design. One such evolution is starting to hinder and contemplate the creative process in art, especially the architectural design process. This hindrance is predominantly caused for architects who formulate concepts in the design process.

First, this paper clarifies AI's influence on art and architectural expression. It is also analysed how AI cuts down the authentic creation model regarding architectural thinking. This paper provides a new research investigation combining artificial intelligence and architecture. Firstly, recent investigations in architecture and AI-Art have been studied (Berg, 2022; Mello-Klein et al., 2022; Panicker, 2022). Secondly, two experiments of the creative process, that is, the traditional and AI-induced design processes, are performed to understand and distinguish various digital and experiential factors influencing them. It finally discusses how AI can be cautiously practised without hindering the creative process.

The process of AI-Art formulating concepts might sound technologically easy and advantageous. However, there are higher indications of weaknesses when AI-Art head-starts architectural design concepts. Regarding the anticipation of AI's future direction, solutions to mitigate such hindrances are also researched and discussed.

The objectives of this research can be summarised as follows:

- i) To examine the intersectional relationship between the function of AI-Art and how human creativity works are studied and distinguished for ground research.
- ii) The working impact of Mid-journey AI on creative thinking in architecture is studied based on exploring the pros and cons of AI-Art.
- iii) Then, two experiments are conducted. First, AI-Art Processes and, secondly, human mind thought processes are conducted separately with the same word prompts to distinguish the efficacy of creative thinking. Later these results are discussed and reflected on the findings.
- iv) Finally, recommendations are made after researching and extracting from the motive for this research.

2. Human Mind and its creative process

The human mind is complex and has millions of neural networks capacitating us in various ways. The instant communication of the 'Imagination Network and focus sharpening tools of the Executive Attention Network yields true creative thought as a final product' in the brain (Koontz, 2020). These creative thoughts follow a few patterns. According to Boden, M. (2009), there are three types of creativity:

- a) *Combinational creativity* encompasses the generation of 'unfamiliar' combinations of familiar ideas.
- b) *Exploratory creativity* shows that the existing stylistic rules generate new ideas whose options may not have existed before the exploration.
- c) *Transformational creativity* is unique; the variation is more noteworthy and has a deeper stylistic understanding and striking dimension.

Rather than that, material, atmosphere, mood, and several other intangible factors are also responsible for the creation of art (Panicker, 2022). These types of creativity are understood to review later the kind of creativity that AI-Art reflects in its product.

3. AI-Art, its creative process and architectural trends

AI-Art has seeped into digital art trends during the mid of 2022. Mid-journey, DALL-E and other text-to-image tools are just one way that AI has made its way into the creative process. However, this creative process might be helpful in arts and graphic design but not for architecture. As an art tool, the AI takes all forms of prompts with limited capacity to produce sketching conceptual buildings. In contrast, various architects and architectural platforms like dezeen find AI-Art "drains and gutters", the creativity for architects. One such controversial AI-Art tool is Mid-journey-Bot-AI (Wiles, 2022).



Figure 1: Parametric Architecture

(Source: Ragab, H. (2022) retrieved from: <https://parametric-architecture.com/a-mid-journey-to-the-virtual-world-of-hassan-ragab/>)

3.1. Mid-journey AI and its creative process

In April 2022, a San Francisco-based company founded Mid-journey-AI as an extension within a chat server called 'Discord' (Salkowitz, 2022). Soon the global trends of AI-Art shifted its vision towards experimenting with graphics, art, sculpture and even architecture (Fig 1). Mid-journey-AI works entirely based on a text-to-illustration-based system called 'prompt'. A particular order and system are built into 'prompt' writing for AI to recognise it as a prompt (Panicker, 2022). However, this prompt-based AI-Art tool has been recognised with multiple controversies, especially architectural imagery.

4. AI-Art and its controversy

Controversially, the AI-Art tools were found to be both productive and problematic for various user groups. These are some of the benefits and drawbacks of AI-Art in architectural imagery and thought processes:

4.1 Benefits

i) Creative invocation: These AI-Art tools illustrate an idea or a feeling we want a particular space to evoke, 'than realistic illustrations' (Berg, 2022). But, the definite purpose at the beginning of a design project is when we are conceptualizing and 'dreaming' about (ibid.). So, they benefit by inducing creativity towards conceptual spaces which are 'allegedly new'.

ii) Speed: Like any new technological application, AI produces images and art comparatively in a few minutes, faster than human work speed.

iii) Variations: These AI-Art tools also produce four variations for a single promotion and four more variations on the primary variation allowing 16 variations for a single text prompt.

4.2 Drawbacks

i) Understanding 'sublime': Architects have begun to question AI's works, asking whether it [art produced] is "sublime". To create art sublimely, one must think that something is sublime 'that feeling cannot perhaps be not taught.' (Panicker, 2022).

ii) Cultural Relevance: Secondly, understanding the sublime's complexity differs from region to region and culture to culture (ibid.). However, AI can portray less or no cultural relevance during stances of architectural imagery.

iii) Limited references: Even though AI is based on multiple images, even billions of them, it is eventually limited by what is in those previous images. (Berg, 2022). Similarly, Panicker (2022) also states that AI-Art "explicitly exhibits human design, intervention, and action; existing references". So, for example, if there is an existing pattern of discrimination, the AI takes only references from existing sources, which might end up illustrating similar discrimination patterns in visual arts.

iv) Job replacement: Finally, similar to any technology and automation, there are chances that it can 'replace' actual humans to do that particular work (Mello-Klein et al., 2022).

With the limited research of the pros-cons list, AI-Art tends to incline with drawbacks that influence architecture's creative process. For example, AI might quickly produce artwork. However, in the real world, a creation by a human being with specific experiences, certain memories, and a particular skill set brings that artwork to fruition (Panicker, 2022). After a detailed overview of AI-Art, 'Mid-journey Bot' is an example to review AI-Art's recent trend of creating architectural concepts.



Figure 2: Student's Drawing Prompt Output on a Board, PMIST, Tanjore (Source: Author, 2022)

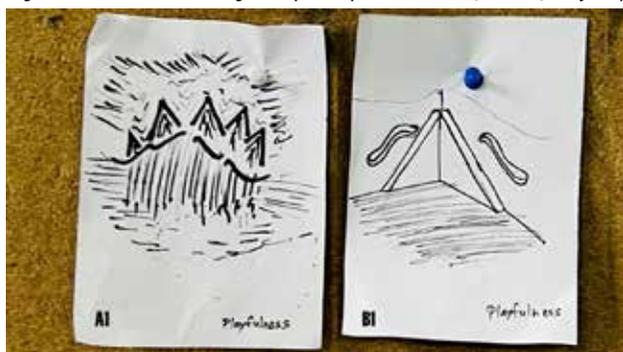


Figure 3: EG:1 Playfulness; Playfulness in Architecture drawn by students (Source: Author, 2022)

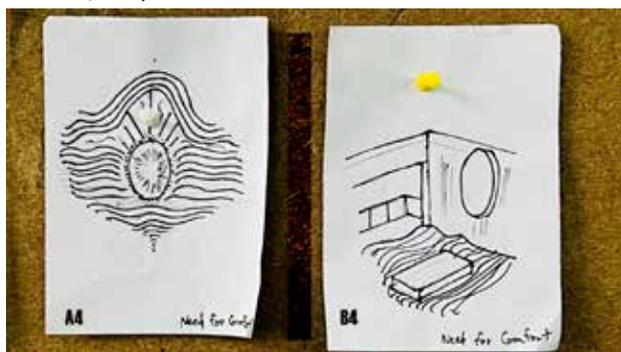


Figure 4: EG:2 Need for Comfort; Need for Comfort in Architecture drawn by students (Source: Author, 2022)

5. Distinguishing Experiment of Human Thought Process and Mid-journey AI in architectural imagery

In order to understand and distinguish the output of both creative processes, a simple investigation is carried out. The creative processes that are investigated are:

5.1. The traditional design process uses the human mind's creativity

5.2. The digital process using AI-Art based creativity

Both processes have prompts or words to produce creative results. These prompts are tested through two sets of prompts:

A. Artistic: Illustrate abstract art of these emotions:

A1. Playfulness; A2. Curiosity; A3. Joy; A4. Need for Comfort; A5. Shy; A6. Scared

B. Architectural: Illustrate those emotions in space as architecture:

B1. Playfulness; B2. Curiosity; B3. Joy; B4. Need for Comfort; B5. Shy; B6. Scared in space as architecture.

Furthermore, both processes carried out similar prompts for an unbiased evaluation and examined cohesive comparisons through their outputs to maintain relevance and consistency. These two sets of prompts are instructed to architecture students in

the first experiment. Then, the same prompts are fed as codes in the Discord server to test 'Mid-journey-AI'. Later the findings are summarised and discussed.

5.1 The traditional process using the human mind's creativity

Students were instructed to draw out the prompts manually to evaluate the creativity of the human mind. The given time for each of these prompts was 10 minutes. A batch of 40 second-year architecture students was exercised for this experiment (Fig 2). As mentioned earlier, they were instructed with two prompts, i.e., artistic (abstract) and architecture expressions of emotions. Using pen-paper for this experiment would allow investigation of the creative authenticity of the human mind. The results are depicted in the following images:

The final output: Fig. 2

Two sample sets (A1; B1 and A4; B4) were chosen for closer investigation.

First Sample of output : Fig. 3

Second Sample of output: Fig. 4

The observations are compared with the digital process and are listed in (Table 1.1). The findings are discussed in Section 5.3 and Section 6.

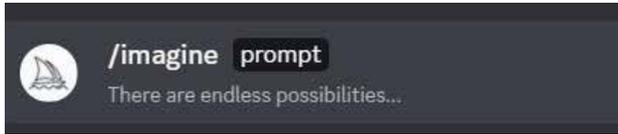


Figure 5: Mid-journey bot in Discord Server (Source: Author, 2022)

5.2 The digital process using AI-Art based creativity

For investigating AI-Art, the Mid-journey server was chosen in Discord to input the prompts to evaluate the creative digital results (Fig 5).

The approximate time to produce imagery for each prompt was 50 seconds to 1.5 minutes. This investigation was also instructed with two prompts, i.e., artistic (abstract) and architecture expressions of emotions, to produce results digitally. The prompt code inputs are the following:

/imagine prompt: <emotions A1-A6>

/imagine prompt: <emotions B1-B6> in space as architecture

The results are depicted in the images. There are only 12 image sets, so they are all closely investigated to compare and contrast the process.

5.3. Summary of findings

Long's (2014) parameters were used to create Table 1 to examine the creative outputs. He suggests those parameters can be the 'criteria of assessing creative products in science tasks', where they are categorised in the findings table (Table 1). Along with those parameters, 'sublime factor' and 'speed' are included for evaluation. Finally, a group of panellists [Assistant Professors of architecture] (See Acknowledgement) reviewed, compared and contrasted them in Table 1 below.

Overall, from Table 1, it is summarised that :

- i) Artistic: Both have outputs with variations and options.
 - ii) Architectural: Human mind outputs indicate a high level of appropriateness and adequate relevance. However, AI outputs are imaginative images with no relevant references and a significant stretch in materiality.
- These are key takeaway observations for this research. The above findings will be discussed in detail in the upcoming sections.

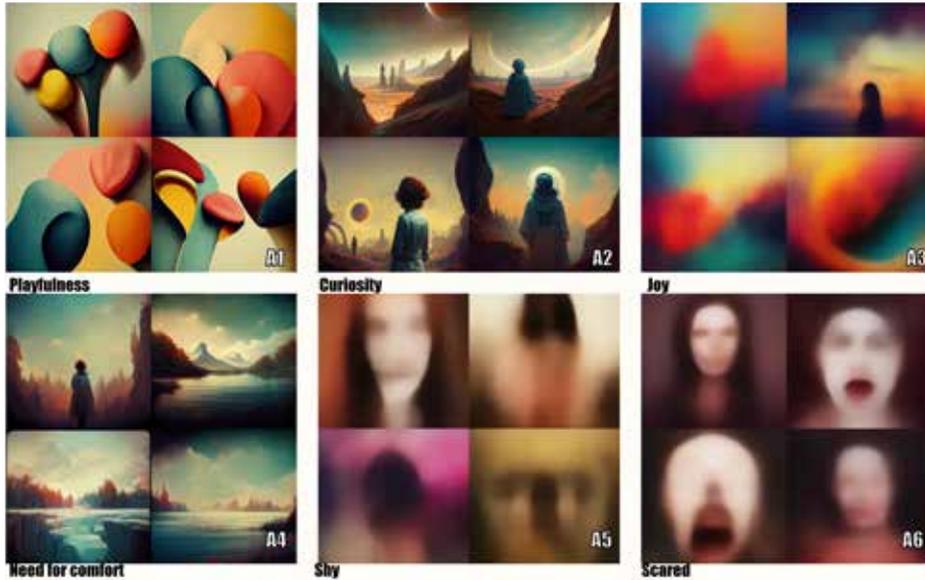


Figure 6: Set 1: Artistic illustration of emotions through Mid-journey bot (Source: Author, 2022)



Figure 7: Set 1: Architectural illustration of Emotions through Mid-journey bot (Source: Author, 2022)

6. Discussion of the research question

This research reflects and discusses the experiment's findings and recommends solutions to mitigate the drawbacks of AI-Art.

6.1 Discussion and Reflection:

The research discusses the following using the literature review and experiment:

a) As observed in BB'2 (Table 1) the architectural imagery produced is highly similar, with little variety in outputs. Furthermore, it is observed that feeding a particular algorithm to a machine produces limited results. Mello-Klein et al. (2022) add that 'it [AI-Art] cannot produce anything that it has not already been trained on, so it is impossible to create legitimately new things.'

For example, an AI was used to write poems and was judged to identify the poems written by AI and human beings. All the lyrics written by AI were identified and distinguished. Ballenger (2017) states, '...some essence of poetry that a machine cannot capture.'

b) When fed with prompts, humans use them as inspiration to create art. Both humans and AI benefit from prompts or word-based illustrations, but AI depends on them. AI does not 'learn' to create from prompts. Instead, it manipulates its art with existing images beyond recognition as a deception to appear new. Humans can still visualise ideas without prompts, but AI cannot.

'AI relies only on words to generate images.' (Panicker, 2022). At the same time, creation's limitation is words. Our language has limitations and a subliminal meaning underneath any language that cannot be explained (Brillhart, 2021). Therefore, using such 'only prompts, only through words' can hinder architectural creativity.

c) As said earlier, there are three types of creativity. From the above two case studies, it was observed that: AI-art indicated references to combinational and exploratory creativity. However, the human mind exhibited all three types of creativity, that is, combinational, exploratory and especially 'transformational' creativity, which AI-Art cannot replicate.

Similarly, Gradecki agrees that 'Creativity is the one thing that is not going to be able to be automated.' (Mello-Klein et al., 2022). Consequently, this simple experiment and research identified that AI-Art could invoke creativity, but it cannot be systematised.

6.2. How can AI be helpful and better?

Observed from Table 1, we can see that AI-Art has more advantages while creating artistic expressions (AB') than architectural imagery (BA'). In contrast, AI-Art can thrive and be helpful in graphic designing and other allied fields. In specific ways, AI-Art can be helpful in architecture. Firstly, even though AI-Art cannot ultimately create vastly new objects, it can evoke creativity for those who need a 'head-

start'. Salkowitz (2022) expresses that Mid-journey is designed to boost the creativity of artists by giving them these tools. Secondly, it can be a valuable tool for students of architecture. It can be helpful for those who are incapable of visualising the possibilities and those who need creative ignition (Panicker, 2022). Finally, circling back to the research question, is Mid-journey-AI the new Anti-hero of Architectural Creativity?

No. AI-Art is not the anti-hero of the creative process in architecture. In fact, it is the misuse of AI that is the actual anti-hero. However, with the existing misusing trends of AI-art, the user can go either way. Gradecki and Curry (2022) recommend reducing this misuse by bridging the gap in technological literacy in AI (Mello-Klein et al., 2022).

6.3. Bridging the gap in technological literacy in AI

'AI can pique imagination for us.' (Panicker, 2022). Although AI might be helpful in creative induction, it could also prevent students from thinking individually, which is "debatable". Any literacy gaps in technology and science can be bridged through 'pedagogy' (teaching). Hanrahan (2009) states, 'Pedagogical knowledge relates to teaching methods and their application to promote student AI literacy learning.'. We can use architectural pedagogy to practice AI in the creative process among students safely. Therefore, it should be taught to use AI-Art as a secondary aiding tool. However, the human mind can only entail other thoughtful tangible and intangible aspects that need attention in an architectural design process.

7. Conclusion

By its very nature, technology has its limits. AI-Art was studied in detail, and identified that it could be a helpful tool for artistic creation rather than architectural imagery. However, AI-Art is much more than a simple technical means of artistic creation. It is more of a reforming of art than creative thinking that impacts human cognition.

Recent research on AI-Art has provided a complete understanding of the technological processes, their outputs and their relationship with humans' creative response, especially towards architecture. Current findings recommend that the pedagogy of safe use of AI-Art in architecture plays a critical role in leaving the future of architectural creativity undisturbed. However, this complex relationship between AI and the human creative mind is still unclear. Furthermore, additional detailed research experiments are required to provide an exact result of a particular creative ignition within the human mind. Therefore, comparing published case studies and the simple experiment conducted through this research is challenging. More complete and precise documentation of AI-Art and human creative process—including architectural understanding; usage of colour; and a physiological profile and mood of the artists, including sex, age and psychological condition—will facilitate a more precise comparison of individual processes. Whereas that can lead to a comprehensive knowledge of the creative processes of the architectural design process.

The research aimed to identify and check if the strategies of AI-Art hinder or block the creativity involved with architectural imagery. Therefore, a future exploration into how to use AI-Art at a conceptual level for inventing new material and texture techniques is necessary and worth exploring in architecture. The limitations of creative tools bind the artists, and there is none other

than the brain. This research found a need to bridge the literacy of AI usage and how we can safely exploit such tools. It is also observed that creativity will or cannot be automated, at least so far. Therefore, it is also essential to consider emerging technologies' challenges and ensure that creativity is protected. It remains to be seen if this democratisation of creativity supports humanity.

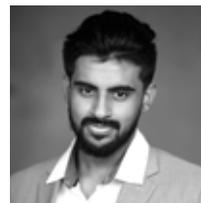
Table 1: Distinguishing Table indicating outputs of the research experiment

(Source: Author, 2022)

Experiment	No.	Parameters (Long, 2014)	Human Mind Output (A)	Mid-journey Bot Outputs (B)
Artistic Experiment: Illustration of Emotions through abstract art	1	<u>Interesting:</u> <i>Creative Invocation</i>	Moderately creative	Highly creative
	2	<u>Novelty:</u> <i>Uniqueness of the response form</i>	Outputs with variations and options	Outputs with variations and options
	3	<u>Thoughtfulness:</u> <i>Relevance</i>	Invalid parameters to assess and examine abstract art	
	4	<u>Appropriateness:</u> <i>Practicality</i>		
	5	<i>Sublime Factor</i>	Moderate	High
	6	<i>Speed</i>	8-10 minutes (Low)	50-100 seconds (High)
Architectural Experiment: Illustration of Emotions in spaces as architectural imagery:	1	<u>Interesting:</u> <i>Creative translation from emotion</i>	High creative translation	Less creative translation
	2	<u>Novelty:</u> <i>Uniqueness of the response form</i>	Outputs with variations and options	A vague and highly similar variety
	3	<u>Thoughtfulness:</u> <i>Relevance</i>	Adequate Relevance	Inadequate and visible Irrelevance
	4	<u>Appropriateness:</u> <i>Practicality: Can it be built?</i>	Highly practical: Yes	Rare evidence of the practicality: Highly Utopian visuals
	5	<i>Sublime Factor</i>	Moderate	Moderate
	6	<i>Speed</i>	6-8 minutes (Low)	60-120 seconds (High)

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A RHYTHMIC RENAISSANCE PROMOTING SATTRIYA, THE CLASSICAL DANCE OF ASSAM

Sanika Bhide & Dr. Shilpa Sharma



1.1 Introduction:

India is a very rich country in terms of art and culture. It offers a large number of dance forms each of which can be traced to different regions of the country. The present-day classical dance styles of India share common roots though they are different from one another. Each form represents the culture and spirit of a particular region where it evolved. A few of these dance forms have been recognized as the 'classical dances' of India.' These dances were effective in carrying forward the various mythological stories from generation to generation while entertaining the audiences. The Sanskrit term shastriya (meaning 'classical') was introduced by the Sangeet Natak Akademi, New Delhi, to denote the Natya Shastra-based performing art styles. The Sangeet Natak Akademi has given recognition to eight Indian dance styles (Royo, 2010) :

Bharatnatyam (Tamil Nadu), Kathak (Uttar Pradesh), Mohiniattam (Kerala), Kuchipudi (Andhra Pradesh), Odissi (Orissa), Kathakali (Kerala), Manipuri (Manipur) and Sattriya (Assam).

Over the period of time, classical dances have been practiced by a considerable sector of the society. Yet, a few of these have yet not been able to gain a prominent position, whereas some of these classical dances have been widely promoted and have gained popularity not only in the state of origin of the dance but also in the other states of India.

One of the reasons why some forms are lesser known could be the year in which each dance was recognised as a 'classical dance'. The longer a dance is known as a classical one, the

more people are the number of people practicing it. The dances which gained this title earlier than others, became more popular amongst the masses than the ones which were recognised later (as seen in Table 1.1). Along with this, owing to the lesser number of dance institutes teaching the other classical dances, these forms are not as widely taught as the rest (Basu, 2017).

Table 1.1 shows that classical dances like Bharatanatyam, Kathak and Odissi have spread over multiple cities. However, dances like Manipuri and Sattriya have been restricted only to a few cities other than the city of origin.

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As seen in Table 1.1, classical dances like Bharatanatyam, Kathak and Odissi have spread over multiple cities. However, dances like Manipuri and Sattriya have been restricted only to a few cities other than the city of origin.



Fig.1.1: Map showing states of origin of the 8 classical dances (Source: Survey by Author).

1.2. Aim and objectives of the research

The study sought to understand the built form required for the learning and performance of the lesser-known classical dance of North-East India. The research process includes understanding the functioning of learning centres for Indian classical dances- both traditional and modern and studying the policies and proposals made by the institutional bodies for the popularization of this dance form. The Research Triangle for this study is depicted in fig. 2.

1.2.1 Issue:

The Sattriya dance was originally practiced by the communities of monks in the state of Assam. Initially the monks were forbidden from teaching this dance outside their community. But with the efforts of some of the experts in this form, it did spread outside the community in the

Issue: Lack of learning centres of Sattriya dance

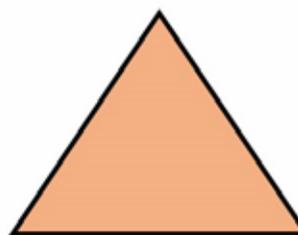


Fig. 2 : Research triangle for the study showing the interlinkage between the issue, site and architectural model. (Source: Author).

state of Assam and finally got the recognition of a “classical” dance. However, by the time it was recognised as one, other dance forms like Bharatnatyam, Kathak, Odissi, etc. were already famous and were extensively practiced by the people of the other states. Hence Sattriya struggled to find a place amongst the already well-known classical dances and thus, remains unknown to a large part of the society (ibid).

The intention of the dissertation study is to popularize this form by promoting it amongst the masses by providing an infrastructure for the teaching and learning of the Sattriya dance and a cultural centre.

The research focuses on the lesser-known classical dance of India – Sattriya, the classical dance of Assam and the youngest of the eight recognized Indian classical dances. Due to numerous reasons, this form is struggling to find a place amongst the other popular classical dances and remains unknown to a large part of the society, resulting in the lack of learning centres for Sattriya dance.

1.2.2. Site

The site for an educational institution which also aims at promotion of the classical dance, should be in a city which has a cultural background and has a good internal connectivity to allow easy access.

Mumbai being culturally diverse, supports and promotes cultural activities of many states, Assam being one of them. Owing to the multicultural population of Mumbai, setting up an institution for the promotion of Sattriya dance here will help popularize it among the masses of different cultural backgrounds. Mumbai also has embassies of different states which support and promote the art forms of the respective states. The Gagana Association is an Assamese People's Association in Mumbai which promotes cultural activities of Assam in Mumbai as well as in the cities of Maharashtra. They aim at setting up cultural centres for the teaching, learning and performance of the Sattriya as well as other folk dances of Assam. Proposals, for the same, have been made by the association to the Government of Assam as well as to that of Mumbai. However, no architectural model has yet been proposed. (See Table 1.2).

1.2.3. Architectural Model

The architecture model would be a teaching, learning and performance centre offering education for the lesser-known classical dance. Along with this it would have a knowledge centre highlighting the history and culture of the north-eastern state of Assam.

1.3 Literature Review:

Dances performed in India are said to have their origins during the Vedic period. Most of the classical dance forms were initially practiced as secular dance forms in the 5th century. Later, they were encouraged in temples as a part of worship and were formalized through Agamic scriptures in the 9th century (Masodkar, 2017).

Sattriya dance was performed as a ritual inside the monastery called the ‘sattrā’ and hence, for many centuries it was not accessible to women as they were not permitted inside a monastery. But by the middle of the 20th century the monks realized that the tradition was diminishing and was in danger

of vanishing. Therefore, the monks from the monastery on Majuli, a river island in the Brahmaputra River, Assam, began performing and teaching the dance in the local communities in order to preserve it as a living tradition. The women of the community were now taught the dance by the monks. Guru Raseswar Saikia Barbayan, was the pioneer in bringing Sattriya outside the monastery to the stages and was the first to train women in the dance. This revolutionary change was extremely controversial considering the history of the dance form but was a successful one as the dance regained popularity in the communities. Since, it was considered inappropriate for monks to dance with the women, the monks taught women to take up male roles in the dance so that women danced with women in performances. Women became important carriers of this dance tradition. Some of them developed a talent for taking on male roles just as some of the monks took up the roles of the female counterparts (Hall, 2019).

The spread of Sattriya outside the monastery in communities along the Brahmaputra helped the general public gain access to view and learn it. As tourism has become a major source of revenue for these communities, a wider interest in the dance was benefitted the local economy. In 2000, the Indian government’s Sangeet Natak Akademi, an institute for the performing arts, recognized Sattriya as the eighth classical dance form alongside the other seven namely: Bharatanatyam, Kathak, Odissi, Mohiniattam, Kuchipudi, Manipuri and Kathakali. This has helped to increase interest in the dance and hence helped in its revival. Sattriya dance is now spreading beyond Assam and India as well. Though the dance has gained popularity, the religious aspects of the dance still remain an important part of its presentation (ibid).

2. Methodology:

Various methods were used to fulfil the objectives of the research. Primary and secondary studies were carried out in order to understand the Sattriya Dance form. Primary studies included interviewing experts, students and faculty involved in the teaching and learning of the North Eastern classical dance. The spatial arrangements required for the Sattriya dance have been studied by examining the sattras of Assam.

Secondary studies were conducted to understand the requirements the primary spaces of the dance institutes and performing spaces required for the functioning of the complex, and their relationship with the allied functions, through the following cases :

i. Nrityagram, Bengaluru, Karnataka: The Nrityagram institute is a residential dance school offering training and performances of classical dances in a natural open-air setting. This case study has helped understand the zoning and functioning of allied functions in a dance institute along with the primary activity.

ii. Nalanda Nritya Kala Mahavidyalaya, Mumbai, Maharashtra: This is affiliated to the Mumbai University and offers training and education of classical dances and provides performances opportunities all over India and abroad. This case has been studied in order to understand the functioning of a classical dance institute in a contemporary context.

iii. *Kalakshetra Foundation, Chennai*: This is a residential dance school offering training and performances of classical dances. This case study has been taken in order to understand the zoning and functioning of allied functions in a dance institute along with the primary activity.

The architectural model aims at providing a complex for the students, faculty and visitors. It intends to build a space for the teaching and performance of the classical dance and at the same time provide residential spaces for the students, faculty, guests and artists.

3. Results and Discussion

The architectural model aims at providing a dance institute for Sattriya, the classical dance of Assam. The institute will comprise facilities for all levels of learning, from hobby classes, diploma courses and degree courses. The institute will also focus on the promotion of classical dance through public performances and information centres like exhibition areas and a library. It will offer performance spaces for other institutes and dance organizations. Along with the learning aspect, the institute will also provide residential areas for students who study here, or for the artistes who would be coming for weekly courses or performances, and for the teachers under training and teaching and for the staff members.

3.1 Design Objectives and considerations

The programme aims at designing a structure which will support the smooth functioning of the institute. The overall structure should represent the routine and simplistic lifestyle of the dancers. This will be done by providing low height structures, elements which tie up with the traditional role and outlook, landscape buffers and interiors which will cater to the physical and technical requirements of the institute. The design would have open and semi-open practice and performance spaces along with the enclosed ones.

3.2 Architectural Exploration

The aim of the design dissertation is to create a built form

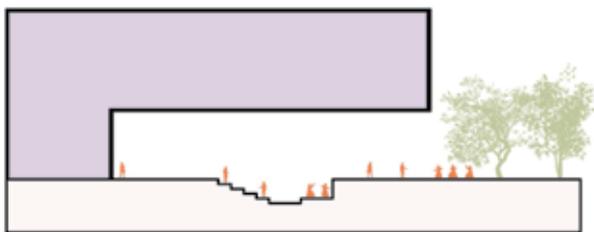


Fig 3.1(a): Concept Idea 1 – To create interactive spaces for the dancers and visitors to arouse curiosity and interest for the dance (Source: Author).



Fig 3.2(a): Concept Idea 2 - To involve general public into the lifestyle of the dancers and educate them about the lesser-known dance form (Source: Author).

which will help promote the Sattriya dance in Mumbai. Since this dance is a lesser known one, it is important to arouse curiosity and interest for the knowing and learning of Sattriya both for the dancers and the visitors. Being an educational institute, the structure has been designed as an inward looking one, insular from the outer chaos. Open and semi-open spaces have been designed as interactive spaces for the dancers and the visitors (As seen in Fig 3.1 and Fig 3.2). A few spaces have been specially designed for visitors in order to educate them about the dance. (Refer to Fig 3.3 to Fig 3.5 for proposed design solution).

5. Conclusion and Recommendations

A dance form gets popularized when it travels out of its state of origin. The region of origin of the dance forms also affects its popularity among other cities. Bharatanatyam, Kathak, Mohiniattam, Kuchipudi, Odissi and Kathakali had their origins close to each other in the core of India. Sattriya dance had its origin in the extreme north eastern parts of the country. This could have isolated it from the rest of the dance forms. Hence, the dance form has the least number of institutes in the cities other than the city of its origin (Basu, 2017; Dhar, 2018).

The design outcome is expected to fulfil the aim of the Ganana Association, Mumbai, by providing an infrastructure for the teaching and learning of the Sattriya Dance and will offer a cultural centre that will help popularize this lesser-known classical dance.

The design dissertation focuses on the ideology to involve more people in bringing up this dance and provide an open platform for the people to involve themselves with the lifestyle of the artists. Designing a dance institute exclusively for Sattriya will help the dance gain public attention and eventually allow it to secure a notable position amongst the other classical dances. In conclusion, the research and its resultant design program will popularize the Sattriya dance and help it become a known name amongst the masses, thus, creating a period of renaissance for the dance.

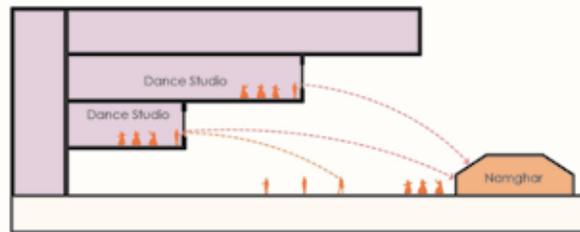


Fig 3.1(b): Design Solution 1 - Creating public plaza on ground level by designing open and semi open spaces that will allow interaction between the dancers and visitors (Source: Author).



Fig 3.2(b): Design Solution 2 - Creating visual connection between spaces which will subconsciously educate the visitors about the lesser-known dance and the lifestyle of the dancers (Source: Author).

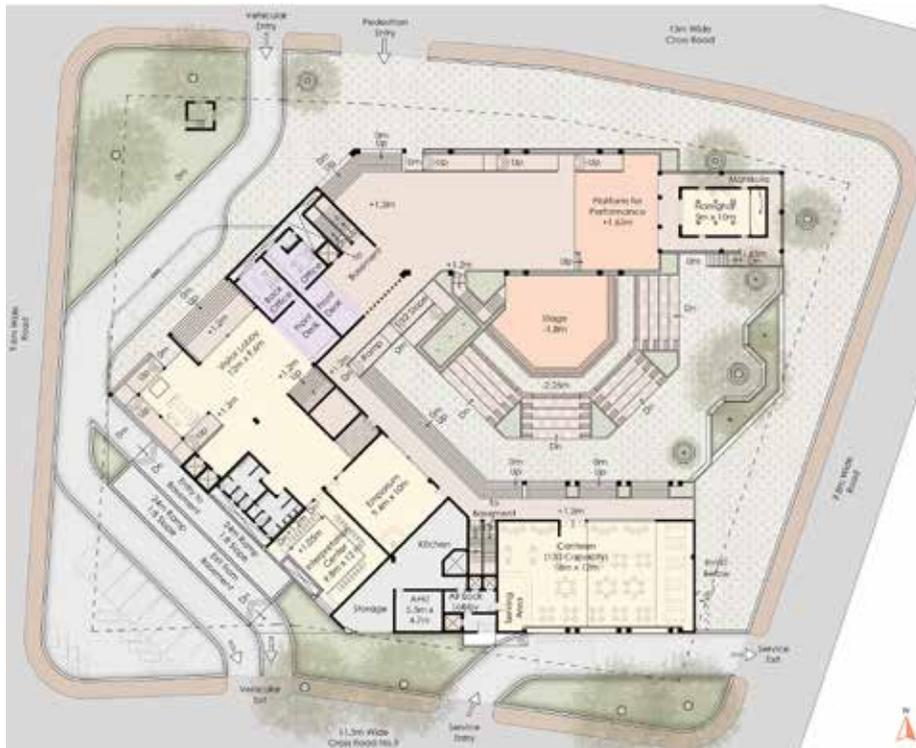
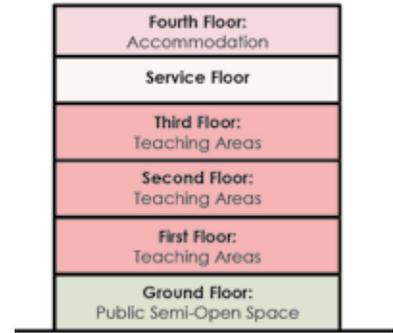
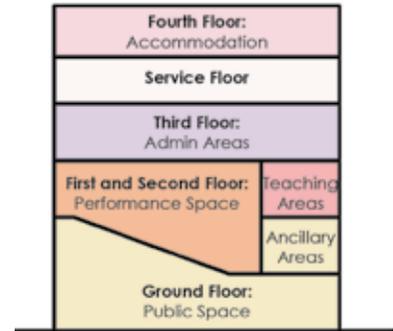


Fig 3.3(a): Ground level plan of the dance institute
(Source: Author).



Zoning of Wing 1



Zoning of Wing 2

Fig 3.3(b): Zoning of the wings
(Source: Author).



Fig 3.4(a): Section - Shaded plazas created on the ground level to allow interaction
(Source: Author).



Fig 3.4(b): North Elevation: Stepped voids giving rise to shaded plazas
(Source: Author).



Fig 3.4(c): Sectional Perspective: Central public plaza having amphitheater allowing the structure to be inside looking
(Source: Author).



Fig 3.5(a): Stepped form Structure: Creating voids to allow visual connection between spaces on different levels
(Source: Author).



Fig 3.5(b): Central Public Plaza: Allowing interaction through open performance spaces
(Source: Author).

Table 1.1: Table showing year of recognition and number of institutes of the eight classical dances

(Source: Survey by Author).

Classical Dances	State of Origin	Year of recognition as a classical dance	Total no. of institutes in India	Cities of practice
1. Bharatanatyam	Tamil Nadu	1940	19	Mumbai, Nagpur, Delhi, Kerala, AP, Tamil Nadu, Chhattisgarh, Bangalore, Vadodara
2. Kathak	Uttar Pradesh	1956 (oldest institute)	7	Mumbai, Chhattisgarh, Bangalore, Delhi, Aurangabad, Vadodara
3. Odissi	Odisha	1958	7	Mumbai, Delhi, Chhattisgarh, Bhubaneswar, Aurangabad
4. Mohiniattam	Kerala	Not known	5	Mumbai, Kerala, Bangalore
5. Kuchipudi	Andhra Pradesh	1963 (oldest institute)	3	Delhi, Kerala, Bangalore
6. Manipuri	Manipur	1964 (oldest institute)	2	Manipur, Delhi
7. Kathakali	Kerala	1965	4	Delhi, Kerala, AP
8. Sattriya	Assam	2000	2	Assam, Delhi

Table 1.2: Table showing cities (other than origin city) where the institutes of 8 classical dances are present in India at the time of this study

(Source: Survey by Author).

Classical Dance	Mumbai	Delhi	Bengaluru
1. Bharatanatyam	✓	✓	✓
2. Kathak	✓	✓	✓
3. Odissi	✓	✓	×
4. Mohiniattam	✓	×	✓
5. Kuchipudi	×	✓	×
6. Manipuri	×	✓	×
7. Kathakali	×	✓	✓
8. Sattriya	×	×	×
Total no. of institutes	4	6	4

Note: The paper "The Sattriya Theatre- A Modern Perspective", based on the research for this dissertation, won the position of Second Runner Up at the International Students Conference on Research in Architecture (RIA) held by the D.Y. Patil School of Architecture, 4th Edition in April 2022.

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PAVILION OF TRANSITION BETWEEN ART AND ARCHITECTURE

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Front View.

FOLDS
DESIGN STUDIO

The project was executed by the B.Arch. students of RVS Padmavathy School of Architecture, Chennai as part of their I Year Basic Space Design Studio. The idea behind this project was to help the students bridge the gap between art and architecture. Along with the design they also visited Folds Design Studio, Mumbai under the guidance of Ar. Leela Krishnamurthy. Students were exposed to Current Gen model-making software and also to fabrication methods and approach.

INTRODUCTION

One of the most influential powers in the field of architecture, a hidden yet efficient experience and one we felt we needed to understand the importance of through experience: PRACTICE.

Though the word may be quite simple, it is a powerful tool. We had the great opportunity to see, explore, educate and also learn the art of practice. Architecture and practice are two sides of the same coin. The art of perceiving practice and incorporating it in architecture is an essential virtue.

As we transitioned ourselves from Art in the first semester to Architecture in the second, we were introduced to our first live project which was a Design + Build project, The Pavilion. The project was curated and conducted as a collaborative experiment along with FOLDS Design Studio, Mumbai headed by Ar. Leela Krishnamurthy.

Activity Mapping in Chennai

The methodology of the design was a process-oriented one, that kick-started with the urban mapping of the city. We were split into groups and selected various busy places in the city of Chennai like Sowcarpet, Besant Nagar Beach, Kabaleshwar Temple, Vandalur Zoo, Ambattur Market and a playground in T. Nagar, where we mapped various factors such as the movement of people, their reactions, the circulation of vehicles and other aspects, also involving some statistics like the number of people, their age, the various stalls, the traffic, parking facilities, and others. These multiple criteria were plotted on our sheets and converted into infographics and maps of different formats, each explicitly showcasing the covert patterns subdued within the fabric of the city.



Mapping Exercise by students of first year supervised by Year Mentor, Ar. Krishnamurthy, Folds Design Studio, Mumbai.



Design Sheets done by students of the first year.

Every map had its own story to tell with different concepts and ideas that were evolved and a plethora of patterns were generated through the diagrammatic approach of drawings. Evidently these drawings had a lot of life and meaning and opened up the avenue of creating intense diagrams that could represent the city. These lines, curves, nurbs and shapes of our maps had the potential to be perceived as 3-dimensional forms, through a hands-on workshop conducted by Ar. Leela Krishnamurthy in Chennai. As students of Semester 2, this activity of visualizing forms, planes and spaces from diagrams opened to us a completely new dimension in architecture.

Anything and everything around us can be a design, a concept or an idea, and our observation and perception towards it matters the most.

Design Development and Fabrication in Mumbai

After the mapping exercise we travelled to FOLDS Design Studio, Mumbai and made that our home for a week, where we were surrounded by the most advanced tools like 3D printers, CNC machines, laser cutters, etc. The studio space was an office and manufacturing hub that was inspirational and mind-blowing with parametric works and installations all around. As we enjoyed the environment, our work began. The mapping in Chennai with further discussion slowly started to become a working Pavilion. The basic idea was 'creating a design with a series of lines', itself that gave us a brief idea that design is something which can be inspired from anything. We joined together the different aspects of the mapping: circulation, grid pattern and feel of the site, and combined them to create a single-line representation sketch of our pavilion.

At the First Year level, it was a new world experience that was before us. We explored different materials like polyethylene terephthalate glycol (PETG) and nylon. Through a series of reviews and discussions with FOLDS, we could see our sketches becoming more 3-dimensional and taking complex forms which was encouraged and motivated by our faculty. The intent was to challenge the conventional methodologies of design approach and develop ideas that we felt were impractical. It was a place where knowledge was explored, experienced and executed. As we worked on our design, we were given a chance to present our sketches at the Lokmanya



Students exhibited their sheets during the Mumbai visit to Lokmanya Tilak Institute of Architecture & Design Studies (LTIADS).



Digital fabrication by RVS Students supervised by Ar. Anishka, Ar. Pallak, Ar. Rasika, Ar. Pankaj and Ar. Harshit from Folds Design Studio, Mumbai.

Tilak College of Architecture. The interest to present the sheets to the students made us work hard so that we could do it confidently. It was an unforgettable experience for us and gave us a feeling of pride.

The work continued and we realized that it would be eventually be selected for the design of the actual pavilion to be constructed in real time. The fact that our design was in 2D on our sheets, and we had the chance to view it in 3D in the First Year of our architectural learning was an astonishing experience. We found our designs being joined together to create a massive pavilion. As the process was done on software we could also explore and educate ourselves about the world of software. A design prototype was made and was further developed using 3D printers. Once a form was finalized, a prototype in galvanized iron was executed. Our College always believes and works with the motto, 'How can you be an architect if you can't build?' The purpose of our trip was to learn through hands-on experience. The prototype was extensively fabricated by our students and understanding the assembly and implementation of the overall structure opened up a new way of learning.



Prototype built by students at Folds Design Studio, Mumbai.



Assembling by students at RVS Campus, Chennai.



Execution by students, supervised by faculties and Ar. Shadab & Ar. Harshit from Folds Design Studio, Mumbai.



Close-up views of the pavilion.

The Execution: Assembling

How can you be an Architect, if you cannot build.
RVS Padmavathy School of Architecture

After we returned to Chennai, we had re-done the entire pavilion with MS sheets which were transported from Mumbai. The erection of the final pavilion started on our campus. The difference between designing and making was now clearly evident to all of us, as we understood the process in making this structure. The sheets for the pavilion arrived as pre-cut panels which were many in number. We divided ourselves into teams and worked on the process of installing the pavilion. We had divided the process into three categories: rivetting, rolling and drilling. For ease of assembly, the parts of the pavilion were coded in eleven series ranging from A-K. Each series consisted of a number of pieces.

Series B, D, H, I were the primary legs of the pavilion. They formed the base as the four main supports of the whole pavilion. The other series were interconnected with these main legs to form the final structure. We had to simultaneously analyse the parts in Rhino software to understand the way each part was

meant to join with its neighbouring component. It turned out to be one of the biggest puzzles we had solved.

The Execution: Build Construction

As students of architecture, we had presumed that designing was the most difficult component. But the execution proved us wrong. We realized that the execution of an idea requires time, planning and also a lot of patience. Before we could begin assembling our pavilion, a foundation was laid at the site of the pavilion using concrete and steel. We helped in creating a mud mortar to form a barrier for curing. The foundation was laid for the four main legs of the pavilion which supported the entire structure.

After assembling the parts of the series we gathered hammers, nuts, bolts and rivets and began to join the metal sheets. This was completely new for us, different from the usual process of construction that we were used to. We learnt about the material and how to handle it, the amount of pressure to be applied for the riveting to be successful. Riveting was the most time-consuming process as each and every sheet had to be riveted, only then the sheets could be joined.



Bird's eye view of students' interaction with the pavilion.

After riveting it was drilling. We were all super-excited to handle the drilling machines and for many it was the first time that we used these tools. We were also instructed about the safety measures required while working on tools and machineries. After all the riveting and drilling was complete, the final step was to assemble the pavilion. This was the most crucial step in the whole process. First the primary legs that formed the base were assembled carefully and welded into place. These legs were held into place using poles and supports. Next, the connecting series were assembled and welded to the main four legs.

As we slowly started attaching the pieces part by part, the structure gradually took form. The transition was surreal as we saw our designs unfolded from our sketches on paper, to digital forms in software to the actual outcome. Every minute of the hard work and pain was worth it in the end when we saw the pavilion standing proudly on its feet.

CONCLUSION

We were truly delighted that *The Pavilion of Transition*, was inaugurated by Prof. Ar. Abhay V. Purohit, Principal of IDEAS, Nagpur and COA Member (HOI), an eminent personality in the field of architecture.

We are extremely thankful to our Director, Mr. Stephen CP who made this unique venture possible, we also thank our Dean Ar. Raajkumar sir, Ar. Kanimozhi, Ar. Aby Philip, Ar. Reeveeze, Ar. Hema Malini, Ar. Devesh & Er. Sethupathi without whose support and guidance this pavilion would have been impossible. Most importantly the entire team of Folds Design Studio, Mumbai that shouldered the project with us.

Building within our own hands was a dream that was realized, and the culture of Live Projects (Design + Build) at our college equips us with confidence to think beyond and achieve it.

*From not knowing the synonym to a pavilion
To counting people and cars
To, random scribbles
To, meaningful mapping
To, line to forms
To, sketches to 3D models
To, breaking making and creating
To, folding and riveting
To, assembling
And there it was standing right huge and strong
Which led into the pride walk!*

All Images Courtesy: **Authors**



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नगरांगण

EXPLORING JAIL INFRASTRUCTURE AS AN URBAN COURTYARD

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ABSTRACT

Infrastructure facilitates the smooth working of a city and the comfort of its people. These 2 factors: Infrastructure and people, boost city growth and helps in building up the city's character. Today in the face of rapid urbanization, some old infrastructure, existing for many decades, need to be questioned for its admissibility. Such systems need examination for adaptability to urban demands, changing perspectives, community challenges and relevance.

Jail is one such system established by the Britishers which today, sit right in the city core, as a crumbling infrastructure. These Jail Complexes hold great historic chapters and attributes like un-exploited land, strategic location, viewpoints, etc. Exploring these potentials, the space can be a sustainable value-addition for future smart cities, impacting their lifestyle, economics, community bonding, environment, etc. Thus, old Jail infrastructures, if reimagined as 'URBAN COURTYARD' can escalate the city's liveability and urban environment.

Keywords: Relevance, adapt, future smart city, sustainable, reimagine, urban courtyard.

1. Introduction

1.1 Research Gap

Indian Cities pre-dominantly developed during British times. The Industrial revolution, accelerated this process and infrastructure came up to facilitate trade and incidentally, that helped people. The Judiciary system, spaces for administration and leisure were designed to cater to their demands then.

Today, the urban scenario, in many cities, is similar; where ageing infrastructure, built 75-100 years ago, stands idle/inefficient. They are generally ignored; and represent huge resource losses of scarce urban land. Jails from the British era is one such system that needs adaptation.

1.2 Background Study

In cities like Pune/Sabarmati, the jails, now sit in midst of metropolitan establishments and have become sticking points. Thane, is one such metropolitan example; it is constantly acclimatizing to rapid urbanization. Thane

Central jail, situated in the urban core, was once a fort in the outskirts. It stands exhausted and inefficient, housing 200% more than its capacity. It is unsafe for the residential neighbourhood around.

However, jail typologies do have the potential of major adaptation, in the near future. Thus these old British heritage spaces could be explored as “urban courtyards”.

1.3 Aim

Along with a rich Maratha history, Thane jail-fort has a strong ecological context and bio-diversity which make it a green lung in the concrete jungle. Its strategic location, economic potential, and advancements around are some great attributes that can aid the development of a sustainable urban courtyard. The architectural intervention can celebrate the city's history, community culture, and rich ecology through its functions, while preserving and reusing the existing fort.

The aim of this study was to understand how to ensure the relevance and adaptability of old physical infrastructures like jails within the context of the developing area of Thane, through architectural interventions, while factoring in the various urban issues to create an urban courtyard.

1.4 Objectives

- To analyse the Jail system, its position in society, and the related notions.
- To identify what the jail has offered to the city's historical narrative and how can it be manoeuvred today to enrich the urban context by analysing at macro and micro levels.
- To analyse the concept of smart city and tying its knot with the historic context.
- To interpret site through different lenses of ecology, history, economic and cultural attributes.
- To devise a survey for developing an architectural program considering historical urban tissue, changing community demands, new infrastructure/smart city concept and different stakeholders.

1.5 Scope and Limitations

The scope of the study is limited to old British jail infrastructure and understanding its current adaptability. The thesis has limited its scope to architectural intervention while devising the design scheme. The research further focuses on a specific site and is not a repeating module, but it can be explored on various other sites sharing similar attributes.

2. Literature Review

2.1 Historic context of the City and Fort-Jail

Historically, Thane was a buzzing trading port that became an important Portuguese asset. They began constructing this Naval fort in 1730. The Marathas conquered Bassein in 1737 and completed the construction.

Later, the British captured the fort and converted it into a Jail to save expenditure on new construction. However, it is not a listed heritage monument currently.

Administrative buildings like the Collector Office and Court were also established in the surroundings. This established



Figure 1: Thane Fort jail location (Source: Author)

system was functioning well. As the city expanded, several security issues have surfaced and these developments need to be explored for their relevance.

Further, with the development of Railways, trade began. Additional infrastructure like roads, bridges and industrial zones were constructed. Post-independence, Thane became a developing industrial town. (digithane, 2023)

2.2 Thane Today

With a population of 18 lakhs, the old infrastructure in Thane (as per 2011 Census) attempts to adapt to the changing demands. The Old TMC building, was shifted/expanded to Panchpakhadi (a spacious locality) because of its insufficient capacity. The Thane Mental Hospital built in 1901, is underutilized currently. Hence, part of its premises is proposed to be used for upcoming Railway station (New Thane) as an example of “sustainable adaptive reuse”. Thane Jail can also go for such sustainable adaptive reuse by reinventing/relocating old heritage structures.

2.3 Thane: Future Smart City

The purpose of a smart city is to promote economic growth and improve the quality of life of its citizens by ensuring development of localities using technological smart solutions. It mainly focuses on three factors: liveability, economic ability and sustainability. The strategies for achieving this are as follows:

- Making most from the available resources and promoting development through Redevelopment, Retro-fitting, Greenfield and Pan-city development.

- Quickly adapting to changes.
- Being resilient in the face of shock/stress.
- Having citizen inclusive process.
- Using technology for achieving these goals at larger scale and faster speed.

Features of a smart city

- Promoting mixed used development for economic growth.
- Creating walkable localities.
- Preserving and developing open space to enhance quality of life of the citizens.
- Giving an identity to the city based on activities like cuisine, Art & Craft, Education, Culture, Sports, etc. (Ministry of Housing and Urban Affairs, 2021)

2.4 Literature Review

Conservationists and Thane citizens opine about Thane Jail-Fort: “The prison, which holds chapters of our glorious freedom struggle, is now a closed space, housing the dark side of the community. The glorious cultural narratives preserved only in oral traditions, will be lost forever, unless consciously preserved. A city historian, Sadashiv Tetvilkar (2019), is trying to spread this uncharted history through his books. (Tetvilkar, Durga Sampada Thane chi, 2012)

The Thane Municipal Corporation (TMC) proposes opening specific parts of the Jail to public on National Days to raise historical awareness. TMC also suggested the historic revival of the fort by shifting the jail complex to Ghodbhandar. This would celebrate history and increase tourism while creating economic opportunities. (Hindustan Times, 2018)

Thus, this Jail-fort has multiple offerings, but this potential is unexplored as it is closed for people. The space can be a great value addition to the Thane smart city by its sustainable and efficient adaptive reuse.

2.5 Adaptive Reuse- Sustainable strategies for remodelling spaces

The existing attributes of the site have great potential to accommodate various public functions. Reuse of the space would ensure sustainable, efficient and economical adaptation of the space with social and cultural impacts.

- Installation: A flexible addition with minimum structural involvement of existing architecture. The elements are temporary; changes can be undone easily.
- Insertion: A plug-in to existing structures/programs enhancing functionality and experiential qualities. This addition would be in congruence with the existing set-up. E.g. The plinth/foundation could be reused with a new superstructure.
- Intervention: Transformation of existing set-ups to facilitate revival through new programs. The old and new are completely intertwined; this remoulds spaces without scope of retracting.
- Salvage: Reuse of salvaged stone blocks, timber trusses, doors/windows and roofing tiles in new constructions. (Omics International, n.d)

The heritage status and grading of old infrastructure is a critical consideration for reuse along with the applicable heritage regulations. Thane Central Jail-Fort, is not a graded structure despite its historic importance. This implies

freedom in terms of architectural programme and structural intervention.

2.6 Case studies

Adaptive reuse is not only a sustainable approach towards old structure, but also has great impact on Tourism, in turn affecting the city economics, culture, etc. The world has witnessed brilliant interventions like Danish National Maritime Museum (Denmark) where-in an old dock was converted into a museum. Jadhav Gadh, Pune, was a fort; which got converted into a themed-luxury hotel. Tai Kwan Centre was Jail Compound in Hong Kong which is now adapted to form a cultural hub.

2.7 Sustainable approach towards dynamic future: Design for Dismantling

The nature of public spaces needs constant evolution as change is the only constant. This implies ensuring maximum flexibility, in functional planning and structurally too. The architecture should allow easy adaptation. The post-demolition/disposal of structures later is also crucial.

The concept of design for dismantling (DFD) focuses on deconstructing buildings. The structural system and construction technique is devised to facilitate end-of-life dismantling. The material recovered could be reused directly in other structures or recycled. There are ancient examples of Rajasthani havelis which were built for similar dismantling and consequent reuse.

This technique is based on certain principles:

- Material* : dry, pre-cast, re-use, recyclable
- Connections* : simple, modular, dry, easy to locate
- Separate services* : services are not entangled with structure
- Simple structure and form* : modular connections, grids
- Modular* : Increases possibilities of reusing the materials as it is
- Recycling* : the material can be recycled or can be biodegradable to eliminate waste

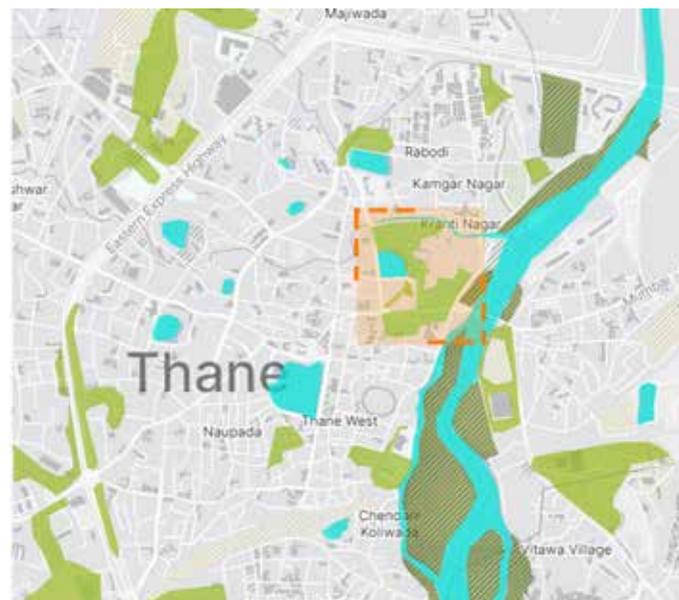


Figure 2: Green and blues in city (Source: Author)

3. Methodology:

3.1 Empirical studies-activity mapping, urban context documentation at macro and micro level

The site was documented to understand the macros-urban fabric, its strengths/weaknesses and potential, integrating micro elements like the ecology, user groups, site context and edges. This crucial understanding would ensure that the proposed architectural interventions remain respectful to historic values. The activity mapping triggered on-site programs which could enhance the context further.

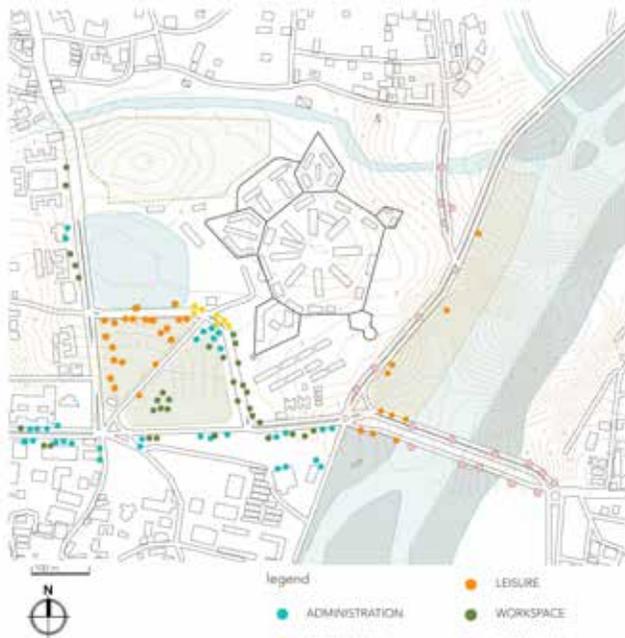


Figure 3: User flow around site (Source: Author)

The site constitutes a major green chunk of the city and has a great ecological value. Historically, the site has various 'baags' or fruit gardens and farms with native plants grown in and around.

There is a mangrove belt on its edge along Thane creek which is known for bird diversity and is protected by Indian Bird Conservation Department.

The site is lined with major roads on all sides and thus forms a major node. The urban tissue surrounding the site is dense with a combination of user groups. Administrative buildings, offices and quarters forms the immediate context of site. (As seen in figs. 3 and fig. 4).

Existing site elements like the Prison Farms, the fresh water lake and barracks are some distinct features, which could be preserved/integrated in the proposed urban intervention. E.g. Barracks could be repurposed with new functions.

The watch towers and the sturdy fort walls are also unique attributes which could be developed as tourist observation towers, and as digital art/advertising respectively and create strategic focal points while enhancing footfalls and consequent safety.

The old structures can be dis-assembled to salvage materials like stone blocks/bricks/tiles or doors for reuse in new constructions/interiors.

3.2 Open ended surveys (for Sustainable Adaptive Reuse)

The survey would ensure the formulation of programs for effective sustainable adaptive reuse with public participation. The data collected and analysed included variables and indicators of economics, ecology, socio-cultural and quality of life aspects (Spina, 2020).

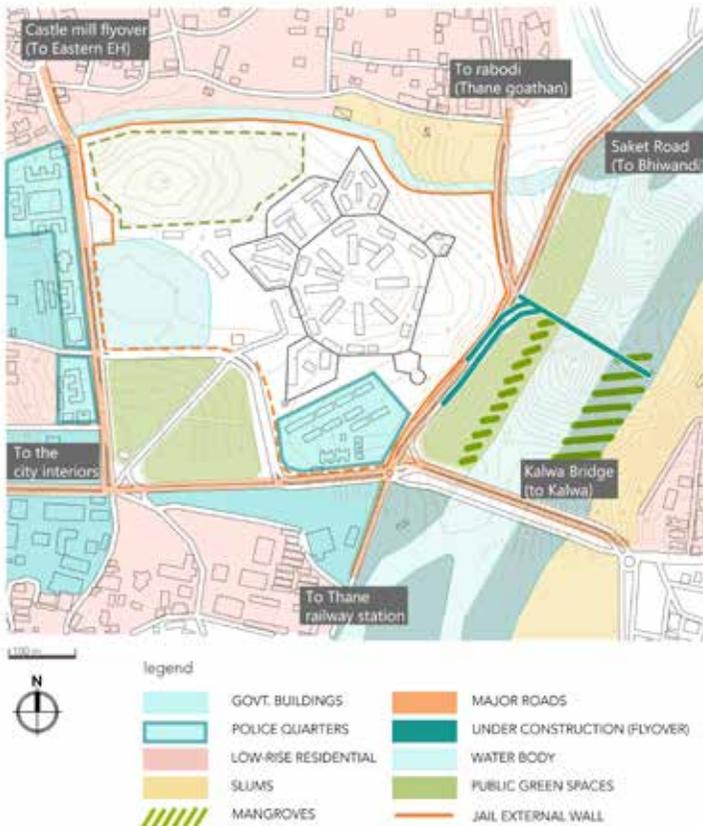


Figure 4: External site context (Source: Author)



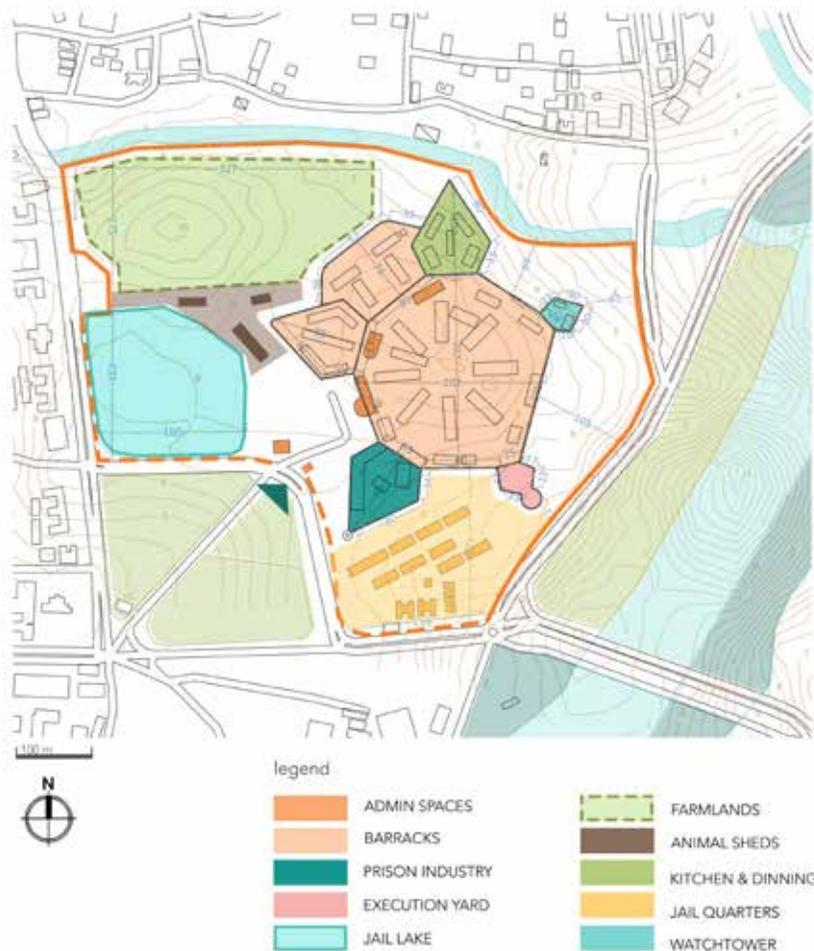


Figure 5: Internal site setting (Source: Author)

Sample selection:

The sample for the open-ended survey included the following diverse stakeholders:

- i. Institutes: The Metropolitan City, and TMC: To understand Revenue Generation, the Smart City program and create iconism.
- ii. Real estate/Conservation Professionals: To map the heritage, cultural impact and economic impacts.
- iii. Local Community: To understand micro details of everyday use/access and standard of living across age groups and cross sections of socio-economic strata
- iv. Macro level Urban Community: To understand large scale benefits/needs and inclusiveness/accessibility
- v. Tourism professionals: To enhance revenue generation.
- vi. Ecology experts: To conserve the rich ecology while ensuring minimum exploitation.

3.3 Case Study Method

Various relevant case studies (architectural interventions) were conducted to gain insights of their practical implications. These case studies were classified into 3 categories:

- a) Conservation of Culture: Shanivaar Wada, Pune
- b) Artforms: Circus Conservatory, Portland
- c) Space and Ecology: Tai Kwan Centre & CCIR

4. Results/Findings-Data Analysis

Based on the scope of study, stakeholders were involved

to get deeper insight of the subject and accordingly, the analysis and conclusions are made.

4.1 Expert Interview

A senior architect was interviewed to understand the ground realities and practical implications of the project. He endorsed the relevance of the proposal and emphasized the idea of creating an urban identity. Various upcoming projects of the Thane smart city were studied to understand "imageability".

4.2 Conclusions from Resident surveys:

Residents perceive a lack of community building amenities and opine that streets lack activities/liveliness. However, the locality is quiet and has rich ecological elements. Circus and "Mardani Khel" (a martial art) are the major activities associated with this location, along with fishing.

Jail authorities and guards opined that currently, they find it difficult and time consuming to maintain the fort economically and in terms of co-ordination (physical and otherwise). The Jail also faced security issues due to the growing residences, slums and infrastructure around.

Government bodies spoke of their future urban vision. Their main objectives were to promote Tourism and strengthen the historic and environmental aspects. Their focus was to build a strong cultural, environmentally conscious and smart city image which would also bring financial gains.

4.3 Design Objectives and Program formulation

- o To design a “sustainable adaptive reuse” of the jail-fort and convert it into a positive typology of “an urban courtyard”.
- o To create a safe, accessible and inclusive community public space
- o To foster the ecology and enhance quality of life by filling the gaps of various stakeholders
- o To integrate history, culture with the Thane smart city proposal.
- o To plan paid and free, private and public spaces

Indicative Potential Programs:

Spaces for historical awareness, Sports and health/wellness centre, Fishing institute, Circus and allied arts, Bird Watching centre, multi-media library, Farming institute, Production/sale of Local goods (Organic vegetables/handicrafts), Celebration spaces, Museum, Shopping, Food, Entertainment centre (City centre), Jail

5. Discussion

The potential programs were categorized into groups according to their typologies.

GROUP 1: Culture and Heritage Conservation Centre: Spaces for heritage revival, experiential walks, circus art & allied activities, sports & wellness centre, celebration spaces, community leisure spaces, library, selling of organic food, etc.

GROUP 2: Entertainment and Commercial Centre: Malls, theatres, creek water sports, leisure spaces, commercial areas

GROUP 3: Institutional Spaces: Farming and institute, food walks, fishing and institute, libraries, bird watching and info centre

Further, understanding the impact of these functions on the stakeholders, a tentative typology of programs that ensured sustainable adaptation of the space was shortlisted.

Table 1: Outcome of surveys and interviews

(Source; Authors)

STAKEHOLDERS GROUP	Community	Ecology	Reuse	Govt. Institute	Tourism
1. Culture and Heritage	23 %	15%	23%	18%	21%
2. Entertainment and comm.	32 %	14%	9%	27%	18%
3. Ecology Institution	15 %	33%	23%	22%	8%

The method focussed on identifying a “shared solution for various stakeholders. It was observed that GROUP 1 typology programs would allow a balanced development; meeting maximum needs and could also achieve long term economic sustainability.

6. Conclusions and Recommendations:

The fort-jail space can be rejuvenated/adapted, with interventions, based on ecological, cultural and economic opportunities. These could infuse new urban vigour and pride, by celebrating the past and forecasting for futuristic typologies.

The future smart cities that integrate the city’s history, culture, geography and ecology can create a unique identity and create environmental/cultural awareness. Tourism will flourish and expand the urban economy.

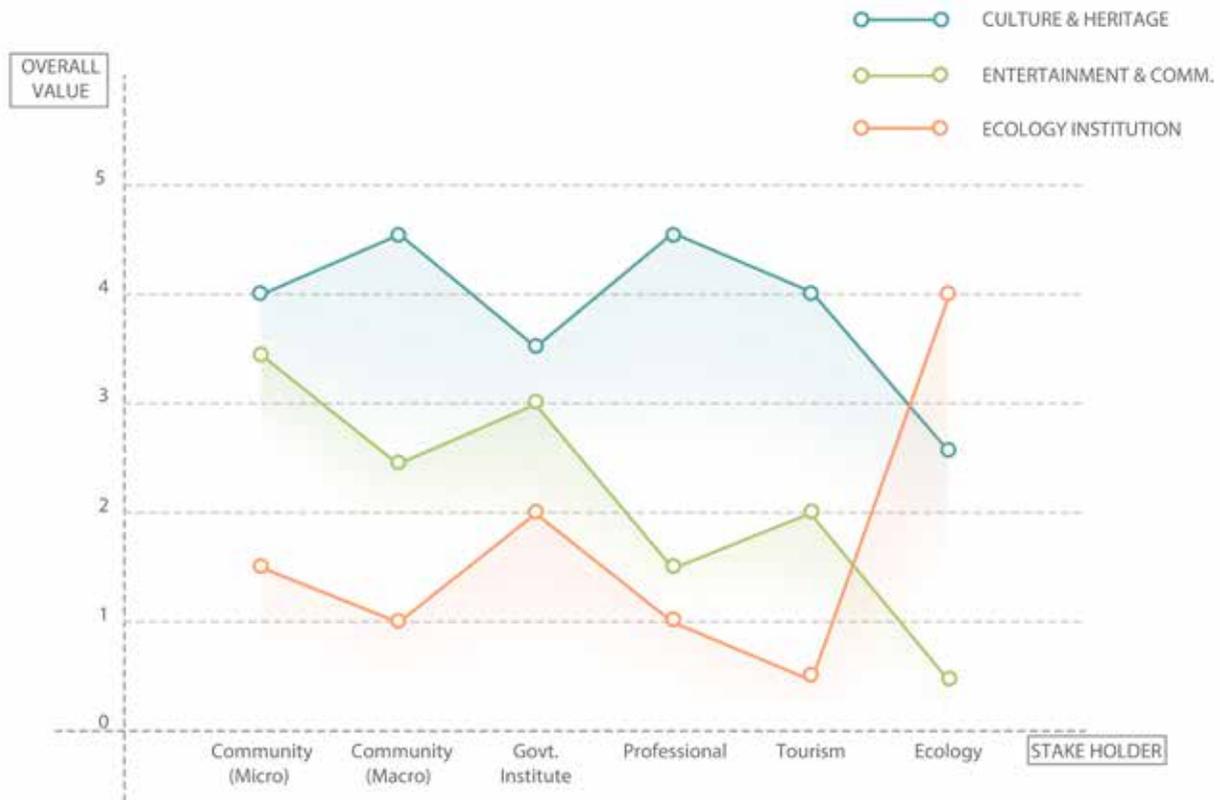


Figure 6: Overall rating graph (Source: Author)

If these spaces are designed for flexibility, they could become multifunctional and facilitate resilience during times of urban and national stress. Thus, ageing infrastructure, tending towards obsolescence or irrelevance, can get

transformed into flexible, multipurpose community urban spaces (Urban Courtyards) and help to establish a dynamic identity for future smart cities.

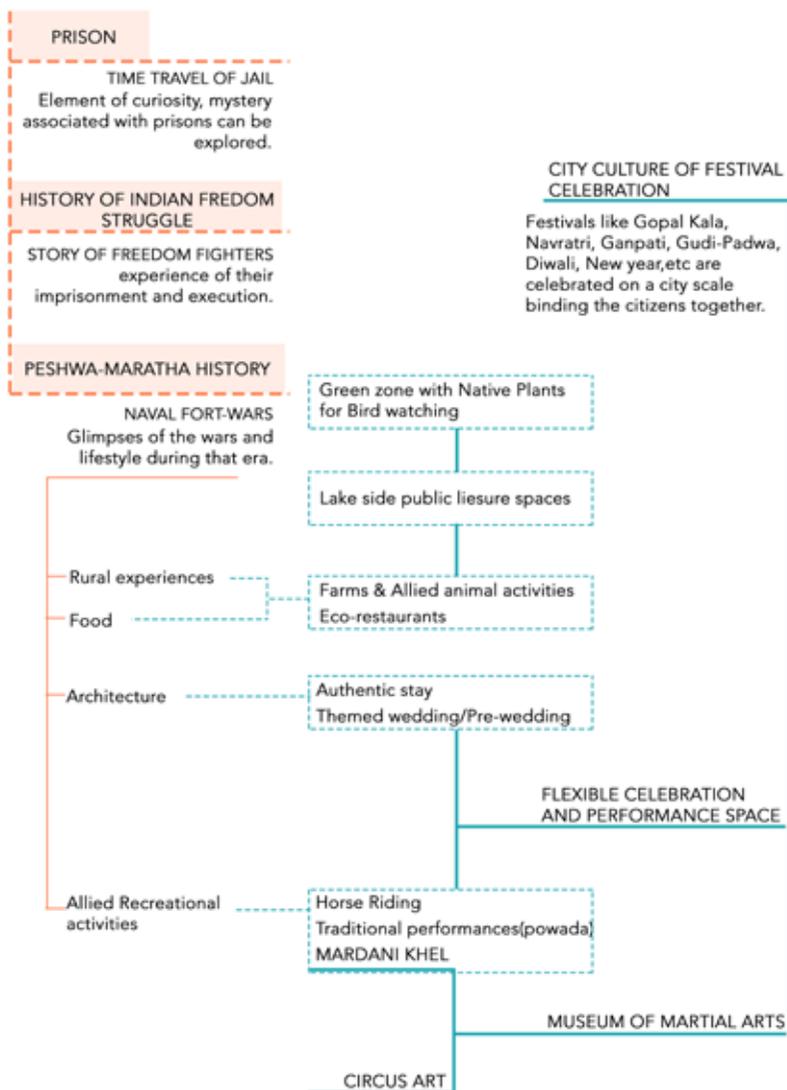


Figure 7: Program inter-relationships (Source: Author)

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Acknowledgements

I am highly indebted to my college, Academy of Architecture, Mumbai. I would also like to thank Ar. Makarand Toraskar, who helped me understand the nuances and ground realities of the topic for my undergraduate dissertation.



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Prof. Swati Chokshi is an award-winning, multidisciplinary architect with 35 years of experience in academia and the profession. She holds an M.Arch. (by research) in Environmental Design, and also M.Arch. in Project Management. She is also an Accredited Professional (AP) of the Indian Green Building Council (IGBC) and conducts green building trainings as an ECBC and GRIHA Master Trainer.

DIALOGUE WITH AR. SANDEEP PATIL

Ar Surabhi Patil



An architect by profession and an activist by heart, Ar. Sandeep Pandhurang Patil has been in the field for over fourteen years. He graduated as an architect from DY Patil School of Architecture and pursued a master's from Rachna Sansad's Academy of Architecture, Mumbai. From the beginning, he has been passionate about social work and has filed several public interest litigations in court.

Alongside his architectural practice, which he started in the year 2008, he has initiated PILs for various causes namely - i) PIL 189 of 2009 with respect to paying tolls at the Kalyan Shil road causing inconvenience to the public at large and coordination between various government departments such as MIDC, BSNL, MSEB to provide service lines before starting construction or repairing of the new road; ii) PIL 216 of 2010 related to the inconvenience caused to advocates, litigants and general public due to the absence of bare minimum amenities at the Kalyan Court premises; iii) civil application no 187 of 2015 for intervention in the PIL 182 of 2009 for getting a permanent solution for proper disposal of municipal solid waste within the KDMC jurisdiction and throughout Maharashtra; iv) PIL 171 of 2015 relating to the notice issued by the Govt of Maharashtra, declaring its intention of deleting 27 villages from Kalyan and Ambarnath talukas; v) PIL 145 of 2016 with relation to the self-seeking bill passed by the Maharashtra Legislative Assembly and Council, raising the salaries of MLAs and MLCs and pension of Ex-MLAs and Ex-MLCs showing conflict of interest; vi) PIL 5619 of 2020 addressed to the Govt of Maharashtra for arbitrarily deleting 18 villages from KDMC and requesting the formation of a separate council for them. Yet he felt that something was amiss and that he should bring a positive change in the profession that he is into, in the field of architecture.

Over the 14 years of his practice as an architect, he has strived towards the betterment of society and the city, whether it is through community work, policy change or activism. He has always been a humble community servant, dedicating a significant portion of his life to the cause of society. In light of the recent coverage of the RERA certificate scam and razing of 65 projects by builders in the Kalyan-Dombivli twin city, the following interview is a glimpse into the case where Ar. Sandeep Patil efficaciously fulfils his duty towards architecture, the city and the community.

Ar Surabhi Patil: The latest probe into illegal developments in the Kalyan-Dombivli region, prompted by the revelation of the scam regarding RERA certificates, has received a lot of media coverage. Being involved first-hand in the issue and being the first one to expose the scam, could you briefly state what exactly led you to this investigation?

Ar Sandeep Patil: This goes back to 2013 when the talks of the RERA act had begun. The Real Estate (Regulations & Development) act was finally implemented in 2016 to establish a real estate regulatory authority (RERA) to safeguard the interests of buyers and consumers in the real estate sector and institute an arbitrating mechanism for quick dispute resolution.

A step in the right direction, I was hopeful that the act would bring transparency in the buying process and cease illegal development. Every state had to draft its respective set of rules and regulations, out of which Maharashtra was the second state to initiate the process. However, I noticed a shortcoming where the initial purpose of projects being certified by RERA will only be registered, was falling through. This led me to write a letter in 2017 to the chief minister of that time, Mr Fadnavis, a copy of which was sent to 288 MLAs and 78 MLCs, requesting to clearly state the clause to allow only builders and developers for registration of any apartments/shops/flats who are registered under the Real Estate Authority Act (RERA), putting an end to illegal construction, since such

developments would not get a RERA number. But most of them were unaware that such a thing was happening, leading to further discussions in the assembly sessions.

After two years, on 20 September 2019, the rule was finally passed. I immediately informed the register offices in my vicinity that only projects with an authentic RERA certificate should be registered, ceasing all registrations without RERA approval. To overcome this, builders found a way out by creating bogus documents attached to original RERA certificates. I found out from my sources that registrations have again started. After going on the website and checking the KDMC plan and the certificate, I realized that something did not fit, the certifications were original but the plans were not approved. So, I wrote to the KDMC to give me the original certified copy for which the certificates were shown, to which KDMC said that approvals were bogus.

Ar Surabhi Patil: Considerable factors and parties seem to be involved; what course of action did you take to reveal the truth?

Ar Sandeep Patil: First and foremost, I filed a Public Interest Litigation (PIL), attaching the previous letters sent to the MLAs, the rule passed on 20 September 2019 (where only RERA-certified projects shall be registered), a copy of people who undertook the registrations, letters sent to the KDMC and other relevant documentation.



IIA Presidential recognition award.

ACTION AGAINST DEVELOPERS IN RERA SCAM: ANOTHER BUILDING DEMOLISHED



The Kalyan-Dombivli Municipal Corporation (KDMC) has demolished the second building in its crackdown on developers who submitted fake building permissions to register their projects with the state housing regulatory authority (RERA). The KDMC on Thursday demolished a ground plus four storey building built by developer Shivsagar Yadav in Dombivli. Earlier last week, the KDMC had demolished a ground plus seven storey illegal building constructed by developer Amin Patel and Subhash Mahatre. The action came after KDMC commissioner Bhausaheb Dangade ordered ward officers to initiate action against the 65 developers involved in this RERA scam. He had warned them of stern action if they failed to demolish these illegal constructions. The illegal building demolished on Thursday is situated in Adivali-Dhokali area and was built recently. It was not occupied by the families who had purchased the flats. The scam was exposed by Sandeep Patil, an architect. Meanwhile, the Enforcement Directorate (ED), which had earlier asked all departments concerned and Patil to submit papers related to the case, has begun recording statements of the officials concerned.—Pradeep Gupta

FIR filed against 38 more bldrs from Dombivli for RERA scam

Pradeep Gupta

Kalyan: Police have booked 38 more developers from Dombivli for allegedly furnishing fake Kalyan-Dombivli Municipal Corporation (KDMC) approval certificates of their building plans to procure RERA certificates in order to fraudulently sell the flats.

Recently on a complaint filed by the civic body, police had registered an FIR against 27 developers from the Kalyan rural area for a similar fraud. With these new cases, FIRs have been registered against a

total of 65 developers.

In the current case, the 38 developers who prepared forged documents to construct 5- to 12-storey buildings have cheated more than 2,000 flat buyers by selling flats showing the properties as legal.

After the fraud came to light, the Maharashtra Real Estate Regulatory Authority (MaharERA) cancelled certificates issued to 52 such developers. RERA submitted details of the developers to KDMC which subsequently uploaded this information on its website.

KDMC has also decided to

issue notices to the developers. On Tuesday, KDMC commissioner Bhausaheb Dangade told TOI: "We will first issue notices to all builders, asking them to produce documents available with them and as per the same declare whether the buildings are legal or illegal, after which demolition action will be taken."

This development has shocked flat buyers who fear they may have to pay the price for the fraud committed by the developers. They also questioned KDMC officials for allowing such structures to come up. Officials said these 65 build-

ings have come up in the past three years after the state government mandated registration of properties only after submission of RERA certificates.

A flat buyer from Dombivli who stays in a 7-storey building said, "I spent my entire savings to buy this flat. All of us flat buyers recently met the builder who is still saying our building is legal and nothing will happen to it."

The KDMC action follows a PIL in Bombay high court by architect Sandeep Patil in 2021 against "wrongdoings" by builders.

Notices to 65 developers on 'illegal' bldgs

Pradeep Gupta

Kalyan: After SIT, now the Kalyan-Dombivli Municipal Corporation (KDMC) has swung into action against 65 developers in the Kalyan-Dombivli area who prepared forged documents to obtain RERA certificate for constructing buildings illegally.

The KDMC has now issued notices to all builders asking them to submit documents of proof so that buildings found illegal can be demolished. Architect Sandip Patil, who exposed the entire scam by obtaining documents from RERA website and using RTI information from Town Planning department, has demanded that the KDMC demolish all 65 illegal buildings.

Sources told TOI that most of these developers are either supporters of the ruling party or influential people which is why KDMC is delaying action. Meanwhile, the SIT, which had already asked banks to freeze accounts of 40 developers involved in the scam, has now submitted details of 25 remaining developers to their respective banks for action.

Times article on RERA scam

I requested scrutiny of all the RERA certificates to verify the authenticity of the projects since this was just one of the examples amongst thousands of such cases in the state affecting the municipal corporation, the authorities and the poor customers, who had invested their money believing that the development has been approved. I filed the case towards the end of 2020, it got registered in 2021, post which the high court gave several orders to the state government, RERA offices and KDMC to submit an affidavit. However, time was crucial, so I went onto the RERA website, checked KDMC approvals and found 65 similar cases in the city. I again sent out a letter

to KDMC to verify the details to which they confirmed that the cases were bogus and not approved by them.

It was a back-and-forth process where I again wrote to the municipal corporation that if they are aware that these cases are fraudulent, they should immediately file a police case, notifying RERA and register offices. However, KDMC did not cooperate initially but on asserting the High Court's involvement, KDMC launched an FIR in the Manpada police station on 27 September 2022 and 3 October 2022 respectively, for a total of 65 cases.

Since a lot of financial stakes were involved, there were chances of misappropriation, therefore, the police commissioner transferred the case to the Thane crime branch with a special investigation team (SIT). Subsequently, due to the constant media coverage and news articles, the case was brought into the limelight, leading the matter to reach the ED's office. I was called to the ED's office to delineate the case. Simultaneously, income tax also took interest, finally leading to KDMC taking action into the demolition of these illegal constructions.

Ar Surabhi Patil: You have been leading this fight for almost six years now, I am sure the journey has been quite challenging. Amidst all this, to what extent do you think your service to the community is appreciated? Have you faced any negativity on your journey toward bringing a change?

Ar Sandeep Patil: I will be honest, I have received several threats and warnings, some even life-threatening, but through all this negativity, I have also gained the support of various organizations; I got a supporting letter from the National IIA council, IIA Maharashtra Chapter also aided the cause, received letters from multiple centres from Mumbai, Navi Mumbai, Nashik, Pune, Satara, etc., stating the need for police protection. In a recently held Press Conference, I received ample encouragement. All this love and support has pushed me towards achieving the goal, despite the fear.

Ar Surabhi Patil: To lead a case like this requires commitment and passion. What exactly motivated you to go against the stream?

Ar Sandeep Patil: I have always been an ardent supporter of social causes and a firm believer that I have a role to play in the betterment of society. Having led several cases in the social realm, I thought that as an architect, I must fulfil my duty towards the built environment. This sense of responsibility towards the community and architecture is what motivates me.

Ar Surabhi Patil: Unfortunately, in most of these cases, common people who made a booking in these illegal buildings have become a victim of this fraud.

Ar Sandeep Patil: Yes, many people have fallen prey to this, shelling out a significant amount of money for each of the tenements built by these fraudulent developers. Since the case came to light, it has not only led to awareness amongst the general public, but the high court has also requested suggestions from me. I have already submitted the suggestions; I am hopeful that the honourable court will find a way to provide justice to the buyers.

Ar Surabhi Patil: There has been so much noise going around in pieces regarding illegal development and encroachment on government lands. What would you say is the result of winning the case? Has it brought into the limelight more such issues of the built environment?

Ar Sandeep Patil: The motive behind this endeavour was to cease illegal developments at all costs. The majority of these buildings were built on reservation plots or government land, and this is a common sight all over Maharashtra.

This case was just a small step towards a larger goal, setting an example for the building industry, the public and authorities. In the bigger picture, this shall aid restoring the government and municipal corporation's revenue, facilitate the development of Kalyan-Dombivli and other smart cities in the race, strengthen infrastructure and provide more opportunities to people in the field of architecture.

Ar Surabhi Patil: In continuation, are you optimistic about the future of Kalyan-Dombivli Smart City? What are your views on it?

Ar Sandeep Patil: Yes, definitely. In fact, why just Kalyan-Dombivli, the entire country should lead towards becoming smarter and more resilient, which is why fighting this case was so important; illegal development is one of the major roadblocks towards the planning of cities, it hinders the services, development and infrastructure. The success of this case is a sign of hope in itself.

Ar Surabhi Patil: As an ending note, you mentioned how your passion for working for the community drives you and how you wanted to reflect this in the profession that you have pursued i.e. architecture. What advice would you give to young architects like me who have just entered the field?

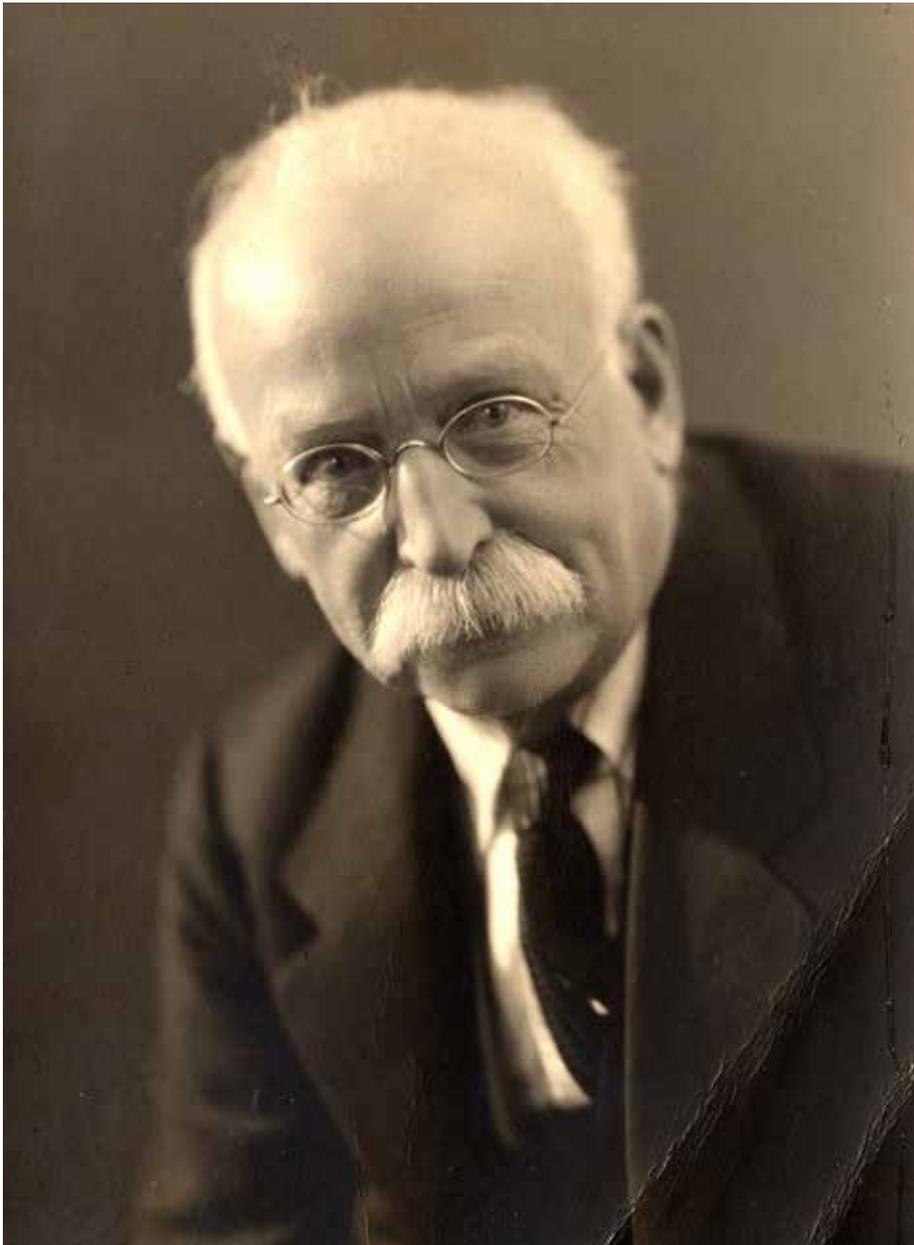
Ar Sandeep Patil: Architects are facilitators of dreams; they have the power to convert dreams into reality. Architects have the ability to transform people's wishes and aspirations into a space. However, in this act of fulfilling dreams, illegal construction is like a venom that can completely ruin them. Therefore, my advice to young architects would be to never hesitate in taking a stand against any wrongdoings for the benefit of the people or the city and think of it as their right and duty. Even if one architect takes a step forward, it inspires many others but imagine if we come together as a community and show a united front, we shall have the power to truly bring change.



Ar Surabhi Patil graduated from the LS Raheja School of Architecture, Bandra, in 2022. With a passion for journalism and an innate curiosity toward cities, heritage, and the environment, she is currently working as an architectural writer and communications manager for the Institute of Environmental Architecture and Research (IEAR) and Roshni Udyavar and Associates (RUA) in Mumbai.
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EBNEZER HOWARD AND THE GARDEN CITY MOVEMENT

Ar. Khudeja Z. Patel



Sir Ebenezer Howard
(Source: Photo courtesy of HALS from: <https://www.hertsmemories.org.uk/content/herts-history/people/ebenezer-howard/ebenezer-howard>)

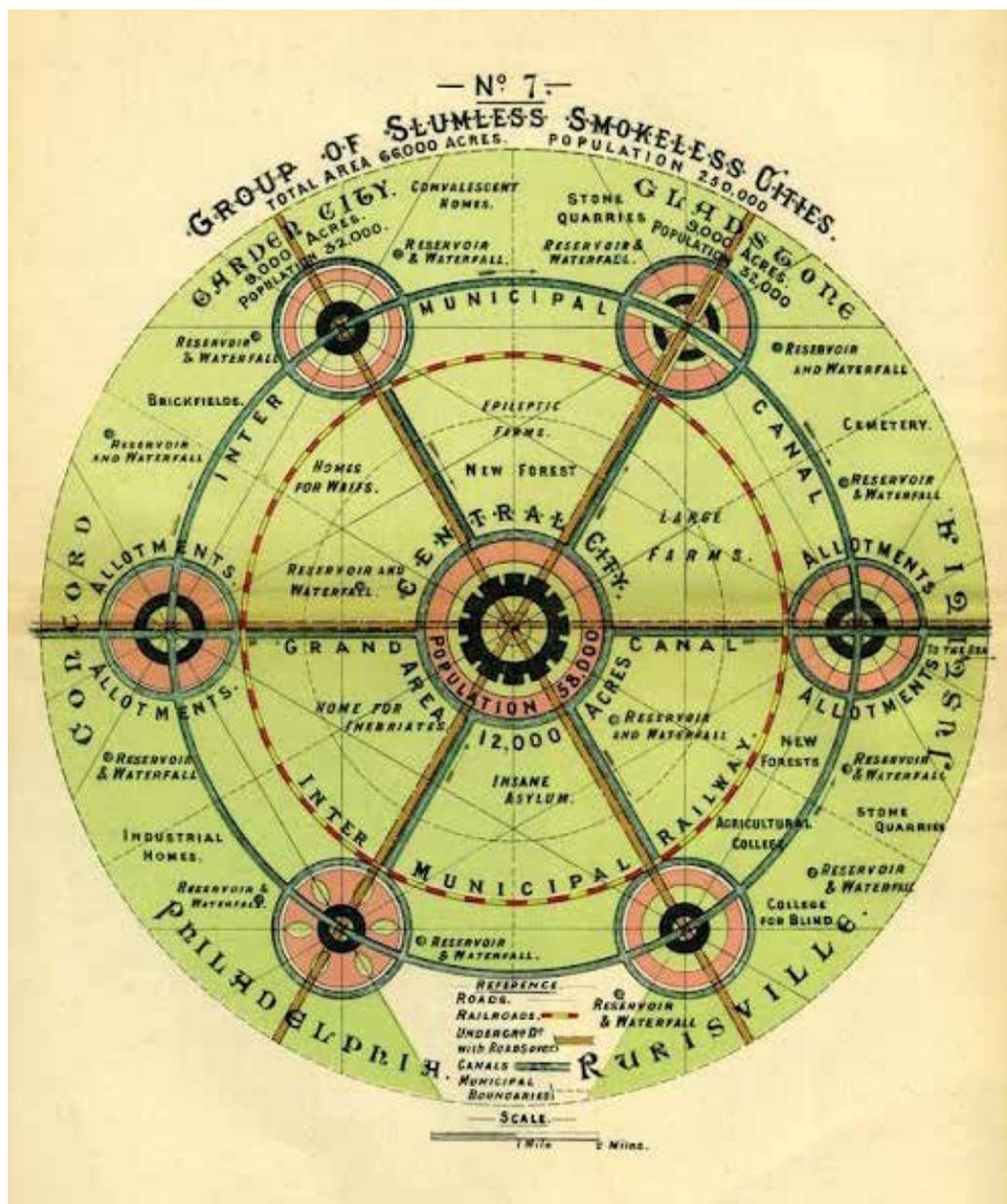


Fig. 1: Howard's diagram of a series of satellite garden cities limiting growth of each and connecting to the central city
(Source: Laskow, 2016)

About Ebenezer Howard

Ebenezer Howard was born to a shopkeeper in the City of London, on 29 January 1850. On completing schooling, he took on a number of clerical posts. In 1871, he emigrated to the USA to become a farmer. This proved unsuccessful and he subsequently spent a couple of years living in Chicago, witnessing its rebuilding following the Great Fire. It was during this time he began to contemplate ways to improve cities. Eventually he returned to London, in 1876, to land a job producing the official verbatim record of the Parliament. This remained his primary occupation for the rest of his life.

It is important to understand the context upon which Howard's work is based. London and other cities in the 19th century were experiencing an acute growth in industrialization, and the cities were exerting forces on the labour markets of the time. This resulted in massive immigration from the countryside to the cities. By 1850, more than 50% of the British population was housed in the industrial cities. During that time the life of the working

middle class population was hard and short. Without regulations, urban development was characterised by cramped and unsanitary housing and as a result diseases were on the rise. This situation was unsustainable and it was realised that the health of people had greatly deteriorated. Reforms proved to be slow mainly because the working class poor had no vote and so no political weightage.

About Garden City

Sir Ebenezer Howard in his publication *Garden Cities of Tomorrow* (1898), described the idea of a utopian city in which people live harmoniously together with nature. Tomorrow was a synthesis of many key ideas of the time, but the main highlight of his vision was the idea of a 'garden city'. These new self-contained towns would replace slums with high-quality housing for working people. Each house would have a decent garden and generous play space for children. The garden cities would provide for the best blend of town and country, not just allowing access to the natural environment but bringing that environment into the heart of the city.

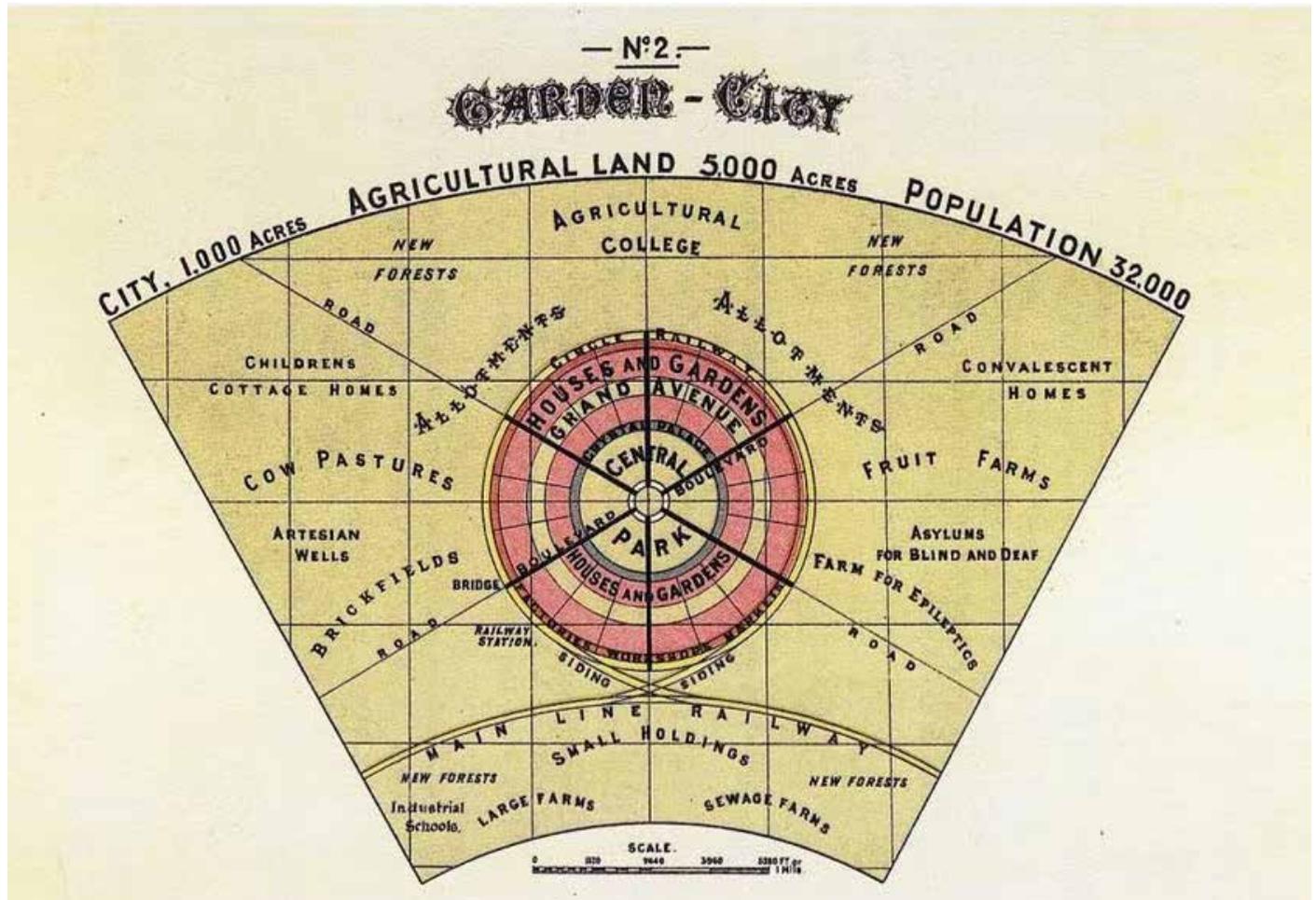


Fig. 2: Howard's diagram of the details of each Garden City (Source: Laskow, 2016)

These communities would be surrounded by the belt of agricultural land, which would provide local food for the population as well as access to countryside. This union of town and country side would encourage healthy communities, not just physical activities and fresh air, but also through a healthy social life. The garden cities would also have integrated transport systems and a strong emphasis of democratic and community governance.

Howard did not envisage isolated communities. He set out a vision for a garden city that would reach an ideal population of around 32000 people. Once this planned limit had been reached, a new city would be started a short distance away, followed by another and another, until a network of such places was created, each connected to the others through excellent public transport, providing all the benefits of a much larger city but with each resident having easy access to the countryside.

The fundamental idea that underpinned Howard's vision was capturing and redistributing the increase in land values, which development creates, for the long term benefit of the whole community.

Letchworth Garden City

The first garden city was built in 1903 by Barry Parker and Raymond Unwin after having won the competition to build the first garden city. It is 34 miles away from London with approximately an area of 1500 hectares. It has 530 hectares

reserved for the town and the rest for a peripheral agricultural belt. This was in order to check the invasion of urban area, that is, the sprawl, and to provide the local population with food. It demonstrated Howard's general principles, including the communal ownership of land and the permanent green belt which had been carried through. It was a town of homes and gardens with ample open spaces and a spirited community life. The individual housing design for Letchworth reflected both, the Art and Crafts aesthetic, along with acute awareness of costs. At the heart of many housing designs was an attempt to capture the English vernacular tradition of the artisan cottage. Homes were often surrounded by generous amounts of greens in sharp contrast to the regimented bye-laws design that dominated the working class housing provision elsewhere. The point was to break down the traditional difference between town and country.

Welwyn Garden City

Welwyn Garden City was the second city founded by Sir Ebenezer Howard. Designed by a Canadian practitioner Louis de Soissons in 1920, Welwyn was located 20 miles from Kings Cross. It was designed in an area of 2400 acres. De Soissons was heavily influenced by Parker and Unwin and hence its layout was also centred around a group of houses surrounding a large green space. The houses were designed in Neo-Georgian villa style. The town exhibited influence from the Parisian trend for axial roads. The master plan was laid out on two axes, one parallel to the railway line and another perpendicular one leading to the stations.

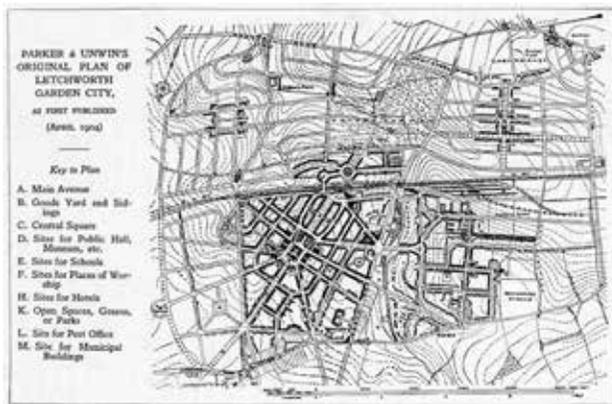


Fig. 3: Letchworth Garden City, Hertfordshire, United Kingdom
(Source: <https://architectural.com/architecture/letchworth-garden-city>)



Fig. 4: Caption: Welwyn Garden City Plan
(Source: Henderson, Lock & Ellis, 2019)

Lessons from Garden City

It is important to reflect on the lesson provided by the Garden City model, which set out with the idea of taking a long-term holistic approach while planning. Letchworth and Welwyn cities were designed to be places of beauty that would lift the spirits of those who lived in them. It is therefore not surprising that these cities have stood the test of time and continue to remain popular places to live in nearly two centuries later. Importantly, Howard emphasized the idea that towns must have a 'stop'. His concept avoiding the endless sprawls of cities by creating a series of linked new settlements. Howard truly believed that his plan for the garden city would overtake capitalism and replace it with a new civilization based on mutual cooperation. His model was that the residents of the Garden City would share in the profits of the development process. Along with that the residents would have a participative role in the governance and development of the place. This would nurture social sustainability through meaningful public participation.

Critique

The largest problem with Howard's plan, as is with any socialist plan, was the matter of finances. Initially, he struggled to find investors who would be willing to fund the development of the city, and he was forced to concede many of his original ideas such as adding rent increases and landlords, in order to attain funding. According to Howard's plan, there would be no taxes because the increase in the value of real estate, and thus increase in the price of rent, would be enough to support the city's institutions. While he had wanted the garden city to be an economically accessible place to live for people of all social classes, as home prices increased, blue-collar workers could no longer afford to live there and were eventually forced out.

Conclusion

Significantly, garden cities were not simply a collection of design standards. They were a philosophy of a different kind of society: a sustainable one, built on the notions of equity and democracy. They recognized the power of nature and art in the well-being of the people's lives and joined those through the medium of place-making. While for some, garden cities are no more than nice suburbs with the odd tree, their future relevance lies in their ability to answer the question, how are we going to live? We are definitely in the urgent need to build new communities that meet the needs of the growing population with the additional issue of climate change. The application of garden city principles is, above all, a creative enterprise demanding both political will and the assembly of the best cross-disciplinary talents- from planners and ecologists to engineers and artists. Only with this kind of forethought and enabling will garden cities truly be able to deliver their outstanding benefits for future generations.

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PROPOSAL FOR REDEVELOPMENT OF CENTRAL VISTA

TRANSFORMING INDIA'S CAPITAL FOR THE 21ST CENTURY

Ar. Dikshu C. Kukreja



Extending the central axis till the river Yamuna in the east and to the reserved forest in the West to revive the natural connections.

Fact File

Principal Designer	▶ CP Kukreja Architects, India, in association with Benoy Limited, United Kingdom
Typology	▶ Masterplanning, Architecture
Name of Project	▶ Proposal for the Redevelopment of Central Vista
Location	▶ New Delhi
Name of Client	▶ Central Public Works Department
Project Status	▶ Competition Entry
Site Area (sq ft & sq m)	▶ 440 ha

Central Vista is the seat of the Government of India and lies at the heart of New Delhi. Inaugurated nearly a century ago in 1931, this precinct and the city were envisioned by British architects Edwin Lutyens and Herbert Baker to be the central administrative zone for the country. The area houses many important legislative, administrative and cultural buildings, including the *Rashtrapati Bhawan* (Presidential Residence), the Indian Parliament House, the North and South blocks, the secretariat buildings, National Archives, National Museum, and the India Gate. Central Vista holds immense historical, political and cultural significance for Indians and it is amongst the country's most well-known precincts.

In 2019, the Government of India initiated the redevelopment of the Central Vista in order to strengthen and modernise the existing governance infrastructure and re-envision *Rajpath* (now *Karthavyapath*), the Central Avenue, which runs from the *Rashtrapati Bhawan* in the west to India Gate in the east.

Refurbishment of the Central Avenue, supported by the latest amenities and infrastructure would also ease distress and overuse of the existing facilities, while opening up an opportunity to rethink the Avenue's connection to the people and environment.

The redevelopment proposal by CP Kukreja Architects was selected amongst the top six competition entries and was presented to the Central Public Works Department (CPWD) and the Ministry of Housing and Urban Affairs (MoHUA), Government of India.

The proposal aims to carve a new identity for the capital by creating an inclusive, ecological and cultural precinct that is rooted in history and yet showcases India's emergence as a force to be reckoned with in the 21st century. The design creates a people-centric sustainable development plan supported by technology, that respects and responds to the historical, environmental and architectural contexts.



The proposal aims to carve a new identity for the capital by creating an inclusive, ecological and cultural precinct.



The transit plan opens up Kartavyapath as a completely pedestrian boulevard flanked by canals.



Terraced levels extend from the central axis onto the front of the Secretariat buildings, providing citizens with the opportunity to relax.



The secretariat buildings overlook landscapes that feature *ghats* at the edge of the water canals, with densely populated trees on either side.



The courtyards in the secretariat buildings are shaded through pergolas, whose members are arranged to form an Ashoka Chakra.

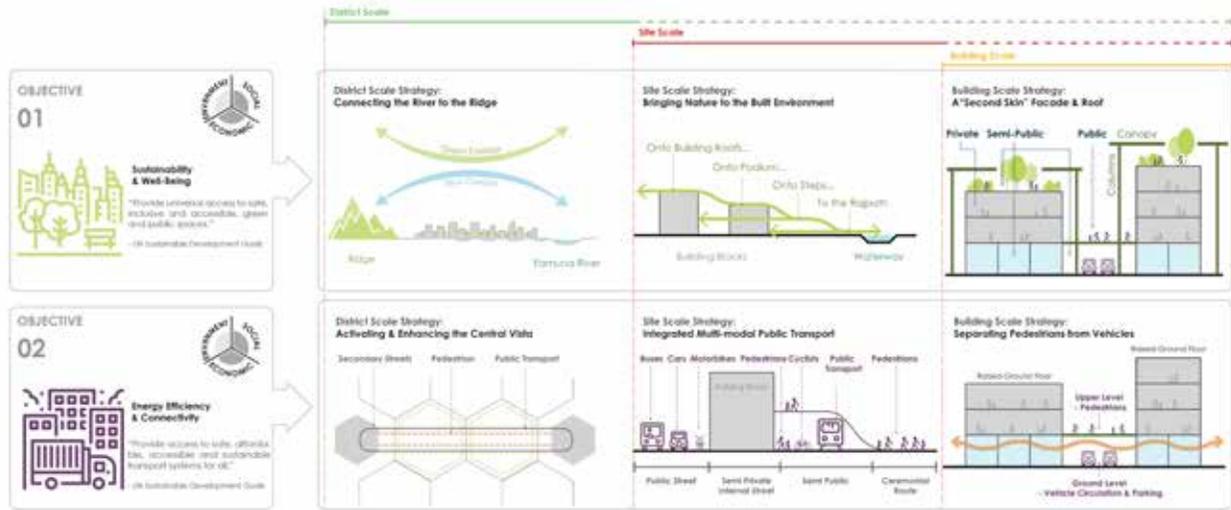


The secretariat buildings include design elements such as *jaalis*, *chajjas*, and central courts.



The buildings are covered in red and beige sandstones for the facade to maintain the visual vocabulary of the existing Lutyens-era architecture.

CONCEPT



Concept sheet.

CIRCULATION PLAN



Circulation plan.

The site can be divided into three parts. On the west are the Rashtrapati Bhavan and the North and South Blocks that house the Defence and Finance ministries. The central part comprises the *Kartavyapath*, envisaged as a wide, landscaped public avenue with the new secretariat buildings proposed on either side. Finally, a cultural hub is envisaged around the India Gate in the east, culminating in the Independence Tower, a new-age observatory, near the National Stadium. Guesthouses of princely states surrounding the lawns of the India Gate including Jaipur House and Hyderabad House and other structures of historical significance are proposed to be reused as museums and art galleries.

A CELEBRATION OF INDIA'S MYRIAD HISTORIES

A significant idea proposed for the Central Vista is to extend the central axis to the banks of the river Yamuna in the east and to the reserved forest of the Delhi Ridge in the West, beyond the Rashtrapati Bhavan. This will revive the historical connection between the neglected river waters and the city, by integrating it into the site's landscape through long canals running along the *Kartavyapath*.

Design elements for the new secretariat buildings are inspired by traditional Indian and Lutyens-era architecture. For example, large monumental gateways punctuating the facade(s) are a contemporary reinterpretation of the *Torana* (sacred gateway) and the *Gopuram* (a monumental tower at a temple's entrance), both of which are prominent features of Indian temple architecture. Other elements include *jaalis*

(traditional perforated screens), *chajjas* (protruding slabs for shading), and central courts. The courtyards are shaded partly through pergolas, whose parts are arranged to form an *Ashoka Chakra*, a Buddhist symbol that symbolises the Wheel of Time and is a part of the Indian Tricolour. In addition, red and beige sandstones are proposed for the facade to maintain the visual vocabulary of the existing Lutyens'-era architecture.

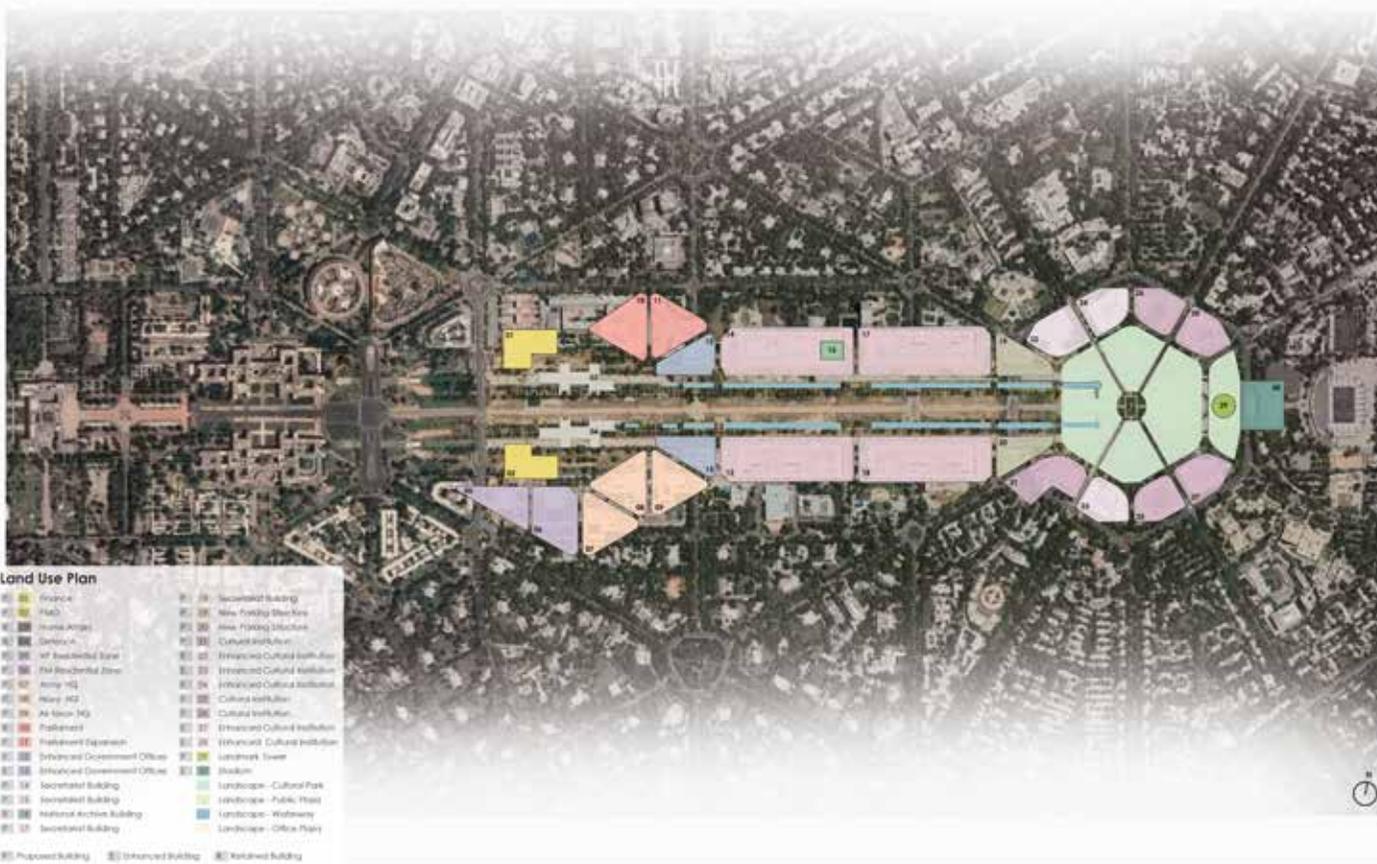
CREATING A CITY FOR THE PEOPLE

The transit plan opens up *Kartavyapath* as a completely pedestrian boulevard by diverting traffic through new roads running between the secretariat buildings. These new semi-public roads will be connected to the lateral roads on the *Kartavyapath*, which have been reimagined as underpasses for unobstructed pedestrian movement.

Roads running in the east-west direction are proposed at the concourse level of the Secretariat buildings and the lateral roads running across the central avenue are reimagined as underpasses. All parking for the secretariat buildings is proposed on the ground and basement levels.

An underground monorail connects the administrative and cultural buildings to Delhi's Metro network, thereby easing access and reducing the need for motorised vehicles. Moreover, it increases accessibility to the central avenue for the public without obstructing the flow of the flourishing natural landscape.

LAND USE PLAN



Land use plan.

LANDSCAPING

Tree specification

Existing trees



Neem (Azadirachta indica), Ashok (Saraca asotata), Palash (Pithecellobium dulce)



Neem (Azadirachta indica), Ashok (Saraca asotata), Palash (Pithecellobium dulce)



Neem (Azadirachta indica), Ashok (Saraca asotata), Palash (Pithecellobium dulce)

Proposed street tree



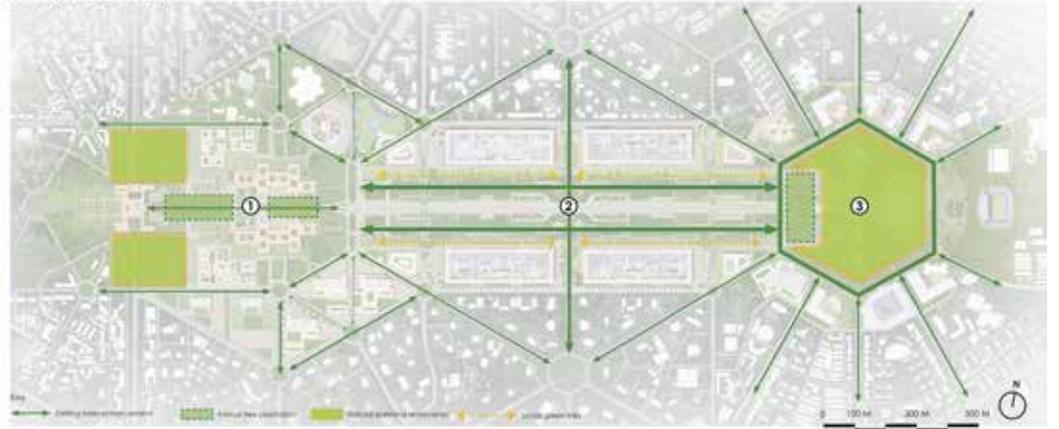
Mangrovia (Avicennia marina), Ficus (Ficus religiosa)

Street/road/landscape trees



Ashok (Saraca asotata), Palash (Pithecellobium dulce), Neem (Azadirachta indica)

Landscape character strategy

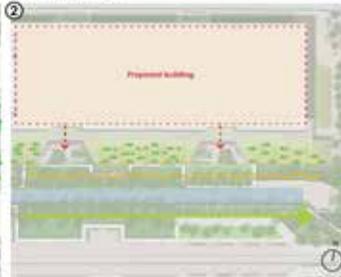


Formal & continuity



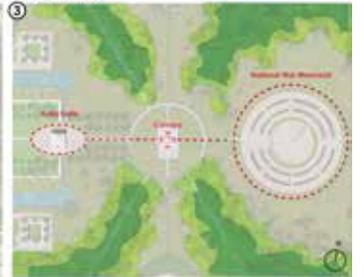
Existing trees: Ashok, Palash, Neem, Mangrovia, Ficus, Ashok, Palash, Neem

Social & experiential



Proposed street trees: Mangrovia, Ficus, Ashok, Palash, Neem

Heritage & nature



Reduction for existing protected tree groups, Intended street edge and heritage for biodiversity

Landscape strategy

SECRETARIAT BUILDING

Key Finding: Materiality

Materiality: The building's materiality is a key finding of the architectural strategy.

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Expanded view of the Secretariat building.

LANDSCAPE FOR URBAN RENEWAL, RECREATION, AND REJUVENATION

At the western end of the site, tree-lined avenues extend from the foot of Raisina Hill and merge into the Central Avenue where the natural terrain reigns supreme. The verdant landscape features ghats (steps that lead to a water body) at the edge of the water canals, with lush leafy trees on either side. Terraced levels extend from the central axis onto

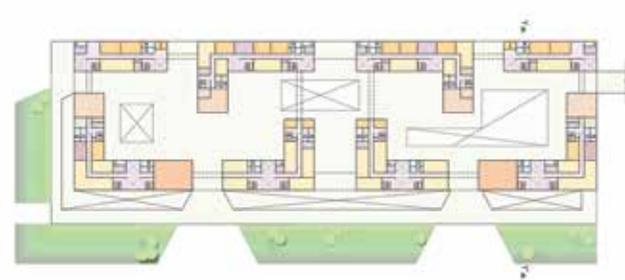
the front of the Secretariat buildings, adding to the three-dimensionality of the landscape and providing citizens with the opportunity to relax and gaze at the picturesque views.

The landscape on the east, surrounding India Gate and the National War Museum, is focused on restoring existing parkland, lined with scrubs, meadows and interspersed with zones for social interaction, thereby rejuvenating the region's biodiversity.

SECRETARIAT BUILDING - FLOOR PLANS



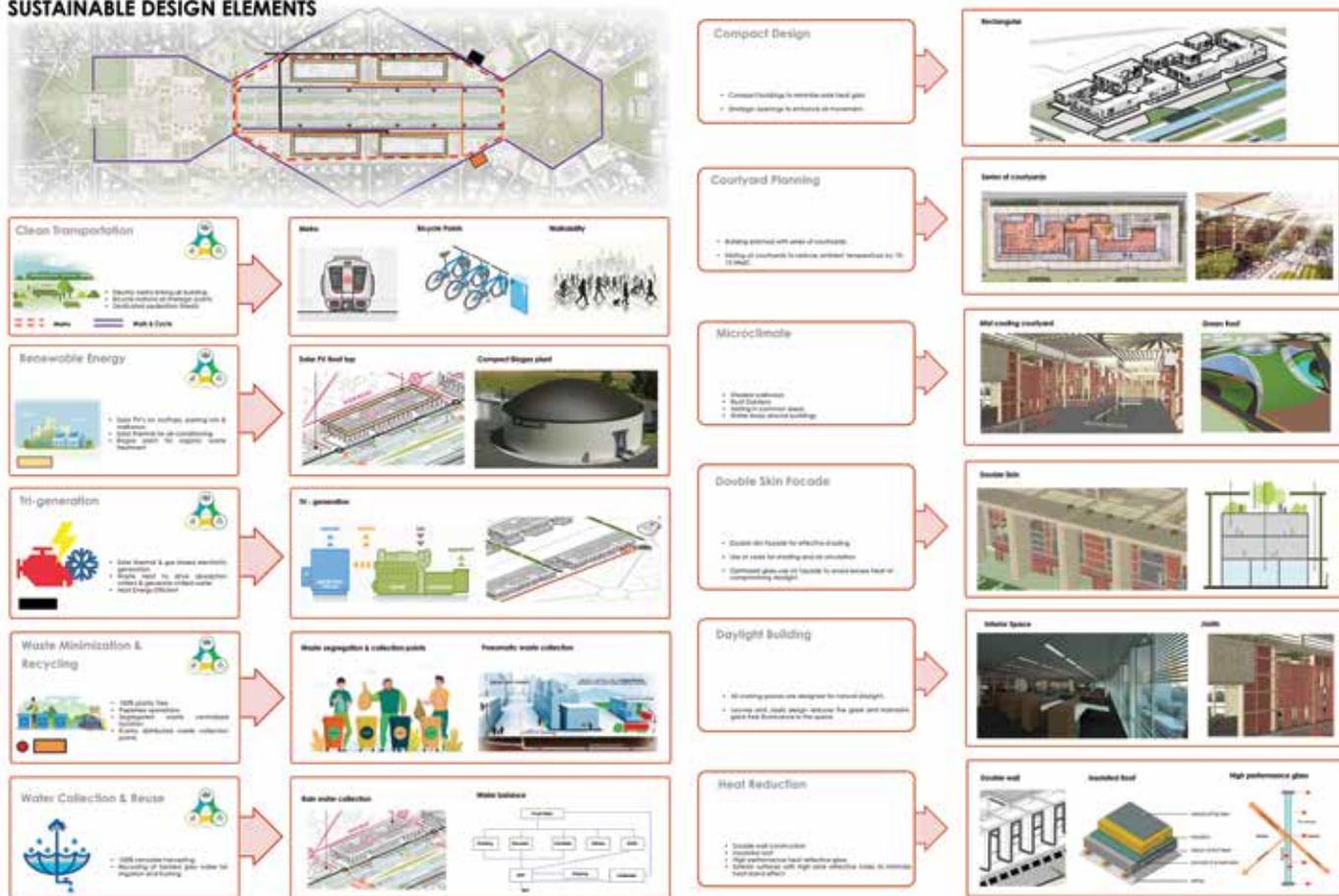
- Entry Lobby
- VIP Lobby
- Ramp
- Landscape Courts
- Parking
- Tram Line
- Concourse with
- Public Amenities



- Reception/ Waiting
- Admin/ Staff
- Conference/ Meeting Rooms
- Library
- Canteen / Cafeteria
- Kitchen
- Bank
- Toilets
- Utility
- Terraced Landscape
- Landscaped Podium
- Landscaped Court at Ground level

Floor plans of Secretariat buildings.

SUSTAINABLE DESIGN ELEMENTS



Sustainable design elements.

SECRETARIAT BUILDING - ELEVATION AND SECTION



ELEVATION OF THE SECRETARIAT BUILDING



SECTION THROUGH THE SECRETARIAT BUILDING

Elevation and section of the Secretariat building.

Further up east, a 194.7 metres tall watchtower, the Independence Tower, is proposed to allow people to view never-before-seen panoramas of the capital city. Its height alludes to India's independence in the year 1947, and hence bears an emotional significance. The tower's form is a symbolic representation of folded hands, as the Indian greeting '*Namaste*'.

CLIMATE-SENSITIVE DESIGN INTERVENTIONS FOR A SUSTAINABLE FUTURE

Several active and passive sustainable design strategies are proposed to ensure the buildings have a minimal adverse environmental impact.

At the master planning level, the dense vegetation acts as a heat sink, and the water channels have a cooling effect on the local microclimate. At the building level, the passive design strategies are centred around the efficient channeling of air, water, and sunlight to create suitable indoor surroundings, thus reducing the dependence on artificial HVAC and lighting systems. Compact volumes enable mutual shading at the building level and minimise the solar heat gain. Planned around a series of courtyards, the secretariat buildings receive ample daylight and natural ventilation. The regular misting of courtyards in the summer helps reduce the ambient local temperature by 10-12 degrees Celsius. These courtyards are integrated with pergolas for shading, water bodies for evaporative cooling, and roof gardens that act as heat sinks and thermal barriers. Double-skin facades with *jaalis* enable shading while serving as chutes for natural ventilation. Double-wall construction, insulated roofs and high-performance reflective glass further help in minimising the overall heat gain in the building.

Sunlight is used to generate electricity in the buildings through solar panels on rooftops, parking lots and

walkways. Solar thermal energy powers the air conditioning system and biogas is generated on the site through organic waste treatment. The design also proposes a smart waste management system with automated pneumatic waste collection and provision for waste segregation and collection points at regular intervals. All the rainwater from the site is proposed to be recycled and reused for flushing and irrigation. The design also proposes an integrated high-level automation technology system and artificial intelligence systems that enable efficient energy use and increased security in the secretariat buildings.

The proposal revamps and adds to the administrative and political infrastructure needed for the functioning of a rapidly progressing nation of 1.38 billion people. It takes on the underlying present-day urban planning challenges of dominant car-oriented land use to the forsaken waters of the Yamuna. And finally, the design facilitates the creation of a lively urban public space, respectful of the local context and seamlessly integrates with the natural landscape, setting an example of how to create a city for the people at the very heart of Indian democracy.

All images courtesy:

CP Kukreja Architects and Benoy Ltd, United Kingdom.



Harvard-educated **Dikshu C. Kukreja** is the Managing Principal of CP Kukreja Architects, one of the world's largest architecture and urban design firms and ranked amongst the top 100 design firms in the world. Dikshu Kukreja is a noted expert on urban and environmental issues and has worked as an advisor with state and national authorities on various issues. He has been selected as the 'Young Icon of the Decade', 'Best Citizen of India', 'Face of 21st Century Architecture in India', and featured in 'Who's Who of Asia'. Most recently, Kukreja can be seen on 'Tale of Two Cities', a revolutionary talk show on WION, where he brings conversations around cities and urbanisation to the mainstream. dikshu.kukreja@cpkukreja.com

HOME FOR THE MARGINALIZED CHILDREN

Avneesh Tiwari & Neha Rane

Fact File

Location	▶ Thane, Maharashtra
Client	▶ CORP India
Team	▶ Avneesh Tiwari, Neha Rane
Site Area	▶ 600 S.Ft.
BU Area	▶ 2,700 S.Ft.
Design Year	▶ 2016

South-West View;
Physical Model



This shelter, one of Thane's slums, was established to provide abandoned children of sex workers with a safe residential space. Today, thirty girls, ranging in ages from 3-16, reside in the shelter. The centre also functions as a community gathering space, hosting events for senior citizens, women, and infants.

As the current centre is poorly planned with insufficient areas to accommodate its varied functions, our task was to completely redesign the existing centre to respond to the needs of its diverse users, climatic challenges and tight site constraints.

The ensuing plan was kept simple to maximise the efficient

use of areas with creative solutions applied to in-fills, facades, and stairways. This was to result in an efficiently planned functional space served by playful interactive areas for recreation.

Stacking/planning

The centre's ground floor is kept open to accommodate community activities for senior citizens, a crèche and women's development training. The space is planned like a veranda opening up to a private courtyard on the north side and partly opening up to adjoining lanes on the other three sides, shaded by a first-floor overhang. The middle floor, dedicated to children's sleeping areas, is more enclosed to create a secure and personal environment.



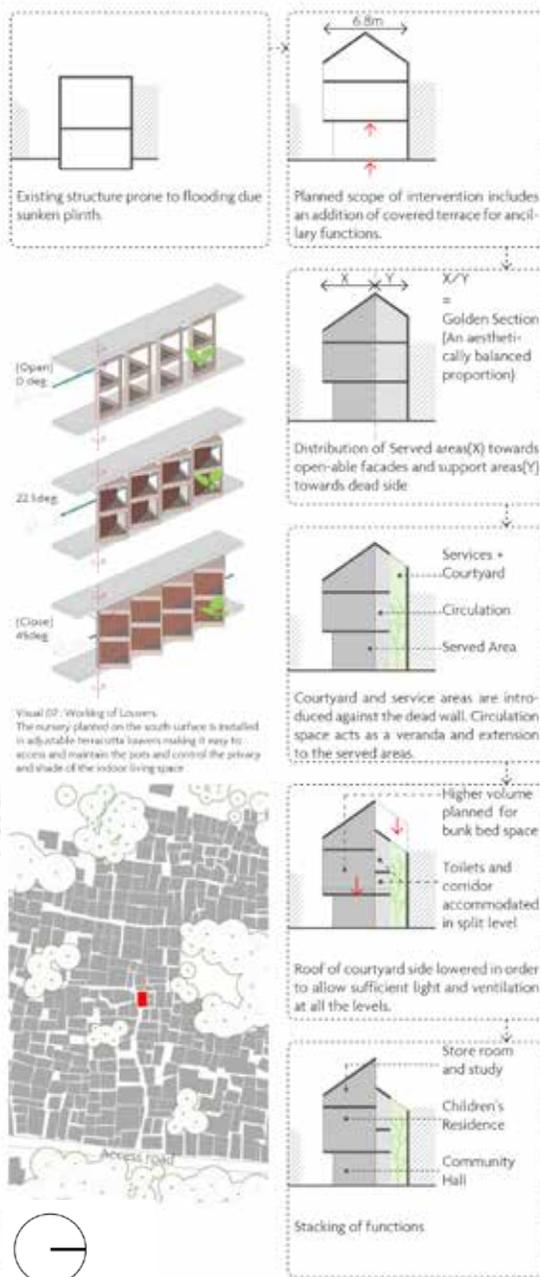
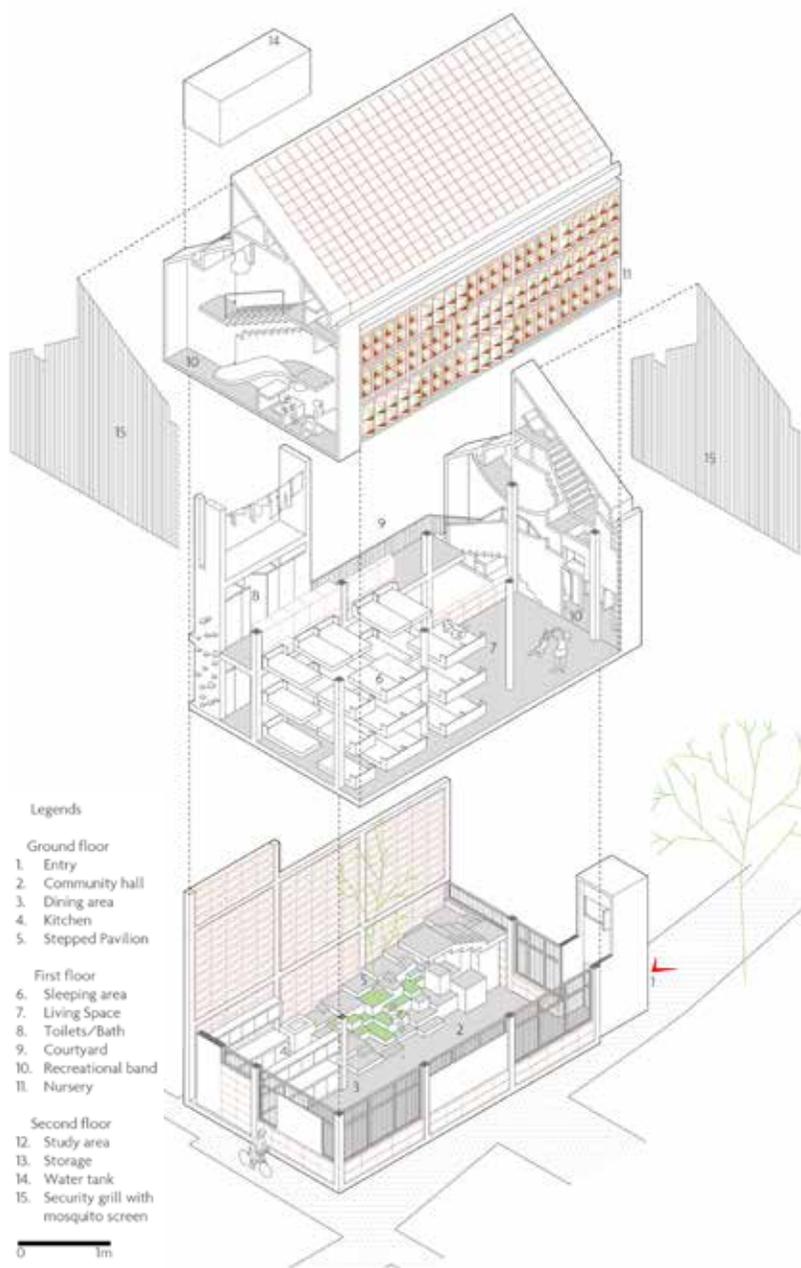
Front elevation highlighting the entrance and the interactive facade as a recreational space.



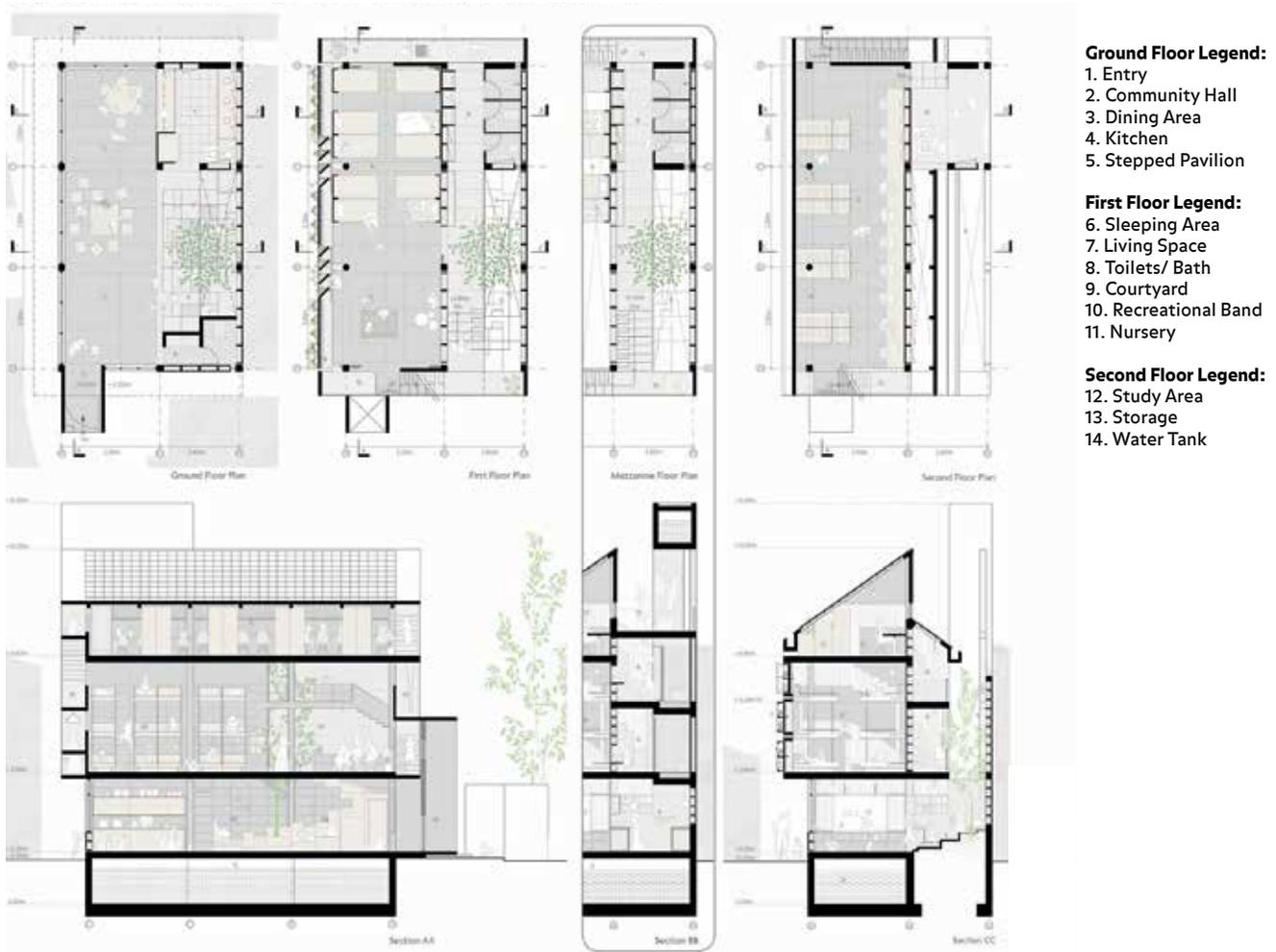
Ground Floor, Community hall highlighting openness of the space and its relation to courtyard. The courtyard and stairway leading to the first floor merge to form a playful stepped pavilion, as an extension of the community space.



Middle Floor, the children's living space enjoy a vertical nursery on one side and views of the courtyard on the other. Recreational bands are accessible on the East and West which also allow cross ventilation.



Exploded isometric view & sectional derivation



Floor Plans and Sections.

Protected by a façade of operable nursery installed louvers on the south, recreational bands are provided towards the east and west with the north side opening up to the private courtyard below. The top floor houses all the storage spaces, study areas, and caretaker's sleeping place. It shelters the children's living space underneath from direct sun.

The Envelope – North South East West The north facade is a dead wall shared with an adjoining house so all services are planned against it, keeping the remaining envelope open for ventilation. A vertical nursery is planted on the south to buffer the living areas from the scorching heat. It also functions as a small-scale industry yielding returns in the form of 15% of the centre's maintenance cost. This nursery is installed in adjustable terracotta louvers making it easy to access and maintain plants. The sun shades, made out of thin folded plates of concrete, on the east and west are used as private recreational areas by converting them into playstations and furniture, giving the centre an additional 25m² of usable area. A central courtyard helps with passive cooling and natural light, reducing the operational energy load.

Construction efficiency

Wall in-fills consist of custom-designed terracotta hollow blocks with one side left open to use as shelves. Fabricated by a terracotta factory in a neighboring slum, this new construction system helps to involve local artisans. The

load-bearing members (that is, the columns, slabs, and staircases) are made out of fair-faced concrete, making them maintenance-free and helping consume the least amount of floor area compared to any other building material. A raft is used instead of isolated footings, creating an extra underground volume at the nominal cost of retaining peripheral walls, with this space used as a 55,000L rainwater-harvesting tank. The courtyard and stairway leading to the first floor merge to form a playful stepped pavilion, which acts as an extension of the community space.

All images courtesy: **atArchitecture**



Avneesh Tiwari is an architect, designer, and educator who studied at the Sir J J College of Architecture, Mumbai. He founded 'atArchitecture' in 2014, after working as an associate architect at Matharoo Associates in Ahmedabad. He is also a visiting professor at the Kamla Raheja Vidyaniidhi Institute for Architecture, Mumbai.



Neha Rane graduated with a bachelor's in architecture from the Sir J J College of Architecture, Mumbai. She further specialised in 'Architecture for Landscape' through an intensive workshop at the YACademy in Bologna, Italy, in 2018. Neha has worked with reputed firms like HCPDPM and Vastu Shilpa Consultancy (Prof. B. V. Doshi) and currently heads her co-founded practice, 'atArchitecture'.
studio@atarchitecture.net

NALANDA UNIVERSITY

Allies and Morrison & Hundredhands

Fact File

Location

▶ Rajgir, Bihar

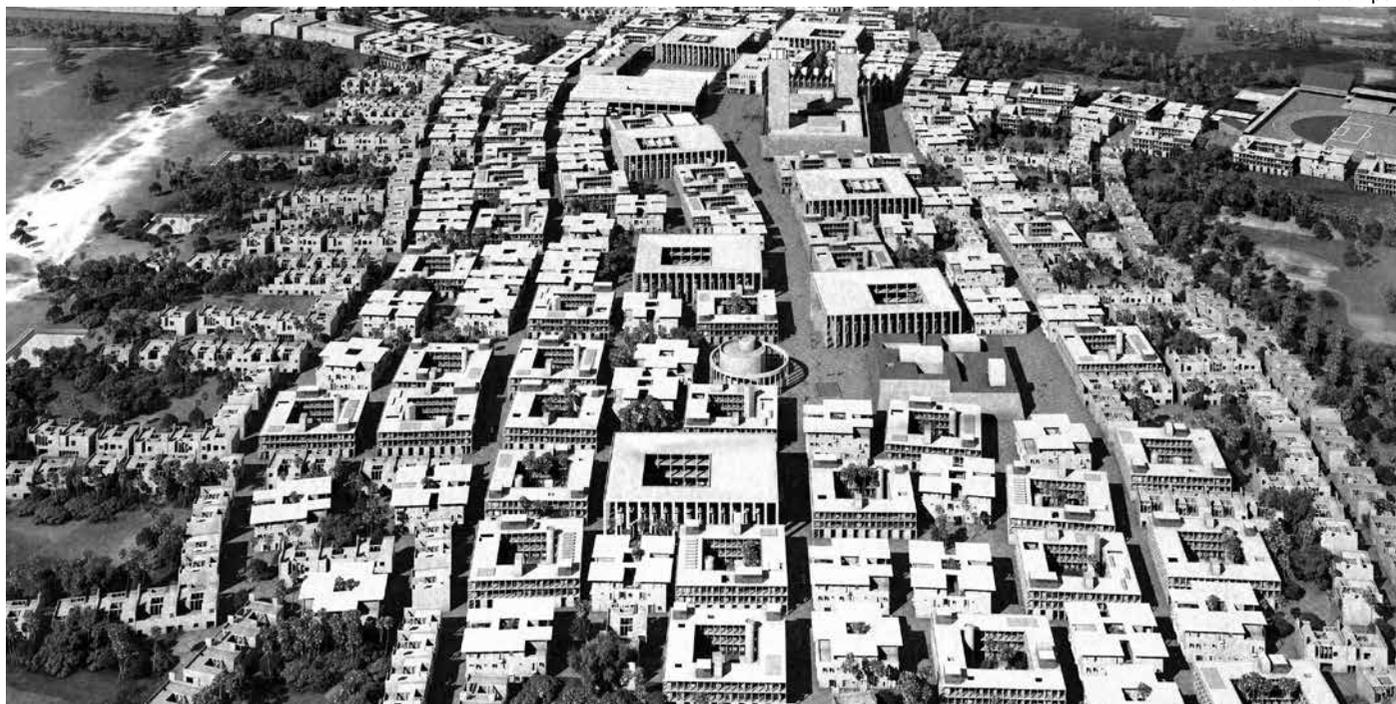
Client

▶ Nalanda University

Design Year

▶ 2010

Aerial view of campus



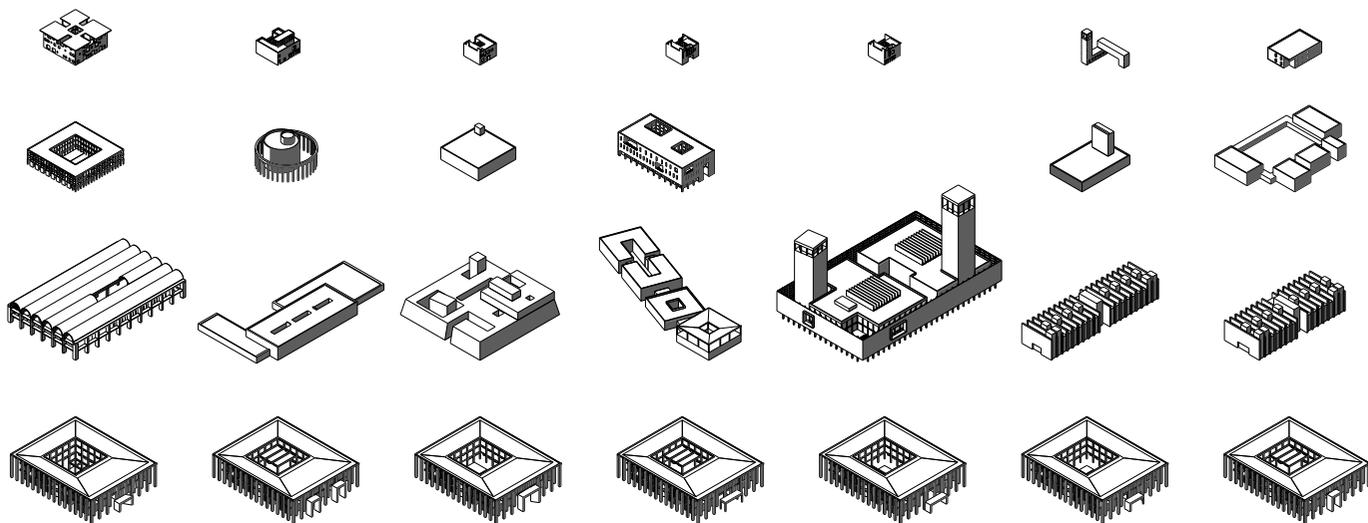
Great universities of the world provide all the advantages of normalcy within an urban structure that is a special and memorable place. As part of a town, they avoid becoming hermetic and institutional and instead enjoy a reciprocity of influence between what they need to be and the place and context in which they find themselves. They work best as places to study in when they are part of a regular urban fabric, where day-to-day things happen, where interactions are serendipitous and where the pattern of use is complex. Their whole is greater than the sum of their parts.

Our proposal seeks to make the University of Nalanda both practical and memorable. Practical in the way the buildings are simply constructed, straightforward in their

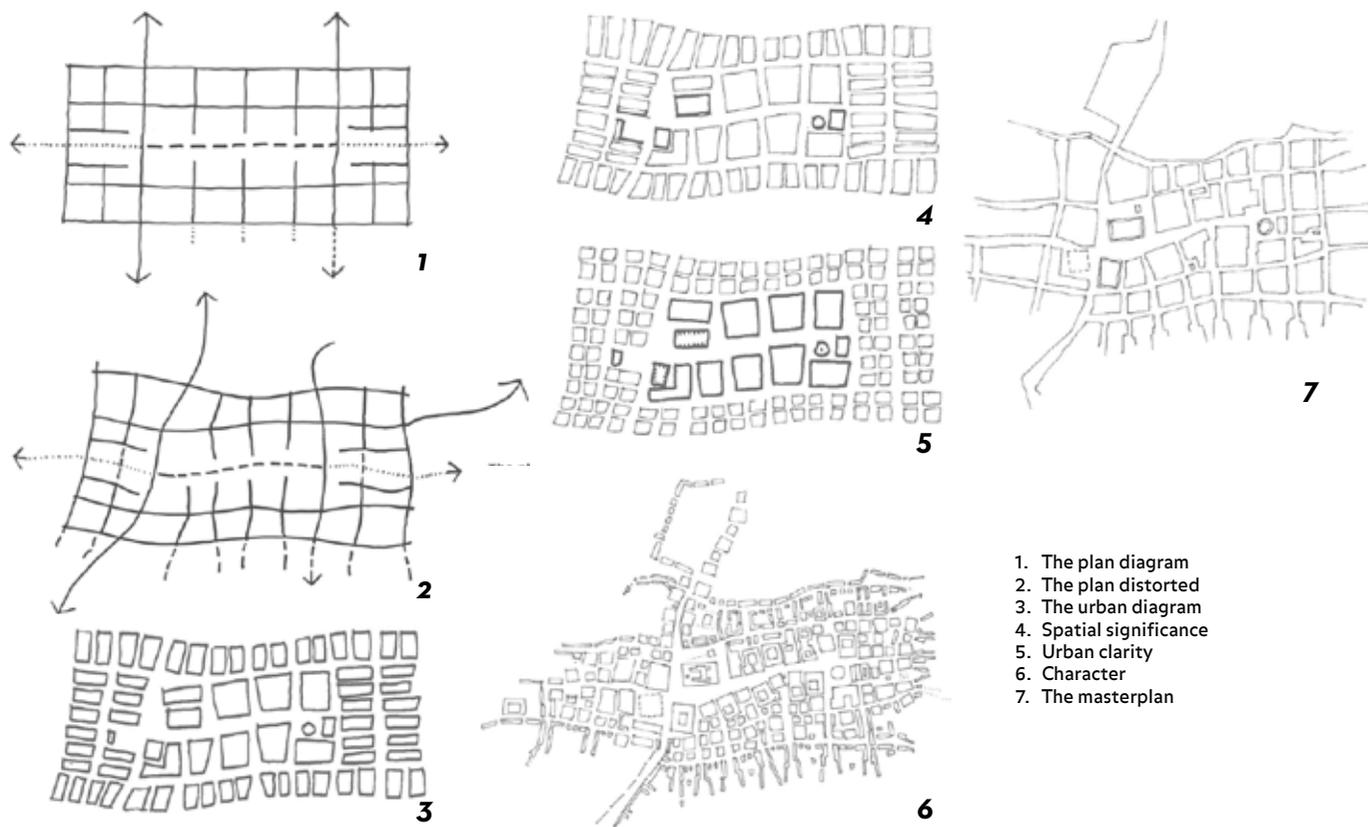
planning and flexible in their use, the University was to be memorable not because the buildings were to be iconic architectural statements, but because the spaces between them were interesting, rewarding and legible. This network of spaces was to reflect the plan of a town. A comfortable series of interlinked spaces was to provide an urban pattern with a relaxed permeability and a clear hierarchy. A series of pedestrian routes was to link every building and lead directly to a primary street in which the major university activities were to be located. At one end library was to be the food court, the campus inn, the international centre, the administrative building and the faculty of historical studies. At the other, there was to be a museum, auditorium and a temple.



View looking towards Library

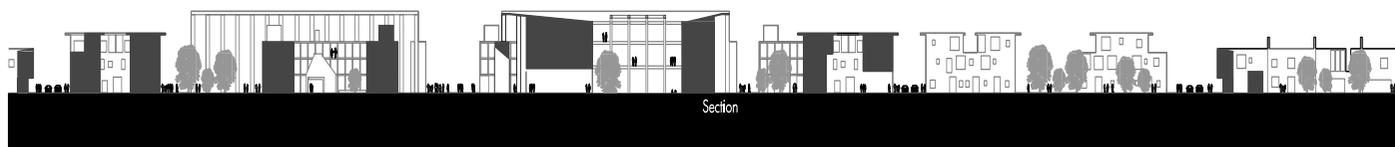


Catalogue of buildings used in masterplan

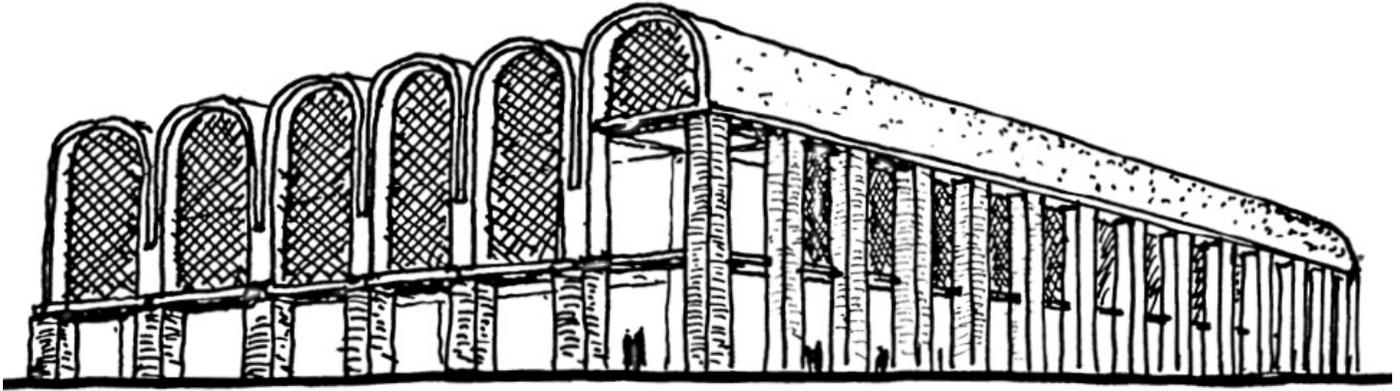


1. The plan diagram
2. The plan distorted
3. The urban diagram
4. Spatial significance
5. Urban clarity
6. Character
7. The masterplan

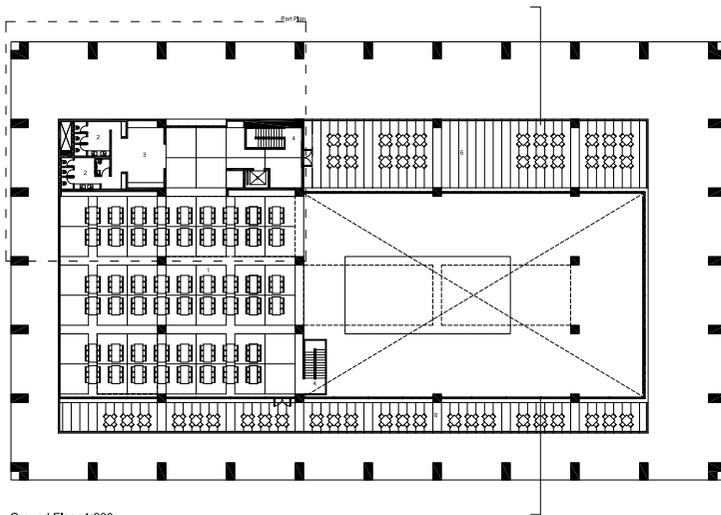
Site and masterplan



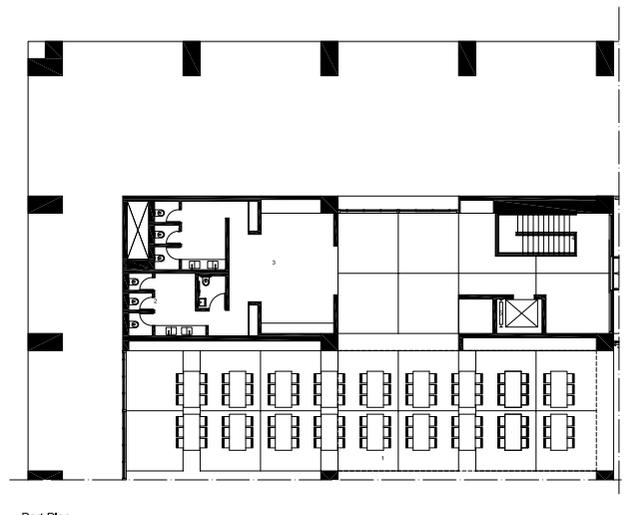
Section



Sketch of dining hall

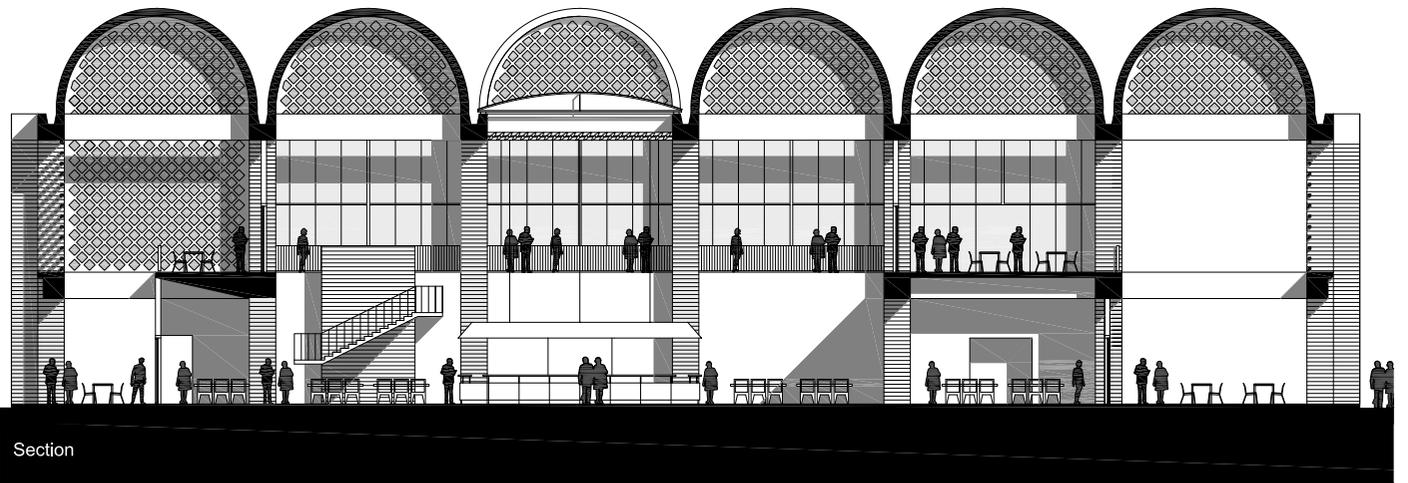


Ground Floor 1:200



Part Plan

Dining hall Plans



Section

Dining hall section

This was a plan that was to have seemingly grown organically while being quite deliberate. Its central spine was to be a busy pedestrian street - its east-west alignment running parallel to the more distant topography of the escarpment to the north. This dramatic landscape was to become a constant reference as it was seen as the backdrop to all of the routes that were to link the residential and the teaching spaces which were to run perpendicular to the main street. The landscape, the informal plan, the natural hierarchy, and the pattern of simply-planned buildings were elements of a composition that, on the one hand, were inherently flexible and easy to make, but, on the other, had a clear urban pattern and unique identity.

The plan for the new University was to produce a place that was to facilitate efficient study and research, to be achieved within a calm series of spaces that were ordinary when required to be but which together were extraordinarily memorable.

Crossroads and Gates

The origin of cities was often the cross roads between trading routes. The meeting point in many cases evolved to become a central gathering point, with a series of key buildings assembled around some sort of open space. The original cross road has in many towns a symbolic charge linked to the foundation of the settlement.

In the same vein, as cities evolved, the need of protection from outside threats lead to the construction of protective walls, which were to define clear limits of the town. Gates in the city walls were key points both in the defense of the city and its relation with the outside world. Given the configuration of the site our first instinct had been to establish a system of connections with the immediate context through two main

routes: one East – West and the other North – South. These routes were to organize the movement through the complex for vehicles and pedestrians. Each route had a different character. The East – West route was understood as the main spine of the University and was to be completely pedestrian. The North – South route was to connect the State Highway 71 with a potential new train station to the South of the plot. As in traditional walled cities, each of the routes was to relate to four distinct gates on each side of the site which were to serve as entrance points for the university.

All images courtesy: **Allies and Morrison & Hundredhands**

Allies and Morrison LLP is an architecture and urban planning practice based in London and Cambridge. Founded in 1984, the practice is now one of Britain's largest architectural firms. The practice's work ranges from architecture and interior design to conservation and renovation of historic buildings to urbanism, planning, consultation and research.
studio@alliesandmorrison.com



Bijoy Ramachandran is an architect and urban designer based in Bangalore. He is currently a partner at Hundredhands. Bijoy has a bachelor's degree from BMS College, Bangalore University, a master's degree from the Massachusetts Institute of Technology, Cambridge, USA, and in 2012, he did the Glenn Murcutt Master Class. He is currently the Design Chair in the Department of Architecture at the BMS College of Architecture in Bangalore.

Apart from architecture, he has also made three films: 'Architecture & the City: A Bangalore Perspective' (2005), a documentary feature on professional practice in the city, 'Doshi' (2008) and 'Doshi: The Second Chapter', (2019) on the Pritzker Prize winning Indian architect Shri B.V. Doshi, both directed by Premjit Ramachandran.
bijoy@hundredhands.com



Faculty housing view

TETRIS

Studio Matter

Fact File

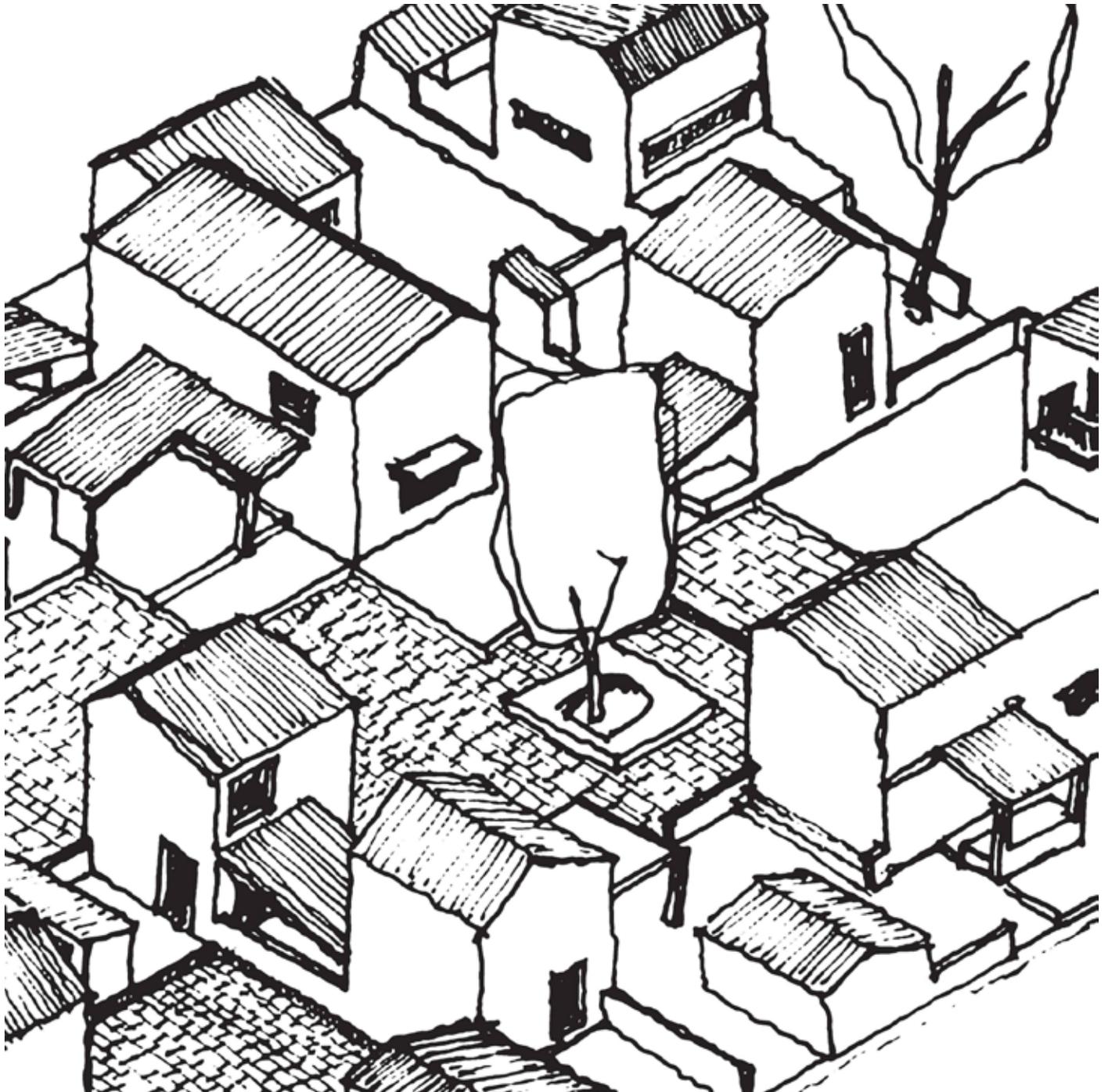
Location
Client

Team

Site Area
Design Year

- ▶ India Specific
- ▶ Competition and Research Proposal for Indira Awas Yojana
- ▶ Rishiraj Sarkar, Raturaj Parikh, Maanasi Hattagadi
- ▶ Typical 4 acres and 100 sqm / unit
- ▶ 2015

Each unit grows over time starting from the basic condition in Stage 1 to complete domicile in Stage 3. Within this, there is a further possibility of multiple layouts depending on the placement of the room and other preferences.



“We need a programme:

1. That uses up very little of the usual building materials which are so scarce, and adopts local materials instead.
2. That draws on a reserve of Private Entrepreneurship which has not yet been tapped.
3. That costs very little.”

- J.B. D’Souza, Secretary, Ministry of Works and Housing [1978].

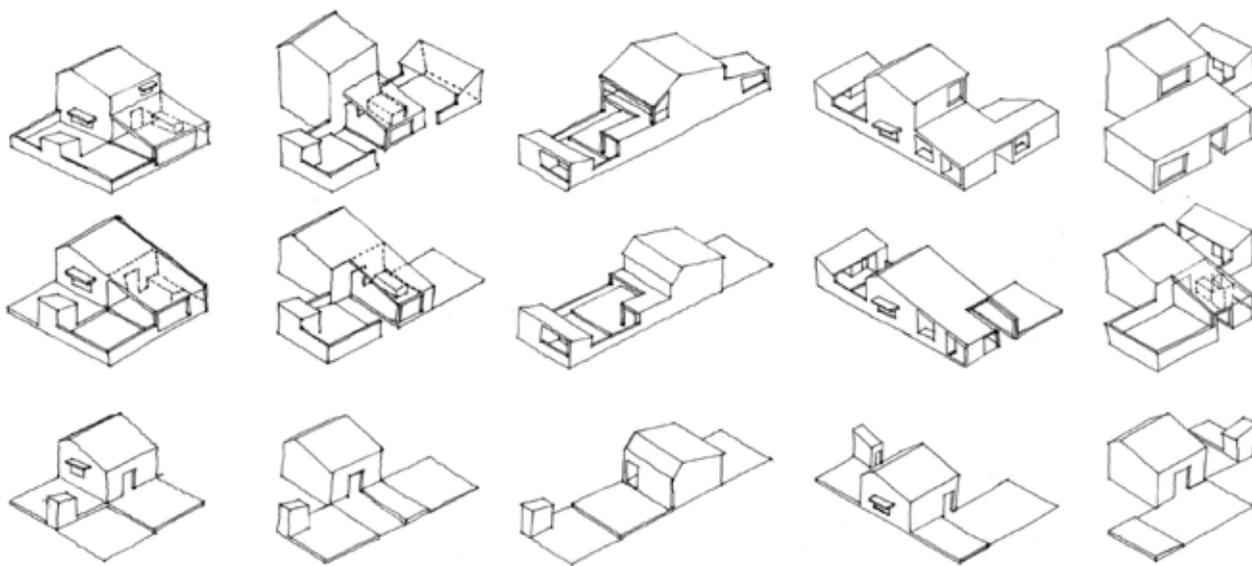
A room is an important space for the rural poor. It is a safety deposit box, a place where all possessions can remain secure from theft and disaster, a place where women can change clothes, the sick can be cared for and children can rest during hot afternoons. The room has no life in and of itself. It is the hinge that life revolves around. The house always starts with a room. Launched by the Rajiv Gandhi Government, the Indira Awas Yojana (IAY) gives financial assistance to an extent of INR 75,000 to rural families who live below the poverty line for building their homes. Since 1985, 25 million homes have been built using this scheme and some other schemes for sanitation in India have been dovetailed. 100 square meters of land is given to each family under this scheme if the family does not possess any land. The poor build houses themselves by the materials and skill they can access.

It is not true that the poor do not have money. The poor do not have money every month, that is - a reliable source of income. This makes them create assets when possible. This also means that they will build when there is ‘cash-flow’. The poor have an incredibly large palette of materials - a result of generations of research and refinement that enables them to build in specific situations. It is thus criminal to generalize the ‘PUCCA’ house materials and prompt the use of the politically incorrect ‘KUTCHA’ term.

It is pure logic that a brick costs a lot more to move than to dig, form and fire. Rural materials are non-polluting and the elementary ‘kutchra’ house can easily be half-a-century old. Common walls can save a lot of costs.

MANIFESTO: TETRIS Grammar and Syntax

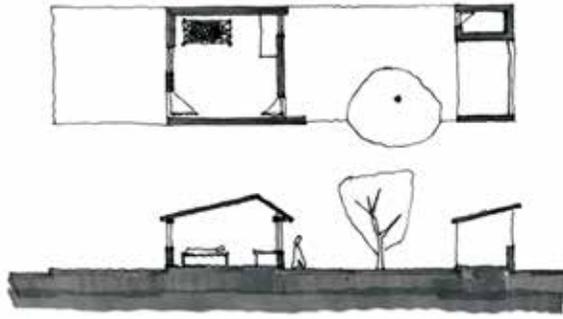
By 2050 more than 50 % of India will still live in its villages. India will be dominantly rural in the space-age. The rural poor are fundamentally different from the urban poor. They have access to land and a quality environment, a robust social fabric, dependable but irregular micro-economic systems and a wealth of skills and resources. More than anything, they have an inherent capacity to plan and build for themselves - something the urban poor living in slums invariably do but alas with urban materials that need mechanical sophistication.



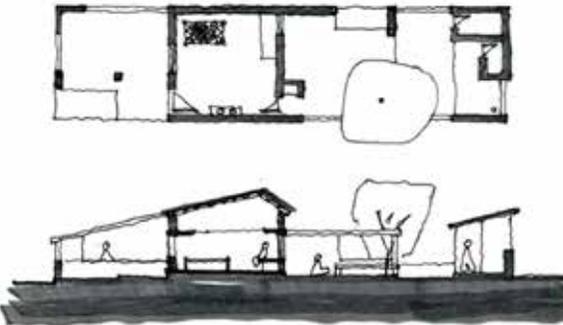
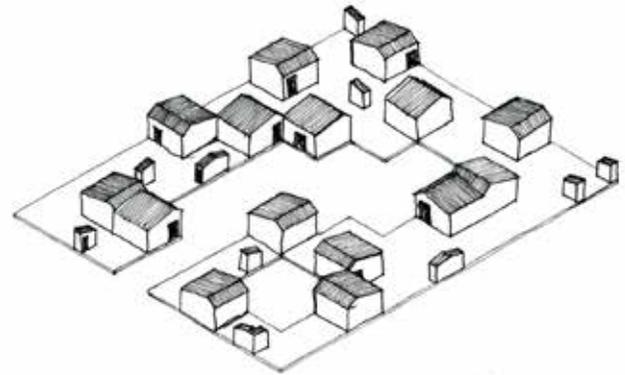
Densification and the complete settlement.



A house in dry, arid or humid plains of India has very limited use of the room. A house in extreme cold uses the room extensively.



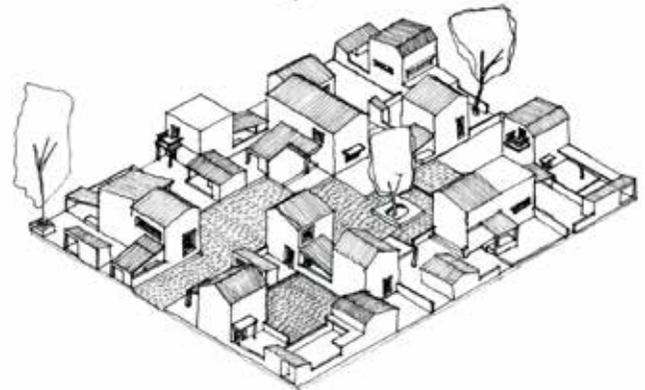
STAGE 1



STAGE 2



STAGE 3



Stage 1: Occupation - The land is to be occupied and a room to house all belongings is to be built. A toilet is to be added by dove-tailing government scheme. This system is to cost about 1.8 Lac in brick and concrete and about 1 Lac in Local Materials - this stage is to define the orientation and future growth of the house.

Stage 2 and 3: Establishing Domicile - Auxiliary spaces are added as and when financially possible. The poor do not go to offices so the workspace or the workshop or the cattle-shed serves as a space for income generation where wares can be made to be sold in the bazaar. The house can accommodate one or two more floors. A court is a vibrant, secure outdoor space - enclosing a nice shady tree.

Thus, a top-down approach to 'provide' housing to the rural poor invariably fails. Here, unsustainability does not lie in the way they build but in the things with which they are forced to build in order to have a 'pucca' house. Architects should not indulge in prescribing solutions - the villager knows how to build on his land.

TETRIS is just one of the many possible systems. This system sets the theme and enables variations. Systems thinking can attempt to solve the issue more eloquently than design thinking. The Government can tie up with co-operative banks to create a mechanism of accountable and accessible finance. Loans against gold / silver help.

A schedule of local materials and skills in appropriating rural housing is fundamental to this proposal. This system draws

from and relies heavily on this local kit-of-parts or a building ecosystem that emerges from an existing knowledge of space, architecture and construction. This system proposes a code that enables a pattern to emerge. This pattern in turn forms the threads of the fabric that is intended to be authentic to the place where it is employed. TETRIS is a Russian tile-matching cult video game, originally designed and programmed by Alexey Pajitnov. It was released on June 6, 1984.

All images courtesy: **MATTER**

MATTER is an architecture, design and curatorial practice based out of Goa. Matter has conceived and executed projects of multiple scales and in various contexts with built and conceptual work in the portfolio over the past decade. Matter believes in the significance of India's enormous potential in the quest for an appropriate architecture. Matter has received critical acclaim for the firm's projects including the Lexus Design Award and the ICI Ultratech Award for structural innovation.
studiomatter.in | studio@matter.co.in

THE FUTURE OF CONSTRUCTION: EXPLORING THE CAPABILITIES OF BUILDING INFORMATION MODELLING (BIM), DIGITAL TWIN, VIRTUAL DESIGN AND CONSTRUCTION (VDC).

Ar. Yash Mukesh Malviya



Rendering imaginations, residential project. (Source: Author)

Introduction

The construction sector is being revolutionised by Building Information Modelling (BIM), Digital Twin, and Virtual Design and Construction (VDC). BIM offers a digital representation of the building design and construction process, enhancing collaboration, visualisation, and analysis. The Digital Twin, a virtual replica of a physical structure, provides real-time monitoring and simulation to enhance performance. Through virtual reality and simulation, VDC assists in optimising building operations, minimising waste, and enhancing safety. These technologies have the ability to boost productivity, cut expenses, and improve the quality of building projects. Future buildings will include integrating and optimising these technologies to produce intelligent and sustainable constructed environments.

In recent years, the construction industry has seen significant advancements in technology, with the introduction of Building Information Modelling (BIM), Digital Twin, and Virtual Design and Construction (VDC). These innovative technologies are revolutionizing the construction sector, offering new opportunities for increased efficiency and creativity. In this article, we will delve into the details of each of these technologies, explaining how they are changing the construction business, and how they work together to create a new standard for accuracy and efficiency.

Building Information Modelling (BIM) is a digital representation of a construction project that enables collaboration and communication throughout the

planning, design, construction, and operation stages. The BIM process involves adding relevant data, information, and metadata to 3D models of a construction project using specialized software. The collected information can be used for a range of purposes, including design modelling, virtual construction and operating simulations, and decision-making insights. BIM helps to improve efficiency and accuracy during construction, leading to the creation of high-quality structures.

For example, a BIM model of a new office building can include details on the building's layout, materials used, and systems such as electrical, plumbing, and HVAC. This information can be shared among architects, engineers, contractors, and owners, reducing the risk of errors and rework, and enabling better collaboration. The BIM model can also be used to simulate the building's energy consumption, allowing for energy-efficient design decisions to be made.

A Digital Twin is a digital replica of a real object or system. Data, information, and metadata from various sources are used to create a digital representation of a physical thing, system, or process. This information is then utilized to develop a digital twin, which is an exact representation of the physical counterpart. With digital twins, we can monitor the real-world assets in real-time, model their behaviour, anticipate and simulate future events, and make data-driven decisions. Digital twins can be used in a variety of applications, including reducing a building's energy consumption and predicting when equipment will break down.



Interconnectivity of design, build and operate through BIM. (Source: axissteel.com)

For example, a digital twin of a bridge can include data on the bridge's structure, materials, and environmental conditions, such as temperature, humidity, and wind speed. This information can be used to monitor the performance of the bridge in real-time, identify potential issues, and predict when maintenance may be needed. This can lead to improved safety and reduced maintenance costs.

Virtual Design and Construction (VDC) is the practice of modelling the planning and execution of building projects in a digital environment. The VDC approach utilizes three primary tools: Building Information Modelling (BIM), 3D pictures, and digital simulations. With VDC, we can create an accurate virtual replica of an actual building, facilitating the study of the building project, identifying challenges and hazards, and creating well-considered alternatives. The use of VDC results in less opportunity for mistakes and unnecessary effort in the building process. Virtual Design and Construction (VDC) is becoming increasingly popular in the construction industry due to the benefits it provides. By using computer-based tools, construction projects can be planned and executed in a digital environment, resulting in improved accuracy, efficiency, and quality. The use of VDC in construction can help identify potential challenges and hazards, allowing for well-considered alternatives to be created. Additionally, VDC enables project teams to visualise the design and analyse the construction process, reducing the

risk of errors and rework and improving the accuracy and efficiency of the construction process.

With the tools mentioned above, a digital model of the building project is created, which can be used to study and understand the project in detail. The virtual replica of the building project provides a detailed understanding of the project, making it easier to identify challenges and hazards and to create well-considered alternatives. The use of VDC helps to reduce the risk of mistakes and the need for rework, resulting in improved efficiency and quality.

For example, a VDC model of a new highway can be used to visualize the design, analyse traffic flow, and identify potential issues, such as bottlenecks and intersections that may require additional planning and design. This information can be used to make informed decisions on the design and construction of the highway, reducing the risk of errors and rework, and improving the accuracy, efficiency, and quality of the construction process.

In construction, the use of virtual design and construction (VDC) enables project managers and construction teams to visualize the building process in a digital environment. This model can be used to identify potential problems and risks, study the design, and make informed decisions on the construction process. The result is a reduction in errors, rework, and overall improvement in accuracy, efficiency, and quality.



Illustrating Digital Twin, conceptual. (Source: Author)

Moreover, the digital representation of a building project in VDC enables the examination of various scenarios, including analysing traffic flow, identifying bottlenecks, and determining the best solution to construction challenges. With VDC, project managers and construction teams can work together in a collaborative environment, reducing the risk of miscommunication and errors.

In addition, the use of digital twins allows for real-time monitoring of physical assets and systems. Data, information, and metadata are collected from a wide range of sources to create an electronic replica of a physical object, system, or process. This information can be used to monitor the performance of the asset, predict potential issues, and make data-driven decisions, resulting in improved safety and reduced maintenance costs.

Conclusion

In conclusion, the increasing use of technologies such as Building Information Modelling (BIM), Digital Twin, and Virtual Design and Construction (VDC) is moulding the industry's outlook for the future. These emerging technologies are bringing about a sea change in the way buildings are conceived of, constructed, and managed by elevating levels of efficacy, precision, and collaboration over the building's entire existence. By using BIM, Digital Twin, and VDC, the construction industry can make decisions that are better informed, reduce the amount of waste produced,

and offer end consumers with constructions of a higher quality. As should be obvious, these technologies will play an increasingly significant part in shaping the future of construction and contributing to the improvement of the built environment.

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ARCHITECT'S DESIGN CONCEPT AND REALITY

Ar. Pratap Rao

Introduction

The design concept of an architect is an imagined aspect. There is always lot of difference between imagination and fact. When a building or groups of buildings are put to use, many problems may appear for various reasons beyond the conception of an architect. Evaluation studies expose these problems for better understanding to improve the future design of similar buildings. This article tries to explore those aspects with a case study.

A) Normal design of buildings:

Architects design buildings as per client requirements. No client will accept any design unless it satisfies their needs. Architects cannot impose their ideas on the clients without their consent. People involved in the planning have all kinds of wishes and expectations relating to the building. Thus, a final architectural design of the building is prepared after a lot of discussion and debate between the client and architect.

Naturally, everybody expects that such a design after execution will satisfy its users. Unfortunately, it is not true. Once the building is put to use, many defects appear. The building is not precisely used the way the architect conceived it. It is mainly because the client could not properly assess his requirements. An architect cannot lay down the requirements of a client. A client should be clear about his building requirements before approaching an architect. An architect can only refine their requirements but cannot dictate them. The ultimate objective of the design is to provide all the information necessary to construct a building. The client may forget or ignore such defects as a matter of fact, but an architect cannot. He must find out what has gone wrong with the building design to avoid such mistakes in the future.

In the design of a building, architects are guided by the following principles:

- 1) The building should be constructed to serve the purpose or purposes specified by the client.
- 2) The design should be constructed with known techniques and available labor and equipment within an acceptable time.
- 3) The building should withstand normal usage for a period specified by the client.
- 4) The building should be visually pleasing to look both inside and outside.
- 5) The building should not pose a hazard to the safety or health of its occupants under normal usage.
- 6) The building should provide safe evacuation or protection in emergencies.
- 7) The building should provide proper control of the interior environment—air, temperature, humidity, light, and acoustics— specified by the client and meet the minimum required for the safety and health of the occupants.
- 8) The building construction should not have an adverse impact on the environment.
- 9) The building should consume minimum energy while using the structure to serve its purposes.
- 10) The total cost of construction, operation, maintenance, repair, and future alterations should be kept within the limit specified by the client.

B) Evaluation studies

Evaluation studies on the buildings designed by architects can bring out the deficiencies and help architects to learn and improve similar designs later on. Evaluation allows lessons to be understood to enhance the project and the quality of designing, building and management of the built environment. It also contributes to the formation of new theories or developing new tools.

The results of an evaluation can be applied in various ways. One application of project-related evaluation is to use the results to improve the design and process. Changes are often more manageable and less expensive in the design phase than improvements after the event. The same applies to the organization of the building process. Once a building is complete, the results of an evaluation study can be used to solve teething troubles to suggest minor adjustments or radical improvements.

Depending on the problems identified, possible solutions might be functional like splitting, combining rooms or adding lifts; technical like better maintenance, different technical services or insulating the elevations; and social like changing the target group or moving personnel internally. Careful evaluation will increase the likelihood of successful decisions and a positive return on investment. Systematic documentation of the findings of evaluation investigations can lead to the creation of a database of exciting projects containing a number of essential items of information about the project and the evaluation findings. In principle, developments in the field of information and communication technology allow the results of research to be stored on a computer. It seems likely that in due course, it will be relatively simple to check building plans for the user and experiential quality during the design phase.

However, it is not suggested that evaluation research and design guidelines based on such research should be used to create a design for the ideal building or building process; any such design would lead in no time to standardization and uniformity. All kinds of things need to be considered apart from standard items like a layout, space for anticipated activities, a pleasant interior climate and an affordable price. Each in turn is affected by such things as location, the characteristics of the organization, the personal preferences of the client, users and designer, and changes in limiting conditions.

Moreover, every design has to strike a balance between partially conflicting desires and needs. The result of this process is highly variable. It means that there is no such thing as the 'ideal' building. But evaluation research teaches that a complex decision-making process should take careful account

of experience and lessons from earlier projects. Thus, evaluation research is important to everyone involved in the building process, whether in the process of producing buildings like clients, designers, consultants, project-developers, process managers and the authorities or in using and managing buildings like daily users, facility managers, plant managers, etc.

For the sake of simplicity, the factors to be assessed are divided into four categories as shown in Table 1.

The following Indicators may be used for measuring user quality

- 1) The use actually made of rooms and facilities (frequency of use, nature of use: for what activities, individual or communal, for one function or many)
- 2) Valuation given by daily users, absolute and relative to alternative solutions
- 3) Valuation given by the designer and others involved: the client, owner, manager and consultants
- 4) Changes made to the building since delivery
- 5) Renting ability (figures on unoccupied periods, changes in occupancy, waiting lists, rent)
- 6) Figures on maintenance, vandalism and burglary

C) Case Study: *Karaikal Bus station, Karaikal, Puducherry Union Territory*

Conceptual Imagination is not a reality. It is always good to know the ground realities for better architectural design. The case study of a small bus station is described below for better understanding of architect's design concept and reality:

This case study is purely based on an observation survey. Karaikal is a small port town, with a population of 2,22,589 (as per the 2011 census), which was a part of the former French colony of Puducherry. With the other former French territories of Puducherry, Yanam and Mahe, it forms the Union Territory of Puducherry in India now.

a) Original layout and design concept:

Karaikal Bus station was designed and developed (1987-1990) under IDSMT Central Govt. scheme to improve physical infrastructure in small and medium towns. The architectural design of the bus station was conceived after a number of discussions with concerned officials. The main emphasis of the design is to segregate pedestrian and vehicular traffic to avoid accidents and allow free movement. In the plan an

Table 1: Factors to be assessed

(Source: Compiled by Author)

a) Functional	b) Aesthetic	c) Technical	d) Economic and legal
<ul style="list-style-type: none"> • Accessibility and parking facilities • Efficiency in terms of actual use of the building • Flexibility to adopt to changing needs • General safety (ergonomic, public) • Spatial orientation of the building • Territoriality, privacy and social contact • Physical well-being (lighting, noise, heating, draughts, humidity) 	<ul style="list-style-type: none"> • Visual quality • Order and complexity • Representational quality • Symbolic value • Value as cultural history 	<ul style="list-style-type: none"> • Fire safety • Constructional safety • Building services • Environmental safety • Sustainability 	<ul style="list-style-type: none"> • Investment costs • Exploitation costs • Time investment • Public and private regulations



Fig. 1: Original layout
(Source: Based upon Google maps, by Author)



Fig. 2: Existing bus station
(Source: Based upon Google maps, by Author)



Fig. 3: Defunct entrance block
(Source: Author)



Fig. 4: Rear entrance to the bus station
(Source: Author)

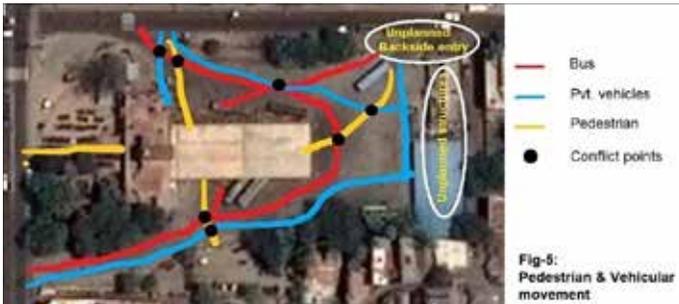


Fig. 5: Pedestrian and vehicular movement
(Source: Author)

entrance block, bus bays with an extension to add new bays in the future, toilets and vehicle parking were provided. Free entry and exit of buses without clashing with the pedestrian movement was envisaged. Regrettably this very purpose is lost now in the usage of the building (see Fig. 1).

b) Ground realities:

- 1) With the increasing size of buses over the years, the entrance parking is splayed in the corner for easy maneuvering of the buses entering the bus station. The lost parking space is compensated by providing a shelter at the back side for two-wheelers (see Fig. 2).
- 2) The toilet block is also shifted to the back side for common use of general public as well as for bus passengers.
- 3) The restaurant and dormitory facilities provided in the entrance block are not managed or neglected for the benefit of surrounding hotels (see Fig. 3).

- 4) The organized booking counters space provided in the entrance block is also not put to good use.
- 5) Most of the passengers are entering from the backside. They are also using entry and exit points of the buses for entering the bus station (see Fig. 4).
- 6) The back side entry is provided for casual stopping and moving of local buses, otherwise they have to take a long route to enter the bus station through the entry point.
- 7) Private vehicles enter from all sides and move freely causing disruption to the incoming and outgoing buses and passengers.
- 8) There are several conflicting points due to haphazard movement of pedestrian and vehicular traffic (see Fig. 5).

c) Suggested improvements:

- 1) The rear entrance may be closed so as to encourage all bus traffic to enter and exit as per the design and for the safety of passengers.
- 2) Private vehicles may be prevented from entering the bus station to avoid clash of vehicular and pedestrian traffic.
- 3) The defunct entrance block may be revived by providing restaurant and dormitory facilities for passengers.
- 4) All passengers may be persuaded to use the main entry instead of bus entry and exit points for safety.
- 5) The bus bays may be extended on the rear side to meet the increasing demand.
- 6) All buses may be directed to use bus bays for parking instead of parking haphazardly for passenger convenience and safety.

Conclusion

It may not be possible to implement all these improvements, but lessons from this experience can serve as feedback for future design of similar bus stations elsewhere.

There is always friction between imagination and reality. Constant evaluation will give a better understanding of the problem and serves as feedback to make better designs in future. Ultimately, we have to live in reality than imagination, however rational it may be. Any building should absorb changing needs; otherwise, it will be dismantled to accommodate new needs.

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WHY THE UN-BUILT MATTERS?

Rahoul B. Singh

"In its purest form, the 'unbuilt' project is devoid of the collaborative inputs by the other agencies that make a building come together. In it we see a formal spatial and tectonic composition as the architect's ideal, the architect's utopia."

- Rahoul B. Singh

The un-built project represents architecture's *raison d'être*. It encapsulates within it architecture's ambitions and aspirations, its speculations and vulnerabilities. Arguably as a representation of its essence, unadulterated by external agencies, the un-built project represents the zeitgeist in a manner that few other representations of it can do. In its "in-completeness" lies its potency.

As the embodiment of an idea, the material manifestation of individual situations and places, architecture is defined as much by the dilemmas surrounding the circumstances of its conception as by the multiple agencies that contribute towards its material realisation.

The construction of an argument that simultaneously incorporates the exigencies of site, climate, program, budget etc. while also transcending it and serving as a comment, to that moment of history is in many ways what also distinguishes architecture from the increasingly omnipresent building project.

While arguably architecture is primarily a spatial art and is experienced sense perceptively, the "inhabitation" of a work-its "knowing" is as much a sense perceptual act as it is an intellectual endeavour. In fact, one could go so far in saying that the act of inhabitation is in foreign to the discipline of

architecture as it is intrinsic to the practice of architecture. The autonomy of the architectural discipline lies in the unbuilt work, insulated from the agents and players that enable it to transcend its disciplinary boundaries and enter the domain of a full-scale built construct.

And so, a book such as this on the "unbuilt" serves as an archive of how architecture as a discipline has evolved.

In fact, one could go further - the unbuilt project serves to document architectural production at a moment in time before collaborative consultants and other tradesmen enter the process. Co-dependencies that represent the negotiated terrain that ultimately defines the "built work" don't play as assertive a role in the early conceptual and schematic stages of a project. The work of the "unadulterated architect" is the "un-built work".

Coincidentally a book such as this also documents the influence of technology on the architects' modes and methods of practice. Are the drawings made by hand? Are projects represented through computer simulations or wooden models? Do they reference global imagery or look at local precedent? What new forms of analysis has the technology enabled and consequently what has it helped improve?

The Unbuilt Project and Architectural Practice

Typologically, the projects represented in this book are varied. Collectively seen they represent where architects feel their most potent works and ideas are manifested. Is the small dwelling unit, a case study for other projects to come or do the larger competition entries represent what the architect would hope to be their magnum opus?

The unbuilt project also serves as both the bedrock and impetus for subsequent work. Research done and ideas developed inform other projects that the studio may undertake in the future. The quality and quantity of such work define the type of firm that the studio is.

Consider for example, an “expertise” based firm, one that relies less on the individual talents of a few people than on an institutionalised ability to deliver projects that are at the cutting edge of architectural production, would such a firm do relatively less work than a firm that professes professional “efficiency” and project delivery as its operating model?

The latter is representative of firms that have their processes and systems geared towards delivering efficiency on a set of very defined tasks, often specialising in specific project types or even only on particular aspects of a project. Unlike the first category that focuses on creating “new content (knowledge)”, this type of firm does not “break new ground” but rather as a solution provider delivers predictability and efficiency through a project's life cycle. The robustness of the systems and processes for a particular project type is often leveraged to other building types as well.

On the other hand, “legacy practices” have the advantage of time. Embedded within them is a partial history of the profession and its practices along with established networks for collaborative work, project delivery and an extensive archive of past projects. Often multi-generational, such practices come either laden with the baggage of a bygone era or with a combination of experience and current-day best practices.

Irrespective of practice type, the archive of the un-built project takes on a transformative role - from being a collection of residual projects that did not get realised through the act of building, to serving as a repository of ideas that transforms the architectural practice from being the producer of buildings and its representations to a place where knowledge is created and disseminated.

The Unbuilt and the Practice of Architecture

In its purest form, the “un-built” project is devoid of the collaborative inputs by the other agencies that make a building come together. In it we see the formal spatial and tectonic composition as the architects ideal, the architects utopia.

However, in an era increasingly being marked by programmatic instability, spatial and tectonic composition have become the structure within which “chance encounters” occur and programmatic hybrids and ambiguities are created. Together they test and push the elastic limits of architectural form and production.

That said, these spatial and tectonic transformations beget the question of typology and by consequence that of design method.

Does the typological archive serve to anchor the project in the greater crucible of architectural production or does it serve as a point of departure, a catalyst for the architectural project?

Alternatively, is the architectural project the result of a linear analytical process involving urban, programmatic, climatic, economic, social and cultural data sets? Does such an approach make the architect a mere intermediary between a given set of data and a building? Do the forms generated by parametric analysis of data make a building a static response to dynamic change and in doing so does it make it immediately obsolete? Does the strategy of placing the infrastructure needed for communities to self-build absolve the architect of the responsibility of creating a better built environment? Is the transference of an architectural image from a different context a form of cultural or social arbitrage? The questions are limitless.

The “un built” project does not have to stand the test of time, it represents a moment within the greater spectrum of architectural production. It is a moment of both pause and reflection, one in which we can ask ourselves the question what is it that we are building? What arguments are we constructing and what comments do our buildings make? Does capitalist consumption fuel the civic responsibilities associated with the socialist project or has architecture become a vehicle to realise the economic value of a site as against its social and cultural potential?

The answers to these questions along with others associated with the unbuilt project will continue to shape the discourse of architectural practice and by extension the practice of architecture itself.

The essay was first published in 'India: Unbuilt Architecture, Vol. 1.0', by ArchitectureLive!



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TRAJECTORIES OF POSSIBILITIES: UNBUILT

Megha Pande & Rajesh Advani



Competition entry for the Bihar museum, Patna.
(Image Credits: Snohetta and SpaceMatters, India: Unbuilt Architecture Volume One)

Not all ideas get realised into reality.

Not all ideas are designed to get realised into reality.

For most of us, architecture is the built- what can be seen and physically experienced, and an architect's legacy- what got translated from the drawing board to the site. Behind this physical repository of each architect's built works is an, often untouched by repeated stages of redesigning, archive of unrealized drawings, models and concept sketches that influenced the built while remaining consigned to the architect's drawing board; it is perhaps these unfulfilled ideas which give us a better understanding of the former and a truer representation of the latter.

A decade before her first commissioned built work, renowned architect Zaha Hadid had already established herself as a practitioner through the unbuilt winning competition entry- Peak. Decades later, closer to home, a group of fresh graduates started their journey of helming what would become one of India's leading architectural practices- SpaceMatters, with another winning competition entry- Bihar Museum. Both these ideas remained restricted to the drawing boards, but they went on to establish two practices that eventually contributed to the architectural landscape of their respective societies. These two works, though unbuilt, influenced several executed ideas that followed.

Similar to these two examples, the built is often a reflection of the unbuilt. Forming a significant portion (read nearly 70%!) of an architect's projects- unbuilt is not restricted to emerging practices. Every architect, student of architecture and professional engaged with the built habitat is familiar with the knowledge of their imagination someday translating into the real world. A similar sense of familiarity is the possibility of it getting stuck somewhere between the realm of concept and reality.

There are as many (if not more) unbuilt designs in an architect's archive as there are built ones; the unbuilt ones bear the advantage of not having passed through the heartbreak of implementation, where most of the idealised characteristics of the design are compromised.

-Sanjay Prakash, An Unbuilt Project Is Reborn In The Desert (Essay in Unbuilt: India Architecture Volume One)

Unbuilt could be competition entries, academic work, abandoned or rejected iterations, or speculative visions pushing the boundaries of the possible. It could be Gautam Bhatia's radical idea of growing vegetation between railway tracks, The Busride Design Studio's satirical take on giant statues or Charles Correa's Kapur Think Tank (that inspired his built project- Surya Kund in Delhi). Thought-provoking, experimental and often, the most honest reflection of an Architect's ideology and aptitude- the study of Unbuilt and the reason for it not being built could expand and prompt our imaginations to look at the built environment (and the practice of building) in new ways.

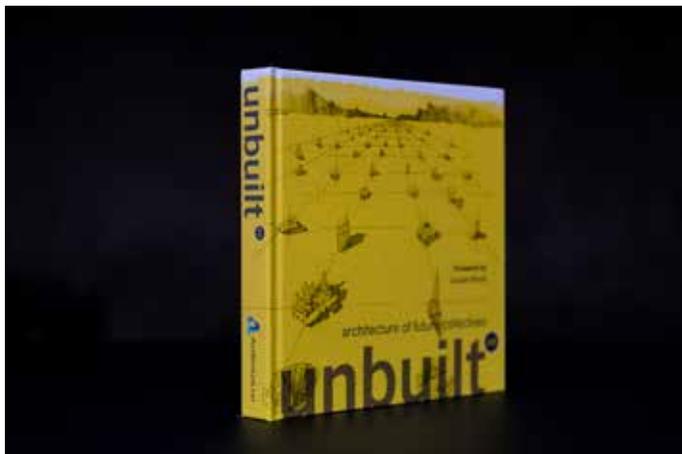
These (Unbuilt) ideas can be cautionary or inspiring, and they can pose questions or provide answers- one way or the other, they hold the potential to alter what we expect of the built.

-Amritha Ballal, What could have been, what can be. How the realm of the Architectural Unbuilt can shape the way we build (Essay in Unbuilt: India Architecture Volume One)

With unrestricted freedom to explore ideas and design philosophies, Unbuilt could comprise radical ideas that provide relevant solutions for a society dealing with the repercussions of Climate Change, the Covid Pandemic and the ever-widening disparity between the rich and poor. In Unbuilt, one can spot schemes for the future- just like Dubai's Burj Khalifa did in Frank Lloyd Wright's skyscraper design- a far-fetched idea for the 1950s.



The MK Gandhi Memorial Energy Harvesting Offshore (Tidal and Wind)- Statues We Need (Image Credits: The Busride Design Studio, Unbuilt 2.0: Architecture of Future Collectives)



Unbuilt 2.0: Architecture of Future Collectives was the second volume in the India Unbuilt series (Image Credits: Suryan//Dang)

These projects, usually symbolised by a provocative first sketch, a representation of a singular vision, are often upheld as the purest expression of architectural ambition... free to imagine provocative new ways of inhabitation.

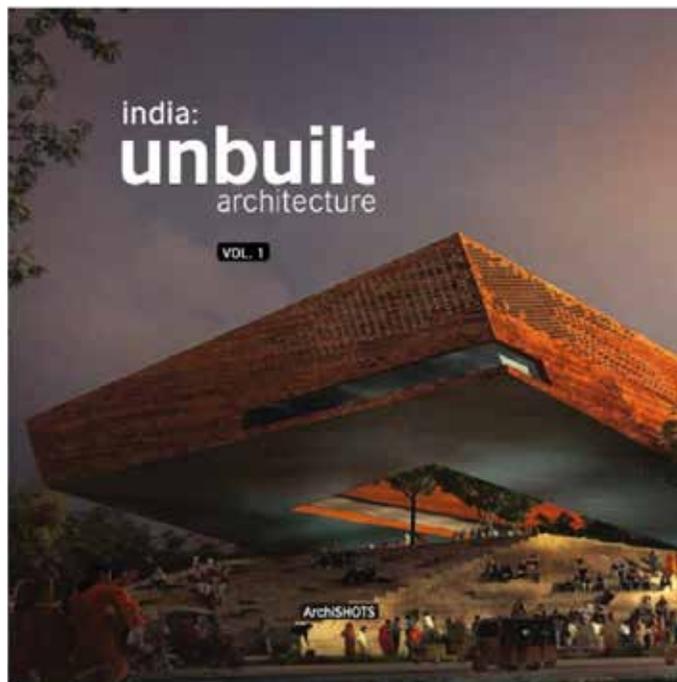
-Bijoy Ramachandran, The Afterlife (Essay in Unbuilt 2.0: Architecture of the Future Collectives)

In India's built architecture, between the choice of catching up and imagination, the latter is often left to others. When the built continues to follow a generic uniformity, unbuilt might come as a breath of fresh air- explorative and brimming with untested possibilities. It sheds light on the priorities that guide what we choose to build and why, and is more than the remnant of the existing- Unbuilt reflects the built environment's possibilities and challenges.

The foundation for the documentation of Unbuilt in India was laid by two books recognising the country's unbuilt architecture- India: Unbuilt Architecture Volume One, the first curated collection of unbuilt works in India, and its succeeding volume, unbuilt 2.0: Architecture of the Future Collectives. The former, a repository of 'buildable-unbuilt', looked at the unbuilt projects intended to be built. The latter, a collection of architectural representations, took this discourse forward and introduced us to works that extended beyond conventional architecture and the architect's board. Speculative fiction, satirical takes on the built, radical ideas and artistic representations- India's repository of unbuilt works saw contributions from architects, students and artists their take on the built habitat.

As aptly put by Ankon Mitra, in his review of India: Unbuilt Architecture Volume One, "The realm of the unbuilt is democratic for all, and the only comparison here is that of intellectual heft and architectural acumen."- unbuilt, unlike its contemporary which remains restricted to the celebrated built, encompasses everything architecture is, could be and could have been. For discussion, design and constant growth, the unbuilt is as crucial as the built- probably more since its documentation leaves room for interpretation and can be a part of anyone's imagination.

The unbuilt exists in many forms- in the design that has not been realised and one that exists in the mind of the architect. There is also the unbuilt that exists in every person's imagination- the make-believe world that the



In his review of India: Unbuilt Architecture Volume One, Ankon Mitra called it a power-packed compendium of ideas (Image Credits: Rajesh Advani | ArchitectureLive!)

child creates taking parts of his real world to combine it into a fantastical whole. Even as adults we like to escape from our routine to explore worlds that we wish to inhabit... We are feeding into that unbuilt vision by what we build today.
-Natasha Iype, Imagining the Unbuilt (Essay in Unbuilt 2.0: Architecture of the Future Collectives)

The study of unbuilt could edge Indian society toward exploring a building vision filled with new possibilities. In the speculative, dismissed, and abandoned is the opportunity to adjudge the executed and cover the gaps it ignored.

Together, built and unbuilt could help us understand the environment that encourages and hinders development in the built realm. Exploration of the latter could lead us to a world of 'what ifs' with ideas that could be realised in the form of inspiration, if not whole, and give rise to a trajectory of possibilities. And, in this ever-changing world, with the pace and the scale at which Indian Architecture is evolving- this might just be the ideal time for testing these possibilities.



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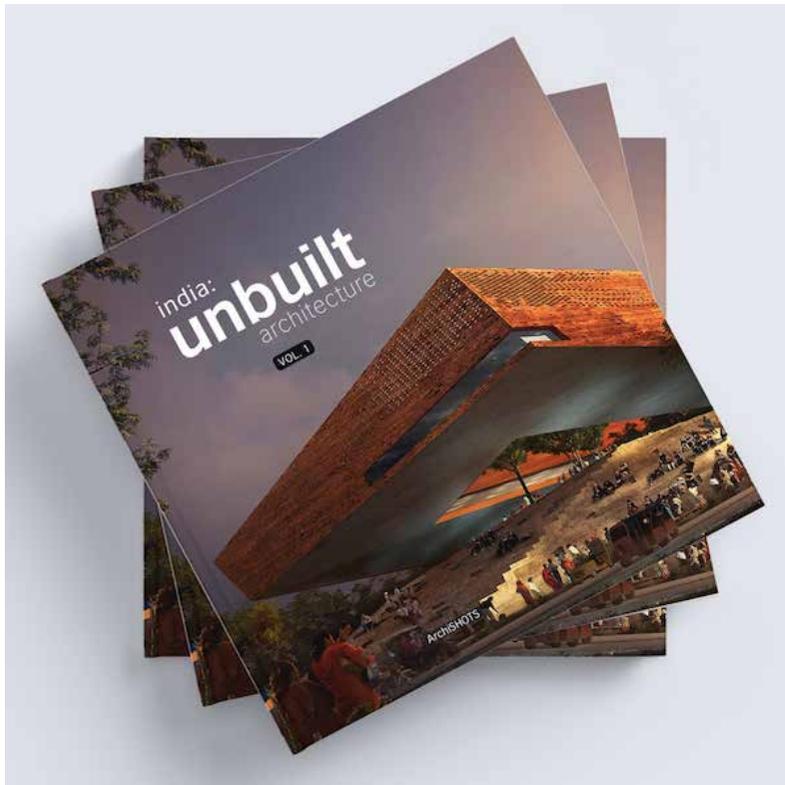


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"This book could make people curious to look up architects whose works speak volumes even when their names do not ring a bell."

Ankon Mitra Reviews

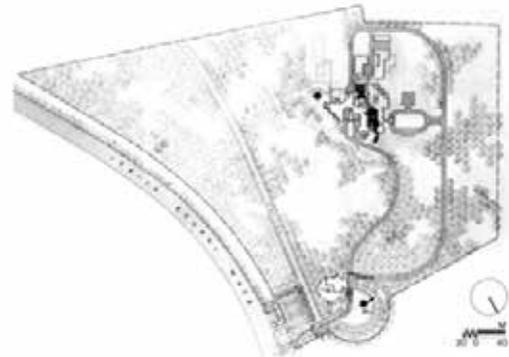
INDIA: UNBUILT ARCHITECTURE VOL. 1.0



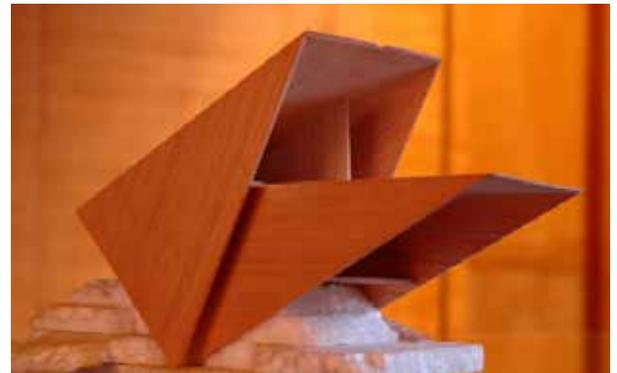
Unbuilt Architecture Volume One was the first physical collection of India's Unbuilt Architecture. (Image Credits: Rajesh Advani | ArchitectureLive!)

This review for India: Unbuilt Architecture Volume One, a documentation of Unbuilt Architecture in India published by ArchitectureLive! in 2019, was written by Ankon Mitra, an architect and artist. Ankon, in his critical review of the book, points out the significance of the Unbuilt- an honest representation of an architect's philosophy, to understand the Built Environment.

We are in the Instagram age now. Students and architects alike swipe pictures of completed projects and renderings of proposed projects at the speed of twenty images per minute, forming opinions of works of architecture (built or unbuilt) in a very short frame of time. Architecture cannot be understood without physically experiencing it. Spaces affect all our senses, not only our sense of sight; photographs often exaggerate, telling lies or half-truths at best. We need a measure of experience over an extended period, visiting a myriad variety, type and scale of projects, and then reading about them and seeing their pictures before we begin to cultivate the insight of being able



Prime Minister's Residence. (Image Credits: Achyut Kanvinde, India: Unbuilt Architecture Volume One)



Connoisseur's Home. (Image Credits: Yashwant Pitkar, India: Unbuilt Architecture Volume One)

to judge the true merit of a built project (or proposal). It is hasty to form an opinion of a work of architecture by just by looking at a few visuals and drawings of the project.

This densely and richly illustrated book by ArchitectureLive!, titled 'India: Unbuilt Architecture Volume One', can be many things (invoking several experiences) for the many connoisseurs, practitioners and students of architecture and spaces. For students and practitioners alike, it is a power-packed compendium of ideas. Built projects become known, critiqued, discussed and debated. Often, we may not know the true brilliance or aptitude of an architect whose work we admire- because their best ideas never got built. It is, unfortunately, the lot of all architectural practices, that many of these stellar visions must remain unbuilt for several reasons, which are outlined in a few of the essays in this book. Those specific experiences of conceptualization, building typology, program and context remain cloistered within that architectural practice and never find dissemination in public discourse. Magazines and journals

sometimes publish an unbuilt project of a well-known architect; the book, however, makes a concerted, tightly curated effort to document and publish unbuilt projects from all over India. This is not something new in the western context but a first-of-its-kind initiative in our country. This reason was enough to encourage me to pick up a copy. But leafing through it in the last month since I received it, I find it a gem for many other reasons. I would recommend it to students of architecture for three reasons:

(i) they become aware of many small practices and how those practices think and create; this is wonderful because the media and the press are saturated with the coverage of big architecture firms and their celebrated built projects just because they bag the wealthiest of clients and sites with the most potential. The realm of the unbuilt is democratic for all, and the only comparison here is that of intellectual heft and architectural acumen. As one of the writers said in the book (I paraphrase) - 'it does not matter in the realm of the unbuilt as to who plays golf with whom'.

(ii) A breadth of representational, drawing and rendering techniques is presented in the book. This is a treasure trove for all those hungry to try new ways to communicate spatial ideas that are there in their heads and need ways in which they can be shared with the world. From the old-school pen and ink and watercolour wash perspectives to the cutting-edge virtual 3-dimensional rendering- all have found a place in this book. In some ways, this is also a history of the evolution of the representation techniques of architectural ideas over the years. Just see the year the project was proposed and observe how it was drawn and illustrated- allowing a (romantic almost) tour of how architects have been moving with the times in the way they represent and communicate their ideas.

(iii) Some projects sometimes open windows into politico-socio-cultural histories of a time gone by. In the book is a project by Achyut Kanvinde of a proposed Prime Minister's Residence which cuts into a bit of the forested ridge behind Mother Teresa's Crescent that girds the Rashtrapati Bhavan gardens at the back/northern edge. In the drawing, Mother Teresa's Crescent is very interestingly written as Indira Gandhi Marg. The project year says 1983, and Indira Gandhi was assassinated in 1984! She won a landslide in 1980 and returned to power with a thumping majority. She must have been at the peak of her hubris to cut into a bit of the forest to build the Prime Minister's Residence! Cut now to the Central Vista re-planning project of the present day by a regime which has come to power on the back of a thumping majority.

Architectural history is a window onto the history of a period. Built or unbuilt (if we care to observe), we can learn more than a thing or two. We find human behaviour does not change, only the players. Architecture, built or unbuilt, does not lie.

There are thought-provoking and engaging essays by Suprio Bhattacharjee, Rahoul B. Singh, Amritha Ballal, Anupam Bansal, Himanshu Burte, Rupali Gupte, Sanjay Prakash, Raturaj Parikh and Prem Chandavarkar. They all highlight facets of practice, fallacies and failures. Architecture is a relentless struggle between overriding cynicism and unbridled optimism. A lot of that bipolar energy is captured wonderfully in this book. Some of the best visions of some of the most cerebral architects from the times present and past are included in this volume. What is most engaging are some raw gems by little-known architects,

for instance, a thermocol and ply model of an edgy house by the architectural thinker and writer Prof. Yashwant Pitkar. He should be a figure known by all architecture students, yet his writings and books remain unknown to many; this book could make people curious to look up architects whose works speak volumes even when their names do not ring a bell.

A minor quibble - the projects could have been arranged by typology, size or chronology. They have been organized around some abstract concepts which do not render themselves very clear to the reader. There is, of course, an advantage to this - one can open the book anywhere and read about a fascinating project, not worrying about if they are missing a thread or line of thought or investigation. Perhaps that was the intent. Every dive brings out a new pearl. A chronological or typological list of projects with an alphabetical index of contributing architectural practices/studios at the back would make this an authoritative and comprehensive tome. I am sure the second volume in this series will address this. All in all, a gap is being filled in architectural discourse. A must-have on the shelf of all architecture libraries and for followers of architecture in India and abroad. My congratulations to the entire team involved in this stupendous effort.



The second volume of Unbuilt 2.0: Architecture of Future Collectives saw a wider collection of unbuilt works. (Image Credits: Suryan//Dang)

The discourse, initiated by India: Unbuilt Architecture Volume One, has now been expanded by the second volume in the Unbuilt series- Unbuilt 2.0: Architecture of Future Collectives. The second volume took forward this discussion by incorporating projects extending beyond the buildable built and including unbuildable unbuilt, imaginative and speculative works. These works, from across the country, were not just limited to architects. Together, the two volumes have introduced a repository of provocative unbuilt works that have prompted our imaginations to look at the built environment in new ways.



Ankon Mitra Ankon Mitra is a trained architect and practices as a sculptor. He has built an international reputation as a pioneer of the folding technique through his diverse projects. Recipient of the All-India Gold Medal for Sculpture from the Prafulla Dahanukar Foundation in 2018 and the Lexus Design Award for Craft Design in 2020, his work has been exhibited in India, Italy, France, UK, USA, Japan, the Netherlands, Brazil and China. His sculptures and installations are part of public developments and private collections globally. A TEDx speaker and a warrior for 'making connections across disciplines' with his brainchild - 'Oritecture - Origami + Architecture', Mitra shares a unique vision of a universe forming and dissolving from acts of folding.
ankon.mitra@hexagramm.in

CURATING CAMBODIA - THE ART OF TRAVEL

Anika Mittal Dhawan

"We travel for romance, we travel for architecture, and we travel to be lost." - Ray Bradbury

Natural wonders, food, culture and architecture are what drive most tourism. Architecture is also the defining aspect of all destinations— from the Pyramids of Giza, Egypt to the Jungle temples of Siem Reap, Cambodia; from the Sistine Chapel of Rome, Italy, to the distinctive architecture of Barcelona. Not only does Architecture capture both history and a story for centuries, but it is also a reflection of history, society, and culture. It is hence not surprising that architects have an almost sub-consciousness, inherent drive to travel. Traveling helps experiencing places with different cultures, architectural styles, food, and lifestyle. It also helps expand our creative thinking.

Angkor Wat "the city of temples" is in Siem Reap in Cambodia. It is a UNESCO world heritage site and a major tourist destination drawing lovers of history, architecture & nature. The symbol of Khmer symbol and power, the Khmer temples spread across the Ankor area with Angkor Wat being the largest religious edifice and an architectural masterpiece. The compound (spread over the entire city) is steeped in history and bygone culture.

The temple complex of Angkor Wat was originally dedicated to the Hindu god Vishnu in the 12th century CE, but was later taken over by Buddhist monks. The complex is surrounded by a moat on all sides of a rectangular site spread over 500 acres. "It is, above all else, a microcosm of the Hindu universe. The moat represents the mythical oceans surrounding the earth and the succession of concentric galleries represents the mountain ranges that surround Mount Meru, the home of the gods. The towers represent the mountain's peaks, and

the experience of the ascent to the central shrine is, maybe intentionally, a fairly convincing imitation of climbing a real mountain. The temple itself consists of two of the primary elements of Khmer architecture: the pyramid, and concentric galleries". (Source - Freeman and Jacques, 47, 48).

The complex is a celebration of Khmer artistry and religion, through composition, proportions, intricate brass- relief and ornate carving that line the sandstone structures. Maurice Glaize wrote in "A Guide to Angkor Monuments" (1944): "The ornamentation is the triumph of Khmer art, where the architecture is but the realization of ritual." The temple complex has been largely abandoned since the 16th century and was slowly overtaken by the surrounding landscape that crept into the complex. It was only discovered by explorers in the 19th century after which it was restored.

The most magical and mysterious aspect however is the symbiotic relationship developed over centuries between nature and the built form. There are whole parts of the not so long ago lost compound where buildings have been completely colonized by trees becoming one with the temple architecture as their roots wrap around the stone. The trees and the vegetation all add to the mystic of the lost world charm. Although the roots of the trees are creating a disruption of the structures, there is a study that says that the bio-protective foliage cover of the forest helps the structures survive the harsh tropical weather.

Angkor Wat along with the clusters of other temples in the area are truly architectural spectacles and magnificence that one can only experience. Just as Geoffrey Bawa said, "Architecture cannot be explained, it must be experienced", Angkor Wat can also only be experienced.



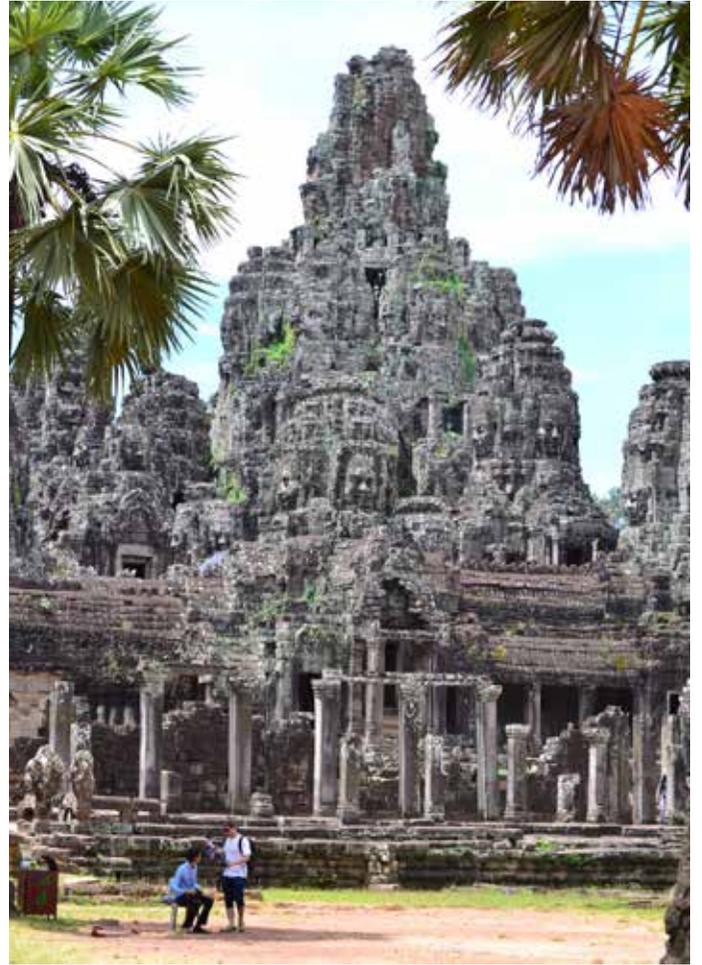
Angkor Wat - a microcosm of the Hindu universe



Angkor Wat - a symbol of Khmer power.



Bio-protective foliage.



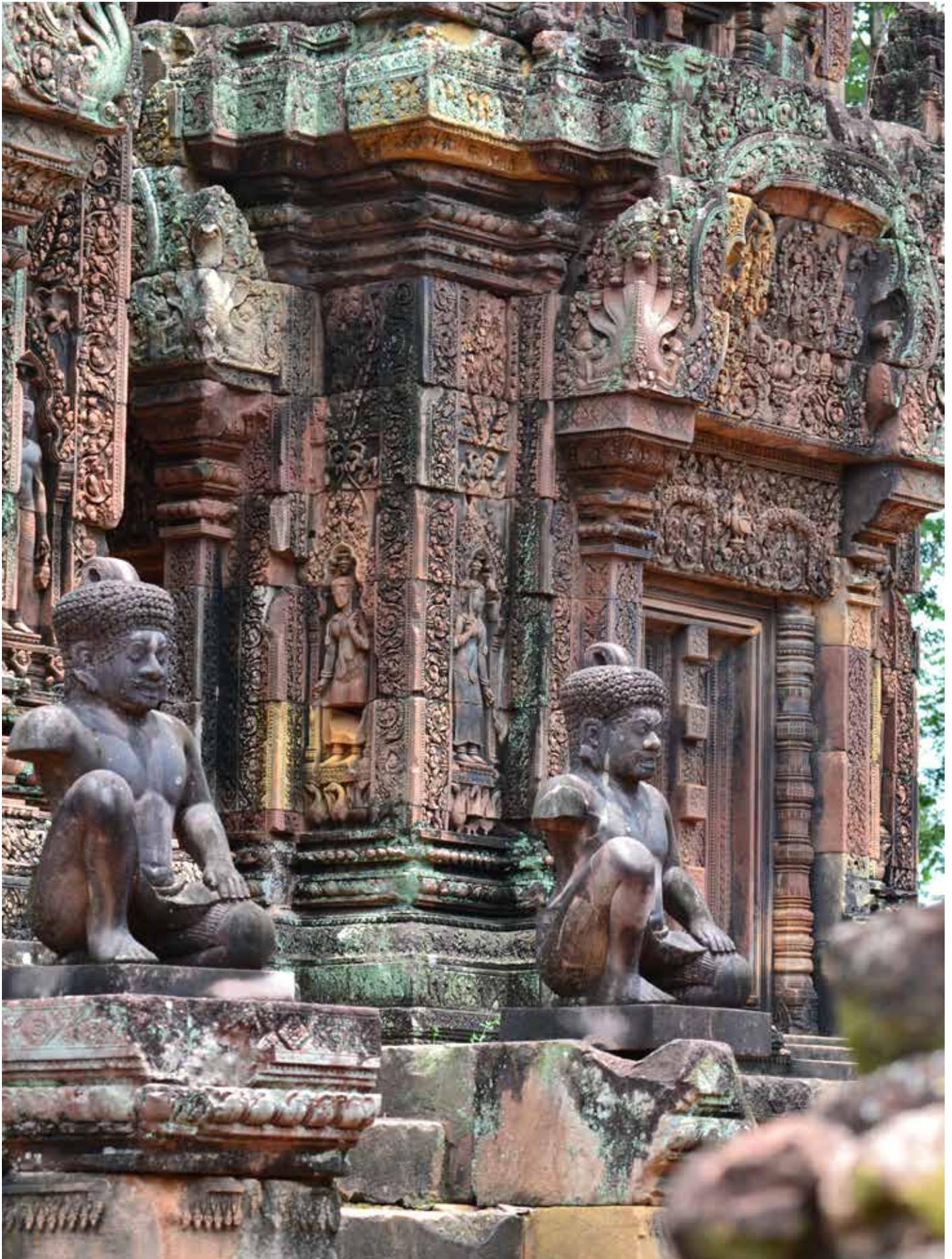
Bygon tower with many faces.



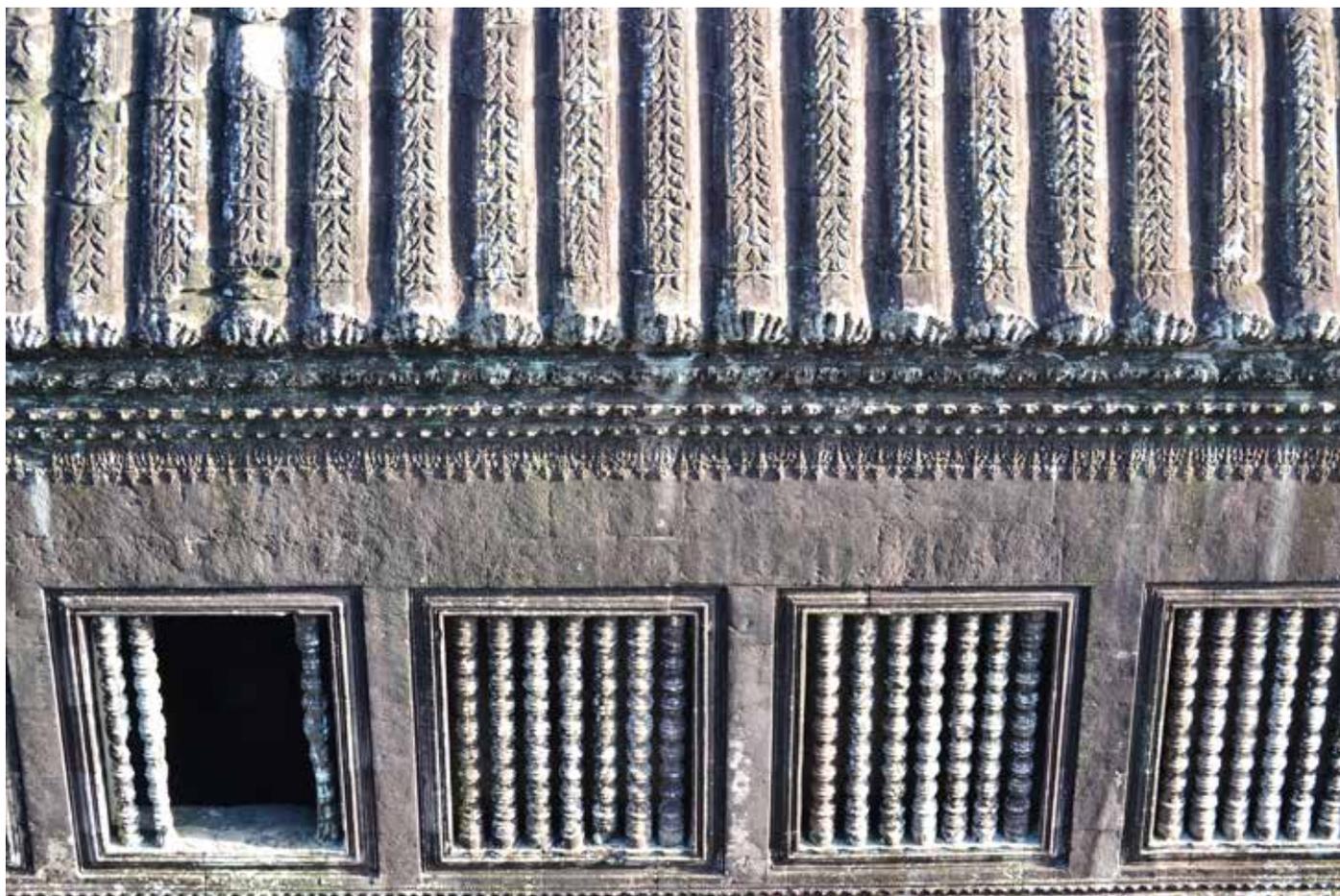
Carvings on sandstone.



Colonisation of the forest.



Details of Khmer artistry.



Ornamentation.



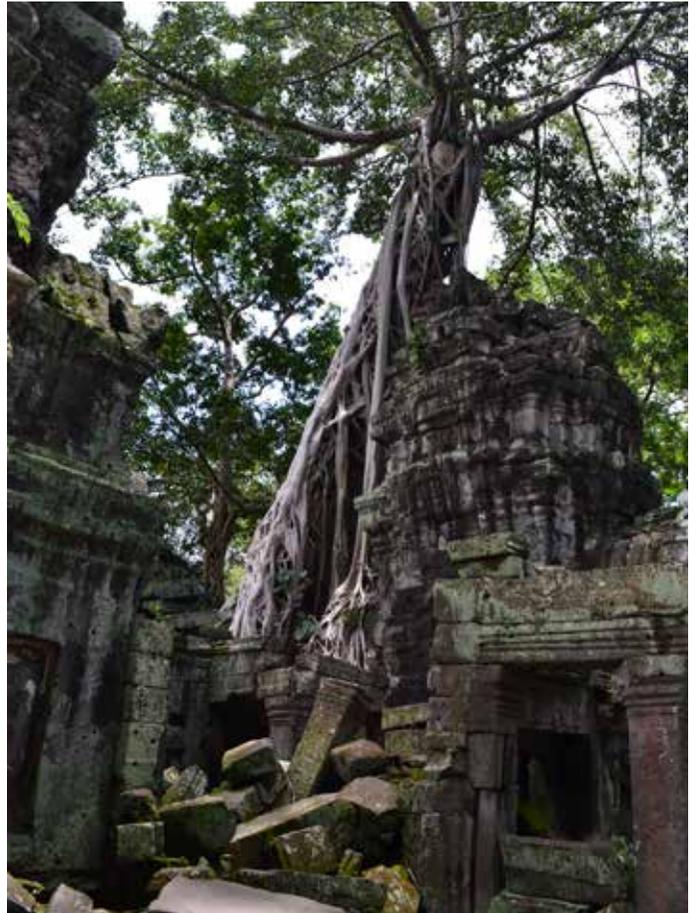
Ruins of Angkor Wat.



Remains of the Khmer empire.



Smiling faces carved on towers.



Taking over the structures.



Structures in the vicinity.



Surrounding landscape.



Temple of many faces.



Details and ornamentation.

All images courtesy: **Mold Design Studio**



Anika Mittal Dhawan, founder and director of Mold Design Studio, is an Architect and an Urban Designer with over 17 years of experience across all facets of design and construction. Leveraging her past experiences gained across a multitude of projects ranging from boutique residences, commercial, and hospitality to master planning and smart cities; Anika provides comprehensive design solutions across all stages of design and construction through a mold design studio. Driven by the philosophy that any design solution-city, building, space, or product must be sculpted to conform to and address all requirements from the specified to the unstated, mold approaches each project as a unique challenge. info@mold.net.in

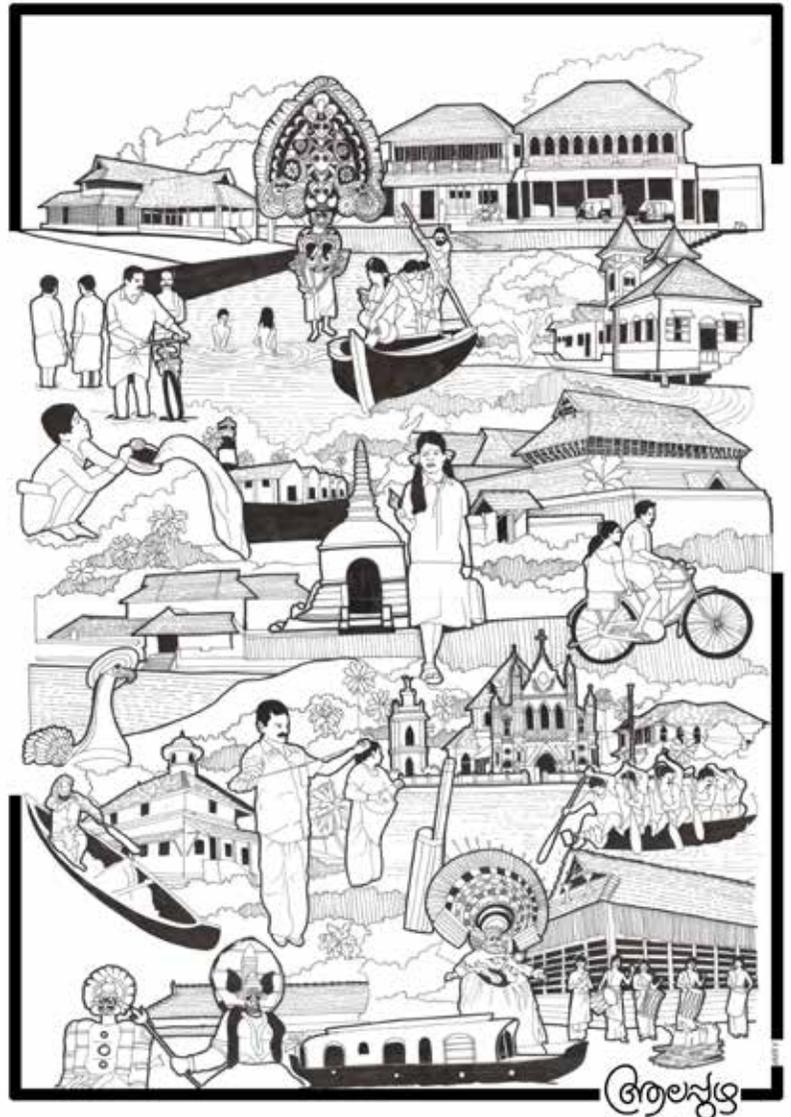
KERALA URBAN SKETCHES

– AN INCREDIBLE PLURALISM, AN ESSENCE OF DISTRICTS OF KERALA

Ar. Vivek Venugopal

"Cities in South Asia are characterised by physical and visual contradictions that coalesce in a landscape of incredible pluralism"
- Rahul Mehrotra

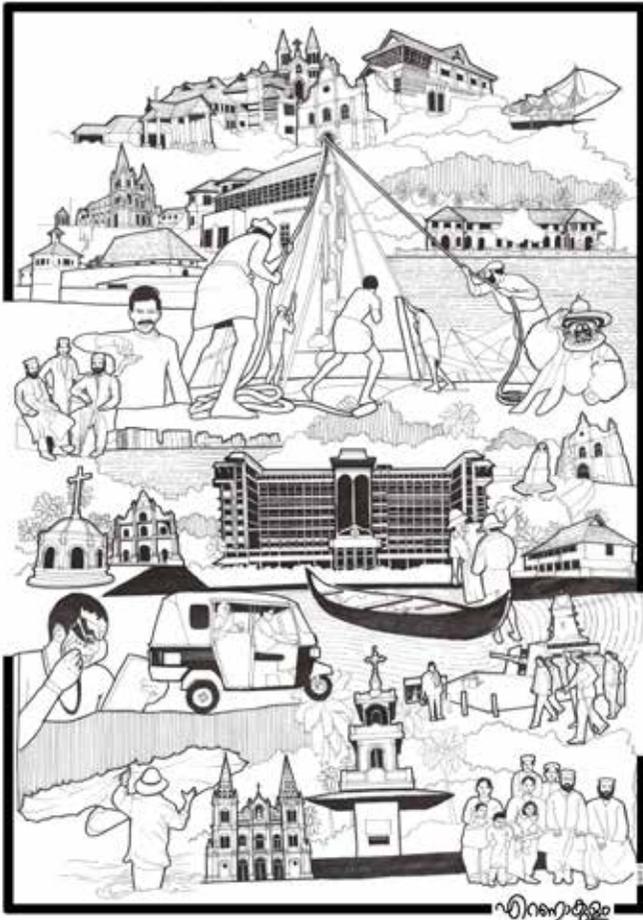
Illustrations provided below depict the relationship between the tangible and the intangible elements of 14 districts of Kerala. Based on the understanding of the district's cultural, ecological and architectural associations, the essence of the place was portrayed via the medium of pen and ink on A1-size paper. The sketches shown below also reflect the naming of the place or the sthalapuranam which is a Sanskrit word where "Sthala" means any place or region and "Purana" means story.



Alappuzha

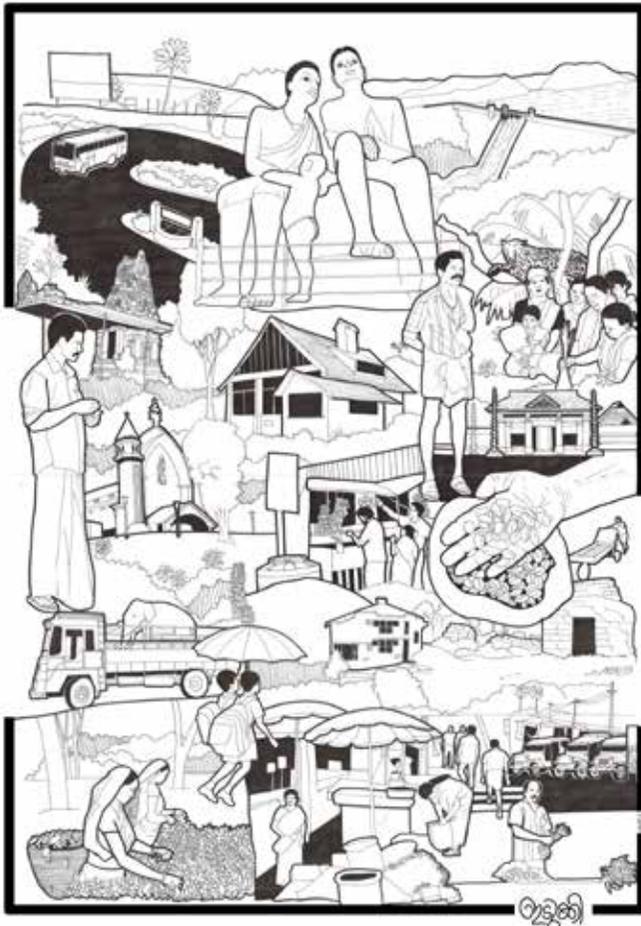
"Alleppey, the Venice of the East". - Viceroy of the Indian Empire, Lord Curzon

The name Alappuzha was derived from the geographical position and physical features of the place which means "the land between the sea and the network of rivers flowing into it". The name Alappuzha is derived from Aal (Sea)+ puzhai (River-mouth) ("The joining place of a river and the sea")



Ernakulam

The term 'Ernakulam' is linked to different sources, either temple-oriented or mythological. Komattil Achutha Menon attributes the origin of the word to a type of mud called 'Erangiyal'. It's also said that Lord Siva was addressed in Chennai as 'Erayanar' in the past, in Kerala too, this was followed and it later came to be known as 'Ernakulam'. The place is also referred to as 'Kochi' which is a combination of two terms, Koch & Azhi (small river- mouth).

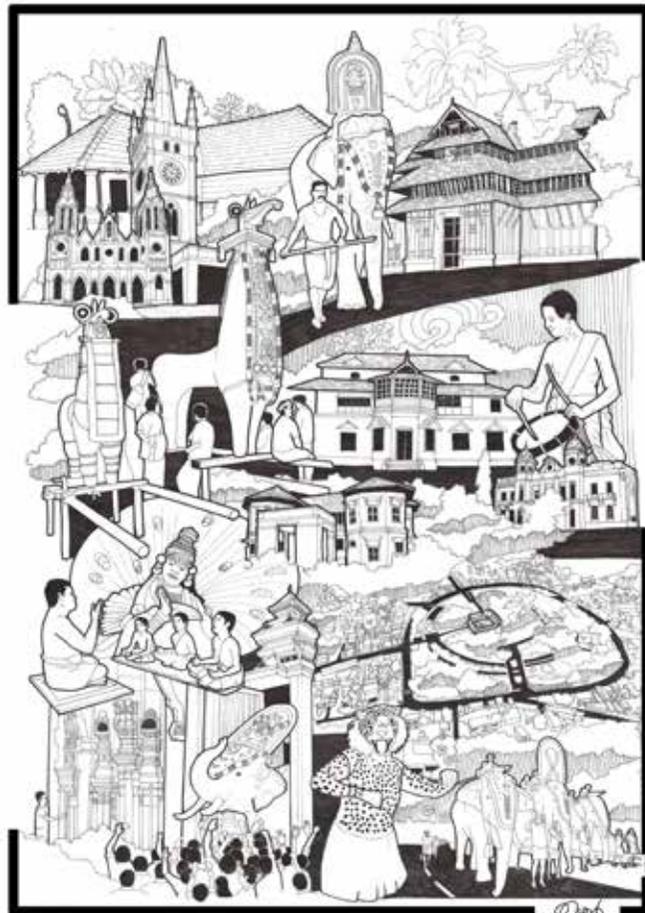


Idukki

Idukki gets its name from the Malayalam word 'idukku' which means a space between two high spots. The perennial river Periyar flows through a narrow gorge between two granite hills, the legendary KURAVAN and KURATHI where the Idukki Arch Dam is constructed. For a long time, this region was the wild west of Kerala, with its treacherous, inhabitable hills, steep gorges and abundant wildlife.

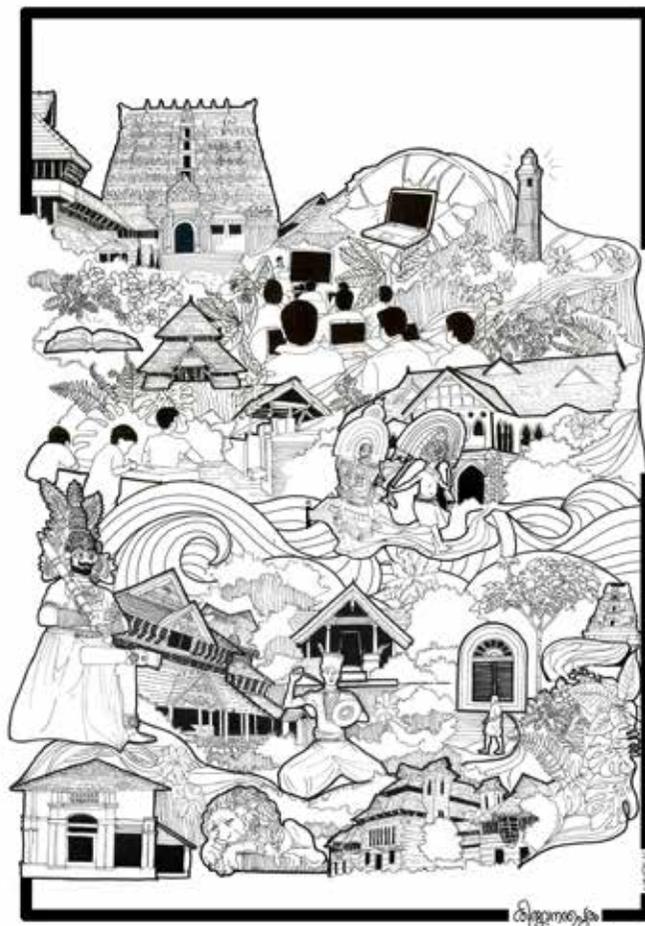
Thrissur

The name 'Thrissur' is a short form of the Malayalam word Thirusshivaperoor, Respected-Shiva-Name-Place). The name owes itself to the most prominent feature of the city, that is the Vadakkumnathan Temple, which has Shiva as its presiding deity. It is an important cultural centre, and is known as the Cultural Capital of Kerala, also this place is famous for the Thrissur Pooram festival, one of the most colourful and spectacular temple festivals of Kerala.



Thiruvananthapuram

The name 'Thiruvananthapuram' is derived from the Malayalam word thiru- anantha-puram, which means 'City of Lord Ananta', Ananta is the serpent Shesha on whom Lord Padmanabha reclines. This iconic representation is the chief deity in the Sri Padmanabhaswamy Temple. Referred to by Mahatma Gandhi as the "Evergreen city of India". Thiruvananthapuram is also known in the literature, and popular reference as Ananthapuri derived from the Sanskrit word Syanandurapuram, meaning "The City of Bliss".





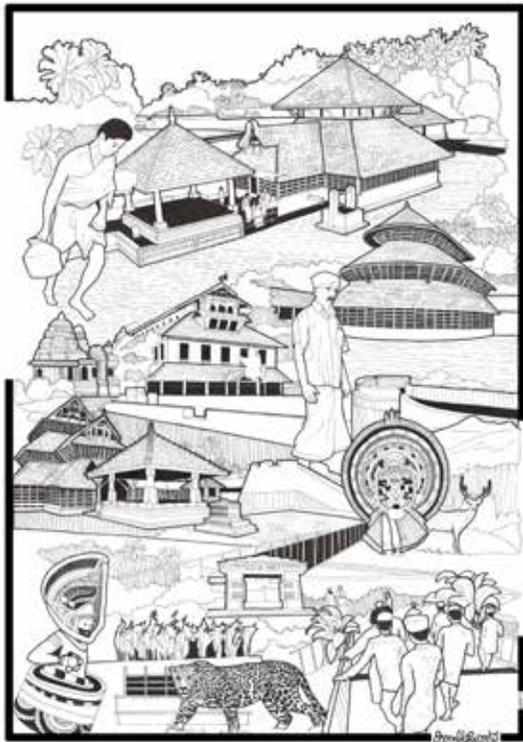
Wayanad

The name originated from a combination of two words, 'Vayal' and 'Nadu.' Which means land of paddy fields. As the name says, this magical beauty of paddy fields attracts more travelers here. Remembrance of Ancient Life -Edakkal caves, Sanctity of Jain Temple, Pazhassi Raja Smrithi Mandapam, and Chain tree of Lakkidi are some of the most prominent places of Wayanad, it is known as the green paradise in Kerala.



Kannur

The name was derived from Kanathur, an ancient village here, Others opine that the name is a combination of Kannan (Sree Krishna " a Hindu deity) and Ur (place), referring to the Sree Krishna shrine at Katalayi Kotta near Kannur. During British rule in India, Kannur was known as 'Cannanore', and under the Portuguese, as 'Kannanore'. Kannur is popularly known as "The city of Looms and Lores" also called 'The Crown of Kerala'.



Kasaragod

It is the combination of two Sanskrit words kaasara (which means lake or pond) and kroda (which means a place where the treasure is kept). Kasaragod was known as Kanhirakode (The land of k niram trees) in Malayalam. Kaanjiram is Malayalam for Kasaraka trees (Kannada name) found in abundance here.



Kollam

Kollam derives from the Sanskrit "kollam," which means pepper, because the place had been an ancient trading and exporting centre for pepper. "Kollam" is also supposed to have formed from "koyillam", a telescoping of kovilakam (palace) and illam (brahmin house). Some believe that "Kollam" comes from the Chinese word "kolasam" meaning a big market. Yet another theory proposes that the Sanskrit "kollam" also meant a boat, and the place got its name owing to it being a port town where boats were harboured.

Kottayam

The royal palace of the Thekkumkur ruler was protected by a fort called Thaliyilkotta. It is believed that the name Kottayam is derived from a combination of the Malayalam words kotta which means fort (Thaliyilkotta) and akam which means inside. The combined form, Kottaykkakam, can be translated as "inside the fort".



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Kozhikode

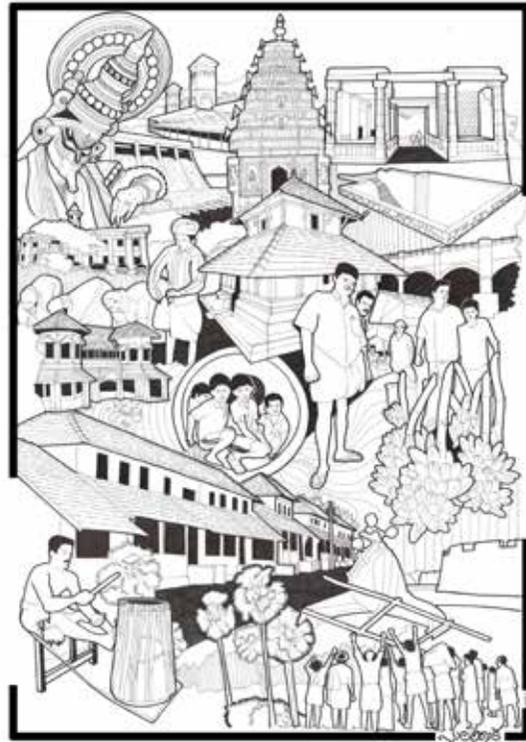
The name Kozhikode is derived from Koyil-kota (fort), meaning fortified palace. The name also got corrupted into Kolikod, or its Arab version Qaliqut and later its anglicized version Calicut. The Arab merchants called it Q liq . Chinese merchants called it K lifo and hence The word calico, a fine variety of hand-woven cotton cloth that was exported from the port of Kozhikode, is thought to have been derived from Calicut. It is the historical capital of Kerala as the history dates back to 1498 AD when Vasco da Gama landed in Kappad, near Calicut.





Malappuram

Malappuram, which means "over the hill" in Malayalam, derives from the geography of Malappuram, the administrative headquarters of the district. The midland area of the district is characterised by several undulating hills such as Arimbra hills, Amminikkadan hills, Oorakam Hill, Cheriya hills, Pandalur hills, and Chekkunnu hills, all of which lie away from the Western Ghats.



Palakkad

The commonly held belief is that the name Palakkad is a fusion of two Malayalam words: Pala, which is the local name for blackboard tree (*Alstonia scholaris*), and Katu, which means forest, an indigenous tree which once densely occupied the land; and hence Palakkad or "the forest of Pala trees". Palakkad is also known as the gateway to Kerala due to the presence of the Palakkad Gap in the Western Ghats.



Pathanamthitta

Pathanamthitta is a combination of two words – Pathanam and Thitta – which mean an array of houses on the riverside. It is presumed that the regions presently under the District were formerly under the Pandalam reign which had connections with the Pandya Kingdom, it is also known as the 'Pilgrim capital of Kerala' and the main transport hub to Sabarimala.



Ar. Vivek Venugopal is a graduate of the College of Engineering Trivandrum (2009-14 Batch) and he pursued masters in Urban Design from the School of Planning and Architecture, New Delhi (2014-16 Batch). He is working as an Assistant Professor at Marian College of Architecture and Planning, Trivandrum, Kerala, as well as a practicing Architect at Design Tribe Studio, TVM, Kerala. He had received several recognitions including the winner of the CEPT Idea behind the Art- Competition 2022 hosted by CEPT Research and Development Foundation, and also participated at an Urban Sketching Exhibition "A window in Bern – Shared spaces in change" – at Main Gallery of Bern – Kornhausform, Switzerland. ar.vivekvonmcap@gmail.com

ब्रह्मा, विष्णु और महेश का मकान !!

Dr. K. K. Asthana



जब मैं
अपने सारे प्रयासों के बाद भी,
एक अदद मकान नहीं बनवा पाया !
तो भगवान् की शरण में आया !!

मैंने घनघोर तपस्या की,
ब्रह्मा जी प्रसन्न हुए-
आकाशवाणी पर पधारे !
यूँ मधुर वचन उचारे !!
"वत्स वर मांग !"
मैंने कहा "भगवन,
वैसे तो सब सही है !
बस रहने को घर नहीं है !!!"
आकाशवाणी थोड़ी देर को मौन हुई,
मैं समझा भगवन नाराज हो गए !
वापस चले गए !!

धीरे से आवाज आई
"किराये पर रहते हो ?"
मैंने कहा, "हाँ भगवन !
यही तो गम है !"
भगवन बोले, "यही क्या कम है !!
यहाँ तो वो भी नहीं है,
कल्पों से कमल पर बैठा हूँ,
बैठे बैठे कमर अकड़ गयी है,
मकान आज तक नहीं बनवा पाया हूँ !
किराए पर भी नहीं दूँ पाया हूँ !!
ऐसा करो,
विष्णु जी के यहाँ टाई करो,
मेंटेनेंस का काम वही देखते हैं..."

मैं एक बार फिर
तपस्या में लग गया !
इस बार भी मेरा भाग्य
जल्दी ही जग गया !!
इस बार विष्णु जी ने दर्शन दिये....
विष्णु जी, क्षीरसागर में
शेष शैय्या पर लेटे थे !
सारे संसार का दुःख - सुख,
खुद में समेटे थे !!
मैंने भी अपना दुखड़ा सुनाया !

एक अदद मकान देने का प्रश्न दोहराया !!
विष्णु जी थोड़ा शर्माए !
किंचित मुस्काये !!
फिर अधर कमल खोले !
धीरे से बोले !!
"वत्स, तुमसे कुछ छुपा नहीं है !
यहाँ भी हाल वही है !!
उस अनादि अनंत ने
अभी तक मुझे खुद मकान नहीं दिया है
बस किसी तरह गिरते पड़ते
काम चला रहा हूँ !
और यह बेचारा
शेष भी कब तक साथ देगा,
इसी चिंता में घुला जा रहा हूँ !!
क्यों न तुम शंकर जी से बात कर लो
हो सकता है
कि जल्दी ही ऐसा कोई मरा हो !
जिसके वारिसों में झगड़ा हो !
मकान खाली पड़ा हो !!
उनसे कह कर ताला खुलवा लो !
फिर, मकान धीरे से अपने नाम करवा लो !!"

फिर क्या था,
मैंने शंकर जी का ध्यान लगाया !
और जल्द ही
उन्हें अपने सम्मुख पाया !!
शंकर जी ने पूरे आत्मविश्वास के साथ कहा
मांग ले बेटा, जो माँगना है
मैंने अपना शाश्वत दुखड़ा सुनाया !
एक अदद मकान देने का प्रश्न
यहाँ भी दोहराया !!
सुन कर शंकर जी हँसे,

अपने बारे में पूछा
"मैं कौन हूँ ?"
मैंने कहा "शंकर जी"
"मैं कहाँ रहता हूँ ?"
मैंने कहा "हिमालय में"
"हिमालय मेरे कौन है ?"
मैंने कहा "ससुर"

शंकर जी ने मेरे ज्ञान चक्षु खोले !
थोड़ा हँसे फिर गंभीरता से बोले !!
"जिसके पास अपना घर होगा,
वह ससुराल में क्यों रहेगा !
खुले आसमान के नीचे,
जाड़ा, गर्मी, बरसात क्यों सहेगा !!
मुझसे मांगने से पहले खुद सोच,
अगर बनवा पाता !
तो पहले अपने लिए मकान न बनवाता !!
कोई और इच्छा हो तो बोल,
पूरी कर दूंगा !
कहे तो मोक्ष दे दूंगा !!
पर मकान नहीं दिला पाऊंगा !
तुम्हारे वरदान के चक्कर में
किसी बिल्डर के जाल में फंस जाऊंगा !!

इस सबके बाद भी,
मैं अभी तक
मकान तो नहीं बनवा पाया हूँ
पर एक ज्ञान पा गया हूँ !
कि मकान के अभाव में
ब्रह्मा, विष्णु, महेश की श्रेणी में
आ गया हूँ !!



Dr. K. K. Asthana an architecture graduate from IIT Roorkee (1982), did his Ph.D. at Dr. APJ Abdul Kalam Technical University, Lucknow. He recently retired as Chief Architect in the UP Government. He has been associated with academics as a visiting faculty member for more than three decades. He is an accomplished writer of Hindi, with three books of satire to his credit. The present poem describes the extent of the problem of housing in his unique style.
kkasthana@hotmail.com, Mob: 9415003003

REPORT ON THE FIRST EVER IIAPL GOLF FOR ARCHITECTS AT THE NATIONAL LEVEL



WINNER and closest to the pin – 10-16 handicap - **Ar. Anupam Mittal**

The first-ever IIAPL Simpolo Golf Tournament for architects at the national level was conducted on the 25th and 26th of February at CIAL Golf Club Cochin. At the request of Ar Jithendra Metha, IIA sports and cultural affairs committee chairman, this national tournament was hosted by the IIA Cochin centre of the Kerala chapter.

On the 25th afternoon, there was a golf clinic for non-golfing architects at CIAL Golf Club to learn the intricacies of the game and also to get a first-hand experience of swinging at the golf ball. There were more than 40 architects across centres in Kerala.

Cochin Center, under the chairmanship of Ar Vijith Jagadeesh, organised a grand gala family evening at the

heritage property of Bolgatty Palace Golf Club, one of the oldest golf clubs in India. Ar Vijith also spoke on the occasion and welcomed the guest architects and golfers from all over India. IIA national president Ar C R Raju inaugurated the IIAPL golf event at this venue. IIA national council member Ar Lalichan Zachariah, IIA Kerala chapter chairman Ar L Gopakumar, and IIAPL Golf convenor Ar Binesh Sukumar spoke. Ar N Mahesh graced the occasion. Architects from more than seven chapters participated in this event.

The tournament's inaugural "T" off was done by Senior Ar N Mahesh at 6.45 AM on the 26th morning after the briefing by the tournament officials. The tournament was conducted in a stroke-play format with various categories, such as

- 0 to 9 handicap
- 10 to 16 handicap
- 17 to 22 handicap
- And above 23 handicap.

All the above had winners and runners-up trophies.

There were also prizes for the

- longest drive and
- closest to the pin.

The highlight was a special all- women’s category. The tournament also had a special prize for the maximum participation from chapters across India. There was a non-architect golfer putting competition for ladies and gents. The tournament concluded with prize distribution at the Hotel Marriott at 2 PM on September 26.

The largest participating chapter is the Maharashtra Chapter.
Ar Binesh Sukumar

Following are the winners in various categories of **IIAPL GOLF TOURNAMENT**

10-16 Handicap Winner - Ar Anupam Mittal Runner up Ar Gaurav Sing	Longest Drive 0-22 - Ar Jaiprakash 23 & Above- Ar Sebastain Jose.
17-22 Winner - Ar Vijayan Karumathil Runner up- Ar Viswanathan G	Closest to the pin. 0-22 (hole3) - Ar Anupam Mittal 0-22 (hole14) - Ar Jitendra Sing 22 & above - Ar S Gopakumar
23 & Above Winner - AR Ramachandran Runner up - Ar Balamurugan	Non Golfers Putting Competition Men - Ar Deepak Ladies-Ar Sharika
Ladies Winner - Ar Swetha Runner up- Manju Singh	



Above 22 handicap closest to the pin - **Ar. S Gopakumar**



Runner up 17-22 handicap - **Ar. G.Vishvanathan**



Longest drive 17-22 handicap - **Ar. Jaiprakash.**



WINNER above 23 handicap - **Ar. Ramachandran**



WINNER and Closest to the pin – 17-22 handicap - **Ar. Jitendra Singh**



RUNNER UP – above 23 handicap - **Ar. Balamurugan**



LADIES RUNNER UP – **Manju Singh**



WINNER 17-22 handicap - **Ar. Vijayan Karumathil**



Largest participating chapter MAHARASHTRA - **Ar. Soyuz Talib**



Non – Golfing Architects ladies putting competition WINNER - **Ar. Shringa**



WINNER Non-Golfing Architects putting competition. - **Ar. Deepak**



LADIES WINNER - **Ar. Swetha**



Longest drive above 23 handicap - **Ar. Sebastian Jose**

NEWSLETTER FEBRUARY

GENERAL NEWS



IIA Awards for Excellence in Architecture announced at a well organised Award Ceremony at Hyderabad, by IIA Telangana Chapter

IIA MERITORIOUS AWARD



Ms. K Vinodhini, Chennai.
(Reg.no. IV-160177)
IIA Examination (Scheme-2014)
(2017-2022)

The IIA Meritorious Award was initiated in 2012 by the IIA Board of Examination for the students of the IIA Examination who clear all the IIA course examinations in the first attempt. It is presented by the IIA president at a national IIA event. The award consists of a Certificate of Merit as well as a cash prize of Rs. 10,000/-.

This year's IIA Meritorious Award recipient is Ms. K. Vinodhini from Chennai. She has passed all parts of the IIA Examination (Scheme 2014) held from June 2017 to June 2022 in the first attempt and scored an overall score of 64.89%.

We at IIA, congratulate Ms. K. Vinodhini for her consistency and commitment, which led to her getting this meritorious award. We wish her the very best in attaining a bright future

IIA-Chandigarh Chapter



Mridul Kumar, IPS, speaking at ARCHEX.

Four-Day Expo ARCHEX at Chandigarh

The Indian Institute of Architects (IIA) Chandigarh Chapter, in association with Minds Media and Management Pvt. Ltd., organised ARCHEX, an exhibition on interiors, exteriors and construction materials, from February 10 to 13 at the Parade Ground in Sector 17 Chandigarh. It is supported by the Green and Eco-Friendly Movement (GEM) of ASSOCHAM and the Fire & Security Association of India (FSAI). Chandigarh Mayor Anup Gupta was the Chief Guest who inaugurated the exhibition.

The exhibition had participation from local, pan-India dealers and companies from various segments. While addressing the media, Vice Presidents of Minds Media B.S. Rana and Inder Dhingra said, "More than 120 big brands had come from across the country and showcased the latest, trendy products and services regarding building and redesigning structures." ARCHEX Expo presented the latest trends in the world of interiors, elaborating on technology, innovations, equipment and concepts for the architectural and design communities. This show is catering to the interior and exterior designing needs of people.

ARCHEX brought all the architects, interior designers, builders, engineers, developers, real estate consultants, contracting companies, hoteliers and technology providers under one roof for displaying and sourcing their products conveniently. Various segments on display included bath and sanitary, natural stone, marble, granite, tiles, ceramics, water technologies, designer doors and windows, flooring, roofing techniques, home furnishings, home and office furniture, kitchen and bath technologies, electrical etc to name a few.

President Surinder Bahga of FSAI, said, "An architects conclave, panel discussion and seminar were part of the Expo, which involved discussions on the latest architectural concepts along with issues pertaining to Chandigarh city." Architect Shiv Dev Sing, Chairman IIA, said "All-new context including a unique architectural landscape, the expo has embraced opulent products and technology, thereby taking the architectural scene a notch higher in Chandigarh."

Panel discussion on "Chandigarh: Growth vs. Preservation".

A panel discussion on the topic "Chandigarh: Growth



Surinder Bahga speaking at the seminar.



Speakers of the seminar.

vs. Preservation" was organised at the expo, moderated by Architect Shilpa Das. Opening remarks were given by architect Surinder Bahga, followed by a presentation on the Smart City. The panel discussion was attended by Mayor Anup Gupta, Member Sumit Kaur, Chandigarh Heritage Committee, Namita Singh, practising architect, Principal Sangeeta Bagga (Chandigarh College of Architecture), Vinod Vashisht, Convener, (Resident Welfare Organization) and Kapil Setia, Chief Architect, UT. The mayor participated in the panel discussion soon after inaugurating the expo. Mayor Anup Gupta said "I feel proud when I represent Chandigarh in other countries since it has its own character, but I see a lot of growth happening in these countries, which is not happening here. While there is a need to maintain a balance between character and growth, heritage should not get in the way of the city's progress." Mr. Sumit Kaur, said "It is only because of maintaining its character and retaining the heritage that Chandigarh is a liveable and globally recognized city."

Seminar on "Next Generation: New Architecture".

The architecture profession has undergone many changes over the last few years due to changing economic conditions, the advent of new materials and technologies and the living habits of people. This seminar titled "Next Generation: New Architecture," was conceptualised to showcase the trends in New Architecture, especially in the last decade or so. Many leading architecture colleges, universities, architects, engineers and builders participated in the seminar. Mr. Surinder Bahga said "It is the first time in this region that works of young architects were being shown to the audience in this manner."



Chandigarh Mayor seeing the exhibits.



Vendors attending to visitors.



An artist showing his work.

Superintendent of Police, Chandigarh, Mr. Mridul Kumar IPS, who was the chief guest on this occasion, appreciated the initiative of the organisers and emphasized the importance of modern architecture.

The keynote address was delivered by Dr. Harveen Bhandari, Dean of Research & Scholastic Development, Chitkara School of Planning & Architecture. She commented on the passionate young architects of India specializing in building environments that are culturally significant, creating beautiful functional spaces with out-of-the-box designs appealing to relevant social and physical context.

Sheetal Sharma a young architect, opined that projects spread across various sectors, in both architecture and interior designs were aimed at reinventing, transforming and enlivening spaces into an environment that



Ar Parveen Chopra being honoured.



(L-R): Inder Dhinga, Ar SD Singh, Ar Bahga, BS Rana addressing a Press Conference.

responds to its occupants. This was done with the use of innovative designs reflected by a contemporary play of materials with a judicious use of technology.

Practicing architect Aman Sohal shared some of his recently completed projects. He said, "The seminar has exhibited our architecture in the form of storytelling, demonstrating how the "inside" becomes relevant in creating an experience of the architecture. This is done by laying emphasis on the use of natural light and creating progressive transitions in architectural designs."

Architect Noor Dasmesh emphasised the need of designing buildings to suit local climate, conditions and topography. A vote of thanks was presented by Mr. Shiv Dev Singh.

Many awards were also given to architects and other professionals for their contributions. These included Paramjit Viridi (Lifetime achievement), Sumit Kaur (Government Service), Tarsem Singh (Artwork), Parveen Chopra (Steel building), Bhupinder Singh Sandhu (Fire safety), Rajan Mittal (MEP Services), Gagandeep Singh Ghai (Railway Infrastructure), Vikas Dubey (Residential Architecture), Dr. Balkar Singh (Energy Conservation), Harish Gandhi (Commercial Architecture), NK Negi (Hill Architecture), Dr. Sanjay Sharma (Structural Engineer), Nand Lal Chandel (Hill Architecture). Ar Sudanshu Nagpal, Ar Puneet Narang, Ar Rahul Bamba, and Vivek Mittal were also honoured for excellence.

Dr. Sanyam Bahga
IIA, Chandigarh Chapter

WELCOME NEW IIA MEMBERS

11th Council Meeting Held at Raipur (Chhattisgarh) on 5th January, 2023.

Sr. No.	Associate to Fellow	Memb. No.	Place
1	Ar. Vikas Dubey	F18595	Jammu & Kashmir
2	Ar. Harinder Arora	F09983	Jammu & Kashmir
3	Ar. Brijinder Singh Chibb	F13601	Jammu & Kashmir
4	Ar. Archana Razdan	F13599	Jammu & Kashmir
5	Ar. Vishal Abrol	F12704	Jammu & Kashmir
6	Ar. Shamlal Suri	F10063	Jammu & Kashmir
7	Ar. Naresh Kumar	F13416	Himachal Pradesh

Sr. No.	Direct Fellow	Memb. No.	Place
1	Ar. K Venkatesh Kumar	F26501	Coimbatore
2	Ar. Umair Rehaman	F26502	Karnataka
3	Ar. Srishti Srivastava	F26503	Karnataka
4	Ar. Satya Kiran Manepalli	F26504	Karnataka
5	Ar. Deepak Satyapal Puri	F26505	Karnataka
6	Ar. Milind Laxman Nulkar	F26506	Karnataka

Sr. No.	Associate	Memb. No.	Place
1	Ar. Sourav Ganguli	A26507	West Bengal
2	Ar. Nigam Bhaskarrao Oza	A26508	Ahmedabad
3	Ar. Faith Abdul Rasak Asharaf	A26509	Thiruvanthapuram
4	Ar. Manisha Mohanty	A26510	Odisha
5	Ar. Nithyana Shaji Kolenchery	A26511	Cochin
6	Ar. Chinthamani G	A26512	Chennai
7	Ar. Pratikkumar Rameshchandra Chandresha	A26513	Surat
8	Ar. Saamil Gupta	A26514	Jammu & Kashmir
9	Ar. Rohit Narendranath Mudaliar	A26515	Raipur
10	Ar. Suraj S	A26516	Cochin
11	Ar. Lydin George	A26517	Cochin
12	Ar. Arunkumar Phalgunan Chellamma	A26518	Cochin
13	Ar. Anju Mukundan	A26519	Malappuram
14	Ar. Faiz Saleem	A26520	Uttar Pradesh
15	Ar. Saurabh Saxena	A26521	Uttar Pradesh
16	Ar. Faraz Ahmad Siddiqui	A26522	Uttar Pradesh
17	Ar. Saad Suhail	A26523	Uttar Pradesh
18	Ar. Malvika Shrivastava	A26524	Bareilly

19	Ar. Ankur Srivastava	A26525	Uttar Pradesh
20	Ar. Chhabi Srivastava	A26526	Uttar Pradesh
21	Ar. Mohammad Sadique Ansari	A26527	Uttar Pradesh
22	Ar. KM Aditi Tripathi	A26528	Uttar Pradesh
23	Ar. Rohit Khandelwal	A26529	Uttar Pradesh
24	Ar. Yashashvi Prasad	A26530	Uttar Pradesh
25	Ar. Anoop Kumar Sharma	A26531	Uttar Pradesh
26	Ar. Raj Kumar	A26532	Hisar
27	Ar. Ravindra Kumar	A26533	Hisar
28	Ar. Divyansh	A26534	Hisar
29	Ar. Anupma	A26535	Hisar
30	Ar. Pankaj Garhwal	A26536	Hisar
31	Ar. Rakesh	A26537	Hisar
32	Ar. Naman Allawadi	A26538	Hisar
33	Ar. Parteek Godara	A26539	Hisar
34	Ar. Nishima	A26540	Hisar
35	Ar. Garima Goyal	A26541	Hisar
36	Ar. Aboli Aniruddha Pallavi Gurjar	A26542	Thane
37	Ar. Anway Vinay Nilima Patil	A26543	Brihan Mumbai
38	Ar. Pooja Ramesh Bharati Jambekar	A26544	Thane
39	Ar. Yogesh Subhash Suman Jadhav	A26545	Thane
40	Ar. Ashwin Santosh Reema Kulkarni	A26546	Thane
41	Ar. Amol Balu Patil	A26547	Thane
42	Ar. Pankaj Bansilal More	A26548	Thane
43	Ar. Rashmi Bharat Aarti Thakur	A26549	Thane
44	Ar. Vaishali Satish Sule	A26550	Thane
45	Ar. Anvay Nandkumar Bhandari	A26551	Thane
46	Ar. Parimal Shashikant Kavita Rahate	A26552	Thane
47	Ar. Supriyesh Pradeep Prajakta Varadkar	A26553	Kalyan
48	Ar. Manali Dnyandeve Darshana Sawant	A26554	Kalyan
49	Ar. Snehal Suhas Rekha Borole	A26555	Thane
50	Ar. Sanika Nitin Suchita Borole	A26556	Thane
51	Ar. Shreya Santosh Vidula Dalvi	A26557	Thane
52	Ar. Neha Rohan Patne	A26558	Brihan Mumbai
53	Ar. Meetkumar Arvind Manjula Patel	A26559	Thane
54	Ar. Harshal Uttam Sangita Dhaigude	A26560	Brihan Mumbai

55	Ar. Siddhi Santosh Snehal Hajare	A26561	Thane
56	Ar. Nilesh Harishchandra Geeta Chogale	A26562	Kalyan
57	Ar. Sandeep Mhatre	A26563	Thane
58	Ar. Madhavi Mandar Mulekar	A26564	Thane
59	Ar. Ria Kailash Ratan Jain	A26565	Thane
60	Ar. Bhavesh Giridhar Sadhana Mhatre	A26566	Thane
61	Ar. Shubhankar Ashok Anita Jogalekar	A26567	Thane
62	Ar. Masoom Dilip Roopa Marathe	A26568	Thane
63	Ar. Ravindranath Manikrao Sushila Anasana	A26569	Thane
64	Ar. Snehal Sadanand Smita Chorge	A26570	Thane
65	Ar. Devesh Pramod Hema Bapat	A26571	Thane
66	Ar. Pankaj Shantilal Surana	A26572	Thane
67	Ar. Prathamesh Santosh Mane	A26573	Thane
68	Ar. Gauri Manjeet Pradhan	A26574	Thane
69	Ar. Vivek Sanjay Renu Pathak	A26575	Kalyan
70	Ar. Nikhil Vinod Dharap	A26576	Thane
71	Ar. Charulata Nabar Lotke	A26577	Thane
72	Ar. Jagbir Singh	A26578	Uttar Pradesh
73	Ar. Praneet Madaan	A26579	Uttar Pradesh
74	Ar. Akanksha Singh	A26580	Northern
75	Ar. Nishant Arora	A26581	Gurgaon
76	Ar. Sanika Tushar Ratnaparkhi	A26582	Pune
77	Ar. Vaissnavi Kamleshbhai Shukl	A26583	Ahmedabad
78	Ar. Gopalan M	A26584	Tamil Nadu
79	Ar. Saswata Maity	A26585	West Bengal
80	Ar. Shaan Bimal Patel	A26586	Ahmedabad
81	Ar. Ajith Vishwa Kumar M	A26587	Madurai
82	Ar. Mathangghi A P	A26588	Madurai
83	Ar. Sowmya V	A26589	Madurai
84	Ar. Pavithran A	A26590	Madurai
85	Ar. Kayalvizhibharathi B	A26591	Madurai
86	Ar. Anish Deepika S	A26592	Madurai
87	Ar. Kafeel Ahmed Farozy	A26593	Jammu & Kashmir
88	Ar. Shaheen Chowdhery	A26594	Jammu & Kashmir
89	Ar. Yadu Mohandas	A26595	Kerala
90	Ar. Jishnu K Madhu	A26596	Kerala
91	Ar. Ajith Jose	A26597	Cochin
92	Ar. S S Nandana Nair	A26598	Kollam
93	Ar. Kumar Mangalam Gupta	A26599	Bilaspur

94	Ar. Babasaheb Mhaske	A26600	Pune
95	Ar. Tejaswini Bramhadev Jadhav	A26601	Pune
96	Ar. Devamanohari M	A26602	Madurai
97	Ar. Siddhartha Mondal	A26603	West Bengal
98	Ar. Krishna Sunil Varma	A26604	Akola
99	Ar. Siddhesh Prashant Khandale	A26605	Akola
100	Ar. Vickram Vijay Kejadiwal	A26606	Akola
101	Ar. Pratik Dilip Bharambe	A26607	Akola
102	Ar. Pawan Rajendra Alset	A26608	Akola
103	Ar. Shubham Suryaprakash Sharma	A26609	Akola
104	Ar. Deepak Chandrabhan Thavrani	A26610	Akola
105	Ar. Shreyas Atul Saoji	A26611	Akola
106	Ar. Hema Anand Sadhwani	A26612	Akola
107	Ar. Gaurav Harish Sadhwani	A26613	Akola
108	Ar. Kiran Shyamsunder Sadhwani	A26614	Akola
109	Ar. Shreya Pawan Chaudhari	A26615	Akola
110	Ar. Madhura Ganeshrao Wankhade	A26616	Akola
111	Ar. Muskan Kanhaiyalal Agrawal	A26617	Akola
112	Ar. Nikita Rakesh Agrawal	A26618	Akola
113	Ar. Aayush Vivek Gupta	A26619	Akola
114	Ar. Neerag Pravin Heda	A26620	Akola
115	Ar. Nidhi Rajendra Chhatbar	A26621	Akola
116	Ar. Rohan Anantrao Chopade	A26622	Akola
117	Ar. Sanil Kumar	A26623	Calicut
118	Ar. Jaffer Sadiq K S	A26624	Chennai
119	Ar. Aruna Chunilal Baghel	A26625	Jodhpur
120	Ar. Sahana S	A26626	Karnataka
121	Ar. Navya Panyam	A26627	Northern
122	Ar. Aboli Sahebrao Aruna Tavhare	A26628	Navi Mumbai
123	Ar. Triveni Amaranath	A26629	Karnataka
124	Ar. Kavin K	A26630	Tamil Nadu
125	Ar. Fathimathul Asna	A26631	Kerala
126	Ar. Gayathri S	A26632	Palakkad
127	Ar. Gilna T Pragith	A26633	Palakkad
128	Ar. Nikhil Bhandari	A26634	Rajasthan
129	Ar. Kshiti Bhargava	A26635	Bhopal
130	Ar. Mehul Patel	A26636	Karnataka
131	Ar. Mohamed Muneer T	A26637	Coimbatore
132	Ar. Niveditha S	A26638	Thanjavur

133	Ar. Shubhra Pande	A26639	Karnataka
134	Ar. Chandra Sai Kumar Ramavarapu	A26640	Visakhapatnam
135	Ar. Muhammed Shafaf	A26641	Kannur
136	Ar. M Manasa Nandini	A26642	Karnataka
137	Ar. Jobin John	A26643	Kerala
138	Ar. Rohini Iyengar	A26644	Karnataka
139	Ar. Muhammad Badshah	A26645	Calicut
140	Ar. Swathi Nair C C	A26646	Kannur
141	Ar. Athulya Raveendran	A26647	Kannur
142	Ar. Sooraj M	A26648	Kerala
143	Ar. Rishma R S	A26649	Kannur
144	Ar. Radha Shobban D	A26650	Madurai
145	Ar. Mukesh Arvind P R	A26651	Salem
146	Ar. Pithani Devika	A26652	Kakinada
147	Ar. Penkey Satish	A26653	Kakinada
148	Ar. Sanjay S	A26654	Tamil Nadu
149	Ar. Ramya Prasad	A26655	Puducherry
150	Ar. Sayantan Maitra	A26656	West Bengal
151	Ar. Suniti Subhash Inamdar	A26657	Aurangabad
152	Ar. Manjunath C N	A26658	Karnataka
153	Ar. Harmeet Singh	A26659	Ludhiana
154	Ar. Heera Dinesh	A26660	Kannur
155	Ar. Aswin N	A26661	Kerala
156	Ar. Parthasarathi K S	A26662	Tamil Nadu
157	Ar. Amol Shrihari Rekha Sorte	A26663	Navi Mumbai
158	Ar. Jyothisree Anilakumar	A26664	Kerala
159	Ar. Joel Prince	A26665	Kottayam
160	Ar. Sneha Gurjar	A26666	Northern
161	Ar. Himanshi	A26667	Sonipat
162	Ar. Amjad K	A26668	Kannur
163	Ar. Pendem Sriharsha	A26669	Andhra Pradesh
164	Ar. Kritika Gaggar	A26670	Assam
165	Ar. Jan Susanna Philip	A26671	Kerala
166	Ar. Sneha Latha Reddy Ariga	A26672	Andhra Pradesh
167	Ar. Bhagyasri K	A26673	Tiruchirappalli
168	Ar. Amrutha Jayachandran	A26674	Kannur
169	Ar. Tony Joy	A26675	Kannur
170	Ar. Praveena Taunk	A26676	Raipur
171	Ar. Pratik Purushottam Purkar	A26677	Nagpur

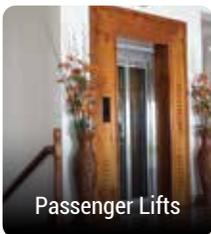
172	Ar. Aiswarya P Raj	A26678	Cochin
173	Ar. Leah Ann George	A26679	Kannur
174	Ar. Happychaya Patiri	A26680	Assam
175	Ar. Priya A	A26681	Andhra Pradesh
176	Ar. Kushan Neog	A26682	Assam
177	Ar. Lakshmi Prasanna Pidaparathi	A26683	Andhra Pradesh
178	Ar. Biswa Jyoti Boruah	A26684	Assam
179	Ar. Roop Chanda	A26685	Karnataka
180	Ar. Prineeth Kumar S	A26686	Tamil Nadu
181	Ar. Sonu T Surendran	A26687	Thrissur
182	Ar. Azmat Khan	A26688	Uttar Pradesh
183	Ar. Maheshkumar N	A26689	Tamil Nadu
184	Ar. Yash Gopalbhai Khera	A26690	Saurashtra
185	Ar. Sachin Yadav	A26691	Uttar Pradesh
186	Ar. Amaya P P	A26692	Chennai
187	Ar. Manan Laxmidas Govani	A26693	Surat
188	Ar. Puneet Mehrotra	A26694	Ahmedabad
189	Ar. Pradeep Kanna K	A26695	Tamil Nadu
190	Ar. Jinti Borgohain	A26696	Assam
191	Ar. Shubham Arun Kaware	A26697	Nagpur
192	Ar. Hiloni Sanjay Sutaria	A26698	Ahmedabad
193	Ar. Pallavi Patil	A26699	Karnataka
194	Ar. Prashant Kochhar	A26700	Northern
195	Ar. Venkateshababu M	A26701	Tamil Nadu
196	Ar. Kapil Jagdish Kabra	A26702	Brihan Mumbai
197	Ar. Sowmya Muralidhar	A26703	Karnataka
198	Ar. Chaitanya Ram Agrawal	A26704	Raipur
199	Ar. Dharmesh Bhupendra Palan	A26705	Brihan Mumbai
200	Ar. Lalitha Kumari Bandaru	A26706	Visakhapatnam
201	Ar. Umesh Sharadchandra Wakaley	A26707	Pune
202	Ar. Vrushali Sunil Deshpande	A26708	Pune
203	Ar. Swaroop Seby Cheruvathur	A26709	Kerala
204	Ar. Kavita Keshav Kulkarni	A26710	Mehsana Gandhinagar
205	Ar. Dilip Singh Rathore	A26711	Udiapur
206	Ar. Anton Joshil J	A26712	Tamil Nadu
207	Ar. Vanya Simon G	A26713	Tamil Nadu
208	Ar. Prasanth R	A26714	Palakkad
209	Ar. Aswin V Mammen	A26715	Kerala
210	Ar. Sunil Kumar Maurya	A26716	Maharashtra

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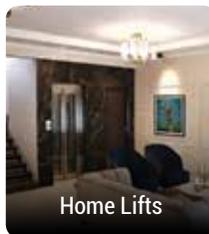
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