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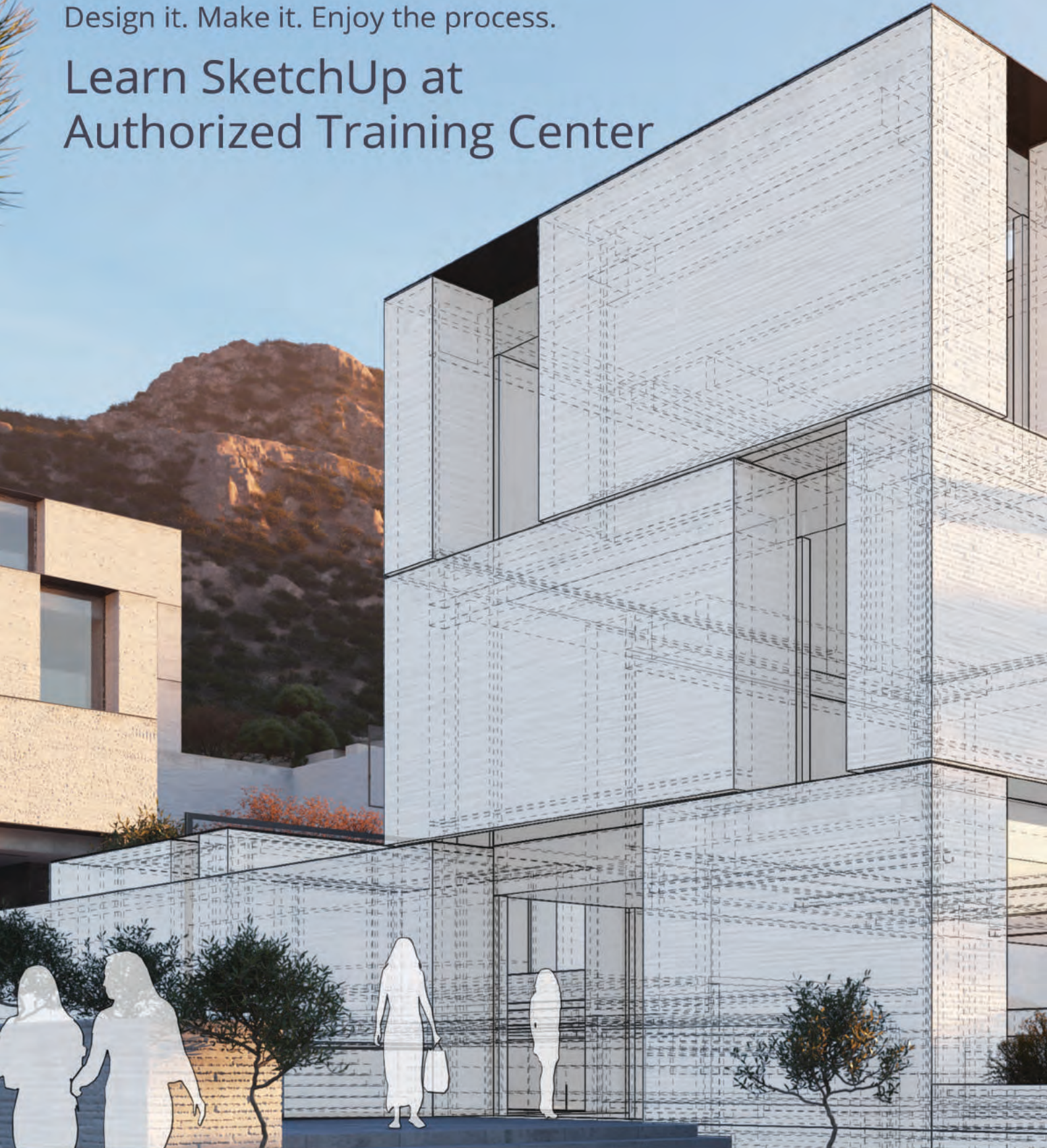
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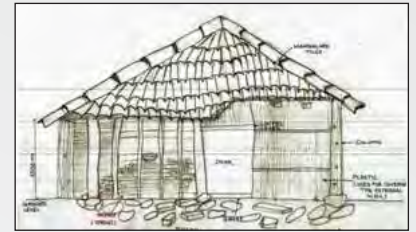
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Ar. Anand Palaye

EDITORIAL

Dear Fellow Architects and readers

We are pleased to present a collection of papers and articles on a variety of subjects that are integral to architecture.

Ar. Niranjan Garde in his paper on 'Humanities' a subject which plays an important role in shaping the architectural students in their formative stage, has described their approach in selection and analysis of a first-year syllabus through a case study.

Ar. Ankit Bansal has emphasised the relevance and importance of the learnings of from ancient history even in the present age in the article 'The mystery of our ancestral history need of the hour'.

Ar. Prof. Asif Khan and **Dr. N. Lakshmi Thilagam** have elaborated on the Architectural Design Education and how a cognitive approach would make the design responses more appropriate.

Architectural Student Madonna Miranda has written about an extremely sensitive and important aspect of mishaps due to faulty constructions that result in losses of life and property through her article on Accreditation program for building departments.

Ar. Sunanda Satwah has various aspects of how media and architecture are almost inseparably woven together and its effects in the present day architecture being built in her article on 'Role of Media in Architecture'.

We are sure our readers will find these articles interesting.

A handwritten signature in black ink, appearing to read 'Anand Palaye', with a horizontal line underneath it.

Ar. Anand Palaye

Chairman - Publication Board & Executive Editor, JIIA



Ar. Divya Kush

PRESIDENT'S MESSAGE

Dear Fellow Architects,

Warm Greetings,

This issue of the Journal has articles & research papers by eminent authors on a variety of important & interesting subjects like Humanities, Mystery of Ancestral History, A Cognitive Approach to Architectural Design Education, Role of Media in Architecture & also an article on Accreditation Program for Building Departments by a final year B.Arch student.

I am sure, as always, the papers & articles in this issue will prove to be very interesting & informative for the readers.

A handwritten signature in black ink that reads "Divyakush".

Ar. Divya Kush
President,
The Indian Institute of Architects

- Great Master's Award/Chairman's Award which is by nomination for lifetime /outstanding contribution to Architecture profession, is "GIVEN ONCE IN TWO YEARS". Next is due in 30th JK AYA. i.e. From 1st January, 2020.
- All other Awards are declared annually by selection of a project completed during calendar year 2017 / 2018.
- **There is no fee for participation.**



2. AWARD CATEGORIES & Prizes For 29th JK AYA

GREAT MASTER/CHAIRMAN'S AWARD

(There is one award under this category)

- 2.1 Open to Architects from :
India, Bangladesh, Bhutan, Kenya, Maldives, Mauritius,
Nepal, Seychelles, Sri Lanka, Tanzania & Uganda

(GIVEN ALTERNATE
YEAR - NEXT DUE IN
30th JK AYA)

INR 3 Lacs (Approx. US\$ 5000),
Trophy & Citation.

GREEN ARCHITECTURE (Environment Conscious Design)

(There is one award under this category)

(10 point write-up justifying green status is a MUST. Each point not exceeding two sentences. Drawings should show green features in distinct colour. Mention shall be made about number of occupants of the building & use of building.)

- 2.2 Open to Architects from :
India, Bangladesh, Bhutan, Kenya, Maldives, Mauritius,
Nepal, Seychelles, Sri Lanka, Tanzania & Uganda

INR 2 Lacs (Approx. US\$ 3300),
Trophy & Citation.

INDIAN ARCHITECTURE AWARDS (IAA)

(There are Seven awards under this category)

- | | | | |
|-----|---|--|-----------------------------------|
| 2.3 | Architect of the Year Award Commendation Awards For : | | INR 1.75 Lacs, Trophy & Citation. |
| 2.4 | Private Residence (PR) | | INR 1.25 Lacs, Trophy & Citation. |
| 2.5 | Group Housing (GH) | | INR 1.25 Lacs, Trophy & Citation. |
| 2.6 | Public Building (PB) (In case of Public Building minimum built - up area should be 1000sq. meter) | | INR 1.25 Lacs, Trophy & Citation. |
| 2.7 | Make it New (MiN) (Please see Leaflet about "Make it New" Category attached to entry form 3.2 A) | | INR 1.25 Lacs, Trophy & Citation. |
| 2.8 | Young Architect's Award | | INR 75,000/-, Trophy & Citation. |
| 2.9 | Architecture Student of the Year (Only for Colleges in India) | Winner Student shall be awarded at National Level with all other winners. | INR 25,000/-, Trophy & Citation. |

INDIAN STATE ARCHITECTURE AWARDS (ISAA)

(There are three awards under this category)

(Focus States : Andhra Pradesh, Orissa & Telangana)

- | | | | |
|------|------------------------------------|--|-----------------------------------|
| 2.10 | State Architect of the Year Award | | INR 1.25 Lacs, Trophy & Citation. |
| 2.11 | State Architect Commendation Award | | INR 75,000/-, Trophy & Citation. |
| 2.12 | State Young Architect's Award | | INR 50,000/-, Trophy & Citation. |

FOREIGN COUNTRIES' ARCHITECTURE AWARDS (FCAA)

(There are three awards under this category)

(Foreign Countries : Bangladesh, Bhutan, Kenya, Maldives, Mauritius, Nepal, Seychelles, Sri Lanka, Tanzania & Uganda)

- | | | | |
|------|--|--|--|
| 2.13 | Foreign Countries' Architect of the Year Award | | INR 1.75 Lacs, (Approx. US\$2900) Trophy & Citation. |
| 2.14 | Foreign Countries' Commendation Award | | INR 1.25 Lacs, (Approx. US\$2000) Trophy & Citation. |
| 2.15 | Foreign Countries' Young Architect's Award | | INR 75,000/-, (Approx. US\$1250) Trophy & Citation. |

Grand Total **14** Prizes in 29th JK AYA

Last date for Submission of ENTRY : 30th June, 2019

For details, log on to : www.aya-jkcement.com

Selection of Case study/ situations and preparations :

We required a more direct or less sophisticated relationship of Man and Nature, wherein wholesome awareness of following factors that informed the character of built environment, could be perceived by the students, namely: agricultural practices, resources of food supply and storage systems, construction practices (and usage of habitable spaces), animal husbandry, tools and equipments that form a part of their life style, clothing, and forms of art.

These factors became the criteria of selecting case studies - extremely small hamlets located along the backwaters of Panshet dam. These hamlets were untouched by urbanizing forces and continue to depend extensively on natural environment (climate and agricultural practices). We did a reconnaissance survey and shortlisted four settlements - Kadve, Varghad, Giwashi and Shirkoli. We were assisted in conceptualizing the approach and selecting the cases by *Oikos*, a firm involved in Nature Restoration and Biodiversity Conservation.

Planning of the Semester :

Humanities was conducted for three consecutive lecture periods (45 minute duration each) once a week for a total of 12 weeks. Thus, we were looking at 12 interactive sessions with the batch. We spent four sessions for orienting the students to the Theme/ purpose of the subject along with preparing them for the planned site visit, one day for site visit, followed by balance six sessions for studio working and discussions to generate tangible output in terms of quarter imperial sized portfolios. We describe each stage of conducting humanities studio as follows :

Orienting the students to site visit :

To begin with, the students were shown a ten minute video clip of '*Varasa*' conceptualized by *Oikos*. *Varasa* focuses on indigenous lives of rural settlements in Maharashtra and how an intimate relationship of ecology and their life exists. We thought that the idea of wholesomeness of architectural phenomenon could be referred to this video (*Oikos*, 2017). The students were asked to review the clip and state the categories under which, architecture seems to be informed.

As far as the case study is concerned, observation, sketching and drawing expressions were intended to be a part of documentation process. Therefore a discussion about the site settlements and the probable interview questions to be asked to the people were discussed with the students and a list of questions was prepared. The categorize under which, questions were to be visualized were - community information (people, occupation, family unit, daily routine, activity patterns etc.), nature of built habitat (construction, material, processes of doing, processes of maintaining, systems of protection, spaces organized etc.), food cycle (agriculture, cropping patterns, proximity to habitat, storage areas, tools and equipments etc.), art (any signs of painting, dance, festivals and corresponding spaces). The students were

divided into four groups (from 10 to maximum 20 people) and each group was given one settlement to study. Some references for doing preliminary drawing exercises were also undertaken to represent the nature of the built environment corresponding to the organic spatial quality (Alghamdi, Mohammad., Bhat, Vikram., Rybczynski, Witold. 1984)

Planning at site :

All the four groups with six faculty members were taken to the settlements early morning. One entire day was planned for this exercise. Each of the group interacted with the villagers in the settlement. The students were free to enter any house, observe the physical built and unbuilt environment, interview people, take photos and sketch spaces/ items/ activities. They were also told to prepare a list of spoken terms that they thought 'new' and had to categorize these words denoting space, furniture, activity, food. As felt necessary, photos and recording were taken by consent.

The final compilation of above data (portfolio) was generated in groups of three students. Each portfolio consisted of cognitive map of settlement, sketch plan, section and elevation of a house with local terminology of spaces, elements and other architectural and non-architectural elements. Interviews were transcribed as felt necessary. And each student within the group was told to graphically illustrate the idea of inter-relationships of phenomena and illustrate the idea of settlement through drawing. The following illustrations (Fig. 2 to Fig. 5) are an output of one portfolio of three students.

Faculty Learning :

We feel that the relationship of Man and Nature has been satisfactorily attempted by the students. Many ideas, especially about interconnection diagrams were a result of their observations of the site and ongoing studio discussions with the faculty. One such idea is expressed below diagrammatically :

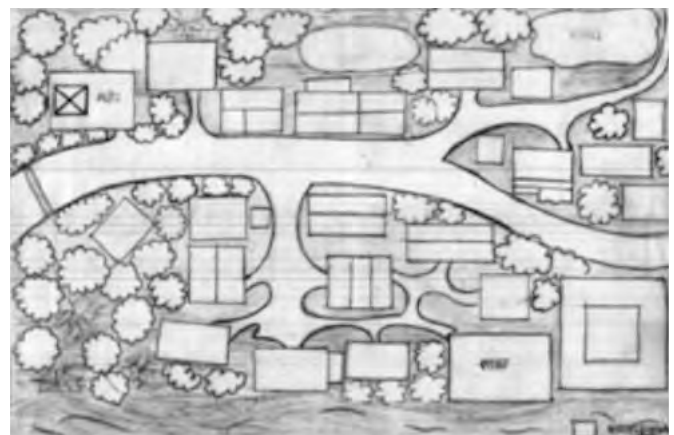


Fig. 2. : Cognitive map of Givashi - Note the distribution of pathways, built forms, panshet backwater and landscape elements shown in the map. Credits - Rajsheel Bhutkar, Ankita Bura, Muskan Chatwani

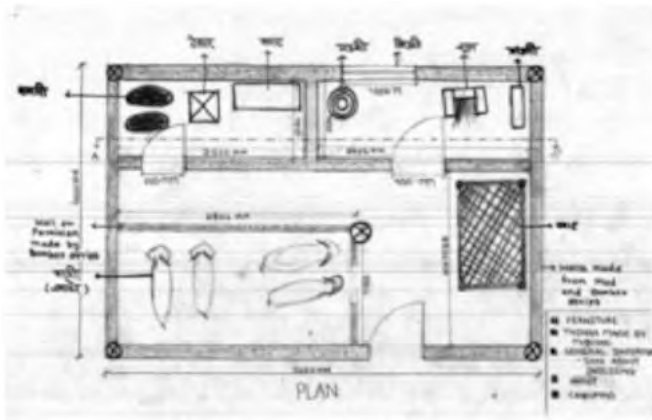


Fig. 3. : A typical unit plan showing spaces, furniture items in local terminology.
Credits - Rajsheel Bhutkar, Ankita Bura, Muskan Chatwani



Fig. 4. : Typical schematic elevation of one dwelling.
Credits - Rajsheel Bhutkar, Ankita Bura, Muskan Chatwani



Fig. 5. : Photos depicting local food resource, spaces of storage and indication of how many people were required for constructing the dwelling.
Credits - Rajsheel Bhutkar, Ankita Bura, Muskan Chatwani



Fig. 6. : Student's attempt to show interconnections or factors that affect the creation of built environment.
Credits - Sanika Mate

Emphasis on the use of local terminology also pushed the students to see 'space' as a contextual idea - an idea that is informed from geography/ environment primarily and subsequently by ways of doing things. The phenomenological approach ensures that students need to 'interpret' the situation based on their own discoveries and reliance on internet therefore becomes redundant. Necessarily, the post-site studio interactions become more discussion oriented and modes of debates and discussions churn out ideas of interpretation - for students as well as the faculty. The mode of inquiry, therefore, places students and faculty at a peer-to-peer level and faculty learns as much as the students themselves. Apart from this, students learn to see 'form' as a result of various factors stemming from geography, history and indigenous values. Thus, talk of 'local', 'sustainability' become extremely contextual and they start to be viewed critically, thereby avoiding generic usage. The learning gets carried forward for subjects such as history of Architecture in succeeding terms, wherein the built form is seen in contextual

terms. Humanities can also be seen as a potential to sensitize student's understanding of a design response. Naturally, their way of looking at architectural design also changes in appropriate ways.

Acknowledgement :

We wish to express our acknowledgement to Ketaki Ghate, Founder and Managing Partner of Oikos For Ecological Services for helping us in conceptualizing the exercise and Sarika Gidde for assisting and accompanying in reconnaissance survey of the hamlets.

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1. Oikos For Ecological Services., (2017). Varasa..., Retrieved from <https://www.youtube.com/watch?v=AZp27a9eArc>.
2. Alghamdi, Mohammad., Bhat, Vikram., Rybczynski, Witold. (1984). How the Other Half Builds, (Vol 1).

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The Mystery Of Our Ancestral History : Need Of The Hour



Ar. Ankit Bansal - Email : ankitb83@gmail.com

Ar. Ankit Bansal is a qualified architect from India, having completed his bachelor's degree with honors, from School of Planning and Architecture (SPA), Delhi, India in 2006.

Over a period of more than twelve years in the field of Architecture he has worked with world renowned Architect Raj Rewal and currently associated with him as consultant architect for his various projects. Along with that he has been associated with M/s. ACME Consultant, Kolkata as their principal architect for all their new and upcoming projects.

A Registered Architect with Council of Architecture, India (CA/2007/40416) and Indian Institute of Architect (A-22224) he has successfully designed and got lot of projects executed at site. He has been invited as external jury and examiner at State University of Performing & Visual Arts, Rohtak, Haryana and Lovely Professional University, Phagwara, Punjab. He has also given lectures at various different schools of architecture.

The world as we know of it today has long history dating from the Palaeolithic Era ("Early Stone Age") followed by Neolithic Era ("New Stone Age") where humanity evolved and started agricultural revolution and farming which was the corollary of settled lifestyle from a nomadic way of living.

The change in lifestyle and reliability on source of portable water gave world its first known civilizations Mesopotamia and Indus valley. These civilizations were the founding stones of the modern day cities and urbanization. The neisses of modern era in which we all are living and trying to thrive.

But in past few decades with modernization and advancement in technology life has become fast and there has been commercial evolution leading to rapid growth in urbanization which has forced us in utilizing industrial products and forgetting our roots and the ancient ancestral techniques and principles of a unified approach to art and science. Our dependency on indirect energy sources and way of living is depleting the natural resources and degrading the environmental conditions at a very rapid pace. The planet needs to be revived from this depleting state of affairs and a new way and approach needs to be taken up. We need to look back at the foundation itself where sustainability and ecology are very important part of design and planning. The word Ecology which comes from Greek origin and has been

formed by two expressions 'oikios' meaning house and 'logos' which means study or science, together they form the study or science of local habitat.

In ancient history the word ecology had a deeper meaning and was not limited to the study of surroundings but it was the study of homes and spaces which included both the context in which they were found and also the procedure observed in building and occupying them. Cities and buildings have always served a dual purpose. One is to do with the function they serve 'The use' and the other one being the statement it makes 'The identity'. Both these aspects are result and effect of climate, terrain, the play of light and building materials which are used wisely.

All the ancient cities were based on few principles, the principles that made them ecologically sustainable. Ancient cities have always responded to the functional requirement concerning the climatic needs and the needs of the community. Thought for the local setting and the urban fabric, use of local materials that respected the natural environment and were most suitable for the region played a vital role in the initial planning. Elements of design such as courtyards, varied roof design, street design, orientation, the overall layout and master plan were few of the key points which took into account sun, wind and natural ventilation and other natural phenomena's.

With industrialization and innovation we have started to neglect these basic principals of design and 'The context'. New materials have given way to design and build any structure without any concern to the natural environment and habitat. Modern cities are mere glass and steel towers used without thought or planning. These cities have lead to the increase in total carbon foot print of the plant. Each material being used in this so called modern era consumes lot of energy in their production and more energy is required to install the same. Creating small parcels of heat islands and eating up the greens which are the lungs of the city has lead to climatic changes on global levels.

The aim that any design approach has is to improve the quality of life not only in terms of economy but holistically in terms of health and living conditions. The ancient art of Indian Vaastu Shastra and Chinese system of Feng Shui are few of the ways to provide a good quality of life. The principles of these two systems at the end of the day if understood deeply which take into account all the natural conditions and phenomena's can be adapted to the modern way of thinking and designing and can be abided into our concepts of space, form, function, climate, wind direction and orientation.

In today's time we are looking at different alternatives to reduce the use of energy in construction. And one of the most popular way of doing so is building Green buildings. Green buildings is defined as "a building created with proposes and building development which considerably decrease or eradicate unenthusiastic force of buildings on the atmosphere and residents." But is green building the real solution to the problem? In the name of providing Green buildings we have only catered to few problems and take into account use of less energy, use of recycled materials, utilization of solar energy and water management and conservation. And even after doing so we end up making glass boxes with air conditioned buildings.

We need to look at the ancient methods of tackling some of the problems that we are facing today. Step well, a pond dug into the soil or surrounded by walls in above

position so that the air is chilled by evaporating water in an ancient technology to cool the surrounding with help of shaded verandas and courtyards which complimented the circulation of air by natural air draft, In costal areas of India, houses were finished with mud and thatched roofs to keep the interiors cooler in the extreme warm and humid conditions. Each element of design which was used in ancient times had a purpose not just aesthetical but functional too. Like the dome structure which is are symbol of power and center but its hollow upper half entraps air and provides insulation from the heat outside. Another example from daily life is the intoxicated water out of a pottery jar. Anyone who drank water from it knows how cold it is, generally during the summers in the daybreak. Hot and dry region make use of jaalis to keep away from glare and heat, while make possible aeration and having apt illumination and acoustic relationship with the outer surface. There are various other systems and techniques that are ancestors have developed to take care of the problems being faced today.

To conclude, even despite the fact that innovative technologies are being developed to overcome the problems and challenges being faced, the ancient methods needs to be persistently be developed and amalgamated with modern design technologies to produce more environment friendly construction techniques and materials. The major intend of the learning from our ancestors is to not only to create and make the earth more sustainable, but it really does go deeper than that. The thought of sustainability and ecological design has always been present throughout history, but in today's time in particular it is a fact that these thoughts need to be put into practice. Solution like water conservation, wise use of local and eco friendly materials, temperature control by taking advantage of cross ventilation and the use of large openings with shade flooding the inside with defused light are few things that one can learn and adaptively incorporate in once design. Even the smallest changes and adaptive use of knowledge from our past history will facilitate to encourage an improved planet earth and an enhanced place for us all to live with the natural habitat intact.

Architectural Design Education : A Cognitive Approach



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Prof. Asif R. Khan is pursuing his Ph.D in Architecture from School of Architecture, Kalasalingam Academy of Research and Education, Tamil Nadu, India. He acquired his B.Arch., degree from MES School of Architecture, Calicut University, Kerala and pursued his M.Arch., degree from SMMCA, Nagpur University, Maharashtra. He is recipient of the Netherlands Fellowship (NFP) to study the post graduate diploma course at Institute for Housing and Urban Development Studies, Erasmus University Rotterdam. He has been associated with AA School London as a visiting teacher. Has professional exposure in Middle East as well as in India on significant architectural projects. He has been associated with several architectural colleges in India. Presently officiating as Head of Department at Al Salama Institute of Architecture, University of Calicut, Kerala, India.

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PREFACE : *During studio discourses it is often seen how abstract thoughts evolve into tangible realities, however a sense of inquisitiveness prevails regarding the methodology adopted during the whole activity. This is subjective to the rational interpretation of the design process adopted to achieve the desired result. Being a teacher of design education certain queries have always aroused my curiosity. How to make Architecture? How and why it is made so? and what do we learn through designing? Architects tend to generalize the approach towards realisation of built form in architecture as the spatial imprinting of human behaviour in a way that persist as a form while allowing for further and more developed interactions. This statement to an extend could create a broad view but divergent approaches by various architects have only lead to creating a state of complexity in terms of conveying a general way of approach when it comes to design pedagogy in studios at schools.*

Architecture education being the sub domain of main education field, it becomes imperative to initiate the understanding of knowledge organisation and the process of learning by reviewing the fundamental theories of education and then trying to integrate the same into the architecture design instructional models. In order to prepare students to co relate with diverse scenarios in their future professional practice, the teacher should have varied exposure to various pedagogical environments. The need of the time is in understanding and evolving appropriate approaches by considering the shift from conventional modes of transmission and transaction to refined modes. This complexity involved in design pedagogy has forced the author to think about the possibility of a refined pedagogical framework that would provide more understanding regarding relevance of teaching and learning process in studio discourse. Critical understanding of the importance of knowledge and its integration within the design studio, leading to a comprehensive whole is a significant aspect to be properly evolved and nourished. It can be argued that knowledge is not a substitute for architectural imagination but inadequate knowledge would handicap the general level of design.

KEYWORDS : *Architectural pedagogy, explicit knowledge, tacit knowledge, teaching approach, theoretical framework*

RESEARCH PROBLEM

The design studio has become the epicentre of learning in present format of institutional culture. Architectural pedagogy involves stages and procedural application of know-how to resolve a spatial issue. This know-how has to be effectively transmitted in architectural studios in institution to bring about successful learning experiences. This process however has to be grounded on certain valid fundamentals of organisation of knowledge and its dissemination through a valid process.

Statement : Critical understanding of the importance of knowledge and its integration within the design studio is significant to achieve effective transmission.

Objective : To externalise that architectural pedagogy is grounded on knowledge base which generally involves interplay of explicit knowledge and tacit knowledge.

Research Questions : The primary research questions put forward as part of this research are :

- What role does knowledge organisation play in architectural pedagogy?
- Will proper understanding of the primary structure of design development facilitate cognition of design experience?

Methodology

- Pilot Survey
 1. Prepare a survey questionnaire based on fundamental aspects of architectural pedagogy.
 2. Conduct preliminary survey among architectural educators
 3. Appraise and formulate relevant domains for further review.
- Formulation of Research Design: Theoretical Research
 1. Literature Review.
 2. Provide theoretical interpretation.
- Develop critical perspective and theory.
- Summary and directives.

PILOT SURVEY

In order to develop a preliminary understanding of the basic aspects on architectural pedagogy, a pilot survey was conducted by the researcher. A questionnaire was administered to a group of architecture educators and their feed backs were recorded. This initial analysis paved way for developing understanding of certain critical parameters to be probed and for envisioning a research design to further elaborate on the research work.

1. Majority of the respondents classified architecture education as a creative domain with scientific outlook.
2. Majority of the respondents believed that instructor's characteristics are really significant in developing a progressive education system.
3. Majority of the respondents agreed on the relevance of integrating fundamental theories of education to architecture pedagogy.
4. Relevance of knowledge and its integration in design development was considered important.
5. Information processing models are considered integral part of design discourse.
6. Creative thinking and motivation was however considered more significant than cognition of knowledge.
7. Majority of the respondents felt that the most crucial component desired in a student is the ability to analyse and think logically.
8. Majority of the respondents felt that design development process is integral to architecture pedagogy.

Table 1 : Survey Analysis

| <p>1. In the following spectrum, where do you like to define the subject of architectural design education?</p> <table border="1"> <caption>Data for Question 1</caption> <thead> <tr> <th>Domain</th> <th>Strongly Agree</th> <th>Agree</th> <th>Undecided</th> <th>Disagree</th> <th>Strongly Disagree</th> </tr> </thead> <tbody> <tr> <td>Artistic</td> <td>2</td> <td>14</td> <td>2</td> <td>2</td> <td>0</td> </tr> <tr> <td>Creative</td> <td>17</td> <td>3</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Technical</td> <td>12</td> <td>8</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Scientific</td> <td>3</td> <td>16</td> <td>1</td> <td>0</td> <td>0</td> </tr> </tbody> </table> | Domain | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree | Artistic | 2 | 14 | 2 | 2 | 0 | Creative | 17 | 3 | 1 | 0 | 0 | Technical | 12 | 8 | 1 | 0 | 0 | Scientific | 3 | 16 | 1 | 0 | 0 | <p>5. Information Processing Models are generally concerned with the ability of the learner to observe, organise data, understand information, form concepts, employ verbal and nonverbal symbols and solve problems.</p> <table border="1"> <caption>Data for Question 5</caption> <thead> <tr> <th>Response</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>YES</td> <td>18</td> </tr> <tr> <td>NO</td> <td>2</td> </tr> </tbody> </table> | Response | Count | YES | 18 | NO | 2 | | | | | | | | | | | | | |
|---|----------------|----------------------|----------------------|--------------------|-------------------|--------------------------|--|----------|----------------|----------------------|-----------------------|--|----------|----|---|---|----|---|-----------|--------------------------------|-------------------|----|----|-----------------------------------|------------|---|-----------|----------------|-----------|----------------------|--|---------------|-----------|-----|----|----|---|---|-------------------|----|---|---|---|---|------------|----|---|---|---|---|
| Domain | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Artistic | 2 | 14 | 2 | 2 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Creative | 17 | 3 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Technical | 12 | 8 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Scientific | 3 | 16 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Response | Count | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| YES | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NO | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>2. How influential do you consider the following issues in developing a progressive architectural education system in general?</p> <table border="1"> <caption>Data for Question 2</caption> <thead> <tr> <th>Issue</th> <th>Very Important</th> <th>Fairly Important</th> <th>Slightly Important</th> <th>Not Important</th> </tr> </thead> <tbody> <tr> <td>Students Characteristics</td> <td>10</td> <td>10</td> <td>1</td> <td>0</td> </tr> <tr> <td>Educational Programme</td> <td>13</td> <td>9</td> <td>1</td> <td>0</td> </tr> <tr> <td>Instructor's Characteristics</td> <td>19</td> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>School Facilities</td> <td>10</td> <td>10</td> <td>1</td> <td>0</td> </tr> </tbody> </table> | Issue | Very Important | Fairly Important | Slightly Important | Not Important | Students Characteristics | 10 | 10 | 1 | 0 | Educational Programme | 13 | 9 | 1 | 0 | Instructor's Characteristics | 19 | 1 | 1 | 0 | School Facilities | 10 | 10 | 1 | 0 | <p>6. Intellectual activity linked to creativity in design forms the basis of any design visualisation and later on physical realisation, could be depicted as the confluence of the following three components. Prioritise the same in the below spectrum.</p> <table border="1"> <caption>Data for Question 6</caption> <thead> <tr> <th>Component</th> <th>Very Important</th> <th>Important</th> <th>Moderately Important</th> <th>Slightly Important</th> <th>Not Important</th> </tr> </thead> <tbody> <tr> <td>Knowledge</td> <td>12</td> <td>8</td> <td>2</td> <td>0</td> <td>0</td> </tr> <tr> <td>Creative Thinking</td> <td>18</td> <td>5</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Motivation</td> <td>15</td> <td>5</td> <td>1</td> <td>0</td> <td>0</td> </tr> </tbody> </table> | Component | Very Important | Important | Moderately Important | Slightly Important | Not Important | Knowledge | 12 | 8 | 2 | 0 | 0 | Creative Thinking | 18 | 5 | 1 | 0 | 0 | Motivation | 15 | 5 | 1 | 0 | 0 |
| Issue | Very Important | Fairly Important | Slightly Important | Not Important | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Students Characteristics | 10 | 10 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Educational Programme | 13 | 9 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Instructor's Characteristics | 19 | 1 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| School Facilities | 10 | 10 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Component | Very Important | Important | Moderately Important | Slightly Important | Not Important | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knowledge | 12 | 8 | 2 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Creative Thinking | 18 | 5 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Motivation | 15 | 5 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3. What is the relevance of integration of fundamental theories of education to architecture pedagogy?</p> <table border="1"> <caption>Data for Question 3</caption> <thead> <tr> <th>Relevance</th> <th>HIGH</th> <th>MODERATE</th> </tr> </thead> <tbody> <tr> <td>Relevance</td> <td>14</td> <td>10</td> </tr> </tbody> </table> | Relevance | HIGH | MODERATE | Relevance | 14 | 10 | <p>7. What do you consider more vital for an architectural design student?</p> <table border="1"> <caption>Data for Question 7</caption> <thead> <tr> <th>Skill</th> <th>Very Important</th> <th>Moderately Important</th> <th>Not Important</th> </tr> </thead> <tbody> <tr> <td>Knowing how to draw and communicate well</td> <td>11</td> <td>1</td> <td>0</td> </tr> <tr> <td>Being able to analyse and think logically</td> <td>19</td> <td>1</td> <td>0</td> </tr> <tr> <td>Being Creative and independent</td> <td>15</td> <td>7</td> <td>0</td> </tr> <tr> <td>Working hard and willing to learn</td> <td>16</td> <td>6</td> <td>0</td> </tr> </tbody> </table> | Skill | Very Important | Moderately Important | Not Important | Knowing how to draw and communicate well | 11 | 1 | 0 | Being able to analyse and think logically | 19 | 1 | 0 | Being Creative and independent | 15 | 7 | 0 | Working hard and willing to learn | 16 | 6 | 0 | | | | | | | | | | | | | | | | | | | | | | | |
| Relevance | HIGH | MODERATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Relevance | 14 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skill | Very Important | Moderately Important | Not Important | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knowing how to draw and communicate well | 11 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Being able to analyse and think logically | 19 | 1 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Being Creative and independent | 15 | 7 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Working hard and willing to learn | 16 | 6 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4. Knowledge comprehension is vital component at any stage in design development leading to proper conception, rationalisation, realisation and implementation.</p> <table border="1"> <caption>Data for Question 4</caption> <thead> <tr> <th>Response</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>YES</td> <td>18</td> </tr> <tr> <td>NO</td> <td>2</td> </tr> </tbody> </table> | Response | Count | YES | 18 | NO | 2 | <p>8. The term 'design process', has been used in most architectural academic institutions by the students and the educators of architecture. Does your methodology of teaching include discussing about the design process with students?</p> <table border="1"> <caption>Data for Question 8</caption> <thead> <tr> <th>Response</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>YES</td> <td>18</td> </tr> <tr> <td>NO</td> <td>2</td> </tr> </tbody> </table> | Response | Count | YES | 18 | NO | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Response | Count | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| YES | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NO | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Response | Count | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| YES | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NO | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Source : Author

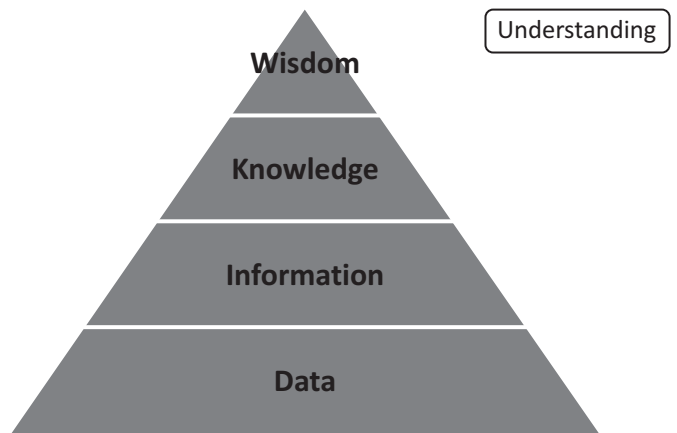
RESEARCH DESIGN

The research design provides an outline about the course of action being pursued by the researcher. In other words the research framework provides insights on the research methodology and process adopted; this informative framework forms the basis for research and development, guiding the overall act of exploration. Research structure in normal perspective is constituted by the following: Identification of a problem, statement of problem, fragmentation into sub domains, research questions and hypotheses formulation, critical assessment, decision making and post research review. The research structure is reviewed, analysed and improved based on appraisal prior to execution. The final framework is generally known as the research design, lays down the course of action to be pursued while indulging in research.

The theoretical research format is identified for the framework of this particular study. Descriptive mode of approach is augmented by qualitative mode of study. This is achieved by qualitative appraisal of various generative factors and influencing parameters. Paving way for a research paper that would provide critical understanding of the importance of knowledge and its integration within the design studio.

data, information, knowledge, understanding, and wisdom , in which the existence of higher level is predicted on existence of the lower ones. Traditionally speaking, the knowledge management literature retained only the four concepts of data, information, knowledge and wisdom ordered into a hierarchy” (4 p. 54).

Fig. 1 - DIKW Pyramid



Source : Archetype by Ackoff

Table 2 - Research Paradigm

| Theoretical Research – Aiming at Theory Building | |
|--|---|
| Ontological Assumption | Knowledge is created by devising logical, abstract theories of some reality |
| Epistemological Assumptions | We know through our intuitive understanding combined with reasoning |
| Research Goals | Develop theoretical proposition |
| Methodological Orientation | Logical abstraction; use of deductive logic |
| Key Methodological Concept | Develop Critical Perspective. |
| Variables | Emerge during research. |
| Data Analysis | Descriptive; possibly augmented by qualitative approach. |
| Researchers Role | Seek theoretical interpretation and achieve new directions for further quest. |
| Research Paper | Presentation of interpretations and new original creative directives. |

Source : Author

KNOWLEDGE MANAGEMENT

The traditional basis of arrangement of facts depends on the DIKW Pyramid of hierarchy, while facts are processed for generation of solutions to a given issue at hand.

“The knowledge hierarchy is now usually seen as a pyramid ascending from data to wisdom as first suggested by Ackoff (1989)...Ackoff introduced a pyramid with five constructs:

It is useful to distinguish between different kinds of knowledge as this would aid in formation of frame work that would assist in knowledge management. The precedent research points towards existence of specific forms of knowledge domain in general. Based on Spiral Model of Knowledge Creation (Nonaka & Takeuchi, 1995), knowledge could be classified accordingly :

- Tacit Knowledge : Knowledge highly informal, personal, un-verbalized, intuitive and derived experience. This knowledge is applied on specific contexts including cognitive elements (mental models) and technical elements (applicable to specific works).
- Explicit Knowledge: It is characterized for being formal and systemic knowledge that can be expressed without ambiguities through writing, mental maps, schematics, databases, etc. (5 p. 22)

If we generalise this type of classification we can suggest that tacit knowledge aids people to achieve an activity but it cannot be explained by explicit reasoning (however attempts should be made to identify which elements of tacit knowledge can be captured and made explicit); whereas explicit knowledge refers to the source of knowledge that can be transmitted in a formal way. The relevance of knowledge, its articulation and externalisation is very much relevant for comprehension of a general framework and to evolve theories of design realisation.

The bases of all these insights are to bring about positive intervention in knowledge organisation. Knowledge generation in architecture studio was linked to learning –preparation of drawings from which buildings could emerge. In the earlier days the focus was primarily on atelier form of training, here the attention was more towards tacit form of knowledge assimilation. This approach gradually changed during the movement of Modern Architecture. It is well known how the new masters faced the challenges of the new materials of construction and the emerging new forms. The studio was now transformed from the atelier to the institutionalised environments for learning architecture design. Concern for rationalism seemed to dominate the designers mind more than the romanticised approach of the earlier days; primary focus was on explicit knowledge base.

Knowledge building generally involves interplay of explicit knowledge and tacit knowledge. Explicit knowledge is easily accessible. It is formally articulated and shared with others in the form of books, reports, portfolios and so on. Meanwhile tacit knowledge is exploratory, experience based, hard to formalise and difficult to articulate. “I shall reconsider human knowledge by starting from the fact that we can know more than we can tell. This fact seems obvious enough; but it is not easy to say exactly what it means” (6 p. 4).

The reference is towards a type of knowledge that is relatively difficult to cognise and eternalise. In most cases this indescribable character tag attached with this domain of knowledge forces people to explore the phenomenon through action. Let's take the case of fine arts; painting. “Rules of art can be useful, but they do not determine the practice of an art; they are maxims which can serve as a guide to the art only if they can be integrated into the practical knowledge of the art. They cannot replace this knowledge” (7 p. 52). Tacit

knowledge is developed in an individual through experiential exposures over time. Transition happens by dialogue and hands on exposure. It is individual oriented and requires to be properly documented and codified to be rationally externalised. “By watching the master and emulating his efforts in the presence of his example, the apprentice unconsciously picks up the rules of the art, including those which are not explicitly known to the master himself” (7 p. 55).

In similar lines the body of knowledge in architectural pedagogy, could be broadly classified under the similar domains of Explicit and Tacit knowledge. Design Pedagogy, Educational Attributes, Community Framework, Technology, and Culture form the basis of explicit classification. Meanwhile tacit knowledge is often linked to the subjective factors and individual mannerisms like Commission of Master Architects, Individual Habitual Factors, Human Stimulus, Innovation, Outlook and so on. The attributes that make up each field can further be analysed in detail, however explicit knowledge base is anchored to fundamental knowledge while tacit knowledge base is more individual centric in nature. Knowledge cognition is an integrative process combining the explicit and tacit realm.

In concurrence design knowledge is to an extent the yield of a creative process brought out through a legitimate refined process, skill and dexterity to address a particular scenario. It is difficult to define design in a single statement; a better understanding about it could be developed by reviewing different ways in which professionals have attempted to discuss the subject of designing. In general one could relate Design Knowledge to the essential facts, information, and skills acquired through education and experience. The wide spectrum of design cognition requires thorough appraisal on a broader context.

DESIGN COGNITION PREFACE

Design literature is often perceived as a way to promote understanding of theory and practice in design development. It is quite difficult to provide a proper elaboration about the various disciplinary approaches associated with the task of design without proper classification and appraisal. It is at this juncture that the role of design knowledge becomes relevant. We require organising of our critical understanding about design into a robust structure to facilitate proper appraisal.

“The word design has very different meanings to different people. The Latin word from which it is derived is *designare*, constructed from the two roots *de*, meaning from, and *signare*, to draw or mark. Thus, the historical meaning of design has definite links to mechanical drawings and artistic renderings” (8 p. 1).

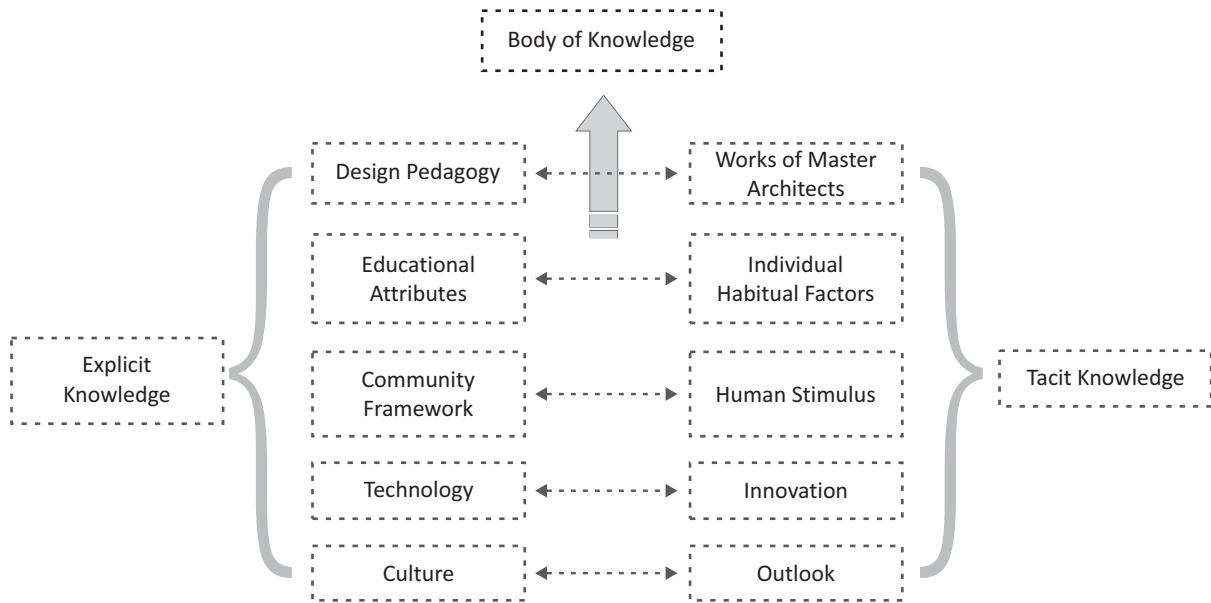
Design realisation definitely involves amalgamation of theory and practice. It is an integration of creative pursuits catalysed by scientific activities. The basis of all this creative activity lays

embedded in the human intellect. A completely unique mechanism of human information processing and cognition which we could in simple words decode as source of critical thought and action while encountering various situations. "The solution is not simply lying there among the data, like the dog among the spots in the well-known perceptual puzzle; it has to be actively constructed by the designer's own efforts " (9 p. 24).

In modern context designing is considered as a rational activity. Part II of the questionnaire was administered to a group of architectural educators; focused around the design development process adopted in their studios. The following is the summary of their feedback.

1. Majority of the respondents classified architecture design development as outcome of a valid approach.

Fig. 2 - Knowledge Cognition Key

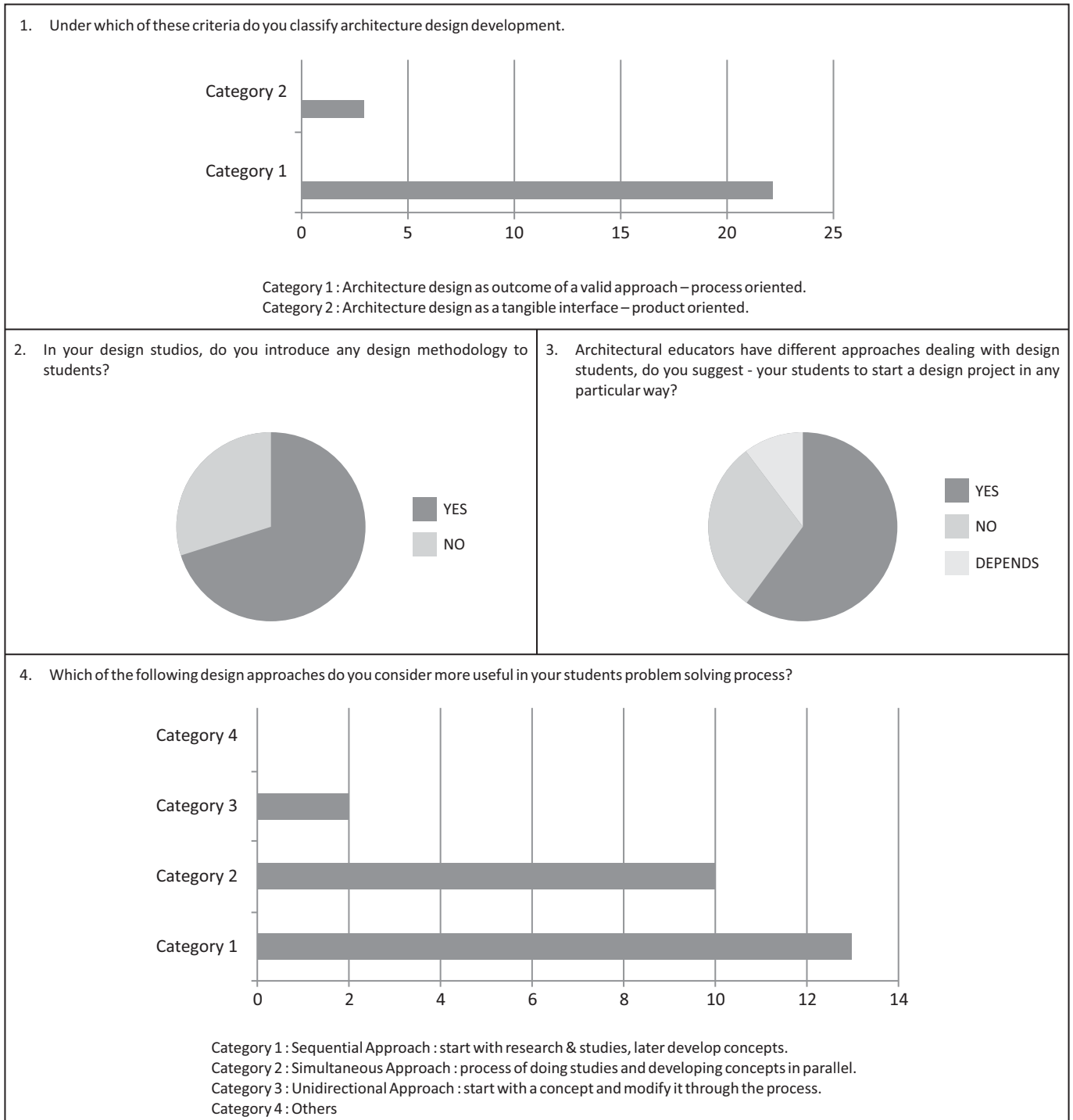


| Explicit Knowledge (Objective Factors) | | Tacit Knowledge (Subjective Factors) | |
|---|---|---|---|
| Design Pedagogy | Design Pedagogy Design Studio Environment Supportive Subjects | Master Architects | Design Philosophy Archetypal Works Critical Appraisal Apprenticeship |
| Educational Attributes | Models of Teaching and Learning Human Resource Interface Creativity Educational Psychology | Individual Habitual Factors | Attitude Aptitude Skill Tactic Social Conditioning |
| Community Framework | Governance Politics Economics Commerce Social Structure Demographics | Human Stimulus | Cognitive Response Affective Response Psychomotor Response Perception Response |
| Technology | Determinism Futurism Globalisation | Innovation | Precedents Evolution & Transformation Iconic Approach |
| Culture | Identity Ethnicity Traditions Life Style | Profile Outlook | Function & Morphology Prosperity Development |

Source : Author

2. Majority of the respondents conveyed that they introduced certain design methodology to the students as part of their design discourse.
3. Among the educators sixty percentile were of the opinion that they advised students to start a design project in a particular manner. While thirty percentages were against such practices and ten percentile determined their approach based on the particular design issue at hand.
4. Meanwhile with regard to the rational structural approach desired fifty two percentile educators preferred the Sequential Approach: start with research & studies, later develop concepts, forty percentile favoured Simultaneous Approach : process of doing studies and developing concepts in parallel and remaining eight percentile choose Unidirectional Approach : start with a concept and modify it through the process.

Table 3 - Survey Analysis



Source : Author

The established ethos of design knowledge has always been linked to specialist approach. This particular approach stresses the need for the designer to be self-aware, intellectually mature and socially constructive in their activities linked to creativity and evolution of feasible unique outcomes while resolving a given design issue, a coherent logical act. However this approach does not emphasise imposing of a particular model nor of assuming that freedom to choose an amicable solution somehow occurs without proper guidance and objectivity. Design development can be explained as a rational decision making process which involves creative traits. Within the wide-ranging body of literature of design process, having a methodological process forms the basis for validation of a logical act. This is focused at resolution of a need or addressing a specific issue at hand. However the act of having a systematic approach is not limited to a linear process, the rational interpretation of the requirement brief with available precedent awareness leads to generation of a creative rational scheme. One which emphasis the validation of all activities and stages involved as part of design evolution.

“In the design literature, there are only two nearly universally held principles. First, good design is iterative. Second, iterations only help if some feedback (data) is used to improve the design for the next iteration” (10 p. 20).

In very simple words we could theorise the overall act of designing as follows: Design is thinking made tangible: perceptible by human prerequisites, based on proper appraisal of requirements, instigation of initial conceptual ideations, comprehensive development of basic schemes, refinements of propositions, prototype developments, execution level actions and so on. However the basis of all these activities is anchored to the human ability to think and act.

TEACHING APPROACH

Transmission and transaction of learning in a design studio is generally influenced by the teaching approach adopted. Critical understanding of the relevance of process embedded in a particular teaching approach determines the effectiveness of content delivery and proper assimilation by the learners. The maturity level of the learners during the duration of the architectural curriculum establishes the teaching model to be emphasised. Generally pedagogical and andragogical modes of approach are used to provide a comprehensive integration of learning experience.

“Pedagogy is derived from the Greek word “paid” meaning “child”, plus “agogos”, meaning “leading”, therefore defined as the art of leading and teaching children. The pedagogical model is a content model concerned with the transmission of information and skills, where the teacher decides in advance what knowledge or skill needs to be transmitted and arranges a body of content into logical units, selects the most efficient

means for transmitting this content (lectures, studio work, readings, laboratory exercises, films, tapes, for example), then develops a plan for the evaluation of learning by the learners. Pedagogy is a teaching theory, rather than a learning theory, and is usually based on transmission” (11 p. 2).

Therefore any logical activity designed to enhance the learning experience of an individual or group of learners in an instructional environment leading to better cognition could be generally defined as pedagogy. However accomplishment of a pedagogical approach is purely based to a large extent on the professional expertise of the teacher and the practical skills that the teacher has learned and practised.

Meanwhile andragogy is a choice when adult learners are involved and alternative approaches are required to enforce effective learning. Generally the focus is to enhance the motivation levels required for learning by orienting the focus to task specific and life centered objectivity.

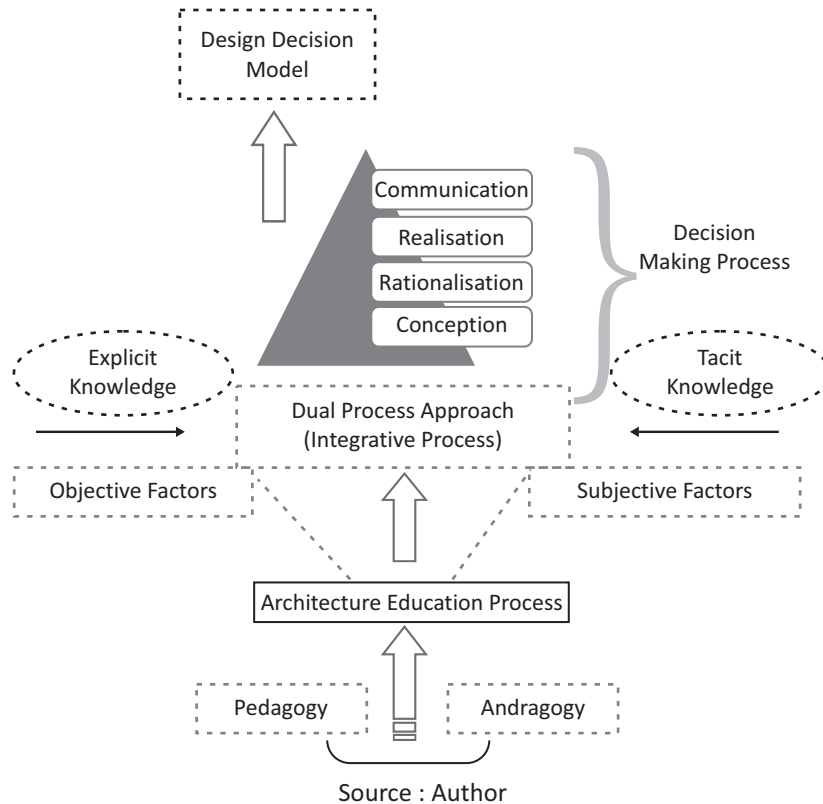
“The conception of Andragogy was put forward by Knowles (1970) and has continued to be influential. Knowles identifies four major characteristics of adults associated with increasing maturity: (a) the self concept moves from dependency towards self-direction; (b) experience becomes an increasing resource for learning; (c) learning is increasingly directed towards social roles; (d) learning becomes less subject – centred and increasingly problem-centred” (12 p. 72).

These observations guide as to the conclusion that pedagogical approaches are more content specific while andragogical is more process oriented. Proper cognition and application of the teaching and learning approaches play a crucial role in design studios.

ARCHITECTURAL DESIGN DEVELOPMENT DIRECTIVES

An architectural design development framework which aids in realisation of performative dimensions of space is achieved rationally by following a process. This would aid in resolving issues and arriving at solutions while addressing spatial concerns in habitat design and town planning. The process oriented approach also defines the character of architecture being envisioned. Categorization of knowledge basis into explicit as well as tacit knowledge domains further aids in understanding the complex multi disciplinary nature of component of architectural education framework. Knowledge management is achieved by an integrative approach. A dual process approach integrating the domains of knowledge by use of pedagogical and andragogical modes of teaching. Paving way for rational approach constituted by several stages involving critical thinking and action. These stages are constituted in a progressive manner, categorised as: conception, rationalisation, realisation and communication. Collectively this whole progressive thought forms the basis of a Design Decision Model.

Fig. 3 - Architectural Design Development Framework



Critical understanding of the importance of knowledge and its integration within the design studio, leading to a comprehensive whole is a significant aspect to be properly

evolved and nourished. It can be argued that knowledge is not a substitute for architectural imagination but inadequate knowledge would handicap the general level of design.

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TopLine XL 2 door Advanced



Sliding technology has been one of the veritable **results of evolution** which has visibly altered the **living experience of the masses**. If we talk of bedroom and living room interiors, the sight of **fully open doors** of a wardrobe that may unnecessarily **hinder precious space** and **disrupt the room's semblance** is slowly becoming a thing of the past. Instead **sliding technology** has completely taken over. Also despite being left open, sliding doors will inevitably **occupy the minimum assigned space** as compared to traditional doors as they open to the side. When we talk of **sliding technology**, **TopLine XL 2 door Advanced** by **Hettich** takes the pre-eminent position in this category.

TopLine XL 2 door Advanced, the superior solutions for large wardrobes radically alters the quality and perception of your interiors. **Maximum storage space allied with design aesthetics** is the need of the hour. The modern lifestyle demands a product that **gravitates luxury** accompanied by **maximum utilization of the available space**. **TopLine XL 2 door Advanced** caters to **heavy and wide door wardrobes** that provide ample storage with sophisticated veneer in your **bedrooms and living rooms**.

The product is endowed with a number of impressive attributes. **Doors that open as well as close softly** sets the product apart from its peers. The **anti-colliding feature of the doors** further elevates the product to the realm of futuristic technology, the one that is a lifestyle need of the contemporary customer. It also stands out due to its flexibility of **supporting a wide range of door thickness variation**. Available as a 3,4& 6 m length span, **TopLine XL 2 door Advanced** marks its presence amongst its synonym of products.

The customer today is over driven and is on a lookout for solutions that provide solace oriented lifestyle complemented by appropriate functional effectiveness. **TopLine XL 2 door Advanced** for wardrobes does it all. A larger than life visual rendition delight that manages both your storage needs and one that is an opulent delight. A must try out product!

Technical Specifications :

- 2-track, top running sliding door system
- Overlay door position
- For wooden doors or wood framed doors
- Door weight up to 80 kg
- Door height up to 2600 mm
- Door width 700 - 2000 mm
- Door thicknesses 16, 18, 19, 22, 25, 28, 40, 50 mm
- Height adjustment ± 2 mm
- Door height, door offset and door reveal adjustable
- Easy to open with minimal opening resistance
- Silent System in closing, opening and colliding direction
- Fast installation of runner systems and Silent System
- Tested to DIN EN 15706, Level 3

Accreditation Program For Building Departments



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ABSTRACT : *The global contribution of the construction industry in GDP in the first quarter of 2018 alone is \$2413.76 billion. The building sector is essential for global economic development, employment creation and the environment. The volume of contribution output is forecasted to grow by 85% (to \$15.5 trillion) worldwide by 2030. One of the main obstacles for the growth in the building sector is the loss of lives due the building collapse during and after construction. National Crime Record Bureau of India has reported that an average of 7 people died per day because of building collapse between 2001 and 2015. Study of the various building failures reported that the violation of building codes and regulation is the primary cause. In many advanced countries, public safety is maintained by the accreditation of building department/council; which is responsible to monitor and enforce building codes and issuing of building permits. In India, the accreditation of building departments and other sectors relating to construction can reduce building failures and thereby strengthen economic growth by increasing the GDP.*

1. Introduction :

Construction is a significant part of the industrial sector and is a core part of India's economy. According to the IHS Global Insight, US\$175 billion was spent on construction in India in 2007 after growing 156% since 2005. [1]. The construction sector is the second largest employer in the country after agriculture, employing about 33 million people. It has grown by 80% in the last four years, from \$78 billion in 2013 to approximately \$140 billion 2017. The construction sector is complex and highly competitive, and provides challenges for companies seeking to improve margins, and reduce costs, whilst improving building quality and ensuring a safe environment at the work site.

1.1 Building Codes

Building codes has been the primary source for guidance and regulation in the design and construction of building structures for many decades. In this context, India has not been an exception. The publication of the first edition of the National Building code of India in 1970 was a result of exhaustive research into the issues that mostly affected the built Indian landscape, like lack of uniformity of the diverse regional policies, and the need for development of a sound and updated building construction program. In India, each municipality and urban development authority has its own building code, which has to be followed mandatorily for all construction within their jurisdiction. They are generally developed by the Government and approved by the Parliament. All these local building codes are variants of the National Building Code (NBC), which serves as a standard in terms of design, construction and alteration provided for

regulating the building construction industry [2] at a National level. As per the code regulations, buildings that do not comply with and violate the NBC will be penalized or the approval will be cancelled or the building could be even be demolished.

1.2 Accreditation

Accreditation determines the technical competence and integrity of organizations offering conformity assessment service such as testing, certification, inspection and calibration based on international standards. Accreditation can thus be used to verify compliance with the standards. Through Accreditation, building departments achieve trust, competence, efficiency and safety. It looks at construction code followed during the construction, inspection, plan review, staffing, permitting and also the budget.

2. Need for the study

In India, there have been about 37,514 building failures and 38,636 people have lost their lives between 2001 and 2015 [3]. Most of these incidents are result of the failure of residential buildings which account for about 40% of the total deaths. The death rate for each building type is given in Table 2.1.

Table 2.1 - Building Type and its Death Rate

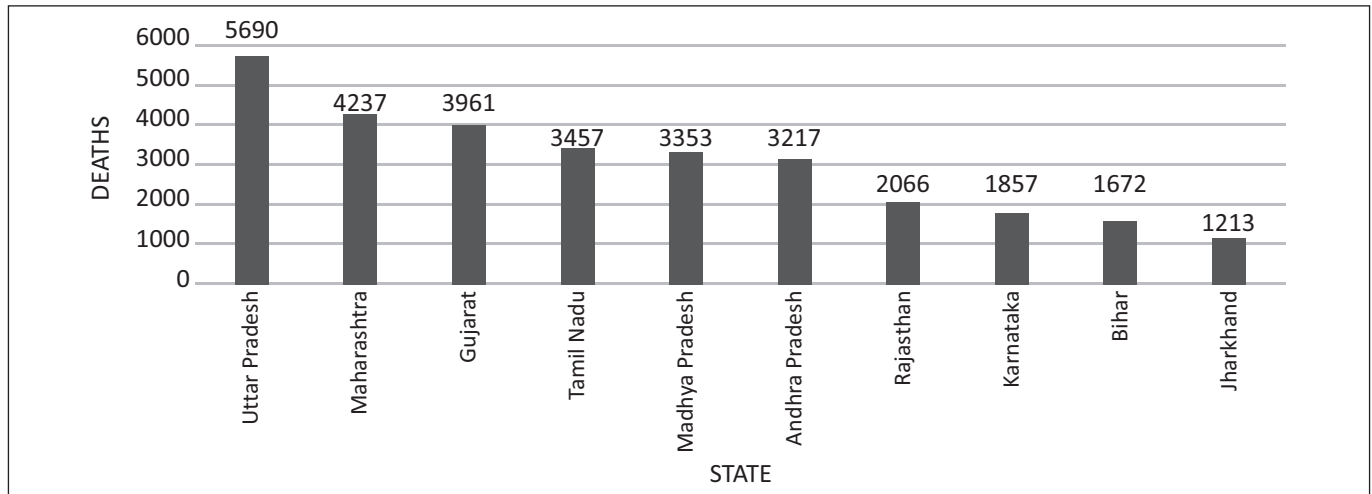
| Building Type | Death Rate | Number Of Death |
|-------------------------------|------------|-----------------|
| Bridges | 4% | 1,217 |
| Dams | | 444 |
| Commercial Buildings | 10% | 3,981 |
| Residential Buildings | 40% | 15,149 |
| Rest (Structure and Flyovers) | 45% | 17,572 |

Building failure can be broadly defined under 2 types. These are Erection/Construction failure and Design failure [4]. The technical council on Forensic Engineering of the American Society of Civil Engineers has defined construction failure as “an unacceptable difference between expected and observed performance”. The three types of failure in Buildings are failure during construction, due to failure of service and improper maintenance [5].

2.2 Inference :

From the above mentioned case studies and other case studies used for this study, it is clear that the violation of building code in terms of place, design and material, age and over load are the main causes for building collapse. In addition to this, the prevailing method of construction controlled by the municipal bye-laws and department handbooks and their laws are not up to the standards or in many cases, these laws are not strictly followed.

Fig 2.1 – Top 10 states with highest death rate due to collapse of structure from 2001 to 2015



In a recent study it is reported that in south Mumbai alone there are about 19,000 buildings that are more than 100 years old and 35,000 buildings that have been constructed before 30 years. But as per clause No 77 of the revised bye-laws of cooperative housing societies, all buildings aged between 15 to 30 years must be audited for structural and overall safety once in every 5 years and for buildings above 30 years, this audit has to be carried out once in 3 years. However, in the above cases of building collapses, there were no structural audits conducted.

2.1 Case Studies :

Table 2.2 – Case Study Analysis

| Case Studies | Moulivakkam Building Collapse [6] | Mazagaon Building Collapse | Bhiwandi Building Collapse | Krishna School Bldg. Fire Accident [7] | Shah Beri Village Building Collapse |
|--------------|--|--|---|--|---|
| Date | June 28, 2014 | September 27, 2013 | July 31, 2016 | July 16, 2004 | July 17, 2018 |
| Place | Chennai | Mumbai | Maharashtra | Kumbakonam, T.N. | Noida |
| Lives Lost | 61 | 61 died and 32 injured | 8 died and 22 injured | 94 | 3 died and over 50 injured |
| Cause | Plan approved by the CMDA had not been used for the actual construction. The design and construction of the building in all aspects were in violation of National Building Code. | Mezzanine floor was constructed without permission in an office-warehouse on the ground floor of the building. | Dilapidated building with excess occupants. | Failure of passive and active fire safety provisions. Planning not suited for school function. | Use of poor quality building construction material and violation of building norms. |

3. Building Permit Approval – Chennai, Tamil Nadu, India :

The authority of issuing building permit lies with the municipalities. These bye-laws and development control rules govern the Building Permission, Zoning, Sub-division of Land, Land use, open space, build-up area and height limitation, Floor space Index, Structural design and Material and method of construction. The Chennai Metropolitan Development Authority regulates development in Chennai Metropolitan area through issue of **Planning Permission (PP)** under section 49 of the Tamil Nadu Town and Country Planning Act 1971. CMDA has delegated powers to the local Bodies within the Chennai Metropolitan Area to issue planning permission for ordinary buildings and buildings under normally permissible

categories of Industrial, Institutional and Commercial Zone and also sub-divisions and small layouts. CMDA issues planning permission to major developments by itself like special buildings, Group developments and Multi-storeyed /IT Building with Government Approval. There are two types of Channel, the 'B' Channel for providing planning permission to the special buildings and group developments and the 'C' channel is for major industries and Institutional Building. The Planning Permission is valid for 3 years from the date of issue. The "Planning Permission"(PP) approval is a key component of the entire process since it is the major determining factor for the safety of the public and life of the building. From the past building collapses, it is evident that one of the root causes of failure arises from the PP approval step. Once the PP approval procedure and the verification process is made strict according to the codes, then the safety of building industry will improve. The codes followed to prepare the drawings should be updated as well and followed thereafter. There should be a high standard of compliance to be followed in terms of policy, procedure and system in the entire process. So, there is a great need for the Accreditation of Building department and all related critical third-party suppliers.

4. Accreditation :

Accreditation is an impartial and objective process carried out by third parties. It offers the least duplicative, the most transparent and widely accepted route for provisions and trustworthy conformity assessment rules. Accreditation bodies are established in most countries to ensure that conformity assessment bodies are subject to oversight by a competent body. Internationally recognized accreditation bodies, which have been evaluated by peers as competent, sign international arrangements that enhance the acceptance of products and services across borders, thereby creating a global infrastructure to support trade regulatory approval process and confidence in the market place. Standards and accredited conformity assessment are market-based tools that can be used in the construction sector to cover construction products and materials, building techniques and practice, onsite health and safety, environmental impact, and even the use of digital technology in smart buildings.

- Accreditation supports the construction sector to control risk, help drive efficiency, demonstrate regulatory compliance and provide supply chain confidence.
- Accreditation can support the sector to meet its need for smarter, cleaner and safer construction by providing assurance into the safety of the workforce on site, the quality and origin of construction products and raw material, the energy efficiency of buildings, the quality of design and architecture, the safe installation of electrical and gas networks and the long-term sustainability of buildings.

Achieving Accreditation requires an organization to establish longterm management systems and service goals that are focused on continual improvement. The "**International Accreditation Service (IAS)**", a member of "**International**

Code Council" is an Internationally renowned organization based in United States of America with offices spread in many countries. (www.iasonline.org). They introduced a Building Department Accreditation program in 2005. This **Accreditation Program is called the "AC 251"**. It uses accreditation criteria in 13 accreditation categories to assess Building Departments. These include basic jurisdictional information, department staff, permitting budget, construction codes, plan reviews, professional credentials/licenses, inspection, certificate of occupancy, on-site evaluations, annual reports, service goals and complaints/appeals. City councils of Philadelphia, Jacksonville, Aurora, Plano, Salem Oregon and 25 other City council's in United States are accredited by the International Accreditation Service (IAS).

4.1 Benefits of Accreditation in other countries

The Accredited building departments have achieved a level of performance that has enabled them to deliver exceptional service to their communities. Some of the benefits of Building Department Accreditation are mentioned below:

- The accredited process of City of Salem, Oregon by International Accreditation services (IAS) has made them to guarantee the approval of permit for single family dwelling within 10 days.
- The Rochester Hills, Michigan Building Department accredited by International Accreditation service (IAS) used the accreditation evaluation process to develop performance measures for plan reviews, as well as to track plan review errors and analyze rejection/approval rates.
- The International Accreditation Service (IAS) accreditation helped City of Jacksonville, Florida to reduce the number of suspended permits from 33 in 2010 to 0 in 2013.
- International Accreditation Service (IAS) accreditation helped Building department in Plano, Texas to identify and implement opportunities that drive a high-performance organization and encourage professional growth, while raising awareness of building codes and safe building practice.

4.2 Importance given for Accreditation in other countries

- In Quebec Canada, Accreditation by **Bureau de normalization du Quebec (BNQ)** acts as a "calling card" that demonstrates that the products and services comply with applicable standards and meet the levels of quality and safety that consumers expect.
- The Hong Kong Housing Authority ensures the quality of the product and process through accreditation by **Hong Kong Accreditation Service**.
- In Northern Ireland, all main contractors seeking to participate in a tender shall have and maintain an Environmental Management System certified by an **Accredited third party** to minimize the impact on the environment with applicable laws and regulations.

5. Suggestion

Study of various **Accreditation Programs** in developed and advanced nations suggests that the quality and safety has increased with the support of an Accreditation Program. In the very same way in our country also, Accreditation of Building Departments can help us improve the Quality, Safety and overall standards of all Construction related activities.

6. Conclusion


Population explosion, urbanization and scarcity of land is a global concern. It is the responsibility of the Municipality, which is in charge of the town development to monitor the compliance of codes and regulations so that they provide consumers, suppliers, purchasers and specifiers with assurance that construction projects run efficiently, construction sites are safe and reliable materials are used. In particular, to reduce the lives lost because of building collapse, to reduce the number of illegal buildings, to frame a standard procedure for building plan permission approval, for the usage of correct building codes and to ensure that there is no violation of building codes during construction, there is a need for a mandatory Accreditation of the Policies and Systems followed by all Building Permit Approval Departments in India. To summarize, the key benefits of Accreditation of Building Departments are as follows,

- It demonstrates that departments implement best practices for public safety.
- Provides Independent verification to ensure that departments are competent and meet nationally recognized standards.

- Acts as a performance tool that helps departments proactively establish, and assess goals for public safety, customer service, budgeting, professional development, and other related functions.
- It enhances the public and professional image of building departments.

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Juggernaut : Role of Media in Architecture



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ABSTRACT : Architecture and Media share an intertwined fate. One is not oblivious of the other. Together they have been changing the face of civilization since time immemorial. Architecture provides media the grist and wonderment; while media decodes and delivers Architecture of the world on our breakfast table. The whole world is now a mere click away. The relationship between Architecture and Media however, is not flippant. The power of media to influence history can be traced to Hitler's radio that assisted in seizing Europe and the extermination of Jews during the Holocaust in the infamous concentration camps and gas chambers. The impact of media on future developments can be gauged by the opposite stands that Al Gore and Donald Trump have taken on Climate Change and Environment.

Where on one hand media is influencing what gets built, what is awarded, and what is viewed as futuristic; on the other, buildings are lending a helping hand to media projections by offering themselves as props for billboards and advertising- One Times Square being the highest generating public advertising space in the world.

KEY WORDS : Billboard Buildings, Dynamic Buildings, Virtual Architecture.

'Music is liquid Architecture, and Architecture is frozen Music'. (Goethe)

Since time immemorial architecture has been perceived as fluid and dynamic; with the power to influence, much like media. Unlike sculpture or art, rarely is Architecture hidden from the public eye and thus public debate, there by converting it into a powerful tool of change.

Introduction

Isn't it true that we often remark on the Architecture of a place while deciding whether it is modern or archaic? Then is not Architecture a voice of the people? We gaze in wonderment at the moai of Easter Islands and contemplate what the Rapa Nui must have been thinking? We peruse the order of columns in Greek ruins and wonder what inspired the transition? We study ruins of Ziggurats and wonder what common thread wove Mayan, Aztec and Mesopotamian civilizations together? These musings are often made possible by the information we have at hand, thanks to popular media. The Archaeological remains entice us with stories of love and valour of days bygone. We are introduced to the world through print media, radio, TV, films and the internet. There was a time when we experienced the world through postcards, paintings and elaborate letters. Today's world with the aid of technology is more picturesque and text-worthy. We read about buildings. We often travel to new places- to look at buildings! Surely each building has a story to tell that appeals to the child within all of us. A child-like curiosity that wants to find out the story behind every stone and the stories that lie in the cracks between the



Stories in a crack Western Wall

time-weathered stones, much like those in the Western Wall of Jerusalem tucked by the faithful.

Buildings are powerful mediums of historical narrations that bind people together across several years, culture and geography.

Just as buildings are an ongoing narrative of its people, the same can be said about media's role in Architecture. Today, thanks to the worldwide web, we have a plethora of desktop travellers. People who can afford to virtually travel and savour the delicacies of places far and wide through a click. Technology is changing the way we perceive buildings. Whereas online videos can assist one in having a 360 degree

guided tour of almost all tourist destinations; augmented reality in Architecture is taking the spatial experience to an altogether different plane. Besides from news bites, today we come to know about trending building constructions, technologies and design innovations pronto through media, may it be the newspaper, online videos or television. Even the radio assists in advertising about latest real estate developments in our city or around the globe. In a data-obese world where media is the medium, we are constantly hearing or reading about buildings: commercial addresses, malls, shopping complexes, tourist destinations, new schools in the neighbourhood and such. In these times when we are razing nature to build bigger and higher concrete jungles, to accommodate our urban dreams, almost all our desires come wrapped within walls. Walls do not always construe Architecture, but influence they do.

Marriage of Media and Architecture

In 1933 a month after Adolf Hitler was sworn as Chancellor of Germany, the Reichstag building was attacked by arson and was damaged by fire. The event is said to have marked the turbulent times that followed. In Yad Vashem, also known as Holocaust Museum on Mount Herzl, is kept a radio set that Hitler's Reich Ministry distributed amongst the people to promote Hitler's propaganda. The radio carried Hitler's message far and wide. Those who tuned into a different radio program were tried in court for punishment. (Trueman, 2015.) The fate of Jews was decided by what came out of the radio. It assisted in seizing the fate of Europe. (Vaughan, 2008). The gory tale of torture and extermination of six million Jews by Nazis, often narrates the pathos of Concentration Camps and death races that ended at deep dug trenches. This incidence highlights that media is a powerful medium, as is Architecture - a medium that can convey the message of the masses, or one man. Media possesses the power to alter the Architectural fabric of a place, nation and the world; thus emphasizing the need for free media that is unbiased and fair.

The tale we choose to tell through the medium is our own.

What is the story that this century wants to tell?

In 2006, former US Vice President Al Gore revealed to the world 'An Inconvenient Truth' about the burning issue of Global Warming, urging world governments to take a stand to reduce their carbon emissions. Even as newspapers print about natural hazards year after year, hurricanes, floods, famines and environmental refugees galore, American President Donald Trump refutes human-caused climate change as expressed by the United States of America's withdrawal from the Paris Climate Agreement in June 2017. (Milman, Smith, & Carrington, 2017). Both the claims, Gore's as well as Trump's were challenged fiercely and underline the fact that what is said, recorded, replayed and printed has a huge influence on future actions. (Bride, 2017).

These are our times. The story is ours to tell.

Architecture in the times of GAFA

We are living in exciting times. The spatial vocabulary is changing rapidly. Buildings are designed to provoke, soothe, remind, evoke or entice a reaction. Our buildings are not hives to rest and work in, anymore. They are gradually transporting into statements that are designed to rebel, reform, conform or awe.

The perceptions of buildings are gradually changing. We have buildings that twist, rotate, float, respond and retract, such as the Dynamic Towers, Dubai; Houses in Netherlands; Bund Finance Centre, Shanghai; Al Bahr Towers, Abu Dhabi; and Mercedes Benz Stadium, Atlanta.

At times Architecture is known to evoke a sense of playfulness as observed in Gehry's Dancing House better known as Fred and Ginger; or challenge societal perceptions as explored in Tokyo's Modern toilet restaurant and the upside-down house in Trassenheide, Germany.

It is the nature of these spaces that grab limelight and media coverage. Buildings in the current era are dancing to the tunes of the times. Architecture is being swayed towards fashion trends and awards. Occupant comfort is being sacrificed in the pursuit of making headlines. In 2013, 20 Fenchurch Street, also known as the 'Walkie Talkie' was in the news for melting parts of a Jaguar car in the street below due to its concave glazed facade that unintentionally turned into a giant focussing lens. (Lallanilla, 2013).

Data is the new oil and the four most powerful American Technology companies - Google, Apple, Facebook and Amazon, popularly known as GAFA, are embedded throughout the consciousness of a large and diverse global population. It is no longer a secret that information from these and other popular apps are now sold to create algorithms that can successfully determine or anticipate an individual's preference, may it be food, fashion, entertainment or any other existential aspirations. Politicians across the globe are employing IT technocrats to turn the algorithmic digital data minefield into votes and wins. It is not impossible to imagine that one could access the same data to build the 'perfect' house customized to one's lifestyle choices. We are after all a sum total of the choices we make.

Architecture and media, both being the narrative 'voices' of their times, are closely inter-twined. One cannot truly be separated from the influence of the other.

Billboard Buildings

Buildings have been used as props for advertising bill board, digital advertising and parking lots for TV and dish antennae for so long, that they can be cited as the official pallbearers of advertising boards. The iconic One Times Square, in Manhattan is a popular example. In 1995 to recover financial losses, the new owners modified the exterior facade above the ticker for mounting bill board signs in the 113 year old building. It is now considered as the highest generating public

advertising space in the world. The digital billboards on the building with their dynamic ever-changing imagery have unflinchingly seeped into the common consciousness and identity of Times Square. (Campaign, 2015). Giant digital displays of the Bull and Bear market is not unknown to those visiting Stock Exchanges. Branding through Architecture as a backdrop is becoming common place. Shopping malls today sport more billboards than windows. Natural light and ventilation take a back seat because, Hey! The shop front is busy selling precious merchandise!!

Architecture as a Moderator

The role of Architecture as a moral mediator was popularly emphasized when Antonio Gaudi was called upon to build a Roman Catholic Church in Barcelona, Spain, popularly known as La Sagrada Familia, to enlighten and shepherd the youth going astray. More than a century later the Guggenheim Museum was built at Bilbao to revive the sluggish economy of Spain, by enticing tourists. The voice of Architecture to influence change cannot be undermined, and a civilization may do so at its own peril.

Until recently, printing was what most people associated with books and paper. Now it is not uncommon for entire houses and buildings to be 3D printed. In 2016 China unveiled the first 3D printed house, and two years later houses are being 3D printed in durations less than 24 hours. The houses are printed in several layers using giant concrete printers.(news, 2016).

Looking Through an Hour Glass

The nature of public spaces is changing.

Digital and media connectivity is influencing the way we design, perceive and use space. Designers are now installing umbrella pods with wi-fi connectivity in open plazas and these are increasingly becoming the new attractions and go-to places. Fast disappearing are the days when people would go to plazas to meet friends. It is not uncommon now to see tens of people seated in a wi-fi connected zone, each engrossed in their own virtual world, oblivious to the presence of the next seated person. Is media connecting us, yet alienating us? Are walls separating us, yet securing us?

This is an interesting period in history. The YOLO mindset is offering opportunities to create buildings that are experimental in nature and can be transient in nature. The transience of these spaces makes them trend. Once-in-a-lifetime ice hotel that 'lasts' only 3 months in a year, replaced by a new one in the next. This has been made possible only through media and the numerous social networking websites that regale in the experience. After several centuries of evolution, man has again turned into an urban wanderer – seeking experiential thrill within his controlled wilderness.

It is not uncommon for some to perceive Architecture as Transient. A blip in the fabric of history; and this elusive quality is experimented as some in sculpture. Whereas Claes Oldenberg's apple core sculpture, 1992, emphasizes on the



Turning the World Upside Down

wastefulness and transience of life, Anish Kapoor's attempt at 'Turning the World Upside Down' at the Israel Museum at Jerusalem turns the city on its head. The evocative imagery of seeing brick and mortar buildings reflected upside down, converting matter into an image, through material and perception is an astute representation of the times we live in. A time where all is not as it seems. And where Architecture and Media through their visual and aural perceptions contrive to either convince or confuse.

Media as a Moderator

The spatial experiences are enhanced by print and recorded media as observed in the rising popularity of language-sensitive audio guides available in museums. Technion have designed a Nano-bible- the smallest bible in the world. The Bible consisting of 1.2 million letters is carved on a microchip the size of a grain of sugar through a focussed in beam. The bible can be read using a microscope with a magnification capacity of 10,000 times.(Frey, 2015). The feat is symbolic of the way script has changed over the centuries and how we communicate with one another. Crude stone carved inscriptions in caves, gave way to cuneiform and hieroglyphs, to written scripts as we know them today, to digital coding, and now to ion-beamed nano-text. We are gazing at a future where our book shelves will no longer be occupied by thick volumes, but instead be remotely stored on cloud archives, accessible to anyone anywhere through wireless connectivity. We are perceiving a future where we won't even need smart phones or gadgets to access this omnipresent invisible data, it will be coming to us through chips implanted under our skins. Doors will open, lights will switch on, window shades will draw close, the coffee machine will start on cue the moment we step into our office, all this in response to the sensor-based nano-chip implants within our bodies.(Brooks, 2017). We shall have turned into mediums- carriers of instructions, much like the hitherto fictional cybernetic organisms or Cyborgs.

It is speculated that one of the reasons behind Sagrada Familia, not being completed for over 100 years after Architect

Gaudi's death, was due to the complexity of the design. However, in recent years computer aided design (CAD) and computerised numerical control (CNC) have made the process of completion possible. In fact, the current century is experiencing a data overload: suddenly, our buildings are not mere stone and brick edifices. They are a bunch of words and numbers in the form of drawings, documents and algorithms that are stored on and generated from a computer, and need to be protected from electronic threat and cyber attacks.

Conclusion

We are aware today of spatial experiences crafted not by architects, but by computer wizards. Animation and computer gaming industry is booming. With the assistance of 4Dtechnology and augmented reality, barriers of spatial design are being broken, creating spaces that are believable!

We are creating parallel worlds – One that is real, and the other that is virtual- yet believable.

Parametric designers and architects are working with algorithms inspired from nature. They realize that the outcome of a perceived reality can be influenced by digital coding, thus altering the interpretation of space. Architectural form is now just an algorithm away

The Juggernaut of - Media on Architecture and vice versa, is evident.

To separate one from the other, is to deny them both the aspirations each strives for.



Turning the World Upside Down

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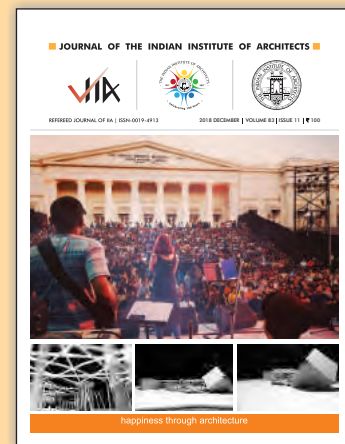
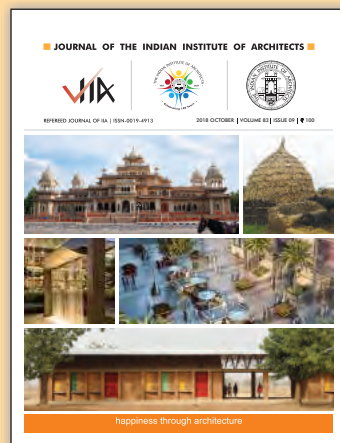
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